# CHAPTER

# 32

# LANDING GEAR

## CHAPTER 32
## LANDING GEAR


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| 6 | Jan 15/2022 | |
| 7 | Sep 15/2022 | |
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| 9 | Jan 15/2022 | |
| 10 | Sep 15/2022 | |
| 11 | May 15/2022 | |
| 12 | May 15/2023 | |
| 13 | Sep 15/2022 | |
| 14 | Jan 15/2022 | |
| O 15 | Sep 15/2023 | |
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| 30 | May 15/2022 | |
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| 32-00-11 | | |
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| 702 | Sep 15/2021 | |
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A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

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| R 505 | Sep 15/2023 | |
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| O 515 | Sep 15/2023 | |
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| R 426 | Sep 15/2023 | |
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| O 431 | Sep 15/2023 | |
| O 432 | Sep 15/2023 | |
| O 433 | Sep 15/2023 | |
| O 434 | Sep 15/2023 | |
| O 435 | Sep 15/2023 | |
| O 436 | Sep 15/2023 | |
| O 437 | Sep 15/2023 | |
| O 438 | Sep 15/2023 | |
| O 439 | Sep 15/2023 | |
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| O 442 | Sep 15/2023 | |
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| R 838 | Sep 15/2023 | |
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| R 842 | Sep 15/2023 | |
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| 408 | Sep 15/2021 | |
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| 412 | Sep 15/2021 | |
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| 405 | Sep 15/2021 | |

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| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 411 | Sep 15/2021 | |
| R 412 | Sep 15/2023 | |
| O 413 | Sep 15/2023 | |
| O 414 | Sep 15/2023 | |
| O 415 | Sep 15/2023 | |
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| R 407 | Sep 15/2023 | |
| O 408 | Sep 15/2023 | |
| O 409 | Sep 15/2023 | |
| O 410 | Sep 15/2023 | |
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| 427 | May 15/2023 | |
| 428 | May 15/2023 | |
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| 501 | May 15/2023 | |
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| 503 | May 15/2022 | |

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| 505 | May 15/2023 | |
| 506 | May 15/2023 | |
| 507 | Sep 15/2021 | |
| 508 | Sep 15/2021 | |
| 509 | Sep 15/2021 | |
| 510 | Sep 15/2021 | |

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| 208 | Jan 15/2022 | |
| 209 | Sep 15/2022 | |
| 210 | Sep 15/2022 | |
| 32-21-00 | | |
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| 403 | May 15/2023 | |
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| 407 | May 15/2023 | |
| 408 | May 15/2023 | |
| 409 | May 15/2023 | |
| 410 | May 15/2023 | |
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| 412 | May 15/2023 | |
| 413 | May 15/2023 | |
| 414 | May 15/2023 | |
| 415 | May 15/2023 | |
| 416 | May 15/2023 | |
| R 417 | Sep 15/2023 | |
| 418 | May 15/2023 | |
| R 419 | Sep 15/2023 | |
| 420 | May 15/2023 | |
| R 421 | Sep 15/2023 | |
| 422 | May 15/2023 | |
| 423 | May 15/2023 | |
| 424 | May 15/2023 | |
| 425 | May 15/2023 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-21-00 (cont) | | |
| 426 | May 15/2023 | |
| 427 | May 15/2023 | |
| 428 | May 15/2023 | |
| 429 | May 15/2023 | |
| 430 | BLANK | |
| 32-21-00 | | |
| 601 | May 15/2023 | |
| 602 | May 15/2023 | |
| 603 | May 15/2023 | |
| 604 | May 15/2023 | |
| 605 | May 15/2023 | |
| 606 | May 15/2023 | |
| 607 | May 15/2023 | |
| 608 | May 15/2023 | |
| 609 | May 15/2023 | |
| 610 | May 15/2023 | |
| 611 | May 15/2023 | |
| 612 | May 15/2023 | |
| 613 | May 15/2023 | |
| 614 | May 15/2023 | |
| 615 | May 15/2023 | |
| 616 | May 15/2023 | |
| 617 | May 15/2023 | |
| 618 | BLANK | |
| 32-21-00 | | |
| 801 | Sep 15/2021 | |
| 802 | Sep 15/2021 | |
| 803 | Sep 15/2021 | |
| 804 | BLANK | |
| 32-21-11 | | |
| 801 | Jan 15/2023 | |
| 802 | May 15/2023 | |
| 803 | May 15/2023 | |
| 804 | May 15/2023 | |
| 805 | May 15/2023 | |
| 806 | May 15/2023 | |
| 807 | May 15/2023 | |

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

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|---|---|---|
| 32-21-11 (cont) | | |
| 808 | May 15/2023 | |
| 809 | May 15/2023 | |
| 810 | Sep 15/2021 | |
| 811 | Sep 15/2022 | |
| 812 | Sep 15/2021 | |
| 813 | Sep 15/2021 | |
| 814 | Sep 15/2021 | |
| 815 | Sep 15/2021 | |
| 816 | Sep 15/2021 | |
| 817 | Sep 15/2021 | |
| 818 | Sep 15/2021 | |
| 819 | Sep 15/2021 | |
| 820 | Sep 15/2021 | |
| 821 | Sep 15/2021 | |
| 822 | Sep 15/2021 | |
| 823 | Sep 15/2021 | |
| 824 | May 15/2023 | |
| 825 | May 15/2023 | |
| R 826 | Sep 15/2023 | |
| O 827 | Sep 15/2023 | |
| O 828 | Sep 15/2023 | |
| O 829 | Sep 15/2023 | |
| O 830 | Sep 15/2023 | |
| O 831 | Sep 15/2023 | |
| O 832 | Sep 15/2023 | |
| O 833 | Sep 15/2023 | |
| O 834 | Sep 15/2023 | |
| R 835 | Sep 15/2023 | |
| O 836 | Sep 15/2023 | |
| O 837 | Sep 15/2023 | |
| O 838 | Sep 15/2023 | |
| O 839 | Sep 15/2023 | |
| R 840 | Sep 15/2023 | |
| O 841 | Sep 15/2023 | |
| O 842 | Sep 15/2023 | |
| O 843 | Sep 15/2023 | |
| O 844 | Sep 15/2023 | |
| 845 | May 15/2023 | |
| 846 | May 15/2023 | |
| 847 | May 15/2023 | |
| 848 | May 15/2023 | |
| 849 | Sep 15/2022 | |
| 850 | Sep 15/2022 | |
| 851 | Sep 15/2022 | |
| 852 | Sep 15/2022 | |
| 853 | Sep 15/2022 | |
| 854 | Sep 15/2022 | |
| 32-21-14 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 32-21-21 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Jan 15/2023 | |
| 404 | Jan 15/2023 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Jan 15/2023 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 411 | May 15/2023 | |
| R 412 | Sep 15/2023 | |
| R 413 | Sep 15/2023 | |
| R 414 | Sep 15/2023 | |
| R 415 | Sep 15/2023 | |
| O 416 | Sep 15/2023 | |
| 32-21-21 | | |
| 601 | Sep 15/2021 | |
| 602 | Sep 15/2021 | |
| 32-21-24 | | |
| 401 | May 15/2023 | |
| 402 | May 15/2023 | |
| 403 | Sep 15/2021 | |
| 404 | May 15/2023 | |
| 405 | Sep 15/2021 | |
| 406 | Jan 15/2022 | |
| 407 | May 15/2023 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 411 | Sep 15/2021 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Sep 15/2021 | |
| 415 | Sep 15/2021 | |
| 416 | Sep 15/2021 | |
| 417 | Sep 15/2021 | |
| 418 | Sep 15/2021 | |
| 419 | May 15/2023 | |
| 420 | May 15/2023 | |
| 421 | May 15/2023 | |
| 422 | May 15/2023 | |
| 423 | May 15/2023 | |
| 424 | May 15/2023 | |
| 425 | Sep 15/2021 | |
| 426 | BLANK | |
| 32-21-31 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

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|---|---|---|
| 32-21-31 (cont) | | |
| 410 | Sep 15/2021 | |
| 411 | Sep 15/2021 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Sep 15/2021 | |
| 32-21-31 | | |
| 801 | Sep 15/2022 | |
| 802 | Sep 15/2022 | |
| 803 | Sep 15/2021 | |
| 804 | Sep 15/2021 | |
| 32-21-37 | | |
| 201 | May 15/2022 | |
| 202 | May 15/2022 | |
| 203 | Sep 15/2021 | |
| 204 | Sep 15/2021 | |
| 205 | Sep 15/2021 | |
| 206 | Sep 15/2021 | |
| 207 | Sep 15/2021 | |
| 208 | BLANK | |
| 32-21-71 | | |
| 601 | Sep 15/2021 | |
| R 602 | Sep 15/2023 | |
| 603 | Sep 15/2021 | |
| 604 | Sep 15/2021 | |
| 32-22-11 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | BLANK | |
| 32-22-11 | | |
| 501 | Sep 15/2021 | |
| 502 | Sep 15/2021 | |
| 503 | Sep 15/2021 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-22-11 (cont) | | |
| 504 | Sep 15/2021 | |
| 505 | Jan 15/2023 | |
| 506 | Sep 15/2021 | |
| 507 | Sep 15/2021 | |
| 508 | Sep 15/2021 | |
| 32-31-00 | | |
| R 501 | Sep 15/2023 | |
| R 502 | Sep 15/2023 | |
| R 503 | Sep 15/2023 | |
| R 504 | Sep 15/2023 | |
| R 505 | Sep 15/2023 | |
| R 506 | Sep 15/2023 | |
| R 507 | Sep 15/2023 | |
| O 508 | Sep 15/2023 | |
| R 509 | Sep 15/2023 | |
| O 510 | Sep 15/2023 | |
| A 511 | Sep 15/2023 | |
| A 512 | BLANK | |
| 32-31-11 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 32-31-11 | | |
| R 501 | Sep 15/2023 | |
| R 502 | Sep 15/2023 | |
| R 503 | Sep 15/2023 | |
| 504 | BLANK | |
| 32-31-51 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| 406 | Sep 15/2021 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-31-51 (cont) | | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 411 | Sep 15/2021 | |
| 412 | Sep 15/2021 | |
| 32-31-51 | | |
| 601 | Sep 15/2021 | |
| 602 | Sep 15/2021 | |
| 603 | Sep 15/2021 | |
| 604 | Sep 15/2021 | |
| 605 | Sep 15/2021 | |
| 606 | Sep 15/2021 | |
| 32-31-71 | | |
| 401 | May 15/2023 | |
| 402 | Jan 15/2023 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| 406 | Jan 15/2023 | |
| 407 | Jan 15/2023 | |
| 408 | Jan 15/2023 | |
| 409 | Jan 15/2023 | |
| 410 | Jan 15/2023 | |
| 411 | Sep 15/2021 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Sep 15/2021 | |
| 415 | Sep 15/2021 | |
| 416 | BLANK | |
| 32-31-71 | | |
| 501 | May 15/2022 | |
| 502 | Sep 15/2021 | |
| 503 | May 15/2022 | |
| 504 | BLANK | |

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

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## LANDING GEAR

| Subject/Page | Date | COC |
|---|---|---|
| 32-32-00 | | |
| 501 | May 15/2023 | |
| 502 | Sep 15/2021 | |
| 503 | Sep 15/2021 | |
| 504 | Sep 15/2021 | |
| R 505 | Sep 15/2023 | |
| R 506 | Sep 15/2023 | |
| R 507 | Sep 15/2023 | |
| R 508 | Sep 15/2023 | |
| O 509 | Sep 15/2023 | |
| 510 | Sep 15/2021 | |
| 511 | Sep 15/2021 | |
| 512 | Sep 15/2021 | |
| 513 | Sep 15/2021 | |
| 514 | Sep 15/2021 | |
| 32-32-11 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2022 | |
| 403 | Sep 15/2022 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2022 | |
| 408 | Sep 15/2021 | |
| 409 | May 15/2023 | |
| 410 | May 15/2023 | |
| 411 | May 15/2023 | |
| 412 | Jan 15/2022 | |
| 413 | Jan 15/2022 | |
| 414 | May 15/2023 | |
| 415 | May 15/2023 | |
| 416 | BLANK | |
| 32-32-21 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | May 15/2023 | |
| 405 | Sep 15/2021 | |
| 32-32-21 (cont) | | |
| 406 | BLANK | |
| 32-32-31 | | |
| R 401 | Sep 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| R 411 | Sep 15/2023 | |
| R 412 | Sep 15/2023 | |
| R 413 | Sep 15/2023 | |
| R 414 | Sep 15/2023 | |
| R 415 | Sep 15/2023 | |
| R 416 | Sep 15/2023 | |
| R 417 | Sep 15/2023 | |
| R 418 | Sep 15/2023 | |
| R 419 | Sep 15/2023 | |
| 420 | BLANK | |
| 32-32-41 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | BLANK | |
| 32-32-51 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 32-32-51 (cont) | | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | May 15/2023 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | BLANK | |
| 32-32-52 | | |
| R 401 | Sep 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| R 406 | Sep 15/2023 | |
| 407 | May 15/2023 | |
| 408 | May 15/2023 | |
| 409 | Sep 15/2021 | |
| 410 | BLANK | |
| 32-32-71 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | May 15/2023 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | BLANK | |
| 32-32-72 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | May 15/2023 | |
| 405 | May 15/2022 | |
| 406 | BLANK | |
| 32-32-91 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

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| 32-32-91 (cont) | | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 32-32-93 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 32-33-00 | | |
| 501 | Sep 15/2021 | |
| 502 | Sep 15/2021 | |
| 503 | Sep 15/2021 | |
| R 504 | Sep 15/2023 | |
| R 505 | Sep 15/2023 | |
| R 506 | Sep 15/2023 | |
| O 507 | Sep 15/2023 | |
| 508 | Sep 15/2021 | |
| 32-33-11 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | May 15/2023 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | BLANK | |
| 32-33-21 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-33-21 (cont) | | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| 406 | May 15/2022 | |
| 407 | May 15/2022 | |
| 408 | BLANK | |
| 32-33-31 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| 406 | Sep 15/2022 | |
| 407 | Sep 15/2022 | |
| 408 | Sep 15/2022 | |
| 32-33-41 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | May 15/2023 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 32-33-51 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2022 | |
| 409 | Jan 15/2023 | |
| 410 | Jan 15/2023 | |
| 411 | Jan 15/2023 | |
| 412 | Jan 15/2023 | |
| 32-33-52 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-33-52 (cont) | | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2022 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 32-33-61 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Jan 15/2023 | |
| 408 | Jan 15/2023 | |
| 409 | Jan 15/2023 | |
| 410 | Sep 15/2021 | |
| 32-33-61 | | |
| 501 | Sep 15/2021 | |
| 502 | Sep 15/2021 | |
| 503 | Sep 15/2021 | |
| 504 | Sep 15/2021 | |
| 505 | Sep 15/2021 | |
| 506 | Sep 15/2021 | |
| 507 | Sep 15/2021 | |
| 508 | Sep 15/2021 | |
| 32-33-61 | | |
| 601 | Sep 15/2021 | |
| 602 | Sep 15/2021 | |
| 603 | Sep 15/2021 | |
| 604 | Sep 15/2021 | |
| 605 | Sep 15/2021 | |
| 606 | Sep 15/2021 | |
| 607 | Sep 15/2021 | |
| 608 | Sep 15/2021 | |
| 32-33-71 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |


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| 32-33-71 (cont) | | |
| 404 | May 15/2023 | |
| 405 | Sep 15/2021 | |
| 406 | May 15/2023 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | May 15/2023 | |
| 410 | Sep 15/2021 | |
| 32-33-72 | | |
| 401 | May 15/2022 | |
| 402 | May 15/2022 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2022 | |
| 405 | May 15/2022 | |
| 406 | BLANK | |
| 32-34-00 | | |
| R 501 | Sep 15/2023 | |
| R 502 | Sep 15/2023 | |
| 503 | Sep 15/2022 | |
| 504 | Sep 15/2021 | |
| 505 | Sep 15/2021 | |
| 506 | Sep 15/2021 | |
| 507 | Sep 15/2021 | |
| 508 | Jan 15/2022 | |
| 509 | Jan 15/2022 | |
| 510 | Jan 15/2022 | |
| 511 | Jan 15/2022 | |
| 512 | Jan 15/2022 | |
| 513 | May 15/2023 | |
| 514 | May 15/2023 | |
| 515 | May 15/2023 | |
| 516 | Sep 15/2021 | |
| 517 | Sep 15/2021 | |
| 518 | Sep 15/2021 | |
| R 519 | Sep 15/2023 | |
| R 520 | Sep 15/2023 | |
| R 521 | Sep 15/2023 | |
| 522 | Sep 15/2021 | |
| 32-34-11 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 411 | Sep 15/2021 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Sep 15/2021 | |
| 415 | Sep 15/2021 | |
| 416 | Sep 15/2021 | |
| 417 | Sep 15/2021 | |
| 418 | BLANK | |
| 32-34-21 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2022 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2022 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2022 | |
| 411 | Sep 15/2022 | |
| 412 | BLANK | |
| 32-34-31 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 32-34-31 (cont) | | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 32-35-00 | | |
| 501 | Sep 15/2021 | |
| 502 | Sep 15/2021 | |
| 503 | Sep 15/2021 | |
| 504 | Sep 15/2021 | |
| R 505 | Sep 15/2023 | |
| R 506 | Sep 15/2023 | |
| R 507 | Sep 15/2023 | |
| R 508 | Sep 15/2023 | |
| O 509 | Sep 15/2023 | |
| R 510 | Sep 15/2023 | |
| R 511 | Sep 15/2023 | |
| R 512 | Sep 15/2023 | |
| A 513 | Sep 15/2023 | |
| A 514 | Sep 15/2023 | |
| 32-35-11 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | BLANK | |
| 32-35-20 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | BLANK | |
| 32-35-21 | | |
| 401 | May 15/2023 | |
| 402 | May 15/2023 | |


A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

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| Subject/Page | Date | COC |
|---|---|---|
| 32-35-21 (cont) | | |
| 403 | Jan 15/2023 | |
| 404 | Jan 15/2023 | |
| 405 | Jan 15/2023 | |
| 406 | Jan 15/2023 | |
| 407 | Jan 15/2023 | |
| 408 | Jan 15/2023 | |
| R 409 | Sep 15/2023 | |
| O 410 | Sep 15/2023 | |
| R 411 | Sep 15/2023 | |
| 412 | BLANK | |
| 32-41-00 | | |
| 201 | Sep 15/2021 | |
| 202 | Sep 15/2021 | |
| 203 | Sep 15/2021 | |
| 204 | Sep 15/2021 | |
| 205 | Sep 15/2022 | |
| 206 | Sep 15/2022 | |
| 207 | May 15/2023 | |
| 208 | Sep 15/2021 | |
| 209 | Sep 15/2021 | |
| 210 | Sep 15/2022 | |
| 211 | Sep 15/2022 | |
| 212 | Sep 15/2022 | |
| 213 | Sep 15/2022 | |
| 214 | Sep 15/2022 | |
| 215 | Sep 15/2022 | |
| 216 | Sep 15/2022 | |
| 217 | Sep 15/2022 | |
| 218 | BLANK | |
| 32-41-00 | | |
| R 501 | Sep 15/2023 | |
| 502 | Jan 15/2023 | |
| 503 | Jan 15/2023 | |
| 504 | Sep 15/2022 | |
| R 505 | Sep 15/2023 | |
| O 506 | Sep 15/2023 | |
| O 507 | Sep 15/2023 | |
| 32-41-00 (cont) | | |
| 508 | May 15/2022 | |
| 509 | May 15/2022 | |
| 510 | May 15/2022 | |
| 511 | May 15/2022 | |
| 512 | May 15/2022 | |
| 513 | May 15/2022 | |
| 514 | May 15/2022 | |
| 515 | May 15/2022 | |
| 516 | May 15/2022 | |
| 517 | Jan 15/2023 | |
| 518 | Jan 15/2023 | |
| 519 | Jan 15/2023 | |
| 520 | BLANK | |
| 32-41-11 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | BLANK | |
| 32-41-21 | | |
| 401 | May 15/2022 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 411 | Sep 15/2021 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | BLANK | |
| 32-41-31 | | |
| 401 | May 15/2023 | |
| 402 | Jan 15/2022 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Jan 15/2022 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | May 15/2023 | |
| 410 | Jan 15/2022 | |
| 411 | Sep 15/2021 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Sep 15/2021 | |
| 32-41-41 | | |
| 401 | May 15/2023 | |
| 402 | May 15/2022 | |
| 403 | May 15/2022 | |
| 404 | May 15/2022 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 411 | May 15/2023 | |
| 412 | Jan 15/2023 | |
| 413 | Jan 15/2023 | |
| R 414 | Sep 15/2023 | |
| 415 | Jan 15/2023 | |
| 416 | BLANK | |
| 32-41-41 | | |
| 601 | Sep 15/2021 | |
| 602 | Sep 15/2021 | |
| 603 | Sep 15/2021 | |
| 604 | Sep 15/2021 | |
| 605 | Sep 15/2021 | |

A = Added, R = Revised, D = Deleted, O = Overflow, C = Customer Originated Change

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| Subject/Page | Date | COC |
|---|---|---|
| 32-41-41 (cont) | | |
| R 606 | Sep 15/2023 | |
| R 607 | Sep 15/2023 | |
| R 608 | Sep 15/2023 | |
| R 609 | Sep 15/2023 | |
| 610 | Sep 15/2021 | |
| R 611 | Sep 15/2023 | |
| R 612 | Sep 15/2023 | |
| 613 | Sep 15/2021 | |
| 614 | BLANK | |
| 32-41-42 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Jan 15/2022 | |
| 405 | Sep 15/2021 | |
| 406 | BLANK | |
| 32-41-51 | | |
| 401 | Jan 15/2023 | |
| 402 | Jan 15/2023 | |
| 403 | Jan 15/2023 | |
| 404 | Jan 15/2023 | |
| 405 | Jan 15/2023 | |
| 406 | Sep 15/2021 | |
| 407 | Jan 15/2023 | |
| 408 | Jan 15/2023 | |
| 409 | Jan 15/2023 | |
| 410 | Jan 15/2023 | |
| 411 | Jan 15/2023 | |
| 412 | Jan 15/2023 | |
| 413 | Jan 15/2023 | |
| 414 | BLANK | |
| 32-41-53 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-41-53 (cont) | | |
| 406 | BLANK | |
| 32-41-54 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 32-41-71 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | May 15/2023 | |
| 405 | Sep 15/2021 | |
| 406 | BLANK | |
| 32-41-72 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| 406 | May 15/2023 | |
| 407 | May 15/2023 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | May 15/2023 | |
| 411 | May 15/2023 | |
| 412 | BLANK | |
| 32-41-81 | | |
| 401 | May 15/2022 | |
| 402 | Jan 15/2022 | |
| 403 | Jan 15/2022 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Jan 15/2023 | |
| 410 | Jan 15/2023 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-41-81 (cont) | | |
| 411 | Sep 15/2021 | |
| 412 | BLANK | |
| 32-41-81 | | |
| 601 | Jan 15/2022 | |
| 602 | Jan 15/2022 | |
| 603 | Jan 15/2022 | |
| 604 | Jan 15/2022 | |
| R 605 | Sep 15/2023 | |
| 606 | Jan 15/2022 | |
| 32-41-91 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | BLANK | |
| 32-41-93 | | |
| R 401 | Sep 15/2023 | |
| R 402 | Sep 15/2023 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| R 405 | Sep 15/2023 | |
| R 406 | Sep 15/2023 | |
| R 407 | Sep 15/2023 | |
| 408 | BLANK | |
| 32-41-93 | | |
| R 501 | Sep 15/2023 | |
| R 502 | Sep 15/2023 | |
| R 503 | Sep 15/2023 | |
| R 504 | Sep 15/2023 | |
| 32-41-95 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |


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## LANDING GEAR

| Subject/Page | Date | COC |
|---|---|---|
| 32-41-95 (cont) | | |
| 405 | May 15/2023 | |
| 406 | Sep 15/2021 | |
| 32-41-96 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | May 15/2023 | |
| 406 | Sep 15/2021 | |
| 32-42-00 | | |
| 501 | Sep 15/2022 | |
| 502 | Sep 15/2022 | |
| R 503 | Sep 15/2023 | |
| 504 | Sep 15/2021 | |
| 505 | Jan 15/2023 | |
| 506 | Jan 15/2023 | |
| 507 | Sep 15/2021 | |
| 508 | Sep 15/2021 | |
| 509 | Sep 15/2021 | |
| 510 | Sep 15/2021 | |
| 511 | Sep 15/2021 | |
| 512 | Sep 15/2021 | |
| 513 | Sep 15/2021 | |
| 514 | Sep 15/2021 | |
| 515 | Sep 15/2021 | |
| 516 | Sep 15/2021 | |
| 517 | Sep 15/2021 | |
| 518 | Sep 15/2021 | |
| 519 | Sep 15/2021 | |
| 520 | Sep 15/2021 | |
| 521 | Sep 15/2021 | |
| 522 | Jan 15/2023 | |
| 523 | Jan 15/2023 | |
| 524 | Jan 15/2023 | |
| 525 | Jan 15/2023 | |
| 526 | Jan 15/2023 | |
| 527 | Jan 15/2023 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-42-00 (cont) | | |
| 528 | Jan 15/2023 | |
| 529 | Jan 15/2023 | |
| R 530 | Sep 15/2023 | |
| O 531 | Sep 15/2023 | |
| R 532 | Sep 15/2023 | |
| R 533 | Sep 15/2023 | |
| R 534 | Sep 15/2023 | |
| O 535 | Sep 15/2023 | |
| O 536 | Sep 15/2023 | |
| O 537 | Sep 15/2023 | |
| O 538 | Sep 15/2023 | |
| 32-42-11 | | |
| 401 | May 15/2022 | |
| 402 | Sep 15/2021 | |
| 403 | May 15/2022 | |
| 404 | Sep 15/2021 | |
| R 405 | Sep 15/2023 | |
| R 406 | Sep 15/2023 | |
| A 407 | Sep 15/2023 | |
| A 408 | BLANK | |
| 32-42-21 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Jan 15/2023 | |
| 405 | Jan 15/2023 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | BLANK | |
| 32-42-31 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-42-31 (cont) | | |
| 408 | Sep 15/2021 | |
| 409 | May 15/2023 | |
| 410 | Sep 15/2021 | |
| 411 | May 15/2023 | |
| 412 | May 15/2023 | |
| 413 | May 15/2023 | |
| 414 | May 15/2023 | |
| 415 | May 15/2023 | |
| 416 | May 15/2023 | |
| 417 | Sep 15/2021 | |
| 418 | Sep 15/2021 | |
| 419 | Sep 15/2021 | |
| 420 | Sep 15/2021 | |
| 421 | Sep 15/2021 | |
| 422 | Sep 15/2021 | |
| 423 | Sep 15/2021 | |
| 424 | May 15/2023 | |
| 425 | Sep 15/2021 | |
| 426 | May 15/2023 | |
| 427 | May 15/2023 | |
| 428 | May 15/2023 | |
| 429 | May 15/2023 | |
| 430 | BLANK | |
| 32-42-61 | | |
| R 401 | Sep 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| R 406 | Sep 15/2023 | |
| 407 | May 15/2023 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | BLANK | |
| 32-42-71 | | |
| 401 | May 15/2023 | |
| 402 | May 15/2022 | |

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| Subject/Page | Date | COC |
|---|---|---|
| 32-42-71 (cont) | | |
| 403 | May 15/2022 | |
| 404 | May 15/2022 | |
| 405 | May 15/2022 | |
| 406 | May 15/2023 | |
| 407 | Sep 15/2021 | |
| 408 | May 15/2022 | |
| 409 | Sep 15/2021 | |
| 410 | BLANK | |
| 32-42-81 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | May 15/2023 | |
| 407 | May 15/2023 | |
| 408 | May 15/2023 | |
| 409 | May 15/2023 | |
| 410 | Sep 15/2021 | |
| 411 | May 15/2023 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Sep 15/2021 | |
| 415 | Sep 15/2021 | |
| 416 | BLANK | |
| 32-44-00 | | |
| 501 | Sep 15/2021 | |
| 502 | Sep 15/2021 | |
| 503 | Sep 15/2021 | |
| R 504 | Sep 15/2023 | |
| 505 | Sep 15/2021 | |
| 506 | Sep 15/2021 | |
| 507 | Sep 15/2021 | |
| 508 | Sep 15/2021 | |
| 509 | Sep 15/2021 | |
| 510 | Sep 15/2021 | |
| R 511 | Sep 15/2023 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-44-00 (cont) | | |
| R 512 | Sep 15/2023 | |
| 513 | Sep 15/2021 | |
| 514 | Sep 15/2021 | |
| 515 | Sep 15/2021 | |
| 516 | Sep 15/2021 | |
| 517 | Sep 15/2021 | |
| 518 | Sep 15/2021 | |
| 519 | Sep 15/2021 | |
| 520 | BLANK | |
| 32-44-11 | | |
| 401 | May 15/2022 | |
| R 402 | Sep 15/2023 | |
| 403 | Sep 15/2021 | |
| R 404 | Sep 15/2023 | |
| R 405 | Sep 15/2023 | |
| O 406 | Sep 15/2023 | |
| O 407 | Sep 15/2023 | |
| 408 | May 15/2022 | |
| 409 | May 15/2022 | |
| 410 | May 15/2022 | |
| 411 | May 15/2022 | |
| 412 | May 15/2022 | |
| 413 | May 15/2022 | |
| 414 | May 15/2022 | |
| 415 | May 15/2022 | |
| 416 | May 15/2022 | |
| 417 | May 15/2022 | |
| 418 | May 15/2022 | |
| 419 | May 15/2022 | |
| 420 | May 15/2022 | |
| 421 | May 15/2022 | |
| 422 | BLANK | |
| 32-44-21 | | |
| 401 | Sep 15/2022 | |
| 402 | Sep 15/2022 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-44-21 (cont) | | |
| 405 | May 15/2023 | |
| 406 | Sep 15/2022 | |
| 407 | Sep 15/2022 | |
| 408 | Sep 15/2022 | |
| 32-45-00 | | |
| 201 | Sep 15/2021 | |
| 202 | Sep 15/2021 | |
| 203 | Sep 15/2021 | |
| 204 | Sep 15/2021 | |
| 32-45-00 | | |
| 601 | May 15/2023 | |
| 602 | May 15/2023 | |
| 603 | May 15/2023 | |
| 604 | May 15/2023 | |
| 605 | May 15/2023 | |
| 606 | Sep 15/2021 | |
| 607 | Sep 15/2021 | |
| 608 | Sep 15/2021 | |
| 609 | Sep 15/2021 | |
| 610 | Sep 15/2021 | |
| 611 | Sep 15/2021 | |
| 612 | Sep 15/2021 | |
| 613 | Jan 15/2023 | |
| 614 | Sep 15/2021 | |
| 615 | Sep 15/2021 | |
| 616 | Sep 15/2021 | |
| 617 | Sep 15/2021 | |
| 618 | Sep 15/2021 | |
| 32-45-08 | | |
| R 401 | Sep 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| R 404 | Sep 15/2023 | |
| A 405 | Sep 15/2023 | |
| A 406 | BLANK | |

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## LANDING GEAR

| Subject/Page | Date | COC |
|---|---|---|
| 32-45-11 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Jan 15/2022 | |
| 406 | Jan 15/2022 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | May 15/2023 | |
| 411 | May 15/2023 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Sep 15/2021 | |
| 415 | Sep 15/2021 | |
| 416 | BLANK | |
| 32-45-21 | | |
| 401 | May 15/2023 | |
| 402 | Jan 15/2023 | |
| 403 | Sep 15/2022 | |
| 404 | Sep 15/2022 | |
| 405 | Sep 15/2022 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | May 15/2023 | |
| 410 | Sep 15/2022 | |
| 411 | Sep 15/2022 | |
| 412 | Sep 15/2022 | |
| 413 | May 15/2022 | |
| 414 | BLANK | |
| 32-45-31 | | |
| 201 | Sep 15/2021 | |
| 202 | Sep 15/2021 | |
| 203 | Sep 15/2021 | |
| 204 | Sep 15/2021 | |
| 205 | Sep 15/2021 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-45-31 (cont) | | |
| 206 | BLANK | |
| 32-46-00 | | |
| R 501 | Sep 15/2023 | |
| 502 | BLANK | |
| 32-46-21 | | |
| 401 | Jan 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Jan 15/2023 | |
| 404 | Jan 15/2023 | |
| 32-46-31 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| R 403 | Sep 15/2023 | |
| R 404 | Sep 15/2023 | |
| 32-51-00 | | |
| 501 | Jan 15/2022 | |
| 502 | Sep 15/2021 | |
| 503 | Jan 15/2022 | |
| 504 | Sep 15/2021 | |
| 505 | Jan 15/2022 | |
| R 506 | Sep 15/2023 | |
| 507 | Jan 15/2022 | |
| R 508 | Sep 15/2023 | |
| 509 | Jan 15/2022 | |
| 510 | Jan 15/2022 | |
| 511 | May 15/2023 | |
| 512 | Jan 15/2022 | |
| 513 | Jan 15/2022 | |
| 514 | Jan 15/2022 | |
| 515 | Jan 15/2022 | |
| 516 | Jan 15/2022 | |
| 517 | Jan 15/2022 | |
| 518 | Jan 15/2022 | |
| 519 | Jan 15/2022 | |
| 520 | Jan 15/2022 | |
| 521 | Jan 15/2022 | |
| R 522 | Sep 15/2023 | |

| Subject/Page | Date | COC |
|---|---|---|
| 32-51-00 (cont) | | |
| R 523 | Sep 15/2023 | |
| O 524 | Sep 15/2023 | |
| O 525 | Sep 15/2023 | |
| O 526 | Sep 15/2023 | |
| O 527 | Sep 15/2023 | |
| O 528 | Sep 15/2023 | |
| R 529 | Sep 15/2023 | |
| O 530 | Sep 15/2023 | |
| O 531 | Sep 15/2023 | |
| R 532 | Sep 15/2023 | |
| O 533 | Sep 15/2023 | |
| O 534 | Sep 15/2023 | |
| O 535 | Sep 15/2023 | |
| O 536 | Sep 15/2023 | |
| R 537 | Sep 15/2023 | |
| O 538 | Sep 15/2023 | |
| O 539 | Sep 15/2023 | |
| R 540 | Sep 15/2023 | |
| R 541 | Sep 15/2023 | |
| O 542 | Sep 15/2023 | |
| R 543 | Sep 15/2023 | |
| O 544 | Sep 15/2023 | |
| R 545 | Sep 15/2023 | |
| O 546 | Sep 15/2023 | |
| R 547 | Sep 15/2023 | |
| O 548 | Sep 15/2023 | |
| O 549 | Sep 15/2023 | |
| O 550 | Sep 15/2023 | |
| O 551 | Sep 15/2023 | |
| R 552 | Sep 15/2023 | |
| R 553 | Sep 15/2023 | |
| O 554 | Sep 15/2023 | |
| A 555 | Sep 15/2023 | |
| A 556 | BLANK | |

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| Subject/Page | Date | COC |
|---|---|---|
| 32-51-00 | | |
| 601 | Sep 15/2021 | |
| 602 | May 15/2023 | |
| 603 | Sep 15/2021 | |
| 604 | Sep 15/2021 | |
| 605 | Sep 15/2021 | |
| 606 | Sep 15/2021 | |
| 607 | May 15/2023 | |
| 608 | Sep 15/2021 | |
| 609 | Sep 15/2021 | |
| 610 | BLANK | |
| 32-51-11 | | |
| 201 | Sep 15/2022 | |
| 202 | Jan 15/2022 | |
| 203 | Sep 15/2021 | |
| 204 | BLANK | |
| 32-51-11 | | |
| 401 | May 15/2023 | |
| 402 | May 15/2023 | |
| 403 | May 15/2023 | |
| 404 | May 15/2023 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | May 15/2023 | |
| 408 | May 15/2023 | |
| R 409 | Sep 15/2023 | |
| 410 | May 15/2023 | |
| 32-51-21 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 32-51-21 (cont) | | |
| 411 | Sep 15/2021 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Sep 15/2021 | |
| 32-51-31 | | |
| 401 | Jan 15/2022 | |
| 402 | Jan 15/2022 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Jan 15/2022 | |
| 408 | Jan 15/2022 | |
| 409 | Sep 15/2021 | |
| 410 | Sep 15/2021 | |
| 411 | May 15/2023 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Jan 15/2022 | |
| 415 | Jan 15/2022 | |
| 416 | Sep 15/2021 | |
| 417 | Jan 15/2022 | |
| 418 | May 15/2023 | |
| 419 | Jan 15/2022 | |
| 420 | Jan 15/2022 | |
| 421 | Jan 15/2022 | |
| 422 | Jan 15/2022 | |
| 423 | Jan 15/2022 | |
| 424 | Jan 15/2022 | |
| 425 | May 15/2023 | |
| 426 | BLANK | |
| 32-51-31 | | |
| 601 | Sep 15/2021 | |
| 602 | Sep 15/2021 | |
| 32-51-41 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 32-51-41 (cont) | | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
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| 409 | Sep 15/2021 | |
| 410 | BLANK | |
| 32-51-51 | | |
| 401 | May 15/2023 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
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| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | Sep 15/2021 | |
| 409 | May 15/2023 | |
| 410 | Sep 15/2021 | |
| 411 | Sep 15/2021 | |
| 412 | Sep 15/2021 | |
| 413 | Sep 15/2021 | |
| 414 | Sep 15/2021 | |
| 415 | Sep 15/2021 | |
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| 32-51-51 | | |
| 601 | Sep 15/2021 | |
| 602 | Sep 15/2021 | |
| 32-51-52 | | |
| 401 | Sep 15/2021 | |
| 402 | May 15/2023 | |
| 403 | Sep 15/2021 | |
| 404 | Sep 15/2021 | |
| 405 | Sep 15/2021 | |
| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | May 15/2023 | |

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| 409 | Sep 15/2021 | |
| 410 | May 15/2023 | |
| 411 | May 15/2023 | |
| 412 | May 15/2023 | |
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| 414 | May 15/2023 | |
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| 416 | May 15/2023 | |
| 417 | Sep 15/2021 | |
| 418 | Sep 15/2021 | |
| 419 | May 15/2023 | |
| 420 | May 15/2023 | |
| 32-51-61 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
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| 420 | Sep 15/2021 | |
| 421 | Sep 15/2021 | |
| 422 | Sep 15/2021 | |
| 423 | Sep 15/2021 | |
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| 424 | Sep 15/2021 | |
| 425 | Sep 15/2021 | |
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| 506 | Sep 15/2021 | |
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| 32-61-21 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
| 403 | Sep 15/2021 | |
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| R 406 | Sep 15/2023 | |
| R 407 | Sep 15/2023 | |
| 408 | BLANK | |
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| 501 | Sep 15/2021 | |
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| 508 | Sep 15/2021 | |
| 509 | Sep 15/2021 | |
| 510 | May 15/2023 | |
| 511 | May 15/2023 | |
| 512 | May 15/2023 | |
| 32-61-31 | | |
| 401 | Sep 15/2021 | |
| 402 | Sep 15/2021 | |
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| 406 | Sep 15/2021 | |
| 407 | Sep 15/2021 | |
| 408 | BLANK | |
| 32-61-31 | | |
| 501 | Sep 15/2021 | |
| 502 | Sep 15/2021 | |
| 503 | Sep 15/2022 | |

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| 506 | Sep 15/2021 | |
| 507 | Sep 15/2021 | |
| 508 | Sep 15/2021 | |
| 32-61-41 | | |
| R 401 | Sep 15/2023 | |
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| R 405 | Sep 15/2023 | |
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| 507 | Sep 15/2021 | |
| 508 | Sep 15/2021 | |
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| R 401 | Sep 15/2023 | |
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| R 405 | Sep 15/2023 | |
| R 406 | Sep 15/2023 | |
| R 407 | Sep 15/2023 | |
| R 408 | Sep 15/2023 | |
| A 409 | Sep 15/2023 | |
| A 410 | Sep 15/2023 | |
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| 32-71-00 | | |
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| 32-71-00 | | |
| 601 | Sep 15/2021 | |
| 602 | Sep 15/2021 | |
| 603 | Sep 15/2021 | |
| 604 | Sep 15/2021 | |
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| 402 | Sep 15/2021 | |
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| DDG 32-31-02 Both Landing Gear Control Systems Inoperative - Restoration<br>TASK 32-00-00-440-803 | | | 907 | SIA ALL |
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| DDG 32-32-01 Main Landing Gear Uplock Springs Inoperative - Restoration<br>TASK 32-00-00-440-804 | | | 909 | SIA ALL |
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| DDG 32-35-01 Landing Gear Manual Extension System Inoperative - Preparation<br>TASK 32-00-00-040-806 | | | 912 | SIA ALL |
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| Steering Collar Installation (Without Using Cable Clamp Assembly)<br>TASK 32-51-61-400-801 | | | 415 | SIA ALL |
| Steering Collar Removal (Using Cable Clamp Assembly)<br>TASK 32-51-61-000-802 | | | 419 | SIA ALL |
| Steering Collar Installation (Using Cable Clamp Assembly)<br>TASK 32-51-61-400-802 | | | 434 | SIA ALL |
| Upper Steering Sleeve Removal<br>TASK 32-51-61-000-803 | | | 438 | SIA ALL |
| Upper Steering Sleeve Installation<br>TASK 32-51-61-400-803 | | | 439 | SIA ALL |
| **RUDDER PEDAL STEERING ROTARY ACTUATOR - REMOVAL/INSTALLATION** | 32-51-81 | | 401 | SIA ALL |
| Rudder Pedal Steering Rotary Actuator Removal<br>TASK 32-51-81-000-801 | | | 401 | SIA ALL |
| Rudder Pedal Steering Rotary Actuator Installation<br>TASK 32-51-81-400-801 | | | 406 | SIA ALL |



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## CHAPTER 32
## LANDING GEAR


| SUBJECT | CHAPTER SECTION SUBJECT | CONF | PAGE | EFFECT |
|---|---|---|---|---|
| **LANDING GEAR POSITION INDICATING AND WARNING SYSTEM - ADJUSTMENT/TEST** | 32-61-00 | | 501 | SIA ALL |
| Landing Gear Position Indicating and Warning System Test<br>TASK 32-61-00-710-801 | | | 501 | SIA ALL |
| **MAIN LANDING GEAR UPLOCK SENSOR - REMOVAL/INSTALLATION** | 32-61-21 | | 401 | SIA ALL |
| Main Landing Gear Uplock Sensor Removal<br>TASK 32-61-21-020-801 | | | 401 | SIA ALL |
| Main Landing Gear Uplock Sensor Installation<br>TASK 32-61-21-400-801 | | | 405 | SIA ALL |
| **MAIN LANDING GEAR UPLOCK SENSOR - ADJUSTMENT/TEST** | 32-61-21 | | 501 | SIA ALL |
| Main Landing Gear Uplock Sensor Clearance Measurement (Airplane on Jacks)<br>TASK 32-61-21-400-802 | | | 501 | SIA ALL |
| Main Landing Gear Uplock Sensor Clearance Measurement (Airplane not on Jacks)<br>TASK 32-61-21-400-803 | | | 506 | SIA ALL |
| Main Landing Gear Uplock Sensor Clearance Adjustment<br>TASK 32-61-21-820-801 | | | 509 | SIA ALL |
| Main Landing Gear Up-and-Locked Sensor Operational Test<br>TASK 32-61-21-710-801 | | | 510 | SIA ALL |
| **MAIN LANDING GEAR DOWN-AND-LOCKED SENSOR - REMOVAL/INSTALLATION** | 32-61-31 | | 401 | SIA ALL |
| Main Landing Gear Down-and-Locked Sensor Removal<br>TASK 32-61-31-020-801 | | | 401 | SIA ALL |
| Main Landing Gear Down-and-Locked Sensor Installation<br>TASK 32-61-31-400-801 | | | 405 | SIA ALL |



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CHAPTER 32
LANDING GEAR


| SUBJECT | CHAPTER SECTION SUBJECT | CONF | PAGE | EFFECT |
|---|---|---|---|---|
| **MAIN LANDING GEAR DOWN-AND-LOCKED SENSOR - ADJUSTMENT/TEST** | 32-61-31 | | 501 | SIA ALL |
| Main Landing Gear Down-and-Locked Sensor Clearance Measurement TASK 32-61-31-220-801 | | | 501 | SIA ALL |
| Main Landing Gear Down-and-Locked Sensor Clearance Adjustment TASK 32-61-31-400-802 | | | 505 | SIA ALL |
| Main Landing Gear Down-and-Locked Sensor Operational Test TASK 32-61-31-710-801 | | | 507 | SIA ALL |
| **NOSE LANDING GEAR LOCK SENSOR - REMOVAL/INSTALLATION** | 32-61-41 | | 401 | SIA ALL |
| Nose Landing Gear Lock Sensor Removal TASK 32-61-41-020-801 | | | 401 | SIA ALL |
| Nose Landing Gear Lock Sensor Installation TASK 32-61-41-400-801 | | | 407 | SIA ALL |
| **NOSE LANDING GEAR LOCK SENSOR - ADJUSTMENT/TEST** | 32-61-41 | | 501 | SIA ALL |
| Nose Landing Gear Lock Sensor Clearance Measurement TASK 32-61-41-220-801 | | | 501 | SIA ALL |
| Nose Landing Gear Lock Sensor Clearance Adjustment TASK 32-61-41-400-802 | | | 505 | SIA ALL |
| Nose Landing Gear Lock Sensor Operational Test TASK 32-61-41-710-801 | | | 507 | SIA ALL |
| **NOSE LANDING GEAR DOWN POSITION SENSOR - REMOVAL/INSTALLATION** | 32-61-51 | | 401 | SIA ALL |
| Nose Landing Gear Down Position Sensor Removal TASK 32-61-51-020-801 | | | 401 | SIA ALL |
| Nose Landing Gear Down Position Sensor Installation TASK 32-61-51-400-801 | | | 407 | SIA ALL |



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CHAPTER 32
LANDING GEAR


| SUBJECT | CHAPTER SECTION SUBJECT | CONF | PAGE | EFFECT |
|---|---|---|---|---|
| **NOSE LANDING GEAR DOWN POSITION SENSOR - ADJUSTMENT/TEST** | 32-61-51 | | 501 | SIA ALL |
| Nose Landing Gear Down Position Sensor Clearance Measurement TASK 32-61-51-220-801 | | | 501 | SIA ALL |
| Nose Landing Gear Down Position Sensor Clearance Adjustment TASK 32-61-51-400-802 | | | 504 | SIA ALL |
| Nose Landing Gear Down Position Sensor Operational Test TASK 32-61-51-710-801 | | | 506 | SIA ALL |
| **TAILSKID ASSEMBLY - MAINTENANCE PRACTICES** | 32-71-00 | | 201 | SIA ALL |
| Tailskid Energy Absorber Cartridge Replacement TASK 32-71-00-960-801 | | | 201 | SIA ALL |
| Tailskid Shoe Replacement TASK 32-71-00-960-802 | | | 204 | SIA ALL |
| Tailskid Warning Decal Replacement TASK 32-71-00-960-803 | | | 206 | SIA ALL |
| **TAILSKID ASSEMBLY - REMOVAL/INSTALLATION** | 32-71-00 | | 401 | SIA ALL |
| Tailskid Skirt Removal TASK 32-71-00-000-801 | | | 401 | SIA ALL |
| Tailskid Skirt Installation TASK 32-71-00-400-801 | | | 404 | SIA ALL |
| Tailskid Drag Lever Removal TASK 32-71-00-000-802 | | | 405 | SIA ALL |
| Tailskid Drag Lever Installation TASK 32-71-00-400-802 | | | 408 | SIA ALL |
| Tailskid Cartridge Assembly Removal TASK 32-71-00-000-803 | | | 409 | SIA ALL |
| Tailskid Cartridge Assembly Installation TASK 32-71-00-400-803 | | | 412 | SIA ALL |
| **TAILSKID - INSPECTION/CHECK** | 32-71-00 | | 601 | SIA ALL |
| Tailskid Cartridge Assembly Inspection TASK 32-71-00-210-801 | | | 601 | SIA ALL |



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CHAPTER 32
LANDING GEAR


| SUBJECT | CHAPTER SECTION SUBJECT | CONF | PAGE | EFFECT |
|---|---|---|---|---|
| Tailskid Shoe Inspection<br>TASK 32-71-00-211-801 | | | 602 | SIA ALL |
| **TAIL SKID PIVOT LINKAGE - REMOVAL/INSTALLATION** | 32-71-21 | | 401 | SIA ALL; AIRPLANES WITH FIXED POSITION TAIL SKID |
| Tailskid Pivot Linkage Removal<br>TASK 32-71-21-000-801 | | | 401 | SIA ALL; AIRPLANES WITH FIXED POSITION TAIL SKID |
| Tailskid Pivot Linkage Installation<br>TASK 32-71-21-400-801 | | | 405 | SIA ALL; AIRPLANES WITH FIXED POSITION TAIL SKID |



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## LANDING GEAR - DDG MAINTENANCE PROCEDURES

### 1. General

A. This procedure has the maintenance tasks for the Master Minimum Equipment List (MMEL) maintenance requirements as shown in the Dispatch Deviations Guide (DDG). These tasks prepare the airplane for flight with systems/components that are inoperative.

B. This procedure also has the tasks that put the airplane back to its usual condition.

C. These are the tasks for the components in the landing gear system:

(1) DDG 32-30-01 Landing Gear Actuation System Inoperative - Preparation
(2) DDG 32-30-01 Landing Gear Actuation System Inoperative - Restoration
(3) DDG 32-31-01 Landing Gear Selector Bypass Valve Inoperative - Preparation
(4) DDG 32-31-01 Landing Gear Selector Bypass Valve Inoperative - Restoration
(5) DDG 32-31-02 Both Landing Gear Control Systems Inoperative - Preparation
(6) DDG 32-31-02 Both Landing Gear Control Systems Inoperative - Restoration
(7) DDG 32-32-01 Main Landing Gear Uplock Springs Inoperative - Preparation
(8) DDG 32-32-01 Main Landing Gear Uplock Springs Inoperative - Restoration
(9) DDG 32-32-02 Main Landing Gear Frangible Fitting Inoperative - Preparation
(10) DDG 32-32-02 Main Landing Gear Frangible Fitting Inoperative - Restoration
(11) DDG 32-35-01 Landing Gear Manual Extension System Inoperative - Preparation
(12) DDG 32-35-01 Landing Gear Manual Extension System Inoperative - Restoration
(13) DDG 32-41-01 Flight Deck Brake Pressure Indicating System Inoperative - Preparation
(14) DDG 32-41-01 Flight Deck Brake Pressure Indication System Inoperative - Restoration
(15) DDG 32-42-01 Antiskid System Inoperative - Preparation
(16) DDG 32-42-01 Antiskid System Inoperative - Restoration
(17) DDG 32-42-02 Alternate Antiskid Valves Inoperative - Preparation
(18) DDG 32-42-02 Alternate Antiskid Valves Inoperative - Restoration
(19) DDG 32-42-03 Automatic Brake System Inoperative - Preparation
(20) DDG 32-42-03 Automatic Brake System Inoperative - Restoration
(21) DDG 32-44-01 Parking Brake Valve Inoperative - Preparation
(22) DDG 32-44-01 Parking Brake Valve Inoperative - Restoration
(23) DDG 32-44-02 Flight Deck Parking Brake Light Inoperative - Preparation
(24) DDG 32-44-02 Flight Deck Parking Brake Light Inoperative - Restoration
(25) DDG 32-51-01 Rudder Pedal Nose Wheel Steering System Inoperative - Preparation
(26) DDG 32-51-01 Rudder Pedal Nose Wheel Steering System Inoperative - Restoration
(27) DDG 32-51-02 Nose Wheel Steering Switch Inoperative - Preparation
(28) DDG 32-51-02 Nose Wheel Steering Switch Inoperative - Restoration



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**TASK 32-00-00-040-801**

## 2. DDG 32-30-01 Landing Gear Actuation System Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the landing gear actuation system inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G01912 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G51674 | Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long | BACC13AT3K12 |

### D. Location Zones

| Zone | Area |
|---|---|
| 118 | Electrical and Electronics Compartment - Right |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Landing Gear Actuation System Preparation

**SUBTASK 32-00-00-480-046**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-00-00-480-047**

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-00-00-860-005**

(3) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the ALTN position, do these steps:

(a) Cut the safety cable or lockwire in the switch guard.

(b) Lift the switch guard and move the switch to the ALTN position.

(c) Move the guard down and lockwire the switch guard using safety cable kit, G51674 (preferred), or MS20995NC32 lockwire, G01912 (alternate), and double twist method.

(d) Make sure that the ADR label 270 bit 23 is set to “1”.



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SUBTASK 32-00-00-860-125

(4) If the ARINC 429 Data Bus analyzer is not available, check the ADR input monitoring page on the FMC CDU page.

(a) Navigate to FMC CDU MAINT BITE Index page, then select ADIRS.

(b) Push LSK to select ADIRS L for the left ADIRU or ADIRS R for the right ADIRU.

(c) Push LSK 5L to select INPUT MONITORING.

(d) Push LSK 2L to select ADR PROGRAM PIN STATUS.

(e) Navigate to page 3/6.

NOTE: There are 6 pages of ADR program pin status.

1) Make sure that the VMO/MMO 2 pin F3 discrete is displayed as GD (ground).

NOTE: In normal operating condition, the VMO/MMO 1 through 4 are open.

(f) Check both left and right ADR program pins.

SUBTASK 32-00-00-480-005

(5) Attach a GEAR LOCKED DOWN placard to the landing gear lever.

——— END OF TASK ———

**TASK 32-00-00-440-801**

## 3. DDG 32-30-01 Landing Gear Actuation System Inoperative - Restoration

### A. General

(1) This task restores the airplane back to its usual condition after operation with the landing gear actuation system inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G01912 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G51674 | Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long | BACC13AT3K12 |

### D. Location Zones

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



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### E. Landing Gear Actuation System Restoration

SUBTASK 32-00-00-480-052

> **WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-053

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-006

(3) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the NORM position, do these steps:

(a) Cut the safety cable or lockwire in the switch guard.

(b) Lift the switch guard and move the switch to the NORM position.

(c) Move the guard down and lockwire the switch guard using safety cable kit, G51674 (preferred), or MS20995NC32 lockwire, G01912 (alternate), and double twist method.

(d) Make sure that the ADR label 270 bit 23 is set to “0”.

SUBTASK 32-00-00-080-005

(4) Remove the GEAR LOCKED DOWN placard from the landing gear lever.

——— END OF TASK ———

## TASK 32-00-00-040-802

## 4. DDG 32-31-01 Landing Gear Selector Bypass Valve Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the landing gear selector bypass valve inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |


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**D. Landing Gear Selector Bypass Valve Preparation**

SUBTASK 32-00-00-480-088

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-007

(2) Make sure that the chocks are installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-007

(3) Open this circuit breaker and install safety lock:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |

SUBTASK 32-00-00-710-001

(4) Make sure that the bypass valve is in the NORMAL position:

(a) Push and hold the LOCK OVRD button.

(b) Put the landing gear lever temporarily in the UP position.

(c) Make sure that the main landing gear downlock actuator tries to extend.

(d) Put the landing gear lever in the DN position.

(e) Release the LOCK OVRD button.

**——— END OF TASK ———**

**TASK 32-00-00-440-802**

## 5. DDG 32-31-01 Landing Gear Selector Bypass Valve Inoperative - Restoration

**A. General**

(1) This task restores the airplane back to its usual condition after operation with the landing gear selector bypass valve inoperative.

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



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### D. Landing Gear Selector Bypass Valve Restoration

SUBTASK 32-00-00-480-089

> **WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-090

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-008

(3) Remove the safety lock and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |

**END OF TASK**

**TASK 32-00-00-040-803**

## 6. DDG 32-31-02 Both Landing Gear Control Systems Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with both landing gear control systems inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 31-65-00-750-801 | Fault Interrogation for a Maintenance Message (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G01912 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G51674 | Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long | BACC13AT3K12 |

### D. Location Zones

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



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### E. Landing Gear Control Systems Preparation

SUBTASK 32-00-00-480-048

> **WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-049

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-009

(3) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the ALTN position, do these steps:

(a) Cut the safety cable or lockwire in the switch guard.

(b) Lift the switch guard and move the switch to the ALTN position.

(c) Move the guard down and lockwire the switch guard using safety cable kit, G51674 (preferred), or MS20995NC32 lockwire, G01912 (alternate), and double twist method.

(d) Make sure that the ADR label 270 bit 23 is set to “1”.

SUBTASK 32-00-00-480-009

(4) Attach a GEAR LOCKED DOWN placard to the landing gear lever.

SUBTASK 32-00-00-810-009

(5) If it is necessary, extinguish the MAINT light on the P5-1 panel, do this task: Fault Interrogation for a Maintenance Message, TASK 31-65-00-750-801.

**——— END OF TASK ———**

**TASK 32-00-00-440-803**

## 7. DDG 32-31-02 Both Landing Gear Control Systems Inoperative - Restoration

### A. General

(1) This task restores the airplane back to its usual condition after operation with both landing gear control systems inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 31-65-00-750-801 | Fault Interrogation for a Maintenance Message (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G01912 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G51674 | Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long | BACC13AT3K12 |



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**D. Location Zones**

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**E. Landing Gear Control Systems Restoration**

SUBTASK 32-00-00-480-050

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-051

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-010

(3) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the NORM position, do these steps:

(a) Cut the safety cable or lockwire in the switch guard.

(b) Lift the switch guard and move the switch to the NORM position.

(c) Move the guard down and lockwire the switch guard using safety cable kit, G51674 (preferred), or MS20995NC32 lockwire, G01912 (alternate), and double twist method.

(d) Make sure that the ADR label 270 bit 23 is set to “0”.

SUBTASK 32-00-00-080-008

(4) Remove the GEAR LOCKED DOWN placard from the landing gear lever.

**F. MAINT Light Status Message**

SUBTASK 32-00-00-750-002

(1) Uncheck the applicable MAINT light Status Message(s) on the MAINT LIGHT menu (TASK 31-65-00-750-801).

**——— END OF TASK ———**

**TASK 32-00-00-040-804**

## 8. DDG 32-32-01 Main Landing Gear Uplock Springs Inoperative - Preparation

**A. General**

(1) This task gives the maintenance steps which prepare the airplane for flight with the main landing gear uplock springs inoperative.

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-31-400-801 | Main Gear Uplock Assembly Installation (P/B 401) |



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**C. Location Zones**

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**D. Main Landing Gear Uplock Springs Preparation**

SUBTASK 32-00-00-480-091

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-092

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-200-001

(3) Do the applicable steps to remove the applicable main landing gear uplock spring (TASK 32-32-31-400-801).

——— END OF TASK ———

**TASK 32-00-00-440-804**

**9. DDG 32-32-01 Main Landing Gear Uplock Springs Inoperative - Restoration**

**A. General**

(1) This task restores the airplane back to its usual condition after operation with the main landing gear uplock springs inoperative.

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-31-400-801 | Main Gear Uplock Assembly Installation (P/B 401) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**D. Main Landing Gear Uplock Springs Restoration**

SUBTASK 32-00-00-480-054

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).


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SUBTASK 32-00-00-480-055

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-420-017

(3) Do the applicable steps to install the applicable main landing uplock spring (TASK 32-32-31-400-801).

——— END OF TASK ———

TASK 32-00-00-040-805

## 10. DDG 32-32-02 Main Landing Gear Frangible Fitting Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the main landing gear frangible fitting inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Main Landing Gear Frangible Fitting Preparation

SUBTASK 32-00-00-480-058

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-059

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-011

**WARNING** MAKE SURE TO REMOVE ALL PRESSURE FROM THE HYDRAULIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-020-011

(4) Disconnect the nut from the frangible fitting assembly.



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SUBTASK 32-00-00-020-012

(5) Remove the frangible fitting from the frangible fitting assembly.

SUBTASK 32-00-00-420-002

(6) Install a standard BACC14AD06JL or equivalent cap on the frangible fitting assembly.

SUBTASK 32-00-00-860-107

**WARNING** MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**END OF TASK**

**TASK 32-00-00-440-821**

## 11. DDG 32-32-02 Main Landing Gear Frangible Fitting Inoperative - Restoration

### A. General

This task restores the airplane back to its usual condition after operation with the main landing gear frangible fitting inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-52-400-802 | Main Gear Frangible Fitting Installation (P/B 401) |

### C. Location Zones

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Main Landing Gear Frangible Fitting Restoration

SUBTASK 32-00-00-480-065

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-066

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).



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SUBTASK 32-00-00-860-110

**WARNING** MAKE SURE TO REMOVE ALL PRESSURE FROM THE HYDRAULIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-020-013

(4) Remove the cap from the frangible fitting assembly.

SUBTASK 32-00-00-420-015

(5) Replace the frangible fitting, do this task: Main Gear Frangible Fitting Installation, TASK 32-32-52-400-802.

SUBTASK 32-00-00-860-119

**WARNING** MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**END OF TASK**

**TASK 32-00-00-040-806**

## 12. DDG 32-35-01 Landing Gear Manual Extension System Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the landing gear manual extension system inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G01912 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G51674 | Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long | BACC13AT3K12 |

### D. Location Zones

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |



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(Continued)

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**E. Landing Gear Manual Extension System Preparation**

SUBTASK 32-00-00-480-062

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-063

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-013

(3) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the ALTN position, do these steps:

(a) Cut the safety cable or lockwire in the switch guard.

(b) Lift the switch guard and move the switch to the ALTN position.

(c) Move the guard down and lockwire the switch guard using safety cable kit, G51674 (preferred), or MS20995NC32 lockwire, G01912 (alternate), and double twist method.

(d) Make sure that the ADR label 270 bit 23 is set to “1”.

SUBTASK 32-00-00-480-014

(4) Attach a GEAR LOCKED DOWN placard to the landing gear lever.

**END OF TASK**

**TASK 32-00-00-440-806**

## 13. DDG 32-35-01 Landing Gear Manual Extension System Inoperative - Restoration

**A. General**

(1) This task restores the airplane back to its usual condition after operation with the landing gear manual extension system inoperative.

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| G01912 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G51674 | Kit - Safety Cable, 321 CRES - 0.032 Inch (0.81 mm) Diameter, (Contains both Cable and Ferrule), 12 Inches Long | BACC13AT3K12 |



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**D. Location Zones**

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**E. Landing Gear Manual Extension System Restoration**

SUBTASK 32-00-00-480-060

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-061

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-014

(3) Set the ALTERNATE VMO/MMO switch in the EE bay service panel, Maintenance Zone 118, to the NORM position, do these steps:

(a) Cut the safety cable or lockwire in the switch guard.

(b) Lift the switch guard and move the switch to the NORM position.

(c) Move the guard down and lockwire the switch guard using safety cable kit, G51674 (preferred), or MS20995NC32 lockwire, G01912 (alternate), and double twist method.

(d) Make sure that the ADR label 270 bit 23 is set to “0”.

SUBTASK 32-00-00-080-011

(4) Remove the GEAR LOCKED DOWN placard from the landing gear lever.

**——— END OF TASK ———**

**TASK 32-00-00-040-807**

## 14. DDG 32-41-01 Flight Deck Brake Pressure Indicating System Inoperative - Preparation

**A. General**

(1) This task gives the maintenance steps which prepare the airplane for flight with the flight deck brake pressure indicating system inoperative.

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 12-15-11-420-801 | Hydraulic Brake Accumulator Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |


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C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

D. Flight Deck Brake Pressure Indicating System Preparation

SUBTASK 32-00-00-480-093

WARNING: MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-064

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-015

(3) Release the parking brakes.

SUBTASK 32-00-00-860-108

WARNING: MAKE SURE TO REMOVE ALL PRESSURE FROM THE HYDRAULIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

(4) For hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-200-005

(5) Apply and release the brakes 10 times with approximately 3 seconds between each application.

SUBTASK 32-00-00-200-006

(6) Make sure that the brake accumulator pressure gauge is within the limits (TASK 12-15-11-420-801).

SUBTASK 32-00-00-860-109

WARNING: MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) For hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.


ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-00-00-200-007

(8) Make sure that the brake accumulator pressure gauge indication is approximately 3000 psi (20,684 kPa).

SUBTASK 32-00-00-860-017

(9) Set the parking brakes.

SUBTASK 32-00-00-860-019

(10) Attach an INOP placard to the brake accumulator pressure indicator.

——— END OF TASK ———

TASK 32-00-00-440-807

## 15. DDG 32-41-01 Flight Deck Brake Pressure Indicating System Inoperative - Restoration

### A. General

(1) This task restores the airplane back to its usual condition after operation with the flight deck brake pressure indicating system inoperative.

### B. Location Zones

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### C. Put the Airplane Back to Its Usual Condition

SUBTASK 32-00-00-080-013

(1) Remove the INOP placard from the applicable brake pressure indicator.

——— END OF TASK ———

TASK 32-00-00-040-808

## 16. DDG 32-42-01 Antiskid System Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the antiskid system inoperative.

NOTE: The applicable Antiskid Channel Deactivation procedure uses the BITE test to find which antiskid channel is inoperative.

### B. References

| Reference | Title |
|---|---|
| 32-42-00-740-801 | Antiskid/Autobrake Control Unit BITE Procedure (P/B 501) |

### C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |



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**E. Antiskid System Preparation**

SUBTASK 32-00-00-740-006

(1) Find which antiskid channel is inoperative:

(a) To get access to the antiskid/autobrake control unit (AACU) on the E1-3 shelf, do this step:

Open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

(b) Do this task: Antiskid/Autobrake Control Unit BITE Procedure, TASK 32-42-00-740-801.

SUBTASK 32-00-00-040-001

(2) Deactivate the applicable antiskid channel:

NOTE: An operative antiskid channel must not be deactivated. Antiskid channels that are faulted must be deactivated.

(a) If message XDCR 1, XDCR 4, BOX 1, BOX 4, VLV 1, or VLV 4 shows on the AACU display, then do this step:

1) Open this circuit breaker and install safety lock:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

(b) If message XDCR 2, XDCR 3, BOX 2, BOX 3, VLV 2, or VLV 3 shows on the AACU display, then do this step:

1) Open this circuit breaker and install safety lock:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |

(c) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-00-00-480-016

(3) Attach an AUTOBRAKE INOP - LEAVE OFF placard to the autobrake selector switch on the P9-82 control panel.

**——— END OF TASK ———**

**TASK 32-00-00-440-808**

## 17. DDG 32-42-01 Antiskid System Inoperative - Restoration

**A. General**

(1) This task restores the airplane back to its usual condition after operation with the antiskid system inoperative.

**B. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |



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### C. Antiskid System Restoration

SUBTASK 32-00-00-860-020

(1) Remove the safety locks and close the applicable circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-00-00-080-042

(2) Remove the AUTOBRAKE INOP - LEAVE OFF placard from the autobrake selector switch on the P9-82 control panel.

——— END OF TASK ———

**TASK 32-00-00-040-809**

## 18. DDG 32-42-02 Alternate Antiskid Valves Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the alternate antiskid valves inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Manual Braking Operational Test

SUBTASK 32-00-00-480-069

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-070

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-022

(3) Release the parking brake.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-00-00-860-024

**WARNING** MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-00-00-860-120

**WARNING** MAKE SURE TO REMOVE ALL PRESSURE FROM THE HYDRAULIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

(5) For hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-860-025

(6) Make sure that you can operate the brakes manually:

(a) Push and release the brake pedals several times.

(b) Make sure that all brakes operate correctly.

NOTE: To make sure that the brake operates correctly, look for the movement of the brake wear indicator pins.

(c) If all of the brakes operate correctly, then attach an ALT ANTISKID VALVE INOP placard to the antiskid inop light.

SUBTASK 32-00-00-860-026

(7) If the brakes do not operate correctly, then do these steps:

(a) Open these circuit breakers and install safety locks:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

(b) Push and release the brake pedals several times.

(c) Make sure that all brakes operate correctly.

NOTE: To make sure that the brake operates correctly, look for the movement of the brake wear indicator pins.

(d) If all the brakes operate correctly, then prepare the airplane for flight with the antiskid system inoperative (TASK 32-00-00-040-808).

(e) If one of the brakes does not operate correctly, then the airplane cannot be dispatched.



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SUBTASK 32-00-00-860-027

**WARNING** MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Supply pressure to hydraulic system B. Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

——— END OF TASK ———

**TASK 32-00-00-440-809**

## 19. DDG 32-42-02 Alternate Antiskid Valves Inoperative - Restoration

### A. General

(1) This task restores the airplane back to its usual condition after operation with the alternate antiskid valves inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 733 | Left Main Landing Gear - Inboard Door |
| 734 | Left Main Landing Gear |

### D. Alternate Antiskid Valves Restoration

SUBTASK 32-00-00-480-067

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-068

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-810-003

(3) If applicable, remove the safety locks and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-00-00-080-015

(4) If applicable, remove the ALT ANTISKID VALVE INOP placard from the ANTISKID INOP light.

END OF TASK

TASK 32-00-00-040-810

## 20. DDG 32-42-03 Automatic Brake System Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the automatic brake system inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-42-81-000-801 | Autobrake Pressure Control Module Valve Removal (P/B 401) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### D. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 130 | Subzone - Body Station 540.00 to Body Station 727.00 |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |

### E. Automatic Brake System Inoperative Preparation

SUBTASK 32-00-00-480-071

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-072

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-123

(3) Set the AUTO BRAKE selector switch on the P9-82 control panel to the OFF position.

SUBTASK 32-00-00-860-124

(4) If the AUTO BRAKE DISARM light goes off, then no more deactivation procedures are necessary.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## F. Autobrake Pressure Control Module Deactivation - Method 1

SUBTASK 32-00-00-860-028

**WARNING** MAKE SURE TO REMOVE ALL PRESSURE FROM THE HYDRAULIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

(1) Remove the pressure from the hydraulic system B. Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-860-029

(2) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

SUBTASK 32-00-00-020-003

(3) Disconnect, cap, and stow the electrical connectors from the autobrake pressure control module in the main gear wheel well.

SUBTASK 32-00-00-480-019

(4) Remove the autobrake pressure control module (TASK 32-42-81-000-801).

(a) Install a cap/plug, STD-14686 on the hydraulic supply pressure line.

(b) Connect the brake pressure line and the return line with a 3/8 inch section of tubing or a flexible hose.

NOTE: This prevents hydraulically locking the brake shuttle valves in the brakes off position.

SUBTASK 32-00-00-860-030

(5) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

SUBTASK 32-00-00-860-031

**WARNING** MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Pressurize the hydraulic system B. Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-00-00-210-002

(7) Make sure that there is no leakage at the autobrake pressure control module.

SUBTASK 32-00-00-480-020

(8) Attach an INOP placard to the autobrake selector switch on the P9-82 control panel.


ECCN 9E991 BOEING PROPRIETARY - See title page for details

### G. Autobrake Pressure Control Module Deactivation - Method 2

SUBTASK 32-00-00-860-033

(1) Remove the pressure from the hydraulic system B. Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-860-034

(2) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

SUBTASK 32-00-00-020-004

(3) Disconnect, cap and stow the electrical connectors from the autobrake pressure control module.

SUBTASK 32-00-00-020-005

(4) Disconnect the hydraulic supply pressure line.

(a) Install a cap/plug, STD-14686 on the hydraulic supply pressure line.

(b) Install a cap/plug, STD-14686 on the hydraulic supply pressure port on the module.

SUBTASK 32-00-00-860-035

(5) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

SUBTASK 32-00-00-860-036

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Pressurize the hydraulic system B. Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-00-00-210-003

(7) Make sure that there is no leakage at the autobrake pressure control module.

SUBTASK 32-00-00-480-021

(8) Attach an INOP placard to the autobrake selector switch on the P9-82 control panel.

**——— END OF TASK ———**

**TASK 32-00-00-440-810**

## 21. DDG 32-42-03 Automatic Brake System Inoperative - Restoration

### A. General

(1) This task restores the airplane back to its usual condition after operation with the automatic brake system inoperative.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-42-81-400-801 | Autobrake Pressure Control Module Valve Installation (P/B 401) |

**C. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**D. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 130 | Subzone - Body Station 540.00 to Body Station 727.00 |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |

**E. Autobrake Pressure Control Module Restoration - Method 1**

SUBTASK 32-00-00-480-075

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-076

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-111

**WARNING** MAKE SURE TO REMOVE ALL PRESSURE FROM THE HYDRAULIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

(3) Remove the pressure from the hydraulic system B. Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-860-112

(4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

SUBTASK 32-00-00-080-016

(5) Remove the 3/8 inch section of tubing or the flexible hose from the brake pressure line and the return line.

SUBTASK 32-00-00-080-046

(6) Remove the cap/plug, STD-14686 from the hydraulic supply pressure line.


ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-00-00-040-007

(7) Install the autobrake pressure control module (TASK 32-42-81-400-801).

SUBTASK 32-00-00-420-004

(8) Connect the electrical connectors to the autobrake pressure control module.

SUBTASK 32-00-00-860-113

(9) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

SUBTASK 32-00-00-860-114

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(10) Pressurize the hydraulic system B. Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-00-00-080-019

(11) Remove the INOP placard from the autobrake selector switch on the P9-82 control panel.

## F. Autobrake Pressure Control Module Restoration - Method 2

SUBTASK 32-00-00-480-081

**WARNING**

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-082

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-115

(3) Remove the pressure from the system B hydraulic system. Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-860-116

(4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

SUBTASK 32-00-00-080-017

(5) Remove the cap/plug, STD-14686 from the autobrake pressure control module and the cap/plug, STD-14686 from the hydraulic supply pressure line.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Connect the hydraulic pressure line to the autobrake pressure control module.

SUBTASK 32-00-00-420-016

(6) Connect the electrical connectors to the autobrake pressure control module.

SUBTASK 32-00-00-860-117

(7) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

SUBTASK 32-00-00-860-118

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(8) Pressurize the hydraulic system B. Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-00-00-020-014

(9) Remove the INOP placard from the autobrake selector switch on the P9-82 control panel.

**END OF TASK**

**TASK 32-00-00-040-811**

## 22. DDG 32-44-01 Parking Brake Valve Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the parking brake valve inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## D. Parking Brake Valve Deactivation in the Closed Position

SUBTASK 32-00-00-480-079

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-080

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-040

(3) Release the parking brake.

SUBTASK 32-00-00-860-041

(4) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-00-00-020-006

(5) Disconnect, cap, and stow the electrical connector from the parking brake valve in the main wheel well.

SUBTASK 32-00-00-860-042

(6) Manually position the override lever on the parking brake valve to the POS 2 (closed) position.

SUBTASK 32-00-00-860-043

(7) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-00-00-080-045

**WARNING** MAKE SURE THE LANDING GEAR DOWNLOCK PINS ARE REMOVED, BEFORE THE LANDING GEAR CONTROL LEVER CAN BE MOVED TO THE UP POSITION. DAMAGE TO EQUIPMENT AND INJURIES TO PERSONNEL CAN OCCUR.

(8) Make sure that the downlock pins are removed on the nose and main landing gear (Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801).

SUBTASK 32-00-00-860-122

(9) Open these circuit breakers and install safety locks:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-00-00-860-044

(10) Make sure that the ANTISKID INOP light is on.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-00-00-860-045

(11) Set the AUTO BRAKE selector switch to OFF.

SUBTASK 32-00-00-480-024

(12) Attach a LIGHT INOP placard to the parking brake light on the center aisle stand.

SUBTASK 32-00-00-480-025

(13) Attach a PARK BRK VLV CLOSED placard near the parking brake lever.

SUBTASK 32-00-00-480-026

(14) Attach an AUTOBRAKE INOP - LEAVE OFF placard to the autobrake selector switch.

SUBTASK 32-00-00-480-027

(15) Attach an AUTO SPOILERS INOP placard near the auto speed brake control lever.

——— END OF TASK ———

**TASK 32-00-00-440-811**

## 23. DDG 32-44-01 Parking Brake Valve Inoperative - Restoration

### A. General

(1) This task restores the airplane back to its usual condition after operation with the parking brake valve inoperative.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |

### D. Parking Brake Valve Restoration

SUBTASK 32-00-00-480-077

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-078

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-046

(3) Release the parking brake.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-00-00-860-047

(4) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-00-00-420-005

(5) Connect the electrical connector to the parking brake valve in the main wheel well.

SUBTASK 32-00-00-860-048

(6) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-00-00-080-044

**WARNING** MAKE SURE THE LANDING GEAR DOWNLOCK PINS ARE REMOVED, BEFORE THE LANDING GEAR CONTROL LEVER CAN BE MOVED TO THE UP POSITION. DAMAGE TO EQUIPMENT AND INJURIES TO PERSONNEL CAN OCCUR.

(7) Make sure that the downlock pins are removed on the nose and main landing gear (Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801).

SUBTASK 32-00-00-860-121

(8) Remove the safety locks and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-00-00-080-022

(9) Remove the LIGHT INOP placard from the parking brake light on the center aisle stand.

SUBTASK 32-00-00-080-023

(10) Remove the PARK BRK VLV CLOSED placard near the parking brake lever.

SUBTASK 32-00-00-080-024

(11) Remove the AUTOBRAKE INOP - LEAVE OFF placard from the autobrake selector switch.

SUBTASK 32-00-00-080-025

(12) Remove the AUTO SPOILERS INOP placard near the auto speed brake control lever.

**END OF TASK**

**TASK 32-00-00-040-812**

## 24. DDG 32-44-02 Flight Deck Parking Brake Light Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the flight deck parking brake light inoperative.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |

**D. Flight Deck Parking Brake Light Preparation**

SUBTASK 32-00-00-480-096

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-00-00-480-095

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-00-00-860-050

(3) Make sure that the parking brake shutoff valve operates correctly:

(a) Release the parking brake.

(b) Make sure that the ANTISKID INOP light is off.

(c) Make sure that the parking brake shutoff valve in the wheel well aft bulkhead moves to the open position (POS 1).

(d) Set the parking brake.

(e) Make sure that the parking brake shutoff valve moves to the closed position (POS 2).

SUBTASK 32-00-00-040-002

(4) The ANTISKID INOP light can come on when the parking brake is set. Make sure that the ANTISKID INOP light turns off when the parking brake is released. If ANTISKID INOP light does not go off when the parking brake is released, refer to DDG 32-42-01 Antiskid System Inoperative - Preparation, TASK 32-00-00-040-808.

SUBTASK 32-00-00-480-032

(5) Attach a LIGHT INOP placard to the parking brake light on the center aisle stand.

**——— END OF TASK ———**

**TASK 32-00-00-440-812**

## 25. DDG 32-44-02 Flight Deck Parking Brake Light Inoperative - Restoration

**A. General**

(1) This task restores the airplane back to its usual condition after operation with the flight deck parking brake light inoperative.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**B. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |

**C. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-00-00-080-027

(1) Remove the LIGHT INOP placard from the parking brake light on the center aisle stand.

——— END OF TASK ———

**TASK 32-00-00-040-813**

**26. DDG 32-51-01 Rudder Pedal Nose Wheel Steering System Inoperative - Preparation**

**A. General**

(1) This task gives the maintenance steps which prepare the airplane for flight with the rudder pedal nose wheel steering system inoperative.

**B. References**

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-09-00 P/B 201 | AIR/GROUND SYSTEM - MAINTENANCE PRACTICES |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 324 | Vertical Fin - Rear Spar To Trailing Edge |
| 713 | Nose Landing Gear |

**D. Rudder Pedal Nose Wheel Steering System Preparation**

SUBTASK 32-00-00-730-001

(1) Put the airplane in the air mode (PAGEBLOCK 32-09-00/201).

(a) Wait a minimum of 5 seconds.

SUBTASK 32-00-00-860-051

(2) Open this circuit breaker and install safety lock:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

SUBTASK 32-00-00-860-052

(3) Return the airplane to the ground mode (TASK 32-09-00-860-802).



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-00-00-860-053

**WARNING** KEEP PERSONNEL, AND EQUIPMENT AWAY FROM THE RUDDER. KEEP YOUR HANDS WHERE THE RUDDER CANNOT CATCH THEM. THE RUDDER WILL MOVE AUTOMATICALLY DURING THIS TEST. THE RUDDER CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(4) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-00-00-860-104

**WARNING** KEEP PERSONNEL, AND EQUIPMENT AWAY FROM THE RUDDER. KEEP YOUR HANDS WHERE THE RUDDER CANNOT CATCH THEM. THE RUDDER WILL MOVE AUTOMATICALLY DURING THIS TEST. THE RUDDER CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(5) Operate the rudder pedals.

(a) Make sure that the nose gear does not turn.

(b) Make sure that the rudder operates correctly

SUBTASK 32-00-00-860-055

**WARNING** KEEP ALL PERSONNEL AND EQUIPMENT CLEAR OF THE AREA AROUND THE NOSE GEAR. THE MOVEMENT OF THE NOSE GEAR CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(6) Operate the tiller.

(a) Make sure that the nose gear steering operates correctly.

SUBTASK 32-00-00-860-106

**WARNING** MAKE SURE TO REMOVE ALL PRESSURE FROM THE HYDRAULIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

(7) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-860-056

(8) Attach a RUDDER PEDAL NWS INOP placard adjacent to each pilots airspeed indicator.

**END OF TASK**

**TASK 32-00-00-440-813**

## 27. DDG 32-51-01 Rudder Pedal Nose Wheel Steering System Inoperative - Restoration

### A. General

(1) This task restores the airplane back to its usual condition after operation with the rudder pedal nose wheel steering system inoperative.

### B. Location Zones

| Zone | Area |
|---|---|
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |



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### C. Rudder Pedal Nose Wheel Steering System Restoration

SUBTASK 32-00-00-860-057

(1) Remove the safety lock and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

### D. Put the Airplane Back to Its Usual Condition

SUBTASK 32-00-00-080-041

(1) Remove the RUDDER PEDAL NWS INOP placard from each pilots airspeed indicator.

——— END OF TASK ———

TASK 32-00-00-040-814

## 28. DDG 32-51-02 Nose Wheel Steering Switch Inoperative - Preparation

### A. General

(1) This task gives the maintenance steps which prepare the airplane for flight with the nose wheel steering switch inoperative.

### B. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-09-10-740-801 | Proximity Switch Electronics Unit - Operational Test (P/B 501) |

### C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Nose Wheel Steering Switch Preparation

SUBTASK 32-00-00-860-058

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Pressurize the hydraulic system A. Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-00-00-710-002

(2) Do the PSEU-LGTV Ground Test in this task: Proximity Switch Electronics Unit - Operational Test, TASK 32-09-10-740-801.



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(a) Make sure that the landing gear transfer valve operational test shows TEST PASS.

NOTE: The airplane can be dispatched if the landing gear transfer valve operational test shows TEST PASS.

SUBTASK 32-00-00-860-059

**WARNING** MAKE SURE TO REMOVE ALL PRESSURE FROM THE HYDRAULIC SYSTEM. DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

(3) Remove the pressure from the hydraulic system A. Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-00-00-860-060

(4) Set the nose wheel steering switch to the NORM position.

SUBTASK 32-00-00-480-033

(5) Attach an INOP placard to the nose wheel steering switch.

**END OF TASK**

**TASK 32-00-00-440-814**

## 29. DDG 32-51-02 Nose Wheel Steering Switch Inoperative - Restoration

### A. General

(1) This task restores the airplane back to its usual condition after operation with the nose wheel steering switch inoperative.

### B. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |

### C. Put the Airplane Back to Its Usual Condition

SUBTASK 32-00-00-080-029

(1) Remove the INOP placard from the nose wheel steering switch.

**END OF TASK**



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# LANDING GEAR DOWNLOCK PINS - MAINTENANCE PRACTICES

## 1. General

A. This procedure has these tasks:

(1) An installation of the downlock pins for the main and the nose landing gear

(2) A removal of the downlock pins for the main and the nose landing gear.

B. The downlock pins are items of safety equipment. You install the downlock pins to make sure that the landing gear does not retract when you do maintenance on the airplane.

C. You also install the downlock pins (with the safety hardware) when the airplane must fly with the landing gear locked in the extended position.

**TASK 32-00-01-480-801**

## 2. Landing Gear Downlock Pins Installation

(Figure 201 or Figure 202)

### A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1880 | Equipment - Downlock, NLG and MLG<br>Part #: C32026-15 Supplier: 81205 |

### B. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### C. Prepare for the Installation

**SUBTASK 32-00-01-860-001**

(1) Make sure that the nose and main landing gear are down and locked.

**SUBTASK 32-00-01-860-002**

(2) Make sure that the control lever for the landing gear on the center instrument panel is in the DN position.

**WARNING**

MAKE SURE THAT OTHER PERSONS DO NOT MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION. IF THEY MOVE THE CONTROL LEVER TO THE UP POSITION, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Attach a DO-NOT-OPERATE tag on the control lever for the landing gear.



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## D. Landing Gear Downlock Pins Installation

SUBTASK 32-00-01-480-001

(1) Do the steps below for each of the main landing gear to install the downlock pin equipment, SPL-1880 [4]:

(a) If the airplane must fly with the main landing gear locked in the extended position, do the step below:

1) Remove the split rings and the REMOVE BEFORE FLIGHT streamer from each of the downlock pin equipment, SPL-1880 [4].

(b) Put the downlock pin equipment, SPL-1880 [4] through the upper [1] and the lower [3] lock links for the main landing gear.

NOTE: If the downlock pin will not go into the lock links, it is possible an adjustment of the lock links is necessary.

(c) If you installed the downlock pin equipment, SPL-1880 [4] for maintenance, make sure that the REMOVE BEFORE FLIGHT streamers are extended and can be easily seen.

SUBTASK 32-00-01-480-002

(2) Do the steps below to install the downlock pin equipment, SPL-1880 [21] for the nose landing gear:

(a) If the airplane must fly with the landing gear locked in the extended position, do the step below:

1) Remove the split rings and the REMOVE BEFORE FLIGHT streamer from the downlock pin equipment, SPL-1880 [21].

(b) Put the downlock pin equipment, SPL-1880 [21] through the forward [24] and the aft [22] lock links for the nose landing gear.

NOTE: If the downlock pin, will not go into the lock links, it is possible an adjustment of the lock links is necessary.

(c) If you installed the downlock pin equipment, SPL-1880 [21] for maintenance, make sure that the REMOVE BEFORE FLIGHT streamer is extended and can be easily seen.

SUBTASK 32-00-01-480-003

**WARNING** ONLY USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) To install the lever lock NLG towing lever pin, SPL-1499 [25] for towing the airplane, do the steps below:

NOTE: The towing lever lets you depressurize the nose wheel steering system. Installation of the NLG towing lever pin, SPL-1499 in the towing lever lets you tow the airplane without depressurizing the hydraulic system A.

(a) Move the towing lever [27] forward to the tow position.

(b) Put the lever lock NLG towing lever pin, SPL-1499 [25] through the pin hole in the towing lever [27] to hold the lever in the towing position.

(c) If you installed the lever lock NLG towing lever pin, SPL-1499 [25] for maintenance, make sure that the REMOVE BEFORE FLIGHT streamer is extended and can be easily seen.

(d) If the airplane must fly with the landing gear locked in the extended position, do the steps below:

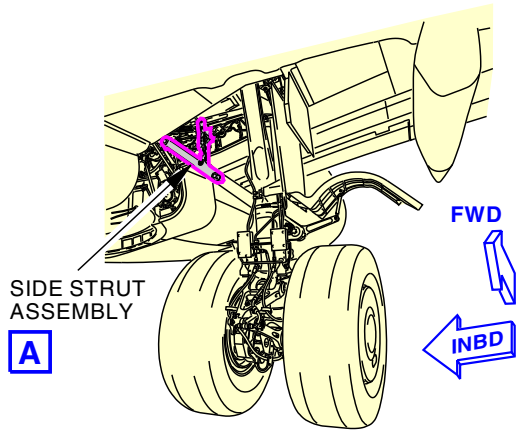

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1) Remove the lever lock NLG towing lever pin, SPL-1499 [25] from the towing lever [27] for the nose wheel steering mechanism.

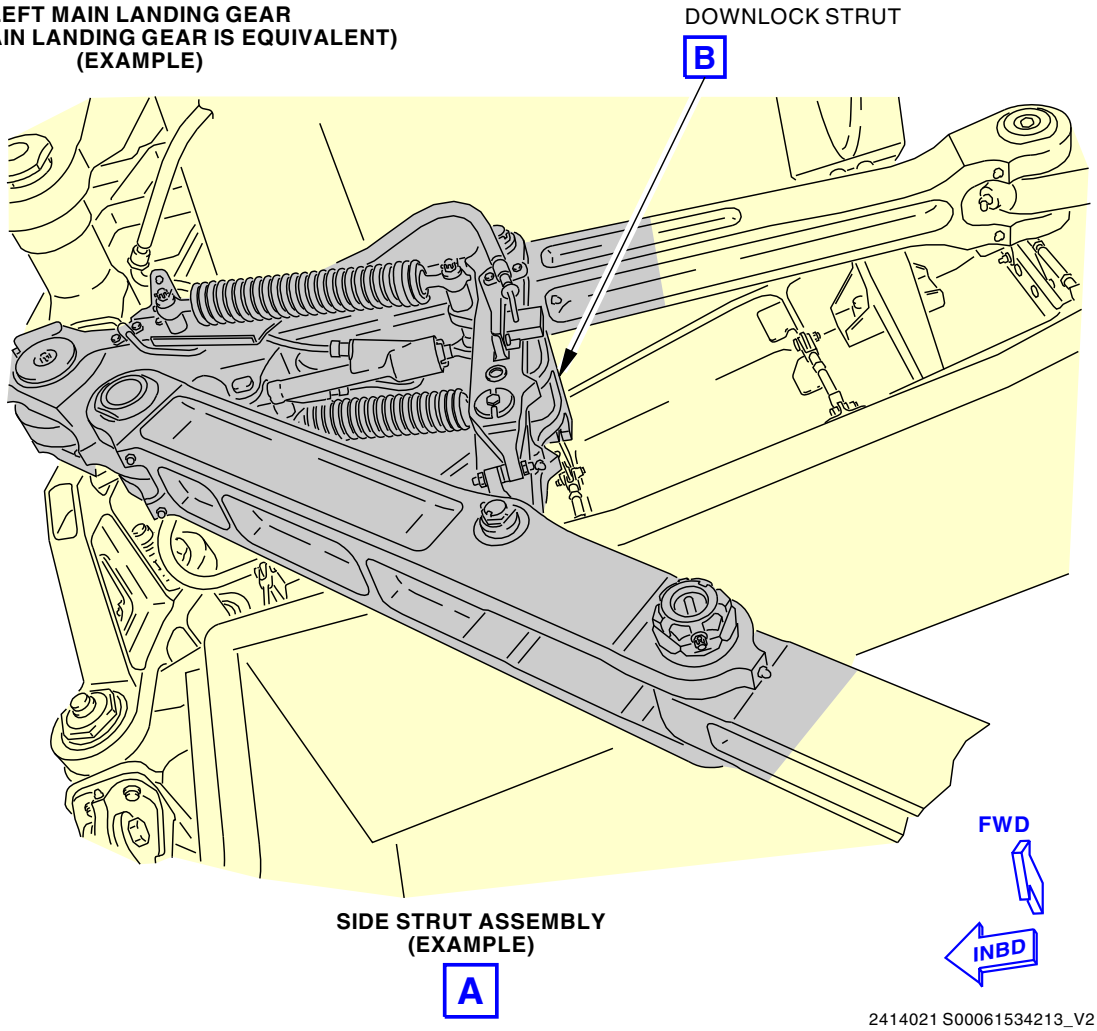
**——— END OF TASK ———**



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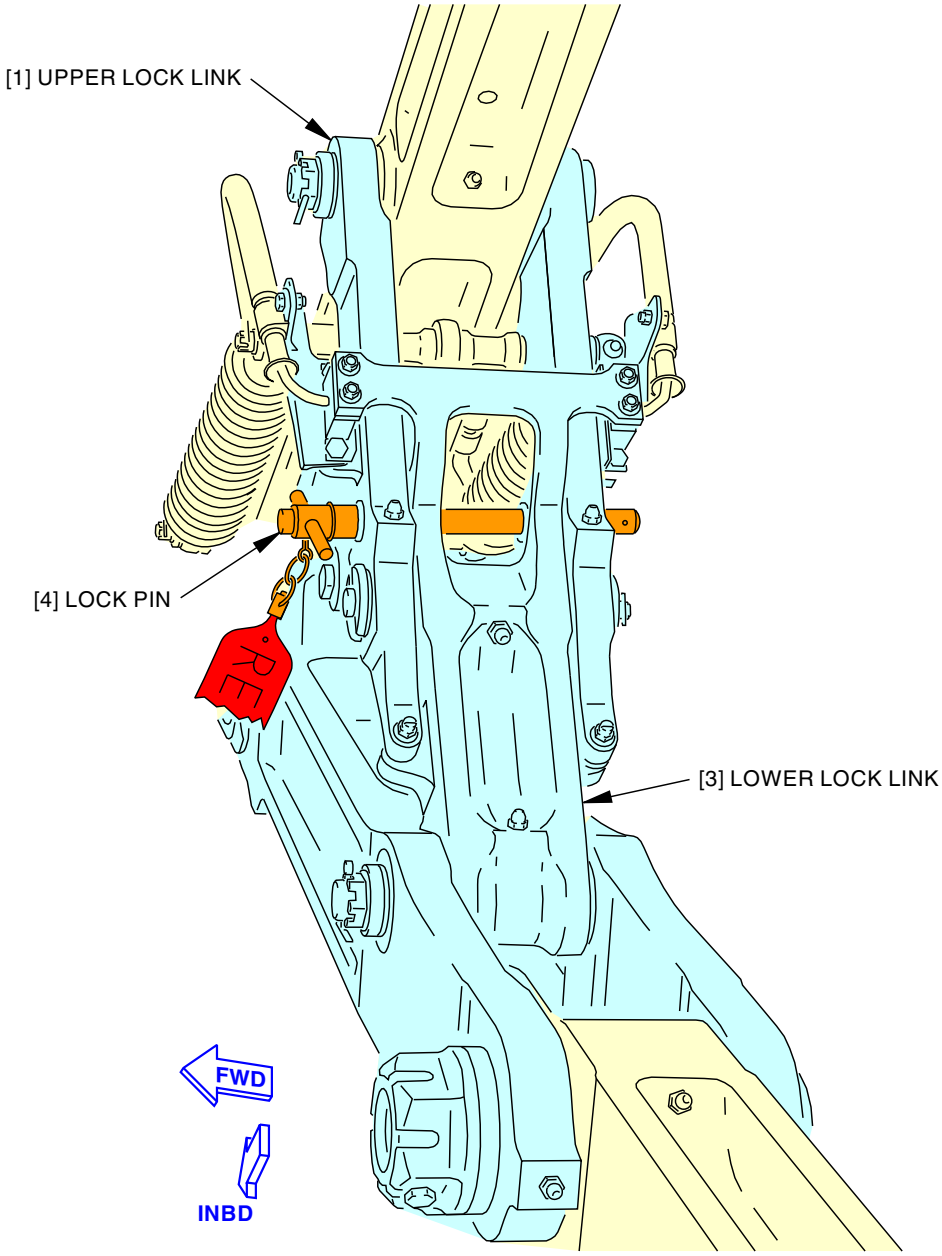

**LEFT MAIN LANDING GEAR
(RIGHT MAIN LANDING GEAR IS EQUIVALENT)
(EXAMPLE)**




**Main Landing Gear Downlock Pin Installation
Figure 201/32-00-01-990-801 (Sheet 1 of 2)**



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**DOWNLOCK STRUT**
**(EXAMPLE)**

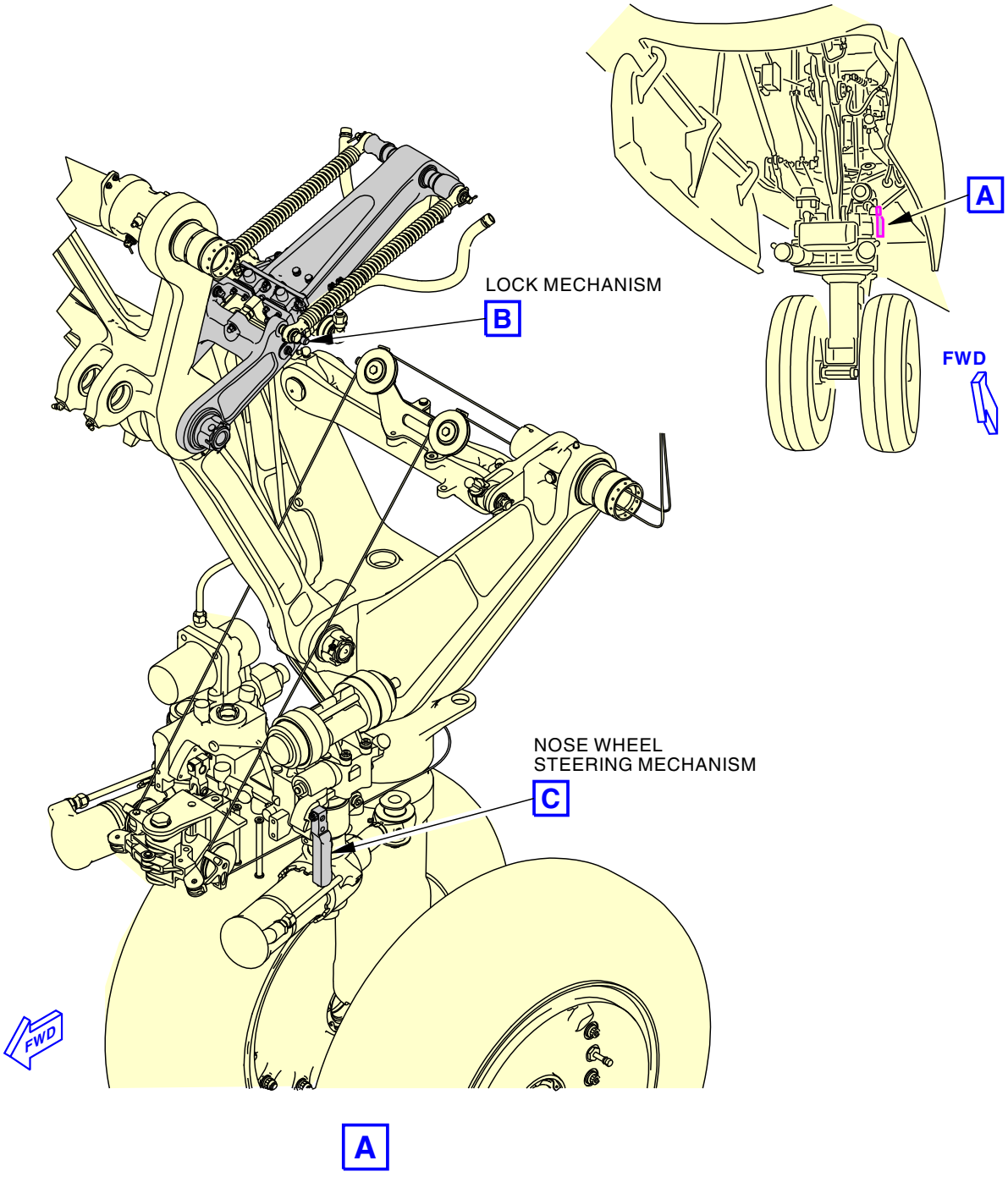
**B**

2414022 S00061534214_V2

**Main Landing Gear Downlock Pin Installation**
**Figure 201/32-00-01-990-801 (Sheet 2 of 2)**



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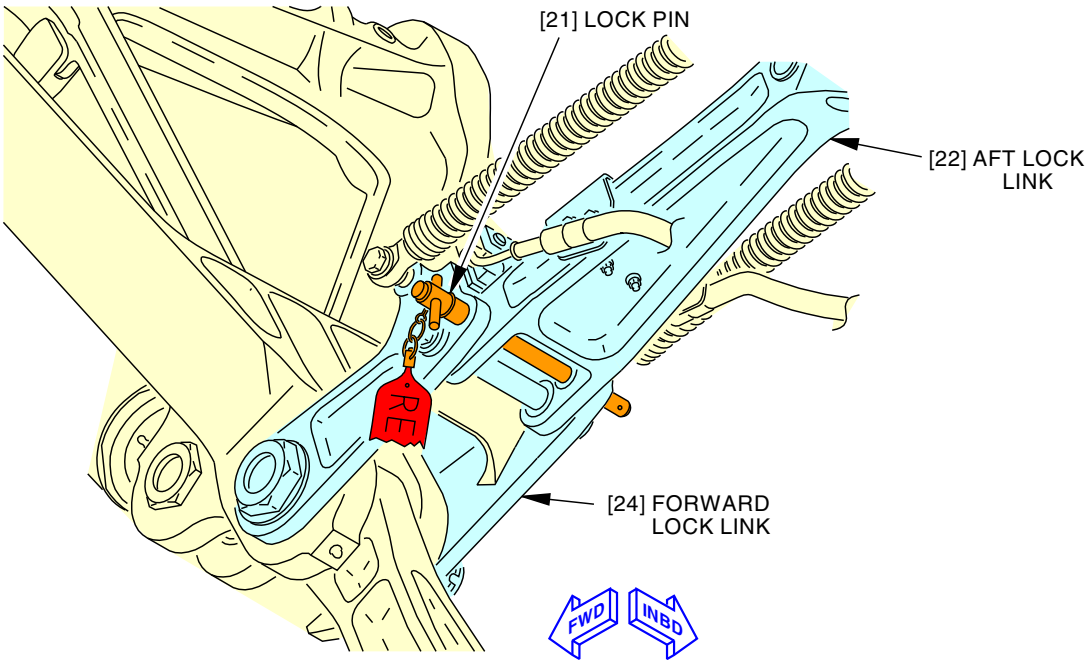



2414023 S00061534215_V1

**Nose Landing Gear Downlock Pins Installation**
**Figure 202/32-00-01-990-802 (Sheet 1 of 2)**

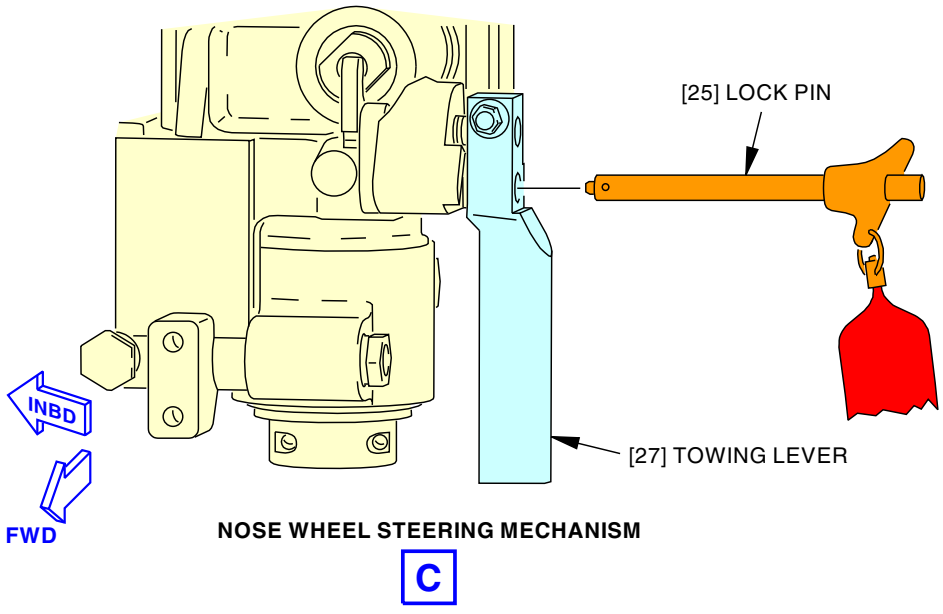


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**LOCK MECHAMISM**

**B**




**NOSE WHEEL STEERING MECHANISM**

**C**

2414024 S00061534216_V1

**Nose Landing Gear Downlock Pins Installation**
**Figure 202/32-00-01-990-802 (Sheet 2 of 2)**



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**TASK 32-00-01-080-801**

## 3. Landing Gear Downlock Pins Removal

(Figure 201 or Figure 202)

### A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1880 | Equipment - Downlock, NLG and MLG<br>Part #: C32026-15 Supplier: 81205 |

### B. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### C. Prepare for the Removal

**SUBTASK 32-00-01-860-003**

(1) Make sure that the control lever for the landing gear on the center instrument panel is in the DN position.

**WARNING** MAKE SURE THAT OTHER PERSONS DO NOT MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION. IF THEY MOVE THE CONTROL LEVER TO THE UP POSITION, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) DELETED

### D. Landing Gear Downlock Pins Removal

**SUBTASK 32-00-01-080-001**

(1) Do the steps below for each main landing gear to remove the downlock pins equipment, SPL-1880 [4]:

(a) Remove the downlock pin equipment, SPL-1880 [4] from the upper [1] and the lower [3] lock links.

(b) If it is necessary, attach the split rings and the REMOVE BEFORE FLIGHT streamer to the downlock pins equipment, SPL-1880 [4].

**SUBTASK 32-00-01-080-002**

(2) Do the steps below to remove the downlock pin equipment, SPL-1880 [21] for the nose landing gear:

(a) Remove the downlock pin equipment, SPL-1880 [21] from the forward [24] and the aft [22] lock links for the nose landing gear.

(b) If it is necessary, attach the split rings and the REMOVE BEFORE FLIGHT streamer to the downlock pin equipment, SPL-1880 [21].



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SUBTASK 32-00-01-080-003

(3) Do the steps below to remove the lever lock NLG towing lever pin, SPL-1499 [25] from the towing lever:

(a) Remove the lever lock NLG towing lever pin, SPL-1499 [25] from the towing lever [27] for the nose wheel steering mechanism.

(b) If it is necessary, attach the split rings and the REMOVE BEFORE FLIGHT streamer to the lever lock NLG towing lever pin, SPL-1499 [25].

SUBTASK 32-00-01-010-001

(4) Remove the DO-NOT-OPERATE tag on the control lever for the landing gear.

**——— END OF TASK ———**



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## LANDING GEAR INNER CYLINDER CHROME - INSPECTION

### 1. General

A. This procedure provides instructions to examine the chrome surface of the landing gear inner cylinder.

B. This procedure is applicable to the nose landing gear and the main landing gear.

**TASK 32-00-10-211-801**

### 2. Landing Gear Inner Cylinder Chrome Inspection

#### A. References

| Reference | Title |
|---|---|
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-00-10-100-801 | Landing Gear Inner Cylinder Chrome Cleaning - with Strut Extended (P/B 701) |
| 32-00-10-300-801 | Landing Gear Inner Cylinder Chrome Repair (P/B 801) |
| 32-11-21-200-801 | Main Landing Gear Shock Strut Seal Leakage Check (P/B 801) |
| 32-11-21-960-802 | Active and the Spare Seals Replacement (P/B 801) |
| 32-11-21-960-803 | Scraper Ring Replacement (P/B 801) |
| 32-21-11-200-801 | Nose Landing Gear Shock Strut Seal Leakage Check (P/B 801) |
| 32-21-11-960-802 | Seals and Spare Seals Replacement (P/B 801) |
| 32-21-11-960-803 | Scraper Ring Replacement (P/B 801) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-15067 | Laser Gauge Sensor<br>Part #: TS800-F08 Supplier: 1L0G0 |
| COM-15068 | Portable Coating Thickness Analyzer<br>Part #: 605-023 Supplier: 61325 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## D. Prepare for the procedure

SUBTASK 32-00-10-420-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

SUBTASK 32-00-10-212-001

(2) Inspect the scraper ring and shock strut seals for damage.

(a) Visually examine the chrome surface of the inner cylinder before you clean it.

NOTE: If you find vertical streaks of fluid or accumulated debris on the chrome surface, it is an indication that part of the scraper ring may be defective.

(b) Make sure the scraper ring is in the installed position. Normal operation can force the scraper ring down the inner cylinder.

NOTE: A mirror and flashlight can help you to examine the scraper ring. Put the mirror below the outer cylinder and against the inner cylinder to see the condition and position of the scraper ring.

(c) If one of the two inspections finds a fault with the scraper ring, do the steps that follow:

1) Examine the shock strut for seal leakage (TASK 32-11-21-200-801 or TASK 32-21-11-200-801).

2) Deflate the strut and drain the oil (TASK 12-15-31-610-802TASK 12-15-41-610-802).

3) Disconnect the gland nut from the outer cylinder (TASK 32-11-21-960-802 or TASK 32-21-11-960-802), then lower the gland nut to examine the scraper ring.

4) If the scraper ring is damaged then replace the scraper ring with a new production scraper ring (TASK 32-11-21-960-802 or TASK 32-21-11-960-802.

NOTE: This task requires the removal of the inner cylinder from the outer cylinder.

a) If replacement of the scraper ring is required and removal of the inner cylinder is not possible, the installation of a split scraper ring can be used as a temporary repair (TASK 32-11-21-960-803 or TASK 32-21-11-960-803).

NOTE: The installation of a split scraper ring should be replaced with a new scraper ring when the landing gear is disassembled for other maintenance or overhaul.

(d) Examine the shock strut for seal leakage (TASK 32-11-21-200-801 or TASK 32-21-11-200-801).

SUBTASK 32-00-10-615-001

(3) Do this task: Landing Gear Inner Cylinder Chrome Cleaning - with Strut Extended, TASK 32-00-10-100-801.



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## E. Procedure

SUBTASK 32-00-10-212-002

(1) Examine the chrome surface on the outer diameter of the shock strut inner cylinder:

NOTE: Chrome plating on large diameter parts will show very small and narrow lines that look like cracks. These lines (chicken-wire cracks) naturally occur when the chrome plate was initially applied on the base metal. When you look at these parts in dim light or with a light source angled to the surface for the inspection, you will see these lines.

(a) Shine light at an angle to the chrome surface of the inner cylinder.

NOTE: You can use a flashlight for this check.

(b) Look at the surface from different directions to make sure you see all of the cracks or scratches.

NOTE: Do not use a magnifying glass to do this inspection. A scratch on the chrome will have sharp edges along it's length and can be seen without the aide of a magnifying glass or plastic scraper. A wide crack on the chrome surface has a gradual contour to it's edges which makes it difficult to see and requires the use of the plastic scraper to identify.

(c) Move the sharp edge of a new hard plastic scraper perpendicular over all the exposed chrome plated surface with a smooth movement and light hand pressure.

NOTE: You will feel a "grab" or a "catch" when you go over a wide crack or scratch with this method. Make sure the plastic scraper is new, as used scrapers will not satisfactorily find the wide cracks.

(d) If you see any possible area of corrosion, chipping, lifting of the chrome plate, or if you felt a wide crack with the plastic scraper, reinspect the area with a metal dental explorer. Move the sharp point of the explorer with medium hand pressure to go over the area of suspected damage. Go over the area with the dental explorer from multiple directions. If the chrome is lifting and/or loose try to pick it off with the metal explorer.

NOTE: If you feel a sudden high resistance when you go over the area, but do not see signs of possible corrosion, then this is a site with a wide crack. It is an area that must have more protection and be closely monitored. Repair this area with the crack repair procedure. If you are able to remove or lift small pieces of chrome plate from the base metal, if there are bubbles in the chrome, or if the crack extends to the base metal the inner cylinder is not serviceable.

SUBTASK 32-00-10-211-001

(2) If you find scratches or wide cracks, do the steps that follow:

(a) Look for one or more of the conditions that follow, if any of the conditions that follow are present then the inner cylinder is not serviceable:

1) Corrosion exists in the damaged area of the chrome.

NOTE: You must use a 4x (minimum) magnifier to examine the area of damage.

2) Poor chrome bonds with the base metal.

3) Bubbles in the chrome plating.

4) An area of chrome plate that moves above the smooth surface of the adjacent chrome plate when you move the dental explorer across it.

5) Chrome plate that comes off in flakes when you move the dental explorer over the chrome plate.



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(b) Make sure the scratches or wide cracks have not penetrated to the base metal of the strut.

1) Repair the scratches on the chrome surface (TASK 32-00-10-300-801), if identified.

(c) If the base metal is exposed you must measure the depth of the damage.

(d) Replace or overhaul the inner cylinder, if any of these conditions are present:

1) The measured depth of damage to the base metal exceeds 0.0005 in. (0.0127 mm), excluding chrome thickness.

a) Measure the coating thickness using portable coating thickness analyzer, COM-15068.

b) Measure the scratch depth using laser gauge sensor, COM-15067.

c) Subtract the coating thickness from the scratch depth measurement. Ensure the result is positive 0.001 in. (0.025 mm) or larger.

NOTE: The 0.001 in. (0.025 mm) or larger difference above accounts for instrument measuring errors to ensure a 0.0005 in. (0.0127 mm) maximum scratch depth into base material.

2) Damage to the base metal area exceeds 1 $in^2$ (645 $mm^2$).

(e) If the base metal is exposed by a scratch then the scratch will then be considered a gouge and be repaired as a crack.

(f) Measure the size of the area that has the cracks, and make a sketch of the location and shape of each area, and mark the dimensions on the sketch. Make sure you keep this data so it can be used for the next inspection.

(g) Repair the cracks on the chrome surface (TASK 32-00-10-300-801), if identified.

(h) If you repaired the chrome surface for cracks then you must do this inspection task again in four months or 400 cycles (whichever comes first), and then again until the shock strut is removed and replaced. Once chrome is damaged, there is no permanent repair, and the damage can continue to spread. The only permanent repair is to strip and replate the chrome. If a repair for minor scratches was preformed, it is not necessary to perform the repeat inspection provided that there are no shock strut fluid leaks and that the minor repair did not affect the base material.

**——— END OF TASK ———**



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## LANDING GEAR INNER CYLINDER CHROME - CLEANING/PAINTING

### 1. General

A. This procedure provides instruction to clean the dirt and grit from the chrome surfaces of the landing gear inner cylinders. Cleaning these chrome surfaces will make it easier to determine if any seals leak and it will also prolong the life of the seals.

B. This procedure is applicable to the nose landing gear and the main landing gear.

**TASK 32-00-10-100-801**

### 2. Landing Gear Inner Cylinder Chrome Cleaning - with Strut Extended

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-15-31 P/B 301 | MAIN LANDING GEAR SHOCK STRUT - SERVICING |
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00070 | Fluid - Hydraulic, Petroleum Base | MIL-PRF-5606 (Replaces MIL-H-5606) |
| D00106 | Fluid - Hydraulic, Petroleum Base, For Preservation And Operation | MIL-PRF-6083 (NATO C-635) |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| D50022 | Fluid - Landing Gear Shock Strut (Specifically For Preservation) | BMS3-32 Type I |

#### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### D. General

**SUBTASK 32-00-10-940-001**

(1) This task is used with the inspection and repair tasks for the inner cylinder chrome.

#### E. Prepare for the procedure

**SUBTASK 32-00-10-420-002**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-00-10-582-001

(2) To clean as much of the chrome surface possible, do one of these steps:

(a) Clean the chrome before you fill the airplane with fuel.

(b) Over-inflate the shock strut with dry-air or nitrogen (TASK 12-15-31-610-802).

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(c) Use airplane jacks to lift the airplane until the tires do not touch the ground (TASK 07-10-01-580-801).

## F. Procedure

SUBTASK 32-00-10-100-001

**CAUTION**

DO NOT RUB THE SMEAR MARKS TO TRY TO REMOVE THEM. THIS COULD CAUSE DAMAGE TO THE WEAR SURFACE.

(1) On the shock strut inner cylinder chrome, you may find dark smear marks that have a small amount of texture and are difficult to remove. These smear marks are created by oxidation of the self lubricating material that is deposited on the chrome by the shock strut bearings. These smear marks are considered acceptable.

SUBTASK 32-00-10-100-002

(2) Clean the dirt, oil and other unwanted materials from the exposed chrome surface of the inner cylinders with a clean cloth that is soaked in one of the these:

(a) fluid, D50022

(b) fluid, D00467

(c) fluid, D00070

(d) fluid, D00106.

## G. Put the aircraft back to its usual condition.

SUBTASK 32-00-10-610-001

(1) Service the shock strut to the proper inflation (PAGEBLOCK 12-15-31/301).

SUBTASK 32-00-10-580-001

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



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**(CAUTION PRECEDES)**

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Lower the airplane off the jacks (TASK 07-10-01-580-802).

**END OF TASK**

**TASK 32-00-10-100-802**

## 3. Landing Gear Inner Cylinder Chrome Cleaning

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00070 | Fluid - Hydraulic, Petroleum Base | MIL-PRF-5606 (Replaces MIL-H-5606) |
| D00106 | Fluid - Hydraulic, Petroleum Base, For Preservation And Operation | MIL-PRF-6083 (NATO C-635) |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| D50022 | Fluid - Landing Gear Shock Strut (Specifically For Preservation) | BMS3-32 Type I |

### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Cleaning

**SUBTASK 32-00-10-420-003**

**WARNING**

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.



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## E. Procedure

SUBTASK 32-00-10-160-001

**CAUTION**

DO NOT RUB THE SMEAR MARKS TO TRY TO REMOVE THEM. THIS COULD CAUSE DAMAGE TO THE WEAR SURFACE.

(1) On the shock strut inner cylinder chrome, you may find dark smear marks that have a small amount of texture and are difficult to remove. These smear marks are created by oxidation of the self lubricating material that is deposited on the chrome by the shock strut bearings. These smear marks are considered acceptable.

SUBTASK 32-00-10-610-002

(2) Clean the dirt, oil and other unwanted materials from the chrome surface of the inner cylinder. Use a clean cloth that is soaked in one of these:

NOTE: To clean the maximum exposed chrome, do this task before you fill the airplane with fuel.

(a) fluid, D50022

(b) fluid, D00467

(c) fluid, D00070

(d) fluid, D00106

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

# LANDING GEAR INNER CYLINDER CHROME - REPAIR

## 1. General

A. This procedure provides instructions to repair cracks and minor scratches to the chrome surface of the landing gear inner cylinder.

B. This procedure is applicable to the nose landing gear and the main landing gear.

**TASK 32-00-10-300-801**

## 2. Landing Gear Inner Cylinder Chrome Repair

### A. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-00-10-100-801 | Landing Gear Inner Cylinder Chrome Cleaning - with Strut Extended (P/B 701) |
| 32-00-10-211-801 | Landing Gear Inner Cylinder Chrome Inspection (P/B 601) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| C00259 | Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer | BMS10-11 Type I |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| G00034 | Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze) | AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A) |
| G01601 | Abrasive - Aluminum Oxide Coated Cloth, 400 to 600 grit | |
| G50220 | Pad - Abrasive, Scotch- Brite 7447 | |
| G50338 | Abrasive Paper - Aluminum Oxide, 800 Grit | |

### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the procedure

**SUBTASK 32-00-10-420-004**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

**SUBTASK 32-00-10-615-002**

(2) Make sure these tasks are accomplished before you do the repair:

(a) Landing Gear Inner Cylinder Chrome Cleaning - with Strut Extended, TASK 32-00-10-100-801.



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(b) Landing Gear Inner Cylinder Chrome Inspection, TASK 32-00-10-211-801.

## E. Procedure

SUBTASK 32-00-10-350-001

**CAUTION** DO NOT USE POWER TOOLS TO DO THIS TASK. YOU MUST USE HAND TOOLS. IF YOU USE POWER TOOLS, YOU CAN CAUSE MORE DAMAGE TO COMPONENTS.

(1) To repair cracks to the chrome surface, do these steps:

(a) Use 400 to 600 grit abrasive cloth, G01601, that is soaked in fluid, D00467, to hand blend the exposed base metal and remove any corrosion and sharp edges to the chrome.

NOTE: Ensure reworked edges can not be caught with the sharp point of the dental explorer.

(b) Use a cotton wiper, G00034 to apply a thick layer of primer, C00259 to the exposed base metal with adequate overlap on the chrome surface.

(c) Before the primer dries, remove the excess primer with a clean, dry cloth.

NOTE: Make sure no primer gets on the seals or scraper, as they can be damaged by the primer and may start to leak.

(d) Let the primer cure for at least 4 hours., then apply a second layer of primer and allow to dry an additional 4 hours.

(e) Use Scotch-Brite 7447 pad, G50220, that is soaked in fluid, D00467, to blend and smooth out the primer surface to achieve a similar contour as the chrome surface.

(f) Use abrasive paper, G50338, that is soaked in fluid, D00467, to polish the chrome surface.

SUBTASK 32-00-10-350-002

**CAUTION** DO NOT USE POWER TOOLS TO DO THIS TASK. YOU MUST USE HAND TOOLS. IF YOU USE POWER TOOLS, YOU CAN CAUSE MORE DAMAGE TO COMPONENTS.

(2) To repair minor scratches to the chrome surface, do these steps:

(a) Use 400 to 600 grit abrasive cloth, G01601, that is soaked in fluid, D00467, to smooth out the chrome surface until you can not see evidence of a scratch.

(b) Use abrasive paper, G50338, that is soaked in fluid, D00467, to polish the chrome surface.

SUBTASK 32-00-10-615-003

(3) Do this task: Landing Gear Inner Cylinder Chrome Cleaning - with Strut Extended, TASK 32-00-10-100-801.

**——— END OF TASK ———**



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## LANDING GEAR RETRACT/STEERING ACTUATOR CHROME - CLEANING

### 1. General

A. This procedure has these task:

(1) Main Landing Gear Retract Actuator Chrome Cleaning.

(2) Nose Landing Gear Steering Actuator Chrome Surfaces Cleaning.

(3) Nose Landing Gear Retract Actuator Chrome Cleaning.

**TASK 32-00-11-100-801**

### 2. Main Landing Gear Retract Actuators Chrome Surfaces Cleaning

#### A. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| B00130 | Alcohol - Isopropyl | TT-I-735 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### D. Access Panels

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |

#### E. Prepare to Clean the Main Landing Gear Retract Actuators Chrome Surfaces

**SUBTASK 32-00-11-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-00-11-010-001**

(2) To gain access to the left or right wing, do this step:

Open these access panels:

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**F. Clean the Main Landing Gear Retract Actuators Chrome Surfaces**

SUBTASK 32-00-11-100-001

(1) Clean the dirt, oil and other unwanted materials from the chrome cylinder surface of the main landing gear retract actuators with a clean cloth that is soaked in isopropyl alcohol, B00130.

NOTE: It is not necessary to retract the landing gear to expose more of the chrome surface.

SUBTASK 32-00-11-840-001

(2) Clean the dirt, oil and other unwanted materials from the main landing gear retract actuator exterior surfaces where the chrome piston rod passes through the end gland with a clean cloth that is soaked in isopropyl alcohol, B00130.

**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-00-11-410-001

(1) Close the applicable access panel, do this step:

Close these access panels:

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |

**——— END OF TASK ———**

**TASK 32-00-11-100-802**

**3. Nose Landing Gear Steering Actuators Chrome Surfaces Cleaning**

**A. General**

(1) There are two methods to clean the chrome surfaces of the steering actuators. Each method is optional to the other. The method that is used is determined by the ground equipment that is available.

(a) Method 1:

1) This method disconnects the apex joint of the torsion link.

(b) Method 2:

1) This method uses hydraulic system A to turn the nose wheel tires.

**B. References**

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-31-000-803 | Nose Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-21-31-400-803 | Nose Landing Gear Torsion Link Connection (P/B 401) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| B00130 | Alcohol - Isopropyl | TT-I-735 |

**D. Location Zones**

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



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## E. Prepare to Clean the Nose Landing Gear Steering Actuator Chrome Surfaces

SUBTASK 32-00-11-480-002

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-00-11-020-001

(2) For Method 1, do this task: Nose Landing Gear Torsion Link Disconnection, TASK 32-21-31-000-803.

SUBTASK 32-00-11-860-001

(3) For Method 1, push or pull on the upper torsion link to turn the steering collar until the chrome surface of the steering actuator to be cleaned is exposed.

SUBTASK 32-00-11-840-002

(4) For Method 2, do the following if you will use greased plates to turn the nose landing gear.

NOTE: The use of greased plates is optional for method 2.

(a) Put greased plates on the ground, such that the greased plates are close to the nose landing gear.

(b) Move the airplane until the nose landing gear tires are on the greased plates.

SUBTASK 32-00-11-860-002

(5) For Method 2, pressurize hydraulic system A: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801..

SUBTASK 32-00-11-820-001

(6) For Method 2, use the steering tiller to operate the steering system of the nose wheel full left and full right or until the chrome surface of the actuator to be cleaned is fully exposed.

NOTE: The steering system has a 1 - 2 degree dead band in the center position.

## F. Clean the Nose Landing Gear Steering Actuators Chrome Surfaces

SUBTASK 32-00-11-100-002

(1) Clean the dirt, oil and other unwanted materials from the chrome cylinder surface of the steering actuator with a clean cloth that is soaked in isopropyl alcohol, B00130.

NOTE: Make sure that the chrome cylinder surface of the steering actuators are exposed when you do this step.

SUBTASK 32-00-11-100-003

(2) Clean the dirt, oil and other unwanted materials from the steering actuator exterior surfaces where the chrome piston rod passes through the end gland with a clean cloth that is soaked in isopropyl alcohol, B00130.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-00-11-420-001

(1) If you used Method 1, do this task: Nose Landing Gear Torsion Link Connection, TASK 32-21-31-400-803.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-00-11-840-003

(2) If you used Method 2, move the airplane away from the greased plates if they were used.

END OF TASK

TASK 32-00-11-100-803

## 4. Nose Landing Gear Retract Actuator Chrome Surfaces Cleaning

### A. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| B00130 | Alcohol - Isopropyl | TT-I-735 |

### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare to Clean the Nose Landing Gear Retract Actuator Chrome Surfaces

SUBTASK 32-00-11-480-003

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

### E. Clean the Nose Landing Gear Retract Actuator Chrome Surfaces

SUBTASK 32-00-11-100-004

(1) Clean the dirt, oil and other unwanted materials from the chrome cylinder surface of the retract actuator of the nose landing gear with a clean cloth that is soaked in isopropyl alcohol, B00130.

NOTE: It is not necessary to retract the landing gear to expose more of the chrome surface.

(2) Clean the dirt, oil and other unwanted materials from the nose landing gear retract actuator exterior surfaces where the chrome piston rod passes through the end gland with a clean cloth that is soaked in isopropyl alcohol, B00130.

END OF TASK



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## LANDING GEAR - CORROSION PREVENTION

### 1. General

**Table 201/32-00-37-993-801 specific Corrosion Problems - Landing Gear**

| AREA | PROBLEM | INDEX |
|---|---|---|
| Main Landing Gear | Corrosion because of environmental exposure. | 32-11-37 |
| | Damage to the side strut finish caused by interference with center door. | |
| | Corrosion on MLG torsion pins. | |
| | Stress corrosion cracks on H11 brake attachment bolts. | |
| Nose Landing Gear | Corrosion on torsion link pin and shaft. | 32-21-37 |
| | Corrosion found in steering collar area. | |
| | Corrosion on torsion link pin and shaft. | |



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**TASK 32-05-03-210-801**

## 1. INTERNAL - GENERAL VISUAL: LEFT MAIN LANDING GEAR ASSEMBLY

Figure 601

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 51-05-01-210-802 | 737-7/8/8200/9 Basic Task Description (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 551BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 551DT | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 551EB | Lower Inboard Fixed Trailing Edge, MLG Attach Fitting Access Panel |
| 551ET | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 551FB | Lower Inboard Fixed Trailing Edge, Landing Gear Access Panel |

### D. Inspection

**SUBTASK 32-05-03-010-001**

(1) Open these access panels:

| Number | Name/Location |
|---|---|
| 551BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 551DT | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 551EB | Lower Inboard Fixed Trailing Edge, MLG Attach Fitting Access Panel |
| 551ET | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 551FB | Lower Inboard Fixed Trailing Edge, Landing Gear Access Panel |

**SUBTASK 32-05-03-210-001**

(2) Do a General Visual inspection of the left main landing gear assembly, including outer cylinder, inner cylinder, axle, torsion links, side strut, lock links and retraction linkage. Landing gear removal is required. Disassemble as required to accomplish CPCP basic task on all fittings, lugs, lug bores, bolts and pins. Normal overhaul procedures, applied with the landing gear removed, at intervals not exceeding 10 years are adequate to maintain corrosion at safe levels on main landing gear components.

**SUBTASK 32-05-03-910-001**

(3) 737-7/8/8200/9 Basic Task Description, TASK 51-05-01-210-802.



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SUBTASK 32-05-03-410-001

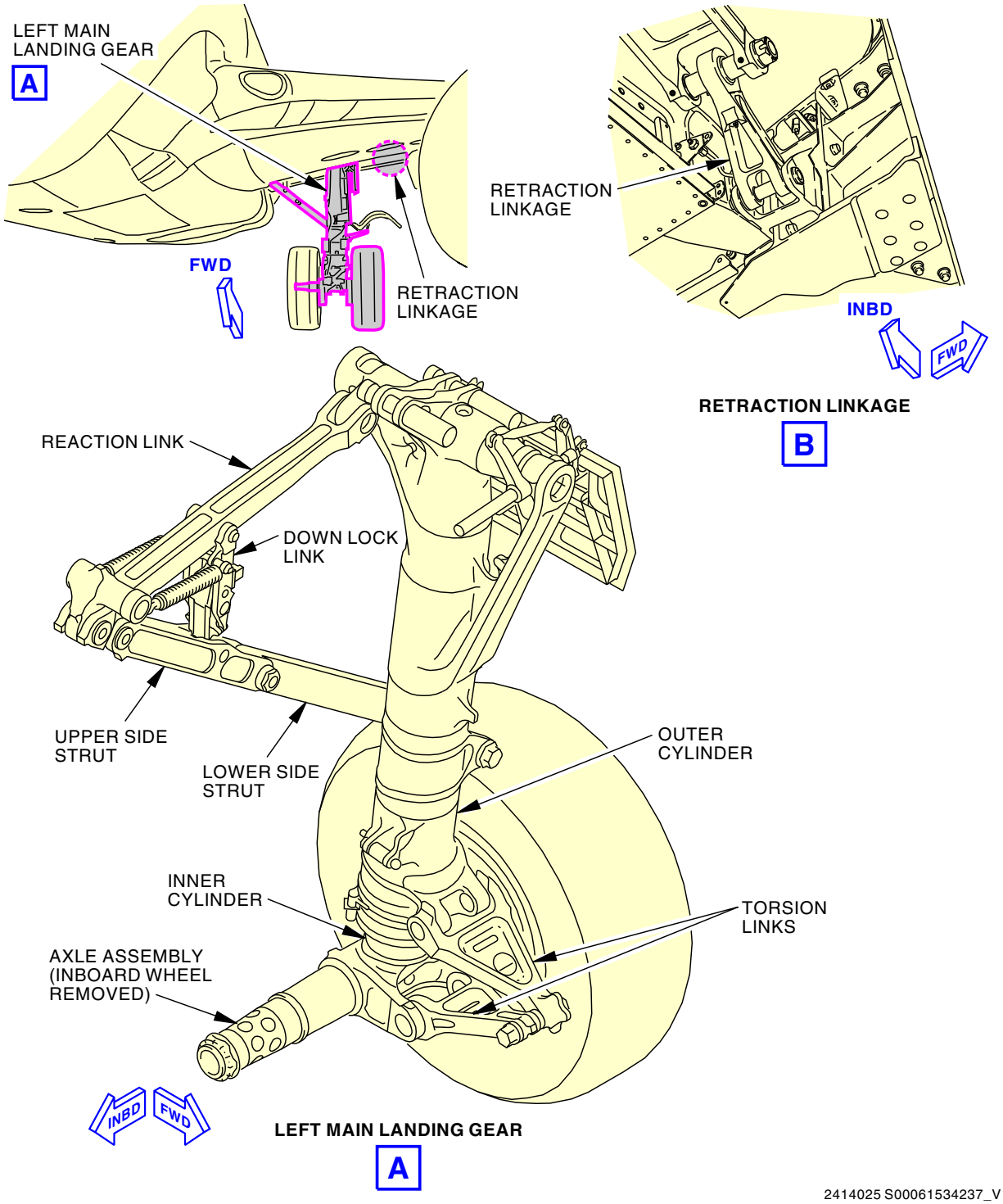
(4) Close these access panels:

| Number | Name/Location |
|---|---|
| 551BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 551DT | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 551EB | Lower Inboard Fixed Trailing Edge, MLG Attach Fitting Access Panel |
| 551ET | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 551FB | Lower Inboard Fixed Trailing Edge, Landing Gear Access Panel |

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Left Main Landing Gear Assembly**
**Figure 601/32-05-03-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-05-03-210-802**

## 2. INTERNAL - GENERAL VISUAL: RIGHT MAIN LANDING GEAR ASSEMBLY

Figure 602

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 51-05-01-210-802 | 737-7/8/8200/9 Basic Task Description (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 744 | Right Main Landing Gear |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 651BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651DT | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 651EB | Lower Inboard Fixed Trailing Edge, MLG Attach Fitting Access Panel |
| 651ET | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 651FB | Lower Inboard Fixed Trailing Edge, Landing Gear Access Panel |

### D. Inspection

**SUBTASK 32-05-03-010-002**

(1) Open these access panels:

| Number | Name/Location |
|---|---|
| 651BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651DT | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 651EB | Lower Inboard Fixed Trailing Edge, MLG Attach Fitting Access Panel |
| 651ET | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 651FB | Lower Inboard Fixed Trailing Edge, Landing Gear Access Panel |

**SUBTASK 32-05-03-210-002**

(2) Do a General Visual inspection of the right main landing gear assembly, including outer cylinder, inner cylinder, axle, torsion links, side strut, lock links and retraction linkage. Landing gear removal is required. Disassemble as required to accomplish CPCP basic task on all fittings, lugs, lug bores, bolts and pins. Normal overhaul procedures, applied with the landing gear removed, at intervals not exceeding 10 years, are adequate to maintain corrosion at safe levels on main landing gear components.

**SUBTASK 32-05-03-910-002**

(3) 737-7/8/8200/9 Basic Task Description, TASK 51-05-01-210-802.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-05-03-410-002

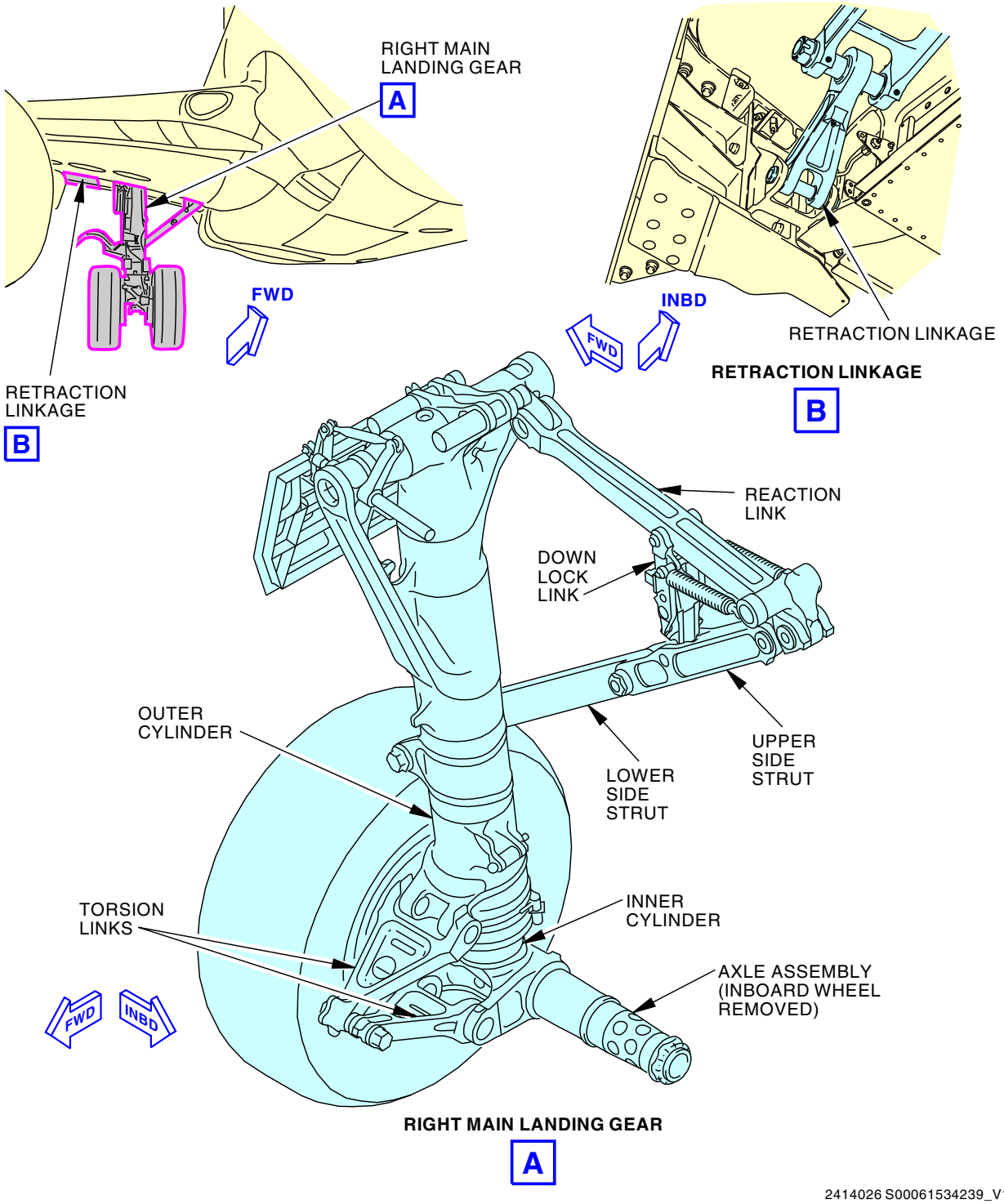
(4) Close these access panels:

| Number | Name/Location |
|---|---|
| 651BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651DT | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 651EB | Lower Inboard Fixed Trailing Edge, MLG Attach Fitting Access Panel |
| 651ET | Upper Inboard Fixed Trailing Edge, MLG Beam Access Panel |
| 651FB | Lower Inboard Fixed Trailing Edge, Landing Gear Access Panel |

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Right Main Landing Gear Assembly**
**Figure 602/32-05-03-990-802**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-05-03-210-803**

## 3. INTERNAL - GENERAL VISUAL: NOSE LANDING GEAR ASSEMBLY

Figure 603

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 05-51-91-790-801 | Cabin Pressure Leak Test (P/B 201) |
| 51-05-01-210-802 | 737-7/8/8200/9 Basic Task Description (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

### B. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AC | Fwd Nose Wheel Well Upper Access Panel |
| 114AW | Forward Nose Wheel Well Panel |
| 114BW | Forward Nose Wheel Well Panel |
| 711AL | Forward Nose Wheel Door |
| 712AR | Forward Nose Wheel Door |

### D. Inspection

**SUBTASK 32-05-03-010-003**

(1) Open these access panels:

| Number | Name/Location |
|---|---|
| 711AL | Forward Nose Wheel Door |
| 712AR | Forward Nose Wheel Door |

**SUBTASK 32-05-03-010-004**

(2) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AC | Fwd Nose Wheel Well Upper Access Panel |
| 114AW | Forward Nose Wheel Well Panel |
| 114BW | Forward Nose Wheel Well Panel |

(a) Do this task: Nose Wheel Well Access Panels Removal, TASK 53-14-01-020-801.



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SUBTASK 32-05-03-210-003

(3) Do a General Visual inspection of the nose landing gear assembly, including outer cylinder, inner cylinder, drag strut, lock links, torsion links, and steering mechanism (plates and collar). Landing gear removal is required. Disassemble as required to accomplish CPCP basic task on all fittings, lugs, lug bores, bolts and pins. Normal overhaul procedures, applied with the landing gear removed, at intervals not exceeding 10 years, are adequate to maintain corrosion at safe levels on nose landing gear components.

SUBTASK 32-05-03-910-003

(4) 737-7/8/8200/9 Basic Task Description, TASK 51-05-01-210-802.

SUBTASK 32-05-03-410-004

(5) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AC | Fwd Nose Wheel Well Upper Access Panel |
| 114AW | Forward Nose Wheel Well Panel |
| 114BW | Forward Nose Wheel Well Panel |

(a) Do this task: Nose Wheel Well Access Panels Installation, TASK 53-14-01-420-801.

(b) Do this task: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

SUBTASK 32-05-03-410-005

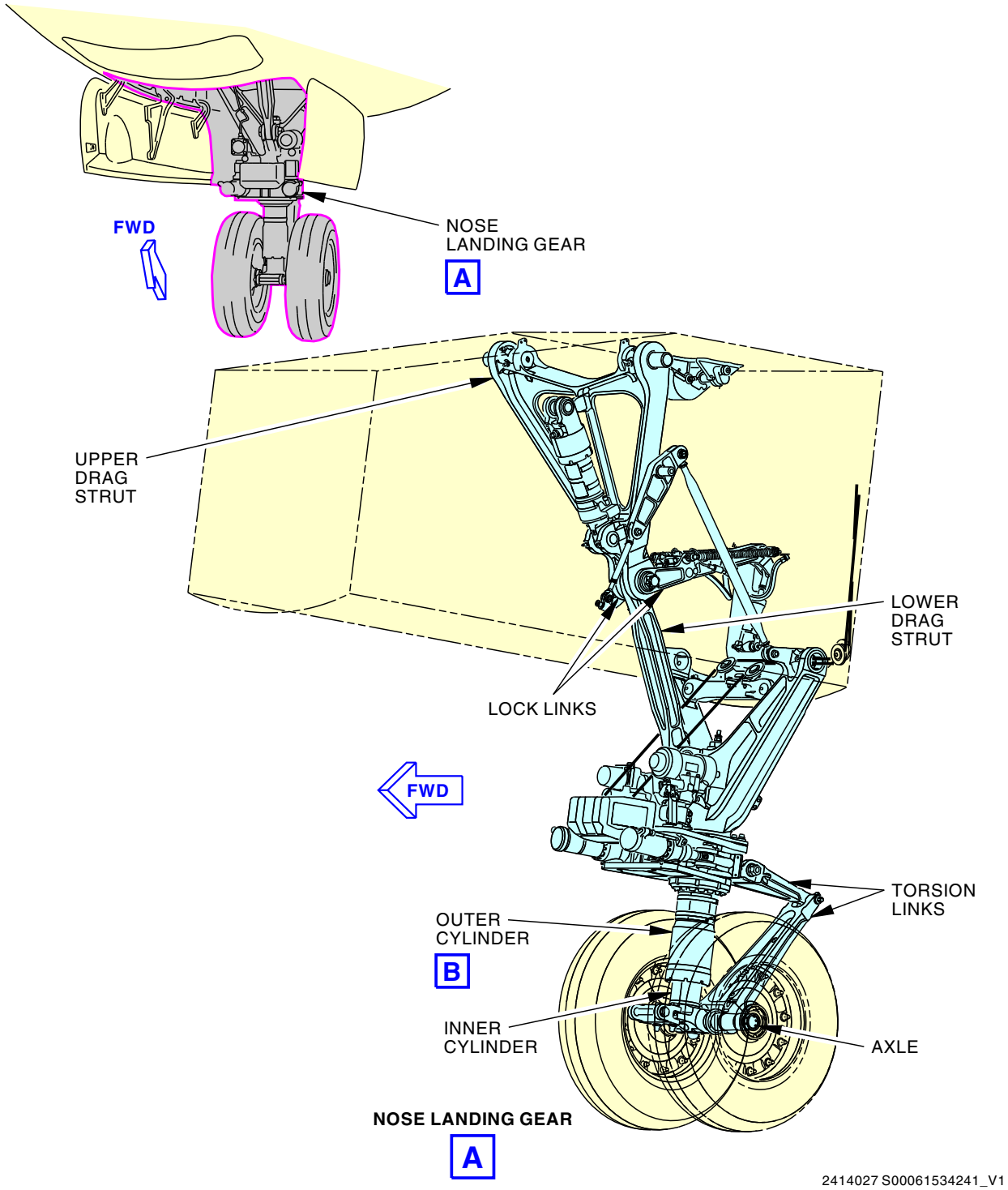
(6) Close these access panels:

| Number | Name/Location |
|---|---|
| 711AL | Forward Nose Wheel Door |
| 712AR | Forward Nose Wheel Door |

——— END OF TASK ———



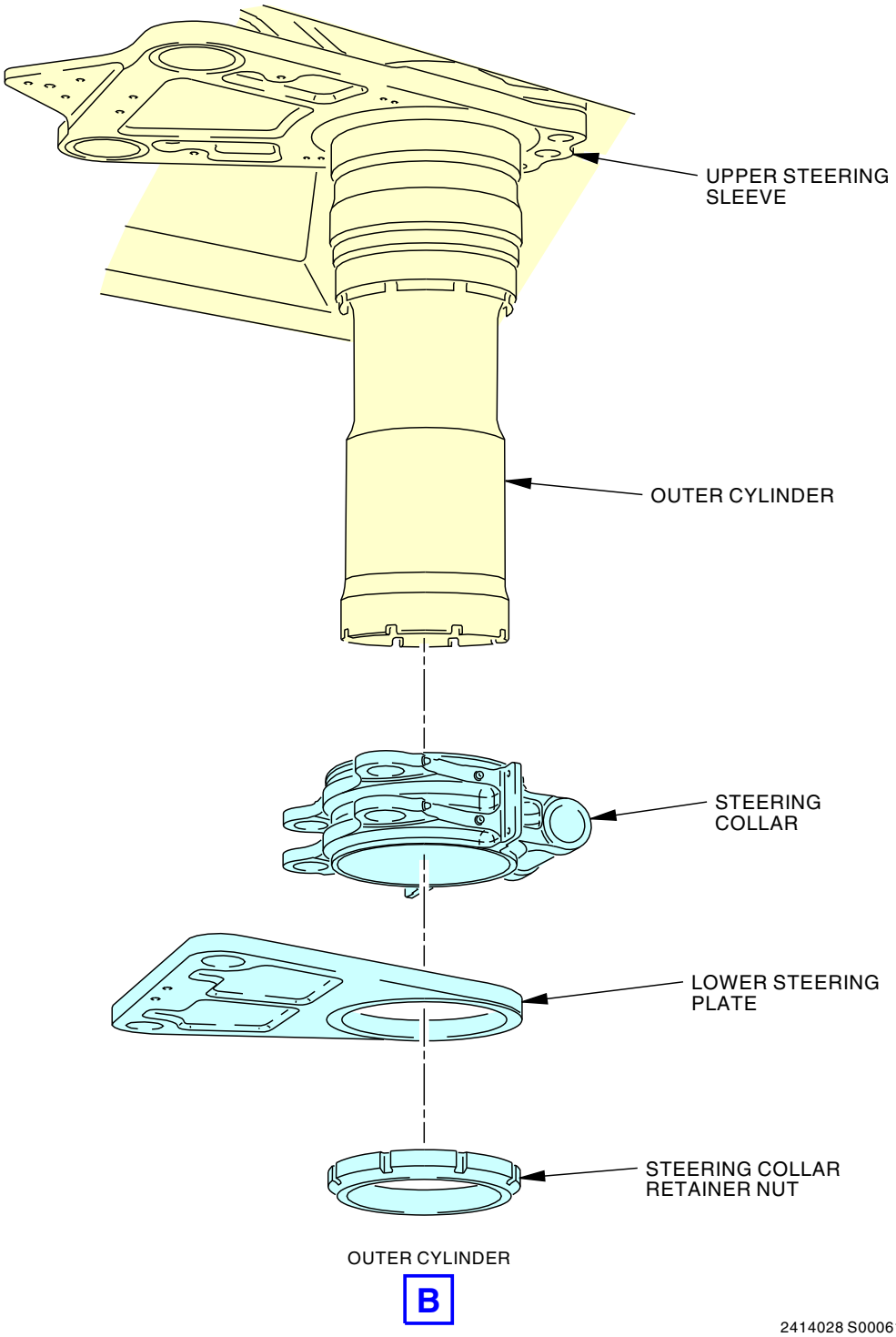
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**Nose Landing Gear Assembly**
**Figure 603/32-05-03-990-803 (Sheet 1 of 2)**



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**Nose Landing Gear Assembly**
**Figure 603/32-05-03-990-803 (Sheet 2 of 2)**



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## 1. General

A. This procedure has these tasks:

(1) Prepare to put the airplane in the air mode

(2) Put the airplane in the air mode

(3) Return the airplane to the ground mode

(4) Put the airplane systems back to their normal on ground condition.

**TASK 32-09-00-840-801**

## 2. Prepare to Put the Airplane in the Air Mode

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 78-31-00-040-801-G00 | Thrust Reverser Deactivation For Ground Maintenance (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-858 | Tag - DO NOT OPERATE |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Procedure

**SUBTASK 32-09-00-420-001**

**CAUTION** DO NOT START ENGINES WITH THE AIRPLANE IN THE AIR MODE. IF YOU START THE ENGINES WITH THE AIRPLANE IN THE AIR MODE, DAMAGE TO THE ENGINE COMPRESSORS CAN OCCUR.

(1) Do the following steps to make sure the engines cannot be started:

(a) Do these steps to make sure that the Left and Right ENGINE START switches are not operated:

1) On the P5 overhead panel, make sure both the Left and Right ENGINE START switches are in the OFF position.

2) Put DO NOT OPERATE tag, STD-858, on both the Left and Right ENGINE START switches.

(b) Do these steps to make sure that the engine fuel control valve and spar valve stay in the closed position:

1) Make sure that the Left and Right START LEVERS are in the CUTOFF position.



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2) Install DO NOT OPERATE tag, STD-858, on the Left and Right START LEVERS.

SUBTASK 32-09-00-480-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure the downlock pins are installed on the nose and main landing gear. If the downlock pins are not installed, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-09-00-480-002

**WARNING** MAKE SURE LANDING GEAR WHEELS ARE CHOCKED, BEFORE PARKING BRAKE LEVER IS RELEASED. INJURIES TO PERSONNEL AND DAMAGE TO THE AIRCRAFT CAN OCCUR.

(3) Make sure chocks are installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 32-09-00-040-012

(4) Make sure that the right stick shaker will not operate.

Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 6 | C01393 | STICK SHAKER RIGHT |

SUBTASK 32-09-00-040-013

(5) Make sure that the weather radar will not operate.

(a) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

SUBTASK 32-09-00-040-014

(6) Make sure that the ACARS will not operate.

(a) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 8 | C01483 | CMU-1 AC |

This circuit breaker is inoperative and should remain open:

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 9 | C01500 | CMU/ACARS DC (INOP) |


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SUBTASK 32-09-00-040-022

**WARNING**

AVOID THE AUTOMATIC ACTIVATION OF THE PTU WHEN AIRPLANE IS IN AIR MODE, HYDRAULIC SYSTEM B EDP LOW PRESSURE, AND TRAILING EDGE FLAP NOT UP OR BETWEEN UP AND 15. AN UNINTENDED PRESSURIZATION OF HYDRAULIC SYSTEM B BY THE PTU CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Make sure that the hydraulic power transfer unit will not operate.

Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 15 | C01081 | HYDRAULIC SYSTEM PTU VALVE CONT 1 |
| A | 16 | C01085 | HYDRAULIC SYSTEM PTU VALVE CONT 2 |

SUBTASK 32-09-00-040-023

(8) Make sure that the take off warning horn will not operate.

(a) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-09-00-040-024

(9) Make sure that the left stick shaker will not operate.

Open this circuit breaker and install safety tag:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 4 | C01392 | STICK SHAKER LEFT |

SUBTASK 32-09-00-860-012

(10) Make sure that the pitot probe, temperature probe, and AOA vane heaters will not operate.

(a) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 1 | C00523 | HEATERS CAPT PITOT |
| C | 2 | C00238 | HEATERS TEMP PROBE |
| C | 3 | C01072 | HEATERS ALPHA VANE LEFT |
| C | 4 | C00236 | HEATERS ELEV PITOT LEFT |
| D | 3 | C01071 | HEATERS ALPHA VANE RIGHT |
| D | 4 | C00237 | HEATERS ELEV PITOT RIGHT |
| D | 5 | C00525 | HEATERS F/O PITOT |
| D | 6 | C00524 | HEATERS AUX PITOT |

SUBTASK 32-09-00-040-015

(11) Make sure that the drain masts do not get too hot:

NOTE: If you will put the airplane in the air mode for less than a minute, you do not need to de-activate the drain mast.



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(a) Open this circuit breaker and install safety tag:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 4 | C00700 | HEATERS DRAIN MAST AIR |

SUBTASK 32-09-00-040-004

(12) Make sure that the door area heaters will not operate.

(a) Open this circuit breaker and install safety tag:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 11 | C01274 | AIR CONDITIONING DOOR AREA HEAT CONT |

SUBTASK 32-09-00-040-021

**WARNING**

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(13) Make sure that the door area heaters will not operate.

Open these circuit breakers and install safety tags:

**Power Distribution Panel Number 1, P91**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 7 | C01279 | DOOR AREA HTR-AFT |
| D | 9 | C01280 | DOOR AREA HTR-FWD |

SUBTASK 32-09-00-040-006

**WARNING**

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(14) Make sure that the standby hydraulic pump will not operate.

(a) Open this circuit breaker and install safety tag:

**Power Distribution Panel Number 2, P92**

| Row | Col | Number | Name |
|---|---|---|---|
| F | 2 | C01449 | STANDBY HYDRAULIC PUMP |

SUBTASK 32-09-00-840-001

**WARNING**

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(15) Make sure persons and equipment are clear of flight control surfaces.



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SUBTASK 32-09-00-840-005

**WARNING** KEEP PERSONS AND EQUIPMENT CLEAR OF THE RAM INLET DOOR. THIS DEFLECTOR DOOR MOVES WHEN THE AIRPLANE IS SWITCHED TO AIR MODE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(16) Make sure persons and equipment are clear of the RAM inlet door.

SUBTASK 32-09-00-040-008

**WARNING** DO THE DEACTIVATION PROCEDURE TO PREVENT THE OPERATION OF THE THRUST REVERSER. THE ACCIDENTAL OPERATION OF THE THRUST REVERSER CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(17) Do this task: Thrust Reverser Deactivation For Ground Maintenance, TASK 78-31-00-040-801-G00.

**——— END OF TASK ———**

**TASK 32-09-00-860-801**

**3. Put the Airplane in the Air Mode**

(Figure 201)

**A. General**

(1) This task has three options to put the airplane in the air mode.

NOTE: Using the MAX Display System to simulate air mode is the recommended method. Using deactuators or jacking the airplane are the alternate methods. The use of deactuators or jacking the airplane will cause nuisance faults.

(a) You can put the airplane in the air mode with MAX Display System (MDS) (Recommended Method).

(b) You can also put deactuators on the nose and main landing gear to put the airplane in air mode (Alternate Method).

NOTE: A total of six (6) deactuators are needed.

(c) You can also lift the airplane on jacks to put the airplane in air mode (Alternate Method).

**B. References**

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1690 | Actuators/Deactuators Set - Proximity Sensor<br>Part #: 8-758-01 Supplier: 08748<br>Part #: A27092-139 Supplier: 81205<br>Opt Part #: A27092-106 Supplier: 81205 |



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**D. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**E. Prepare to Put the Airplane in the Air Mode**

SUBTASK 32-09-00-860-001

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.

SUBTASK 32-09-00-860-013

(2) Access the MDS to enable AIR MODE.

(a) Set the GND TESTS switch, on the maintenance control panel, to ENABLE position.

(b) Select SYS on the Multi-Function Display Panel (MFP).

(c) Select MAINT -> ONBD MAINT -> OTHER FUNCTIONS -> SPECIAL FUNCTIONS -> ATA System 32: Proximity Sensor Electronics Unit -> CONTINUE -> SELECT.

(d) Select PSEU -> AIR/GND OVERRIDE and then select CONTINUE.

(e) Select CONTINUE.

(f) Select START FUNCTION.

**F. Put the Airplane in the Air Mode With the MAX Display System (Recommended Method)**

SUBTASK 32-09-00-860-002

(1) Access the MDS to enable AIR MODE.

(a) Set SYS 1 and SYS 2 IN AIR and then select CONTINUE.

(b) Make sure that the Multi-Function Display indicates AIR/GND OVERRIDE is ACTIVE and both SYS 1 and SYS 2 are in AIR mode.

(c) Select STOP FUNCTION.

NOTE: The airplane should be now in air mode.

**G. Put the Airplane in the Air Mode With Deactuators (Alternate Method)**

SUBTASK 32-09-00-860-003

NOTE: This is not the recommended method to simulate air mode. This method will induce nuisance faults.

(1) Attach deactuators to the face of the air/ground sensors for the nose and main landing gear.

NOTE: You will need A27092-139 deactuators to put the airplane in the air mode. You can find deactuators in the proximity sensor test set, SPL-1690.

NOTE: As an option, deactuators can be constructed as follows: Material: 5052, 6061, 7075, or 2024 aluminum or sheet copper. For rectangular sensors - 1.5 in. (38 mm) x 0.75 in. (19 mm) x0.05 in. (1.27 mm). For round sensors - 1.0 in. (25 mm) x 1.0 in. (25 mm) x 0.05 in. (1.27 mm)



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SUBTASK 32-09-00-860-004

(2) Make sure that the airplane is in the air mode.

(a) Use the MDS to access the Proximity Sensor Electronics Unit (PSEU) Maintenance Page 1.

(b) Make sure that AIR is shown for PSEU SYS 1 and SYS 2.

NOTE: When the AIR/GND override is used, “SIM” for simulated will appear next to the AIR/GND state.

(c) Select STOP FUNCTION.

## H. Put the Airplane in the Air Mode by Lifting the Airplane on Jacks (Alternate Method)

SUBTASK 32-09-00-860-005

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

NOTE: This is not the recommended method to simulate air mode. This method will induce nuisance faults.

(1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-09-00-860-006

(2) Make sure that the airplane is in the air mode.

(a) Use the MDS to access the PSEU Maintenance Page 1.

(b) Make sure that AIR is shown for PSEU SYS 1 and SYS 2.

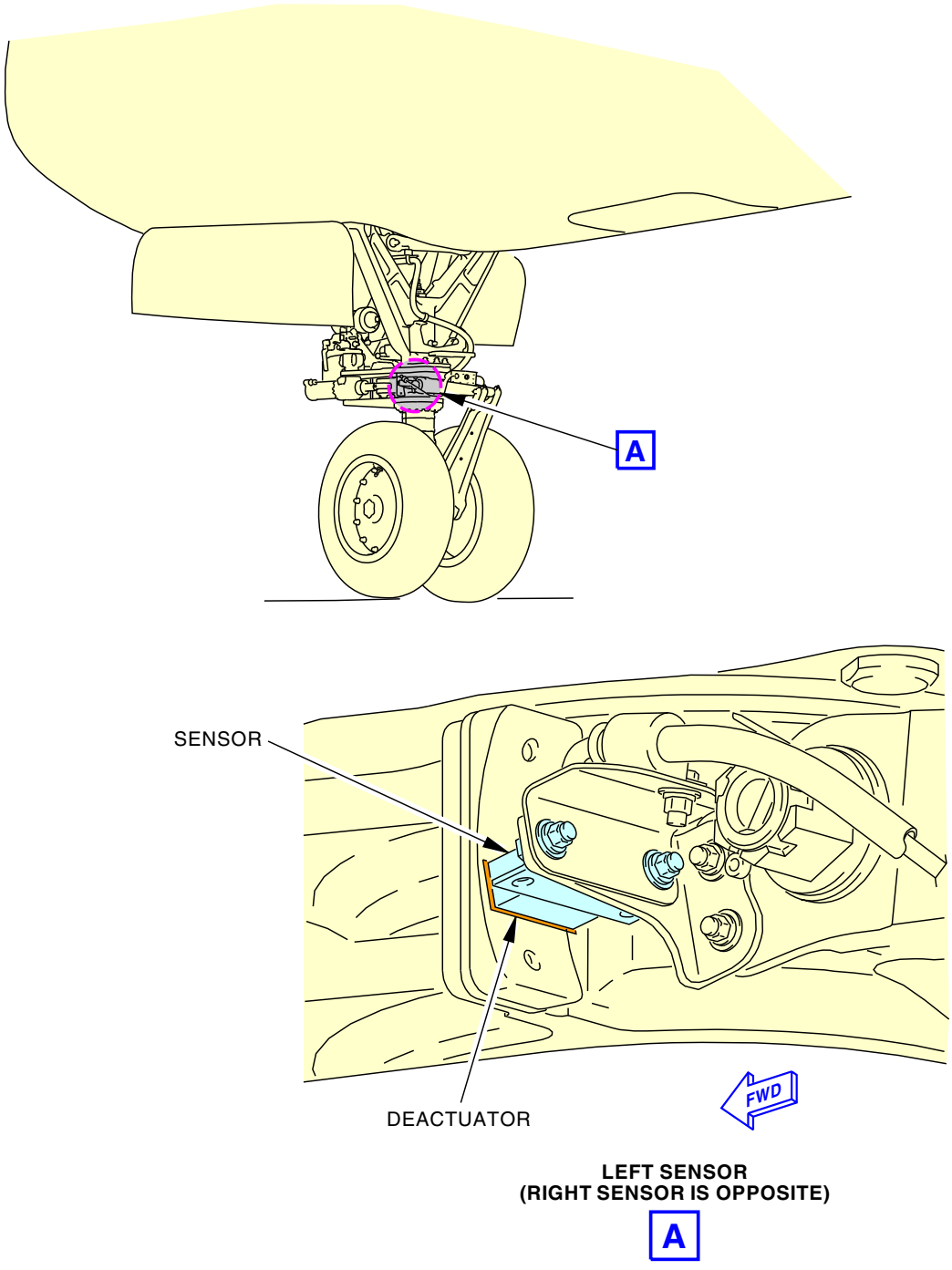
NOTE: When the AIR/GND override is used, “SIM” for simulated will appear next to the AIR/GND state.

(c) Select STOP FUNCTION.

**END OF TASK**



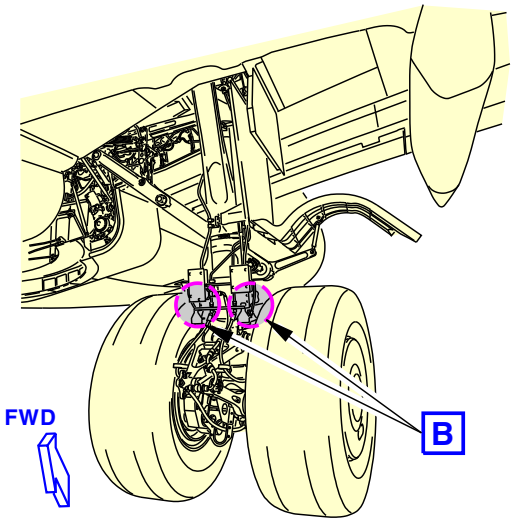
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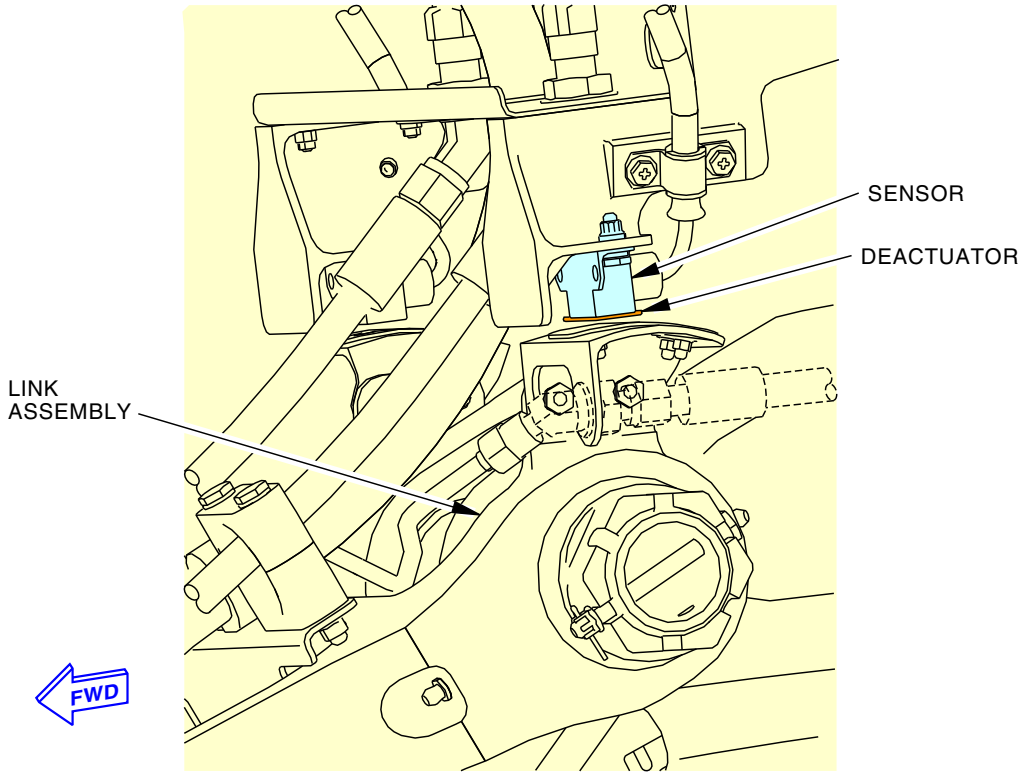

**Air Mode Simulation with Deactuators**
**Figure 201/32-09-00-990-802 (Sheet 1 of 2)**



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LEFT MAIN LANDING GEAR
(RIGHT MAIN LANDING GEAR IS OPPOSITE)




(EXAMPLE)

B

2414031 S00061534250_V3

**Air Mode Simulation with Deactuators**
**Figure 201/32-09-00-990-802 (Sheet 2 of 2)**



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TASK 32-09-00-860-802

## 4. Return the Airplane to the Ground Mode

(Figure 201)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### C. Put the Airplane in Ground Mode

SUBTASK 32-09-00-860-014

**WARNING** KEEP PERSONS AND EQUIPMENT CLEAR OF THE RAM INLET DOOR. THIS DEFLECTOR DOOR MOVES WHEN THE AIRPLANE IS SWITCHED TO AIR MODE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that persons and equipment are clear of the RAM inlet door.

SUBTASK 32-09-00-860-016

(2) Make sure that the Ground Test Enable switch on the Maintenance BITE Panel is in the ENABLE position.

SUBTASK 32-09-00-860-007

(3) If the airplane was put in the air mode with the MAX Display System (MDS), do these steps:

(a) Return to the special function page on the MDS:

1) Select MAINT -> ONBD MAINT -> OTHER FUNCTIONS -> SPECIAL FUNCTIONS -> ATA System 32: Proximity Sensor Electronics Unit -> CONTINUE -> SELECT.

2) Select PSEU -> AIR/GND OVERRIDE and then select CONTINUE.

3) Select CONTINUE.

(b) Select START FUNCTION.

(c) Select RESET OVERRIDE and then select CONTINUE.

(d) Make sure that the Multi-Function Display indicates AIR/GND OVERRIDE is NOT ACTIVE and both SYS 1 and SYS 2 are in GND mode.

(e) Select STOP FUNCTION.

SUBTASK 32-09-00-860-008

(4) If the airplane was put in the air mode with deactuators, remove the deactuators from the nose and main landing gear.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-09-00-860-009

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(5) If the airplane was put in the air mode by jacking the airplane, do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

SUBTASK 32-09-00-860-015

(6) Move the Ground Test Enable switch to the NORM position.

SUBTASK 32-09-00-840-002

(7) Do this task: Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802.

——— END OF TASK ———

**TASK 32-09-00-840-802**

**5. Return the Airplane Systems Back to Their Normal on Ground Condition**

**A. References**

| Reference | Title |
|---|---|
| 78-31-00-440-801-G00 | Thrust Reverser Activation After Ground Maintenance (P/B 201) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 117 | Electrical and Electronics Compartment - Left |
| 118 | Electrical and Electronics Compartment - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**C. Access Panels**

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

**D. Put the Airplane Systems Back to Their Normal on Ground Condition**

SUBTASK 32-09-00-440-007

(1) Return the right stick shaker to its original condition.

(a) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 6 | C01393 | STICK SHAKER RIGHT |



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SUBTASK 32-09-00-440-008

(2) Return the weather radar to its original condition.

(a) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

SUBTASK 32-09-00-440-009

(3) Return ACARS to its original condition.

(a) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 8 | C01483 | CMU-1 AC |

This circuit breaker is inoperative and should remain open:

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 9 | C01500 | CMU/ACARS DC (INOP) |

SUBTASK 32-09-00-440-010

(4) Return the hydraulic power transfer unit to it's original condition.

(a) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 15 | C01081 | HYDRAULIC SYSTEM PTU VALVE CONT 1 |
| A | 16 | C01085 | HYDRAULIC SYSTEM PTU VALVE CONT 2 |

SUBTASK 32-09-00-440-001

(5) Return the take off warning system to its original condition.

(a) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-09-00-440-002

(6) Return the left stick shaker to its original condition.

(a) Remove the safety tag and close this circuit breaker:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 4 | C01392 | STICK SHAKER LEFT |

SUBTASK 32-09-00-040-020

(7) Return the pitot probe, temperature probe, and AOA vane heaters to their original condition.



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(a) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 1 | C00523 | HEATERS CAPT PITOT |
| C | 2 | C00238 | HEATERS TEMP PROBE |
| C | 3 | C01072 | HEATERS ALPHA VANE LEFT |
| C | 4 | C00236 | HEATERS ELEV PITOT LEFT |
| D | 3 | C01071 | HEATERS ALPHA VANE RIGHT |
| D | 4 | C00237 | HEATERS ELEV PITOT RIGHT |
| D | 5 | C00525 | HEATERS F/O PITOT |
| D | 6 | C00524 | HEATERS AUX PITOT |

SUBTASK 32-09-00-440-011

(8) Return the drain mast heat to the normal condition.

(a) Remove the safety tag and close this circuit breaker:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 4 | C00700 | HEATERS DRAIN MAST AIR |

SUBTASK 32-09-00-440-013

(9) Return the door area heaters to their original condition.

(a) Remove the safety tag and close this circuit breaker:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 11 | C01274 | AIR CONDITIONING DOOR AREA HEAT CONT |

SUBTASK 32-09-00-440-014

**WARNING** WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

**WARNING** DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(10) Return the door area heaters to their original condition.

(a) Remove the safety tags and close these circuit breakers:

**Power Distribution Panel Number 1, P91**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 7 | C01279 | DOOR AREA HTR-AFT |
| D | 9 | C01280 | DOOR AREA HTR-FWD |


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SUBTASK 32-09-00-840-003

**WARNING**

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

**WARNING**

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(11) Return the standby hydraulic pump to the normal condition.

(a) Remove the safety tag and close this circuit breaker:

**Power Distribution Panel Number 2, P92**

| Row | Col | Number | Name |
|---|---|---|---|
| F | 2 | C01449 | STANDBY HYDRAULIC PUMP |

SUBTASK 32-09-00-410-001

(12) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-09-00-440-006

(13) Do this task: Thrust Reverser Activation After Ground Maintenance, TASK 78-31-00-440-801-G00.

SUBTASK 32-09-00-020-002

(14) Remove the DO NOT OPERATE tag from the Left and Right ENGINE START switches.

SUBTASK 32-09-00-020-003

(15) Remove the DO NOT OPERATE tag from the Left and Right START LEVERS.

**END OF TASK**



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## MAIN LANDING GEAR AIR/GROUND SENSOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the main landing gear air/ground sensor

(2) Installation of the main landing gear air/ground sensor.

B. The procedures for the left and right installations are similar.

**TASK 32-09-01-020-801**

### 2. Main Landing Gear Air/Ground Sensor Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-801 | Prepare to Put the Airplane in the Air Mode (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-764 | Scraper - Non-metallic |

#### C. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

#### D. Prepare for the Removal

**SUBTASK 32-09-01-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-09-01-840-001**

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.

**SUBTASK 32-09-01-860-001**

(3) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |



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## E. Main Landing Gear Air/Ground Sensor Removal

**SUBTASK 32-09-01-210-001**

(1) Inspect the sensor [4] and target assembly for damage or other evidence that the sensor clearance may be out of tolerance.

(a) Write a note to check the sensor clearance if there is evidence that the sensor clearance may be out of tolerance.

**SUBTASK 32-09-01-020-001**

(2) Disconnect the sensor wires in the junction box.

(a) Remove and discard the lockwire [22] from the screws [7].

(b) Remove the screws [7] and washers [5] securing the junction box cover [6].

(c) Remove the junction box cover [6].

(d) Remove the sensor wire contacts from the terminal block in the junction box.

(e) Attach a string to the sensor wires.

NOTE: This string will be used to pull the wires of the new sensor through the conduit. The string can be tied to the landing gear structure to ensure that the string is not pulled through the conduit.

**SUBTASK 32-09-01-020-002**

(3) Remove the sensor [4].

(a) Remove the nuts [1], washers [2], washers [8], and bolts [3] which secure the sensor [4] to the mounting bracket.

(b) Remove the sensor [4] from the bracket.

1) Use a non-metallic scraper, STD-764, to “lift” the sensor off the mounting bracket.

NOTE: Any damage to the paint must be repaired prior to installing the new sensor.

(c) Pull the sensor wires out of the conduit.

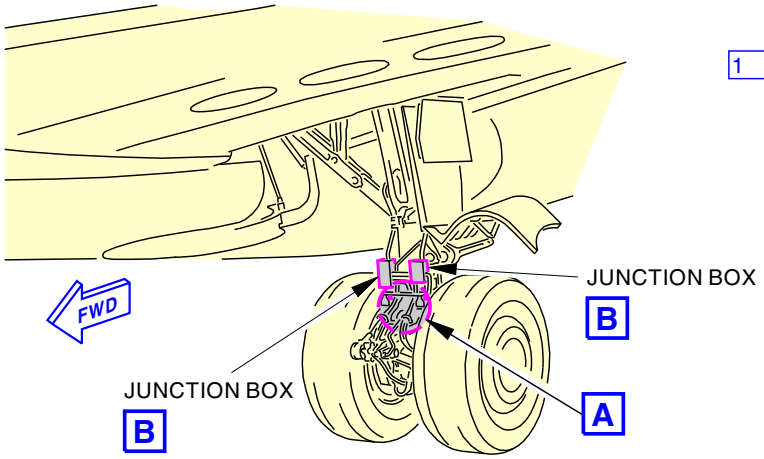
1) Make sure that you do not pull the string through the conduit.

(d) Remove the string from the sensor wires.

**——— END OF TASK ———**

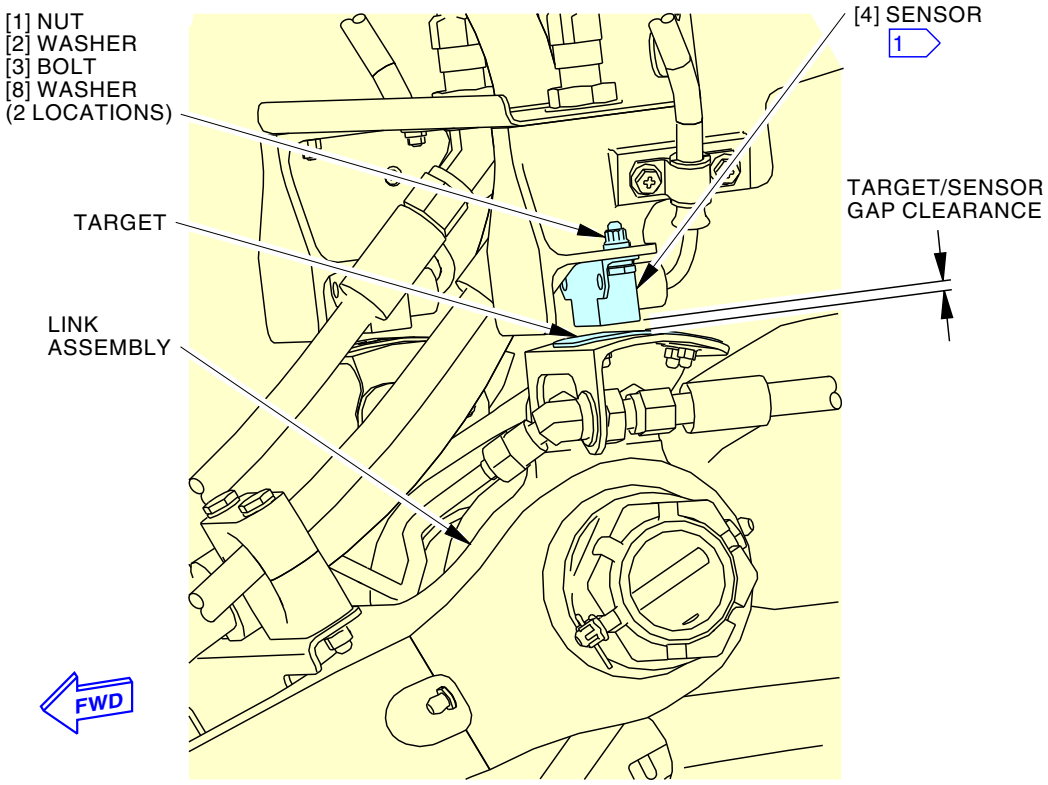


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| ITEM | SENSOR NO. | MLG | LOCATION |
|---|---|---|---|
| [4] | S1010 | R | OUTBD |
| [4] | S1011 | R | INBD |
| [4] | S1012 | L | OUTBD |
| [4] | S1013 | L | INBD |

**LEFT MAIN LANDING GEAR**
**(RIGHT MAIN LANDING GEAR IS OPPOSITE)**




**(EXAMPLE)**

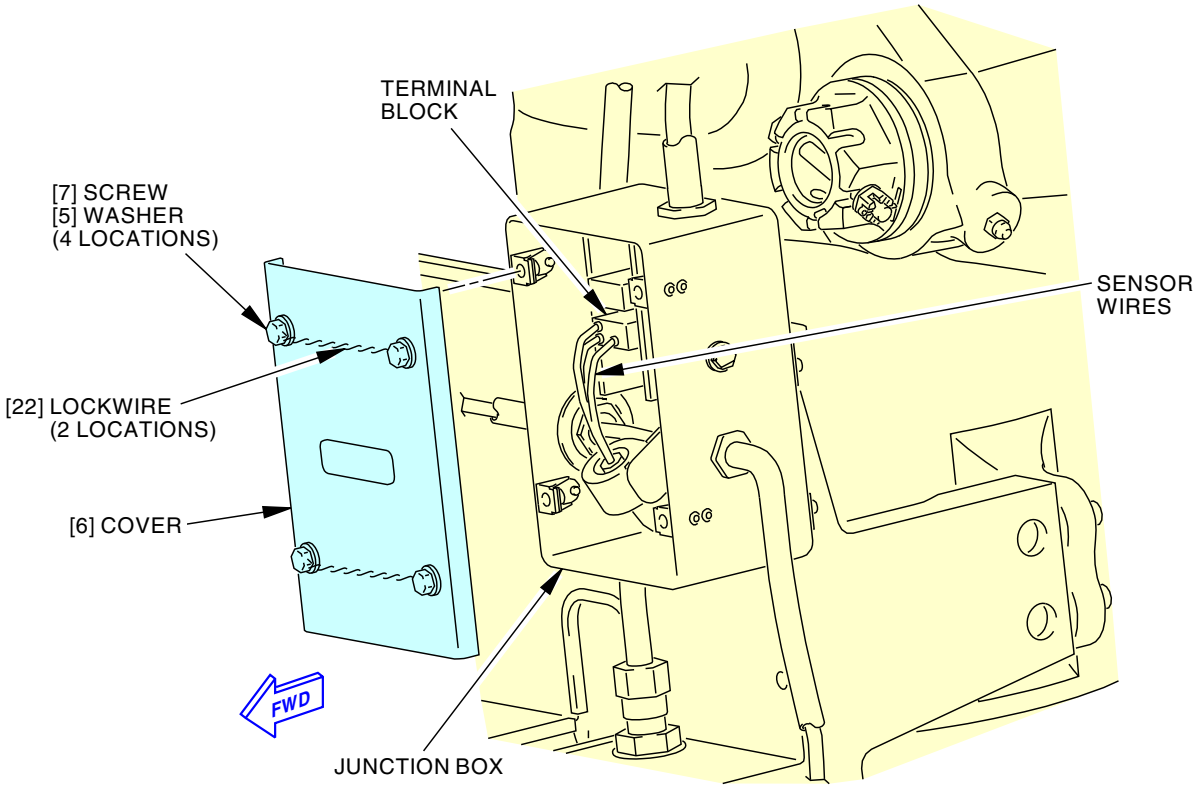
**A**

2414033 S00061534257_V3

**Main Landing Gear Air/Ground Sensor Installation**
**Figure 401/32-09-01-990-801 (Sheet 1 of 2)**



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**OUTBOARD JUNCTION BOX**
**(INBOARD JUNCTION BOX IS EQUIVALENT)**
**(EXAMPLE)**

**B**

2414034 S00061534258_V2

**Main Landing Gear Air/Ground Sensor Installation**
**Figure 401/32-09-01-990-801 (Sheet 2 of 2)**



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**TASK 32-09-01-400-801**

## 3. Main Landing Gear Air/Ground Sensor Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-801 | Prepare to Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |
| 32-09-01-400-802 | Main Landing Gear Air/Ground Sensor Clearance Measurement (P/B 501) |
| 32-09-01-710-801 | Main Landing Gear Air/Ground Sensor Operational Test (P/B 501) |
| 51-21-99-300-802 | Decorative Exterior Paint System Repair (P/B 701) |
| 51-22-00-390-808 | Fastener Seal Application (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Sensor | 32-09-01-01-015 | SIA ALL |
| | | 32-09-01-01-215 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### E. Prepare for the Installation

**SUBTASK 32-09-01-480-002**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-09-01-840-002**

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) If the airplane systems are not prepared for air mode simulation, do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.


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## F. Main Landing Gear Air/Ground Sensor Installation

**SUBTASK 32-09-01-370-001**

(1) Make sure that the Sensor bracket paint is not scratched.

(a) Repair all damage to the finish (TASK 51-21-99-300-802).

**SUBTASK 32-09-01-350-001**

(2) Cut the sensor wires to the correct length:

(a) You can use the sensor that was removed to find the wire length on the replacement sensor.

**SUBTASK 32-09-01-420-001**

(3) Attach the contacts to the sensor wires.

**SUBTASK 32-09-01-410-001**

(4) Fay seal the bottom of the sensor [4] with sealant, A00247.

**SUBTASK 32-09-01-420-002**

(5) Attach the sensor [4] to the mounting bracket.

(a) Put the sensor [4] in position on the bracket.

(b) Wet install the bolts [3], nuts [1], washers [2], and washers [8] with sealant, A00247 (TASK 51-22-00-390-808, Procedure 3 for wet install process).

(c) Install the bolts [3], washers [2], washers [8], and nuts [1].

NOTE: Use CRES washers below bolt heads with titanium sensors. Use cad-plated washers below nuts. CRES washers are optional below bolt heads with stainless steel sensors.

**SUBTASK 32-09-01-410-002**

(6) Attach the sensor wires to the airplane.

(a) Attach the string to the sensor wires.

(b) Pull the wires through the conduit to the junction box.

(c) Remove the string from the sensor wires

(d) Install the sensor contacts into the terminal block.

1) Red wire goes into position A.

2) Yellow wire goes into position E.

3) Blue wire goes into position C.

**SUBTASK 32-09-01-410-003**

(7) Instal the junction box cover [6].

(a) Make sure that the junction box cover [6] is in satisfactory condition.

1) If necessary, replace the junction box cover [6].

(b) Install the washers [5] and screws [7] to attach the junction box cover [6].

(c) Install the lockwire [22] (MS20995C32 lockwire, G01048) between the screws [7].

## G. Main Landing Gear Air/Ground Sensor Test

**SUBTASK 32-09-01-200-001**

(1) Do a post installation check of the sensor [4]:

(a) Do this task: Main Landing Gear Air/Ground Sensor Clearance Measurement, TASK 32-09-01-400-802.



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(b) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

(c) Do this task: Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802.

(d) Do this task: Main Landing Gear Air/Ground Sensor Operational Test, TASK 32-09-01-710-801.

**——— END OF TASK ———**



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## MAIN LANDING GEAR AIR/GROUND SENSOR - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

(1) Measurement of the main landing gear air/ground sensor clearance

(2) Adjustment of the main landing gear air/ground sensor clearance

(3) Operational test of the main landing gear air/ground sensor

B. The procedures for the left and right adjustment/tests are similar.

**TASK 32-09-01-400-802**

### 2. Main Landing Gear Air/Ground Sensor Clearance Measurement

(Figure 501)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

#### C. Prepare for the Measurement

**SUBTASK 32-09-01-480-003**

(1) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-09-01-480-004**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

#### D. Main Landing Gear Air/Ground Sensor Clearance Measurement

**SUBTASK 32-09-01-220-001**

(1) Measure the clearance between the sensor [1] and target [6] with a feeler gage.

(a) Make a record of the clearance dimension.

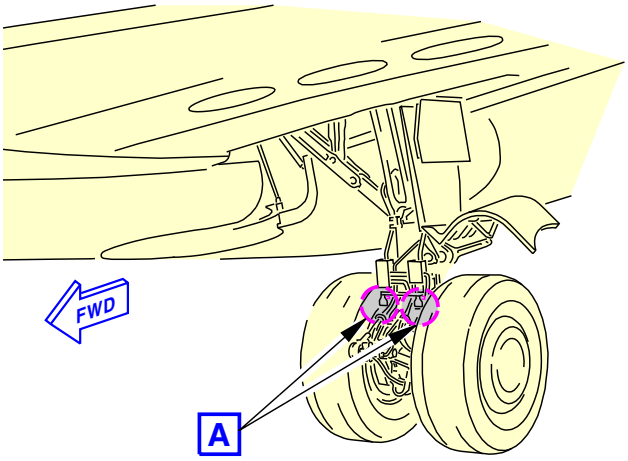
**SUBTASK 32-09-01-820-001**

(2) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Main Landing Gear Air/Ground Sensor Clearance Adjustment, TASK 32-09-01-820-801.

**END OF TASK**



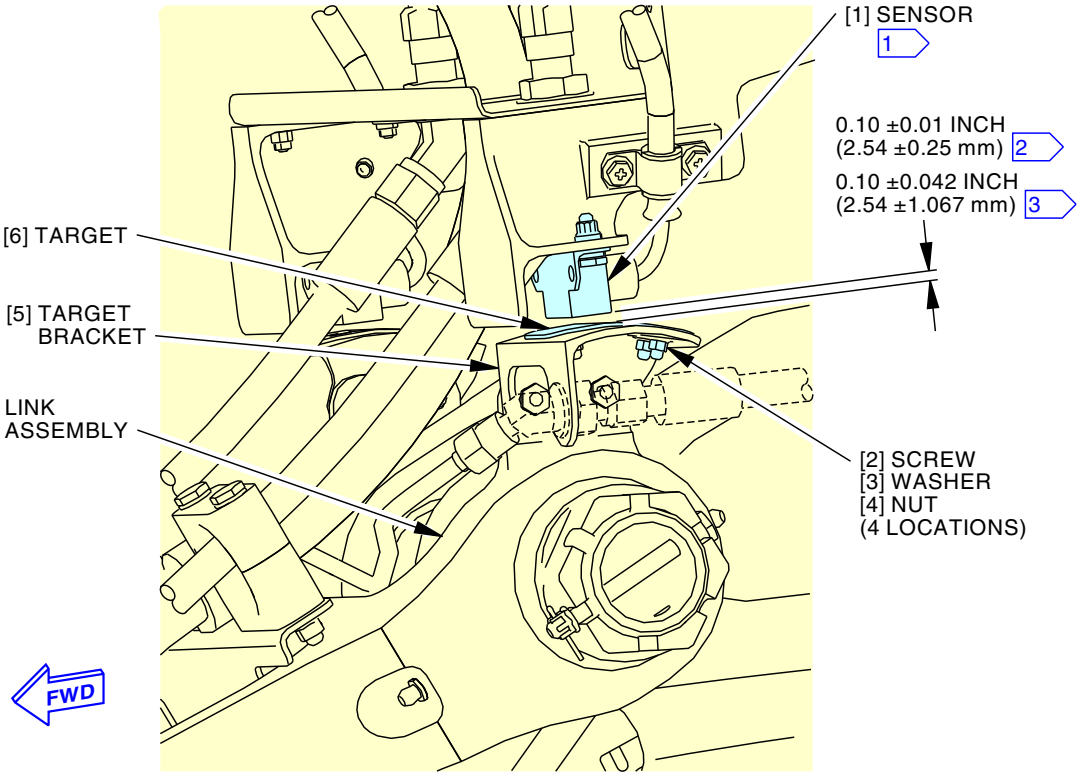
ECCN 9E991 BOEING PROPRIETARY - See title page for details




| SYSTEM NO. | SENSOR NO. | MLG | LOCATION |
|---|---|---|---|
| 1 | S1010 | R | OUTBD |
| 2 | S1011 | R | INBD |
| 1 | S1012 | L | OUTBD |
| 2 | S1013 | L | INBD |

2 PHYSICAL GAP TOLERANCE
3 PSEU TOLERANCE

**LEFT MAIN LANDING GEAR**
**(RIGHT MAIN LANDING GEAR IS OPPOSITE)**




**(EXAMPLE)**

**A**

2414035 S00061534262_V6

**Main Landing Gear Air/Ground Sensor Test**
**Figure 501/32-09-01-990-802**



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**TASK 32-09-01-820-801**

## 3. Main Landing Gear Air/Ground Sensor Clearance Adjustment

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### C. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### D. Prepare for the Adjustment

**SUBTASK 32-09-01-480-005**

(1) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-09-01-480-006**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Make sure the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

### E. Main Landing Gear Air/Ground Sensor Clearance Adjustment

**SUBTASK 32-09-01-020-003**

(1) Use the target bracket [5] to adjust the sensor clearance.

(a) Loosen the attaching hardware on the target bracket [5].

(b) Adjust the target bracket [5] to get the correct clearance shown in Figure 501.

(c) If you can adjust the target bracket [5] to get the correct clearance, do the steps to re-tighten the bracket fasteners.

(d) If you cannot adjust the target bracket [5] to get the correct clearance, continue the adjustment procedure.

(e) Do these steps to re-tighten the bracket fasteners:



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**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

1) Apply a thin coat of corrosion inhibiting material, G50136, to the thread reliefs and threads of the nuts and the faces of the washers that secure the target bracket [5].
   a) Wipe off the excess of corrosion inhibiting material, G50136.
2) Tighten the target bracket [5] fasteners.

SUBTASK 32-09-01-020-004

(2) Do these steps to remove the main landing gear air/ground sensor [1]:
   (a) Remove the attaching hardware from the sensor [1].
   (b) Move the sensor [1] out of the way.

SUBTASK 32-09-01-020-005

(3) Do these steps to remove the target [6]:
   (a) Remove the nuts [4], washers [3], and screws [2].
   (b) Remove the target [6].

SUBTASK 32-09-01-110-001

(4) Clean the mounting surfaces.

SUBTASK 32-09-01-420-003

(5) Do these steps to secure the target [6]:

**WARNING** DO NOT GET PRIMER AND SEALANT IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM PRIMER AND SEALANT. PUT ON GOGGLES, AND GLOVES WHEN YOU USE PRIMER AND SEALANT. KEEP PRIMER AND SEALANT AWAY FROM SPARKS, FLAME, AND HEAT. PRIMER AND SEALANT IS POISONOUS AND FLAMMABLE, AND CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

   (a) Apply a light coat of sealant, A00247, to the fay surface of the target [6].
   (b) Position the target [6] on the target bracket [5].

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

   (c) Apply a thin coat of corrosion inhibiting material, G50136, to the thread reliefs and threads of the nuts [4] and faces of the washers [3].
      1) Wipe off the excess of corrosion inhibiting material, G50136.


ECCN 9E991 BOEING PROPRIETARY - See title page for details

(d) Install the screws [2], washers [3], and nuts [4].

SUBTASK 32-09-01-020-006

(6) Do these steps to re-install the main landing gear air/ground sensor [1]:

(a) Position the sensor [1] sensor on the link assembly.

**WARNING**

DO NOT GET PRIMER AND SEALANT IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM PRIMER AND SEALANT. PUT ON GOGGLES, AND GLOVES WHEN YOU USE PRIMER AND SEALANT. KEEP PRIMER AND SEALANT AWAY FROM SPARKS, FLAME, AND HEAT. PRIMER AND SEALANT IS POISONOUS AND FLAMMABLE, AND CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(b) Apply a thin coat of sealant, A00247, to the fay surfaces of the sensor [1] and to the thread reliefs, threads, and washer faces of the attaching hardware.

1) Wipe off the excess sealant, A00247.

(c) Secure the sensor [1] with the attaching hardware.

SUBTASK 32-09-01-220-002

(7) Measure the sensor clearance (TASK 32-09-01-400-802).

(a) If the sensor clearance is not correct, do the steps to adjust the sensor clearance again.

(b) If the sensor clearance is correct, check the operational functionality and values displayed on the maintenance data pages (TASK 32-09-01-710-801).

**END OF TASK**

**TASK 32-09-01-710-801**

## 4. Main Landing Gear Air/Ground Sensor Operational Test

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### C. Prepare for the Operational Test

SUBTASK 32-09-01-480-007

(1) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).



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SUBTASK 32-09-01-480-008

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

## D. Main Landing Gear Air/Ground Sensor Operational Test

SUBTASK 32-09-01-740-001

(1) Use the Proximity Sensor Electronics Unit (PSEU) Maintenance Page to examine the adjustment of the sensor.

(a) Set the GND TESTS switch, on the P61-4 maintenance bite panel, to ENABLE position.

(b) Select SYS on the Multi-Function Display panel.

(c) Select MAINT -> MAINT DATA PGS -> ATA System 32: Proximity Sensor Electronics Unit -> DISPLAY.

(d) Make sure that the sensor state is NEAR.

SUBTASK 32-09-01-070-001

(2) On PSEU Maintenance Page 1, the STATE column shows the current condition (NEAR, FAR or MARG) of each sensor.

(a) Target-Near (or NEAR) refers to the condition where the sensor is considered actuated, while Target-Far (or FAR) refers to the unactuated condition.

(b) Marginal (or MARG) refers to a target-near condition that is not within the acceptable range specified in Table 1, and re-rigging of the sensor/target installation is required.

SUBTASK 32-09-01-070-002

(3) On PSEU Maintenance Page 1, the current clearance value of each sensor is shown in the MILS column, if the target is near or marginal.

(a) If the target is far, the value will be shown as “---”.

SUBTASK 32-09-01-070-003

(4) On PSEU Maintenance Page 1, the serviceable sensor clearance rigging range is shown in the RANGE column.

SUBTASK 32-09-01-710-001

(5) Do the PSEU SELF-TEST.

(a) Set the GND TESTS, on the P61-4 maintenance bite panel, to ENABLE position.

(b) Select SYS on the Multi-Function Display panel.

(c) Select MAINT-> ONBD MAINT-> LINE MAINT -> GROUND TESTS -> ATA SYSTEM 32: Proximity Sensor Electronics Unit -> OPERATIONAL TEST.

(d) Select PSEU - SELF TEST and then select CONTINUE.

(e) Follow the instructions shown on the Multi-Function Display and select CONTINUE.

(f) Select START TEST.

1) Make sure that PASS shows on the MAX Display System (MDS).

**END OF TASK**



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## NOSE LANDING GEAR AIR/GROUND SENSOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Nose landing gear air/ground sensor removal

(2) Nose landing gear air/ground sensor installation.

B. The procedures for the left and right sensors are same.

**TASK 32-09-02-000-801**

### 2. Nose Landing Gear Air/Ground Sensor Removal

(Figure 401)

#### A. General

(1) This task is for the removal of the nose landing gear air/ground sensor.

#### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-801 | Prepare to Put the Airplane in the Air Mode (P/B 201) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-09-02-480-011**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-09-02-840-001**

**WARNING** OBEY THE PROCEDURE THAT PREPARES TO PUT THE AIRPLANE IN THE AIR MODE. IN THE AIR MODE, MANY OF THE AIRPLANE SYSTEMS CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.

**SUBTASK 32-09-02-860-001**

(3) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |



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## E. Nose Landing Gear Air/Ground Sensor Removal

**SUBTASK 32-09-02-210-001**

(1) Examine the sensor [1] and the target assembly as follows:

(a) Look for damage or an indication that the sensor clearance is possibly out of tolerance.

NOTE: Write a note to examine the sensor clearance if there is an indication that the clearance is not in limits.

**SUBTASK 32-09-02-020-001**

(2) Disconnect the connector from the airplane.

(a) Unpin the sensor wire contacts from the connector.

(b) Attach a string to the sensor wires.

NOTE: This string will be used to pull the wires of the new sensor through the conduit and junction box. You can attach the string to the landing gear structure. This will make sure that you do not pull the string through the conduit and the junction box.

**SUBTASK 32-09-02-020-002**

(3) Remove the sensor [1] as follows:

(a) Remove the nuts [2], washers [3], washers [8], and bolts [4] which secure the sensor [1] to the mounting bracket.

(b) Remove the sensor [1] from the bracket.

NOTE: Use a non-metallic scrapper to remove the sensor from the bracket. Make sure that you do not cause damage to the paint on the sensor bracket.

(c) Pull the sensor wires out of the conduit and junction box.

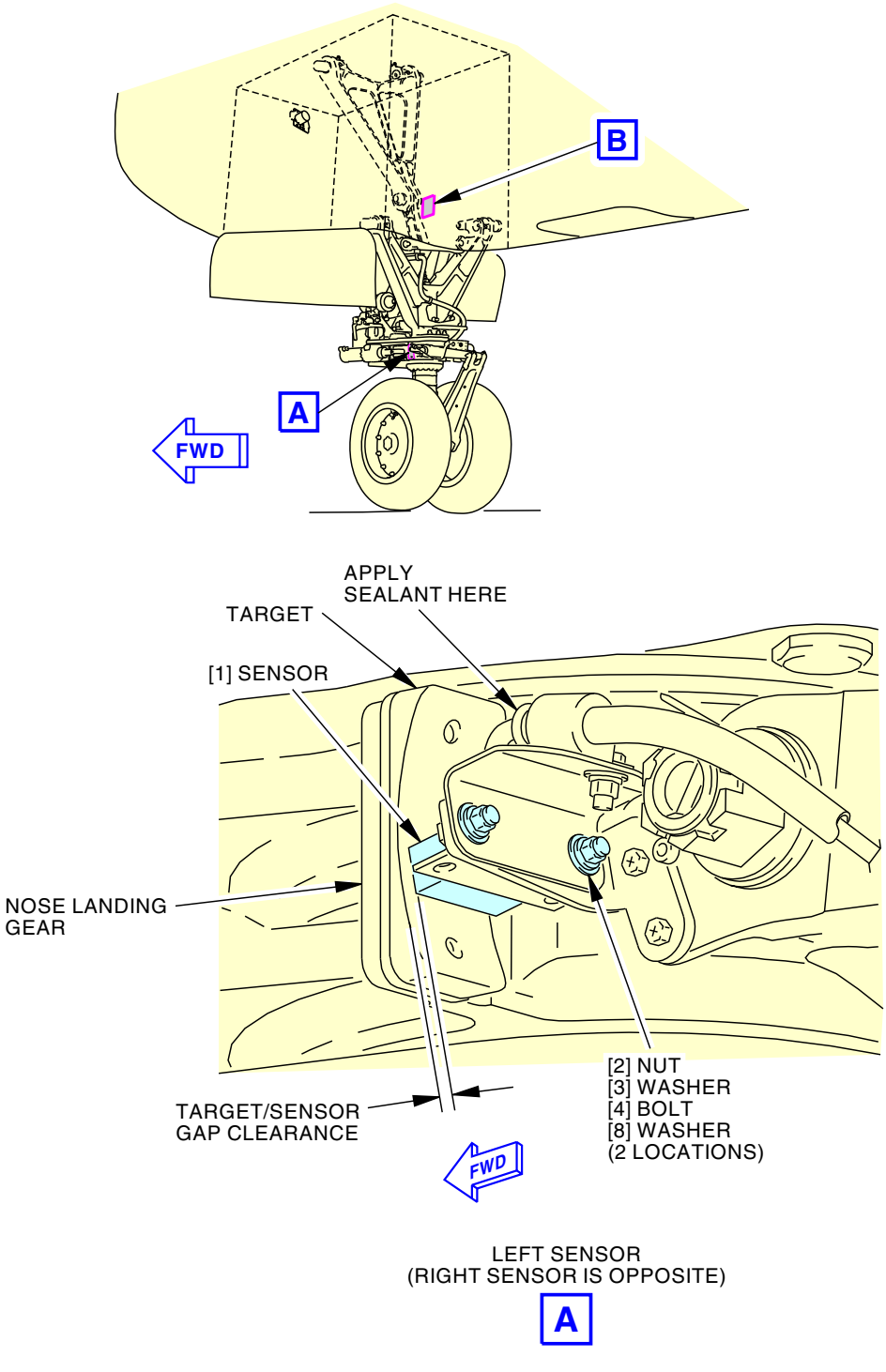
NOTE: Make sure that you do not pull the string through the conduit.

(d) Remove the string from the sensor wires.

**——— END OF TASK ———**



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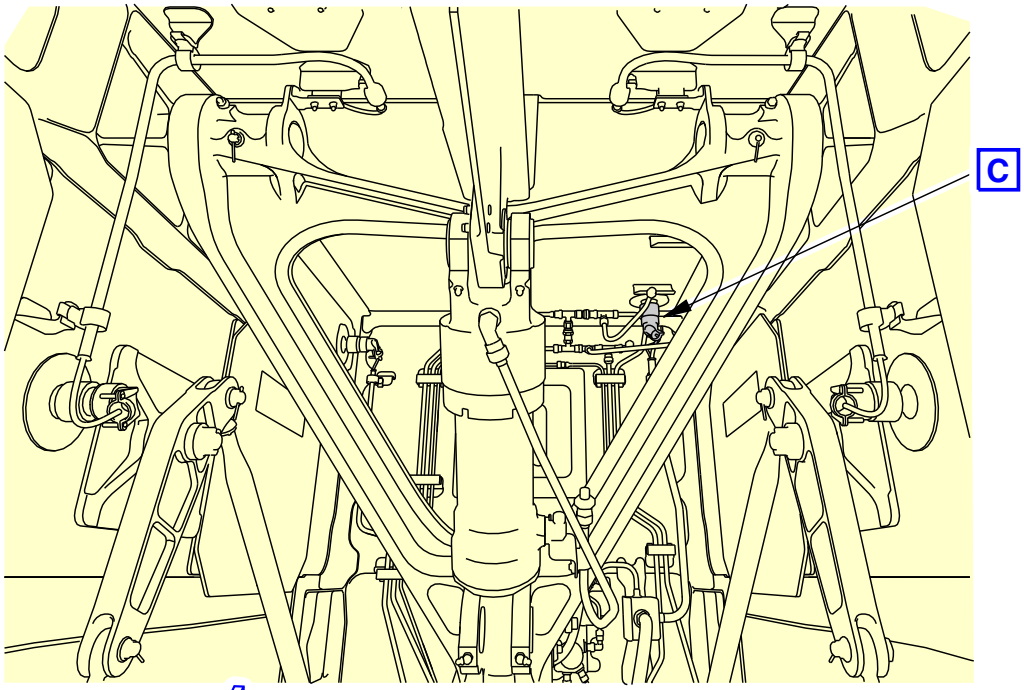



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**Nose Landing Gear Air/Ground Sensor Installation**
**Figure 401/32-09-02-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Air/Ground Sensor Installation**
**Figure 401/32-09-02-990-801 (Sheet 2 of 2)**



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**TASK 32-09-02-400-801**

## 3. Nose Landing Gear Air/Ground Sensor Installation

(Figure 401)

### A. General

(1) This task is for the installation of the nose landing gear air/ground sensor.

### B. References

| Reference | Title |
|---|---|
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |
| 32-09-02-220-801 | Nose Landing Gear Air/Ground Sensor Clearance Measurement (P/B 501) |
| 32-09-02-710-801 | Nose Landing Gear Air/Ground Sensor Operational Test (P/B 501) |
| 51-22-00-390-808 | Fastener Seal Application (P/B 201) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00027 | Adhesive - Silicone Rubber, 1 Part, RTV | BAC5010 Type 60 |
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Sensor | 32-09-02-02-065 | SIA ALL |
| | | 32-61-51-01-005 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### F. Nose Landing Gear Air/Ground Sensor Installation

**SUBTASK 32-09-02-410-001**

(1) Fay seal the bottom of the sensor [1] with sealant, A00247.

**SUBTASK 32-09-02-420-001**

(2) Attach the sensor [1] to the mounting bracket.

(a) Position the sensor [1] on the bracket.

(b) Apply wet sealant, A00247 to the two bolts [4], two washers [3], two washers [8], and the two nuts [2] (TASK 51-22-00-390-808).

(c) Install the sensor [1] with the bolts [4], washers [3], washers [8] and nuts [2].

NOTE: Use CRES washers below bolt heads with titanium sensors. Use cad-plated washers below nuts. CRES washers are optional below bolt heads with stainless steel sensors.

**SUBTASK 32-09-02-970-001**

(3) Do this task: Nose Landing Gear Air/Ground Sensor Clearance Measurement, TASK 32-09-02-220-801.

**SUBTASK 32-09-02-350-001**

(4) Do these steps to pull the sensor wires through the conduit:



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(a) Attach the string to the sensor wires.

(b) Pull the wires through the conduit and junction box.

(c) Remove the string from the sensor wires.

SUBTASK 32-09-02-420-002

(5) Re-pin the sensor wires.

SUBTASK 32-09-02-410-002

(6) Connect the connector to the airplane.

SUBTASK 32-09-02-390-001

(7) Seal the end of the conduit near the sensor with 1 in. (25.4 mm) of adhesive, A00027.

NOTE: Make sure that the sensor wiring does not touch the flared end of the conduit.

## G. Put the Airplane Back to its Usual Condition

SUBTASK 32-09-02-860-003

(1) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

SUBTASK 32-09-02-860-004

(2) Do this task: Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802.

## H. Nose Landing Gear Air/Ground Sensor Installation Test

SUBTASK 32-09-02-710-002

(1) Do this task: Nose Landing Gear Air/Ground Sensor Operational Test, TASK 32-09-02-710-801.

**END OF TASK**



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## NOSE LANDING GEAR AIR/GROUND SENSOR - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

(1) Nose landing gear air/ground sensor clearance measurement

(2) Nose landing gear air/ground sensor clearance adjustment

(3) Nose landing gear air/ground sensor operational test.

B. The adjustment/tests procedures for the left and right sensors are similar.

**TASK 32-09-02-220-801**

### 2. Nose Landing Gear Air/Ground Sensor Clearance Measurement

(Figure 501)

#### A. General

(1) This task is for the measurement of the clearance between the sensor and the target.

#### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-371 | Gauge - Feeler, 0.0 to 0.5 in (0.0 to 12.7 mm), Readable to 1/1000 in (.025 mm) |

#### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

#### E. Prepare for the Measurement

**SUBTASK 32-09-02-480-009**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-09-02-480-010**

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

#### F. Measure the Nose Landing Gear Air/Ground Sensor Clearance

**SUBTASK 32-09-02-220-001**

(1) Measure the clearance between the sensor and target with a 0.0 to 0.5 in (0.0 to 12.7 mm) feeler gauge, STD-371.

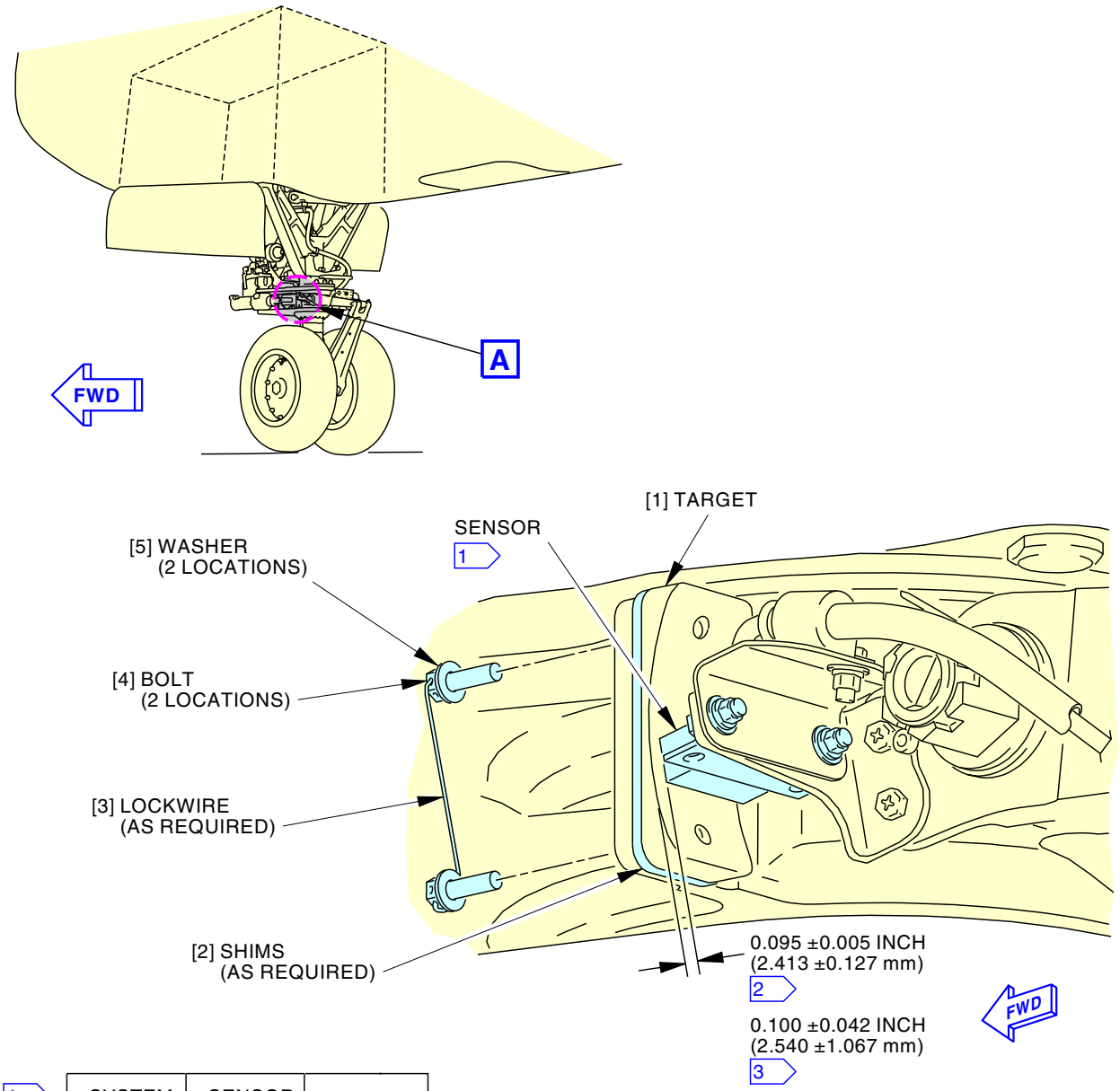
**SUBTASK 32-09-02-820-001**

(2) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Nose Landing Gear Air/Ground Sensor Clearance Adjustment, TASK 32-09-02-400-802.

**END OF TASK**



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1

| SYSTEM NO. | SENSOR NO. | LOCATION |
|---|---|---|
| 1 | S1014 | L |
| 2 | S1015 | R |

2 PHYSICAL GAP TOLERANCE

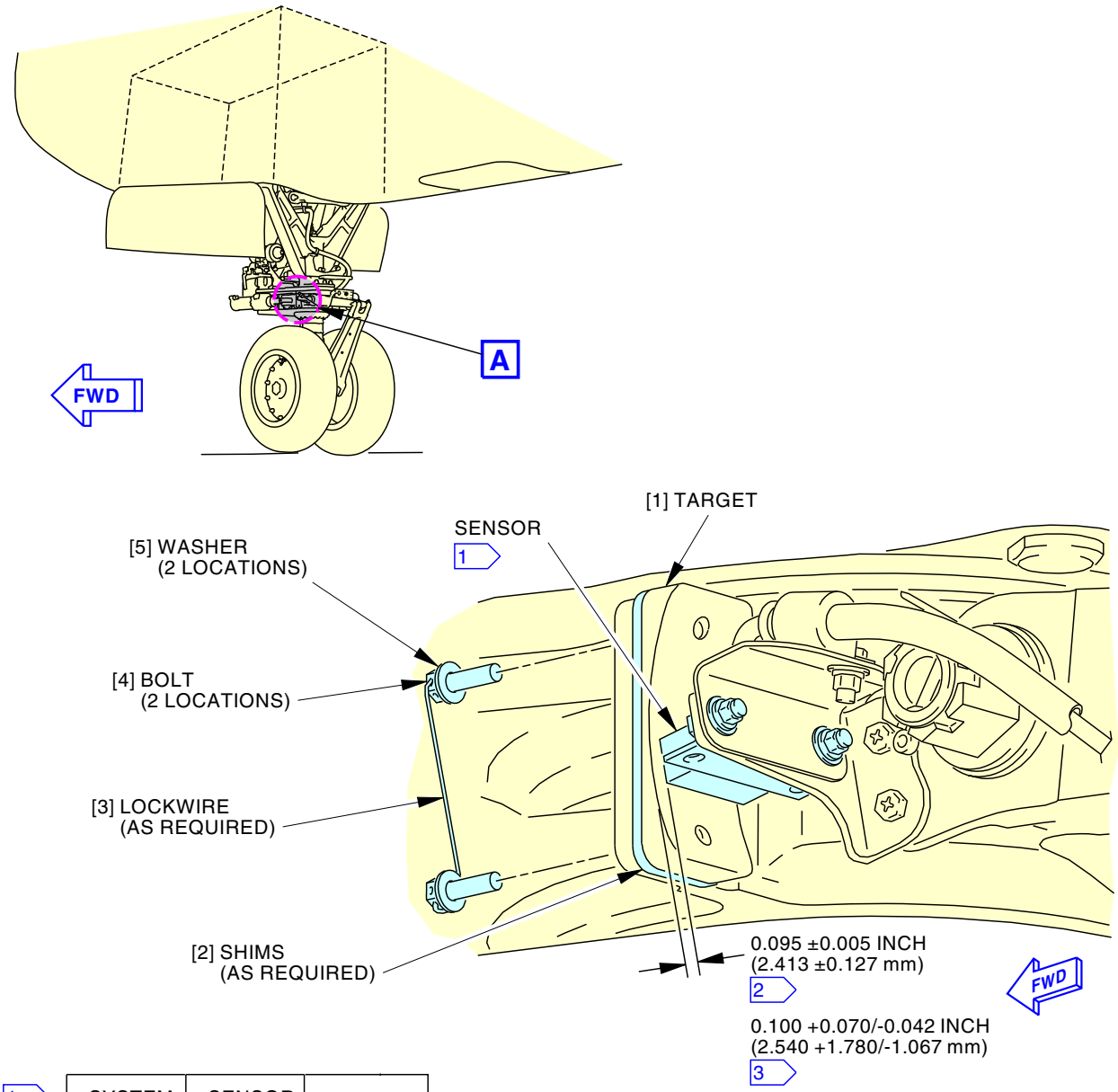
3 PSEU TOLERANCE

2414040 S00061534275_V6

**Nose Landing Gear Air/Ground Sensor Clearance Measurement**
**Figure 501/32-09-02-990-802 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




1

| SYSTEM NO. | SENSOR NO. | LOCATION |
|---|---|---|
| 1 | S1014 | L |
| 2 | S1015 | R |

2 PHYSICAL GAP TOLERANCE

3 PSEU TOLERANCE

2971986 S0000750780_V2

**Nose Landing Gear Air/Ground Sensor Clearance Measurement**
**Figure 501/32-09-02-990-802 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-09-02-400-802**

## 3. Nose Landing Gear Air/Ground Sensor Clearance Adjustment

(Figure 501)

### A. General

(1) This task is for the adjustment of the gap clearance between the Nose Landing Gear (NLG) air/ground sensor and target.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

### E. Prepare for the Adjustment

**SUBTASK 32-09-02-480-007**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-09-02-480-008**

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

### F. Nose Landing Gear Air/Ground Sensor Clearance Adjustment

**SUBTASK 32-09-02-020-003**

(1) Remove the lockwire [3], bolts [4], and washers [5].

**SUBTASK 32-09-02-020-004**

(2) Remove the target [1] and shim [2] or shims [2].

**SUBTASK 32-09-02-110-001**

(3) Clean the shim [2] or shims [2] and mounting surfaces.

**SUBTASK 32-09-02-820-002**

(4) Add a new shim [2] or remove laminations from the original shim [2] to get the necessary clearance (Figure 501).



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SUBTASK 32-09-02-620-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Apply a thin coat of corrosion inhibiting material, G50136, to the thread reliefs and threads of the bolts [4] and faces of the washers [5].

NOTE: Wipe off the excess material.

SUBTASK 32-09-02-420-003

(6) Install the target [1] as follows:

(a) Position the shim [2] or shims [2] and target [1] on the mounting bracket.

(b) Install the bolts [4] and washers [5].

SUBTASK 32-09-02-220-002

(7) Measure the sensor clearance (TASK 32-09-02-220-801).

(a) If the sensor clearance is not correct, do the steps to adjust the sensor clearance again.

(b) If the sensor clearance is correct, check the operational functionality and values displayed on the maintenance data pages (TASK 32-09-02-710-801).

SUBTASK 32-09-02-390-002

(8) Seal the shim stack as follows:

(a) Clean the shim [2] or shims [2].

(b) Apply fay surface sealant, A00247, to the shim [2] or shims [2] surfaces.

SUBTASK 32-09-02-620-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(9) Apply a thin coat of corrosion inhibiting material, G50136, to the lockwire [3].

SUBTASK 32-09-02-420-004

(10) Install the lockwire [3] on the bolts [4].

**END OF TASK**

**TASK 32-09-02-710-801**

## 4. Nose Landing Gear Air/Ground Sensor Operational Test

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) This task is for the operational test of the Nose Landing Gear (NLG) air/ground sensor.



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**B. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**C. Nose Landing Gear Air/Ground Sensor Operational Test**

SUBTASK 32-09-02-740-001

(1) Use the Proximity Sensing Electronics Unit (PSEU) Maintenance Page to examine the adjustment of the sensor as follows:

(a) Set the GND TESTS switch, on the P61-4 maintenance bite panel, to ENABLE position.

(b) Select SYS on the Multi-Function Display panel.

(c) Select MAINT -> MAINT DATA PGS -> ATA System 32: Proximity Sensor Electronics Unit -> DISPLAY.

(d) Make sure that the sensor state is NEAR.

SUBTASK 32-09-02-070-001

(2) On PSEU Maintenance Page 1, the STATE column shows the current condition (NEAR, FAR, or MARG) of each sensor.

(a) Target-Near (or NEAR) refers to the condition where the sensor is considered actuated, while Target-Far (or FAR) refers to the unactuated condition.

(b) Marginal (or MARG) refers to a target-near condition that is not within the acceptable range required by the PSEU, and re-rigging of the sensor/target installation should be performed at the next maintenance opportunity.

SUBTASK 32-09-02-070-002

(3) On PSEU Maintenance Page 1, the current clearance value of each sensor is shown in the MILS column, if the target is near or marginal.

(a) If the target is far, the value will be shown as “---”.

SUBTASK 32-09-02-070-003

(4) On PSEU Maintenance Page 1, the serviceable sensor clearance rigging range is shown in the RANGE column.

SUBTASK 32-09-02-710-001

(5) Do the PSEU SELF-TEST as follows:

(a) Set the GND TESTS switch, on the P61-4 maintenance bite panel, to ENABLE position.

(b) Select SYS on the Multi-Function Display panel.

(c) Select MAINT-> ONBD MAINT-> LINE MAINT -> GROUND TESTS -> ATA SYSTEM 32: Proximity Sensor Electronics Unit -> OPERATIONAL TEST.

(d) Select PSEU - SELF TEST and then select CONTINUE.

(e) Follow the instructions shown on the Multi-Function Display and select CONTINUE.

(f) Select START TEST.

1) Make sure that PASS shows on the MAX Display System (MDS).

**D. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-09-02-860-005

(1) Set the GND TEST switch, on the P61-4 maintenance bite panel, to the NORM position.

**——— END OF TASK ———**



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## PROXIMITY SWITCH ELECTRONICS UNIT (PSEU) - REMOVAL/INSTALLATION

### 1. General

A. This procedure has two tasks:

(1) Proximity Switch Electronics Unit removal

(2) Proximity Switch Electronics Unit installation.

**TASK 32-09-10-000-801**

### 2. Proximity Switch Electronics Unit Removal

(Figure 401)

#### A. General

(1) This task gives the instructions on how to remove the Proximity Switch Electronics Unit.

(2) The Proximity Switch Electronics Unit is referred to as the PSEU.

#### B. References

| Reference | Title |
|---|---|
| 20-40-12-000-802 | ESDS Handling for Metal Encased Unit Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-801 | Prepare to Put the Airplane in the Air Mode (P/B 201) |

#### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-7394 | Cap - Dust, Electrical Connector |

#### D. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |

#### E. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

#### F. Prepare for the Removal

**SUBTASK 32-09-10-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-09-10-840-001**

(2) Prepare for air mode simulation (TASK 32-09-00-840-801).

**SUBTASK 32-09-10-010-001**

(3) To get access to the PSEU [1], do this step:

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |



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SUBTASK 32-09-10-860-001

(4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

## G. Proximity Switch Electronics Unit Removal

SUBTASK 32-09-10-480-004

**CAUTION**

DO NOT TOUCH THE PSEU BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PSEU.

(1) Do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 32-09-10-020-001

(2) Remove the electrical connectors [7] from the PSEU [1].

SUBTASK 32-09-10-860-002

(3) Install dust caps, STD-7394, on the electrical connectors [7].

SUBTASK 32-09-10-020-002

(4) Remove the bolt [4] and washers [5] to disconnect the jumper [6] from the PSEU [1].

SUBTASK 32-09-10-020-003

(5) Remove the bolts [2] and washers [3].

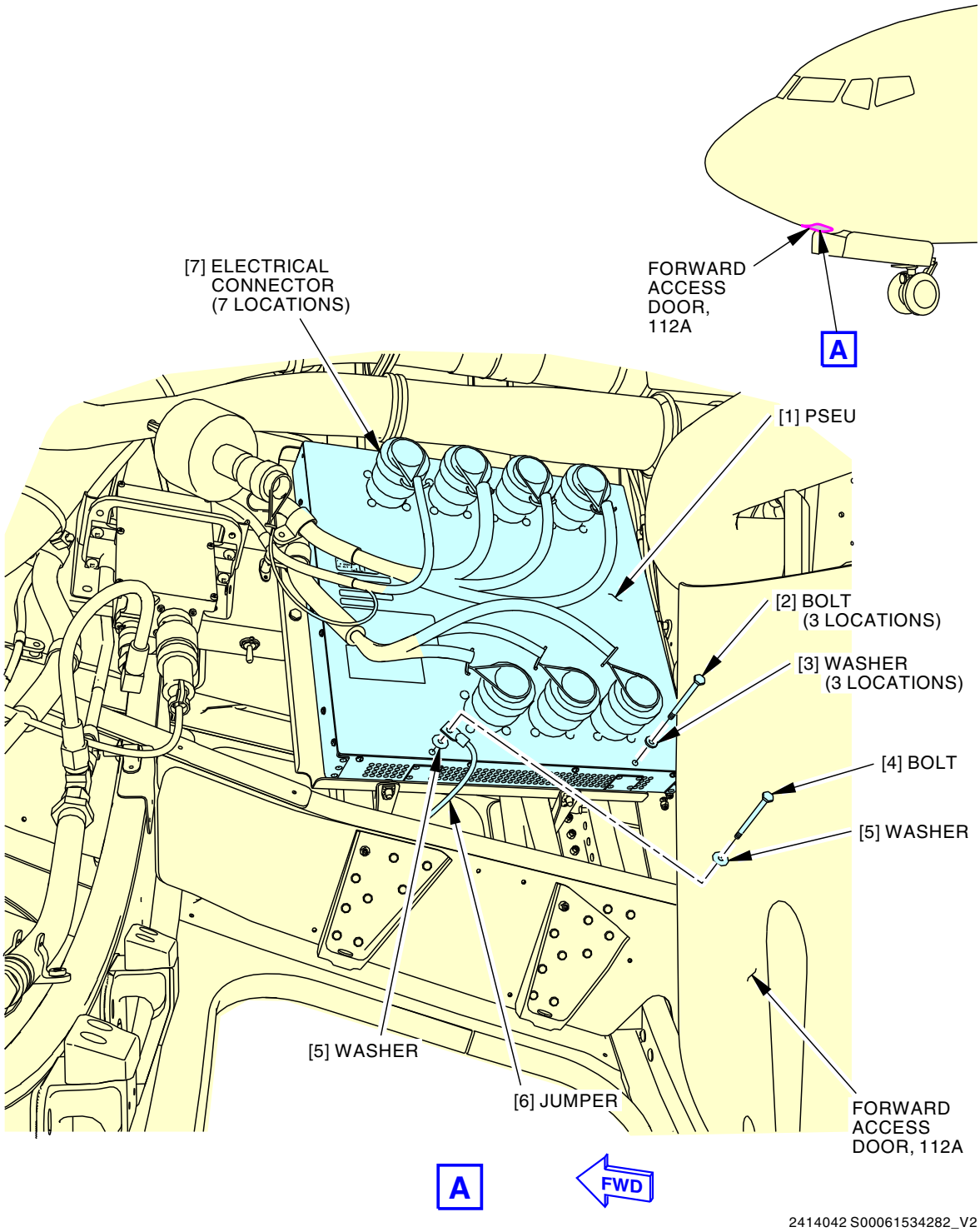
SUBTASK 32-09-10-020-004

(6) Remove the PSEU [1] from the mounting surface.

**END OF TASK**



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**Proximity Switch Electronics Unit (PSEU) Installation**
**Figure 401/32-09-10-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-09-10-400-801**

## 3. Proximity Switch Electronics Unit Installation

(Figure 401)

### A. General

(1) This task gives the instructions on how to install the Proximity Switch Electronics Unit.

(2) The Proximity Switch Electronics Unit is referred to as the PSEU.

### B. References

| Reference | Title |
|---|---|
| 20-10-34-110-802 | Clean Bare, Clad, or Plated Metal with Solvent (P/B 701) |
| 20-40-12-400-802 | ESDS Handling for Metal Encased Unit Installation (P/B 201) |
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |
| 32-09-10-710-801 | Proximity Switch Electronics Unit - LRU Replacement Test (P/B 501) |
| 52-11-00 P/B 201 | FORWARD ENTRY DOOR - MAINTENANCE PRACTICES |
| 52-13-00 P/B 201 | AFT ENTRY DOOR - MAINTENANCE PRACTICES |
| 52-22-00 P/B 201 | EMERGENCY EXIT DOOR - MAINTENANCE PRACTICES |
| 52-41-00 P/B 201 | GALLEY SERVICE DOORS - MAINTENANCE PRACTICES |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |
| STD-7394 | Cap - Dust, Electrical Connector |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A02315 | Sealant - Low Density, Synthetic Rubber. 2 Part | BMS5-142 Type II |
| B00130 | Alcohol - Isopropyl | TT-I-735 |
| B00184 | Solvent - Presealing, Cleaning Solvent | BMS11-7 |
| G50398 | Pad - Adbrasive, Scotch-Brite Type S, Abrasive Pad | |
| G50492 | Pad - 3M Scotch Brite 7448 Ultra Fine Pad | MIL-A-9962A Type III Grade AAA |


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**E. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |

**F. Proximity Switch Electronics Unit Installation**

SUBTASK 32-09-10-480-003

**CAUTION** DO NOT TOUCH THE PSEU BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PSEU.

(1) Do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 32-09-10-480-002

(2) Do these steps to prepare the PSEU [1] for the installation:

(a) To remove the sealant, do this task: Clean Bare, Clad, or Plated Metal with Solvent, TASK 20-10-34-110-802.

(b) Clean the mating surfaces on the PSEU [1], washers [5], bolt [4], and bonding jumper [6] (SWPM 20-20-00, Section 2):

1) Use Cleaning Procedure 1 to clean the mating surface on the PSEU [1].

a) Use a Scotch-Brite Type S pad, G50398, or Scotch-Brite 7448 pad, G50492.

2) Use Cleaning Procedure 5 to clean the remaining PSEU [1] surfaces and the washers [5], bolt [4], and bonding jumper [6] with solvent, B00184, or alcohol, B00130.

SUBTASK 32-09-10-410-001

(3) Put the PSEU [1] in position on the mounting brackets.

SUBTASK 32-09-10-410-002

(4) Install the washers [3] and bolts [2].

SUBTASK 32-09-10-420-001

(5) Connect the bonding jumper [6] to the PSEU [1] with the washers [5] and bolt [4].

(a) Tighten the bolt [4] to 35 ±3 in-lb (3.95 ±0.34 N·m).

SUBTASK 32-09-10-760-001

(6) Do a check of the bonding resistance between the PSEU [1] and the airplane structure with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00).

(a) Make sure that the bonding resistance is less than 0.001 ohm (1 milliohm).

SUBTASK 32-09-10-390-001

(7) Seal the bonding jumper [6] connector.

(a) Clean the bonding jumper [6] connector with solvent, B00184, or alcohol, B00130.

(b) Seal the bonding jumper [6] connector with sealant, A02315.

SUBTASK 32-09-10-020-005

(8) Remove the dust caps, STD-7394, from the electrical connectors [7].

SUBTASK 32-09-10-410-003

(9) Install the electrical connectors [7] to the PSEU [1].

SUBTASK 32-09-10-840-002

(10) Put the airplane systems back to normal on ground condition (TASK 32-09-00-840-802).



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## G. Proximity Switch Electronics Unit Installation Test

SUBTASK 32-09-10-840-003

(1) Make sure these doors are closed:

(a) Forward Entry Door (PAGEBLOCK 52-11-00/201).

(b) Aft Entry Door (PAGEBLOCK 52-13-00/201).

(c) Left and Right Overwing Exit Doors (PAGEBLOCK 52-22-00/201).

(d) Galley Service Doors (PAGEBLOCK 52-41-00/201).

SUBTASK 32-09-10-860-003

(2) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

SUBTASK 32-09-10-200-001

(3) Do this task: Proximity Switch Electronics Unit - LRU Replacement Test, TASK 32-09-10-710-801.

**——— END OF TASK ———**



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## PROXIMITY SWITCH ELECTRONICS UNIT (PSEU) - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

(1) Proximity Sensor Electronics Unit (PSEU) operational test

(a) This task is used for this Line Replaceable Unit (LRU) replacement test on the MAX Display System (MDS):

- PSEU - replacement test.

(2) PSEU ground test

(a) This task is used for these operational tests on the MDS:

- PSEU - self test
- PSEU - LGTV test.

(3) PSEU special functions test.

**TASK 32-09-10-710-801**

### 2. Proximity Switch Electronics Unit - LRU Replacement Test

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

**A. General**

(1) This task provides the instructions on how to do the replacement test for the Proximity Sensor Electronics Unit (PSEU).

(2) This task is used for the Line Replaceable Unit (LRU) replacement test, PSEU - replacement test on the MAX Display System (MDS).

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 27-51-00-860-804 | Retract the Trailing Edge Flaps (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 73-21-00-800-801-G00 | EEC Maintenance Power Selection (P/B 201) |
| IFIM and do the applicable procedure(s) | Interactive Fault Isolation Manual |

**C. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**D. Access Panels**

| Number | Name/Location |
|---|---|
| 831 | Forward Entry Door |
| 832 | Emergency Exit Door (AOE) |
| 833 | Emergency Exit Door (AOE) |
| 834 | Aft Entry Door |
| 841 | Forward Galley Service Door |



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(Continued)

| Number | Name/Location |
|---|---|
| 842 | Emergency Exit Door (AOE) |
| 843 | Emergency Exit Door (AOE) |
| 844 | Aft Galley Service Door |

## E. Prepare for the Test

SUBTASK 32-09-10-840-023

(1) Make sure that these doors are closed:

| Number | Name/Location |
|---|---|
| 831 | Forward Entry Door |
| 832 | Emergency Exit Door (AOE) |
| 833 | Emergency Exit Door (AOE) |
| 834 | Aft Entry Door |
| 841 | Forward Galley Service Door |
| 842 | Emergency Exit Door (AOE) |
| 843 | Emergency Exit Door (AOE) |
| 844 | Aft Galley Service Door |

SUBTASK 32-09-10-840-004

(2) Make sure there is no hydraulic pressure on the airplane.

(a) If there is hydraulic pressure, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-09-10-840-005

(3) Make sure that the parking brake is set and chocks are installed on the nose and main landing gear (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 32-09-10-840-006

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Make sure that the downlock pins are installed on the nose and main landing gear.

(a) If the downlock pins are not installed, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-09-10-840-007

(5) Make sure that the flaps are in the FULL UP position (TASK 27-51-00-860-804).

SUBTASK 32-09-10-840-017

(6) Make sure that the stab trim is in the green band.

NOTE: The stabilizer indicator is on the control stand.

SUBTASK 32-09-10-840-019

(7) If installed, make sure that the airstairs are in the stowed position.

NOTE: This will prevent warning messages concerning the airstairs from displaying when the airplane is placed in the air mode.



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## F. Proximity Switch Electronics Unit Operational Test

**SUBTASK 32-09-10-710-001**

(1) Set the GND TEST switch, on the P61-4 maintenance bite panel, to the ENABLE position.

**SUBTASK 32-09-10-710-002**

(2) Do the PSEU replacement test as follows:

(a) Set the EEC MAINT ENG 1 POWER switch and the EEC MAINT ENG 2 POWER switch to the TEST position.

1) Do this task: EEC Maintenance Power Selection, TASK 73-21-00-800-801-G00.

(b) Select SYS on the Multi Function Display (MFD) at the P-9 multi-function panel.

1) Do these steps to simulate the left engine running:

a) Select MAINT

b) Select ONBD MAINT

c) Select OTHER FUNCTIONS

d) Select SPECIAL FUNCTIONS

e) Select ATA System 71-80: ENGINE-1

f) Select Engine Running Simulation

g) Select CONTINUE

h) Follow the instructions that show on the MFD to enable the engine running simulation.

2) Do these steps to simulate the right engine running:

a) Select MAINT

b) Select ONBD MAINT

c) Select OTHER FUNCTIONS

d) Select SPECIAL FUNCTIONS

e) Select ATA System 71-80: ENGINE-2

f) Select Engine Running Simulation

g) Select CONTINUE

h) Follow the instructions that show on the MFD to enable the engine running simulation.

3) Do these steps to start the PSEU replacement test:

a) Select MAINT

b) Select ONBD MAINT

c) Select LINE MAINT

d) Select GROUND TESTS

e) Select ATA System 32: Proximity Switch Electronic Unit

f) Select LRU REPLACEMENT TEST

g) Select PSEU - LRU REPLACEMENT TEST

h) Select CONTINUE

i) Do the instructions that show on the MFD PRECONDITIONS screen.



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<1> Make sure that the inhibited conditions instructions are correct and followed closely.

NOTE: If one of the inhibited conditions is not met, the test will be failed.

j) Make these selections on the MFD:

<1> CONTINUE

<2> START TEST.

k) Do the instructions that show on the MFD to change these PSEU inputs:

NOTE: The LRU REPLACEMENT TEST uses signals from the following systems to test the PSEU. The PSEU looks for a change in these inputs. These inputs can be changed in any order.

<1> Move the landing gear lever from the DN position to the UP position and back to the DN position.

<2> Release and reset the parking brake.

<3> Put the NOSE WHEEL STEER switch to the ALT position and back to the NORM position.

<4> Momentarily push the HORN CUTOUT SWITCH.

NOTE: If the switch is pushed for more than 5 seconds, then the test will fail.

<5> Push the left thrust lever fully forward and back to idle.

<6> Push the right thrust lever fully forward and back to idle.

<7> Open or close these doors:

NOTE: If the door is open, you can activate the door switch manually. If the door is closed, then you must unlatch the door. You do not need to open the door completely.

<a> E/E bay access door

<b> Forward cargo door

<c> Aft cargo door.

l) When steps are finished, select CONFIRM.

m) When the test is completed, make sure that the screen displays TEST CONDITION: PASS.

n) If FAILED shows, refer to the IFIM and do the applicable procedure(s) for the maintenance message.

## G. Put the Airplane Back to its Usual Condition

**SUBTASK 32-09-10-860-006**

(1) Set the EEC MAINT ENG 1 POWER switch and the EEC MAINT ENG 2 POWER switch to the NORM position.

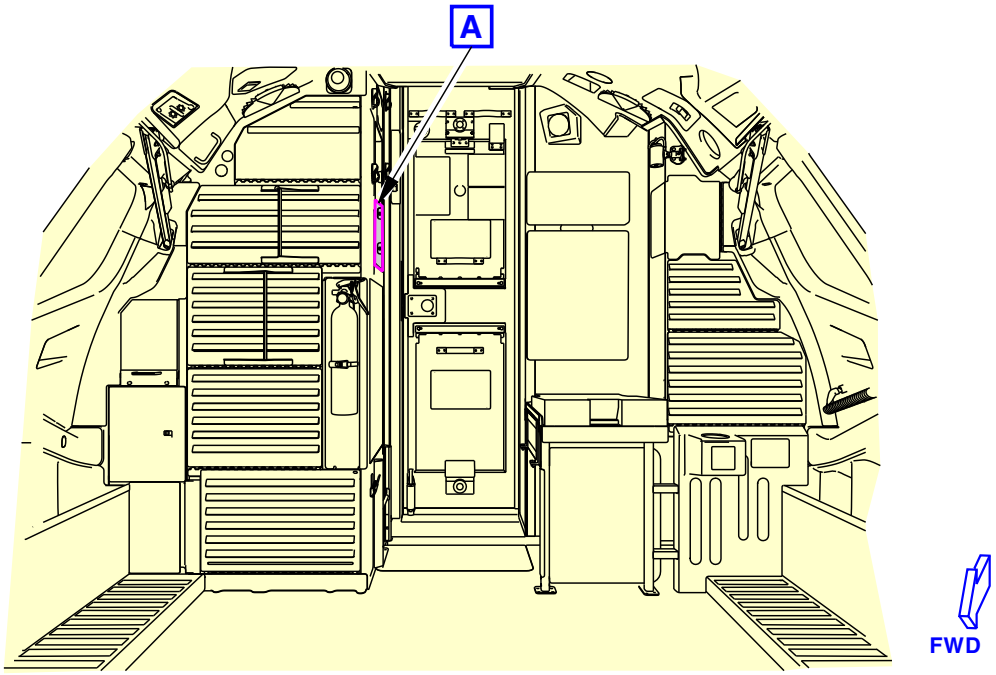
(a) Do this task: EEC Maintenance Power Selection, TASK 73-21-00-800-801-G00.

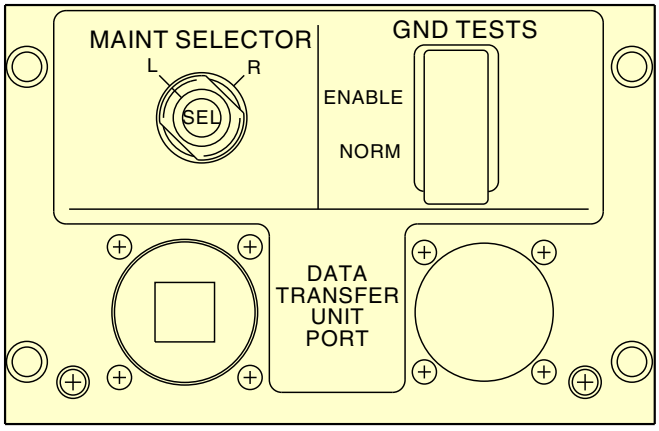
(2) Set the GND TEST switch, on the P61-4 maintenance bite panel, to the NORM position.

**——— END OF TASK ———**



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**P61-4 MAINTENANCE BITE PANEL**

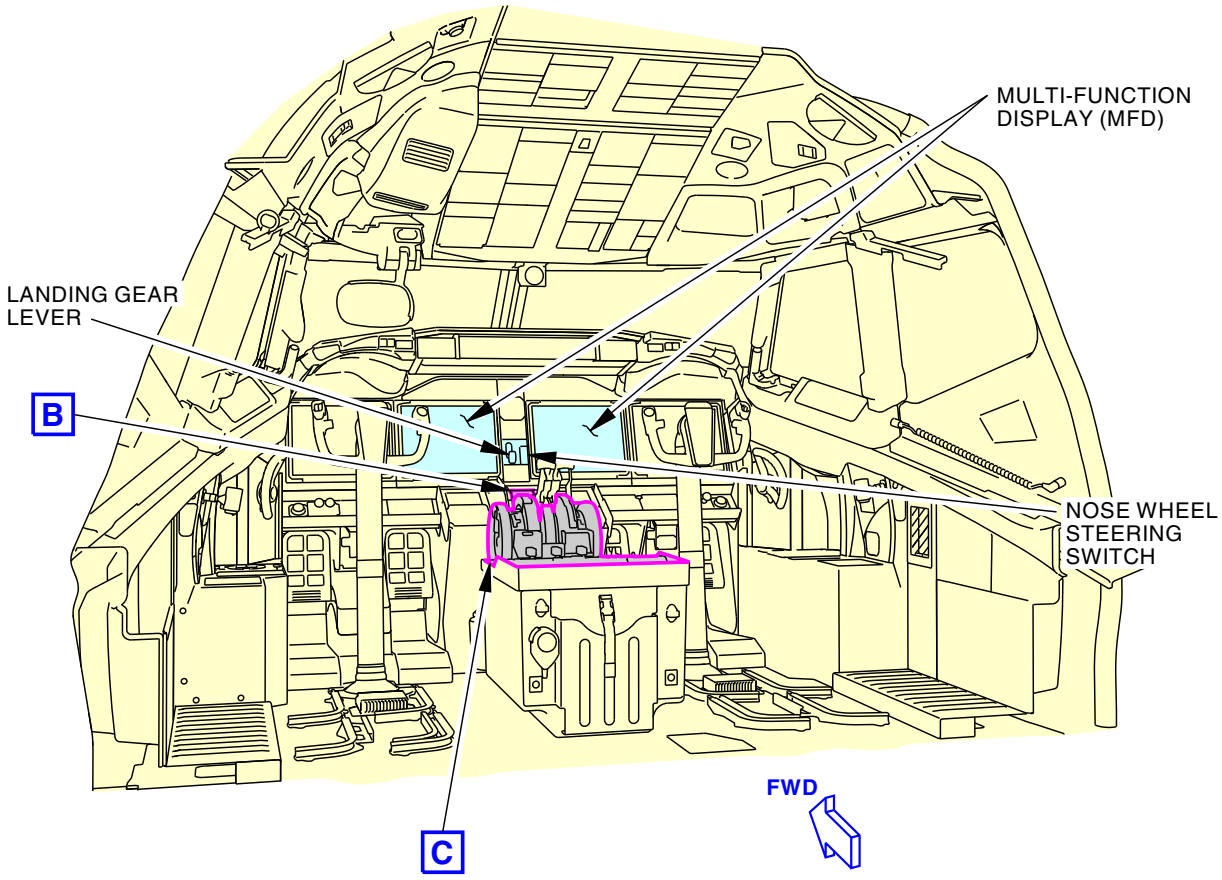
**A**

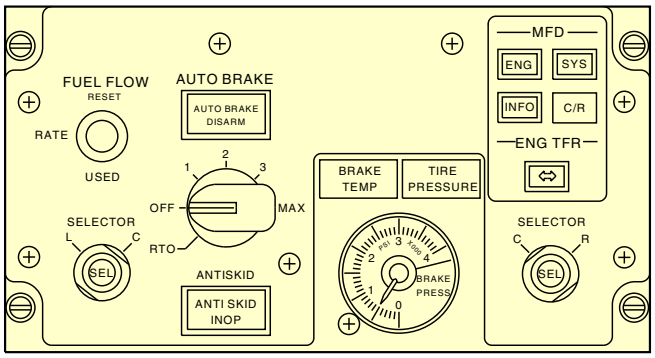
2414044 S00061534287_V2

**Proximity Switch Electronics Unit (PSEU) Test**
**Figure 501/32-09-10-990-802 (Sheet 1 of 3)**



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**P9-82-MULTI-FUNCTIONAL PANEL (MFP)**

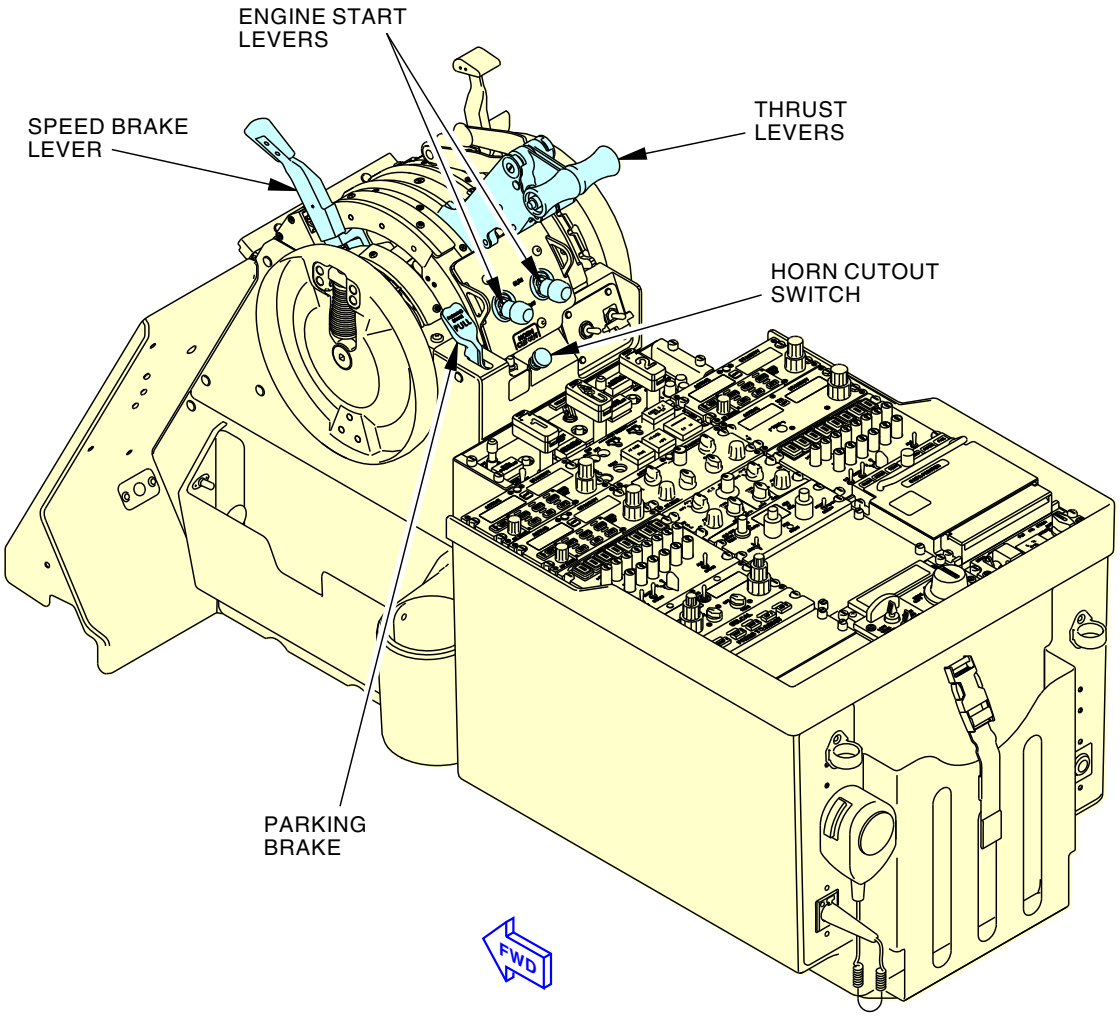
**B**

2414045 S00061534288_V3

**Proximity Switch Electronics Unit (PSEU) Test**
**Figure 501/32-09-10-990-802 (Sheet 2 of 3)**



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**CONTROL STAND, P10**

C

2476847 S0000581060_V1

**Proximity Switch Electronics Unit (PSEU) Test**
**Figure 501/32-09-10-990-802 (Sheet 3 of 3)**



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**TASK 32-09-10-740-801**

## 3. Proximity Switch Electronics Unit - Operational Test

(Figure 501)

### A. General

(1) This task provides the instructions on how to do the ground test of the Proximity Switch Electronic Unit (PSEU).

(2) This task is used for the Operational Tests on the MAX Display System. The PSEU has the following ground tests:

(a) SELF-TEST - This performs a self test sequence of the PSEU.

(b) Landing Gear Transfer Valve (LGTV) Test - This performs a landing gear transfer valve (LGTV) test.

### B. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### D. Prepare for the Tests

**SUBTASK 32-09-10-860-010**

(1) Select the left or right MAX Display System (MDS) Multi Function Display (MFD).

(a) Press SEL button to activate the screen on the MFD.

**SUBTASK 32-09-10-860-011**

(2) Set the GND TEST switch, on the P61-4 Maintenance Bite Panel, to the ENABLE position.

### E. SELF-TEST

**SUBTASK 32-09-10-740-001**

(1) Do the SELF-TEST on the PSEU as follows:

(a) Press SYS button on the P9 Multi-Function Panel.

(b) Make these selections on the MFD to start the PSEU SELF-TEST:

1) MAINT
2) ONBD MAINT
3) LINE MAINT
4) GROUND TESTS
5) 32 PROXIMITY SWITCH ELECTRONIC UNIT
6) OPERATIONAL TEST
7) SELF-TEST
8) CONTINUE.



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(c) Do the instructions that show on the MFD PRECONDITIONS and then make these selections:

NOTE: Make sure that you verify and follow the inhibited conditions instructions closely. If one of the inhibited conditions is not met, the test will be failed.

1) CONTINUE
2) START TEST.

(d) When the test is completed, make sure that the screen displays TEST CONDITION: PASS.

(e) If FAILED shows, refer to the applicable Maintenance Message Reference in the FAULT GUIDANCE or select the maintenance message to see the recommended maintenance actions.

## F. LGTV TEST

**SUBTASK 32-09-10-840-008**

(1) For Hydraulic System A and System B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-09-10-740-002**

(2) Do the LGTV TEST on the PSEU as follows:

(a) Press SYS button on the P9 Multi-Function Panel.

(b) Make these selections on the MFD to start the PSEU LGVT TEST:

1) MAINT
2) ONBD MAINT
3) LINE MAINT
4) GROUND TESTS
5) 32 PROXIMITY SWITCH ELECTRONIC UNIT
6) OPERATIONAL TEST
7) LGTV TEST
8) CONTINUE.

(c) Do the instructions that show on the MFD PRECONDITIONS and then make these selections:

NOTE: Make sure that you verify and follow the inhibited conditions instructions closely. If one of the inhibited conditions is not met, the test will be failed.

1) CONTINUE
2) START TEST.

(d) When the test is completed, make sure that the screen displays TEST CONDITION: PASS.

(e) If FAILED shows, refer to the applicable Maintenance Message Reference in the FAULT GUIDANCE or select the maintenance message to see the recommended maintenance actions.

**SUBTASK 32-09-10-840-009**

(3) For Hydraulic System A and System B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-09-10-860-012

(1) Set the GND TEST switch, on the P61-4 Maintenance Bite Panel, to the NORM position.

——— END OF TASK ———

**TASK 32-09-10-750-801**

**4. Proximity Switch Electronics Unit Special Functions**

(Figure 501)

**A. General**

(1) This task provides the instructions on how to do the special functions of the Proximity Switch Electronics Unit.

(2) The Proximity Switch Electronics Unit is referred to as the PSEU.

(3) The PSEU has the following special functions:

(a) Air/Gnd Override - This special function allows the operator change the output of the air/ground systems.

(b) Tailskid Extend - This special function allows the operator to extend and retract the two-position tailskid for test, repair or inspection purposes.

(c) Reset Latches - This special function allows the operator to reset the PSEU faults that are latched.

**B. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**C. Prepare for the Functions**

SUBTASK 32-09-10-860-015

(1) Select the left or right Multi-Function Display (MFD).

(a) Press SEL button to active the screen MFD.

SUBTASK 32-09-10-860-016

(2) Set the GND TESTS switch on the aft overhead maintenance panel, P61, to the ENABLE position.

**D. Air/Gnd Override Special Function**

SUBTASK 32-09-10-750-001

(1) Do the Air/Gnd Override special function on the PSEU as follows:

(a) Make these selections on the MFD main function menu:

1) ONBOARD MAINTENANCE
2) OTHER FUCNTIONS
3) SPECIAL FUNCTIONS
4) 32 PROXIMITY SWITCH ELECTRONIC UNIT
5) PSEU - AIR/GND OVERRIDE
6) CONTINUE.



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(b) Do the instructions that show on the MFD PRECONDITIONS and then make these selections:

NOTE: Make sure that you verify and follow the inhibited conditions instructions closely.

1) CONTINUE
2) START FUNCTION.

(c) Do the instructions that show on the MFD to change the output of the applicable air/ground systems.

1) When you are finished, select CONFIRM.

### E. Tailskid Extend Special Function

**SUBTASK 32-09-10-750-002**

(1) Do the Tailskid Extend special function on the PSEU as follows:

(a) Make these selections on the MFD main function menu:

1) ONBOARD MAINTENANCE
2) OTHER FUNCTIONS
3) SPECIAL FUNCTIONS
4) 32 PROXIMITY SWITCH ELECTRONIC UNIT
5) PSEU - TAILSKID EXTEND
6) CONTINUE.

(b) Do the instructions that show on the MFD PRECONDITIONS and then make these selections:

NOTE: Make sure that you verify and follow the inhibited conditions instructions closely.

1) CONTINUE
2) START FUNCTION.

(c) Do the instructions that show on the MFD to extend or retract the tailskid.

1) When you are finished, select CONFIRM.

### F. Reset Latches Special Function

**SUBTASK 32-09-10-750-003**

(1) Do the Reset Latches special function on the PSEU as follows:

(a) Make these selections on the MFD main function menu:

1) ONBOARD MAINTENANCE
2) OTHER FUNCTIONS
3) SPECIAL FUNCTIONS
4) 32 PROXIMITY SWITCH ELECTRONIC UNIT
5) PSEU - RESET LATCHES
6) CONTINUE.

(b) Do the instructions that show on the MFD PRECONDITIONS and then make these selections:

NOTE: Make sure that you verify and follow the inhibited conditions instructions closely.

1) CONTINUE
2) START FUNCTION.



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(c) Do the instructions that show on the MFD to reset latches.

1) When you are finished, select CONFIRM.

**G. Put the Airplane Back to Its Usual Condition**

**SUBTASK 32-09-10-860-017**

(1) Set the GND TESTS switch on the aft overhead maintenance panel, P61, to the NORM position.

**——— END OF TASK ———**

**TASK 32-09-10-740-802**

**5. Proximity Switch Electronics Unit Test Using UN-ATE Tool by Technologies Harness Scanner**

**A. General**

(1) UN-ATE (Universal Automated Tooling, Electrical) is a device that can be used to examine and show the health of wire bundles and proximity sensors. UN-ATE provides a detailed evaluation of the wire bundles and the proximity sensors that are faulted and degrading.

(a) It has these functions:

1) Gives a condition of system wire bundles and proximity sensors

2) Identifies opened links

3) Identifies shorted links

4) Identifies out of tolerance links.

**B. References**

| Reference | Title |
|---|---|
| 24-22-00-860-801 | Supply Electrical Power (P/B 201) |
| 24-22-00-860-802 | Remove Electrical Power (P/B 201) |
| 32-09-10-000-801 | Proximity Switch Electronics Unit Removal (P/B 401) |
| 32-09-10-400-801 | Proximity Switch Electronics Unit Installation (P/B 401) |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-17989 | Wiring Tester - Automated Wireless<br>Part #: UN-ATE BASIC Supplier: 87Z60 |
| SPL-18162 | Interface Cable - UN-ATE Proximity Sensor Electronics Unit<br>Part #: F2300+F2301+C30 Supplier: 87Z60 |
| SPL-18164 | Software Module - UN-ATE PSEU<br>Part #: SS-B737MX-PSEU Supplier: 87Z60 |
| STD-15075 | Cord - Bungee |

**D. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |



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## E. Prepare for the Test

SUBTASK 32-09-10-020-006

(1) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.

NOTE: Electrical power must be OFF to prevent incorrect fault indications or fault messages from occurring.

SUBTASK 32-09-10-860-022

(2) Make sure that the battery switch is in the OFF position on the P-5 overhead panel.

SUBTASK 32-09-10-760-002

(3) Make sure that all ground power is disconnected.

SUBTASK 32-09-10-020-007

(4) Remove the Proximity Switch Electronic Unit (PSEU) (TASK 32-09-10-000-801).

SUBTASK 32-09-10-480-005

(5) Connect the PSEU connectors on the airplane to the interface cable, SPL-18162 with the optional electronic dust cap to verify if there is any power on the connector.

**Table 501/32-09-10-993-801 PSEU Connector to Interface Cable Connections**

| PSEU Connector | Interface Cable Number | Branch |
|---|---|---|
| D10982 | 2300 | A |
| D10984 | 2300 | B |
| D10986 | 2301 | A |
| D10988 | 2301 | B |
| D11142 | C30P61A | N/A |

(a) If the electronic dust cap has power, remove the power.

SUBTASK 32-09-10-020-008

(6) If no power is confirmed, remove the electronic dust cap and connect the wiring tester, COM-17989 to the interface cable, SPL-18162.

NOTE: Use a bungee cord, STD-15075 to secure the wiring tester, COM-17989 in place if required.

SUBTASK 32-09-10-480-007

(7) Connect the ground from the airplane to the wiring tester, COM-17989.

SUBTASK 32-09-10-480-008

(8) Log into to the tablet to provide testing and traceability.

(a) Start up the software module, SPL-18164 and login with your user ID.

(b) Identify the location of the aircraft being maintained.

(c) Select the aircraft model

(d) Select the aircraft subsystem, example: PSEU A1 AND A2.

(e) Identify the reason for the test (training/diagnostic/preventative).

(f) The software will now guide you into the set-up with pictograph.

SUBTASK 32-09-10-800-002

(9) Make sure that the handheld tablet has a wireless connection with the wiring tester, COM-17989.



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### F. Procedure for PSEU Test with UN-ATE

**SUBTASK 32-09-10-700-001**

(1) Press “Scan” on the handheld tablet's software module, SPL-18164.

NOTE: The UN-ATE will automatically make measurements and present results as per wiring diagram.

NOTE: UN-ATE will highlight in color code links that are open (Blue), shorted (Red), and out of tolerance (Resistance - Orange, Impedance - Purple)

**SUBTASK 32-09-10-700-002**

(2) Save A1 test results.

**SUBTASK 32-09-10-700-003**

(3) Load A2 test and traceability for the A2 test.

**SUBTASK 32-09-10-700-004**

(4) Press “Scan” on the handheld tablet's software module, SPL-18164.

NOTE: The UN-ATE will automatically make measurements and present results as per wiring diagram.

NOTE: UN-ATE will highlight in color code links that are open (Blue), shorted (Red), and out of tolerance (Resistance - Orange, Impedance - Purple)

**SUBTASK 32-09-10-700-005**

(5) Save A2 test results.

### G. Put the Airplane Back to its Usual Condition

**SUBTASK 32-09-10-080-001**

(1) Disconnect the wiring tester, COM-17989 from the interface cable, SPL-18162.

NOTE: Remove the bungee cord, STD-15075 if applicable.

**SUBTASK 32-09-10-080-002**

(2) Remove the interface cable, SPL-18162 from the PSEU connectors.

**SUBTASK 32-09-10-420-002**

(3) Install the PSEU (TASK 32-09-10-400-801).

**SUBTASK 32-09-10-840-020**

(4) Make sure that the battery switch is in the ON position on the P-5 overhead panel.

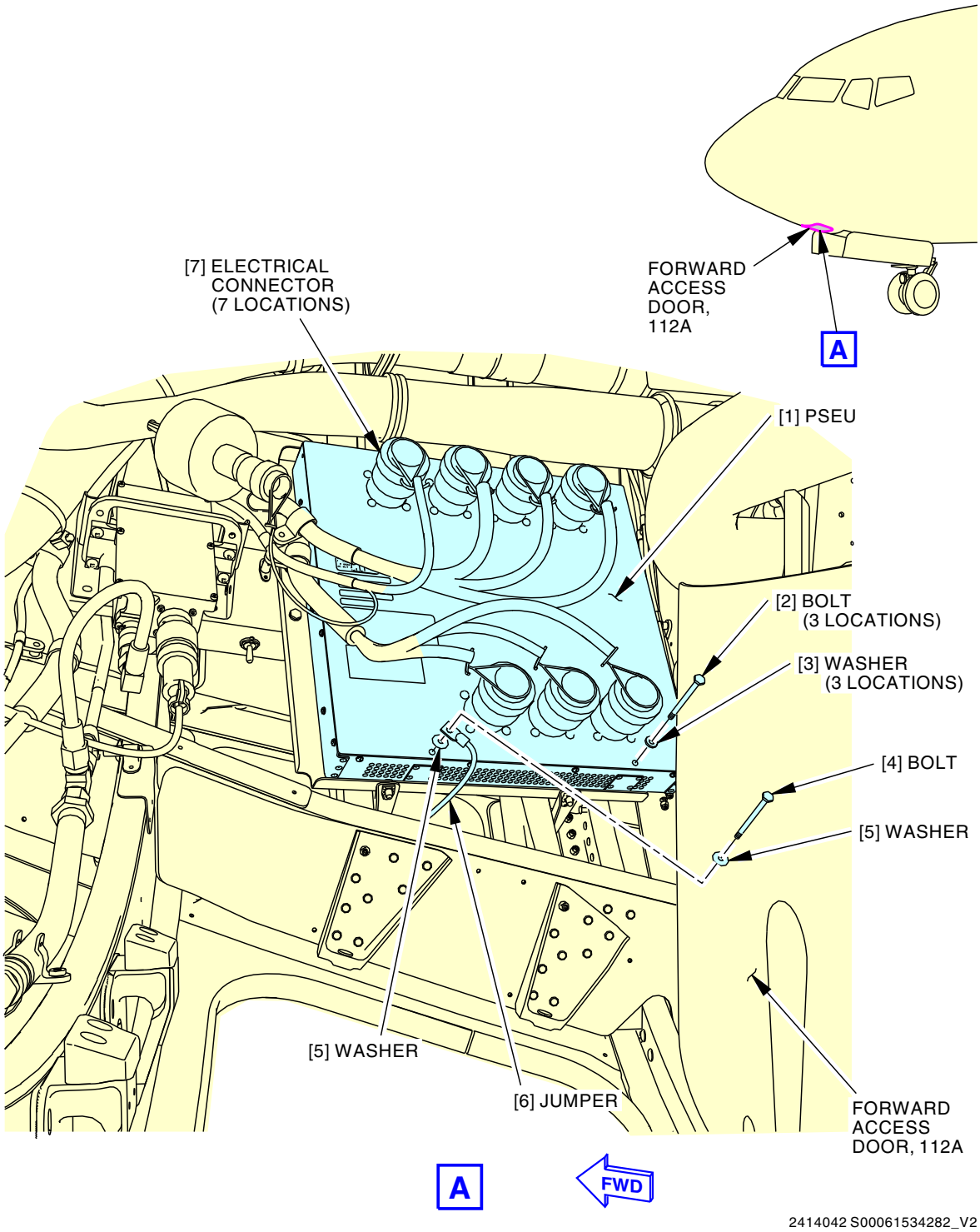
**SUBTASK 32-09-10-840-021**

(5) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

**——— END OF TASK ———**



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**Proximity Switch Electronics Unit (PSEU) Location**
**Figure 502/32-09-10-990-803**



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## PROXIMITY SENSOR - ADJUSTMENT/TEST

### 1. General

A. This procedure contains these tasks:

(1) The PSEU proximity sensor functional test with a LCR Meter

(2) The PSEU proximity sensor functional test with a Breakout Box and a LCR Meter.

B. These tasks are functional tests of the proximity switch electronic unit's sensors.

NOTE: If available, use the B737 PSEU Breakout Box (MPN 38-812-01) to measure the inductance and resistance.

C. These tests help to find a proximity sensor's health to prevent the replacement of the PSEU.

D. The proximity sensors supply position data of these systems:

(1) Entry/Service Doors

(2) The Nose and MLG

(3) The Airstairs Door (optional equipment)

E. The proximity sensors stay installed on the airplane during the test.

**TASK 32-09-12-700-801**

### 2. PSEU Proximity Sensor - Functional Test with a LCR Meter

(Figure 501, Figure 502)

#### A. General

(1) This test will measure the resistance and inductance of the 3-wire proximity sensor and wiring and compare the values to a known range. This test also evaluates the target to sensor relationship.

(2) Observe all applicable warnings, cautions, and maintenance practice instructions as required to gain access to the Proximity Sensor under test.

(3) Use an LCR meter that has a USB port to record the data with a PC automatically. For example 878B or 879B have a USB port. Use the instructions included with the LCR meter.

#### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 20-40-12-000-802 | ESDS Handling for Metal Encased Unit Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-801 | Prepare to Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |
| 32-09-10-710-801 | Proximity Switch Electronics Unit - LRU Replacement Test (P/B 501) |
| 46-13-02-700-803 | Existing Flight Deck Effects Check (P/B 201) |
| 52-11-00 P/B 201 | FORWARD ENTRY DOOR - MAINTENANCE PRACTICES |
| 52-13-00 P/B 201 | AFT ENTRY DOOR - MAINTENANCE PRACTICES |
| 52-22-00 P/B 201 | EMERGENCY EXIT DOOR - MAINTENANCE PRACTICES |
| 52-41-00 P/B 201 | GALLEY SERVICE DOORS - MAINTENANCE PRACTICES |
| WDM 31-53-11 | Wiring Diagram Manual |
| WDM 32-31-11 | Wiring Diagram Manual |



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(Continued)

| Reference | Title |
|---|---|
| WDM 32-31-12 | Wiring Diagram Manual |
| WDM 32-64-11 | Wiring Diagram Manual |
| WDM 32-64-12 | Wiring Diagram Manual |
| WDM 52-71-11 | Wiring Diagram Manual |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1741 | Meter - LCR (Inductance, Capacitance, Resistance; Use COM-20443 for OH bleed loop testing)<br>Part #: 878B Supplier: 08098<br>Part #: 879B Supplier: 08098<br>Part #: 880 Supplier: 08098<br>Part #: U1733P Supplier: 1LQK8<br>Opt Part #: 875B Supplier: 08098<br>Opt Part #: 878A Supplier: 08098<br>Opt Part #: 879 Supplier: 08098 |
| SPL-1690 | Actuators/Deactuators Set - Proximity Sensor<br>Part #: 8-758-01 Supplier: 08748<br>Part #: A27092-139 Supplier: 81205<br>Opt Part #: A27092-106 Supplier: 81205 |
| STD-6481 | Voltmeter - Digital |
| STD-7394 | Cap - Dust, Electrical Connector |

### D. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### E. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### F. Prepare for the Functional Test

**SUBTASK 32-09-12-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-09-12-480-011**

(2) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).



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SUBTASK 32-09-12-700-003

(3) Check existing flight deck affects (TASK 46-13-02-700-803).

(a) Make a note of Proximity Switch Electronic Unit (PSEU), Nose Landing Gear (NLG), Main Landing Gear (MLG) or Door faults.

SUBTASK 32-09-12-740-001

(4) Use the PSEU Maintenance Page to make a note of each sensor's state (Figure 501):

(a) Set the GND TESTS switch to ENABLE on the P61-4 Panel.

(b) Select SYS on the Multi-Function Display panel.

(c) Select MAINT -> MAINT DATA PGS -> ATA System 32: PSEU -> DISPLAY.

(d) Make a note of each sensor's state.

1) Select NEXT PAGE if necessary to see all sensors.

(e) Set the GND TESTS switch to NORM on the P61-4 Panel.

SUBTASK 32-09-12-970-001

(5) On PSEU Maintenance Page 1, the STATE column shows the current condition (NEAR, FAR or MARG) of each sensor.

(a) Target-Near (NEAR) refers to the condition where the sensor is actuated. Target-Far (FAR) refers to the unactuated condition.

(b) Marginal (MARG) refers to a target-near condition which is not within the acceptable range. And rigging of the sensor/target installation is necessary.

SUBTASK 32-09-12-970-003

(6) On PSEU Maintenance Page 1, the current clearance value of each sensor is shown in the MILS column, if the target is near or marginal. If the target is far, the value will be shown as "---".

SUBTASK 32-09-12-970-004

(7) On PSEU Maintenance Page 1, the serviceable sensor clearance rigging range is shown in the RANGE column.

SUBTASK 32-09-12-840-001

(8) Prepare for air mode simulation (TASK 32-09-00-840-801).

SUBTASK 32-09-12-010-001

(9) To get access to the PSEU, do this step (Figure 502):

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

SUBTASK 32-09-12-860-001

(10) Remove electrical power from the system for the test.

(a) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |



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**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

SUBTASK 32-09-12-480-002

**CAUTION**

DO NOT TOUCH THE PSEU BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PSEU.

(11) Do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 32-09-12-020-001

(12) Remove the electrical connector [7] J2 through J6 from the PSEU [1].

SUBTASK 32-09-12-480-003

(13) Install dust caps, STD-7394, on the electrical connector [7].

SUBTASK 32-09-12-210-001

(14) Examine the Aeronautical Radio Incorporated (ARINC) connector pins for damage or corrosion.

(a) Repair if necessary.

## G. Measure the Proximity Sensor and Wiring Installation Resistance

SUBTASK 32-09-12-760-001

(1) Refer to the applicable Wiring Diagram Manual (WDM) (WDM 31-53-11, WDM 32-31-11, WDM 32-31-12,WDM 32-64-11, WDM 32-64-12 and WDM 52-71-11) for the 3-wire sensor to PSEU [1] ARINC connector pin callout.

SUBTASK 32-09-12-760-006

(2) Connect the LCR meter (Inductance, Capacitance, Resistance), COM-1741 (a digital voltmeter, STD-6481, may be used to measure the resistance).

(a) First do the Blue to Yellow measurement.

(b) Then the Red to Yellow measurement.

(c) Alternate connections as needed.

SUBTASK 32-09-12-860-015

(3) Supply power to the LCR meter (Inductance, Capacitance, Resistance), COM-1741.

SUBTASK 32-09-12-760-007

(4) Set the LCR meter (Inductance, Capacitance, Resistance), COM-1741, to measure series resistance (Rs) at 120 Hz.

SUBTASK 32-09-12-760-008

(5) Measure the resistance at the ARINC connector pins on the applicable J-connector for each sensor under test and record in the log sheet (Figure 501).

(a) The “DATA HOLD” button is used to "capture" your current measured result.

(b) To make a new measurement, the, "DATA HOLD" must be released, by pressing the button once, then the new measurement can be made.



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(c) Record the resistance of sensors in the appropriate space on log sheet. Values to be recorded in hundredths (two numbers right of the decimal point), for example XX.XX or XXX.XX.

SUBTASK 32-09-12-760-009

(6) Compare the measured resistance value to Table 502.

**Table 501/32-09-12-993-801 SENSOR TABLE**

| BOEING SENSOR PART NUMBER | CRANE SENSOR PART NUMBER | TARGET NEAR INDUCTANCE (WITH GO-GAUGE) | TARGET FAR INDUCTANCE (WITH GO-GAUGE) | COIL RESISTANCE RED-YELLOW (TARGET FAR) | RESISTANCE BLUE-YELLOW (TARGET FAR) |
|---|---|---|---|---|---|
| 10-61226-29 | 1-899-29 | 38.0 mH minimum | 36.0-37.5 mH | 27.0-39.0 Ω | 344.5-351.5 Ω |
| 10-61226-30 | 1-899-30 | 38.0 mH minimum | 36.0-37.5 mH | 27.0-33.0 Ω | 344.5-351.5 Ω |
| 10-61226-45 | 80-207-01 | 38.0 mH minimum | 36.0-37.5 mH | 27.0-33.0 Ω | 344.5-351.5 Ω |
| 10-61226-47 | 80-207-02 | 38.0 mH minimum | 36.0-37.5 mH | 27.0-33.0 Ω | 344.5-351.5 Ω |

SUBTASK 32-09-12-760-010

(7) If the measured resistance value is less than 5.00 ohms, this indicates a short circuit condition.

(a) If there is a short circuit, inspect the associated wiring and connectors for contamination or damage.

SUBTASK 32-09-12-760-011

(8) If the resistance value as measured between the Red and Yellow leads is greater than 100.00 ohms, this indicates a loose contact or wire damage or a defective sensor.

(a) If there is loose contact or wire damage, inspect the associated wiring and connectors for contamination or damage.

SUBTASK 32-09-12-760-012

(9) If the resistance value as measured between the Blue and Yellow leads is greater than 500.00 ohms, this indicates a loose contact or wire damage or a defective sensor.

(a) If there is loose contact or wire damage, inspect the associated wiring and connectors for contamination or damage.

**H. Measure the Inductance at the ARINC Connector Pins on the applicable J-connector for each Sensor Under Test - Red-Blue**

SUBTASK 32-09-12-760-002

(1) Refer to the applicable WDM (WDM 31-53-11, WDM 32-31-11, WDM 32-31-12,WDM 32-64-11, WDM 32-64-12 and WDM 52-71-11) for the 3-wire sensor to PSEU [1] ARINC connector pin callout.

SUBTASK 32-09-12-760-013

(2) Connect the LCR meter (Inductance, Capacitance, Resistance), COM-1741, for Red to Blue measurement.

SUBTASK 32-09-12-860-016

(3) Supply power to the LCR meter (Inductance, Capacitance, Resistance), COM-1741.


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SUBTASK 32-09-12-760-014

(4) Set the LCR meter (Inductance, Capacitance, Resistance), COM-1741, to read series inductance (Ls) at 1 kHz.

SUBTASK 32-09-12-760-015

(5) Measure the inductance and record in the log sheet (Figure 501) for each sensor.

(a) The “DATA HOLD” button is used to "capture" your current measured result.

(b) To make a new measurement, the, "DATA HOLD" must be released, by pressing the button once, then the new measurement can be made.

(c) Record the inductance of sensors in the appropriate space on log sheet. Values to be recorded in hundredths (two numbers right of the decimal point), for example XX.XX or XXX.XX.

(d) If you suspect a faulty sensor, use the applicable proximity sensor test set, SPL-1690, 8-758-01, Proximity Sensor Test Kit – Go-Gauge to simulate a configuration change of the sensors current position to a target FAR or a target NEAR position.

(e) If GO-GAUGES are used compare the measured inductance value to Table 501.

SUBTASK 32-09-12-760-016

(6) Compare the measured inductance value to Table 502.

**Table 502/32-09-12-993-802 NOMINAL VALUES**

| VALUE | SENSOR CONDITION |
|---|---|
| Three-wire Sensors | |
| 35 mH | Target FAR |
| 40 mH - 50 mH | Correctly rigged NEAR sensor |
| Greater than 50 mH | Target may be rigged too near to the sensor |
| Resistance on aircraft (Red-Yellow resistance plus Blue-Yellow resistance): ≤ 390 Ω | |
| Typical Sensor Inductance Values Using Go Gauges | |
| Three-wire sensor - Go side 38.20 mH, No-Go side - 36.20 mH | |

NOTE: Sensor inductance values will vary between sensor positions because of differences in operation and design requirements. In some condition, the inductance value cannot be achieved. Inductance values outside of the nominal range are permitted if the minimum value of 38.00 mH (Target NEAR) is obtained and no system anomaly is observed.

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-09-12-080-001

(1) Remove the dust caps, STD-7394, from the electrical connectors [7].

SUBTASK 32-09-12-420-001

(2) Install the J2 through J6 electrical connector [7] to the PSEU [1].

SUBTASK 32-09-12-840-002

(3) Put the airplane systems back to normal on ground condition (TASK 32-09-00-840-802).



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SUBTASK 32-09-12-410-001

(4) Close this access door:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

SUBTASK 32-09-12-840-003

(5) Make sure that these doors are closed:

(a) Forward Entry Door (PAGEBLOCK 52-11-00/201).

(b) Aft Entry Door (PAGEBLOCK 52-13-00/201).

(c) Left and Right Overwing Exit Doors (PAGEBLOCK 52-22-00/201).

(d) Galley Service Doors (PAGEBLOCK 52-41-00/201).

SUBTASK 32-09-12-860-003

(6) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

SUBTASK 32-09-12-700-001

(7) Do this task: Proximity Switch Electronics Unit - LRU Replacement Test, TASK 32-09-10-710-801.

**END OF TASK**



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| DATE: | LOC: | | GROUND TEMP: | | |
|---|---|---|---|---|---|
| A/C: | | | FUSELAGE TEMP: | | |
| | | | RESISTANCE OHMS (MEASURE AT 120HZ) | | INDUCTANCE MH (MEAS. AT 1KHZ) |
| PSEU CABLE | SENSOR EQUIP. NO. | SYSTEM 1 SENSOR INSTALLATION | BLUE -YELLOW (TC RESISTOR) | RED -YELLOW (COILS) | RED-BLUE |
| J2 | S1050 [1] | GSBV CLOSED | | | |
| J2 | S1010 | RIGHT ON GND A | | | |
| J2 | S1014 | NOSE ON GND A | | | |
| J2 | S1012 | LEFT ON GND A | | | |
| J3 | S846 | NOSE LKD A | | | |
| J3 | S73 | RIGHT DOWN LKD A | | | |
| J3 | S845 | NOSE DWN A | | | |
| J3 | S71 | LEFT DWN LKD A | | | |
| J3 | S74 | RIGHT UP LKD A | | | |
| J3 | S72 | LEFT UP LKD A | | | |
| J4 | S200 | AFT ENT LKD | | | |
| J4 | S195 | AFT SER LKD | | | |
| | | | RESISTANCE OHMS (MEASURE AT 120HZ) | | INDUCTANCE MH (MEAS. AT 1KHZ) |
| PSEU CABLE | SENSOR EQUIP. NO. | SYSTEM 2 SENSOR INSTALLATION | BLUE -YELLOW (TC RESISTOR) | RED -YELLOW (COILS) | |
| J5 | S854 | NOSE LKD B | | | |
| J5 | S1016 | LEFT UP LKD B | | | |
| J5 | S301 | RIGHT DWN LKD B | | | |
| J5 | S853 | NOSE DWN B | | | |
| J5 | S302 | LEFT DWN LKD B | | | |
| J5 | S1017 | RIGHT UP LKD B | | | |
| J6 | S1011 | RIGHT ON GND B | | | |
| J6 | S1015 | NOSE ON GND B | | | |
| J6 | S199 | FWD ENT LKD | | | |
| J6 | S1013 | LEFT ON GND B | | | |
| J6 | S194 | FWD SER LKD | | | |
| J6 | S282 [2] | AIRSTRS LKD | | | |

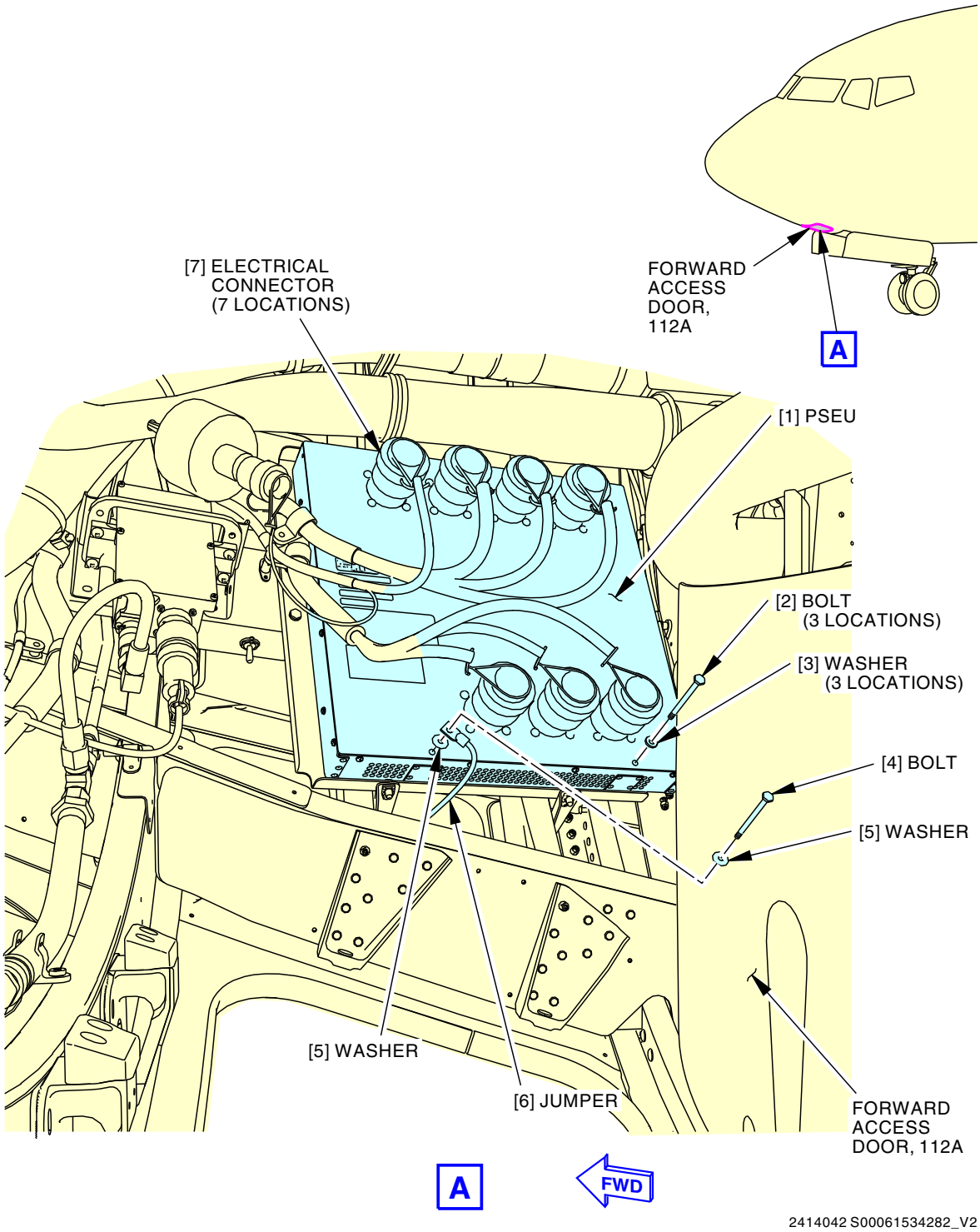
[1] NOT USED ON MAX
[2] ONLY IF OPTION SELECTED

2910517 S0000697733_V1

**Proximity Sensor Performance Values - Log Sheet**
**Figure 501/32-09-12-990-801**



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**Proximity Switch Electronics Unit (PSEU)**
**Figure 502/32-09-12-990-804**



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**TASK 32-09-12-700-802**

## 3. PSEU Proximity Sensor - Functional Test with a Breakout Box and a LCR Meter

(Figure 503, Figure 504)

### A. General

**CAUTION**

THE PROXIMITY SENSOR BREAKOUT BOX IS USED ONLY TO EXAMINE BASIC SENSOR HEALTH AND INSTALLATION. DO NOT USE AS A RIGGING TOOL. RIGGING OF SENSORS AND OTHER MAINTENANCE ACTIONS SHOULD BE DONE ONLY IN ACCORDANCE WITH AIRLINE OPERATING AND MAINTENANCE PROCEDURES, APPROVED MAINTENANCE MANUALS, OR DIRECTIVES OF THE APPROPRIATE CERTIFICATION AGENCY.

(1) The test will measure the inductance and resistance of the 3-wire sensors, sensor wires, and connectors. And compare the values to a known range. This test also examines the target to sensor conditions.

(2) This test uses the Crane Sensor Test System made up of the following parts:

(a) Proximity Switch Electronic Unit (PSEU) - proximity sensor breakout box, SPL-18742, and LCR meter (Inductance, Capacitance, Resistance), COM-1741.

(b) Sensors Test Gauge Set.

1) The controls on the face of the proximity sensor breakout box, SPL-18742, are used to select the desired sensor for testing.

a) The proximity sensor breakout box, SPL-18742, does not test two-wire sensors. Two-wire sensors, do not need to be tested.

2) The Sensor Test Gauge Kit consists of six go-gauges, sensor de-actuator tool and an instruction booklet. Use the go-gauges in place of a sensor, if you suspect the sensor is faulty.

(3) Obey all applicable warnings, cautions, and maintenance practice instructions when necessary to measure the Proximity Sensor in the test.

(4) Use an LCR meter (Inductance, Capacitance, Resistance), COM-1741, that has a USB port to record the data with a PC automatically. For example 878B or 879B have a USB port. Use the specified instructions included with the LCR meter (Inductance, Capacitance, Resistance), COM-1741. Full instructions are included in the Breakout Box (BOB)'s Sensor Test System.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 20-40-12-000-802 | ESDS Handling for Metal Encased Unit Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-801 | Prepare to Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |
| 32-09-10-710-801 | Proximity Switch Electronics Unit - LRU Replacement Test (P/B 501) |
| 46-13-02-700-803 | Existing Flight Deck Effects Check (P/B 201) |
| 52-11-00 P/B 201 | FORWARD ENTRY DOOR - MAINTENANCE PRACTICES |
| 52-13-00 P/B 201 | AFT ENTRY DOOR - MAINTENANCE PRACTICES |
| 52-22-00 P/B 201 | EMERGENCY EXIT DOOR - MAINTENANCE PRACTICES |



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(Continued)

| Reference | Title |
|---|---|
| 52-41-00 P/B 201 | GALLEY SERVICE DOORS - MAINTENANCE PRACTICES |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1741 | Meter - LCR (Inductance, Capacitance, Resistance; Use COM-20443 for OH bleed loop testing)<br>Part #: 878B Supplier: 08098<br>Part #: 879B Supplier: 08098<br>Part #: 880 Supplier: 08098<br>Part #: U1733P Supplier: 1LQK8<br>Opt Part #: 875B Supplier: 08098<br>Opt Part #: 878A Supplier: 08098<br>Opt Part #: 879 Supplier: 08098 |
| SPL-1690 | Actuators/Deactuators Set - Proximity Sensor<br>Part #: 8-758-01 Supplier: 08748<br>Part #: A27092-139 Supplier: 81205<br>Opt Part #: A27092-106 Supplier: 81205 |
| SPL-18742 | Breakout Box - Proximity Sensor<br>Part #: 38-812-01 Supplier: 08748 |
| STD-6481 | Voltmeter - Digital |
| STD-7394 | Cap - Dust, Electrical Connector |

### D. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### E. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### F. Prepare for the Functional Test

**SUBTASK 32-09-12-480-004**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the Nose Landing Gear (NLG) and Main Landing Gear (MLG) (TASK 32-00-01-480-801).

**SUBTASK 32-09-12-480-012**

(2) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-09-12-700-004**

(3) Check existing flight deck affects (TASK 46-13-02-700-803).


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(a) Make a note of the PSEU, NLG, MLG or Door faults.

SUBTASK 32-09-12-740-002

(4) Use the PSEU Maintenance Page to make a note of each sensor's state (Figure 504):

(a) Set the GND TESTS switch to ENABLE on the P61-4 Panel.

(b) Select SYS on the Multi-Function Display panel.

(c) Select MAINT -> MAINT DATA PGS -> ATA System 32: PSEU -> DISPLAY.

(d) Make a note of each sensor's state.

1) Select NEXT PAGE if necessary to see all sensors.

(e) Set the GND TESTS switch to NORM on the P61-4 Panel.

SUBTASK 32-09-12-970-002

(5) On PSEU Maintenance Page 1, the STATE column shows the current condition (NEAR, FAR or MARG) of each sensor.

(a) Target-Near (NEAR) refers to the condition where the sensor is actuated. Target-Far (FAR) refers to the unactuated condition.

(b) Marginal (MARG) refers to a target-near condition which is not within the acceptable range. And rigging of the sensor/target installation is necessary.

SUBTASK 32-09-12-970-005

(6) On PSEU Maintenance Page 1, the current clearance value of each sensor is shown in the MILS column, if the target is near or marginal. If the target is far, the value will be shown as "---".

SUBTASK 32-09-12-970-006

(7) On PSEU Maintenance Page 1, the serviceable sensor clearance rigging range is shown in the RANGE column.

SUBTASK 32-09-12-840-004

(8) Prepare for air mode simulation (TASK 32-09-00-840-801).

SUBTASK 32-09-12-010-002

(9) To get access to the PSEU, do this step (Figure 502):

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

SUBTASK 32-09-12-860-004

(10) Remove electrical power from the system for the test.

(a) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |



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(Continued)

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

SUBTASK 32-09-12-480-005

**CAUTION** DO NOT TOUCH THE PSEU BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PSEU.

(11) Do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 32-09-12-020-002

(12) Remove the electrical connector [7] J2 through J6 from the PSEU [1].

SUBTASK 32-09-12-480-006

(13) Install dust caps, STD-7394, on the electrical connectors [7].

SUBTASK 32-09-12-210-002

(14) Examine the Aeronautical Radio Incorporated (ARINC) connector pins for damage or corrosion.

(a) Repair if necessary.

SUBTASK 32-09-12-480-007

(15) Install the proximity sensor breakout box, SPL-18742, cables to the related PSEU [1] cables. For example J2 to J2.

(a) If a fault is suspected in the PSEU [1], test each pin of the ARINC connector for continuity. Set the sensor selector switch to each sensor in its turn. And measure for continuity between the sensor inputs of the ARINC connector and the front panel connectors.

NOTE: No calibration or test is necessary for the proximity sensor BOB.

## G. Measure the Proximity Sensor and Wiring Installation Resistance

SUBTASK 32-09-12-480-008

(1) Connect the LCR meter (Inductance, Capacitance, Resistance), COM-1741, leads to the BLUE and YELLOW jacks on the front of the proximity sensor breakout box, SPL-18742.

(a) A digital voltmeter, STD-6481, may be used to measure the resistance.

SUBTASK 32-09-12-860-005

(2) Set the LCR meter (Inductance, Capacitance, Resistance), COM-1741, to measure series resistance (Rs) at 120 Hz.

SUBTASK 32-09-12-860-006

(3) Push the L/C/R button to change to resistance mode.

SUBTASK 32-09-12-860-007

(4) Push and hold the LCR meter (Inductance, Capacitance, Resistance), COM-1741, button for more than one second to change to series mode.

(a) SER is shown in the middle-right side of the LCR meter (Inductance, Capacitance, Resistance), COM-1741, display.



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SUBTASK 32-09-12-760-003

(5) Measure the resistance (BLUE to YELLOW) and record in the log sheet (Figure 504) for each sensor.

(a) The “DATA HOLD” button is used to "capture" your current measured result.

(b) To make a new measurement, the, "DATA HOLD" must be released, by pressing the button once, then the new measurement can be made.

(c) Record the resistance of sensors in the appropriate space on log sheet. Values to be recorded in hundredths (two numbers right of the decimal point), for example XX.XX or XXX.XX.

SUBTASK 32-09-12-860-008

(6) Use the proximity sensor breakout box, SPL-18742, controls to set the next sensor. And again measure the resistance (BLUE to YELLOW) and record for each of the remaining sensors.

SUBTASK 32-09-12-480-009

(7) Connect the LCR meter (Inductance, Capacitance, Resistance), COM-1741, leads to the RED and YELLOW jacks on the front of the proximity sensor breakout box, SPL-18742.

(a) A digital voltmeter, STD-6481, may be used to measure the resistance.

SUBTASK 32-09-12-760-004

(8) Measure the resistance (RED to YELLOW) and record in the log sheet (Figure 504) for each sensor.

(a) The “DATA HOLD” button is used to "capture" your current measured result.

(b) To make a new measurement, the, "DATA HOLD" must be released, by pressing the button once, then the new measurement can be made.

(c) Record the resistance of sensors in the appropriate space on log sheet. Values to be recorded in hundredths (two numbers right of the decimal point), for example XX.XX or XXX.XX.

SUBTASK 32-09-12-200-002

(9) Compare the combined measured resistance value to Table 505.

SUBTASK 32-09-12-860-009

(10) Use the proximity sensor breakout box, SPL-18742, controls to set the next sensor. And again measure the resistance (RED to YELLOW) and record for each of the remaining sensors.

**H. Measure the Inductance (Red-Blue) for each Sensor Under Test**

SUBTASK 32-09-12-480-010

(1) Connect the LCR meter (Inductance, Capacitance, Resistance), COM-1741, leads to the RED and BLUE jacks on the front of the proximity sensor breakout box, SPL-18742.

SUBTASK 32-09-12-860-010

(2) Supply power to the LCR meter (Inductance, Capacitance, Resistance), COM-1741.

SUBTASK 32-09-12-860-011

(3) Use Table 503 to set the BOB controls to the appropriate sensor for test.

**Table 503/32-09-12-993-803 PSEU PROXIMITY SENSOR BREAKOUT BOX (BOB)**

| SENSOR EQUIP. NO. | BOB SETTING | PSEU AND BOB CABLE | P/N 380-026-02 |
|---|---|---|---|
| | SYSTEM 1 - SW1 POSITION | CONNECTOR | FUNCTION |



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**Table 503/32-09-12-993-803 PSEU PROXIMITY SENSOR BREAKOUT BOX (BOB) (Continued)**

| SENSOR EQUIP. NO. | BOB SETTING | PSEU AND BOB CABLE | P/N 380-026-02 |
|---|---|---|---|
| S1050*[1] | 1 | J2 | GSBV CLOSED |
| S1010 | 2 | J2 | RIGHT ON GND A |
| S1014 | 3 | J2 | NOSE ON GND A |
| S1012 | 4 | J2 | LEFT ON GND A |
| S846 | 5 | J3 | NOSE LKD A |
| S73 | 6 | J3 | RIGHT DOWN LKD A |
| S845 | 7 | J3 | NOSE DWN A |
| S71 | 8 | J3 | LEFT DWN LKD A |
| S74 | 9 | J3 | RIGHT UP LKD A |
| S72 | 10 | J3 | LEFT UP LKD A |
| S200 | 11 | J4 | AFT ENT LKD |
| S195 | 12 | J4 | AFT SER LKD |
| | SYSTEM 2 - SW3 POSITION | CONNECTOR | FUNCTION |
| S854 | 1 | J5 | NOSE LKD B |
| S1016 | 2 | J5 | LEFT UP LKD B |
| S301 | 3 | J5 | RIGHT DWN LKD B |
| S853 | 4 | J5 | NOSE DWN B |
| S302 | 5 | J5 | LEFT DWN LKD B |
| S1017 | 6 | J5 | RIGHT UP LKD B |
| S1011 | 7 | J6 | RIGHT ON GND B |
| S1015 | 8 | J6 | NOSE ON GND B |
| S199 | 9 | J6 | FWD ENT LKD |
| S1013 | 10 | J6 | LEFT ON GND B |
| S194 | 11 | J6 | FWD SER LKD |
| S282*[2] | 12 | J6 | AIRSTRS LKD |

*[1] Not used on MAX.

*[2] Only if airstairs option selected.

**SUBTASK 32-09-12-860-012**

(4) Set the LCR meter (Inductance, Capacitance, Resistance), COM-1741, to read series inductance (Ls) at 1 kHz.

**SUBTASK 32-09-12-760-005**

(5) Measure the inductance and record in the log sheet (Figure 504) for each sensor.

(a) The “DATA HOLD” button is used to "capture" your current measured result.

(b) To make a new measurement, the, "DATA HOLD" must be released, by pressing the button once, then the new measurement can be made.



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(c) Record the inductance of sensors in the appropriate space on log sheet. Values to be recorded in hundredths (two numbers right of the decimal point), for example XX.XX or XXX.XX.

(d) If you suspect a faulty sensor, use the applicable proximity sensor test set, SPL-1690, 8-758-01, Proximity Sensor Test Kit – GO-GAUGE to simulate a configuration change of the sensors current position to a target FAR or a target NEAR position.

**SUBTASK 32-09-12-760-017**

(6) If the GO-GAUGES are used, compare the measured inductance value to Table 504.

**Table 504/32-09-12-993-804 SENSOR TABLE**

| BOEING SENSOR PART NUMBER | CRANE SENSOR PART NUMBER | TARGET NEAR INDUCTANCE (WITH GO-GAUGE) | TARGET FAR INDUCTANCE (WITH GO-GAUGE) | COIL RESISTANCE RED-YELLOW (TARGET FAR) | RESISTANCE BLUE-YELLOW (TARGET FAR) |
|---|---|---|---|---|---|
| 10-61226-29 | 1-899-29 | 38.0 mH minimum | 36.0-37.5 mH | 27.0-39.0 Ω | 344.5-351.5 Ω |
| 10-61226-30 | 1-899-30 | 38.0 mH minimum | 36.0-37.5 mH | 27.0-33.0 Ω | 344.5-351.5 Ω |
| 10-61226-45 | 80-207-01 | 38.0 mH minimum | 36.0-37.5 mH | 27.0-33.0 Ω | 344.5-351.5 Ω |
| 10-61226-47 | 80-207-02 | 38.0 mH minimum | 36.0-37.5 mH | 27.0-33.0 Ω | 344.5-351.5 Ω |

**SUBTASK 32-09-12-200-003**

(7) Compare the measured inductance value to Table 505.

**Table 505/32-09-12-993-805 SENSOR NOMINAL VALUES**

| VALUE | SENSOR CONDITION |
|---|---|
| Three-wire Sensors | |
| 35 mH | Target FAR |
| 40 mH - 50 mH | Correctly rigged NEAR sensor |
| Greater than 50 mH | Target may be rigged too near to the sensor |
| Resistance on aircraft (Red-Yellow resistance plus Blue-Yellow resistance): ≤ 390 Ω | |
| Typical Sensor Inductance Values Using Go Gauges | |
| Three-wire sensor - Go side 38.20 mH, No-Go side - 36.20 mH | |

NOTE: Sensor inductance values will vary between sensor positions because of differences in operation and design requirements. In some condition, the inductance value cannot be achieved. Inductance values outside of the nominal range are permitted if the minimum value of 38.00 mH (Target NEAR) is obtained and no system anomaly is observed.

**SUBTASK 32-09-12-860-013**

(8) Use the proximity sensor breakout box, SPL-18742, controls to set the next sensor. And again measure the inductance (RED to BLUE) and record for each of the remaining sensors.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-09-12-080-002**

(1) Remove the proximity sensor breakout box, SPL-18742, cables from the J2 through J6 cables of the PSEU [1].



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SUBTASK 32-09-12-080-003

(2) Remove the dust caps, STD-7394, from the electrical connectors [7].

SUBTASK 32-09-12-420-002

(3) Install the J2 through J6 electrical connector [7] to the PSEU [1].

SUBTASK 32-09-12-840-005

(4) Put the airplane systems back to normal on ground condition (TASK 32-09-00-840-802).

SUBTASK 32-09-12-410-002

(5) Close this access door:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

SUBTASK 32-09-12-840-007

(6) Make sure that these doors are closed:

(a) Forward Entry Door (PAGEBLOCK 52-11-00/201).

(b) Aft Entry Door (PAGEBLOCK 52-13-00/201).

(c) Left and Right Overwing Exit Doors (PAGEBLOCK 52-22-00/201).

(d) Galley Service Doors (PAGEBLOCK 52-41-00/201).

SUBTASK 32-09-12-860-014

(7) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

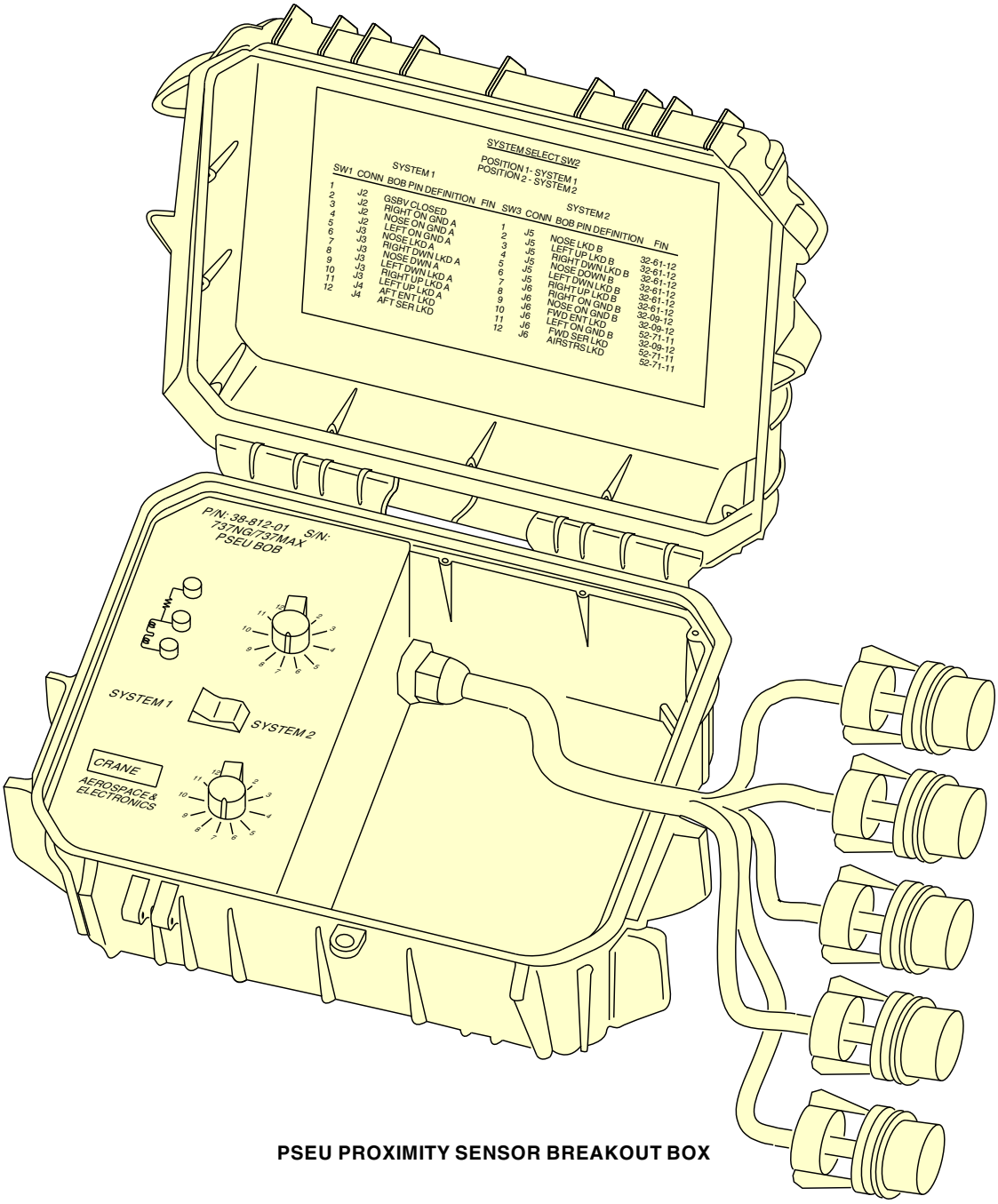
SUBTASK 32-09-12-700-002

(8) Do this task: Proximity Switch Electronics Unit - LRU Replacement Test, TASK 32-09-10-710-801.

**——— END OF TASK ———**



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**PSEU PROXIMITY SENSOR BREAKOUT BOX**

2911888 S0000697772_V1

**PSEU Proximity Sensor Breakout Box (BOB)**
**Figure 503/32-09-12-990-803**



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| DATE: | | LOC: | | GROUND TEMP: | | |
|---|---|---|---|---|---|---|
| A/C: | | | | FUSELAGE TEMP: | | |
| | | | | RESISTANCE OHMS (MEASURE AT 120Hz) | | INDUCTANCE mH (MEAS. AT 1KHz) |
| SENSOR EQUIP. NO. | BREAKOUT BOX SWITCH (SW1) POSITION | PSEU/BOB CABLE CONNECTOR | SYSTEM 1 SENSOR INSTALLATION | BLUE -YELLOW (TC RESISTOR) | RED -YELLOW (COILS) | RED-BLUE |
| S1050 1 | 1 | J2 | GSBV CLOSED | | | |
| S1010 | 2 | J2 | RIGHT ON GND A | | | |
| S1014 | 3 | J2 | NOSE ON GND A | | | |
| S1012 | 4 | J2 | LEFT ON GND A | | | |
| S846 | 5 | J3 | NOSE LKD A | | | |
| S73 | 6 | J3 | RIGHT DOWN LKD A | | | |
| S845 | 7 | J3 | NOSE DWN A | | | |
| S71 | 8 | J3 | LEFT DWN LKD A | | | |
| S74 | 9 | J3 | RIGHT UP LKD A | | | |
| S72 | 10 | J3 | LEFT UP LKD A | | | |
| S200 | 11 | J4 | AFT ENT LKD | | | |
| S195 | 12 | J4 | AFT SER LKD | | | |
| | | | | RESISTANCE OHMS (MEASURE AT 120Hz) | | INDUCTANCE mH (MEAS. AT 1KHz) |
| SENSOR EQUIP. NO. | BREAKOUT BOX SWITCH (SW3) POSITION | PSEU/BOB CABLE CONNECTOR | SYSTEM 2 SENSOR INSTALLATION | BLUE -YELLOW (TC RESISTOR) | RED -YELLOW (COILS) | RED-BLUE |
| S854 | 1 | J5 | NOSE LKD B | | | |
| S1016 | 2 | J5 | LEFT UP LKD B | | | |
| S301 | 3 | J5 | RIGHT DWN LKD B | | | |
| S853 | 4 | J5 | NOSE DWN B | | | |
| S302 | 5 | J5 | LEFT DWN LKD B | | | |
| S1017 | 6 | J5 | RIGHT UP LKD B | | | |
| S1011 | 7 | J6 | RIGHT ON GND B | | | |
| S1015 | 8 | J6 | NOSE ON GND B | | | |
| S199 | 9 | J6 | FWD ENT LKD | | | |
| S1013 | 10 | J6 | LEFT ON GND B | | | |
| S194 | 11 | J6 | FWD SER LKD | | | |
| S282 2 | 12 | J6 | AIRSTRS LKD | | | |

1 NOT USED ON MAX
2 ONLY IF OPTION SELECTED

2910522 S0000697767_V2

**Proximity Sensor Performance Values - Log Sheet**
**Figure 504/32-09-12-990-802**



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## MAIN LANDING GEAR - MAINTENANCE PRACTICES

### 1. General

A. This procedure has these tasks:

(1) A removal of the main landing gear gas charging valve

(2) An installation of the main landing gear gas charging valve

(3) A removal of the main landing gear oil charging valve

(4) An installation of the main landing gear oil charging valve.

B. The gas charging valve is installed on the inboard side of the shock strut. The gas charging valve is between the trunnion and the lower side strut.

**TASK 32-11-00-000-801**

### 2. Main Landing Gear Gas Charging Valve Removal

(Figure 201)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### C. Prepare for the Removal

**SUBTASK 32-11-00-480-024**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-11-00-860-002**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-11-00-860-003**

(3) Make sure that there is no pressure in the hydraulic systems A and B (TASK 29-11-00-860-805).

#### D. Main Landing Gear Gas Charging Valve Removal

**SUBTASK 32-11-00-630-001**

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(1) Deflate the shock strut [1] for the applicable main landing gear fully:


ECCN 9E991 BOEING PROPRIETARY - See title page for details

(a) Remove the lockwire [6] from the gas charging valve [4] and the shock strut [1].

1) Discard the lockwire [6].

(b) Remove the dust cap [2] for the gas charging valve [4].

(c) Loosen the swivel nut [3] of the gas charging valve [4] for a maximum of two turns.

NOTE: Fluid in the shock strut [1] will have bubbles when you release the pressure.

1) Deflate the shock strut [1] slowly to prevent the leakage of the fluid through the gas charging valve [4].

(d) Loosen the swivel nut [3] of the gas charging valve [4] fully when all of the pressure in the shock strut [1] is released.

NOTE: The shock strut [1] is fully deflated when the dimension from the lower surface of the outer cylinder to the upper surface of the axle clevis on the inner cylinder is 0.9 in. (2.3 cm).

**SUBTASK 32-11-00-020-001**

(2) Remove the gas charging valve [4].

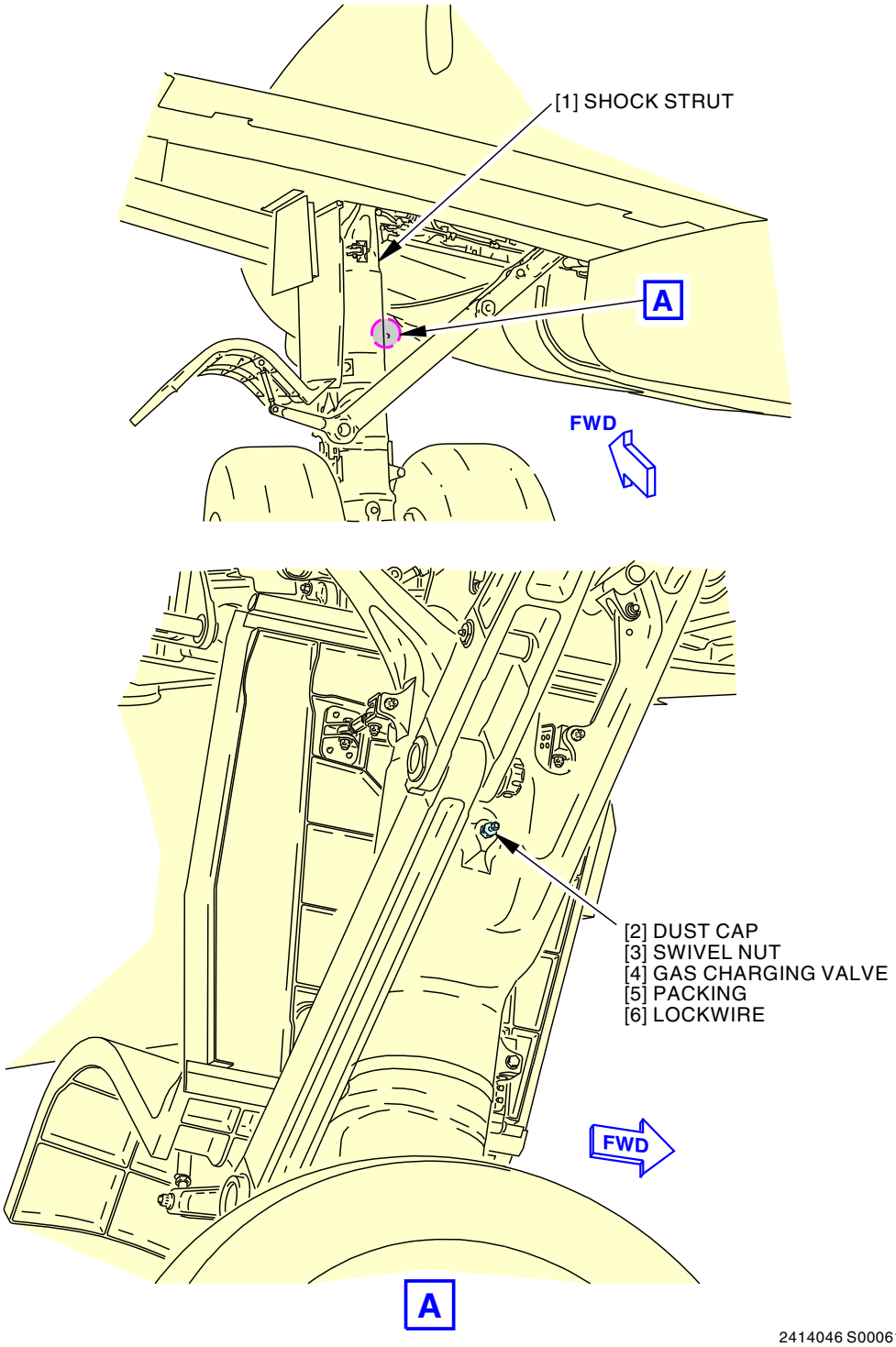
(a) Remove the packing [5] from the gas charging valve [4].

(b) Discard the packing [5].

**——— END OF TASK ———**



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**Main Landing Gear Gas Charging Valve**
**Figure 201/32-11-00-990-801**



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**TASK 32-11-00-400-801**

## 3. Main Landing Gear Gas Charging Valve Installation

(Figure 201)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| D50022 | Fluid - Landing Gear Shock Strut (Specifically For Preservation) | BMS3-32 Type I |
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Gas charging valve | 32-11-21-01-020 | SIA ALL |
| 5 | Packing | 32-11-21-01-023 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Prepare for the Installation

**SUBTASK 32-11-00-480-025**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-11-00-860-080**

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

### F. Main Landing Gear Gas Charging Valve Installation

**SUBTASK 32-11-00-600-001**

(1) To install the new packing [5] on the gas charging valve [4], do these steps:

(a) Lubricate the new packing [5] with fluid, D00467, or fluid, D50022.

(b) Lubricate the surface of the gas charging valve [4] that the packing slides against with fluid, D00467, or fluid, D50022.

(c) Install the new packing [5] on the gas charging valve [4].


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SUBTASK 32-11-00-600-002

(2) Lubricate the threads of the gas charging valve [4] with the fluid for the shock strut [1] (TASK 12-15-31-610-802).

SUBTASK 32-11-00-420-001

(3) Install the gas charging valve [4] on the shock strut [1].

NOTE: The dust cap and swivel nut of the gas charging valve are installed when the shock strut is serviced.

(a) Tighten the body of the gas charging valve [4] to 12 ±1 ft-lb (16 ±2 N·m).

(b) Install MS20995C32 lockwire, G01048, on the gas charging valve [4] and shock strut [1] using the double twist method.

(c) Apply compound, A00226, on the gas charging valve [4] and shock strut [1].

NOTE: Apply it to make sure that the seal made by the compound, A00226, will break if the body of the gas charging valve is loosened.

**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-11-00-610-001

(1) Service the shock strut [1] (TASK 12-15-31-610-802).

**——— END OF TASK ———**

**TASK 32-11-00-000-806**

## 4. Main Landing Gear Oil Charging Valve Removal

(Figure 202)

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1829 | Valve - Drain, Landing Gear Shock Strut Oil<br>Part #: J32108-16 Supplier: 81205<br>Opt Part #: A32066-1 Supplier: 81205 |
| STD-1110 | Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter) |
| STD-1140 | Hose - Flexible, 1/2 Inch ID, BMS 3-11 Resistant, 10 Foot |

**C. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



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## D. Prepare for the Removal

SUBTASK 32-11-00-800-001

**CAUTION** DO NOT DEFLATE OR SERVICE THE SHOCK STRUTS WHILE THE TAIL STAND IS INSTALLED. IF YOU DEFLATE OR SERVICE THE SHOCK STRUTS, THE LOAD ON THE TAIL STAND CAN BE TOO LARGE. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Do not deflate or service the shock struts while the tail stand is installed.

SUBTASK 32-11-00-480-060

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-00-860-071

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-11-00-860-058

(4) Make sure that there is no pressure in the hydraulic systems A and B (TASK 29-11-00-860-805).

## E. Main Landing Gear Oil Charging Valve Removal

SUBTASK 32-11-00-630-004

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

**WARNING** CLEAR THE AREA BELOW THE WING BEFORE YOU DEFLATE THE SHOCK STRUT. IF YOU DEFLATE ONE SHOCK STRUT, THE WING-TIP CAN MOVE DOWN AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Deflate the shock strut [1] for the Main Landing Gear (MLG) fully:

(a) Remove the dust cap [2] for the gas charging valve [4].

(b) Loosen the swivel nut [3] of the gas charging valve [4] for a maximum of two turns.

NOTE: Fluid in the shock strut [1] will have bubbles when you release the pressure. Deflate the shock strut [1] slowly to prevent the leakage of the fluid through the gas charging valve [4].

(c) Loosen the swivel nut [3] of the gas charging valve [4] fully when all of the pressure in the shock strut [1] is released.

NOTE: The shock strut [1] is fully deflated when the dimension from the lower surface of the outer cylinder to the upper surface of the axle clevis on the inner cylinder is 0.81 in. (20.57 mm) to 1.11 in. (28.19 mm).

SUBTASK 32-11-00-680-001

(2) Drain the oil from the shock strut [1]:



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(a) Remove the cap [29] from the oil charging valve [30].

(b) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110 in a position to catch the oil when the oil charging valve [30] is opened.

(c) Install the drain equipment on the oil charging valve [30]:

NOTE: The tool, landing gear shock strut drain valve, SPL-1829, could also be used, but it will take much longer to drain the shock strut.

1) Cut a length of plastic ten foot hose (1/2 inch ID), STD-1140, long enough to reach the container on the floor.

2) Insert a small allen wrench in the end of the cut length of tubing so that the long end of the allen wrench is flush with the end of the tube and the short end goes through the wall of the tube.

3) Install the cut length of tubing on the oil charging valve [30] so that the allen wrench goes into the check valve and holds it open to drain the oil.

(d) Remove the drain equipment when you have removed all of the oil.

**SUBTASK 32-11-00-020-066**

(3) Remove the oil charging valve [30] as follows:

(a) Remove the lockwire [28] from the oil charging valve [30].

1) Discard the lockwire [28].

(b) Remove the oil charging valve [30].

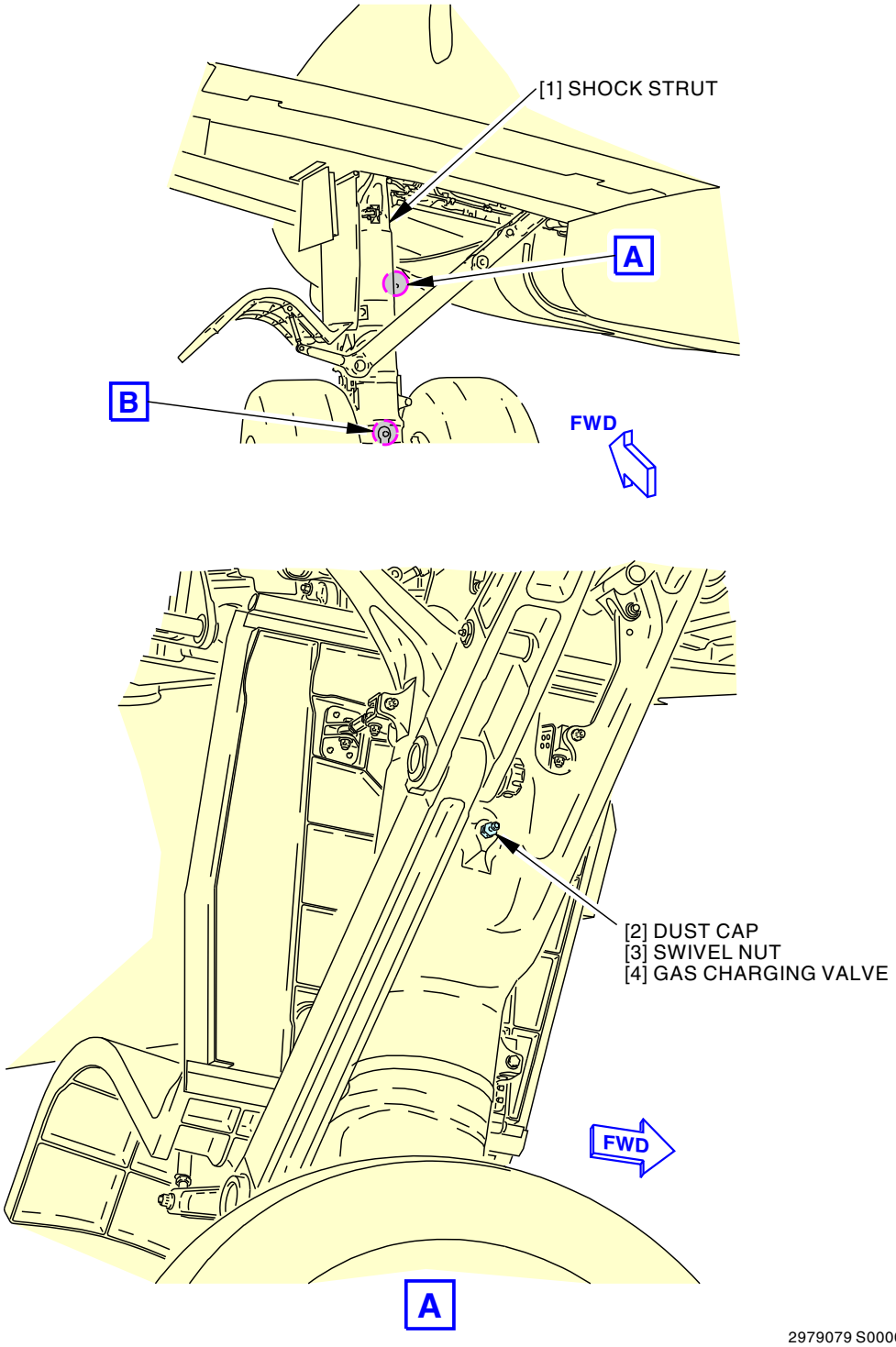
(c) Remove the packing [31] from the oil charging valve [30].

1) Discard the packing [31].

**——— END OF TASK ———**



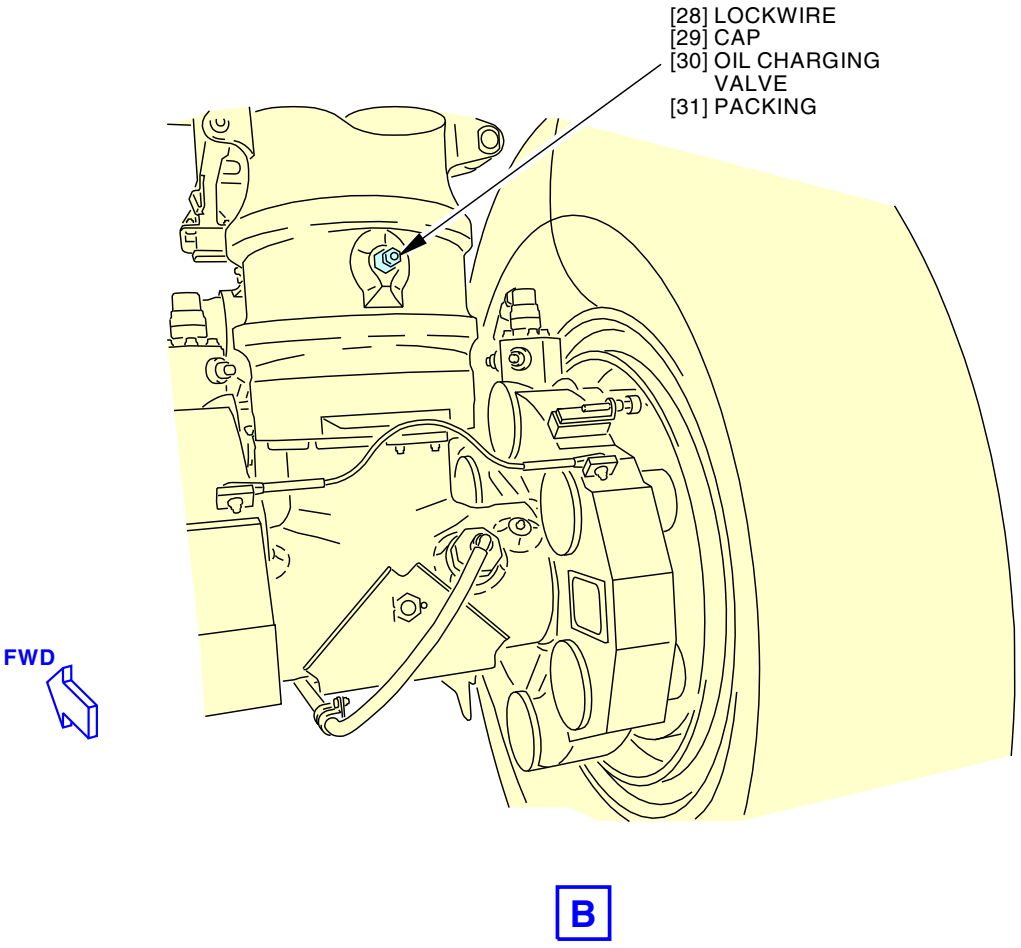
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**Main Landing Gear Oil Charging Valve Installation**
**Figure 202/32-11-00-990-818 (Sheet 1 of 2)**



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**Main Landing Gear Oil Charging Valve Installation**
**Figure 202/32-11-00-990-818 (Sheet 2 of 2)**



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**TASK 32-11-00-400-806**

## 5. Main Landing Gear Oil Charging Valve Installation

(Figure 202)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 24-22-00-860-802 | Remove Electrical Power (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| D50022 | Fluid - Landing Gear Shock Strut (Specifically For Preservation) | BMS3-32 Type I |
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 30 | Oil charging valve | 32-11-21-01-025 | SIA ALL |
| 31 | Packing | 32-11-21-01-040 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Prepare for the Installation

**SUBTASK 32-11-00-480-061**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-11-00-860-064**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

### F. Main Landing Gear Oil Charging Valve Installation

**SUBTASK 32-11-00-420-056**

(1) To install the new packing [31] on the oil charging valve [30], do these steps:

(a) Lubricate the new packing [31] with fluid, D00467 or fluid, D50022.

(b) Lubricate the surface of the oil charging valve [30] which the packing slides against with fluid, D00467 or fluid, D50022.



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(c) Install the new packing [31] on the oil charging valve [30].

SUBTASK 32-11-00-640-009

(2) Lubricate the threads of the oil charging valve [30] with the fluid for the shock strut [1].

(a) Refer to Main Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-31-610-802 for the fluid.

SUBTASK 32-11-00-420-057

(3) Install the oil charging valve [30] on the shock strut [1].

NOTE: The cap [29] is installed when the shock strut [1] is serviced.

(a) Torque the body of the oil charging valve [30] to 22 ft-lb (30 N·m) - 25 ft-lb (34 N·m).

(b) Install the lockwire [28] (MS20995C32 lockwire, G01048) on the oil charging valve [30] and the shock strut [1] using the double twist method.

(c) Apply compound, A00226 on the oil charging valve [30] and the shock strut [1].

NOTE: Apply it to make sure that the seal made by the compound, A00226, will break if the body of the oil charging valve [30] is loosened.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-00-600-004

(1) Service the shock strut [1], do this task: Main Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-31-610-802.

SUBTASK 32-11-00-860-061

(2) If electrical power is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-802.

SUBTASK 32-11-00-860-063

(3) Remove the downlock pins, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

——— END OF TASK ———



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## MAIN LANDING GEAR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the main landing gear

(2) An installation of the main landing gear.

**TASK 32-11-00-000-802**

### 2. Main Landing Gear Removal

(Figure 401, Figure 402, Figure 403, and Figure 405)

NOTE: This procedure is a scheduled maintenance task.

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 20-10-52-000-801 | Flexible Hose Removal (P/B 401) |
| 27-51-00-040-801 | Trailing Edge Flap System Deactivation (P/B 201) |
| 27-51-00-860-803 | Extend the Trailing Edge Flaps (P/B 201) |
| 27-62-00-800-801 | Apply Pressure to the Speed Brake Hydraulic Systems A and B (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-11-61-000-802 | Main Landing Gear Lower Side Strut Removal (P/B 401) |
| 32-11-62-000-801 | Main Landing Gear Side Brace Assembly Removal (P/B 401) |
| 32-11-71-000-801 | Main Landing Gear Reaction Link Assembly Removal (P/B 401) |
| 32-13-11-000-801 | Main Landing Gear Center Door Removal (P/B 401) |
| 32-13-11-000-802 | Main Landing Gear Inner Door Removal (P/B 401) |
| 32-13-21-000-801 | Main Landing Gear Wing Door Removal (P/B 401) |
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |
| 32-45-11-000-801 | Main Landing Gear Wheel and Tire Assembly Removal (P/B 401) |
| 57-16-01-000-801 | MLG Forward Trunnion Housing Assembly Removal (P/B 401) |
| 57-16-01-400-801 | MLG Forward Trunnion Housing Assembly Installation (P/B 401) |
| 57-16-02-000-801 | MLG Aft Trunnion Bearing Assembly Removal (P/B 401) |
| 57-16-02-400-801 | MLG Aft Trunnion Bearing Assembly Installation (P/B 401) |
| 57-16-06-200-802 | Main Landing Gear Beam Hanger Link Free Play Check (P/B 601) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1362 | Assembly - Wrench Adapter, C32029-6 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |


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(Continued)

| Reference | Description |
|---|---|
| SPL-1363 | Assembly - Wrench Adapter, C32029-7 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1365 | Protector - Thread, C32029-9 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1366 | Thread Protector, C32029-10 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1371 | Protector - Thread C32029-15 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1372 | Protector - Thread, C32029-16 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1744 | Set - Lock, Inboard Ground Spoiler Actuator (Contains 4 Lock Assemblies)<br>Part #: C27046-13 Supplier: 81205<br>Opt Part #: C27046-1 Supplier: 81205 |
| SPL-1862 | Equipment - Removal/Installation, MLG Aft Trunnion Pin<br>Part #: C32031-22 Supplier: 81205<br>Opt Part #: C32031-1 Supplier: 81205 |
| SPL-1869 | Fixture - Transportation, Main Landing Gear, Removal/Installation<br>Part #: C32034-343 Supplier: 81205<br>Opt Part #: C32034-227 Supplier: 81205<br>Opt Part #: C32034-273 Supplier: 81205<br>Opt Part #: C32034-339 Supplier: 81205 |
| SPL-1871 | Strap - Retention, NLG/MLG Inner Cylinder<br>Part #: C32030 -31 Supplier: 81205<br>Opt Part #: C32030-10 Supplier: 81205 |
| SPL-14021 | Assembly - Wrench Adapter, C32029-48 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-14022 | Assembly - Wrench Adapter, C32029-49 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-19644 | Dolly - MLG Side Strut<br>Part #: C32078-1 Supplier: 81205 |

**C. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



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## D. Access Panels

| Number | Name/Location |
|---|---|
| 551BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551CB | Lower Inboard Fixed Trailing Edge, Gear Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651CB | Lower Inboard Fixed Trailing Edge, Gear Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

## E. Prepare for the Removal

SUBTASK 32-11-00-480-022

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-00-480-056

(2) Make sure that the chocks installed around the tires (PAGEBLOCK 10-11-05/201).

SUBTASK 32-11-00-860-009

(3) Extend the trailing edge flaps fully (TASK 27-51-00-860-803).

NOTE: This step will give access to the aft trunnion pin.

SUBTASK 32-11-00-860-010

(4) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

SUBTASK 32-11-00-860-052

**WARNING** MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Do this task: Apply Pressure to the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-801.

SUBTASK 32-11-00-860-012

(6) Put the speed brake lever in the UP position to lift the ground spoilers.

SUBTASK 32-11-00-480-002

(7) Install the set, SPL-1744, for the applicable ground spoiler.

SUBTASK 32-11-00-860-011

(8) Put the SPOILER A and B switches, on the P5-3 flight control panel, to the OFF position to remove the hydraulic power from the flight spoilers.


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SUBTASK 32-11-00-860-072

(9) Open this circuit breaker and install safety tag:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 4 | C00700 | HEATERS DRAIN MAST AIR |

SUBTASK 32-11-00-860-013

(10) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-11-00-860-014

(11) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-11-00-860-015

(12) Push the brake pedals a minimum of twelve times to remove the pressure from the brake lines.

SUBTASK 32-11-00-020-002

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(13) Deflate the shock strut [1] for the two main landing gear fully.

NOTE: This task is necessary keep the airplane level when you do the subsequent steps.

(a) Remove the dust cap [4] for the gas charging valve [2].

(b) Loosen the swivel nut [3] a maximum of two turns.

(c) Deflate the shock strut [1] slowly to prevent the leakage of the fluid through the gas charging valve [2].

NOTE: Fluid in the shock strut will have bubbles when you release the pressure.

(d) Loosen the swivel nut [3] fully when all of the pressure in the shock strut [1] is released.

NOTE: The shock strut is fully deflated when the dimension from the lower surface of the outer cylinder to the upper surface of the axle clevis on the inner cylinder is 0.9 in. (2.3 cm).



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SUBTASK 32-11-00-480-003

**WARNING** DO AN INSPECTION OF THE STRAP FOR CORRECT INSTALLATION AND DAMAGE BEFORE YOU USE IT. INCORRECT INSTALLATION OR DAMAGE CAN CAUSE THE STRAP TO BREAK. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(14) Install the retention strap, SPL-1871, with the marker facing up, to hold the shock strut [1] in its compressed position.

NOTE: Two straps are necessary to hold the inner cylinder secure.

SUBTASK 32-11-00-480-004

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(15) Lift the airplane with the jacks until the tires are off of the ground (TASK 07-10-01-580-801).

SUBTASK 32-11-00-200-002

(16) If necessary, do this task: Main Landing Gear Beam Hanger Link Free Play Check, TASK 57-16-06-200-802.

NOTE: Free play check is necessary, when the landing gear is replaced according to the scheduled restoration task (MPD Item Number 32-040-01 or 32-040-02). If the landing gear is not being replaced as a scheduled restoration task (MPD Item Number 32-040-01 or 32-040-02), then the free play check is optional.

SUBTASK 32-11-00-010-001

(17) Remove the applicable access panel:

(a) For the left landing gear, open this access panels:

| Number | Name/Location |
|---|---|
| 551BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 551CB | Lower Inboard Fixed Trailing Edge, Gear Access Panel |

(b) For the right landing gear, open this access panels:

| Number | Name/Location |
|---|---|
| 651BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 651CB | Lower Inboard Fixed Trailing Edge, Gear Access Panel |

(c) Open these access panels:

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

SUBTASK 32-11-00-020-003

(18) Do this task: Main Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-11-000-801.


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SUBTASK 32-11-00-020-004

(19) Do this task: Main Landing Gear Brake Removal, TASK 32-41-41-000-801.

SUBTASK 32-11-00-020-005

(20) Do this task: Main Landing Gear Inner Door Removal, TASK 32-13-11-000-802.

SUBTASK 32-11-00-020-006

(21) Do this task: Main Landing Gear Center Door Removal, TASK 32-13-11-000-801.

SUBTASK 32-11-00-020-007

(22) Do this task: Main Landing Gear Wing Door Removal, TASK 32-13-21-000-801.

SUBTASK 32-11-00-020-064

(23) Do one of these steps to remove the MLG side strut and the MLG reaction link assembly:

(a) If the side strut dolly, SPL-19644 is used, do this task: Main Landing Gear Side Brace Assembly Removal, TASK 32-11-62-000-801.

(b) Remove the MLG side strut and the MLG reaction link assembly as follows:

1) Do the applicable steps in this task to disconnect the lower side strut from the outer cylinder: Main Landing Gear Lower Side Strut Removal, TASK 32-11-61-000-802.

2) Do the applicable steps in this task to disconnect the reaction link assembly [30] from the outer cylinder trunnion [33]: Main Landing Gear Reaction Link Assembly Removal, TASK 32-11-71-000-801.

SUBTASK 32-11-00-020-010

(24) Remove the nuts [37], washers [35], washers [36], and bolts [34] to disconnect the turnbuckle [38].

SUBTASK 32-11-00-020-062

(25) Remove the nuts [83], washers [82], and bolts [81] that attach the bracket [80] to the MLG beam.

SUBTASK 32-11-00-020-063

(26) Remove the bolts [85] that attach the cable clamps [86] and clamp block [84] to the bracket.

SUBTASK 32-11-00-020-011

(27) Disconnect the retract actuator [43] from the main gear trunnion.

(a) Remove the cotter pin [58], nut [47], and washer [46] from the bolt [44].

(b) Remove the bolt [44] from the actuator attach pin [50].

(c) Use the wrench adapter, C32029-7, SPL-1363, to hold the head of the actuator attach pin [50].

(d) Remove the nut [45] and washer [48] from the actuator attach pin [50].

(e) Remove the wrench adapter, C32029-7, SPL-1363, from the head of the actuator attach pin [50].

(f) Install the thread protector, C32029-16, SPL-1372, on the actuator attach pin [50].

(g) Remove the actuator attach pin [50] to disconnect the retract actuator [43] from the main gear trunnion.

(h) Remove the thread protector, C32029-16, SPL-1372, from the actuator attach pin [50].

(i) Remove the spacers [49].

SUBTASK 32-11-00-020-012

(28) Disconnect the walking beam [51] from the main gear trunnion.

(a) Remove the cotter pin [59], nut [47], and washer [46] from the bolt [54].



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(b) Remove the bolt [54] from the walking beam attach pin [52].

(c) Use the wrench adapter, C32029-6, SPL-1362, to hold the head of the walking beam attach pin [52].

(d) Remove the nut [55] and washer [53].

(e) Remove the wrench adapter, C32029-6, SPL-1362, from the head of the walking beam attach pin [52].

(f) Install the thread protector, C32029-15, SPL-1371, on the walking beam attach pin [52].

(g) Remove the walking beam attach pin [52] to disconnect the walking beam [51] from the main gear trunnion.

(h) Remove the thread protector, C32029-15, SPL-1371, from the walking beam attach pin [52].

SUBTASK 32-11-00-480-005

(29) Use rope to hold the disconnected ends of the walking beam [51], and retract actuator [43], such that the ends will be out of the way when you remove the main landing gear [93].

SUBTASK 32-11-00-010-002

(30) Remove the applicable access panel:

(a) For the left wing, open this access panel:

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |

(b) For the right wing, open this access panel:

| Number | Name/Location |
|---|---|
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |

SUBTASK 32-11-00-020-013

(31) Remove the hose guide [18].

## F. Main Landing Gear Removal

SUBTASK 32-11-00-020-015

(1) Disconnect the brake hose assembly [6] and hydraulic return shimmy damper line [114] (TASK 20-10-52-000-801).

(a) Install tags to identify the brake hose assembly [6] and hydraulic return shimmy damper line [114].

NOTE: This will prevent the crossing of the hoses during the installation.

(b) Disconnect the brake hose assembly [6] and hydraulic return shimmy damper line [114] from the elbow [5].

(c) Put plugs in the brake hose assembly [6] and hydraulic return shimmy damper line [114].

(d) Put caps on the elbow [5].

(e) Move the brake hose assembly [6] and hydraulic return shimmy damper line [114] away from the work area.

SUBTASK 32-11-00-020-016

(2) Disconnect the electrical connector [11].

(a) Remove the lockwire from the electrical connector [11].

(b) Remove the screws [7], washers [8], clamps [9], and nuts [10] that hold the electrical connector [11] to the structure.



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(c) Disconnect the electrical connector [11] from the electrical connector.

(d) Put cap on the electrical connector [11].

(e) Pull the electrical connector [11] out of the hose guide [12].

(f) Wind the electrical connector [11] into a loop.

**SUBTASK 32-11-00-020-017**

(3) Disconnect the electrical connector [13].

(a) Remove the lockwire from the electrical connector [13].

(b) Remove the screws [14], washers [15], clamps [16], and nut [17] that hold the electrical connector [13] to the hose guide [18].

(c) Disconnect the electrical connector [13] from the electrical connector.

(d) Put cap on the electrical connector [13].

(e) Wind the electrical connector [13] into a loop.

**SUBTASK 32-11-00-020-019**

(4) Remove the aft trunnion cross bolt [23].

(a) Remove the pin [20], nut [21], and washer [22] from the aft trunnion cross bolt [23].

1) If it is necessary, do these steps to get access to the nut [21]:

a) Remove the nuts [104], washers [103], washers [102], and bolts [101] to disconnect the turnbuckle [100].

b) Remove the nuts [90], washers [89], and bolts [88] that attach the bracket [87] to the MLG beam.

2) Use the wrench adapter, C32029-48, SPL-14021, to hold the head of the aft trunnion cross bolt [23].

(b) Install the thread protector, C32029-10, SPL-1366, on the aft trunnion cross bolt [23].

(c) Remove the aft trunnion cross bolt [23] to disconnect the aft trunnion pin [19] from the aft trunnion.

(d) Remove the thread protector, C32029-10, SPL-1366, from the aft trunnion cross bolt [23].

**SUBTASK 32-11-00-020-020**

(5) Remove the forward trunnion cross bolt [28].

(a) Remove the pin [24], nut [25], and washer [26] from the forward trunnion cross bolt [28].

1) Use the wrench adapter, C32029-49, SPL-14022, to hold the head of the forward trunnion cross bolt [28].

(b) Install the thread protector, C32029-9, SPL-1365, on the forward trunnion cross bolt [28].

(c) Remove the forward trunnion cross bolt [28] to disconnect the forward trunnion from the forward trunnion bearing pin [29].

(d) Remove the thread protector, C32029-9, SPL-1365, from the forward trunnion cross bolt [28].



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SUBTASK 32-11-00-480-006

**CAUTION** MAKE SURE THAT THE FORWARD TRUNNION BEARING PIN DOES NOT MOVE ON THE PROTECTOR ASSEMBLY DURING THIS PROCEDURE. IF THE PIN MOVES DURING THE REMOVAL OR INSTALLATION OF THE MAIN LANDING GEAR, DAMAGE TO THE PIN CAN OCCUR.

(6) Install the protector assembly [92] (C32034-228/-235).

NOTE: The protector assembly (C32034–228/-235) is part of this tool set fixture, SPL-1869.

NOTE: The protector assembly (C32034–228/-235) will prevent damage to the forward trunnion bearing pin during removal or installation of the main landing gear.

(a) Put the protector assembly [92] (C32034-228/-235) over the forward trunnion bearing pin [29].

(b) Secure in place with tape.

SUBTASK 32-11-00-480-007

(7) Attach the support assembly [96] (C32034-212) to the main landing gear [93].

NOTE: A minimum of two persons are necessary to do this task.

(a) Make sure that the side strut attach assembly [94] (C32034-14) is not attached to the support assembly [96] (C32034-212), and the jackball pin is removed from the hole in the jackball fitting.

NOTE: The jackball fitting is located on the support assembly (C32034-212).

(b) Put the side strut attach assembly [94] (C32034-14) into the lower side strut attach point on the main landing gear [93].

1) Make sure that the stenciled plate of the side strut attach assembly [94] (C32034-14) is in the vertical and up position.

2) Install the washer and nut, finger tight, on the threaded end of the side strut attach assembly [94] (C32034-14).

(c) Put the support assembly [96] (C32034-212) in its position on the aft side of the main landing gear [93].

1) Make sure that the jackball fitting on the support assembly is fully engaged on the jacking ball of the main landing gear [93].

(d) If it is necessary, align the holes in the support assembly [96] (C32034-212) with the jacking ball hole for the installation of the jackball pin.

(e) Put the jackball pin through the jackball fitting and the jacking ball of the main landing gear [93].

(f) Install the lynch pin in the jackball pin.

(g) Loosen the nut that holds the side strut attach assembly [94] (C32034-14) such that the stenciled plate can be attached to the studs on the side strut support assembly [97] (C32034-12).

1) If it is necessary, adjust the adjustable square support tube of the side strut support assembly [97] (C32034-12).

(h) Tighten the two hand knobs to hold the stenciled plate to the studs on the side strut support assembly [97] (C32034-12).

(i) Tighten the nut that holds the side strut attach assembly [94] (C32034-14) to the lower side strut attach point.



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SUBTASK 32-11-00-840-001

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(8) Lift the airplane with the jacks until the lower surface of the housing assembly, for the forward trunnion bearing pin [29], is 97 ±2 in. (246 ±5 cm) above the ground (TASK 07-10-01-580-801) (View B-B, Figure 401).

(a) Make sure that to keep the airplane level.

SUBTASK 32-11-00-480-008

(9) Attach the dolly assembly [98] (C32034-213) to the support assembly [96] (C32034-212).

NOTE: A minimum of two persons are necessary to do this task.

(a) If it is installed, remove the transportation support assembly and the aft tire support assembly from the dolly assembly [98] (C32034-213).

(b) From the aft side, carefully move the dolly assembly [98] (C32034-213) in the forward direction under the wing.

(c) Push the dolly assembly [98] (C32034-213) aft such that the boom arm [91] (C32034-214) points forward of the main landing gear [93] and the legs are parallel to the fuselage and in the center with the main landing gear [93].

(d) Lift or lower the boom arm [91] (C32034-214) until you can connect the lift links [95] (C32034-34) to the support assembly [96] (C32034-212).

(e) Install the pins to hold the lift links [95] (C32034-34) to the support assembly [96] (C32034-212).

(f) Connect the winch assembly [99] (C32034-207) to the support assembly [96] (C32034-212) with the snapper pin.

SUBTASK 32-11-00-020-022

**WARNING**

MAKE SURE THAT THE HYDRAULIC PRESSURE IS BELOW 5000 PSIG (34,474 KPA). IF YOU CONTINUE WHEN THE HYDRAULIC PRESSURE IS 5000 (34,474 KPA) OR HIGHER, A BINDING CONDITION WILL OCCUR. A BINDING CONDITION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(10) Prepare the dolly assembly [98] (C32034-213) to disconnect the aft trunnion.

(a) Operate the hydraulic pump on the dolly assembly [98] (C32034-213) until approximately 1500 psi (10,342 kPa) is shown on the gage.

1) Make sure that the dolly assembly [98] (C32034-213) stays in center with the main landing gear [93].

(b) Make sure that the swivel locks for the single caster wheels are released.

(c) Use the pry lever bar to remove the load off of the caster wheels one at a time.



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(d) Use the lever bar assemblies to turn the single caster wheels parallel to the legs of the dolly assembly [98] (C32034-213).

1) Lock the swivel locks for the single wheel casters.

(e) Operate the hydraulic pump on the dolly assembly [98] (C32034-213) to decrease the weight of the main landing gear from the aft trunnion pin [19].

NOTE: The amount of pressure required to perform this step will depend on how many components are installed on the gear at the time of removal, and it will vary approximately between 2500 psi (17,237 kPa) to 4500 psi (31,026 kPa).

(f) Put chocks on all the caster wheels.

SUBTASK 32-11-00-480-009

(11) Use the equipment, SPL-1862, to push the aft trunnion pin [19] into the aft trunnion.

(a) Attach the push adapter [75] to the shaft [71].

(b) Put the push adapter [75] through the pin access hole in the main landing gear beam.

(c) Push the slide hammer [72] until the aft trunnion pin [19] is disconnected from the aft trunnion bearing and it is inside the aft trunnion.

SUBTASK 32-11-00-480-010

(12) Use tie wraps to hold the aft trunnion pin [19] inside the aft trunnion.

NOTE: This will prevent the aft trunnion pin from falling out when you do the subsequent steps.

SUBTASK 32-11-00-950-001

(13) Put protective tape on the outer edge of the aft trunnion to protect its surface finish from scratching.

SUBTASK 32-11-00-420-002

**WARNING**

MAKE SURE THAT THE HYDRAULIC PRESSURE IS BELOW 5000 PSIG (34,474 KPA). IF YOU CONTINUE WHEN THE HYDRAULIC PRESSURE IS 5000 (34,474 KPA) OR HIGHER, A BINDING CONDITION WILL OCCUR. A BINDING CONDITION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(14) Lower the aft trunnion.

NOTE: The initial main landing gear removal path is done with the forward trunnion bearing pin attached to the forward trunnion. This removal path follows a combination of movements from lowering and moving the aft trunnion inboard while the main landing gear pivots about the forward trunnion bearing pin.

(a) Make sure that to lock the swivel locks for the caster wheels when the main landing gear [93] pivots about the forward trunnion bearing pin [29].

1) Use the pry lever bar to remove the load off of the caster wheels one at a time.

2) Lock the single wheel casters perpendicular to the forward trunnion pivot axis approximately 38 degrees, and 90 degrees for the double wheel caster.

(b) Put the fork end of the lever bar assemblies on the rectangular tubing above the single wheel casters.

(c) Hold the lever bar assemblies to slowly push the aft end of the dolly assembly [98] (C32034-213) inboard.

1) Make sure that the swivel locks for all the caster wheels are released.



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(d) To lower the aft trunnion inboard while at the same time the aft end of the main landing gear [93] moves inboard, do these steps:

NOTE: When lifting or lowering the aft trunnion, put the single caster wheels parallel to the dolly assembly legs and lock the swivel locks.

1) Use the winch assembly [99] (C32034-207) to pull the bottom of the main landing gear [93] forward.

2) Use the manual valve on the hydraulic pump to lower the boom arm [91] (C32034-214).

3) Continue to lower and to move the aft trunnion inboard until it clears these components:

a) The lower flange of the main landing gear beam

b) The seals for the lower trailing edge panel

c) The seal for the support beam

d) And the aft trunnion is just below the lower trailing edge panel.

(e) If the forward tire support assembly touches the tires at this time, remove it.

**SUBTASK 32-11-00-020-023**

**WARNING** MAKE SURE THAT THE HYDRAULIC PRESSURE IS BELOW 5000 PSIG (34,474 KPA). IF YOU CONTINUE WHEN THE HYDRAULIC PRESSURE IS 5000 (34,474 KPA) OR HIGHER, A BINDING CONDITION WILL OCCUR. A BINDING CONDITION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(15) Disconnect the forward trunnion.

(a) Make sure that the swivel locks for the caster wheels are released.

(b) Use the lever bar assemblies to push the dolly assembly [98] (C32034-213) outboard such that the axis of the forward trunnion bearing pin [29] is perpendicular to the housing assembly and the rear spar.

(c) Use the pry lever bar to remove the load off of the caster wheels one at a time.

(d) If it is necessary, use the lever bar assemblies and put the single caster wheels parallel to the legs of the dolly assembly [98] (C32034-213).

1) Lock the swivel locks for the single caster wheels.

(e) Attach the outer cylinder strap assembly to the hoist ring on the end of the boom arm [91] (C32034-214) and around the outer cylinder at the aft trunnion.

(f) Remove the tension from the strap.

(g) Put the chocks approximately 2 in. (5 cm) aft of the single wheel casters, and in contact with the double wheel caster to limit the movement of the dolly assembly [98] (C32034-213).

(h) Make sure that the chock is in contact with the double wheel caster to prevent the movement of the dolly assembly [98] (C32034-213).

(i) Put the fork end of the lever bar assemblies on the rectangular tubing above the single wheel casters.

(j) Hold the lever bar assemblies to slowly push on the dolly assembly [98] (C32034-213), such that the forward trunnion will come off of the forward trunnion bearing pin [29].

1) Make sure that the swivel locks for all the caster wheels are released.



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(k) Continue to push the dolly assembly [98] (C32034-213) while lowering the aft end of the main landing gear [93] with the use of the winch assembly [99] (C32034-207) and the boom arm [91] (C32034-214).

(l) Continue this movement until the aft trunnion will clear the lower trailing edge panel seals, the forward trunnion is disconnected from the forward trunnion bearing pin [29].

NOTE: The retaining ring and the seal are still on the airplane until the forward trunnion is disconnected.

(m) Remove the outer cylinder strap assembly from the hoist ring and the outer cylinder.

(n) Use the boom arm [91] (C32034-214) and winch assembly [99] (C32034-207) to lower the main landing gear [93], such that the dolly assembly [98] (C32034-213), with the main landing gear [93] can be removed below the wing.

**SUBTASK 32-11-00-580-001**

(16) Lower the main landing gear [93] on the tire support assemblies such that the support assembly [96] (C32034-212) rests in the cradle of the transportation support assembly.

**SUBTASK 32-11-00-480-011**

(17) Use the retention strap, SPL-1871, to hold the tires and the main landing gear [93].

**SUBTASK 32-11-00-480-012**

(18) Tighten the adjustable square support tube of the side strut support assembly [97] (C32034-12) with the two adjustable handles.

**SUBTASK 32-11-00-020-024**

**CAUTION**

DO NOT TOW THE MAIN LANDING-GEAR SUPPORT EQUIPMENT MORE THAN 5 MPH (8 KM/H). THE MAIN LANDING-GEAR SUPPORT EQUIPMENT IS FOR SHOP OPERATION ONLY. IF YOU DO NOT OBEY, DAMAGE TO THE EQUIPMENT CAN OCCUR.

**CAUTION**

INSTALL THE RETENTION STRAP OR EQUIVALENT ON THE SHOCK STRUT WHEN YOU REMOVE THE MAIN LANDING-GEAR FIXTURE. THE SHOCK STRUT CAN EXTEND AND DAMAGE TO THE EQUIPMENT CAN OCCUR.

(19) Remove the dolly assembly [98] (C32034-213), with the main landing gear [93], from the work area.

**SUBTASK 32-11-00-210-013**

(20) Do a general visual inspection of the Main Landing Gear (MLG) at the forward trunnion bearing pin [29] and aft trunnion pin [19] locations and the visible surfaces of the forward trunnion bearing pin [29] and aft trunnion pin [19] for signs of corrosion and chrome plating damage.

(a) If any sign of corrosion or chrome plating damage is found for the forward trunnion bearing pin [29], do these tasks:

- MLG Forward Trunnion Housing Assembly Removal, TASK 57-16-01-000-801
- MLG Forward Trunnion Housing Assembly Installation, TASK 57-16-01-400-801.

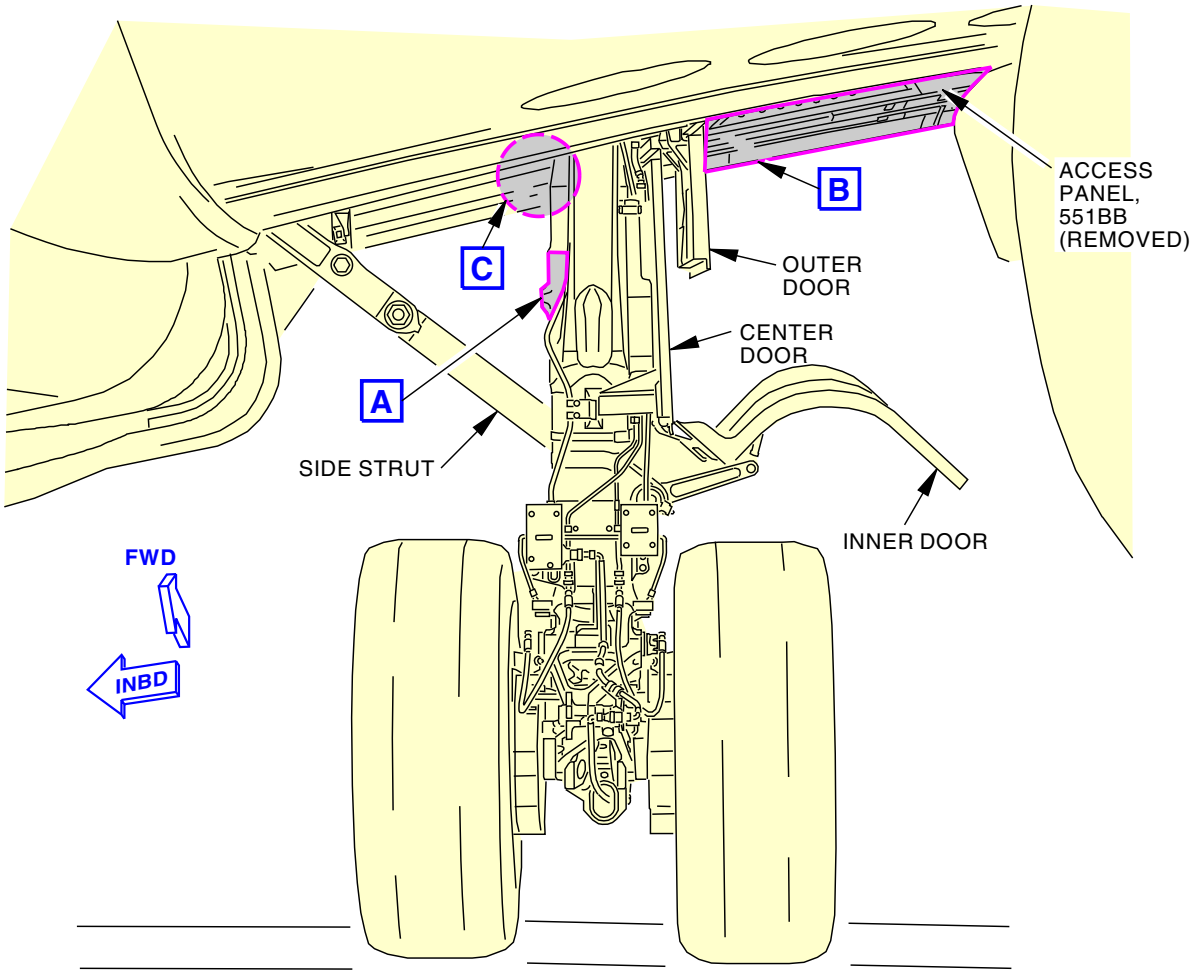
(b) If any sign of corrosion or chrome plating damage is found for the aft trunnion pin [19], do these tasks:

- MLG Aft Trunnion Bearing Assembly Removal, TASK 57-16-02-000-801
- MLG Aft Trunnion Bearing Assembly Installation, TASK 57-16-02-400-801.

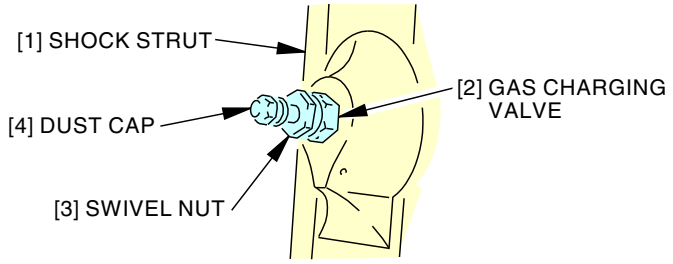
**END OF TASK**



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**LEFT MAIN LANDING GEAR**
**(RIGHT MAIN LANDING GEAR IS EQUIVALENT)**




**SHOCK STRUT INFLATION VALVE**

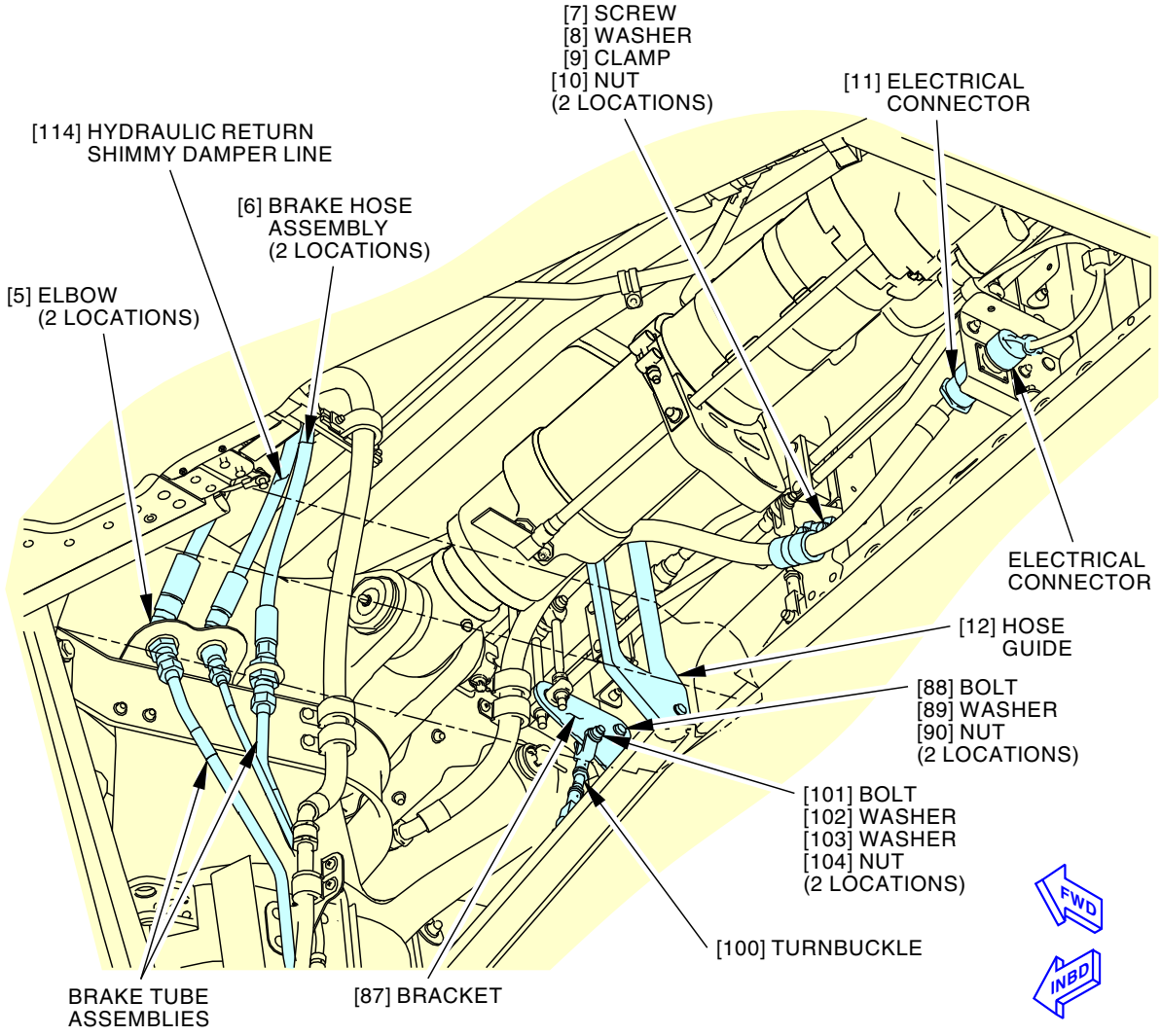
**A**

2414047 S00061534299_V2

**Main Landing Gear Installation**
**Figure 401/32-11-00-990-802 (Sheet 1 of 6)**



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**HYDRAULIC LINES AND ELECTRICAL CONNECTORS**

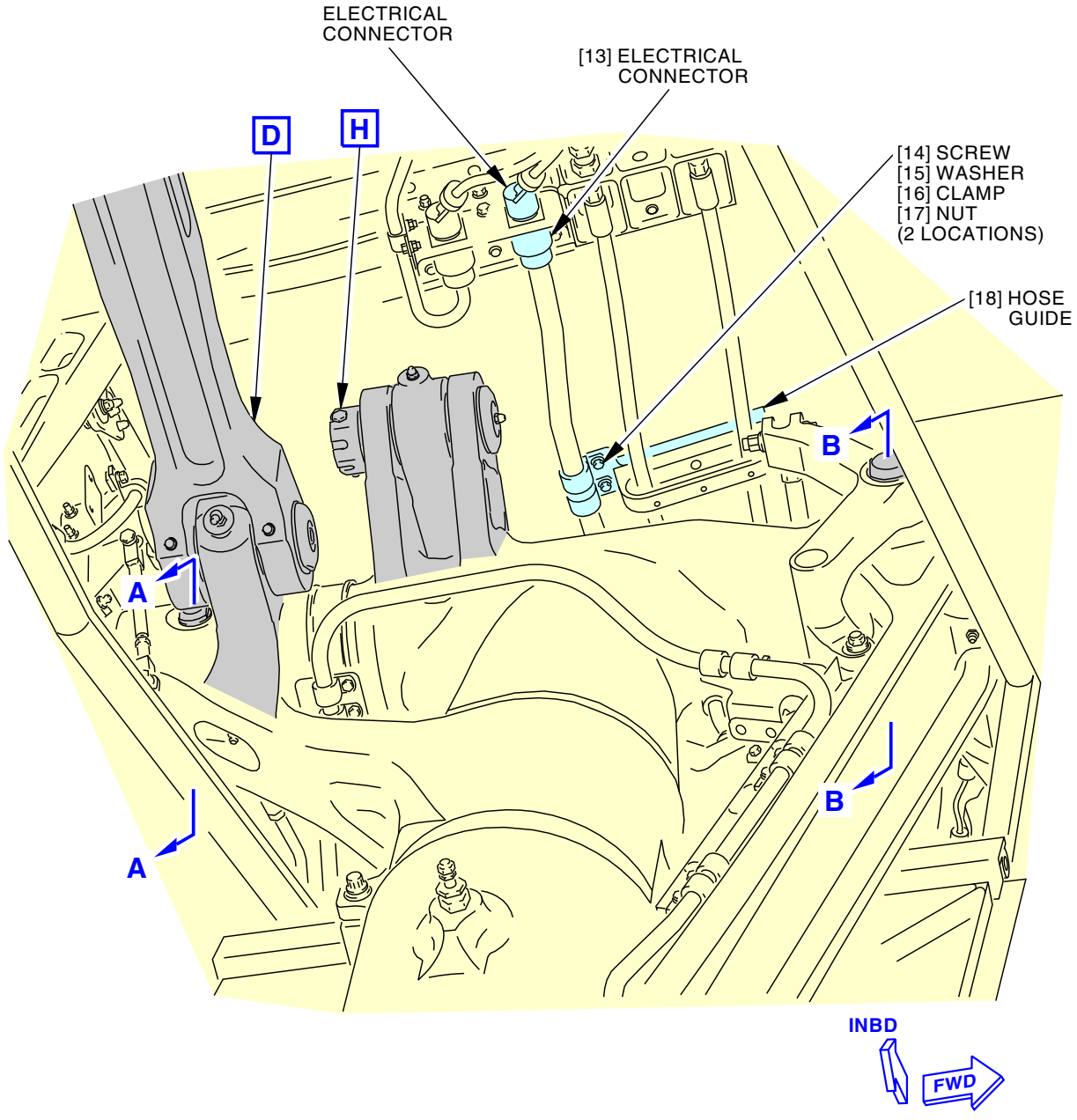
B

2414048 S00061534300_V3

**Main Landing Gear Installation**
**Figure 401/32-11-00-990-802 (Sheet 2 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**ELECTRICAL CONNECTOR AND TRUNNION SUPPORTS**

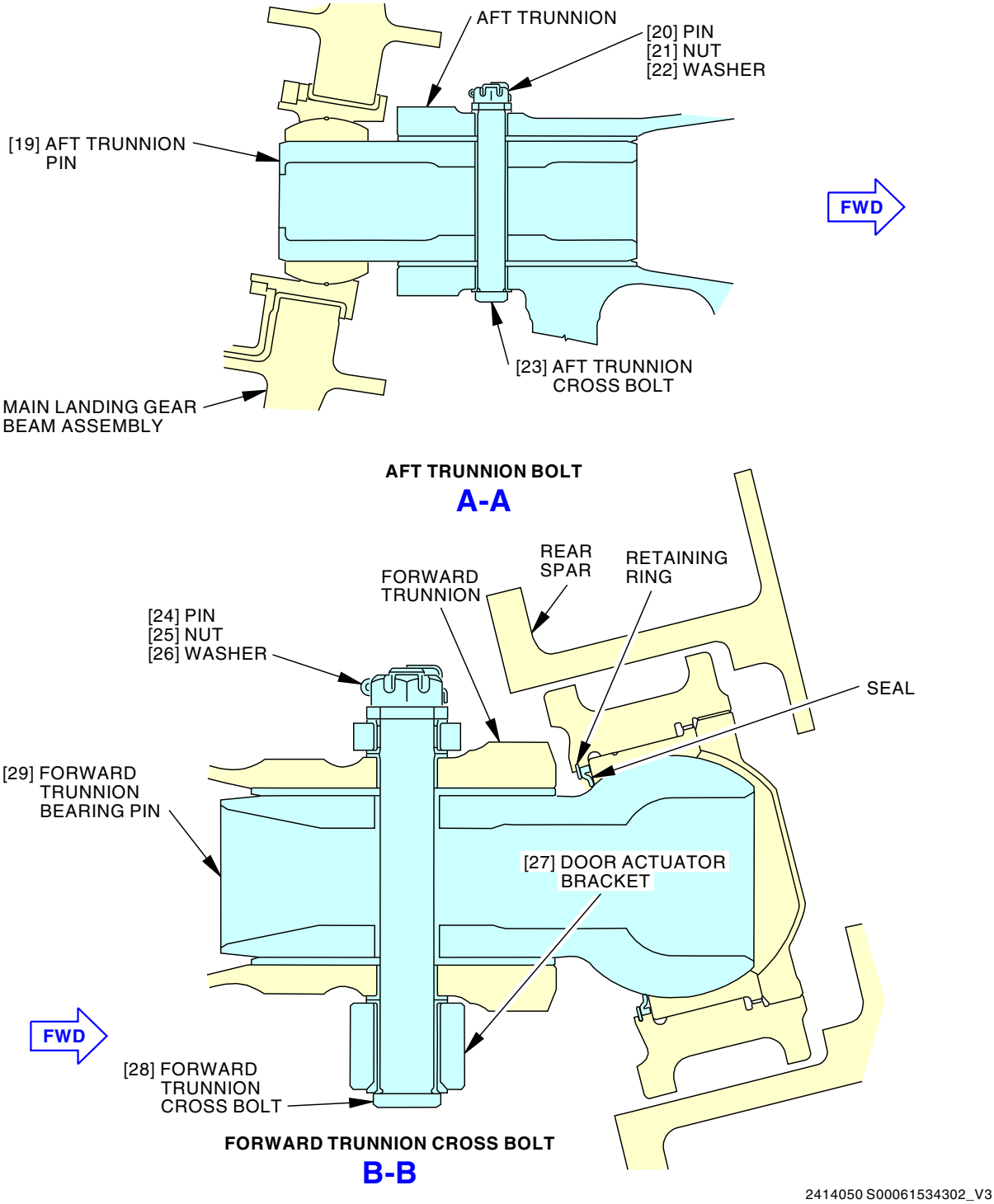
C

2414049 S00061534301_V3

**Main Landing Gear Installation**
**Figure 401/32-11-00-990-802 (Sheet 3 of 6)**



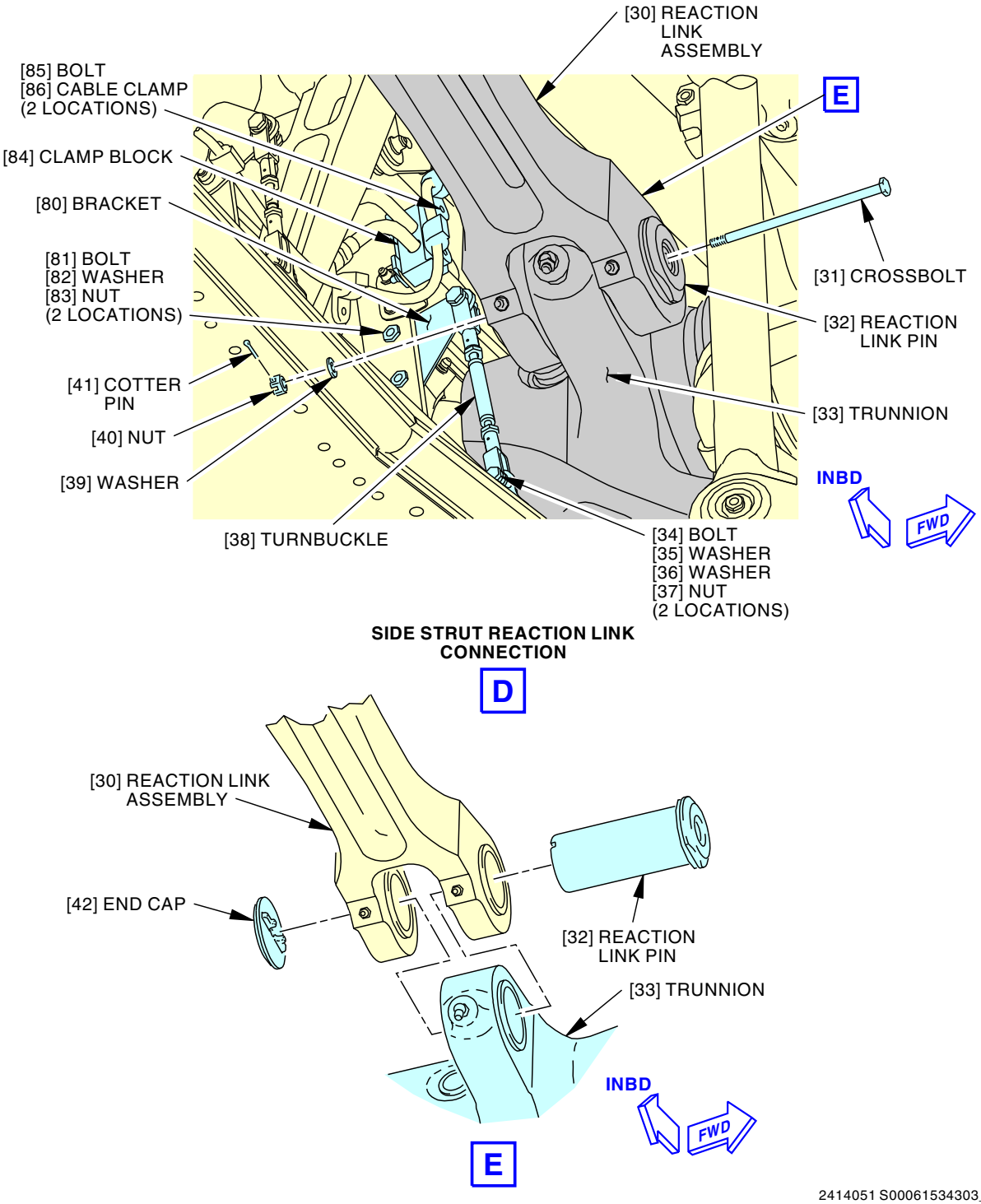
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**Main Landing Gear Installation**
**Figure 401/32-11-00-990-802 (Sheet 4 of 6)**



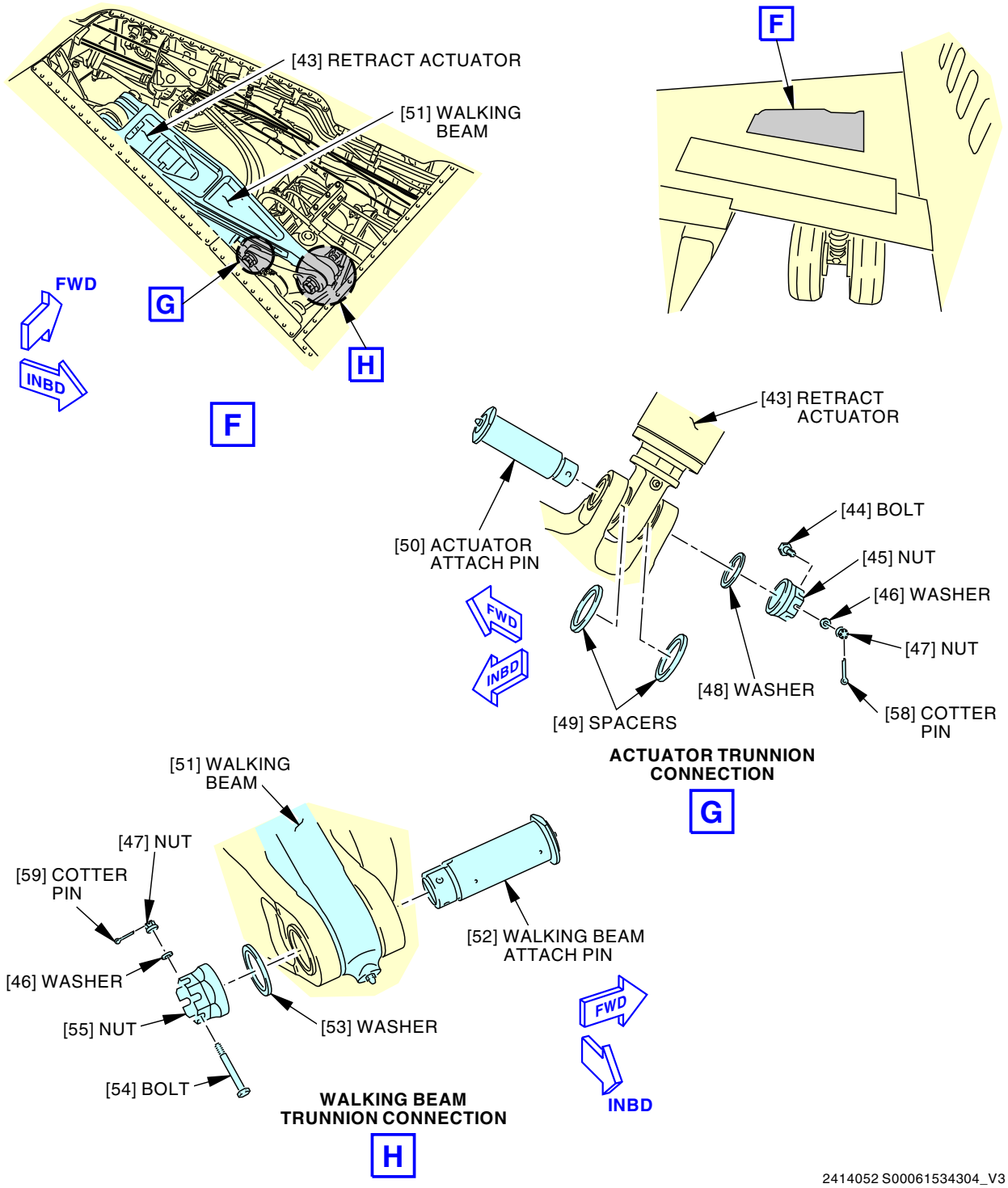
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**Main Landing Gear Installation**
**Figure 401/32-11-00-990-802 (Sheet 5 of 6)**



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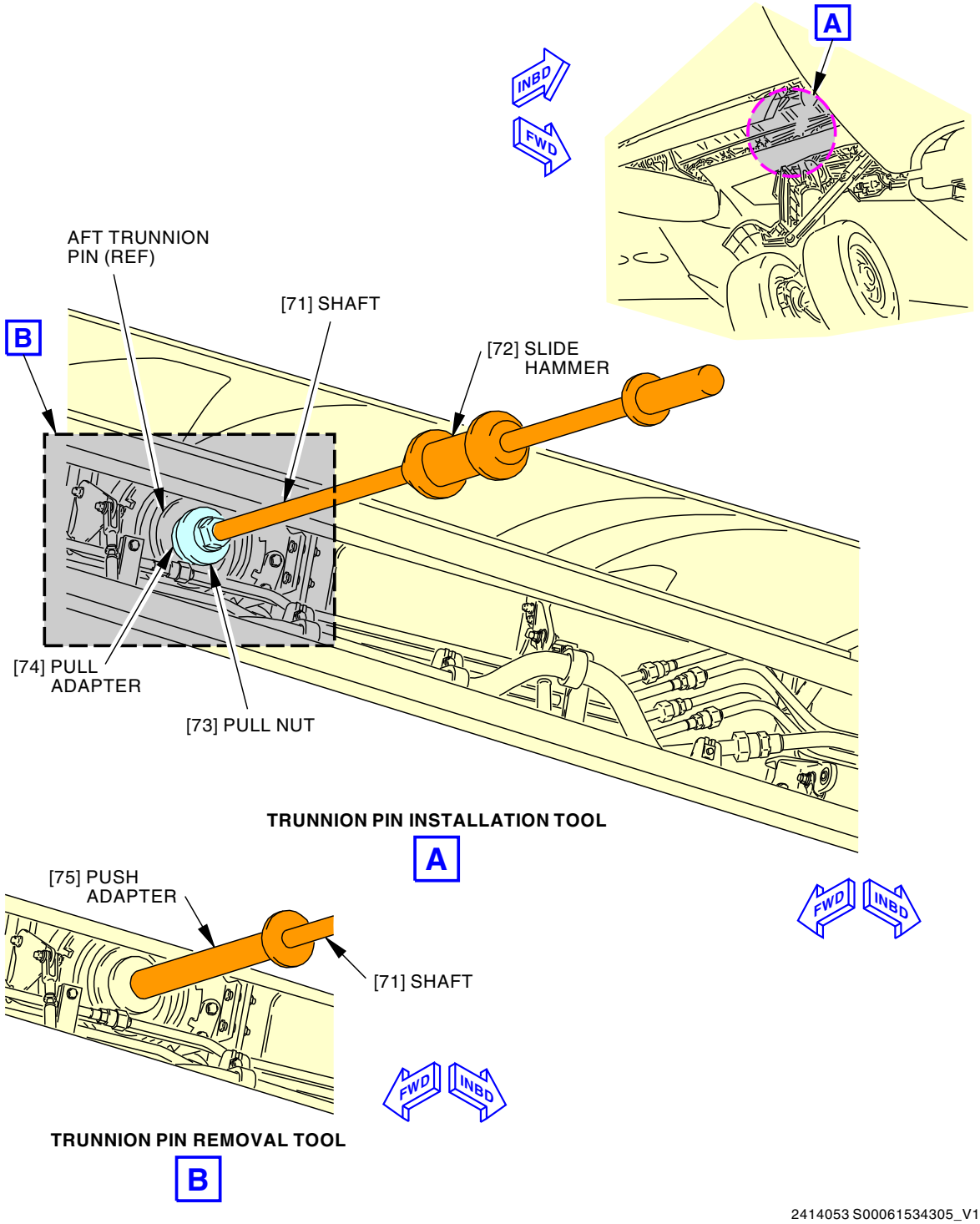



2414052 S00061534304_V3

**Main Landing Gear Installation**
**Figure 401/32-11-00-990-802 (Sheet 6 of 6)**



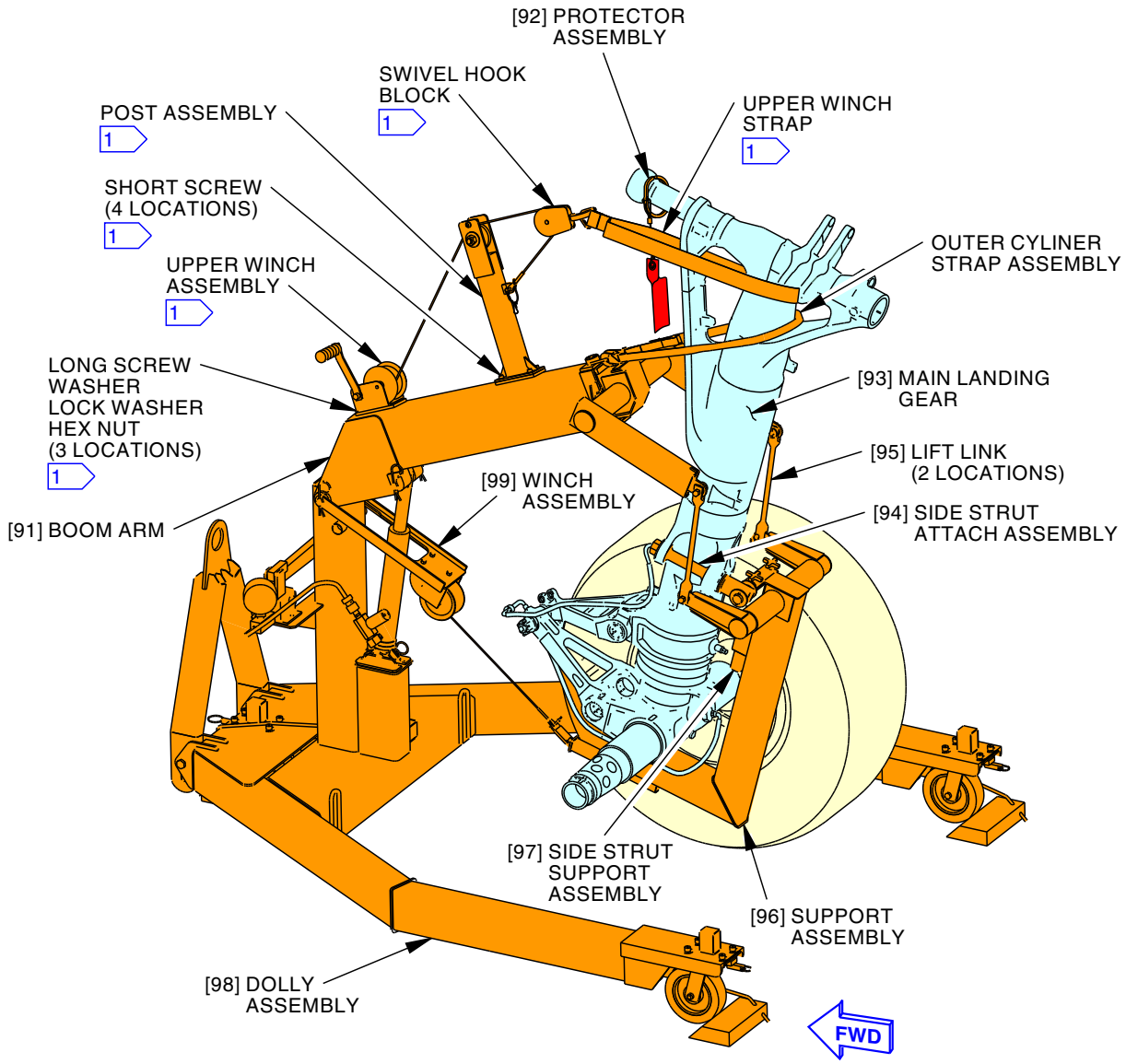
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**Main Landing Gear Trunnion Pin Puller Equipment**
**Figure 402/32-11-00-990-803**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



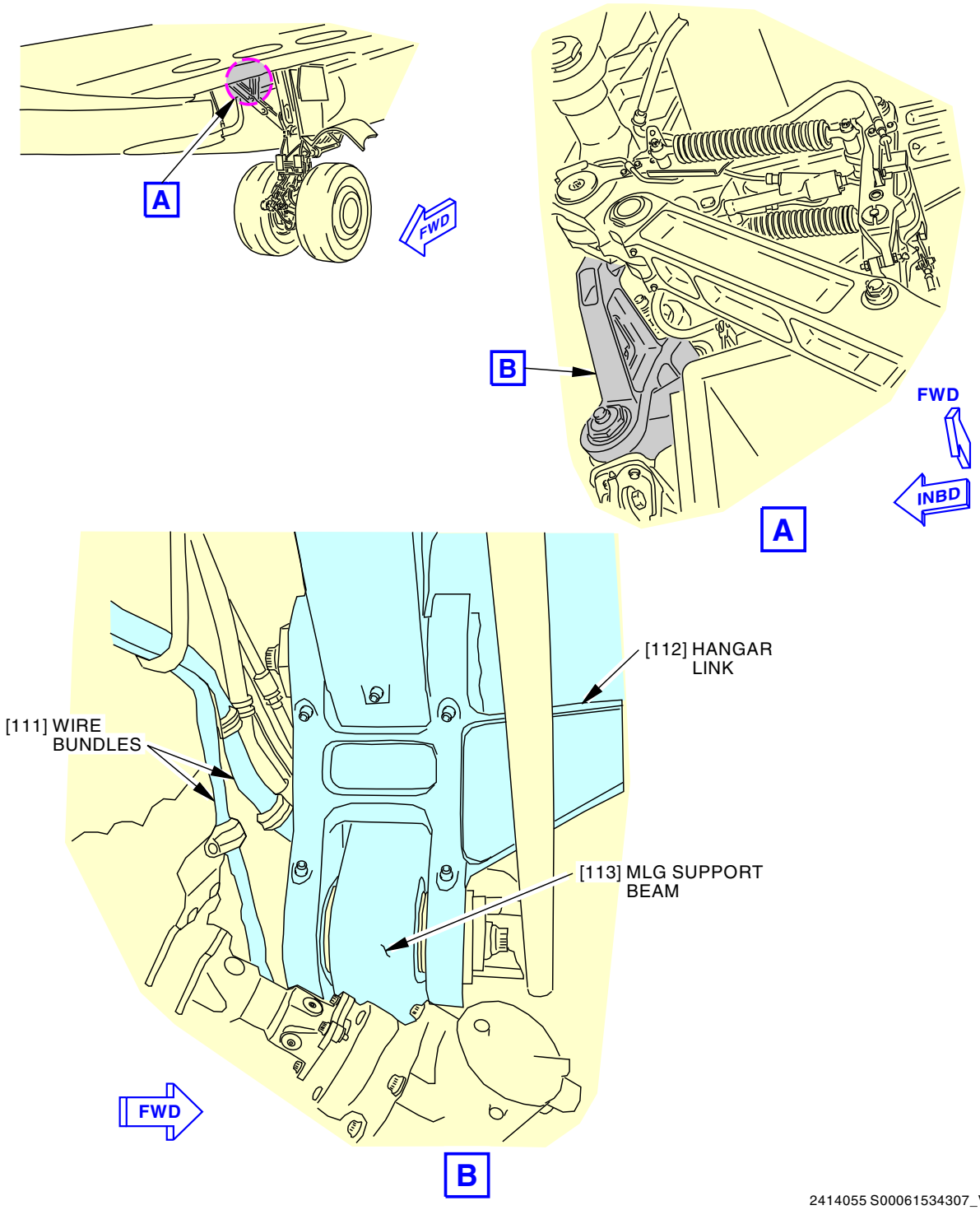

1 REMOVABLE PARTS TO SUPPORT MLG INSTALLATION. NOT NEEDED DURING MLG REMOVAL.

2414054 S00061534306_V3

**Main Landing Gear Support Equipment**
**Figure 403/32-11-00-990-804**



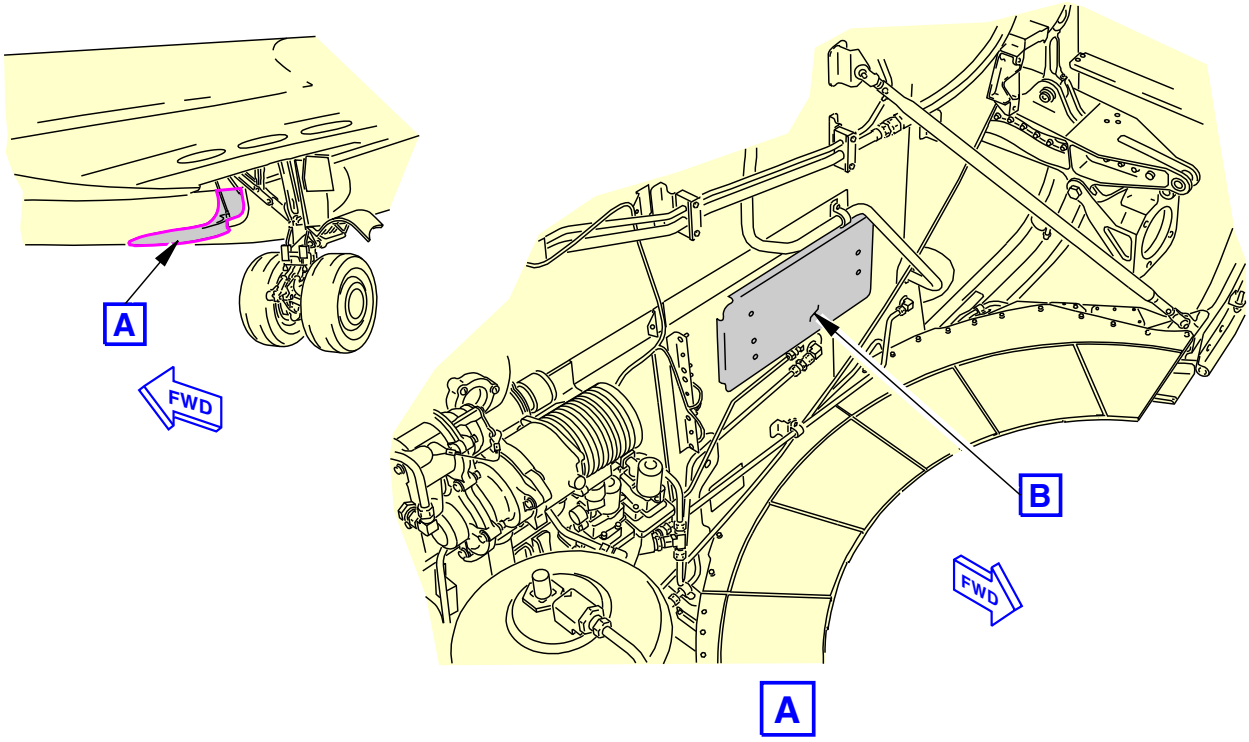
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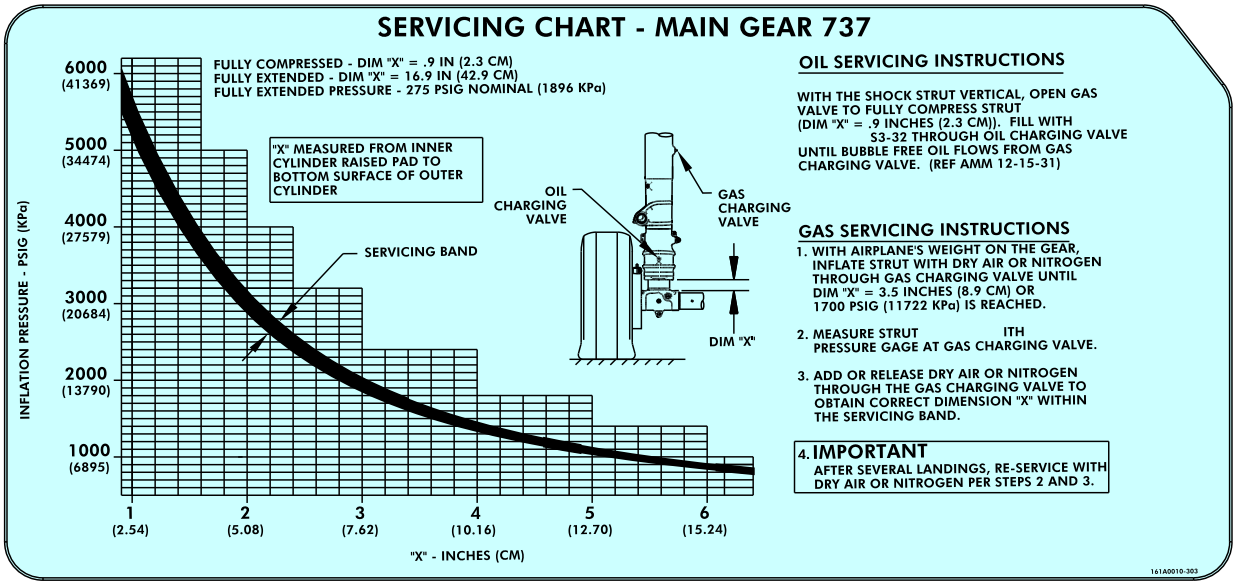



**Main Landing Gear Clearance Requirements**
**Figure 404/32-11-00-990-805**



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B

2410803 S00061526401_V2

**Main Landing Gear Shock Strut Servicing Chart**
**Figure 405/32-11-00-990-816**



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**TASK 32-11-00-400-802**

**3. Main Landing Gear Installation**

(Figure 401, Figure 402, Figure 403, Figure 404, and Figure 405)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 12-15-31-610-803 | Main Landing Gear Strut Servicing, Airplane on Jacks (P/B 301) |
| 12-21-11-640-801 | Main Landing Gear Upper End Components Servicing (P/B 301) |
| 12-21-11-640-802 | Main Landing Gear Lower End Components Servicing (P/B 301) |
| 20-10-44-400-801 | Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401) |
| 20-10-52-400-803 | Flexible Hose Installation (P/B 401) |
| 27-51-00-040-801 | Trailing Edge Flap System Deactivation (P/B 201) |
| 27-51-00-440-801 | Trailing Edge Flap System Reactivation (P/B 201) |
| 27-51-00-860-804 | Retract the Trailing Edge Flaps (P/B 201) |
| 27-62-00-800-801 | Apply Pressure to the Speed Brake Hydraulic Systems A and B (P/B 201) |
| 27-62-00-840-801 | Shut Down the Speed Brake Hydraulic Systems A and B (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-11-61-400-802 | Main Landing Gear Lower Side Strut Installation (P/B 401) |
| 32-11-62-400-801 | Main Landing Gear Side Brace Assembly Installation (P/B 401) |
| 32-11-71-420-801 | Main Landing Gear Reaction Link Assembly Installation (P/B 401) |
| 32-11-81-870-801 | Hydraulic Shimmy Damper Bleeding (P/B 401) |
| 32-11-83-000-801 | Main Landing Gear Forward Trunnion Bearing Assembly Removal (P/B 401) |
| 32-11-83-400-801 | Main Landing Gear Forward Trunnion Bearing Assembly Installation (P/B 401) |
| 32-13-11-420-801 | Main Landing Gear Center Door Installation (P/B 401) |
| 32-13-11-420-802 | Main Landing Gear Inner Door Installation (P/B 401) |
| 32-13-11-820-801 | Main Landing Gear Shock Strut Door Adjustment (P/B 501) |
| 32-13-21-000-802 | Main Landing Gear Wing Door Adjustment (P/B 501) |
| 32-13-21-420-801 | Main Landing Gear Wing Door Installation (P/B 401) |
| 32-32-00-710-802 | Main Landing Gear - Operational Test (P/B 501) |
| 32-34-00-730-801 | Main Gear Manual Extension System Test (Airplane on Jacks) (P/B 501) |
| 32-41-00-870-802 | Normal (System B) Hydraulic Brake System Bleeding (P/B 201) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |
| 32-42-00-710-803 | Transducer Operational Test (P/B 501) |



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(Continued)

| Reference | Title |
|---|---|
| 32-45-11-400-801 | Main Landing Gear Wheel and Tire Assembly - Installation (P/B 401) |
| SWPM 20-60-03 | SPECIAL PROTECTION OF ELECTRICAL CONNECTORS |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1362 | Assembly - Wrench Adapter, C32029-6 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1363 | Assembly - Wrench Adapter, C32029-7 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1365 | Protector - Thread, C32029-9 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1366 | Thread Protector, C32029-10 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1371 | Protector - Thread C32029-15 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1372 | Protector - Thread, C32029-16 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1521 | Tool - Strut Inflation, Landing Gear<br>Part #: F70200-35 Supplier: 81205<br>Opt Part #: F70200-1 Supplier: 81205<br>Opt Part #: F70200-14 Supplier: 81205<br>Opt Part #: F70200-17 Supplier: 81205<br>Opt Part #: F70200-18 Supplier: 81205 |
| SPL-1744 | Set - Lock, Inboard Ground Spoiler Actuator (Contains 4 Lock Assemblies)<br>Part #: C27046-13 Supplier: 81205<br>Opt Part #: C27046-1 Supplier: 81205 |
| SPL-1862 | Equipment - Removal/Installation, MLG Aft Trunnion Pin<br>Part #: C32031-22 Supplier: 81205<br>Opt Part #: C32031-1 Supplier: 81205 |
| SPL-1869 | Fixture - Transportation, Main Landing Gear, Removal/Installation<br>Part #: C32034-343 Supplier: 81205<br>Opt Part #: C32034-227 Supplier: 81205<br>Opt Part #: C32034-273 Supplier: 81205<br>Opt Part #: C32034-339 Supplier: 81205 |


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(Continued)

| Reference | Description |
|---|---|
| SPL-1871 | Strap - Retention, NLG/MLG Inner Cylinder<br>Part #: C32030 -31 Supplier: 81205<br>Opt Part #: C32030-10 Supplier: 81205 |
| SPL-14021 | Assembly - Wrench Adapter, C32029-48 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-14022 | Assembly - Wrench Adapter, C32029-49 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-14023 | Assembly - Wrench Adapter, C32029-50 (included in C32029-45 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-14024 | Protector - Thread, C32029-51 (included in C32029 Kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-19644 | Dolly - MLG Side Strut<br>Part #: C32078-1 Supplier: 81205 |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G00018 | Nitrogen - Gaseous, Pressurizing, 99.5 Percent Pure | A-A-59503 Type I Grade B, MIL-PRF-27401 Type I Grade A |
| G02166 | Lockwire - MS20995NC20, Monel - 0.020 Inch (0.508 mm) Diameter | NASM20995 |
| G02314 | Air - Compressed, Breathing | BB-A-1034 Source I Grade A |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 20 | Pin | 32-11-00-05-010 | SIA ALL |
| 24 | Pin | 32-11-00-05-010 | SIA ALL |
| 58 | Cotter pin | 32-32-11-01-010 | SIA ALL |
| 59 | Cotter pin | 32-32-93-01-030 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |


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**F. Access Panels**

| Number | Name/Location |
|---|---|
| 551BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551CB | Lower Inboard Fixed Trailing Edge, Gear Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651CB | Lower Inboard Fixed Trailing Edge, Gear Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

**G. Prepare for the Installation**

**SUBTASK 32-11-00-640-001**

(1) Apply the lubricant grease, D00633, to the following parts and areas:

(a) Apply to the aft trunnion pin [19] and forward trunnion bearing pin [29] bushing or ball inner diameter to completely fill all lubrication grooves.

(b) Apply to the AFT and FORWARD trunnion bushing lubrication fittings until grease appears at the bushing inner diameter through holes.

(c) If not already done, remove the aft trunnion pin [19] from the aft trunnion and lubricate the chrome plated surfaces.

1) Make sure that the aft trunnion pin [19] moves easily.

2) If it is necessary, lubricate the aft trunnion pin [19] again.

3) Put the aft trunnion pin [19] into the aft trunnion.

(d) The chrome plated surfaces of the forward trunnion bearing pin [29].

**SUBTASK 32-11-00-160-013**

(2) Remove all unwanted grease, D00633.

**SUBTASK 32-11-00-480-013**

**CAUTION** MAKE SURE THAT THE FORWARD TRUNNION BEARING PIN DOES NOT MOVE ON THE PROTECTOR ASSEMBLY DURING THIS PROCEDURE. IF THE PIN MOVES DURING THE REMOVAL OR INSTALLATION OF THE MAIN LANDING GEAR, DAMAGE TO THE PIN CAN OCCUR.

(3) If the protector assembly [92] (C32034-228/-235) from the fixture, SPL-1869, is not already installed, do the steps that follow:

NOTE: The protector assembly will prevent damage to the forward trunnion bearing pin during the installation of the main landing gear.

NOTE: For more protection of the transition radius of the forward trunnion bearing pin, apply tape around the forward trunnion bearing pin before the main landing gear installation. Remove the tape after installation.

NOTE: The retaining ring and the seal should be attached on the forward trunnion bearing pin before the forward trunnion is connected.

(a) Put the upper end of the protector assembly [92] (C32034-228/-235) in the large clearance between the forward trunnion bearing pin [29] and the housing assembly.



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(b) Attach the lower end of the protector assembly [92] (C32034-228/-235) over the bottom of the housing assembly, such that you hear a click when you attach it.

**SUBTASK 32-11-00-480-014**

(4) Install the retention strap, SPL-1871, with the marker facing up, to hold the shock strut [1] in its compressed position.

NOTE: Two straps are necessary to hold the inner cylinder secure.

**SUBTASK 32-11-00-480-015**

(5) Use tie wraps to hold the aft trunnion pin [19] inside the aft trunnion.

NOTE: This will prevent the aft trunnion pin from falling out of the outer cylinder trunnion when you do the subsequent steps.

**SUBTASK 32-11-00-950-002**

(6) Put protective tape on the outer edge of the aft trunnion to protect its surface finish from scratching.

**SUBTASK 32-11-00-860-016**

(7) Do this task: Trailing Edge Flap System Deactivation, TASK 27-51-00-040-801.

## H. Main Landing Gear Installation

**SUBTASK 32-11-00-480-016**

(1) Attach the support assembly [96] and the side strut attach assembly [94] to the main landing gear [93].

NOTE: A minimum of two persons are necessary to do this task.

(a) Make sure that the side strut attach assembly [94] is not attached to the support assembly [96].

(b) Make sure that the jackball pin is removed from the hole in the jackball fitting of the support assembly [96].

(c) Put the side strut attach assembly [94] into the lower side strut attach point on the main landing gear [93], and such that the stenciled plate is in the vertical position.

1) Install the washer on the threaded end of the side strut attach assembly [94].

2) Make sure that the stenciled plate is still in a vertical position and install the nut finger tight.

(d) Put the support assembly [96] in its position on the aft side of the main landing gear [93].

1) Make sure that the jackball fitting on the support assembly [96] is fully engaged on the jacking ball of the main landing gear [93].

(e) If it is necessary, align the holes for the installation of the jackball pin.

(f) Put the jackball pin through the jackball fitting of the support assembly [96] and the jacking ball of the main landing gear [93].

(g) Install the lynch pin in the jackball pin.

(h) Loosen the nut that holds the side strut attach assembly [94], such that the stenciled plate can be attached to the studs on the side strut support assembly [97].

1) If it is necessary, adjust the adjustable square support tube of the side strut support assembly [97].

(i) Tighten the two hand knobs to hold the stenciled plate to the studs on the side strut support assembly [97].



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(j) Tighten the nut that holds the side strut attach assembly [94] to the lower side strut attach point.

(k) Tighten the two adjustable handles to hold the adjustable square support tube of the side strut support assembly [97].

SUBTASK 32-11-00-480-017

(2) Attach the dolly assembly [98] to the support assembly [96].

NOTE: A minimum of two persons are necessary to do this task.

(a) Put the dolly assembly [98] in its position such that the boom arm [91] is on the forward side of the main landing gear [93] and the legs are in center with the main landing gear [93].

(b) Use the manual valve on the hydraulic pump to lift or lower the boom arm [91] until you can connect the lift link [95] to the support assembly [96].

(c) Connect the lift links [95] to the support assembly [96].

(d) Install the pins to hold the lift links [95] to the support assemblies [96].

(e) Connect the winch assembly [99] to the support assembly [96] with the snapper pin.

SUBTASK 32-11-00-480-018

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(3) Make sure that the airplane is lifted with the jacks and the lower surface of the housing, for the forward trunnion bearing pin [29], measures 97 ±2 in. (246 ±5 cm) above the ground (TASK 07-10-01-580-801) (View A, Figure 403).

(a) Make sure that to keep the airplane level.

SUBTASK 32-11-00-580-002

(4) Use the boom arm [91] to lift the main landing gear [93], such that the transportation support assembly and the aft tire support assembly can be removed from the dolly assembly [98].

SUBTASK 32-11-00-980-001

(5) From the aft side, carefully move the dolly assembly [98] with the main landing gear [93] forward below the wing and put it in its position below the wheel well area.

(a) Move the dolly assembly [98] such that the axis of the forward trunnion bearing pin [29] will be perpendicular to the housing assembly and the rear spar.

SUBTASK 32-11-00-020-025

**WARNING**

MAKE SURE THAT THE HYDRAULIC PRESSURE IS BELOW 5000 PSIG (34,474 KPA). IF YOU CONTINUE WHEN THE HYDRAULIC PRESSURE IS 5000 (34,474 KPA) OR HIGHER, A BINDING CONDITION WILL OCCUR. A BINDING CONDITION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) To connect the forward trunnion, do these steps:



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(a) Lift the main landing gear [93] with the boom arm [91] and the winch assembly [99], such that the forward trunnion and the forward trunnion bearing pin [29] are aligned.

1) Remove the transportation support assembly and the aft tire support assembly from the dolly assembly [98].

(b) Attach the outer cylinder strap assembly to the hoist ring on the end of the boom arm [91] and around the outer cylinder at the aft trunnion.

(c) Remove the tension from the strap.

(d) Use the pry lever bar to remove the load off of the caster wheels one at a time.

(e) Use the lever bar assemblies to turn all the caster wheels parallel to the dolly assembly [98] legs, such that the forward trunnion can be inserted straight onto the forward trunnion bearing pin [29].

1) Make sure that the swivel locks on the caster wheels are not locked.

(f) Make sure that the forward trunnion stays aligned with the forward trunnion bearing pin [29] and lock the swivel locks.

(g) Put chocks on all caster wheels but put the forward chock approximately 2 in. (5 cm) forward of the double wheel caster.

(h) Put the fork end of the lever bar assemblies on the rectangular tubing above the single wheel casters.

(i) Use the lever bar assemblies to slowly push the dolly assembly [98] forward.

1) Make sure that the aft trunnion will clear the lower trailing edge panel seals when you do this task.

2) Make sure that the chocks are in contact with the single wheel casters to prevent the movement of the dolly assembly [98].

(j) Slowly lift the aft end of the main landing gear [93] with the winch assembly [99] and lifting the boom arm [91] at the same time while you continue to push the dolly assembly [98] forward.

1) Use the manual valve on the hydraulic pump to lift the boom arm [91].

2) Tighten the outer cylinder strap if necessary to remove the tension, such that the forward trunnion will not come off of the forward trunnion bearing pin [29].

(k) Continue the movement of the dolly assembly [98] until the forward trunnion is fully inserted onto the forward trunnion bearing pin [29].

**SUBTASK 32-11-00-210-001**

(7) Visually examine the protective coating on the transition radius of the forward trunnion pin for chipping, cracks, or corrosion.

(a) If the transition radius is damaged, replace the trunnion pin, do these tasks:

- Main Landing Gear Forward Trunnion Bearing Assembly Removal, TASK 32-11-83-000-801
- Main Landing Gear Forward Trunnion Bearing Assembly Installation, TASK 32-11-83-400-801.



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SUBTASK 32-11-00-620-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(8) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

(a) The shank, thread, and thread relief of the forward trunnion cross bolt [28]

(b) The thread of the nut [25]

(c) The spline, and face of the washer [26]

(d) The pin [24]

(e) Around the bushing holes on the forward trunnion bearing pin [29].

SUBTASK 32-11-00-160-001

(9) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-11-00-420-003

(10) Do these steps to install the forward trunnion cross bolt [28]:

(a) Install the thread protector, C32029-9, SPL-1365, or thread protector, C32029-51, SPL-14024, on the forward trunnion cross bolt [28].

(b) Put the forward trunnion cross bolt [28] through the door actuator bracket [27], forward trunnion, and the forward trunnion bearing pin [29].

(c) Remove the thread protector, C32029-9, SPL-1365, or thread protector, C32029-51, SPL-14024, from the forward trunnion cross bolt [28].

(d) Install the washer [26] and nut [25] on the forward trunnion cross bolt [28].

(e) Tighten the nut [25] to 21 ft-lb (28 N·m) - 25 ft-lb (34 N·m) plus the run-on torque.

1) Use the wrench adapter, C32029-49, SPL-14022, or wrench adapter, C32029-50, SPL-14023, to hold the head of the forward trunnion cross bolt [28].

(f) Install the new pin [24] in the forward trunnion cross bolt [28].

1) If it is necessary, loosen the nut [25] to the nearest castellation to align the holes for the pin [24].

SUBTASK 32-11-00-080-001

(11) Remove the outer cylinder strap assembly from the hoist ring and the outer cylinder.



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SUBTASK 32-11-00-420-004

**WARNING** MAKE SURE THAT THE HYDRAULIC PRESSURE IS BELOW 5000 PSIG (34,474 KPA). IF YOU CONTINUE WHEN THE HYDRAULIC PRESSURE IS 5000 (34,474 KPA) OR HIGHER, A BINDING CONDITION WILL OCCUR. A BINDING CONDITION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(12) Operate the dolly assembly [98] to put the aft trunnion in its position.

NOTE: The main landing gear [93] installation path is done with the forward trunnion bearing pin [29] attached to the forward trunnion. This installation path is a combination of moving the aft trunnion inboard, lifting the aft trunnion, and moving the aft trunnion outboard as the main landing gear pivots about the forward trunnion bearing pin [29].

(a) Make sure that to lock the caster wheels when the main landing gear [93] pivots about the forward trunnion bearing pin [29].

1) Use the pry lever bar to remove the load off of the caster wheels one at a time.

2) Lock the single wheel casters perpendicular to the forward trunnion pivot axis approximately 38 degrees, and 90 degrees for the double wheel caster.

(b) Put the fork end of the lever bar assemblies on the rectangular tubing above the single wheel casters.

(c) Do a check to make sure that the locks for the caster wheels are released.

(d) Hold the lever bar assemblies to slowly push the aft end of the dolly assembly [98] inboard, such that the aft trunnion will clear the main landing gear beam lower flange, lower trailing edge panel seals, and the seal support beam when the aft trunnion is lifted.

(e) If it is necessary, use the lever bar assemblies and the pry lever bar to put the caster wheels parallel to the legs of the dolly assembly [98].

(f) Lock the caster wheels.

(g) Lift and move the aft trunnion outboard at the same time while you clear the main landing gear [93] from the main landing gear beam.

1) Release the tension on the winch assembly [99].

2) Use the manual valve on the hydraulic pump to lift the boom arm [91].

(h) Put the aft trunnion in its position directly below the aft trunnion bearing.

1) If the forward tire support assembly is on the way of the tires, remove it.

(i) Put chocks on all the casters.

(j) Continue to slowly lift the aft trunnion of the main landing gear [93] until the aft trunnion and the aft trunnion bearing are aligned.

1) Make sure that the chock is in contact with the double wheel caster to prevent the forward movement of the dolly assembly [98].

SUBTASK 32-11-00-080-002

(13) Remove the two tie wraps that hold the aft trunnion pin [19].

SUBTASK 32-11-00-080-003

(14) Remove the protective tape from the outer edge of the aft trunnion.



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SUBTASK 32-11-00-620-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(15) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

(a) The shank, thread, and thread relief of the aft trunnion cross bolt [23]

(b) The thread of the nut [21]

(c) The spline, and face of the washer [22]

(d) The pin [20]

(e) Around the bushing holes on the aft trunnion cross bolt [23].

SUBTASK 32-11-00-160-003

(16) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-11-00-420-005

**WARNING**

MAKE SURE THAT THE HYDRAULIC PRESSURE IS BELOW 5000 PSIG (34,474 KPA). IF YOU CONTINUE WHEN THE HYDRAULIC PRESSURE IS 5000 (34,474 KPA) OR HIGHER, A BINDING CONDITION WILL OCCUR. A BINDING CONDITION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(17) Connect the aft trunnion.

(a) Put a flashlight, or other bright lights, at the top of the main landing gear [93] and shine them back past the aft trunnion.

(b) Look through the aft trunnion pin access hole so you can see the aft trunnion pin [19] through the aft trunnion bearing.

(c) Move the dolly assembly [98] from side to side or lift and lower it until you can see equal quantities of light all the way around the aft trunnion pin [19] through the aft trunnion bearing.

NOTE: When you have the aft trunnion pin and the aft trunnion bearing correctly aligned, the aft trunnion pin will install very easily.

(d) Use the aft trunnion equipment, SPL-1862, to pull the aft trunnion pin [19] from the aft trunnion:

1) Put the pull adapter [74] through the pin access hole in the main landing gear beam.

2) Attach the pull adapter [74] to the aft trunnion pin [19] with the pull nut [73].

3) Pull the slide hammer [72] until the aft trunnion pin [19] is out of the aft trunnion bearing such that the aft trunnion will connect to the main landing gear beam.

(e) Move the aft trunnion bearing until it is in line with the aft trunnion pin [19].

(f) If it is necessary, use the aft trunnion equipment, SPL-1862, to turn the aft trunnion pin [19] in the clockwise direction until the holes for the aft trunnion cross bolt [23] are aligned.

(g) Install the thread protector, C32029-10, SPL-1366, on the aft trunnion cross bolt [23].



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(h) Put the aft trunnion cross bolt [23] through the aft trunnion and the aft trunnion pin [19].

(i) Remove the thread protector, C32029-10, SPL-1366, from the aft trunnion cross bolt [23].

(j) Install the washer [22] and nut [21] on the aft trunnion cross bolt [23].

(k) Tighten the nut [21] to 160 in-lb (18 N·m) - 190 in-lb (21 N·m) plus the run-on torque.

1) Use long wrench with narrow body, ratchet wrench or crowfoot with 4 in. (102 mm) extension to tighten the nut [21].

2) Use the wrench adapter, C32029-48, SPL-14021, to hold the head of the aft trunnion cross bolt [23].

(l) Install the new pin [20] in the aft trunnion cross bolt [23].

1) If it is necessary, loosen the nut [21] to the nearest castellation to align the holes for the pin [20].

(m) If removed to get access to the nut [21], do these steps:

1) Install the bolts [88], washers [89], and nuts [90] that attach the bracket [87] to the MLG beam.

2) Install the bolts [101], washers [102], washers [103], and nuts [104] to connect the turnbuckle [100].

**SUBTASK 32-11-00-080-004**

(18) Remove the main landing gear fixture, SPL-1869, from the main landing gear [93].

**SUBTASK 32-11-00-080-005**

(19) Remove the protector assembly [92].

**SUBTASK 32-11-00-210-002**

(20) Visually examine the protective coating on the transition radius of the forward trunnion pin for chipping, cracks, or corrosion.

(a) If the transition radius is damaged, replace the trunnion pin, do these tasks:

- Main Landing Gear Forward Trunnion Bearing Assembly Removal, TASK 32-11-83-000-801
- Main Landing Gear Forward Trunnion Bearing Assembly Installation, TASK 32-11-83-400-801.

**SUBTASK 32-11-00-080-006**

(21) Remove retention strap, SPL-1871, from the main landing gear [93].

**SUBTASK 32-11-00-212-001**

(22) Before you connect the electrical connectors, examine the electrical connectors for corrosion.

**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there is corrosion, correct the problem (SWPM 20-60-03).

(b) Apply D5026NS or ZC-026 compound, G50171, to the electrical connector (SWPM 20-60-03).



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SUBTASK 32-11-00-420-007

(23) To connect the electrical connector [13], do these steps:

(a) Attach the clamps [16] to the electrical connector [13].

(b) Install the screws [14], washers [15], and nuts [17] to the clamps [16] that hold the electrical connector [13] to the hose guide [18].

(c) Remove the cap from the electrical connector [13].

(d) Connect the electrical connector [13] to the electrical connector.

(e) Install MS20995NC20 lockwire, G02166, on the electrical connector [13] (TASK 20-10-44-400-801).

SUBTASK 32-11-00-420-008

(24) To connect the electrical connector [11], do these steps:

(a) Put the electrical connector [11] through the hose guide [12].

(b) Attach the clamps [9] to the electrical connector [11].

(c) Install the screws [7], washers [8], and nuts [10] to the clamps [9] that hold the electrical connector [11] to the structure.

(d) Remove the cap from the electrical connector [11].

(e) Connect the electrical connector [11] to the electrical connector.

(f) Install MS20995NC20 lockwire, G02166, on the electrical connector [11] (TASK 20-10-44-400-801).

SUBTASK 32-11-00-420-009

(25) To connect the brake hose assembly [6] and hydraulic return shimmy damper line [114], do these steps (TASK 20-10-52-400-803):

(a) Remove the caps from the brake hose assembly [6] and hydraulic return shimmy damper line [114].

(b) Remove the caps from the elbow [5].

(c) Connect the brake hose assembly [6] and hydraulic return shimmy damper line [114] to the elbow [5].

(d) Remove the tags from the brake hose assembly [6] and hydraulic return shimmy damper line [114].

SUBTASK 32-11-00-100-001

(26) Clean the surfaces of these items that will attach the retract actuator [43] to the main gear trunnion:

(a) Attachment fitting on the main gear trunnion

(b) actuator attach pin [50]

(c) spacers [49]

(d) washer [48]

(e) nut [45]

(f) cotter pin [58], nut [47], washer [46], and bolt [44].

SUBTASK 32-11-00-100-002

(27) Clean the surfaces of these items that will attach the walking beam [51] and the retract actuator [43] to the main gear trunnion:

(a) Attachment fitting on the main gear trunnion



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(b) walking beam attach pin [52]

(c) washer [53]

(d) nut [55]

(e) cotter pin [59], nut [47], washer [46], and bolt [54].

SUBTASK 32-11-00-600-003

(28) Apply grease, D00633, to the chrome-plated surfaces of the reaction link pin [32], actuator attach pin [50], and walking beam attach pin [52].

SUBTASK 32-11-00-620-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(29) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

NOTE: Do not apply corrosion preventive compound to the chrome plated surfaces.

(a) The threads and thread reliefs on the actuator attach pin [50], and walking beam attach pin [52]

(b) The threads and thread reliefs of the bolt [44] and bolt [54]

(c) The threads and thread reliefs of the nut [45], nut [47], and nut [55]

(d) The faces of the washer [46], washer [48], and washer [53]

(e) The cotter pin [58] and cotter pin [59].

SUBTASK 32-11-00-160-004

(30) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-11-00-080-007

(31) Remove the rope that holds the disconnected ends of the walking beam [51] and retract actuator [43].

SUBTASK 32-11-00-010-003

(32) Remove the clamps for the electrical conduit on the inboard side of the nut [45] and move the conduit to get clearance to tighten the nut [45].

SUBTASK 32-11-00-420-011

(33) To connect the retract actuator [43] to the main gear trunnion, do these steps:

(a) Put the retract actuator [43] in its position for connection to the main gear trunnion.

(b) Install the thread protector, C32029-16, SPL-1372, on the actuator attach pin [50].

(c) Put the actuator attach pin [50] through the retract actuator [43], spacers [49] and main gear trunnion.

(d) Remove the thread protector, C32029-16, SPL-1372, from the actuator attach pin [50].

(e) Install the washer [48] and nut [45] on the actuator attach pin [50].

(f) Use the wrench adapter, C32029-7, SPL-1363, to hold the head of the actuator attach pin [50].

(g) Tighten the nut [45] to 50 ft-lb (67.79 N·m) - 75 ft-lb (101.69 N·m).



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(h) If it is necessary, loosen the nut [45] to the nearest castellation to align the holes for the bolt [44].

(i) Remove the wrench adapter, C32029-7, SPL-1363, from the actuator attach pin [50].

(j) Put the bolt [44] through the actuator attach pin [50].

(k) Install the washer [46] and nut [47] on the actuator attach pin [50].

(l) Tighten the nut [47] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

(m) If it is necessary, loosen the nut [47] to the nearest castellation to align the holes for the cotter pin [58].

(n) Install the new cotter pin [58] in the bolt [44].

**SUBTASK 32-11-00-410-001**

(34) Put the electrical conduit back in its position and install the clamps.

**SUBTASK 32-11-00-420-012**

(35) To connect the walking beam [51] to the main gear trunnion, do these steps:

(a) Put the walking beam [51] in its position for the connection to the main gear trunnion.

(b) Install the thread protector, C32029-15, SPL-1371, on the walking beam attach pin [52].

(c) Put the walking beam attach pin [52] through the walking beam [51] and main gear trunnion.

(d) Remove the thread protector, C32029-15, SPL-1371, from the walking beam attach pin [52].

(e) Install the washer [53] and nut [55] on the walking beam attach pin [52].

(f) Install the wrench adapter, C32029-6, SPL-1362, to hold the head of the walking beam attach pin [52].

(g) Tighten the nut [55] to 50 ft-lb (67.79 N·m) - 75 ft-lb (101.69 N·m).

(h) If it is necessary, loosen the nut [55] to the nearest castellation to align the holes for the bolt [54].

(i) Remove the wrench adapter, C32029-6, SPL-1362, from the walking beam attach pin [52].

(j) Put the bolt [54] through the walking beam attach pin [52].

(k) Install the washer [46] and nut [47] on the walking beam attach pin [52].

(l) Tighten the nut [47] to 45 in-lb (5.08 N·m) - 55 in-lb (6.21 N·m).

(m) If it is necessary, loosen the nut [47] to the nearest castellation to align the holes for the cotter pin [59].

(n) Install the new cotter pin [59] in the bolt [54].

**SUBTASK 32-11-00-420-013**

(36) Install the bolts [81], washers [82], and nuts [83] that attach the bracket [80] to the MLG beam.

**SUBTASK 32-11-00-420-052**

(37) Install the nuts [37], washers [35], washers [36], and bolts [34] to connect the turnbuckle [38].

**SUBTASK 32-11-00-420-053**

(38) Install the bolts [85] that attach the cable clamps [86], clamp block [84], and hydraulic tubes to the bracket.



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SUBTASK 32-11-00-620-004

**WARNING**

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(39) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

NOTE: Do not apply corrosion preventive compound to the chrome plated surfaces.

(a) The threads and thread reliefs of the crossbolt [31]

(b) The threads of the nut [40]

(c) The faces of the washer [39].

SUBTASK 32-11-00-640-003

(40) Apply grease, D00633, to the chrome plated surfaces of the reaction link pin [32] and end cap [42].

SUBTASK 32-11-00-160-005

(41) Remove all unwanted corrosion inhibiting material, G50136, and grease, D00633.

SUBTASK 32-11-00-420-054

(42) Do one of these steps to install the MLG side strut and the MLG reaction link assembly:

(a) If the side strut dolly, SPL-19644 is used, do this task: Main Landing Gear Side Brace Assembly Installation, TASK 32-11-62-400-801.

(b) Install the MLG side strut and the MLG reaction link assembly as follows:

1) Do the applicable steps in this task to connect the lower side strut to the outer cylinder: Main Landing Gear Lower Side Strut Installation, TASK 32-11-61-400-802.

2) Do the applicable steps in this task to connect the reaction link assembly [30] to the outer cylinder trunnion [33]: Main Landing Gear Reaction Link Assembly Installation, TASK 32-11-71-420-801.

SUBTASK 32-11-00-200-001

**WARNING**

MAKE SURE THAT THE SYSTEM-TO-SYSTEM SEPARATIONS ARE CORRECT. SEPARATIONS THAT ARE NOT CORRECT COULD CAUSE UNWANTED CONDITIONS, WHICH COULD INCLUDE CHAFING, FIRE OR ELECTROMAGNETIC INTERFERENCE. THIS CAN CAUSE INJURIES TO PERSONNEL, OR CAN MAKE FLIGHT DANGEROUS, OR CAN CAUSE DAMAGE TO THE SYSTEMS.

(43) Make sure that there is a minimum distance of 0.13 in. (3.30 mm) between the wire bundles [111] and hanger link [112] (Figure 404).

SUBTASK 32-11-00-420-016

(44) Install the hose guide [18].

SUBTASK 32-11-00-410-002

(45) Install the applicable panel:



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(a) For the left wing, close this access panel:

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |

(b) For the right wing, close this access panel:

| Number | Name/Location |
|---|---|
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |

SUBTASK 32-11-00-420-018

(46) Do this task: Main Landing Gear Wing Door Installation, TASK 32-13-21-420-801.

SUBTASK 32-11-00-420-019

(47) Do this task: Main Landing Gear Center Door Installation, TASK 32-13-11-420-801.

SUBTASK 32-11-00-420-020

(48) Do this task: Main Landing Gear Inner Door Installation, TASK 32-13-11-420-802.

SUBTASK 32-11-00-420-021

(49) Do this task: Main Landing Gear Brake Installation, TASK 32-41-41-400-801.

SUBTASK 32-11-00-420-022

(50) Do this task: Main Landing Gear Wheel and Tire Assembly - Installation, TASK 32-45-11-400-801.

SUBTASK 32-11-00-410-003

(51) Install the applicable panel:

(a) For the left landing gear, close these access panels:

| Number | Name/Location |
|---|---|
| 551BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 551CB | Lower Inboard Fixed Trailing Edge, Gear Access Panel |

(b) For the right landing gear, close these access panels:

| Number | Name/Location |
|---|---|
| 651BB | Lower Inboard Fixed Trailing Edge, Gear Adjustment Door |
| 651CB | Lower Inboard Fixed Trailing Edge, Gear Access Panel |

(c) Close these access panels:

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-00-080-008

(1) Remove the ground spoiler actuator lock set, SPL-1744.

SUBTASK 32-11-00-860-017

(2) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |



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(Continued)

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-11-00-860-076

(3) Remove the safety tag and close this circuit breaker:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 4 | C00700 | HEATERS DRAIN MAST AIR |

SUBTASK 32-11-00-860-018

(4) Do this task: Trailing Edge Flap System Reactivation, TASK 27-51-00-440-801.

SUBTASK 32-11-00-860-019

(5) Do this task: Retract the Trailing Edge Flaps, TASK 27-51-00-860-804.

SUBTASK 32-11-00-860-021

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) Do this task: Apply Pressure to the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-800-801.

SUBTASK 32-11-00-860-022

(7) Move the speed brake lever to the DOWN position to lower the spoilers.

SUBTASK 32-11-00-860-055

(8) Do this task: Shut Down the Speed Brake Hydraulic Systems A and B, TASK 27-62-00-840-801.

SUBTASK 32-11-00-820-001

(9) If you changed the length of one or more of the door rods, do the steps that follow:

(a) Adjust the shock strut doors of the main landing gear (TASK 32-13-11-820-801).

(b) Adjust the outer door of the main landing gear (TASK 32-13-21-000-802).

SUBTASK 32-11-00-610-002

(10) Lubricate the main landing gear (TASK 12-21-11-640-801 and TASK 12-21-11-640-802).



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SUBTASK 32-11-00-619-001

(11) To fully service the shock strut [1] with the airplane on jacks, do these steps to service the shock strut [1] with fluid:

(a) Hold the shock strut [1] in a vertical position.

(b) Make sure that the shock strut is fully deflated, refer to service placard for the fully deflated dimension (Figure 405).

(c) Do the applicable steps to fill the shock strut [1] with fluid in this task: Main Landing Gear Strut Servicing, Airplane on Jacks, TASK 12-15-31-610-803.

(d) Close the gas charging valves [2], and install their swivel nuts [3] and dust caps [4].

SUBTASK 32-11-00-619-002

(12) To inflate the shock strut [1] with the airplane on jacks, do these steps:

NOTE: To do these steps, you must have done the steps to add fluid to the shock strut, at the start of this task.

(a) Install the tool, SPL-1521, on the gas valve.

(b) Inflate the shock strut [1] with nitrogen, G00018, until you reach the fully extended pressure, refer to the servicing placard for the correct pressure (Figure 405).

NOTE: If nitrogen is not available, you can use air, G02314, as an alternative, to inflate the shock strut.

(c) Remove the tool, SPL-1521, and install the cap on the gas valve.

SUBTASK 32-11-00-619-003

(13) If you did not do the steps to service the shock strut [1] with fluid, at the start of this task, do this task: Main Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-31-610-802.

SUBTASK 32-11-00-080-009

(14) If the downlock pins are installed on all the landing gear, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

SUBTASK 32-11-00-710-001

(15) Do this task: Main Landing Gear - Operational Test, TASK 32-32-00-710-802.

SUBTASK 32-11-00-710-002

(16) Do this task: Main Gear Manual Extension System Test (Airplane on Jacks), TASK 32-34-00-730-801.

SUBTASK 32-11-00-480-023

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(17) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-00-580-003

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.


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**(CAUTION PRECEDES)**

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(18) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**SUBTASK 32-11-00-860-023**

(19) For hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-11-00-870-001**

(20) Bleed the brake hydraulic system (TASK 32-41-00-870-802).

**SUBTASK 32-11-00-790-001**

(21) Examine the connections of the hydraulic brake line for leakage.

**SUBTASK 32-11-00-870-002**

(22) Bleed the shimmy damper (TASK 32-11-81-870-801).

**SUBTASK 32-11-00-790-002**

(23) Examine the connections of the shimmy damper for leakage.

**SUBTASK 32-11-00-710-003**

(24) Do a test of the operation of the antiskid transducer (TASK 32-42-00-710-803).

**SUBTASK 32-11-00-610-003**

(25) Do a check of the pressure and extension of the shock strut [1].

(a) Measure the pressure and extension of the shock strut [1].

(b) Make sure that the pressure you measure is still correct for the extension of the shock strut [1] (Figure 405).

(c) If the pressure is not correct for the extension of the shock strut [1], then the shock strut [1] does not have the correct quantity of fluid and you must fully service the shock strut [1] (TASK 12-15-31-610-802).

**END OF TASK**



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## MAIN LANDING GEAR - INSPECTION/CHECK

### 1. General

A. This procedure has this task:

(1) Main Landing Gear Inspection.

**TASK 32-11-00-200-801**

### 2. Main Landing Gear Inspection

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

**A. General**

(1) This task provides the regular inspection of the main landing gear.

NOTE: This inspection can be done with the airplane on the ground or on jacks.

(2) Refer to TIME LIMITS/MAINTENANCE CHECKS, CHAPTER 05 for special inspection procedure on the following conditions:

(a) After a hard or overweight landing

(b) After a brake seizure when you tow the airplane, or the airplane is moving at high speed on the ground

(c) After the gear has collided with an obstacle

(d) After a high energy stop.

**B. References**

| Reference | Title |
|---|---|
| 05 | TIME LIMITS/MAINTENANCE CHECKS |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-45-00-700-801 | Wheels Fast Check (Wheel Installed on the Airplane) (P/B 601) |
| 32-45-00-700-803 | Landing Gear Tire Inspection (P/B 601) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**D. Access Panels**

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |



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## E. Prepare for the Inspection

SUBTASK 32-11-00-480-020

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-11-00-480-021

(2) Put chocks around the tires of all the landing gear (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 32-11-00-010-004

(3) Remove the applicable access panel:

(a) For the left landing gear, do this step:

Open this access panel:

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

(b) For the right landing gear, do this step:

Open this access panel:

| Number | Name/Location |
|---|---|
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

## F. Procedure

SUBTASK 32-11-00-210-003

(1) Examine the upper components of the main landing gear:

(a) Examine the retract actuator assembly as follows:

1) Damage, looseness and security of actuator components and attachment bolts.

2) Dirt, scratches and debris on exposed piston chrome and actuator body rod end.

3) Leaks and loose hydraulic connections.

(b) Examine the walking beam and the attachment bolts for damage, looseness, and security.

(c) Examine the attachments of the beam hanger for security and damage.

(d) Examine the uplock mechanism for damage and security of attachments.

(e) Examine the hydraulic connections of the uplock and the downlock actuator assemblies for leaks and security of attachments.

(f) Do these steps to examine the shock strut:

1) Examine the shock strut for leaks and specified extension.

2) Examine the exposed surface of the inner cylinder for dirt, scratches or galling.

(g) Examine the attachments of the side strut assembly for corrosion, damage or missing pins and cross bolts.



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1) Examine the components of the side strut assembly for damage or missing pins and cross bolt.

(h) Make sure that the wing door is correctly attached to the push rod and the stabilizer link assembly.

1) Examine the attaching hardware for condition and security.

(i) Make sure that the shock strut doors are correctly attached to the shock strut.

1) Examine the attaching hardware for condition and security.

**SUBTASK 32-11-00-210-004**

(2) Examine the lower end components of the main landing gear:

(a) Do this task: Landing Gear Tire Inspection, TASK 32-45-00-700-803.

(b) Do this task: Wheels Fast Check (Wheel Installed on the Airplane), TASK 32-45-00-700-801.

(c) Examine the brake hydraulic hoses for chafing and leaks.

(d) Examine the safety sensors and all the electrical wiring for security and chafing.

(e) Make sure that the torsion links are correctly attached to the shock strut.

1) Examine the attachment lugs of the torsion links for cracks.

## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-11-00-410-004**

(1) Close the applicable access panel:

(a) For the left landing gear, do this step:

Close this access panel:

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

(b) For the right landing gear, do this step:

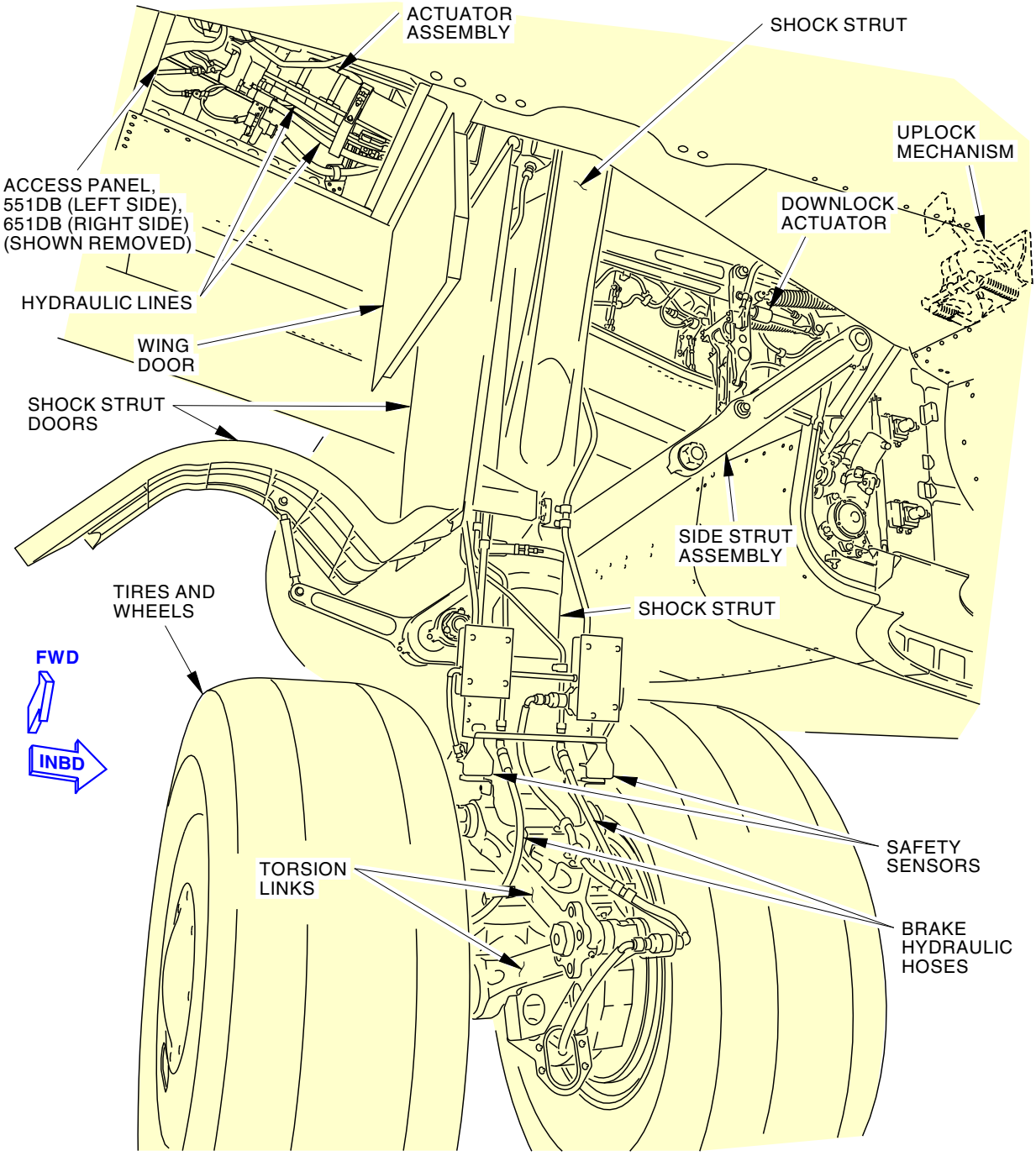
Close this access panel:

| Number | Name/Location |
|---|---|
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

**END OF TASK**



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**RIGHT MAIN LANDING GEAR**
**(LEFT MAIN LANDING GEAR IS EQUIVALENT)**

2414056 S00061534311_V2

**Main Landing Gear Inspection**
**Figure 601/32-11-00-990-806**



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## MAIN LANDING GEAR SHOCK STRUT SEALS - REPAIRS

### 1. General

A. There are three tasks in this procedure that supply instructions to replace the seals on the shock strut of the main landing gear:

(1) The first task is to replace the active seals with the spare seals on the lower bearing carrier.

(2) The second task is to install new dynamic seals, new static seals, and new spare seals.

(3) The third task is to replace the scraper ring with a split scraper ring. This task would be used when the scraper ring is damaged and removing the inner cylinder is not possible.

B. The fourth task does a check of hydraulic leaks on the shock strut of the main landing gear.

**TASK 32-11-21-960-801**

### 2. Active Seals with the Spare Seals Replacement

(Figure 801, Figure 802, Figure 803)

#### A. General

(1) This task replaces the active static seal [15] and the active dynamic seal [14] with the spare static seal [18] and spare dynamic seal [17] on the lower bearing carrier [11] of the main landing gear.

#### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-11-51-020-801 | Main Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-11-51-400-803 | Main Landing Gear Torsion Link Connection (P/B 401) |
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1340 | Assembly - Spacer (C32017-4 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1341 | Assembly - Carrier Puller (C32017-5 Part of Kit C32017-52,-53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |



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(Continued)

| Reference | Description |
|---|---|
| SPL-1342 | Assembly - Clamp, Dynamic Seal (C32017-7 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1343 | Assembly - Retainer, Thread Protector (C32017-8 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1344 | Protector - Thread (C32017-9 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1347 | Plunger - Dynamic Seal (C32017-23 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1829 | Valve - Drain, Landing Gear Shock Strut Oil<br>Part #: J32108-16 Supplier: 81205<br>Opt Part #: A32066-1 Supplier: 81205 |
| SPL-3927 | Assembly - Strap (C32017-60 Part of Kit C32017-52 and -53)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-10997 | Adapter Assy - Wrench, Hook Spanner<br>Part #: F80033-8 Supplier: 81205 |
| STD-1110 | Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter) |
| STD-1140 | Hose - Flexible, 1/2 Inch ID, BMS 3-11 Resistant, 10 Foot |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 17 | Spare dynamic seal | 32-11-21-01-090 | SIA ALL |

**F. Location Zones**

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |


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## G. Prepare for the Replacement

SUBTASK 32-11-21-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-11-21-860-001

(2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-11-21-860-002

(3) Operate the brakes eight times to remove pressure from the brake accumulator.

SUBTASK 32-11-21-480-002

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(4) Set the wing jacks correctly to keep the airplane level prior to deflating the Main Landing Gear (MLG) shock strut [1] (TASK 07-10-01-580-801).

NOTE: The airplane is to be lifted further in a subsequent step.

SUBTASK 32-11-21-860-003

(5) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |



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SUBTASK 32-11-21-020-001

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(6) Deflate the shock strut [1] for the main landing gear.

(a) Remove the dust cap [2] for the gas charging valve [3].

(b) Loosen the swivel nut [4] a maximum of two turns.

1) Deflate the shock strut [1] slowly to prevent the leakage of the fluid through the gas charging valve [3].

NOTE: Fluid in the shock strut [1] will have bubbles when you release the pressure.

(c) Loosen the swivel nut [4] fully when all of the pressure in the shock strut [1] is released.

SUBTASK 32-11-21-680-001

(7) Drain the oil from the shock strut [1] for the main landing gear.

(a) Remove the dust cap [5] from the oil charging valve [6].

(b) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110, in a position to catch the shock strut fluid when the oil charging valve [6] is opened.

(c) Install the drain equipment on the oil charging valve [6].

1) Install the landing gear shock strut drain valve, SPL-1829, on the oil charging valve [6] to drain the shock strut [1].

2) If you wish to drain the shock strut [1] with a quicker method, do the steps that follow:

a) Cut a length of plastic ten foot hose (1/2 inch ID), STD-1140, long enough to reach the container on the floor.

b) Insert a small Allen wrench in the end of the length of tubing, such that the end of the long part of the Allen wrench is flush with the end of the tube and the short part penetrates the side wall of the tube.

c) Install the ten foot hose (1/2 inch ID), STD-1140, on the oil charging valve [6] such that the Allen wrench goes into the oil charging valve [6] and holds it open to drain the hydraulic fluid.

(d) Remove the drain equipment when you have removed all of the shock strut oil.

SUBTASK 32-11-21-020-002

(8) Do this task: Main Landing Gear Torsion Link Disconnection, TASK 32-11-51-020-801.

SUBTASK 32-11-21-480-003

(9) Use rope to hold the disconnected end of the upper torsion link and attach it to the outer cylinder [8].

NOTE: This step will hold the upper torsion link in its position when you do the subsequent steps.

SUBTASK 32-11-21-480-004

(10) Lift the airplane until there is more than enough room to install the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), on the inner cylinder [12] after the gland nut [19] has been removed (TASK 07-10-01-580-801).


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SUBTASK 32-11-21-020-003

(11) Do this task: Main Landing Gear Brake Removal, TASK 32-41-41-000-801.

NOTE: This procedure will also remove the wheel and the tire assemblies. Also, this will give better access to the inner cylinder [12] and outer cylinder [8].

SUBTASK 32-11-21-580-001

(12) Use an axle jack to hold the inner cylinder [12] in its position in the outer cylinder [8] (TASK 07-10-03-580-801).

SUBTASK 32-11-21-020-004

(13) Remove the gland nut [19].

(a) Remove the nuts [24], washers [25], and bolts [26] for the lockplate [23] to release the gland nut [19].

(b) Wind a cloth around the chrome surface of the inner cylinder [12].

NOTE: This will prevent damage to the inner cylinder [12] when the gland nut [19] moves down.

(c) Use the landing gear gland nut hook spanner, SPL-10997, to remove the gland nut [19] from the outer cylinder [8].

1) Loosen the gland nut [19] until it is disconnected from the outer cylinder [8].

a) Do not move the gland nut [19] down the inner cylinder [12].

SUBTASK 32-11-21-580-002

(14) Lower the axle jack until the gland nut [19] is approximately 3 in. (7.6 cm) below the outer cylinder [8].

NOTE: This will let you install the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), such that the gland nut [19] can slide down the inner cylinder [12].

SUBTASK 32-11-21-480-005

(15) Install the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]).

(a) Put the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), around the gland nut [19].

(b) Tighten the retainer screws to hold the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), in its position.

(c) Move the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), with the gland nut [19] down the inner cylinder [12].

SUBTASK 32-11-21-020-005

(16) Remove the lower bearing carrier [11] from the outer cylinder [8].

(a) Loosely install the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), around the inner cylinder [12]

(b) Push the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), up, such that it is installed correctly at the bottom of the outer cylinder [8].

(c) Align the holes in the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), with the holes in the lower bearing carrier [11] for the carrier puller screws [52].

(d) Install the carrier puller screws [52] to hold the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), to the lower bearing carrier [11].

(e) Tighten the retainer screws on each side of the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).



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(f) Install the strap assembly, SPL-3927 (strap assembly, SPL-3927 [47]), around the axle and connect the ends to the shoulder bolts on each side of the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).

(g) Lift the airplane until there is enough room to install the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), at the bottom of the outer cylinder [8] (TASK 07-10-01-580-801).

SUBTASK 32-11-21-480-006

**WARNING**

MAKE SURE THAT YOU INSTALL THE RETAINER ASSEMBLY CORRECTLY. IF YOU DO NOT INSTALL THE RETAINER ASSEMBLY CORRECTLY, THE SPACER CAN MOVE DOWN THE INNER CYLINDER QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(17) If the spacer [10] has moved down the inner cylinder [12] with the lower bearing carrier [11], push it back into the outer cylinder [8], then install the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), as follows:

NOTE: The retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), will hold the spacer [10] inside the outer cylinder [8] and prevent it from moving down the inner cylinder [12].

(a) Loosely install the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), around the inner cylinder [12].

(b) Push the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), up, such that it is installed correctly at the bottom of the outer cylinder [8].

(c) Tighten the retainer screws on each side of the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

(d) Move the two retainer plates on each side of the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), such that they touch the chrome surface of the inner cylinder [12].

(e) Tighten the four shoulder bolts to hold the two retainer plates in their position.

(f) Put the snapper pin to prevent movement of the retainers.

(g) Install the strap assembly, SPL-3927 (strap assembly, SPL-3927 [47]), around the outer cylinder [8] and connect the ends to the shoulder bolts on each side of the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

SUBTASK 32-11-21-580-003

(18) Continue to lift the airplane until the lower bearing carrier [11] is completely out of the outer cylinder [8] (TASK 07-10-01-580-801).

(a) Lift the airplane a minimum of 77 in. (1956 mm) from the floor to the lowest point on the MLG inner door.

NOTE: This will have the airplane high enough from the floor.

SUBTASK 32-11-21-020-006

(19) Push the lower bearing carrier [11] down the inner cylinder [12] until it rests on the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), with the gland nut [19].

NOTE: The lower bearing carrier [11] is coated with a dry lube film. The film may be worn and appear uneven. This is not a cause for bearing carrier replacement.



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## H. Active Static and the Active Dynamic Seal with the Spare Seals Replacement

SUBTASK 32-11-21-900-001

(1) Replace the active static seal [15] with a spare static seal [16].

(a) Make sure that your hands are clean when you handle the elastomer seals.

NOTE: Some greases can cause the elastomer seals to swell too much. This can cause the seals to leak.

(b) Remove the brown rings from around the active static seal [15].

(c) Make sure that the brown rings are serviceable.

(d) Install new brown rings if there are nicks, scratches or other damage to the old brown rings.

NOTE: The recommended installation is to replace all the old brown rings with new brown rings. Use the old brown rings only after a full inspection, and new rings are not available.

(e) Use a tool for cutting plastic that has a back-up strip to cut the active static seal [15] from its outer groove in the lower bearing carrier [11].

(f) Move the spare static seal [16] out of the spare seal groove of the lower bearing carrier [11].

**CAUTION**

DO NOT APPLY VASELINE OR PETROLATUM TO THE SEALS. THIS CAN CAUSE THE SEAL MATERIAL TO BECOME LARGER. DAMAGE TO THE SEALS CAN OCCUR.

(g) Wipe the spare static seal [16] and the brown rings to remove any unwanted assembly lubricant or hydraulic fluid.

(h) Install the spare static seal [16] on the active static seal groove of the lower bearing carrier [11].

(i) Install the brown rings on the spare static seal [16], with the rounded edge of the brown rings against the seal.

SUBTASK 32-11-21-020-007

(2) Remove the seal retainer [22].

(a) Remove the O-ring [13] for the seal retainer [22].

(b) Remove the retainer pins [21].

(c) Move the seal retainer [22] away from the lower bearing carrier [11] to get access to the location for the active dynamic seal [14].

(d) Use tape to hold the seal retainer [22] around the inner cylinder [12], and prevent it from moving down on the lower bearing carrier [11].

SUBTASK 32-11-21-900-002

(3) Replace the active dynamic seal [14] with a spare dynamic seal [17].

(a) Make sure that your hands are clean when you handle the elastomer seals.

NOTE: Some greases can cause the elastomer seals to swell too much. This can cause the seals to leak.

(b) Remove the active dynamic seal [14]:



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1) Move the lower bearing carrier [11] up and down the inner cylinder [12] to move the active dynamic seal [14], backup ring, and the cap from the inner groove of the lower bearing carrier [11].

2) If the active dynamic seal [14], backup ring, and the cap does not come out of the inner groove of the lower bearing carrier [11], remove them with a tool which is not sharp.

NOTE: Hardened steel cotter pin removal tools work well for removing the active dynamic seal [14].

3) Use a tool for cutting plastic that has a back-up strip to cut the old active dynamic seal [14], backup ring, and the cap from the inner groove of the lower bearing carrier [11].

(c) Move one of the spare dynamic seal [17] from the spare seals groove of the lower bearing carrier [11] and move it into the inner cylinder [12].

NOTE: The round sealing surface of the seal must be against the chrome on the inner cylinder.

(d) Remove the spare backup rings from the spare seals groove of the lower bearing carrier [11].

**CAUTION**

DO NOT APPLY VASELINE OR PETROLATUM TO THE SEALS. THIS CAN CAUSE THE SEAL MATERIAL TO BECOME LARGER. DAMAGE TO THE SEALS CAN OCCUR.

(e) Wipe the spare dynamic seal [17] and the spare backup rings to remove any unwanted assembly lubricant or hydraulic fluid.

**CAUTION**

MAKE SURE THAT THE BACKUP RINGS AND THE SEAL STAY TOGETHER WHEN YOU INSTALL THE SEAL. IF THE BACKUP RINGS AND THE SEAL MOVE APART, THEY WILL NOT INSTALL CORRECTLY. THIS CAN CAUSE DAMAGE TO THE SEAL AND THE BACKUP RINGS.

(f) Install the spare dynamic seal [17].

1) Install one of the brown backup rings [29] in the inner groove for the dynamic seal.

2) Install one of the white backup rings [28] in the inner groove for the dynamic seal, with the split in an opposite position on the diameter of the inner cylinder [12] as the brown backup ring [29], and with the rounded edge facing up.

3) Make sure that the backup rings are tight against the inner cylinder [12].

4) Use the dynamic seal clamp assembly, SPL-1342 (dynamic seal clamp assembly, SPL-1342 [54]), to install the spare dynamic seal [17] in the inner groove for the dynamic seal, with the rounded edge against the inner cylinder [12].

5) Use the dynamic seal plunger, SPL-1347 (dynamic seal plunger, SPL-1347 [53]), to push the spare dynamic seal [17] in the inner groove of the lower bearing carrier [11].

6) Install the other white backup ring [28] in the inner groove for the dynamic seal, with the rounded edge facing the spare dynamic seal [17].

7) Install the other brown backup ring [29] in the inner groove for the dynamic seal, with the split in an opposite position on the diameter of the inner cylinder [12] as the white backup ring [28].

8) Make sure that the dynamic seal assembly is together, without any twists or bulges.



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SUBTASK 32-11-21-420-001

(4) Install the seal retainer [22].

(a) Remove the tape that holds the seal retainer [22] from around the inner cylinder [12].

(b) Move the seal retainer [22] down on the lower bearing carrier [11].

(c) Install the retainer pins [21] to hold the seal retainer [22] on the lower bearing carrier [11].

(d) Install the O-ring [13] to hold the retainer pins [21] in their positions.

SUBTASK 32-11-21-020-008

**WARNING** MAKE SURE THAT YOU INSTALL THE RETAINER ASSEMBLY CORRECTLY. IF YOU DO NOT INSTALL THE RETAINER ASSEMBLY CORRECTLY, THE SPACER CAN MOVE DOWN THE INNER CYLINDER QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Move the retainer plates for the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

(a) Remove the two snapper pins.

(b) Loosen the four shoulder bolts that hold the two retainer plates in their positions.

(c) Move the two retainer plates away from the chrome surface of the inner cylinder [12].

SUBTASK 32-11-21-480-007

(6) If the spacer [10] has moved down the inner cylinder [12] with the lower bearing carrier [11], push it back into the outer cylinder [8].

SUBTASK 32-11-21-420-002

(7) Carefully put the thread protector, SPL-1344 (thread protector, SPL-1344 [48]), between the outer cylinder [8] and the inner cylinder [12].

NOTE: The thread protector, SPL-1344 (thread protector, SPL-1344 [48]), will expand and push against the outer cylinder [8]. This will protect the static seals from the gland nut [19] threads on the outer cylinder [8].

SUBTASK 32-11-21-080-001

(8) Remove the strap assembly, SPL-3927 (strap assembly, SPL-3927 [47]), around the axle and from the shoulder bolts on each side of the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).

SUBTASK 32-11-21-580-020

(9) Slowly lower the airplane so that the top of the lower bearing carrier [11] is approximately 1 in. (3 cm) to 3 in. (8 cm) from the bottom of the outer cylinder [8]. If the seals were replaced on one side only, then depressurize the opposite shock strut [1] prior to lowering the airplane.

SUBTASK 32-11-21-580-004

(10) To lift the inner cylinder [12] slowly with the axle jack until the bottom of the lower bearing carrier [11] is about 1.5 in. (3.8 cm) from the bottom of the outer cylinder [8], do this task: Lift the Airplane on Axle Jacks-Handling, TASK 07-10-03-580-801.

(a) Make sure that the static seals stay in their positions as the lower bearing carrier [11] is installed.

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-21-080-002

(1) Remove the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).



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(a) Remove the carrier puller screws [52] to disconnect the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), from the lower bearing carrier [11].

(b) Loosen the two retainer screws and pull the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), out of the outer cylinder [8].

SUBTASK 32-11-21-080-003

(2) Remove the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

(a) Remove the strap assembly, SPL-3927 (strap assembly, SPL-3927 [47]), that holds the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), to the outer cylinder [8].

(b) Loosen the two retainer screws and remove the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

SUBTASK 32-11-21-020-009

(3) Remove the thread protector, SPL-1344 (thread protector, SPL-1344 [48]), inside the outer cylinder [8].

SUBTASK 32-11-21-640-001

(4) Remove the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), from around the gland nut [19].

SUBTASK 32-11-21-620-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Apply a thin layer of corrosion inhibiting material, G50136, to these items.

(a) The threads and thread reliefs of the bolt [26].

(b) The threads of the nut [24].

(c) The splines and faces of the washers [25].

(6) Apply a liberal quantity of corrosion inhibiting material, G50136, to the threads of the gland nut [19] and to the threads of the outer cylinder [8].

SUBTASK 32-11-21-160-001

(7) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-11-21-420-003

(8) Install the gland nut [19].

(a) Move the gland nut [19] up to the outer cylinder [8] and engage the gland nut [19] threads.

(b) Use the landing gear gland nut hook spanner, SPL-10997, to torque the gland nut [19] to 125 ft-lb (169 N·m) - 150 ft-lb (203 N·m).

SUBTASK 32-11-21-420-004

(9) Install the lockplate [23] for the gland nut [19].

(a) Install the lockplate [23] in the holes which will put the tab of the lockplate [23] as close to a slot in the gland nut [19] as possible.

1) If it is necessary, loosen the gland nut [19] a small amount to help with the alignment.



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(b) Install the nuts [24], washers [25] and bolts [26].

SUBTASK 32-11-21-420-057

(10) Remove the rope that holds the disconnected end of the upper torsion link to the outer cylinder [8].

SUBTASK 32-11-21-420-058

(11) Do this task: Main Landing Gear Torsion Link Connection, TASK 32-11-51-400-803.

SUBTASK 32-11-21-020-010

(12) Do this task: Main Landing Gear Brake Installation, TASK 32-41-41-400-801.

NOTE: This procedure will also install the wheel and tire assemblies.

SUBTASK 32-11-21-080-004

(13) Remove the axle jack (TASK 07-10-03-580-801).

SUBTASK 32-11-21-080-005

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(14) Lower the airplane and remove the jacks (TASK 07-10-01-580-802).

SUBTASK 32-11-21-420-007

(15) Install the dust cap [5] loosely.

SUBTASK 32-11-21-600-001

(16) Do this task: Main Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-31-610-802.

SUBTASK 32-11-21-860-004

(17) Remove the safety tags and close these circuit breakers:

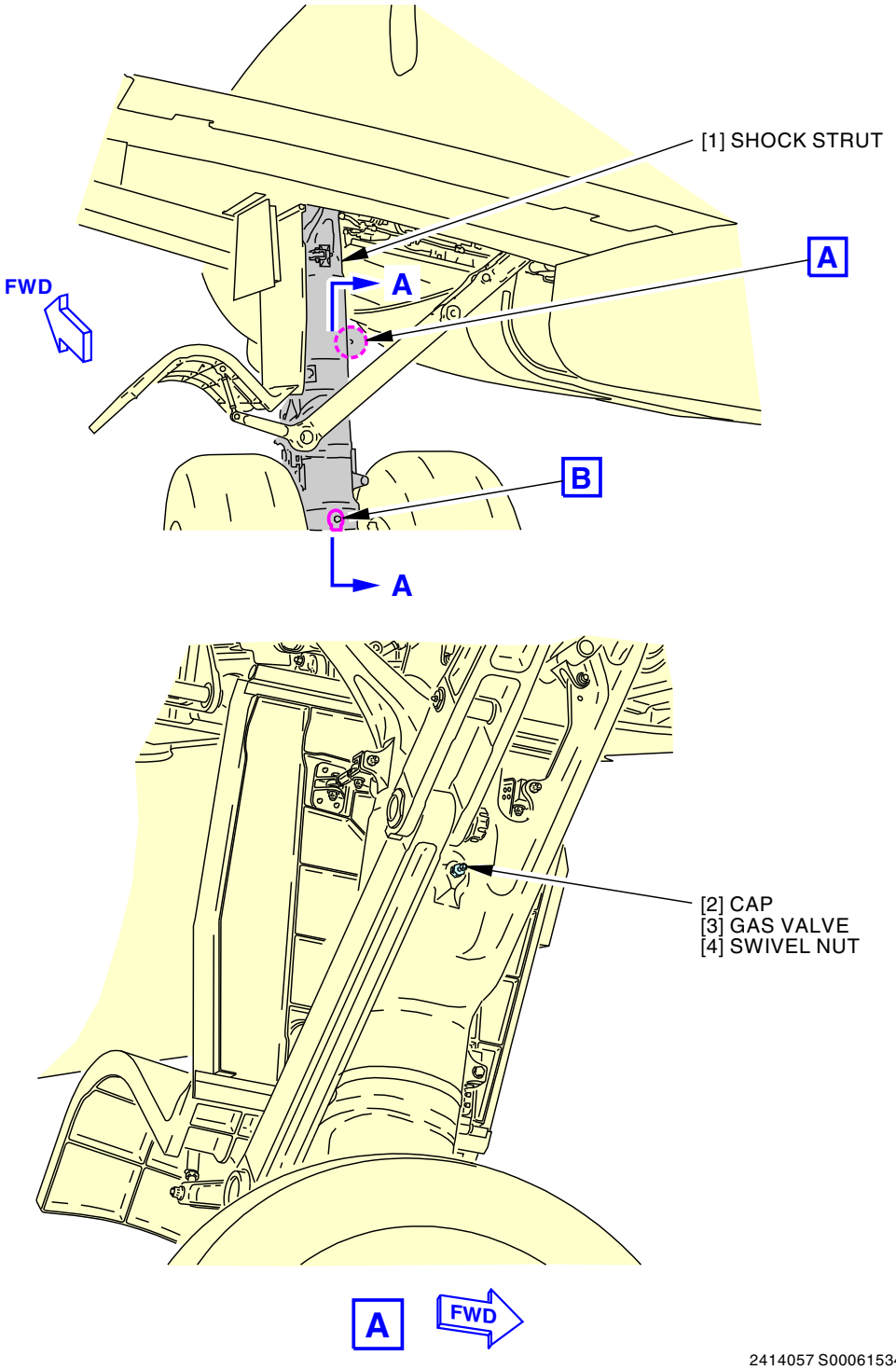
**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

**END OF TASK**



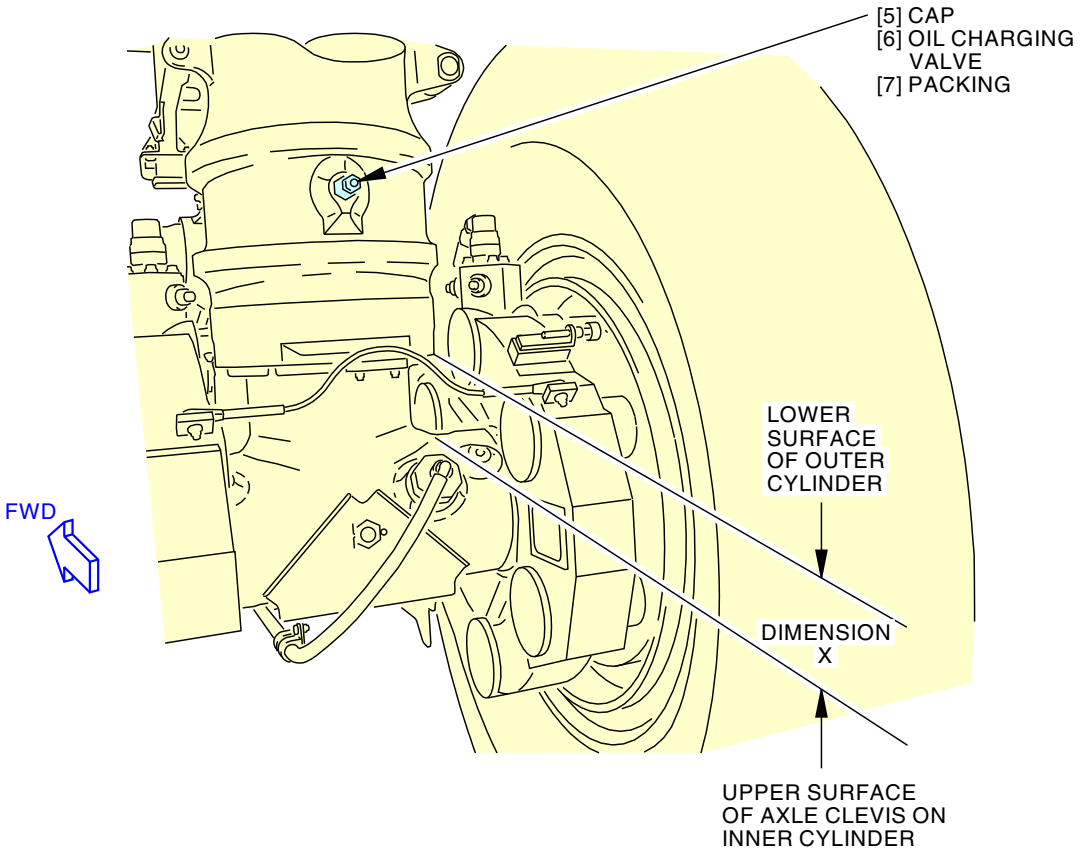
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**Main Landing Gear Shock Strut Seal Replacement**
**Figure 801/32-11-21-990-801 (Sheet 1 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

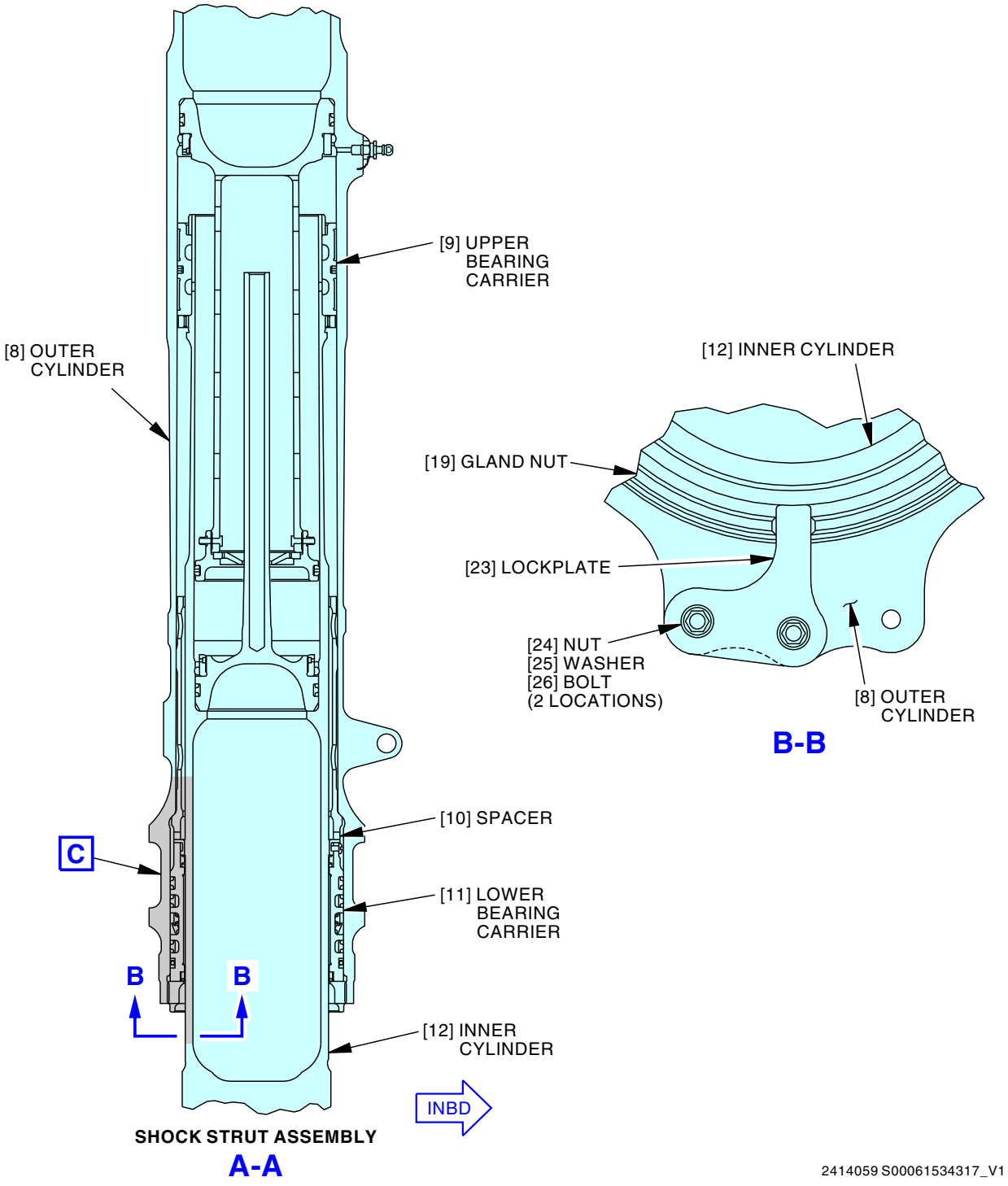



2414058 S00061534316_V1

**Main Landing Gear Shock Strut Seal Replacement**
**Figure 801/32-11-21-990-801 (Sheet 2 of 5)**



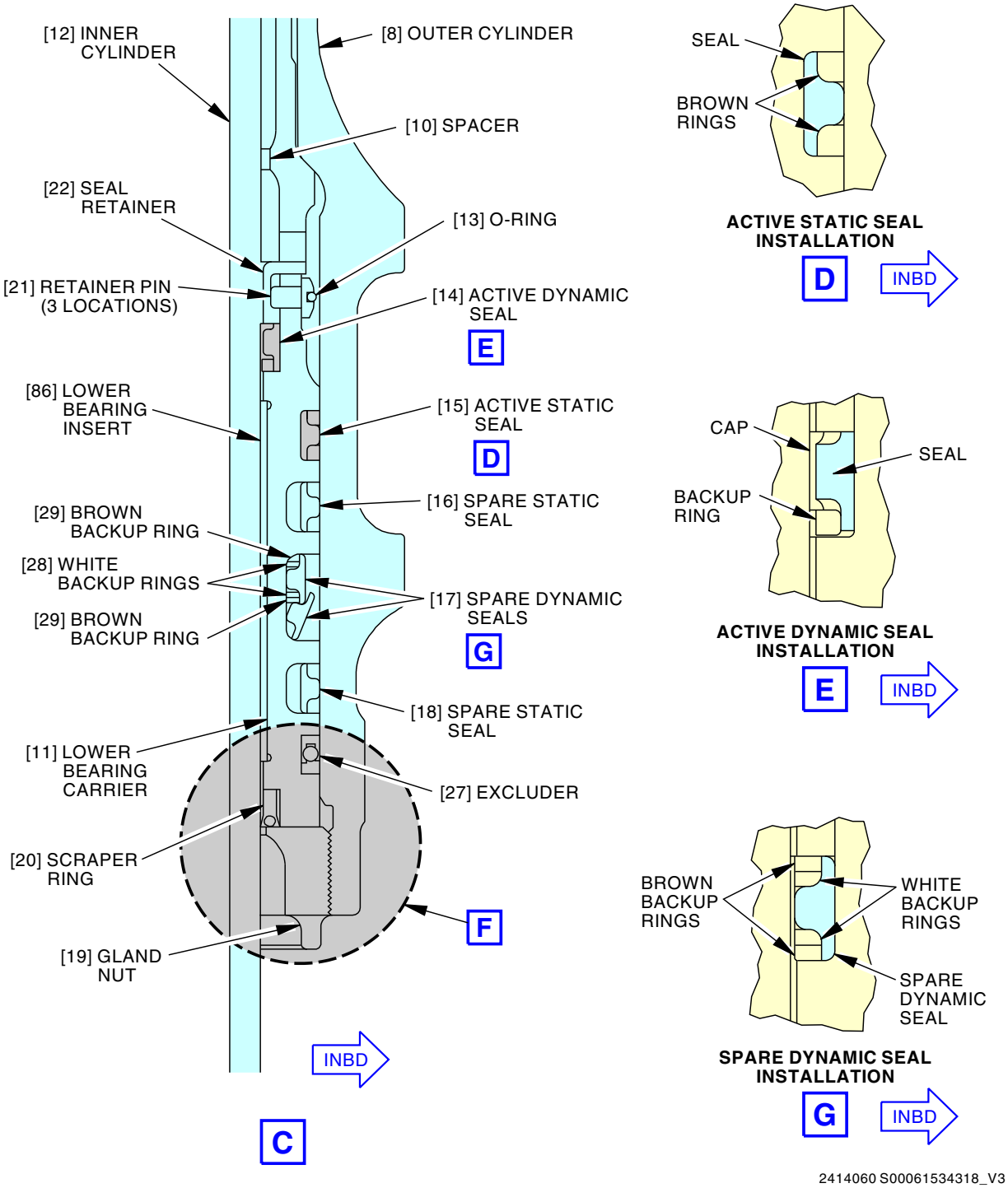
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Shock Strut Seal Replacement**
**Figure 801/32-11-21-990-801 (Sheet 3 of 5)**



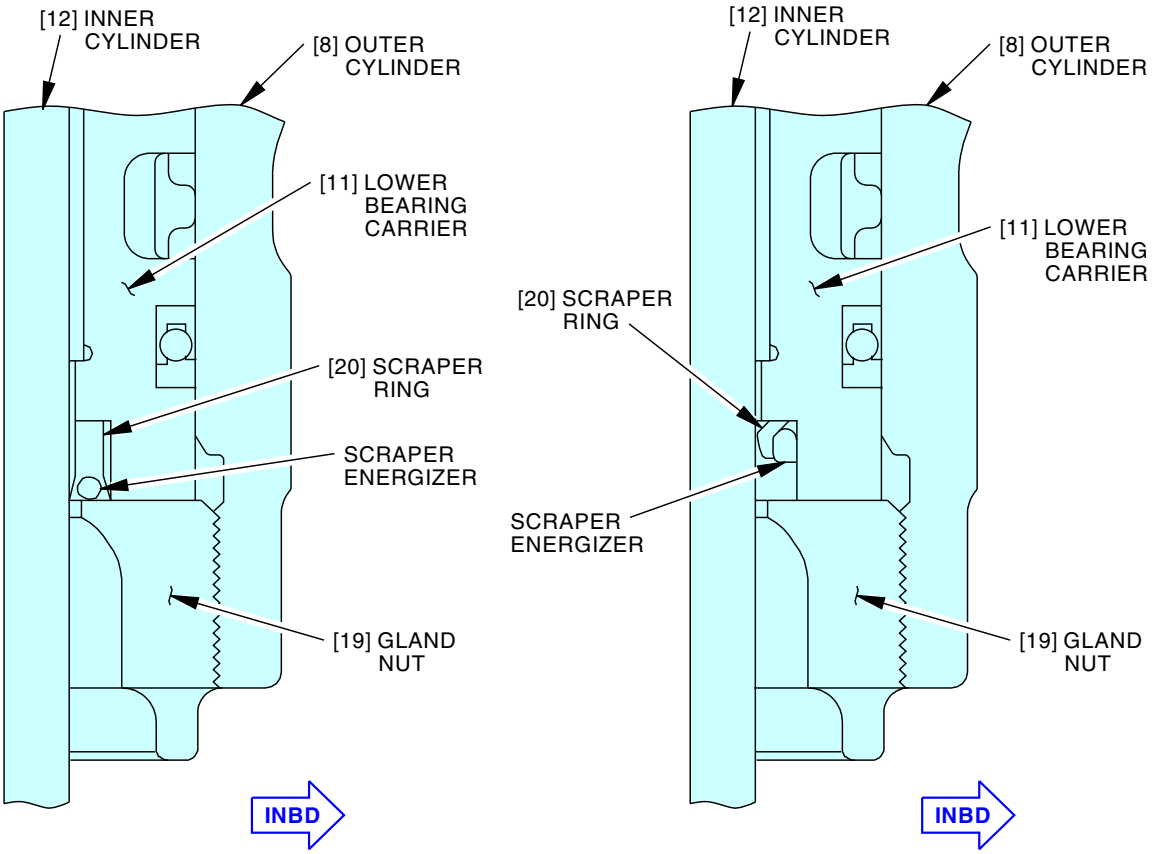
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Shock Strut Seal Replacement**
**Figure 801/32-11-21-990-801 (Sheet 4 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

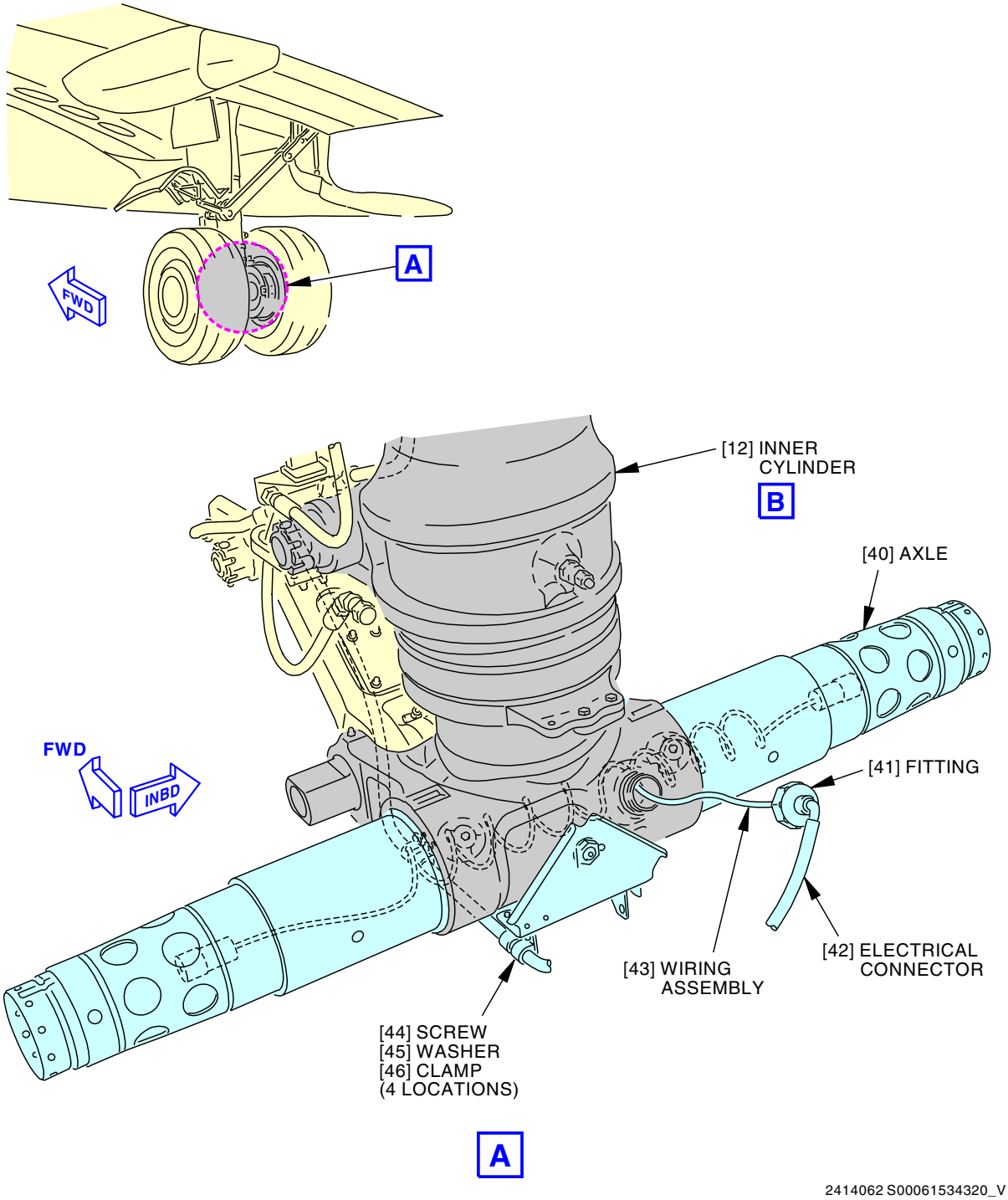



2414061 S00061534319_V1

**Main Landing Gear Shock Strut Seal Replacement**
**Figure 801/32-11-21-990-801 (Sheet 5 of 5)**



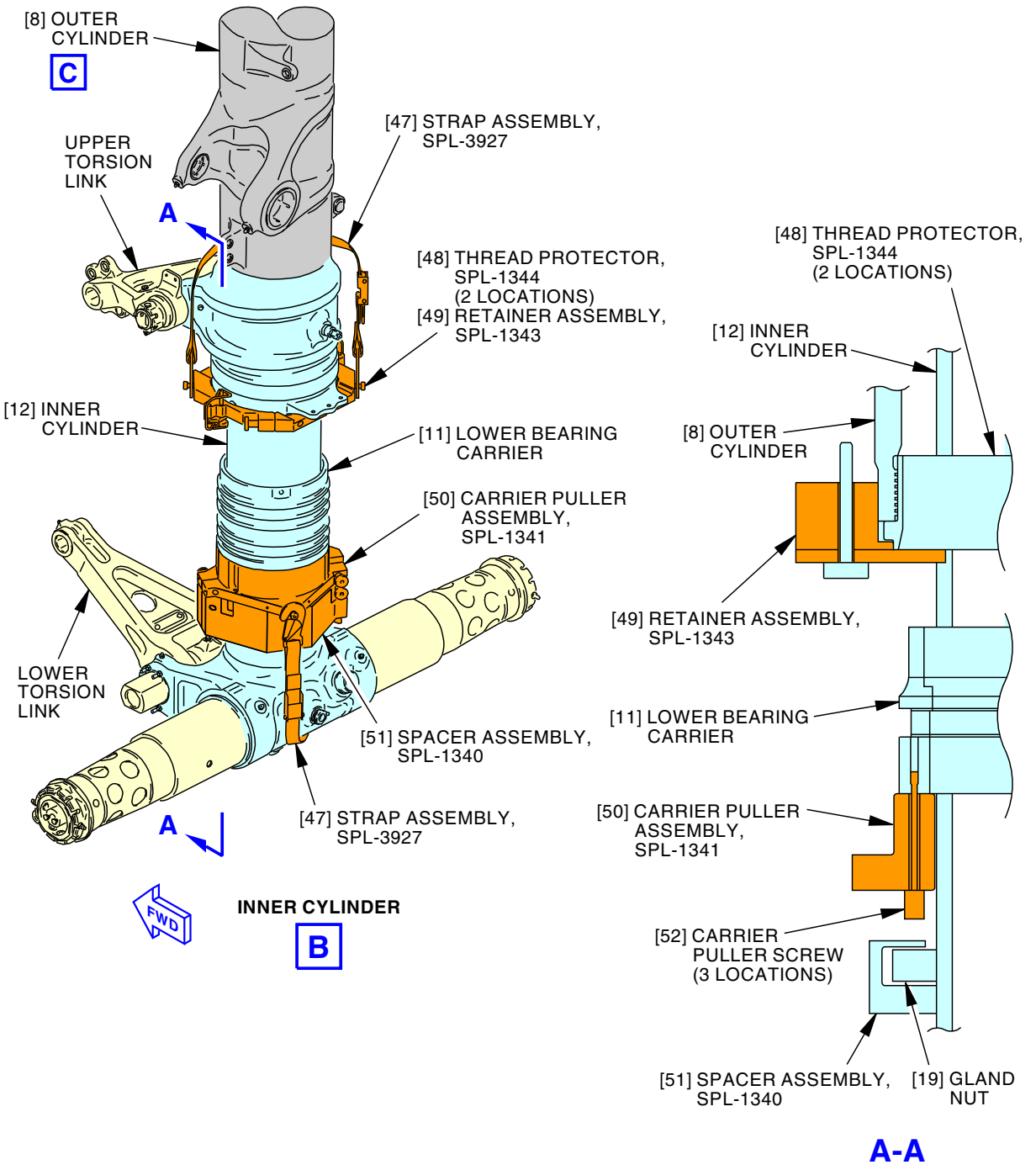
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 1 of 10)**



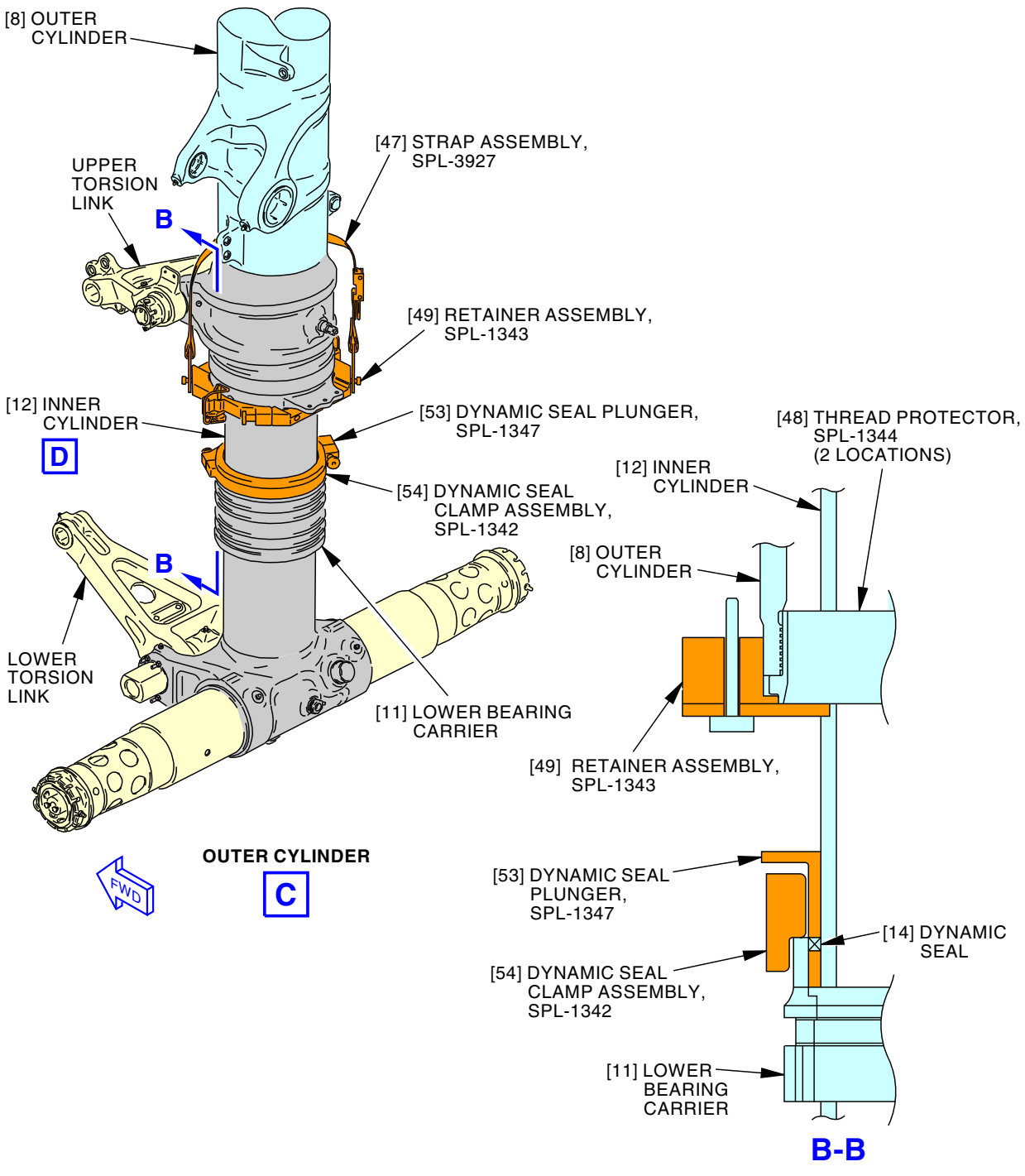
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 2 of 10)**



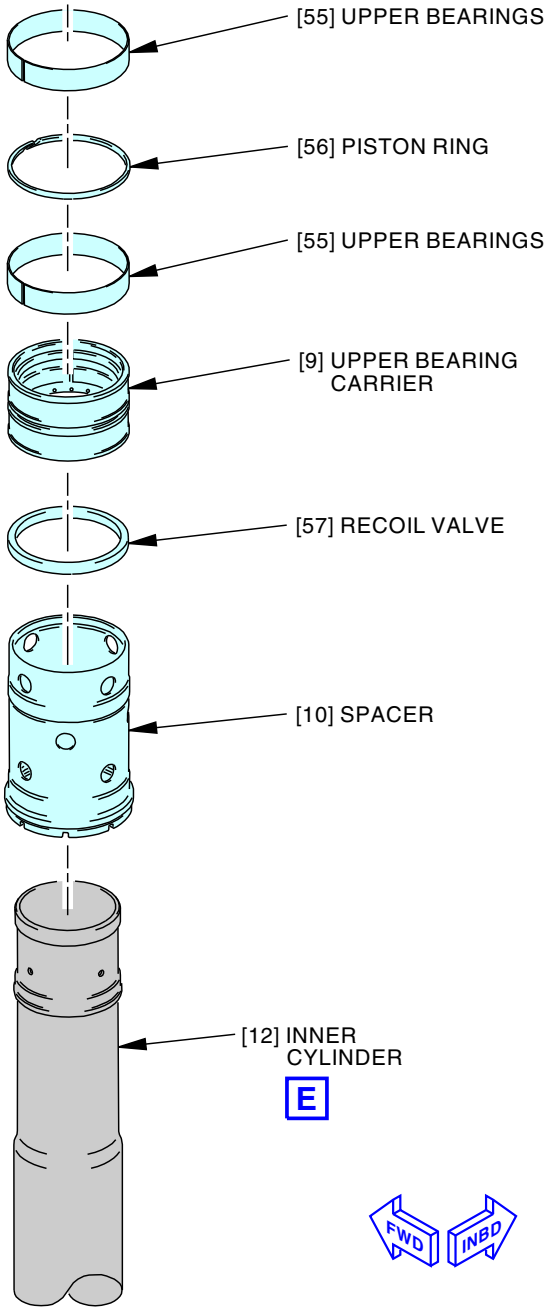
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 3 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

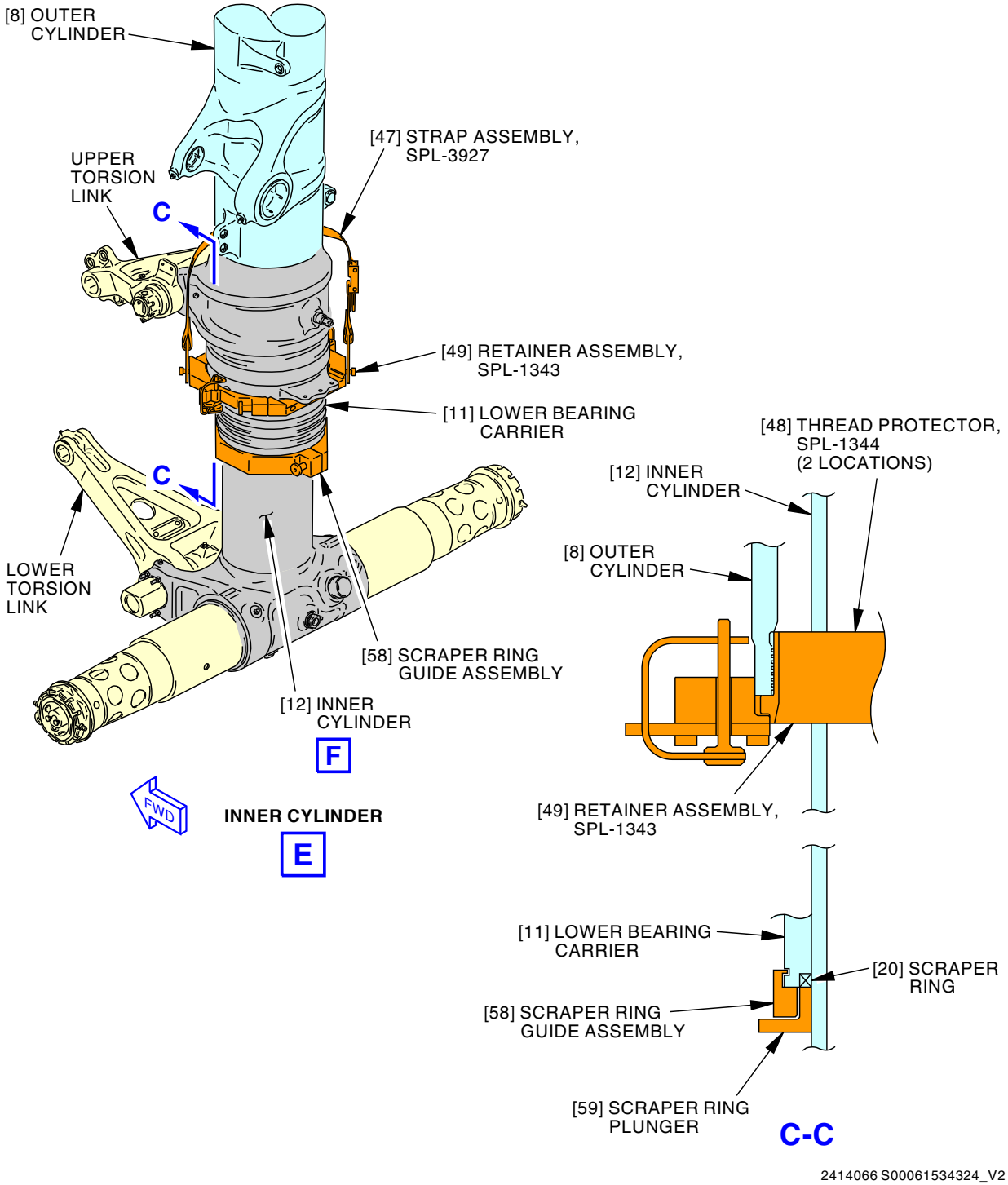



2414065 S00061534323_V2

**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 4 of 10)**



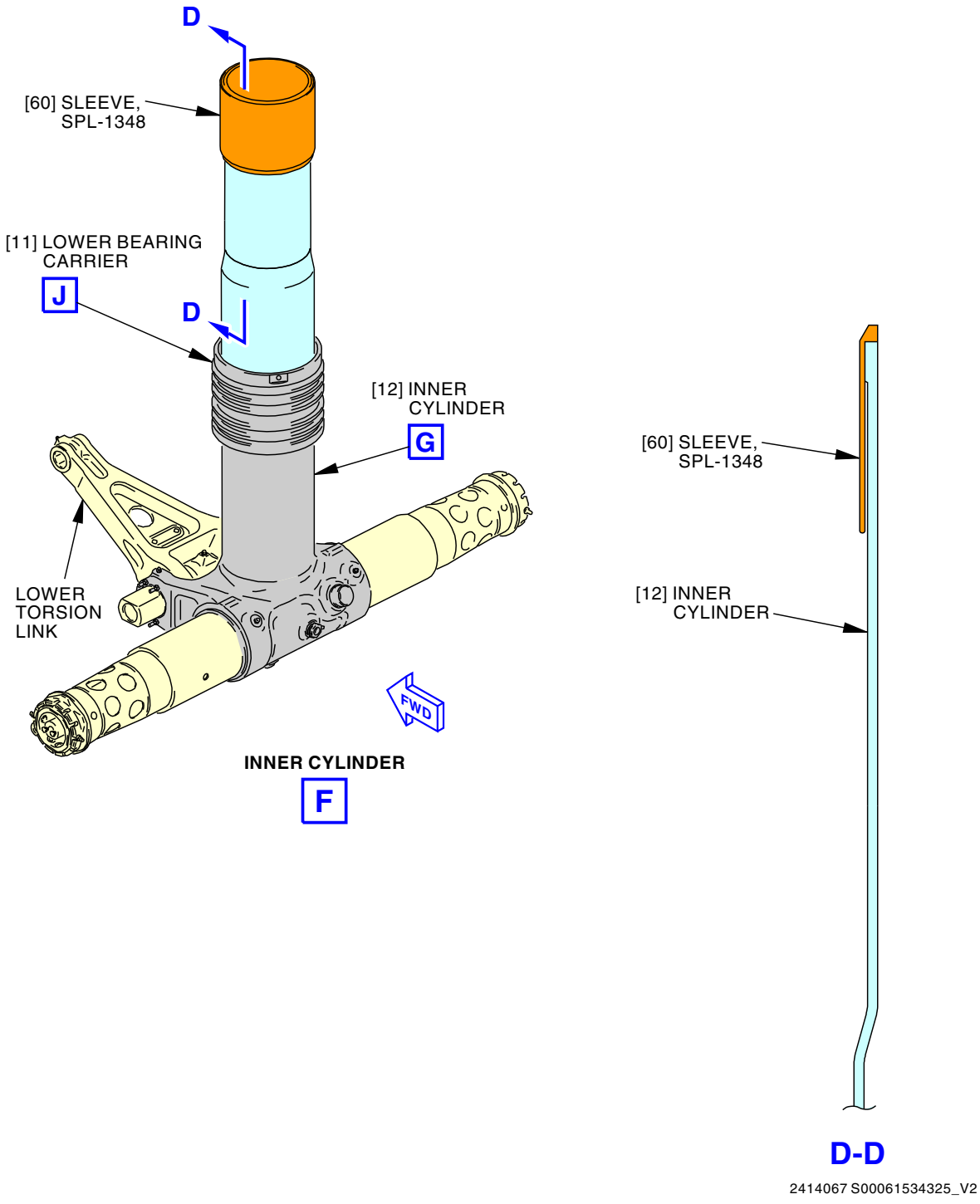
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 5 of 10)**



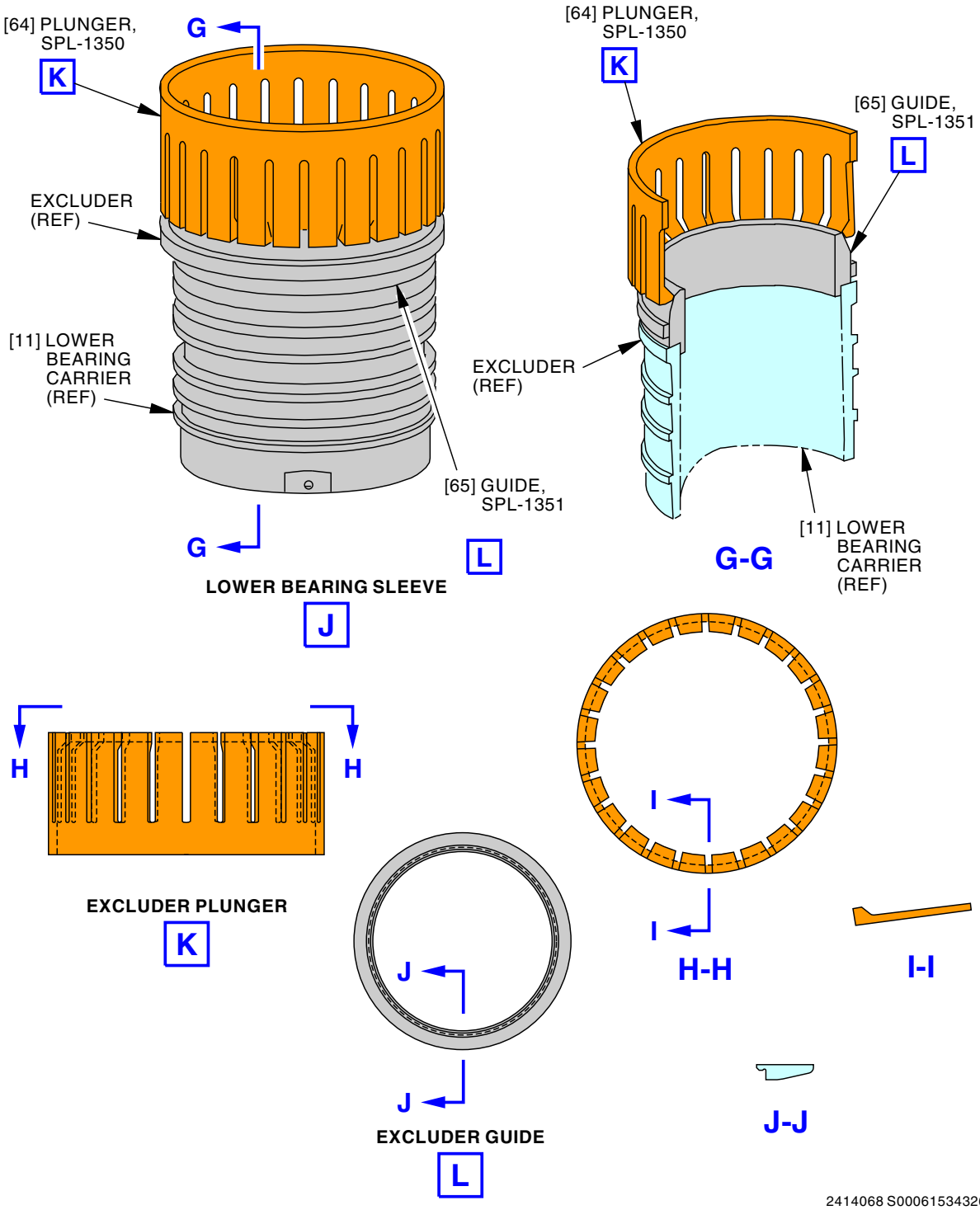
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 6 of 10)**



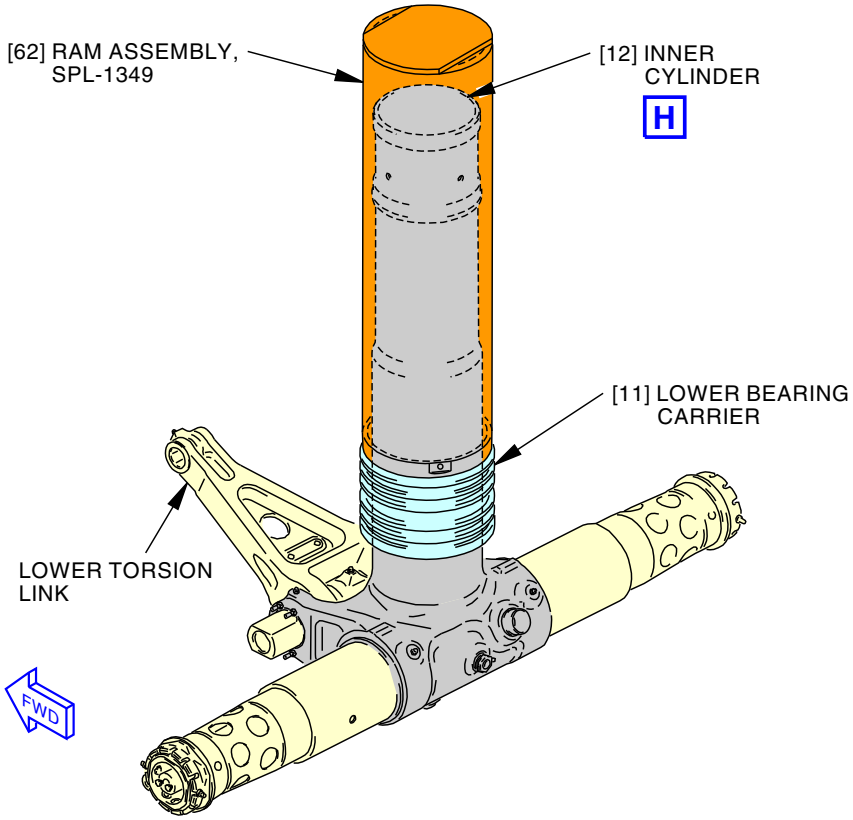
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 7 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**INNER CYLINDER**

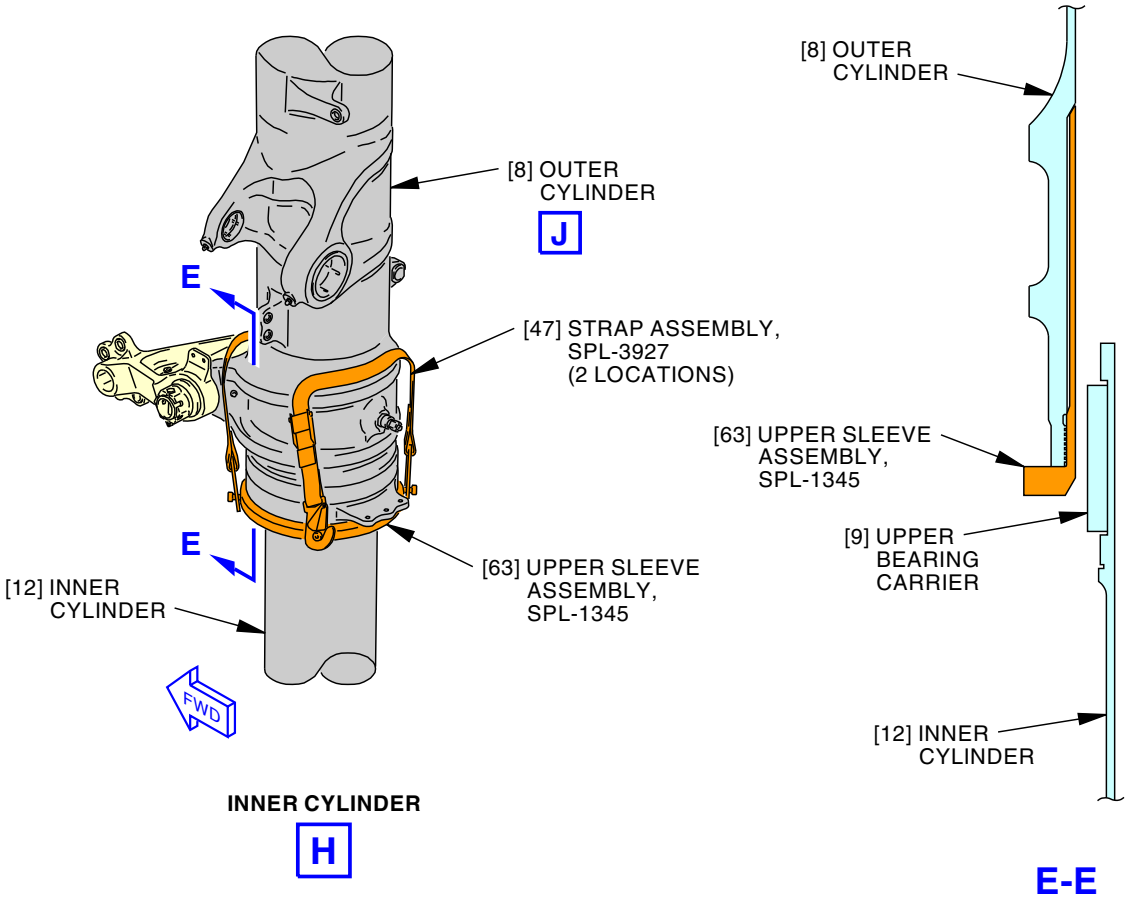
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2414069 S00061534327_V2

**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 8 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

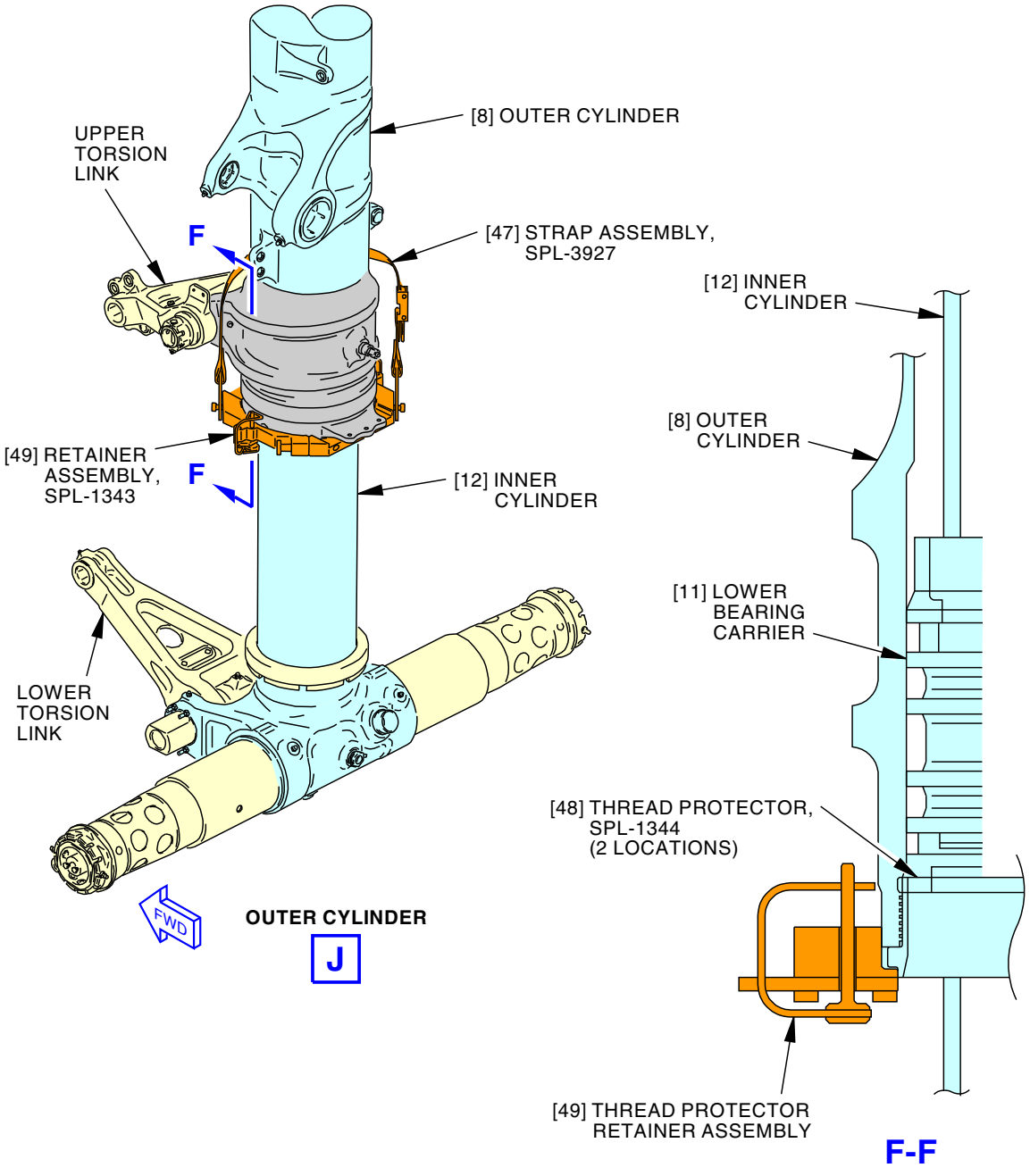



2414070 S00061534328_V2

**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 9 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



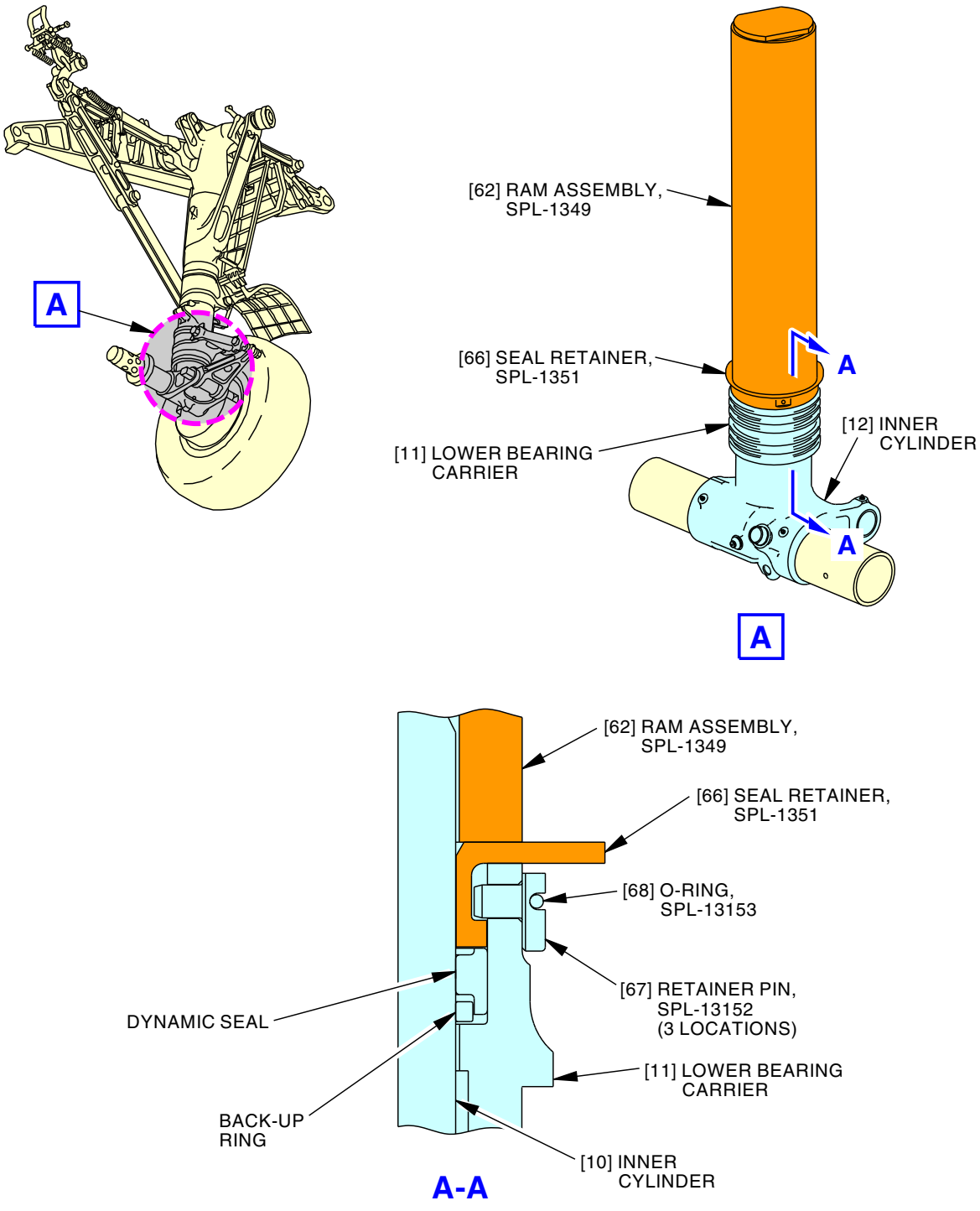

1 USE THREAD PROTECTOR FOR LOWER BEARING CARRIER INSTALLATION ONLY.

2414071 S00061534329_V2

**Main Landing Gear Lower Bearing Seal Replacement**
**Figure 802/32-11-21-990-802 (Sheet 10 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Lower Bearing Carrier Installation Using Optional Tooling**
**Figure 803/32-11-21-990-803**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-11-21-960-802**

**3. Active and the Spare Seals Replacement**

(Figure 801, Figure 802)

**A. General**

(1) This procedure supplies instructions to install new active dynamic seals [14], new active static seals [15], new spare static seal [16], spare static seals [18], and new spare dynamic seals [17].

NOTE: To do this procedure it is necessary to disconnect the inner cylinder [12] from the outer cylinder [8].

(2) Use this procedure when there are no spare seals available on the lower bearing carrier [11] to replace the active seals, and you will install a new 3-piece active dynamic seal.

**B. References**

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-11-51-020-801 | Main Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-11-51-400-803 | Main Landing Gear Torsion Link Connection (P/B 401) |
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |
| 32-42-00-710-803 | Transducer Operational Test (P/B 501) |
| 32-42-11-000-801 | Antiskid Wheel Speed Transducer Removal (P/B 401) |
| 32-42-11-400-801 | Antiskid Wheel Speed Transducer Installation (P/B 401) |
| 32-46-00-730-801 | Tire and Brake Monitoring System - System Test (P/B 501) |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1340 | Assembly - Spacer (C32017-4 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1341 | Assembly - Carrier Puller (C32017-5 Part of Kit C32017-52,-53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

| Reference | Description |
|---|---|
| SPL-1343 | Assembly - Retainer, Thread Protector (C32017-8 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1344 | Protector - Thread (C32017-9 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1345 | Assembly - Upper Sleeve (C32017-10 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1348 | Sleeve - Dynamic Seal (C32017-54 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1349 | Assembly - Ram (C32017-30 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1350 | Plunger - Excluder (C32017-33 Part of Kit C32017-52, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1351 | Guide - Excluder (C32017-34 Part of Kit C32017-52,-53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-1829 | Valve - Drain, Landing Gear Shock Strut Oil<br>Part #: J32108-16 Supplier: 81205<br>Opt Part #: A32066-1 Supplier: 81205 |
| SPL-3927 | Assembly - Strap (C32017-60 Part of Kit C32017-52 and -53)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-8264 | Transportation Equipment - Tower Jack, Main Landing Gear<br>Part #: J32062-26 Supplier: 81205<br>Opt Part #: J32062-1 Supplier: 81205 |
| SPL-10997 | Adapter Assy - Wrench, Hook Spanner<br>Part #: F80033-8 Supplier: 81205 |
| SPL-13151 | Retainer - Seal, Lower Seal Equipment, MLG (C32017-45 Part of Kit C32017-53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |


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(Continued)

| Reference | Description |
|---|---|
| SPL-13152 | Retainer - Pin, Lower Seal Equipment, MLG (C32017-46 Part of Kit C32017-53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-13153 | O-Ring, Lower Seal Equipment, MLG (C32017-47 Part of Kit C32017, -53, and -67)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| STD-1110 | Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter) |
| STD-1140 | Hose - Flexible, 1/2 Inch ID, BMS 3-11 Resistant, 10 Foot |
| STD-1200 | Sandbag |
| STD-3906 | Mallet - Rubber |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| D00589 | Lubricant - Hydraulic Assembly - AFS-682 | |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |

**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 14 | Active dynamic seal | 32-11-21-01-120 | SIA ALL |
| 15 | Active static seal | 32-11-21-01-080 | SIA ALL |
| 16 | Spare static seal | 32-11-21-01-085 | SIA ALL |
| 17 | Spare dynamic seal | 32-11-21-01-090 | SIA ALL |
| 18 | Spare static seal | 32-11-21-01-085 | SIA ALL |
| 20 | Scraper ring | 32-11-21-01-100 | SIA ALL |
| | | 32-11-21-01-105 | SIA ALL |
| 27 | Excluder | 32-11-21-01-095 | SIA ALL |

**F. Location Zones**

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

**G. Prepare for the Replacement**

**SUBTASK 32-11-21-480-008**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.


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SUBTASK 32-11-21-860-005

(2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-11-21-860-006

(3) Operate the brakes eight times to remove pressure from the brake accumulator.

SUBTASK 32-11-21-480-009

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(4) Set the wing jacks correctly to keep the airplane level prior to deflating the Main Landing Gear (MLG) shock strut [1] (TASK 07-10-01-580-801).

NOTE: Lift the airplane to a sufficient height that will let you install the spacer assembly, SPL-1340.

NOTE: The airplane is to be lifted further in a subsequent step.

SUBTASK 32-11-21-860-007

(5) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-11-21-020-011

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(6) Deflate the shock strut [1] for the main landing gear.

(a) Remove the dust cap [2] for the gas charging valve [3].

(b) Loosen the swivel nut [4] a maximum of two turns.



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1) Deflate the shock strut [1] slowly to prevent the leakage of the fluid through the gas charging valve [3].

NOTE: Fluid in the shock strut [1] will have bubbles when you release the pressure.

(c) Loosen the swivel nut [4] fully when all of the pressure in the shock strut [1] is released.

SUBTASK 32-11-21-680-002

(7) Drain the oil from the shock strut [1] for the main landing gear.

(a) Remove the dust cap [5] from the oil charging valve [6].

(b) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110, in a position to catch the shock strut fluid when the oil charging valve [6] is opened.

(c) Install the drain equipment on the oil charging valve [6].

1) Install the tool, landing gear shock strut drain valve, SPL-1829, on the oil charging valve [6] to drain the shock strut [1].

2) If you wish to drain the shock strut [1] with a quicker method, do these steps as follows:

a) Cut a length of plastic ten foot hose (1/2 inch ID), STD-1140, long enough to reach the container on the floor.

b) Insert a small Allen wrench in the end of the length of tubing, such that the end of the long part of the Allen wrench is flush with the end of the tube and the short part penetrates the side wall of the tube.

c) Install the ten foot hose (1/2 inch ID), STD-1140, on the oil charging valve [6] such that the Allen wrench goes into the oil charging valve [6] and holds it open to drain the hydraulic fluid.

(d) Remove the drain equipment when you have removed all of the shock strut oil.

## H. Prepare to Disconnect the Inner Cylinder from the Outer Cylinder

SUBTASK 32-11-21-020-012

(1) Do this task: Main Landing Gear Brake Removal, TASK 32-41-41-000-801.

NOTE: This procedure will also remove the wheel and tire assemblies.

SUBTASK 32-11-21-020-013

(2) Remove the in-axle assemblies (TASK 32-42-11-000-801).

(a) Make sure that you attach a label to the wires to indicate the left and right connectors.

SUBTASK 32-11-21-020-014

(3) Disconnect the electrical connector [42] and the wiring assembly [43]:

(a) Remove the screws [44] and washers [45] to disconnect the electrical connector [42] from the clamps [46].

(b) Remove the lockwires from the fitting [41].

(c) Loosen the fitting [41] to disconnect the electrical connector [42] from the inner cylinder [12].

(d) Pull the wiring assembly [43] completely out of the axle [40] and inner cylinder [12].

1) Make sure that you attach a label to the wires to indicate the left and right connectors.

SUBTASK 32-11-21-020-015

(4) Do this task: Main Landing Gear Torsion Link Disconnection, TASK 32-11-51-020-801.



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SUBTASK 32-11-21-480-010

(5) Use rope to hold the disconnected end of the lower torsion link, electrical connector [42], and wiring assembly [43], such that they will be out of the way when you do the subsequent steps.

SUBTASK 32-11-21-580-005

(6) Use the axle jack to hold the inner cylinder [12] when you do the subsequent steps (TASK 07-10-03-580-801).

SUBTASK 32-11-21-020-016

(7) Remove the gland nut [19].

(a) Remove the nuts [24], washers [25], and bolts [26] for the lockplate [23] to release the gland nut [19].

(b) Wind a cloth around the chrome surface of the inner cylinder [12].

NOTE: This will prevent damage to the inner cylinder [12] when the gland nut [19] moves down.

(c) Use the landing gear gland nut hook spanner, SPL-10997, to remove the gland nut [19] from the outer cylinder [8].

1) Loosen the gland nut [19] until it is disconnected from the outer cylinder [8].

a) Do not move the gland nut [19] down the inner cylinder [12].

SUBTASK 32-11-21-480-011

(8) Install the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]):

(a) Put the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), around the gland nut [19].

(b) Tighten the retainer screws to hold the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), in its position.

(c) Move the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), with the gland nut [19] down the inner cylinder [12].

SUBTASK 32-11-21-580-006

(9) Lift the airplane with the jacks until the measurement from the bottom of the outer cylinder [8] to the ground is 60 in. (1524 mm) (TASK 07-10-01-580-801).

SUBTASK 32-11-21-480-012

(10) Prepare sandbags, STD-1200, to put the inner cylinder [12] down after its disconnected from the outer cylinder [8].

SUBTASK 32-11-21-020-017

**WARNING**

USE A MINIMUM OF FOUR PERSONS TO HOLD THE INNER CYLINDER WHEN YOU DO THE SUBSEQUENT STEPS. THE INNER CYLINDER WEIGHS APPROXIMATELY 320 LB (145 KG). INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT CAN OCCUR IF YOU DO NOT HOLD THE INNER CYLINDER CORRECTLY.

(11) Remove the inner cylinder [12].

(a) Lower the axle jack slowly until the inner cylinder [12] is completely disconnected from the outer cylinder [8] (TASK 07-10-03-580-801).

(b) Hold the inner cylinder [12] in a vertical position.

SUBTASK 32-11-21-020-018

(12) Remove the upper bearing carrier [9].



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(a) Remove the upper bearings [55] from the upper bearing carrier [9].

1) Pull the upper bearing [55] apart slightly and slide it up and off the upper bearing carrier [9].

2) Inspect the upper bearings [55] for damage and excessive wear.

a) Make sure that the upper bearing [55] thickness is equal to or more than 0.0865 in. (2.2 mm).

b) If it is necessary, replace the upper bearing [55].

(b) Remove the piston ring [56] from the upper bearing carrier [9].

(c) Remove the upper bearing carrier [9] halves from the inner cylinder [12].

**SUBTASK 32-11-21-020-019**

(13) Remove the recoil valve [57] from the inner cylinder [12].

**SUBTASK 32-11-21-020-020**

(14) Remove the spacer [10] from the inner cylinder [12].

**SUBTASK 32-11-21-020-021**

(15) Remove the seal retainer [22].

(a) Remove the O-ring [13] for the seal retainer [22].

(b) Remove the retainer pins [21] to disconnect the seal retainer [22] from the lower bearing carrier [11].

(c) Remove the seal retainer [22] from the lower bearing carrier [11].

**SUBTASK 32-11-21-020-022**

(16) Remove the lower bearing carrier [11] from the inner cylinder [12].

(a) Loosely install the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), around the inner cylinder [12].

(b) Align the holes in the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), with the holes in the lower bearing carrier [11] for the carrier puller screws [52].

(c) Put the carrier puller screws [52] through the holes in the bottom of the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), and in the lower bearing carrier [11].

(d) Tighten the carrier puller screws [52] to attach the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), to the lower bearing carrier [11].

(e) Tighten the retainer screws on each side of the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).

(f) Use a rubber mallet, STD-3906, and lightly hit the bottom of the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), until the lower bearing carrier [11] can be pulled out off the top of the inner cylinder [12].

NOTE: The lower bearing carrier [11] is coated with a dry lube film. The film may be worn and appear uneven, this is not cause for lower bearing carrier [11] replacement.

(g) Remove the carrier puller screws [52] to disconnect the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), from the lower bearing carrier [11].

(h) Remove the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), from the lower bearing carrier [11].



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SUBTASK 32-11-21-840-001

**WARNING** USE A MINIMUM OF FOUR PERSONS TO HOLD THE INNER CYLINDER WHEN YOU DO THE SUBSEQUENT STEPS. THE INNER CYLINDER WEIGHS APPROXIMATELY 320 LB (145 KG). INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT CAN OCCUR IF YOU DO NOT HOLD THE INNER CYLINDER CORRECTLY.

(17) Slowly put the inner cylinder [12] down on sandbags, STD-1200.

NOTE: If necessary, attach a strap to the inner cylinder [12] to assist when lowering onto the sandbags.

SUBTASK 32-11-21-640-002

**CAUTION** DO NOT APPLY VASELINE OR PETROLATUM TO THE SEALS. THIS CAN CAUSE THE SEAL MATERIAL TO BECOME LARGER. DAMAGE TO THE SEALS CAN OCCUR.

(18) Lubricate the replacement seals with fluid, D00467, or AFS-682 lubricant, D00589.

(a) These are the seals that can be necessary:

1) 1 active dynamic seal [14]
2) 1 active static seal [15]
3) 1 spare static seal [16]
4) 2 spare dynamic seals [17]
5) 1 spare static seal [18]
6) 1 excluder [27]
7) 1 scraper ring [20].

## I. New Active Static Seal, Spare Static Seals, Spare Dynamic Seals, Active Dynamic Seal, Excluder, and Scraper Ring Installation

SUBTASK 32-11-21-840-009

(1) Remove the lower bearing insert [86] from the lower bearing carrier [11].

(a) Inspect the lower bearing insert [86] for damage and excessive wear.

1) The lower bearing insert [86] thickness must be greater than or equal to 0.0865 in. (2.1971 mm).
2) If it is necessary, replace the lower bearing insert [86].

SUBTASK 32-11-21-420-056

(2) Install the lower bearing insert [86] on the lower bearing carrier [11].

SUBTASK 32-11-21-900-003

(3) Install the new scraper ring [20] on the lower bearing carrier [11].

NOTE: The scraper ring [20] prevents dirt and debris from entering the shock strut [1] when the inner cylinder [12] and outer cylinder [8] compress.

(a) Remove the old scraper ring [20] from its groove on the lower bearing carrier [11].

(b) Install the new scraper ring [20] in its groove on the lower bearing carrier [11].

NOTE: There are two possible scraper configurations used for installation (Figure 801).

(c) Make sure that to use the correct scraper configuration that will be installed in its groove on the lower bearing carrier [11].



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SUBTASK 32-11-21-900-004

(4) Install the new excluder [27] on the lower bearing carrier [11].

(a) Remove the old excluder [27] from its groove on the lower bearing carrier [11].

(b) Use the guide, SPL-1351 (guide, SPL-1351 [65]), and plunger, SPL-1350 (plunger, SPL-1350 [64]), to install the new excluder [27] in its groove on the lower bearing carrier [11].

SUBTASK 32-11-21-840-003

(5) Put the lower bearing carrier [11] in the up position.

SUBTASK 32-11-21-900-005

(6) Install the new spare static seal [18] on the lower bearing carrier [11].

(a) Remove the old spare static seal [18] from its groove on the lower bearing carrier [11].

(b) Install the new spare static seal [18] in its groove on the lower bearing carrier [11].

SUBTASK 32-11-21-420-008

(7) Install the two spare dynamic seals [17], two brown backup rings [29], and two white backup rings [28].

(a) Install the first spare dynamic seal [17] at the top of its groove on the lower bearing carrier [11].

(b) Apply a thin layer of fluid, D00467, or AFS-682 lubricant, D00589, to the brown backup ring [29], and white backup ring [28].

NOTE: The AFS-682 lubricant, D00589, will help keep the brown backup ring [29] and white backup ring [28] in their positions.

(c) Install the brown backup ring [29] and white backup ring [28] between the first spare dynamic seal [17] installed, with the rounded edge of the white backup ring [28] against the seal.

(d) Install the second spare dynamic seal [17] from its groove in the lower bearing carrier [11], with the edge overlaps to the first spare dynamic seal [17] installed.

SUBTASK 32-11-21-900-006

(8) Install the new spare static seal [16] on the lower bearing carrier [11].

(a) Remove the old spare static seal [16] from its groove on the lower bearing carrier [11].

(b) Install the new spare static seal [16] in its groove on the lower bearing carrier [11].

SUBTASK 32-11-21-900-007

(9) Install the new active static seal [15] on the lower bearing carrier [11].

(a) Remove the two brown rings from around the active static seal [15].

(b) Make sure that the brown rings are serviceable.

NOTE: The recommended installation is to replace all the old brown rings with new brown rings. Use the old brown rings only after a full inspection, and new rings are not available.

1) Install new brown rings if there are nicks, scratches, or other damage.

(c) Remove the old active static seal [15] from its groove on the lower bearing carrier [11].

(d) Install the new active static seal [15] in its groove on the lower bearing carrier [11].

(e) Apply a thin layer of fluid, D00467, or AFS-682 lubricant, D00589, to the brown rings.

NOTE: The AFS-682 lubricant, D00589, will help keep the brown rings in their positions.



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(f) Install the brown rings on the new active static seal [15] with the rounded edge of the brown rings against the active static seal [15].

SUBTASK 32-11-21-900-008

(10) Install the new active dynamic seal [14] in the lower bearing carrier [11].

(a) Remove the cap, active dynamic seal [14], and backup ring from the inner groove for the dynamic seal.

CAUTION

DO NOT APPLY VASELINE OR PETROLATUM TO THE SEALS. THIS CAN CAUSE THE SEAL MATERIAL TO BECOME LARGER. DAMAGE TO THE SEALS CAN OCCUR.

(b) Apply AFS-682 lubricant, D00589, to the active dynamic seal [14] to help keep the seal parts together.

(c) Install the backup ring part of the new active dynamic seal [14] in the inner groove for the active dynamic seal [14].

1) Put the backup ring in position toward the bottom end of the shock strut [1] with the curved corners of the backup ring against the active dynamic seal [14] (Figure 801).

(d) Install the seal part of the new active dynamic seal [14] in inner groove for the active dynamic seal [14].

(e) Install the cap part of the new active dynamic seal [14].

SUBTASK 32-11-21-420-009

(11) Install the seal retainer [22] or optional seal retainer, SPL-13151 (seal retainer, SPL-13151 [66]).

NOTE: You may use optional seal retainer, SPL-13151 (seal retainer, SPL-13151 [66]), to help correctly install the dynamic seal

(a) Install the production seal retainer [22].

1) Put the seal retainer [22] in its position on the lower bearing carrier [11].

2) Install the retainer pins [21] to connect the seal retainer [22] to the lower bearing carrier [11].

3) Install the O-ring [13] to hold the retainer pins [21] in their position.

(b) Install the optional seal retainer, SPL-13151 (seal retainer, SPL-13151 [66]).

1) Put the seal retainer, SPL-13151 (seal retainer, SPL-13151 [66]), in its position on the lower bearing carrier [11].

2) Install the pin retainer, SPL-13152 (retainer pin, SPL-13152 [67]), to connect the seal retainer, SPL-13151 (seal retainer, SPL-13151 [66]), to the lower bearing carrier [11].

3) Install the o-ring, SPL-13153 (O-ring, SPL-13153 [68]), to hold the pin retainer, SPL-13152 (retainer pin, SPL-13152 [67]), in position.



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SUBTASK 32-11-21-840-004

**WARNING** USE A MINIMUM OF FOUR PERSONS TO HOLD THE INNER CYLINDER WHEN YOU DO THE SUBSEQUENT STEPS. THE INNER CYLINDER WEIGHS APPROXIMATELY 320 LB (145 KG). INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT CAN OCCUR IF YOU DO NOT HOLD THE INNER CYLINDER CORRECTLY.

(12) Hold the inner cylinder [12] in a vertical position.

NOTE: If necessary, attach a strap to the inner cylinder [12] to assist with holding in a vertical position.

SUBTASK 32-11-21-480-013

(13) Install the sleeve, SPL-1348 (sleeve, SPL-1348 [60]), at the top of the inner cylinder [12].

SUBTASK 32-11-21-020-023

(14) Install the lower bearing carrier [11].

NOTE: You can install the lower bearing carrier [11] onto the sleeve, SPL-1348 (sleeve, SPL-1348 [60]), at the workbench and then install the sleeve, SPL-1348 (sleeve, SPL-1348 [60]), with the lower bearing carrier [11] onto the top of the cylinder.

**CAUTION** MAKE SURE THAT THE BACKUP RINGS AND THE SEAL STAY TOGETHER WHEN YOU INSTALL THE SEAL. IF THE BACKUP RINGS AND THE SEAL MOVE APART, THEY WILL NOT INSTALL CORRECTLY. THIS CAN CAUSE DAMAGE TO THE SEAL AND THE BACKUP RINGS.

(a) Put the lower bearing carrier [11] in its position for installation on the inner cylinder [12].

(b) Use a rubber mallet, STD-3906, and lightly hit the top of the lower bearing carrier [11] until it passes the sleeve, SPL-1348 (sleeve, SPL-1348 [60]).

(c) Use the ram assembly, SPL-1349 (ram assembly, SPL-1349 [62]), to push the lower bearing carrier [11] down to the inner cylinder [12].

NOTE: A 1 in. (25 mm) webbing may be used to help move the ram assembly, SPL-1349 (ram assembly, SPL-1349 [62]).

NOTE: Leave enough room for the installation of the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).

SUBTASK 32-11-21-020-024

(15) Remove the ram assembly, SPL-1349 (ram assembly, SPL-1349 [62]), and sleeve, SPL-1348 (sleeve, SPL-1348 [60]), from the inner cylinder [12].

(a) If you used optional seal retainer, SPL-13151 (seal retainer, SPL-13151 [66]), for the installation, then remove the o-ring, SPL-13153 (O-ring, SPL-13153 [68]), pin retainer, SPL-13152 (retainer pin, SPL-13152 [67]), and seal retainer, SPL-13151 (seal retainer, SPL-13151 [66]).

(b) After you remove the optional seal retainer, SPL-13151 (seal retainer, SPL-13151 [66]), look down into the lower bearing carrier [11] and examine the dynamic seal.

1) Make sure that the dynamic seal and cap should appear fully seated.

(c) Install the production seal retainer [22], retainer pins [21], and O-ring [13] onto the lower bearing carrier [11].

SUBTASK 32-11-21-420-010

(16) Put the spacer [10] down the inner cylinder [12] and on top of the lower bearing carrier [11].



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SUBTASK 32-11-21-420-011

(17) Install the recoil valve [57] on the inner cylinder [12].

SUBTASK 32-11-21-420-012

(18) Install the upper bearing carrier [9].

(a) Install the upper bearing carrier [9] halves on the inner cylinder [12].

(b) Install the piston ring [56] to hold the upper bearing carrier [9] halves around the inner cylinder [12].

(c) Install one of the upper bearings [55] on the lower groove of the upper bearing carrier [9] halves, with the split about 90 degrees from the split of the upper bearing carrier [9] halves.

1) Make an overlap of 0.25 in. (0.64 cm) to the upper bearing [55] to keep their round shape.

(d) Install the other upper bearing [55] on the top groove of the upper bearing carrier [9] halves, with the split opposite the split of the first upper bearing [55] installed.

SUBTASK 32-11-21-420-013

(19) Install the upper sleeve assembly, SPL-1345 (upper sleeve assembly, SPL-1345 [63]).

(a) Install the upper sleeve assembly, SPL-1345 (upper sleeve assembly, SPL-1345 [63]), such that it fits at the bottom of the outer cylinder [8].

(b) Install the strap assembly, SPL-3927 (strap assembly, SPL-3927 [47]), around the outer cylinder [8] and connect the ends to the shoulder bolts on the side of the upper sleeve assembly, SPL-1345 (upper sleeve assembly, SPL-1345 [63]).

1) Tighten the strap assembly, SPL-3927 (strap assembly, SPL-3927 [47]).

SUBTASK 32-11-21-420-014

**CAUTION**

MAKE SURE THAT YOU PUT THE INNER AND OUTER CYLINDER TOGETHER CAREFULLY. THE NEW SEALS CAN CATCH ON THE OUTER CYLINDER, OR THE INNER AND OUTER CYLINDERS CATCH WHEN YOU ASSEMBLE THEM. THIS CAN CAUSE DAMAGE TO THE EQUIPMENT.

(20) Slowly lift the inner cylinder [12] with the axle jack such that the inner cylinder [12] goes into the outer cylinder [8] (TASK 07-10-03-580-801).

(a) Leave enough chrome visible on the inner cylinder [12] such that you can install the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).

SUBTASK 32-11-21-080-006

(21) Remove the upper sleeve assembly, SPL-1345 (upper sleeve assembly, SPL-1345 [63]), from the outer cylinder [8] after it goes on the upper bearing carrier [9].

SUBTASK 32-11-21-420-015

(22) Carefully put the thread protector, SPL-1344 (thread protector, SPL-1344 [48]), between the outer cylinder [8] and inner cylinder [12].

NOTE: The thread protector, SPL-1344 (thread protector, SPL-1344 [48]), will expand and push against the outer cylinder [8]. This will protect the static seals from the gland nut [19] threads on the outer cylinder [8].

SUBTASK 32-11-21-480-014

(23) Install the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

(a) Install the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), around the inner cylinder [12], such that it fits at the bottom of the outer cylinder [8].



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(b) Tighten the retainer screws on each side of the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

(c) Move the two retainer plates for the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), such that it does not touch the chrome surface of the inner cylinder [12].

(d) Install the strap assembly, SPL-3927 (strap assembly, SPL-3927 [47]), around the outer cylinder [8] and connect the ends to the shoulder bolts on each side of the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

SUBTASK 32-11-21-480-015

(24) Install the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).

(a) Loosely install the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), around the inner cylinder [12], such that its below the lower bearing carrier [11].

(b) Align the holes in the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), with the holes in the lower bearing carrier [11] for the carrier puller screws [52].

(c) Put the carrier puller screws [52] through the holes in the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), and in the lower bearing carrier [11].

(d) Tighten the carrier puller screws [52] to attach the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), to the lower bearing carrier [11].

(e) Tighten the retainer screws on each side of the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).

SUBTASK 32-11-21-580-021

(25) Slowly lower the airplane so that the top of the lower bearing carrier [11] is approximately 1 in. (3 cm) to 3 in. (8 cm) from the bottom of the outer cylinder [8].

(a) If the seals were replaced on one side only, then depressurize the opposite shock strut [1] before the airplane is lowered.

SUBTASK 32-11-21-580-007

(26) Lift the inner cylinder [12] slowly with the axle jack or transportation equipment, SPL-8264, until the bottom of the lower bearing carrier [11] is approximately 1.5 in. (3.8 cm) from the bottom of the outer cylinder [8] (TASK 07-10-03-580-801).

(a) Make sure that the static seals stay in their positions as the lower bearing carrier [11] is installed.

SUBTASK 32-11-21-080-007

(27) Remove the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

(a) Remove the strap assembly, SPL-3927 (strap assembly, SPL-3927 [47]), that holds the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]), to the outer cylinder [8].

(b) Loosen the retainer screws and remove the retainer assembly, SPL-1343 (retainer assembly, SPL-1343 [49]).

SUBTASK 32-11-21-080-008

(28) Remove the thread protector, SPL-1344 (thread protector, SPL-1344 [48]), from the outer cylinder [8].

SUBTASK 32-11-21-480-016

(29) Remove the spacer assembly, SPL-1340 (spacer assembly, SPL-1340 [51]), from around the gland nut [19].



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SUBTASK 32-11-21-080-009

(30) Remove the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]).

(a) Remove the carrier puller screws [52] to disconnect the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), from the lower bearing carrier [11].

(b) Loosen the retainer screws and pull the carrier puller assembly, SPL-1341 (carrier puller assembly, SPL-1341 [50]), out of the outer cylinder [8].

SUBTASK 32-11-21-620-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(31) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

(a) The threads and thread reliefs of the bolts [26].

(b) The threads of the nuts [24].

(c) The splines and faces of the washers [25].

SUBTASK 32-11-21-620-006

(32) Apply a large quantity of corrosion inhibiting material, G50136, to the threads of the gland nut [19] and to the threads of the outer cylinder [8].

SUBTASK 32-11-21-160-002

(33) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-11-21-420-016

(34) Install the gland nut [19].

(a) Move the gland nut [19] up to the outer cylinder [8] and engage the gland nut [19] threads.

(b) Use the landing gear gland nut hook spanner, SPL-10997, to torque the gland nut [19] to 125 ft-lb (169 N·m) - 150 ft-lb (203 N·m).

(c) Install the lockplate [23] in the holes that will put the tab of the lockplate [23] as close to a slot in the gland nut [19] as possible.

1) If it is necessary, loosen the gland nut [19] a small quantity to help with the alignment.

(d) Install the bolts [26], washers [25], and nuts [24].

(e) Remove excess corrosion inhibiting material, G50136, from gland nut [19] and lock plate.

## J. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-21-420-017

(1) Before you connect the electrical connector [42] and wiring assembly [43], examine the electrical connector [42] for corrosion.



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**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, correct the problem (SWPM 20-60-03).

(b) Apply D5026NS or ZC-026 compound, G50171, to the electrical connector [42] (SWPM 20-60-03).

SUBTASK 32-11-21-420-061

(2) Connect the wiring assembly [43] and electrical connector [42].

(a) Put the wiring assembly [43] into the inner cylinder [12] and axle [40].

(b) Torque the fitting [41] to 70 in-lb (7.9 N·m) - 90 in-lb (10.2 N·m) to connect the electrical connector [42] to the inner cylinder [12].

(c) Install lockwire on the fitting [41].

(d) Put the electrical connector [42] in its position for attachment to the clamps [46] on the bracket.

(e) Install the washers [45] and screws [44] to hold the electrical harness to the clamps [46].

SUBTASK 32-11-21-420-053

(3) Lower the inner cylinder [12] with the MLG axle jack to install the brake assembly and wheel-tire assembly.

SUBTASK 32-11-21-420-059

(4) Remove the rope that holds the disconnected end of the upper torsion link to the outer cylinder [8].

SUBTASK 32-11-21-420-060

(5) Do this task: Main Landing Gear Torsion Link Connection, TASK 32-11-51-400-803.

SUBTASK 32-11-21-420-054

(6) Do this task: Main Landing Gear Brake Installation, TASK 32-41-41-400-801.

NOTE: This procedure will also install the wheel and tire assemblies.

(a) Make sure that you connect the correct wires to the correct in-axle assembly.

SUBTASK 32-11-21-420-019

(7) Do this task: Antiskid Wheel Speed Transducer Installation, TASK 32-42-11-400-801.

SUBTASK 32-11-21-730-003

(8) Do this task: Tire and Brake Monitoring System - System Test, TASK 32-46-00-730-801.

SUBTASK 32-11-21-860-019

(9) If seals were replaced on one side only, then depressurize the opposite shock strut before the airplane is lowered.

NOTE: This is to ensure symmetrical loading at the jackpoints as the airplane lowers to the ground.



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SUBTASK 32-11-21-860-020

(10) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-11-21-420-020

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(11) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

SUBTASK 32-11-21-420-023

(12) Install the dust cap [5] loosely.

SUBTASK 32-11-21-600-002

(13) Do this task: Main Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-31-610-802.

SUBTASK 32-11-21-700-001

(14) Do this task: Transducer Operational Test, TASK 32-42-00-710-803.

**——— END OF TASK ———**

**TASK 32-11-21-960-803**

## 4. Scraper Ring Replacement

(Figure 801, Figure 802, Figure 803)

### A. General

(1) Use the task to replace a damaged scraper ring [20] with a split scraper ring [20]. This task is done when replacement of the scraper ring [20] is necessary and removal of the inner cylinder [12] is not possible.



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(2) It is acceptable to operate the aircraft with a missing section of the energizer ring or other damage to the scraper ring. The scraper ring should be replaced with a new solid scraper ring or split scraper ring at the earliest maintenance opportunity to avoid excessive damage to the dynamic seal. If you do not have a split scraper ring available, you can cut a solid scraper ring or the damaged scraper ring to re-install it.

NOTE: The installation of a split scraper ring is also a temporary repair and should also be replaced at the earliest maintenance opportunity.

**B. References**

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-11-51-020-801 | Main Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-11-51-400-803 | Main Landing Gear Torsion Link Connection (P/B 401) |
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1829 | Valve - Drain, Landing Gear Shock Strut Oil<br>Part #: J32108-16 Supplier: 81205<br>Opt Part #: A32066-1 Supplier: 81205 |
| SPL-9507 | Replacement Equipment - Lower Bearing Seals, MLG<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-10997 | Adapter Assy - Wrench, Hook Spanner<br>Part #: F80033-8 Supplier: 81205 |
| STD-1110 | Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter) |
| STD-1140 | Hose - Flexible, 1/2 Inch ID, BMS 3-11 Resistant, 10 Foot |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| D00589 | Lubricant - Hydraulic Assembly - AFS-682 | |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 20 | Scraper ring | 32-11-21-01-100 | SIA ALL |


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(Continued)

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 20 (cont.) | | 32-11-21-01-105 | SIA ALL |

**F. Location Zones**

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

**G. Prepare for the Replacement**

SUBTASK 32-11-21-910-001

**WARNING** MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-11-21-730-001

(2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-11-21-730-002

(3) Operate the brakes eight times to remove pressure from the brake accumulator.

SUBTASK 32-11-21-580-008

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(4) Set the wing jacks correctly to keep the airplane level prior to deflating the Main Landing Gear (MLG) shock strut [1] (TASK 07-10-01-580-801).

NOTE: The airplane is to be lifted further in a subsequent step.

SUBTASK 32-11-21-760-001

(5) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |


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(Continued)

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

## H. Scraper Ring Replacement

SUBTASK 32-11-21-610-001

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(1) Deflate the shock strut [1] for the main landing gear (Figure 801).

(a) Remove the dust cap [2] for the gas charging valve [3].

(b) Loosen the swivel nut [4] a maximum of two turns.

1) Deflate the shock strut [1] slowly to prevent the leakage of the fluid through the gas charging valve [3].

NOTE: Fluid in the shock strut [1] will have bubbles when you release the pressure.

(c) Loosen the swivel nut [4] fully when all of the pressure in the shock strut [1] is released.

SUBTASK 32-11-21-610-002

(2) Drain the oil from the shock strut [1] for the main landing gear.

(a) Remove the dust cap [5] from the oil charging valve [6].

(b) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110, in a position to catch the shock strut fluid when the oil charging valve [6] is opened.

(c) Install the drain equipment on the oil charging valve [6].

1) Install the landing gear shock strut drain valve, SPL-1829, on the oil charging valve [6] to drain the shock strut [1].

2) If you wish to drain the shock strut [1] with a quicker method, do these steps as follows:

a) Cut a length of plastic ten foot hose (1/2 inch ID), STD-1140, long enough to reach the container on the floor.

b) Insert a small Allen wrench in the end of the length of tubing, such that the end of the long part of the Allen wrench is flush with the end of the tube and the short part penetrates the side wall of the tube.

c) Install the ten foot hose (1/2 inch ID), STD-1140, on the oil charging valve [6] such that the Allen wrench goes into the oil charging valve [6] and holds it open to drain the hydraulic fluid.

(d) Remove the drain equipment when you have removed all of the shock strut oil.

SUBTASK 32-11-21-580-009

(3) Lift the airplane until there is approximately 5 in. (127 mm) of chrome exposed on the inner cylinder [12] after the gland nut [19] has been removed (TASK 07-10-01-580-801).



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SUBTASK 32-11-21-020-027

(4) Do this task: Main Landing Gear Brake Removal, TASK 32-41-41-000-801.

NOTE: This procedure will also remove the wheel and the tire assemblies. Also, this will give better access to the inner cylinder [12] and outer cylinder [8].

SUBTASK 32-11-21-020-025

(5) Do this task: Main Landing Gear Torsion Link Disconnection, TASK 32-11-51-020-801.

SUBTASK 32-11-21-020-026

(6) Use rope to hold the disconnected end of the upper torsion link and attach it to the outer cylinder [8].

NOTE: This step will hold the upper torsion link in its position when you do the subsequent steps.

SUBTASK 32-11-21-580-010

(7) Use axle jack to hold the inner cylinder [12] in its position in the outer cylinder [8] (TASK 07-10-03-580-801).

SUBTASK 32-11-21-020-028

(8) Remove the gland nut [19]:

(a) Remove the bolts [26], washers [25], and nuts [24] for the lockplate [23] to release the gland nut [19].

(b) Wrap a cloth around the chrome surface of the inner cylinder [12].

NOTE: This will prevent damage to the inner cylinder [12] when the gland nut [19] moves down.

(c) Use the landing gear gland nut hook spanner, SPL-10997, to remove the gland nut [19] from the outer cylinder [8].

1) Loosen the gland nut [19] until it is disconnected from the outer cylinder [8].

a) Do not move the gland nut [19] down the inner cylinder [12].

(d) Lower the axle jack until the gland nut [19] is approximately 3 in. (7.6 cm) below the outer cylinder [8].

SUBTASK 32-11-21-020-029

(9) Remove the damaged scraper ring [20], but do not damage the inner cylinder [12] or the lower bearing carrier [11] in the removal process.

SUBTASK 32-11-21-640-004

(10) Lubricate the replacement wave cut split scraper ring [20] with fluid, D00467, or AFS-682 lubricant, D00589.

SUBTASK 32-11-21-420-049

(11) Install the wave cut split scraper ring [20] with a scraper ring plunger (lower bearing seal replacement equipment, SPL-9507, C32064-9), into the gland nut [19].



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SUBTASK 32-11-21-400-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(12) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

(a) The threads and thread reliefs of the bolts [26].

(b) The threads of the nuts [24].

(c) The splines and faces of the washers [25].

(13) Apply a liberal amount of corrosion inhibiting material, G50136, to the threads of the gland nut [19] and to the threads of the outer cylinder [8].

SUBTASK 32-11-21-160-005

(14) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-11-21-400-002

(15) Install the gland nut [19].

(a) Move the gland nut [19] up to the outer cylinder [8] and engage the gland nut [19] threads.

(b) Use the landing gear gland nut hook spanner, SPL-10997, to torque the gland nut [19] to 125 ft-lb (169 N·m) - 150 ft-lb (203 N·m).

SUBTASK 32-11-21-400-003

(16) Install the lockplate [23] for the gland nut [19].

(a) Install the lockplate [23] in the holes that will put the tab of the lockplate [23] as close to a slot in the gland nut [19] as possible.

1) If it is necessary, loosen the gland nut [19] a small amount to help with the alignment.

(b) Install the bolts [26], washers [25] and nuts [24].

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-21-020-051

(1) Remove the rope that holds the disconnected end of the upper torsion link to the outer cylinder [8].

SUBTASK 32-11-21-400-005

(2) Do this task: Main Landing Gear Torsion Link Connection, TASK 32-11-51-400-803.

SUBTASK 32-11-21-400-004

(3) Do this task: Main Landing Gear Brake Installation, TASK 32-41-41-400-801.

NOTE: This procedure will also install the wheel and tire assemblies.

SUBTASK 32-11-21-580-011

(4) Remove the axle jack (TASK 07-10-03-580-801).



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SUBTASK 32-11-21-580-012

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(5) Lower the airplane and remove the jacks (TASK 07-10-01-580-802).

SUBTASK 32-11-21-400-006

(6) Install the dust cap [5] loosely.

SUBTASK 32-11-21-610-003

(7) Do this task: Main Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-31-610-802.

SUBTASK 32-11-21-710-001

(8) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

**END OF TASK**

**TASK 32-11-21-200-801**

## 5. Main Landing Gear Shock Strut Seal Leakage Check

### A. General

(1) This task gives the instructions to make sure that the shock strut or upper shock strut is serviceable when you find fluid leakage on the inner cylinder. This task requires a repeated wipe and observation period in order to determine if there is leakage.

NOTE: The presence of a fluid film on the inner cylinder after landings is normal. For new landing gear, overhauled landing gear or when a seal change occurred, it is usual to have hydraulic fluid streaks on the shock strut during the initial landing cycles. These streaks are caused by the hydraulic fluid applied to the shock strut seals during seal installation and will stop after more landing cycles occur. The fluid film is different from the actual continuous drips that are the indication of shock strut seal leakage.



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**B. References**

| Reference | Title |
|---|---|
| 09-10-00-580-801 | Nose Gear Maintenance Towing (P/B 201) |
| 12-15-31-610-801 | Main Landing Gear Shock Strut Fluid Check (P/B 301) |
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 143 | Area Below Aft Cargo Compartment - Left |
| 144 | Area Below Aft Cargo Compartment - Right |
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

**D. Main Landing Gear Shock Strut Seal Leakage Check**

NOTE: If the inspection finds a fault on the scraper ring, you will have to replace the damaged scraper ring.

SUBTASK 32-11-21-480-017

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-11-21-210-001

(2) Examine the shock struts for leakage.

NOTE: A small quantity of hydraulic fluid that is isolated to the movable surface of the inner cylinder is not leakage.

SUBTASK 32-11-21-210-002

(3) If you find leakage of the shock strut fluid on the inner cylinder, do the steps that follow to make sure that the shock strut is serviceable:

(a) Do a check for leaks for 5 minutes.

1) Wipe the surface of the inner cylinder with a clean cloth to remove all of the fluid from the leak.

2) Monitor the inner cylinder where it meets the outer cylinder for 5 minutes.

3) Make sure that the extension of the inner cylinder does not change during this time.

4) Make a record of the location and the number of drops that come from the seals during the 5 minutes.

(b) Jack the inner gear cylinder by the gear jack pad or tow the airplane (TASK 09-10-00-580-801) to cause movement between the inner cylinder and the outer cylinder.

NOTE: If the airplane is towed, the minimum distance the airplane must be moved is two airplane lengths.

(c) Do a check for leaks for 5 minutes:



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1) Wipe the surface of the inner cylinder with a clean cloth to remove all of the fluid from the leak.

2) Monitor the inner cylinder where it meets the outer cylinder for 5 minutes.

NOTE: The extension of the inner cylinder must not be changed during this time.

3) Make a record of the location and the number of drops that come from the seals during the 5 minutes.

(d) Calculate the average of the number of drops that came from the seals during both of the 5 minute measurements.

SUBTASK 32-11-21-210-003

(4) If the leakage stopped, do the steps that follow:

(a) Continue to monitor the strut for leakage on subsequent landings.

1) If you see more signs of leakage, do the entire leak check procedure again.

NOTE: If you find a continuous leakage flow on subsequent landings, the shock strut is not serviceable.

CAUTION

IF THE AIRPLANE MADE A LANDING WITH A DEFLATED OR FLAT STRUT, DO THE HARD LANDING INSPECTION. MAKE SURE THAT NO DAMAGE OCCURRED. A DEFLATED OR FLAT STRUT CAN CAUSE DAMAGE DURING A LANDING.

(b) If you do not find leakage on subsequent landings, examine the fluid level of the shock strut within 5 days or 15 flight cycles (TASK 12-15-31-610-801).

NOTE: If the leakage has stopped and the fluid level is correct, there is no additional action necessary.

1) If the shock strut is deflated or flat, do this task: Reference Not Currently Available.

SUBTASK 32-11-21-210-004

(5) If there was leakage but the average was less than 50 drops during the two 5 minute periods, do the steps that follow:

NOTE: 20 drops is equal to 1.0 cc.

(a) Continue to monitor the strut for leakage on subsequent landings.

1) If you do not find leakage on subsequent landings, examine the fluid level of the shock strut within 3 days or 10 flight cycles (TASK 12-15-31-610-801).

NOTE: If the leakage has stopped and the fluid level is correct, there is no additional action necessary.

NOTE: If the leakage continues or increases, do the entire seal check again.

CAUTION

IF THE AIRPLANE MADE A LANDING WITH A DEFLATED OR FLAT STRUT, DO THE HARD LANDING INSPECTION. MAKE SURE THAT NO DAMAGE OCCURRED. A DEFLATED OR FLAT STRUT CAN CAUSE DAMAGE DURING A LANDING.

(b) If the leakage continues or increases, continue to monitor the fluid level of the shock strut at no more than 5 day or 15 flight cycle intervals, until you replace the seals (TASK 12-15-31-610-801).

1) If the shock strut is deflated or flat, do this task: Reference Not Currently Available.



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SUBTASK 32-11-21-210-005

(6) If the average leakage was more than 50 drops during the two 5 minute periods, but was not continuous, do these steps as follows:

NOTE: 20 drops is equal to 1.0 cc.

**CAUTION**

IF THE AIRPLANE MADE A LANDING WITH A DEFLATED OR FLAT STRUT, DO THE HARD LANDING INSPECTION. MAKE SURE THAT NO DAMAGE OCCURRED. A DEFLATED OR FLAT STRUT CAN CAUSE DAMAGE DURING A LANDING.

(a) Do this task: Main Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-31-610-802.

1) If the shock strut is deflated or flat, do this task: Reference Not Currently Available.

(b) Continue to monitor the fluid level of the shock strut after each flight until you replace the seals.

SUBTASK 32-11-21-210-006

(7) If the fluid leaked continuously during the 5 minute period, the shock strut is not serviceable and you must replace the shock strut seals.

**END OF TASK**



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## MAIN LANDING GEAR CORROSION PREVENTION - MAINTENANCE PRACTICES

### 1. General

A. The main landing gear (MLG) fittings, especially at the attachment lugs, can be susceptible to corrosion. Damaged paint finishes and plating are attributed to exposure to the weather elements and runway debris. Service wear and hard landings contribute to galling of lugs and lug faces.

B. Specific corrosion problems may be found with the aft center door hinge connecting the inner and center door. Corrosion can be attributed to the accumulation of debris in the recessed area of the attachments to the center door.

C. Damaged finishes on the outboard aft lug of the main landing gear upper strut can contribute to stress corrosion cracking of the steel strut.

D. Cracks and damaged finishes can be on the upper torsion link pins. Cracking can be attributed to stress corrosion.

E. Corrosion and flaking or missing chrome can be on the torsion link pins.

F. Stress corrosion cracking can be on the MLG brake assembly shear studs. Cracked or broken attaching shear studs can reduce the structural integrity of the brake attaching assembly.

**TASK 32-11-37-600-801**

### 2. Main Landing Gear Corrosion Prevention

#### A. References

| Reference | Title |
|---|---|
| SRM 51-10-02 | INSPECTION AND REMOVAL OF DAMAGE |

#### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G00009 | Compound - Organic Corrosion Inhibiting | BMS3-23 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Main Landing Gear Corrosion Prevention Practices

**SUBTASK 32-11-37-610-001**

(1) Do these steps to prevent corrosion in the main landing gear:

(a) Make regular inspections to prevent or find the start of corrosion.

NOTE: Fasteners that are gone, white powdery or other deposits are signs of corrosion.

(b) After you clean the areas, make sure that protective finishes stay serviceable.

(c) If you find corrosion (bulges of the skin or white deposits of corrosion materials at fastener heads or joint edges), refer to SRM SUBJECT 51-10-02 for details of corrosion removal.

(d) For small quantities of corrosion, to decrease the downtime of the airplane, do these steps:


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1) Clean off the corrosion materials.
2) Apply a corrosion inhibiting compound into the affected area to stop the corrosion process.
3) Repair the finish system when the maintenance schedule permits.

**E. Main Landing Gear Corrosion Prevention Treatment**

SUBTASK 32-11-37-610-002

(1) Do these steps for prevention treatment:

(a) At the next maintenance opportunity, corrosion prevention treatment should be accomplished to the main landing gear.

**CAUTION**

DO NOT APPLY CORROSION INHIBITING COMPOUND ON GREASED JOINTS OR SEALED BEARINGS. THESE COMPOUNDS DISSOLVE GREASE AND OTHER LUBRICANTS. THEY ARE PENETRATING COMPOUNDS AND CAN GET AROUND THE SEALS AND INTO THE BEARINGS.

(b) After application of corrosion inhibiting compound, all grease fittings in the treated areas should be greased.

(c) If you cleaned with steam or high pressure water and detergent, apply the corrosion inhibitor again.

(d) Shock Struts (Oleo):

1) Apply the water displacing corrosion inhibiting compound to exterior areas of the inner and outer cylinder with broken finish systems.
2) Spray all lugs, lug faces, connecting pin fasteners, and strut door attachments with corrosion inhibitor.

(e) Axles:

1) Apply the water displacing corrosion inhibiting compound to the outside surfaces of the axles, except the journal and bearing surfaces.
2) Make a suitable nozzle extension and spray the inside surfaces of the axles with corrosion inhibitor after protecting the electrical wire and connectors.

(f) Side Struts:

1) Apply the water displacing corrosion inhibiting compound to the surface areas with broken finish systems on the upper and lower side struts.
2) Spray all lugs, lug faces, connecting pins and fasteners with corrosion inhibitor.

(g) Walking Beam:

1) Apply the water displacing corrosion inhibiting compound to the surface areas with broken finish systems.

(h) Door Hinges:

1) Remove debris from the recessed areas of the door and apply the water displacing corrosion inhibiting compound to all hinge fittings.
2) Lubricate the hinge pins, if it is necessary, after application of the corrosion inhibitor.

(i) Miscellaneous:

1) Spray the lugs, lug faces and connecting pins of links, actuators and lock mechanisms connecting above mentioned components with the corrosion inhibitor.



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(j) Install mylar tape under the corrosion resistant steel clamps at overhaul to minimize risk of galvanic corrosion should the finish be damaged.

NOTE: This step is recommended.

## F. Main Landing Gear Corrosion Prevention Frequency of Application

SUBTASK 32-11-37-610-003

(1) Frequency of corrosion prevention application is as follows:

(a) Periodic inspection is necessary for areas identified as susceptible to corrosion and should be consistent to the schedules identified in the Maintenance Planning Document.

NOTE: Operators must be aware of reported problems and areas of occurrence.

**WARNING**

DO NOT GET THE CORROSION-INHIBITING COMPOUND ON YOUR SKIN, IN YOUR EYES, OR ON YOUR CLOTHES. THE COMPOUND IS POISONOUS AND FLAMMABLE. USE APPROVED GLOVES, AND EYE PROTECTION. MAKE SURE THAT THERE IS GOOD AIRFLOW IN THE WORK AREA. KEEP THE COMPOUND AWAY FROM SPARKS AND FLAMES. THE COMPOUND CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(b) Annual application of corrosion inhibiting compound, G00009, is necessary to areas identified or as required by washing cycles.

**WARNING**

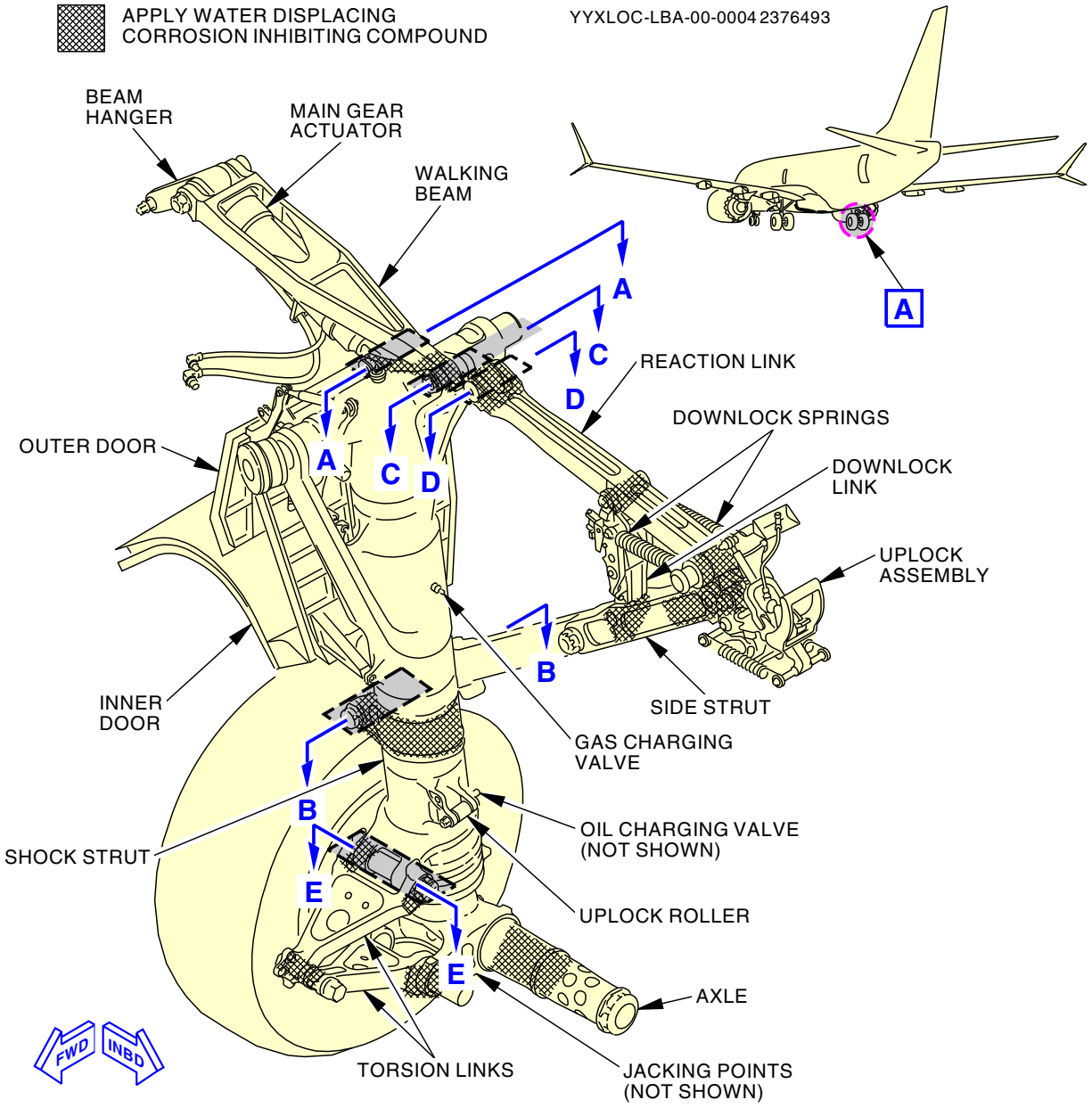
USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(c) Apply corrosion inhibiting material, G50136, to the areas identified as required.

**END OF TASK**



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**PREVENTIVE MAINTENANCE**
**LANDING GEAR**

**A**

**NOTE:**

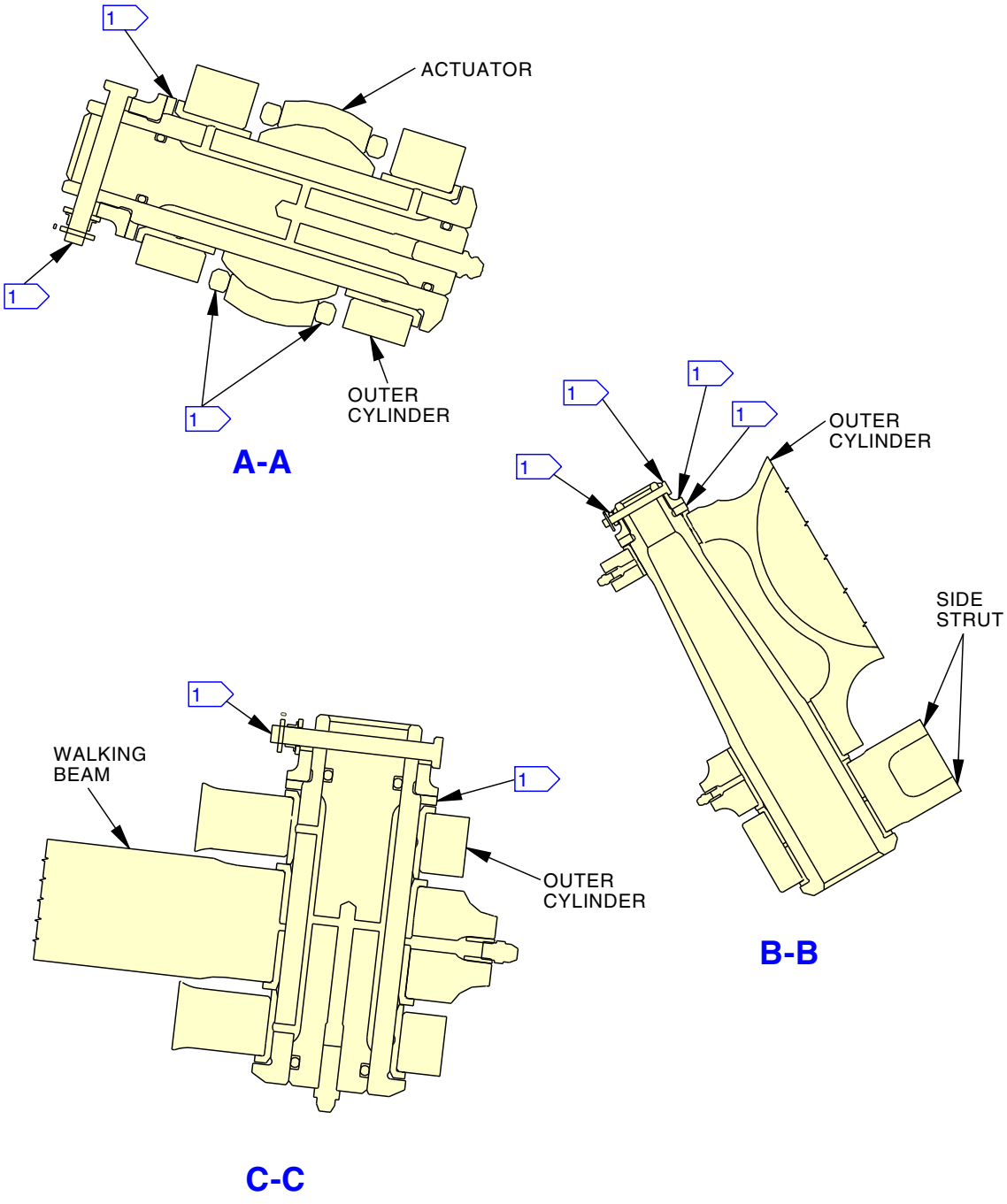
APPLY CORROSION INHIBITING COMPOUND (CIC) BMS3-23, TO EXPOSED OUTER SURFACES ONLY. DO NOT DISASSEMBLE PARTS TO APPLY CIC. DO NOT SPRAY INTO JOINTS, LINKAGES, PULLEYS, CABLES OR BEARINGS.

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**Main Landing Gear Corrosion Prevention**
**Figure 201/32-11-37-990-801 (Sheet 1 of 3)**



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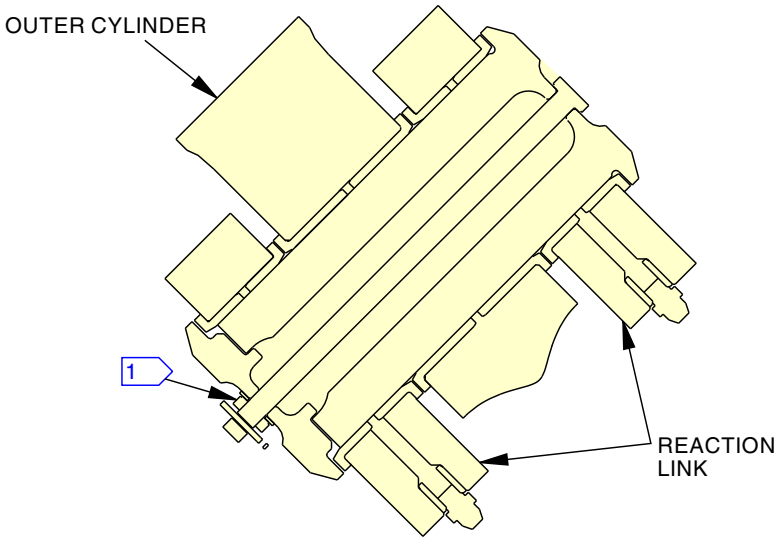

1 APPLY BMS 3-38 TO THESE AREAS.

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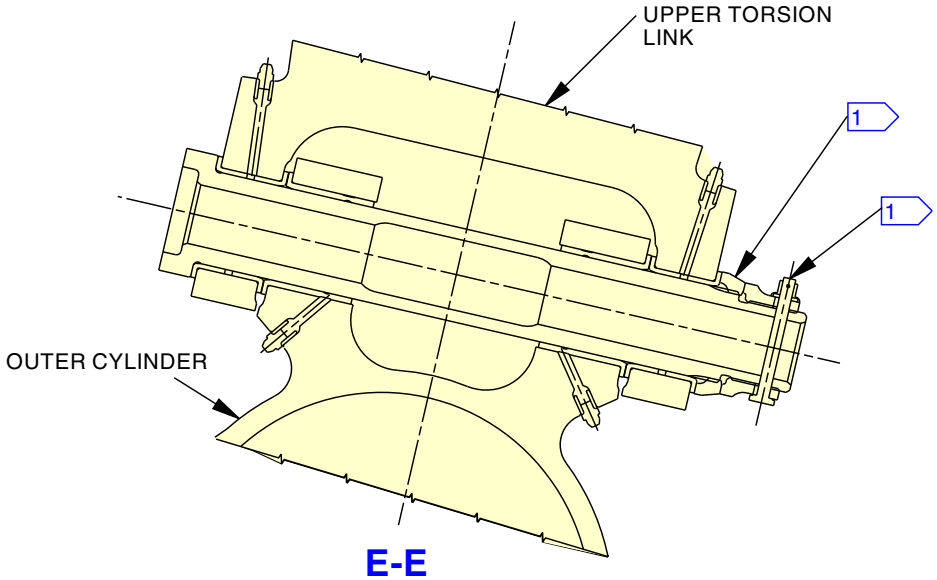
**Main Landing Gear Corrosion Prevention**
**Figure 201/32-11-37-990-801 (Sheet 2 of 3)**



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D-D




E-E

1 APPLY BMS 3-38 TO THESE AREAS.

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**Main Landing Gear Corrosion Prevention**
**Figure 201/32-11-37-990-801 (Sheet 3 of 3)**



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# MAIN LANDING GEAR TORSION LINKS - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the upper torsion link from the main landing gear

(2) A removal of the lower torsion link from the main landing gear

(3) The disconnection of the torsion links for the main landing gear

(4) An installation of the upper torsion link for the main landing gear

(5) An installation of the lower torsion link for the main landing gear

(6) The connection of the torsion links for the main landing gear

**TASK 32-11-51-000-801**

## 2. Main Landing Gear Upper Torsion Link Removal

(Figure 401)

### A. General

(1) This task provides instructions to remove the upper torsion link.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-11-81-000-804 | Main Landing Gear Shimmy Damper Removal (P/B 401) |
| 32-45-11-000-801 | Main Landing Gear Wheel and Tire Assembly Removal (P/B 401) |

### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Removal

**SUBTASK 32-11-51-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

**SUBTASK 32-11-51-020-002**

(2) Remove the left hand inboard or the right hand outboard tire of the main landing gear. To do this, do this task: Main Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-11-000-801.

### E. Main Landing Gear Upper Torsion Link Removal

**SUBTASK 32-11-51-020-003**

(1) Remove the support bracket [4] from the upper torsion link [5]:

NOTE: Remove the support bracket [4] with the sensor targets attached.

(a) Remove the nuts [2] and the washers [3] from the bolts [1].



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(b) Remove the bolts [1] that hold the support bracket [4] to the upper torsion link [5].

(c) Remove the washers [6] from the bolts [1].

(d) Remove the support bracket [4] from the work area.

**SUBTASK 32-11-51-020-004**

(2) Remove the bracket [19] from the upper torsion link [5]:

NOTE: Remove the bracket [19] with the electrical conduit and the clamps attached.

(a) Remove the nuts [10] and the washers [9] from the bolts [7].

(b) Remove the bolts [7] to disconnect the aft side of the bracket [19] from the upper torsion link [5].

(c) Remove the washers [8] from the bolts [7].

(d) Remove the nut [14], and the washer [13] from the bolt [21].

(e) Remove the bolt [21] to disconnect the forward side of the bracket [19] from the upper torsion link [5].

NOTE: Removal of the bolt [21] will also disconnect one side of the hose guide bracket [12] from the upper torsion link [5].

(f) Remove the washer [20] from the bolt [21].

(g) Isolate the bracket [19] from the upper torsion link [5].

**SUBTASK 32-11-51-020-005**

(3) Remove the hose guide bracket [12] from the upper torsion link [5]:

NOTE: Remove the hose guide bracket [12] with the hose guides and the brake hoses attached.

(a) Remove the nut [15] and the washer [16] from the bolt [18].

(b) Remove the bolt [18] to disconnect the hose guide bracket [12] from the upper torsion link [5].

(c) Remove the washer [17] from the bolt [18].

(d) Isolate the hose guide bracket [12] from the upper torsion link [5].

**SUBTASK 32-11-51-480-002**

(4) Use a rope to hold the forward side of the lower torsion link [22] to the outer cylinder [33].

NOTE: This step will hold the lower torsion link [22] in its position when you do the subsequent steps.

**SUBTASK 32-11-51-420-001**

(5) Disconnect the upper torsion link [5] and the lower torsion link [22]:

(a) Remove the cotter pin [26], nut [27], and the washer [25] from the bolt [23].

(b) Remove the bolt [23] and washer [69] from the apex pin [31].

(c) Remove the apex nut [24] from the apex pin [31].

(d) Remove the bracket [28] and the washer [29] and the tapered sleeve [54] from the apex pin [31].

(e) Isolate the bracket [28] from the apex joint.

NOTE: Isolate the bracket [28] with the electrical conduit and the clamps attached.

(f) Remove the apex pin [31] and straight sleeve [71] to disconnect the upper torsion link [5] from the lower torsion link [22].

(g) Remove the spacer [30] between the upper torsion link [5] and the lower torsion link [22].



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SUBTASK 32-11-51-020-001

(6) If necessary, remove the shimmy damper (TASK 32-11-81-000-804).

SUBTASK 32-11-51-020-006

(7) Disconnect the upper torsion link [5] from the outer cylinder [33]:

(a) Remove the cotter pin [38], nut [39], and the washer [37] from the bolt [35].

(b) Remove the bolt [35] from the upper torsion pin [32].

(c) Remove the nut [36] and the washer [34] from the upper torsion pin [32].

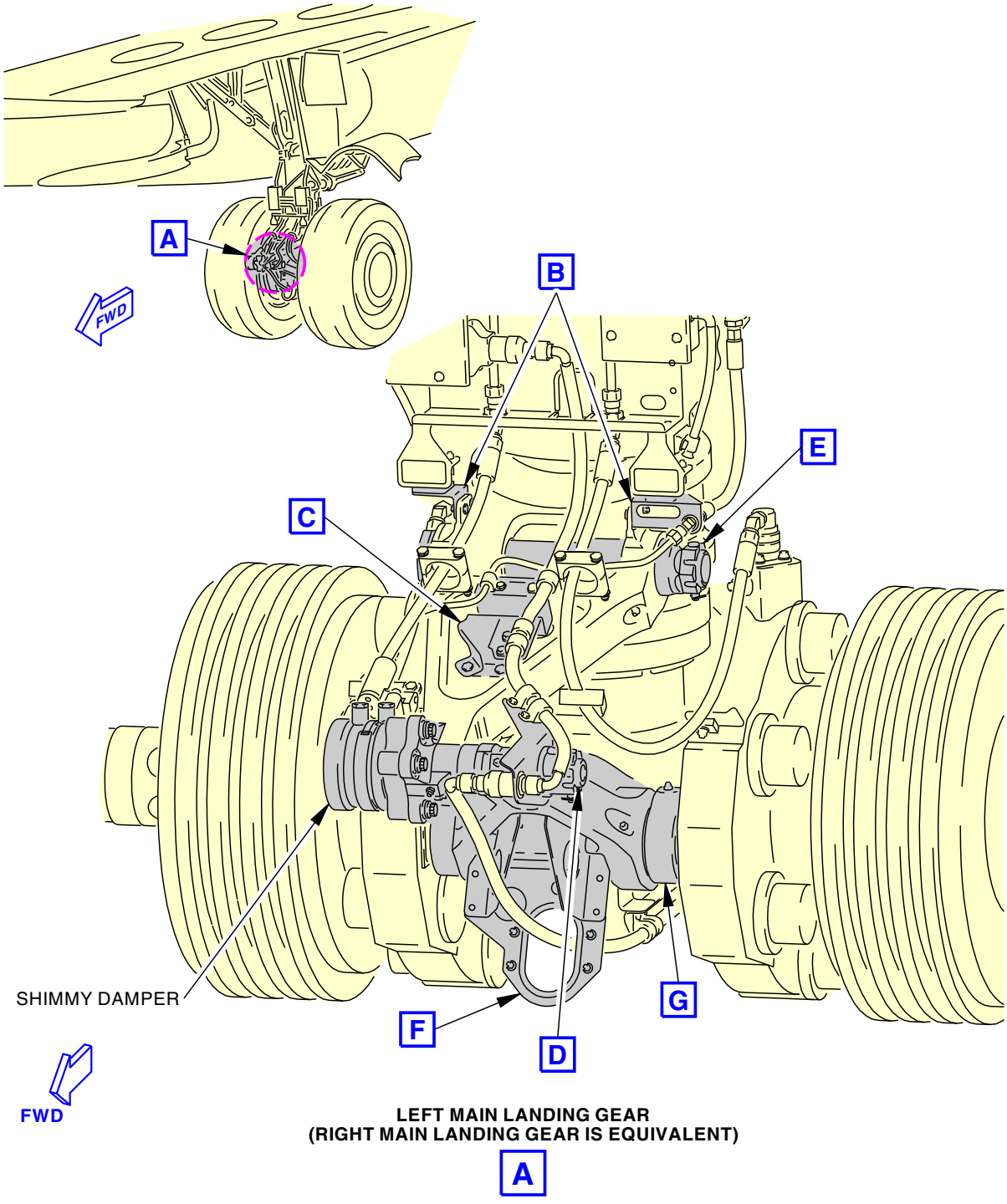
(d) Hold the upper torsion link [5] and remove the upper torsion pin [32] to disconnect the upper torsion link [5] from the outer cylinder [33].

(e) Remove the upper torsion link [5] from the airplane.

**END OF TASK**



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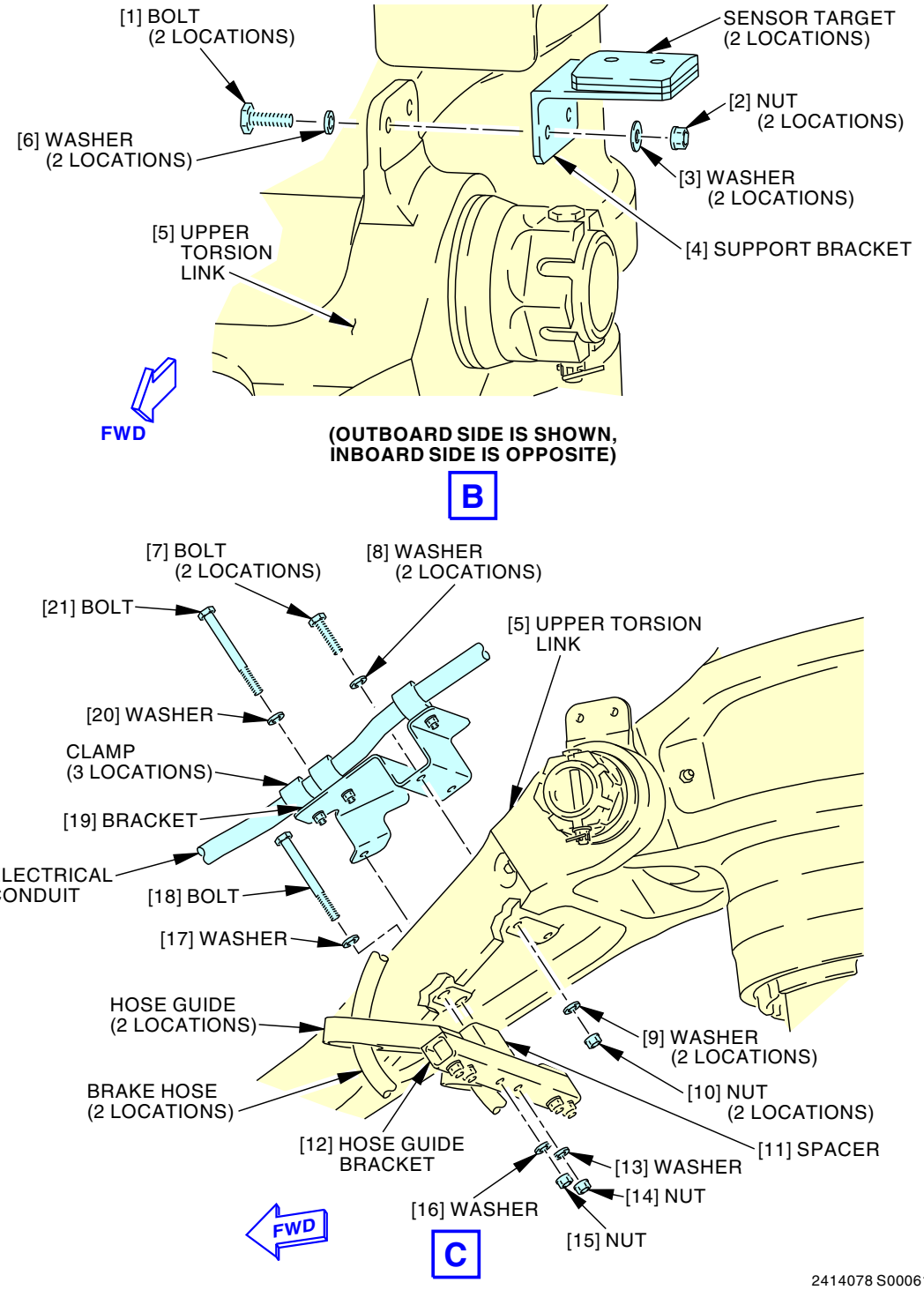



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**Main Landing Gear Torsion Link Installation**
**Figure 401/32-11-51-990-801 (Sheet 1 of 4)**



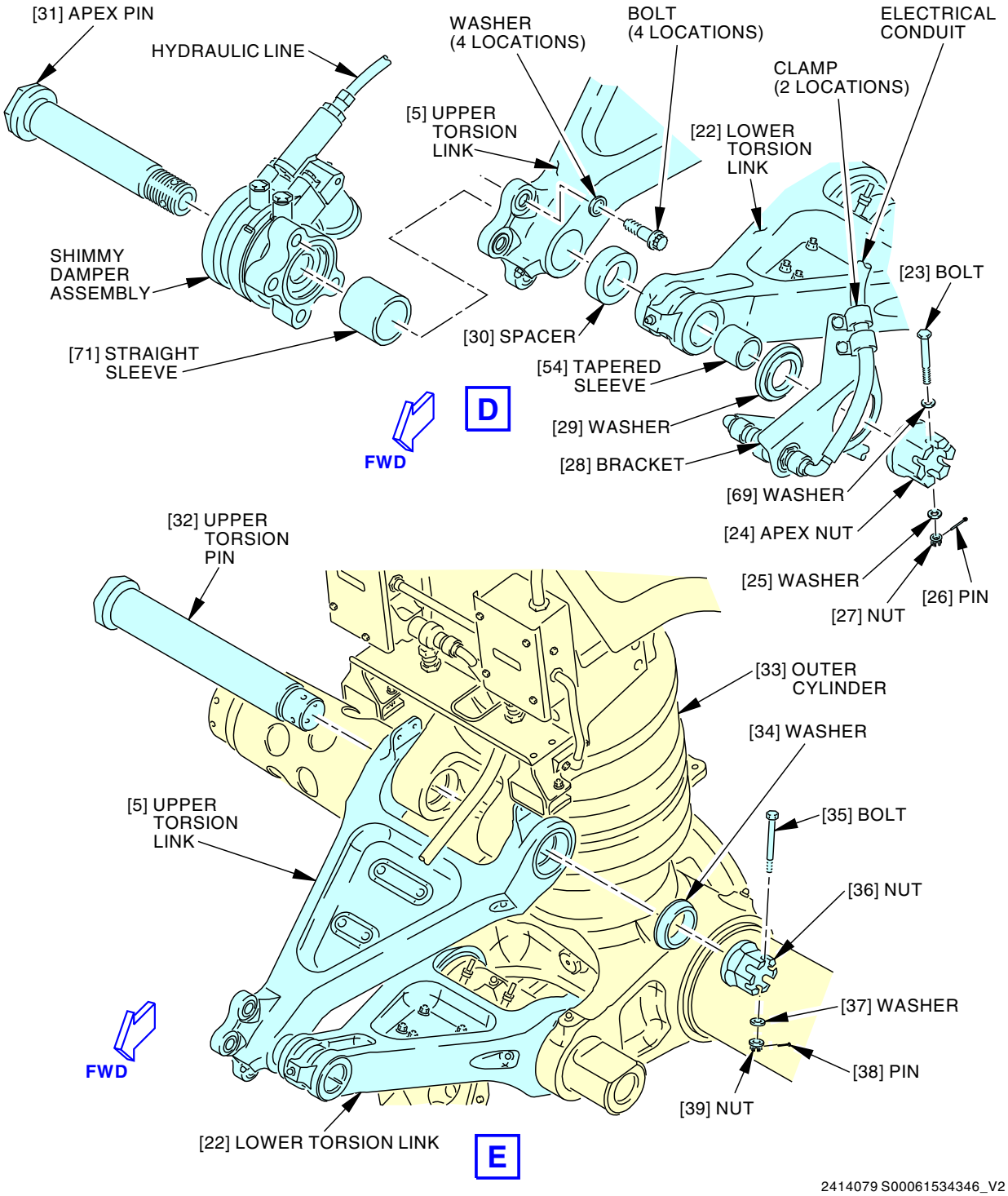
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**Main Landing Gear Torsion Link Installation**
**Figure 401/32-11-51-990-801 (Sheet 2 of 4)**



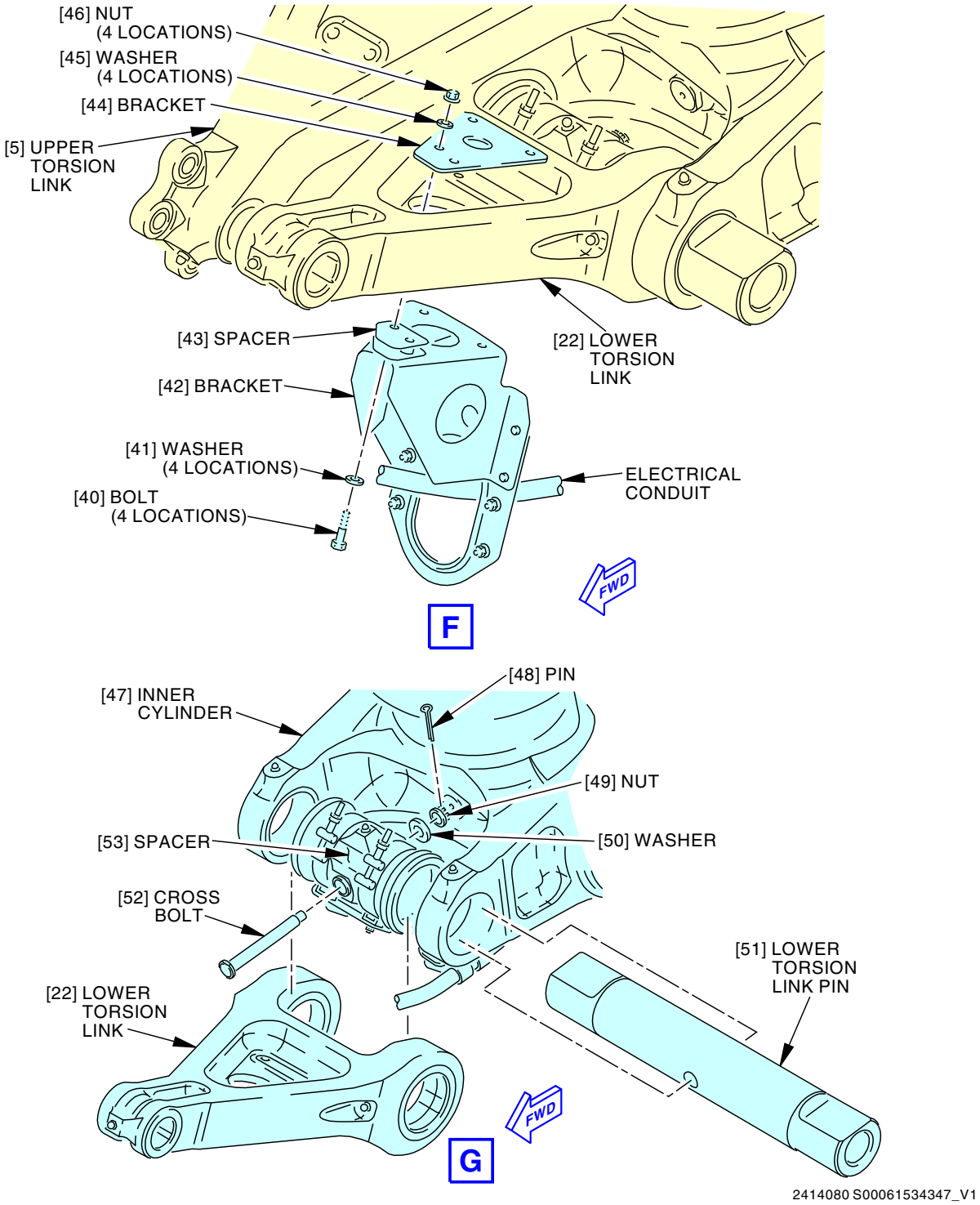
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**Main Landing Gear Torsion Link Installation**
**Figure 401/32-11-51-990-801 (Sheet 3 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Torsion Link Installation**
**Figure 401/32-11-51-990-801 (Sheet 4 of 4)**



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**TASK 32-11-51-000-802**

## 3. Main Landing Gear Lower Torsion Link Removal

(Figure 401)

### A. General

(1) This task provides instructions to remove the lower torsion link.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |

### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Removal

**SUBTASK 32-11-51-480-008**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-11-51-020-008**

(2) Do this task: Main Landing Gear Brake Removal, TASK 32-41-41-000-801.

NOTE: This procedure will also remove the wheel and tire assemblies.

### E. Main Landing Gear Lower Torsion Link Removal

**SUBTASK 32-11-51-020-009**

(1) Remove the bracket [42] and bracket [44] from the lower torsion link [22]:

NOTE: Remove the bracket [42] with the electrical conduit attached.

(a) Remove the nuts [46], and the washers [45] from the bolts [40].

(b) Remove the bolts [40] to disconnect the bracket [42], and bracket [44] from the lower torsion link [22].

(c) Remove the washers [41] from the bolts [40].

(d) Remove the bracket [44] and the spacer [43] from the lower torsion link [22].

(e) Isolate the bracket [42] from the lower torsion link [22].

**SUBTASK 32-11-51-480-004**

(2) Use a rope to hold the forward side of the upper torsion link [5] to the outer cylinder [33].

NOTE: This step will hold the upper torsion link [5] in its position when you do the subsequent steps.

**SUBTASK 32-11-51-420-002**

(3) Disconnect the upper torsion link [5] and the lower torsion link [22]:

(a) Remove the cotter pin [26], nut [27], and the washer [25] from the bolt [23].



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(b) Remove the bolt [23] and washer [69] from the apex pin [31].

(c) Remove the apex nut [24] from the apex pin [31].

(d) Remove the bracket [28] and the washer [29] and the tapered sleeve [54] from the apex pin [31].

(e) Isolate the bracket [28] from the apex joint.

NOTE: Isolate the bracket [28] with the electrical conduit and the clamps attached.

(f) Remove the apex pin [31] and straight sleeve [71] to disconnect the upper torsion link [5] from the lower torsion link [22].

(g) Remove the spacer [30] between the upper torsion link [5] and the lower torsion link [22].

SUBTASK 32-11-51-020-010

(4) Disconnect the lower torsion link [22] from the inner cylinder [47]:

(a) Remove the cotter pin [48], nut [49], and washer [50] from the cross bolt [52].

(b) Remove the cross bolt [52] that holds the lower torsion pin [51] to the spacer [53].

(c) Hold the lower torsion link [22] and remove the lower torsion pin [51] to disconnect the lower torsion link [22] from the inner cylinder [47].

SUBTASK 32-11-51-480-005

(5) Use a rope to hold the spacer [53] to the inner cylinder [47].

NOTE: This step will hold the spacer [53] in its position when you remove and install the lower torsion link [22] in the subsequent steps.

**——— END OF TASK ———**

**TASK 32-11-51-020-801**

## 4. Main Landing Gear Torsion Link Disconnection

(Figure 401)

### A. General

(1) This task provides instructions to disconnect the torsion links.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-45-11-000-801 | Main Landing Gear Wheel and Tire Assembly Removal (P/B 401) |

### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

### D. Prepare for Disconnection

SUBTASK 32-11-51-480-009

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-51-020-031

(2) Remove the left hand inboard or the right hand outboard tire of the main landing gear. To do this, do this task: Main Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-11-000-801.

### E. Main Landing Gear Torsion Link Disconnection

SUBTASK 32-11-51-420-003

(1) Disconnect the upper torsion link [5] and the lower torsion link [22]:

(a) Remove the cotter pin [26], nut [27], and the washer [25] from the bolt [23].

(b) Remove the bolt [23] and washer [69] from the apex pin [31].

(c) Remove the apex nut [24] from the apex pin [31].

(d) Remove the bracket [28] and the washer [29] and the tapered sleeve [54] from the apex pin [31].

(e) Isolate the bracket [28] from the apex joint.

NOTE: Isolate the bracket [28] with the electrical conduit and the clamps attached.

(f) Remove the apex pin [31] and straight sleeve [71] to disconnect the upper torsion link [5] from the lower torsion link [22].

(g) Remove the spacer [30] between the upper torsion link [5] and the lower torsion link [22].

**END OF TASK**

## TASK 32-11-51-400-801

## 5. Main Landing Gear Upper Torsion Link Installation

(Figure 401)

### A. General

(1) This task provides instructions to install the upper torsion link.

### B. References

| Reference | Title |
|---|---|
| 12-21-11-640-802 | Main Landing Gear Lower End Components Servicing (P/B 301) |
| 32-11-81-400-804 | Main Landing Gear Shimmy Damper Installation (P/B 401) |
| 32-45-11-400-801 | Main Landing Gear Wheel and Tire Assembly - Installation (P/B 401) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |



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(Continued)

| Reference | Description | Specification |
|---|---|---|
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Upper torsion link | 32-11-51-01-155 | SIA ALL |
| 26 | Cotter pin | 32-11-81-01-020 | SIA ALL |
| 38 | Cotter pin | 32-11-51-01-010 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**F. Main Landing Gear Upper Torsion Link Installation**

SUBTASK 32-11-51-620-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

(a) The threads and thread reliefs of the bolt [23], nut [27], apex nut [24], bolt [35], nut [39], and nut [36].

(b) The faces of the washer [25], washer [69], washer [29], and washer [37].

(c) The pin shank and threads of the apex pin [31].

(d) The inside diameter of spacer [30], tapered sleeve [54], and straight sleeve [71].

(e) The splines and faces of the washer [34].

(f) The new cotter pin [26] and new cotter pin [38].

SUBTASK 32-11-51-160-001

(2) Remove any excess corrosion inhibiting material, G50136.

SUBTASK 32-11-51-640-001

(3) Apply the lubricant grease, D00633 to the following parts and areas:

(a) Apply to the outside diameter of the tapered sleeve [54] and straight sleeve [71].

(b) The chrome plated surfaces of the upper torsion pin [32].

SUBTASK 32-11-51-160-002

(4) Remove all unwanted grease, D00633.

SUBTASK 32-11-51-420-004

(5) Connect the upper torsion link [5] to the outer cylinder [33]:

(a) Put the upper torsion link [5] in its position on the clevis of the outer cylinder [33].



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(b) Put the upper torsion pin [32] through the upper torsion link [5] and the clevis of the outer cylinder [33].

(c) Install the washer [34] and the nut [36] on the upper torsion pin [32].

(d) Tighten the nut [36] to 95 ft-lb (129 N·m) – 115 ft-lb (156 N·m).

(e) If it is necessary, loosen the nut [36] to the nearest castellation to align the holes for the bolt [35].

(f) Install the bolt [35] in the upper torsion pin [32].

(g) Install the washer [37] and the nut [39] on the bolt [35].

(h) Install the new cotter pin [38] in the bolt [35]. If it is necessary, loosen the nut [39] to the nearest castellation to align the hole for the new cotter pin [38].

**SUBTASK 32-11-51-080-001**

(6) Remove the rope that holds the lower torsion link [22] in its position to the outer cylinder [33].

**SUBTASK 32-11-51-420-009**

(7) If necessary, install the shimmy damper (TASK 32-11-81-400-804).

**SUBTASK 32-11-51-420-005**

(8) Connect the upper torsion link [5] and the lower torsion link [22]:

(a) Align the apex holes in the upper torsion link [5] and the lower torsion link [22].

(b) Put the spacer [30] in its position between the upper torsion link [5] and the lower torsion link [22].

(c) Put the apex pin [31] through the upper torsion link [5], straight sleeve [71], spacer [30], and the lower torsion link [22].

**CAUTION**

MAKE SURE THAT YOU INSTALL THE SLEEVES IN THE CORRECT LOCATIONS. IF YOU INSTALL THE SLEEVES IN THE INCORRECT LOCATIONS, VIBRATION CAN CAUSE DAMAGE TO COMPONENTS OF LANDING GEAR.

(d) Install the tapered sleeve [54] in the lower torsion link [22], the washer [29], and the bracket [28] on the apex pin [31].

NOTE: There may be a gap between the torsion link and the apex joint. This condition is part of a normal shimmy damper installation.

NOTE: The shimmy damper installation has a straight sleeve and a tapered sleeve. The straight sleeve is longer than the tapered sleeve.

(e) Install the apex nut [24] on the apex pin [31].

(f) Tighten the apex nut [24] to 50 ft-lb (67.8 N·m) – 58 ft-lb (78.6 N·m).

1) Advance the apex nut [24] to the nearest castellation that aligns with the hole in the apex pin [31]. The final torque must not be more than 150 ft-lb (203.4 N·m).

(g) Install the retention bolt [23] and washer [69] through the apex nut [24] and the apex pin [31].

(h) Install the washer [25] and the nut [27] on the bolt [23].

(i) Install the new cotter pin [26] in the bolt [23]. If it is necessary, loosen the nut [27] to the nearest castellation to align the hole for the new cotter pin [26].

**SUBTASK 32-11-51-420-006**

(9) Connect the hose guide bracket [12] to the upper torsion link [5]:



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136 to the bolt [18], washer [16], washer [17], and nut [15].

(b) Install the washer [17] on the bolt [18].

(c) Put the hose guide bracket [12] in its position below the upper torsion link [5].

(d) Put the spacer [11] in its position between the hose guide bracket [12], and the upper torsion link [5].

(e) Put the bolt [18] through the upper torsion link [5], spacer [11], and the hose guide bracket [12].

NOTE: This step will connect one side of the hose guide bracket [12] to the upper torsion link [5].

(f) Install the washer [16] and the nut [15] on the bolt [18].

**SUBTASK 32-11-51-420-007**

(10) Connect the bracket [19] to the upper torsion link [5]:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer ofcorrosion inhibiting material, G50136 to the bolt [7], bolt [21], washers [8], washers [9], washer [13], washer [20], nuts [10], and nut [14].

(b) Install the washers [8] on the bolts [7].

(c) Put the bracket [19] in its position on the upper torsion link [5].

(d) Put the bolt [7] through the bracket [19], and the upper torsion link [5].

NOTE: This step will connect the aft side of the bracket [19] to the upper torsion upper torsion link [5].

(e) Install the washers [9] and the nuts [10] on the bolts [7].

(f) Install the washer [20] on the bolt [21].

(g) Put the bolt [21] through the bracket [19], upper torsion link [5], spacer [11], and the hose guide bracket [12].

(h) Install the washer [13], and the nut [14] on the bolt [21].

**SUBTASK 32-11-51-390-001**

(11) Fay seal the spacer [11] with sealant, A00247.

**SUBTASK 32-11-51-420-008**

(12) Connect the support bracket [4] to the upper torsion link [5]:



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136 to the bolts [1], nuts [2], washers [3] and washers [6].

(b) Install the washers [6] on the bolts [1].

(c) Put the bolts [1] through the upper torsion link [5], and the support bracket [4].

(d) Install the washers [3] and the nuts [2] on the bolts [1].

### G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-51-640-002

(1) For the grease fittings on the upper torsion link [5], and the lower torsion link [22], do this task Main Landing Gear Lower End Components Servicing, TASK 12-21-11-640-802.

SUBTASK 32-11-51-420-010

(2) Install the left hand inboard or the right hand outboard tire of the main landing gear. To install it, do this task: Main Landing Gear Wheel and Tire Assembly - Installation, TASK 32-45-11-400-801.

——— END OF TASK ———

**TASK 32-11-51-400-802**

## 6. Main Landing Gear Lower Torsion Link Installation

(Figure 401)

### A. General

(1) This task provides instructions to install the lower torsion link.

### B. References

| Reference | Title |
|---|---|
| 12-21-11-640-802 | Main Landing Gear Lower End Components Servicing (P/B 301) |
| 32-11-81-400-804 | Main Landing Gear Shimmy Damper Installation (P/B 401) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 22 | Lower torsion link | 32-11-51-01-195 | SIA ALL |
| 26 | Cotter pin | 32-11-81-01-020 | SIA ALL |
| 48 | Cotter pin | 32-11-51-01-015 | SIA ALL |



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**E. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**F. Main Landing Gear Lower Torsion Link Installation**

SUBTASK 32-11-51-620-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Apply a thin layer of the corrosion inhibiting material, G50136 to these items:
   (a) The threads and thread reliefs of the bolt [23], nut [27], apex nut [24], and nut [49].
   (b) The faces of the washer [25], washer [69], washer [29], and washer [50].
   (c) The pin shank and threads of the apex pin [31].
   (d) The inside diameter of spacer [30], tapered sleeve [54], and straight sleeve [71].
   (e) The new cotter pin [26].

SUBTASK 32-11-51-160-003

(2) Remove any excess corrosion inhibiting material, G50136.

SUBTASK 32-11-51-640-003

(3) Apply the lubricant grease, D00633 to the following parts and areas:
   (a) Apply to the outside diameter of the tapered sleeve [54] and straight sleeve [71].
   (b) The chrome plated surfaces of the lower torsion pin [51] and cross bolt [52].

SUBTASK 32-11-51-160-004

(4) Remove all unwanted grease, D00633.

SUBTASK 32-11-51-080-002

(5) Remove the rope that holds the spacer [53] to the inner cylinder [47].

SUBTASK 32-11-51-420-011

(6) Connect the lower torsion link [22] to the inner cylinder [47]:
   (a) Put the lower torsion link [22] in its position on the inner cylinder [47].
   (b) Put the lower torsion pin [51] through the clevis on the inner cylinder [47] and the spacer [53].
   (c) Align the hole in the lower torsion pin [51] with hole in the spacer [53] for the installation of the cross bolt [52].
   (d) Put the cross bolt [52] through the spacer [53] and the lower torsion pin [51].
   (e) Install the washer [50] and the nut [49] on the cross bolt [52].
   (f) Tighten the nut [49] to 160 in-lb (18 N·m) – 190 in-lb (21 N·m).
   (g) Install the new cotter pin [48] in the cross bolt [52]. If it is necessary, loosen the nut [49] to the nearest castellation to align the hole for the new cotter pin [48].



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SUBTASK 32-11-51-080-003

(7) Remove the rope that holds the upper torsion link [5] to the outer cylinder [33].

SUBTASK 32-11-51-420-013

(8) If necessary, install the shimmy damper (TASK 32-11-81-400-804).

SUBTASK 32-11-51-420-012

(9) Connect the upper torsion link [5] and the lower torsion link [22]:

(a) Align the apex holes in the upper torsion link [5] and the lower torsion link [22].

(b) Put the spacer [30] in its position between the upper torsion link [5] and the lower torsion link [22].

(c) Put the apex pin [31] through the upper torsion link [5], straight sleeve [71], spacer [30], and the lower torsion link [22].

**CAUTION**

MAKE SURE THAT YOU INSTALL THE SLEEVES IN THE CORRECT LOCATIONS. IF YOU INSTALL THE SLEEVES IN THE INCORRECT LOCATIONS, VIBRATION CAN CAUSE DAMAGE TO COMPONENTS OF LANDING GEAR.

(d) Install the tapered sleeve [54] in the lower torsion link [22], washer [29], bracket [28] and apex nut [24] on the apex pin [31].

NOTE: There may be a gap between the torsion link and the apex joint. This condition is part of a normal shimmy damper installation.

NOTE: The shimmy damper installation has a straight sleeve and a tapered sleeve. The straight sleeve is longer than the tapered sleeve.

(e) Tighten the apex nut [24] to 50 ft-lb (67.8 N·m)- 58 ft-lb (78.6 N·m).

1) Advance the apex nut [24] to the nearest castellation that aligns with the hole in the apex pin [31]. The final torque must not be more than 150 ft-lb (203.4 N·m).

(f) Install the retention bolt [23] and washer [69] through the apex nut [24] and the apex pin [31].

(g) Install the washer [25] and the nut [27] on the bolt [23].

(h) Install the new cotter pin [26] in the bolt [23]. If it is necessary, loosen the nut [27] to the nearest castellation to align the hole for the new cotter pin [26].

SUBTASK 32-11-51-420-014

(10) Connect the bracket [42] and bracket [44] to the lower torsion link [22]:

(a) Put bracket [42] and bracket [44], and the spacer [43] in their position on the lower torsion link [22]

(b) Install the washers [41] on the bolts [40].

(c) Put the bolts [40] through the bracket [42], spacer [43], lower torsion link [22] and the bracket [44].

(d) Install the washers [45] and the nuts [46] on the bolts [40].

SUBTASK 32-11-51-420-015

(11) Do this task: Main Landing Gear Brake Installation, TASK 32-41-41-400-801



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### G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-51-640-004

(1) For the grease fittings on the upper torsion link [5], and the lower torsion link [22], do this task, Main Landing Gear Lower End Components Servicing, TASK 12-21-11-640-802.

——— END OF TASK ———

**TASK 32-11-51-400-803**

## 7. Main Landing Gear Torsion Link Connection

(Figure 401)

### A. General

(1) This task provides instructions to connect the torsion links.

### B. References

| Reference | Title |
|---|---|
| 12-21-11-640-802 | Main Landing Gear Lower End Components Servicing (P/B 301) |
| 32-11-81-400-804 | Main Landing Gear Shimmy Damper Installation (P/B 401) |
| 32-45-11-400-801 | Main Landing Gear Wheel and Tire Assembly - Installation (P/B 401) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Upper torsion link | 32-11-51-01-155 | SIA ALL |
| 22 | Lower torsion link | 32-11-51-01-195 | SIA ALL |
| 26 | Cotter pin | 32-11-81-01-020 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### F. Main Landing Gear Torsion Link Connection

SUBTASK 32-11-51-620-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Apply a thin layer of the corrosion inhibiting material, G50136 to these items:

(a) The threads and thread reliefs of the bolt [23]

(b) The threads and thread reliefs of the apex nut [24] and the nut [27]



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(c) The faces of the washer [25], washer [69], and washer [29]

(d) The pin shank and threads of the apex pin [31]

(e) The inside diameter of the spacer [30], tapered sleeve [54], and straight sleeve [71]

(f) The new cotter pin [26].

SUBTASK 32-11-51-160-005

(2) Remove any excess corrosion inhibiting material, G50136.

SUBTASK 32-11-51-640-005

(3) Apply grease, D00633 to the outer diameter of the tapered sleeve [54] and straight sleeve [71].

SUBTASK 32-11-51-160-006

(4) Remove all unwanted grease, D00633.

SUBTASK 32-11-51-420-016

(5) If necessary, install the shimmy damper (TASK 32-11-81-400-804).

SUBTASK 32-11-51-420-017

(6) Connect the upper torsion link [5], and the lower torsion link [22]:

(a) Align the apex holes in the upper torsion link [5] and the lower torsion link [22].

(b) Put the spacer [30] in its position between the upper torsion link [5], and the lower torsion link [22].

(c) Put the apex pin [31] through the upper torsion link [5], straight sleeve [71], spacer [30], and the lower torsion link [22].

**CAUTION**

MAKE SURE THAT YOU INSTALL THE SLEEVES IN THE CORRECT LOCATIONS. IF YOU INSTALL THE SLEEVES IN THE INCORRECT LOCATIONS, VIBRATION CAN CAUSE DAMAGE TO COMPONENTS OF LANDING GEAR.

(d) Install the tapered sleeve [54], washer [29], bracket [28] and the apex nut [24] on the apex pin [31].

NOTE: There may be a gap between the torsion link and the apex joint. This condition is part of the normal shimmy damper installation.

NOTE: The shimmy damper installation has a straight sleeve and a tapered sleeve. The straight sleeve is longer than the tapered sleeve.

(e) Tighten the apex nut [24] to 50 ft-lb (68 N·m) to 58 ft-lb (79 N·m).

1) Advance the apex nut [24] to the nearest castellation that aligns with the hole in the apex pin [31]. The final torque must not be more than 150 ft-lb (203 N·m).

(f) Install the retention bolt [23] and washer [69] through the apex nut [24] and the apex pin [31].

(g) Install the washer [25], and the nut [27] on the bolt [23].

(h) Install the new cotter pin [26] in the bolt [23]. If it is necessary, loosen the nut [27] to the nearest castellation to align the hole for the new cotter pin [26].

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-51-420-037

(1) Install the wheel and tire assembly (TASK 32-45-11-400-801).



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SUBTASK 32-11-51-640-006

(2) For the grease fittings on the upper torsion link [5], and the lower torsion link [22], do this task, Main Landing Gear Lower End Components Servicing, TASK 12-21-11-640-802.

——— END OF TASK ———



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# MAIN LANDING GEAR TORSION LINKS - INSPECTION/CHECK

## 1. General

A. This task supplies the data for a dimensional inspection of the torsion links for the main landing gear.

**TASK 32-11-51-200-801**

## 2. Main Landing Gear Torsion Links Inspection

(Figure 601)

### A. General

(1) This procedure gives wear limits and repair data for the torsion links on the main landing gear.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-11-51-000-801 | Main Landing Gear Upper Torsion Link Removal (P/B 401) |
| 32-11-51-000-802 | Main Landing Gear Lower Torsion Link Removal (P/B 401) |
| 32-11-51-400-801 | Main Landing Gear Upper Torsion Link Installation (P/B 401) |
| 32-11-51-400-802 | Main Landing Gear Lower Torsion Link Installation (P/B 401) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-1096 | Micrometer - Depth, 0-1 inch, Readable to 1/1000 inch |
| STD-1097 | Caliper - Vernier, 0-6 inch, Readable to 1/1000 inch |

### D. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Procedure

**SUBTASK 32-11-51-480-007**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-11-51-020-012**

(2) To remove or to get access to the torsion links of the main landing gear do the tasks that follows Figure 601:

(a) Do this task: Main Landing Gear Upper Torsion Link Removal, TASK 32-11-51-000-801.

(b) Do this task: Main Landing Gear Lower Torsion Link Removal, TASK 32-11-51-000-802.

**SUBTASK 32-11-51-220-001**

(3) Examine the parts of the main landing gear torsion links for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts as necessary with a micrometer (0-1 inch, readable to 1/1000 inch), STD-1096 or a vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.



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(c) Compare the dimensions you measured with the permitted wear dimensions in Table 601.

(d) If the parts are not in the tolerance, replace or repair the part as shown in Table 601.

**Table 601/32-11-51-993-801 Wear Limits**

| NAME OF THE PARTS THAT ARE IN CONTACT | DIM. | DIAMETER DESIGN LIMITS | | WEAR LIMITS | |
|---|---|---|---|---|---|
| | | MINIMUM inches/mm | MAXIMUM inches/mm | PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART | MAXIMUM SERVICE DIAMETRIC CLEARANCE |
| #1 BUSHING | I.D. | 2.0000 in. (50.8000 mm) | 2.0015 in. (50.8381 mm) | 2.0053 in. (50.9346 mm) | 0.0063 in. (0.1600 mm) |
| #1 PIN | O.D. | 1.9980 in. (50.7492 mm) | 1.9990 in. (50.7746 mm) | 1.9952 in. (50.6781 mm) | |
| | | | | | |
| #2 BUSHING | I.D. | 2.0000 in. (50.8000 mm) | 2.0015 in. (50.8381 mm) | 2.0053 in. (50.9346 mm) | 0.0063 in. (0.1600 mm) |
| #2 PIN | O.D. | 1.9980 in. (50.7492 mm) | 1.9990 in. (50.7746 mm) | 1.9952 in. (50.6781 mm) | |
| | | | | | |
| #3 BUSHING | I.D. | 1.4390 in. (36.5506 mm) | 1.4402 in. (36.5811 mm) | 1.4446 in. (36.6928 mm) | 0.0066 in. (0.1676 mm) |
| #3 SLEEVE | O.D. | 1.4360 in. (36.4744 mm) | 1.4380 in. (36.5252 mm) | 1.4336 in. (36.4134 mm) | |
| | | | | | |
| #4 BUSHING | I.D | 1.4980 in. (38.0492 mm) | 1.4992 in. (38.0797 mm) | 1.5036 in. (38.1914 mm) | 0.0076 in. (0.1930 mm) |
| #4 SLEEVE | O.D. | 1.4940 in. (37.9476 mm) | 1.4960 in. (37.9984 mm) | 1.4916 in. (37.8866 mm) | |
| | | | | | |
| #5 BUSHING | I.D. | 2.5000 in. (63.5000 mm) | 2.5015 in. (63.5381 mm) | 2.5062 in. (63.6575 mm) | 0.0072 in. (0.1829 mm) |
| #5 PIN | O.D. | 2.4975 in. (63.4365 mm) | 2.4990 in. (63.4746 mm) | 2.4943 in. (63.3552 mm) | |
| | | | | | |
| #6 BUSHING | I.D. | 2.5000 in. (63.5000 mm) | 2.5015 in. (63.5381 mm) | 2.5062 in. (63.6575 mm) | 0.0072 in. (0.1829 mm) |
| #6 PIN | O.D. | 2.4975 in. (63.4365 mm) | 2.4990 in. (63.4746 mm) | 2.4943 in. (63.3552 mm) | |
| | | | | | |



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**Table 601/32-11-51-993-801 Wear Limits (Continued)**

| NAME OF THE PARTS THAT ARE IN CONTACT | DIM. | DIAMETER DESIGN LIMITS | | WEAR LIMITS | |
|---|---|---|---|---|---|
| | | MINIMUM inches/mm | MAXIMUM inches/mm | PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART | MAXIMUM SERVICE DIAMETRIC CLEARANCE |
| #7 BUSHING | I.D. | 2.5000 in. (63.5000 mm) | 2.5015 in. (63.5381 mm) | 2.5062 in. (63.6575 mm) | 0.0072 in. (0.1829 mm) |
| #7 PIN | O.D. | 2.4975 in. (63.4365 mm) | 2.4990 in. (63.4746 mm) | 2.4943 in. (63.3552 mm) | |

**SUBTASK 32-11-51-420-018**

(4) To install the torsion links or parts for the main landing gear do the task that follows:

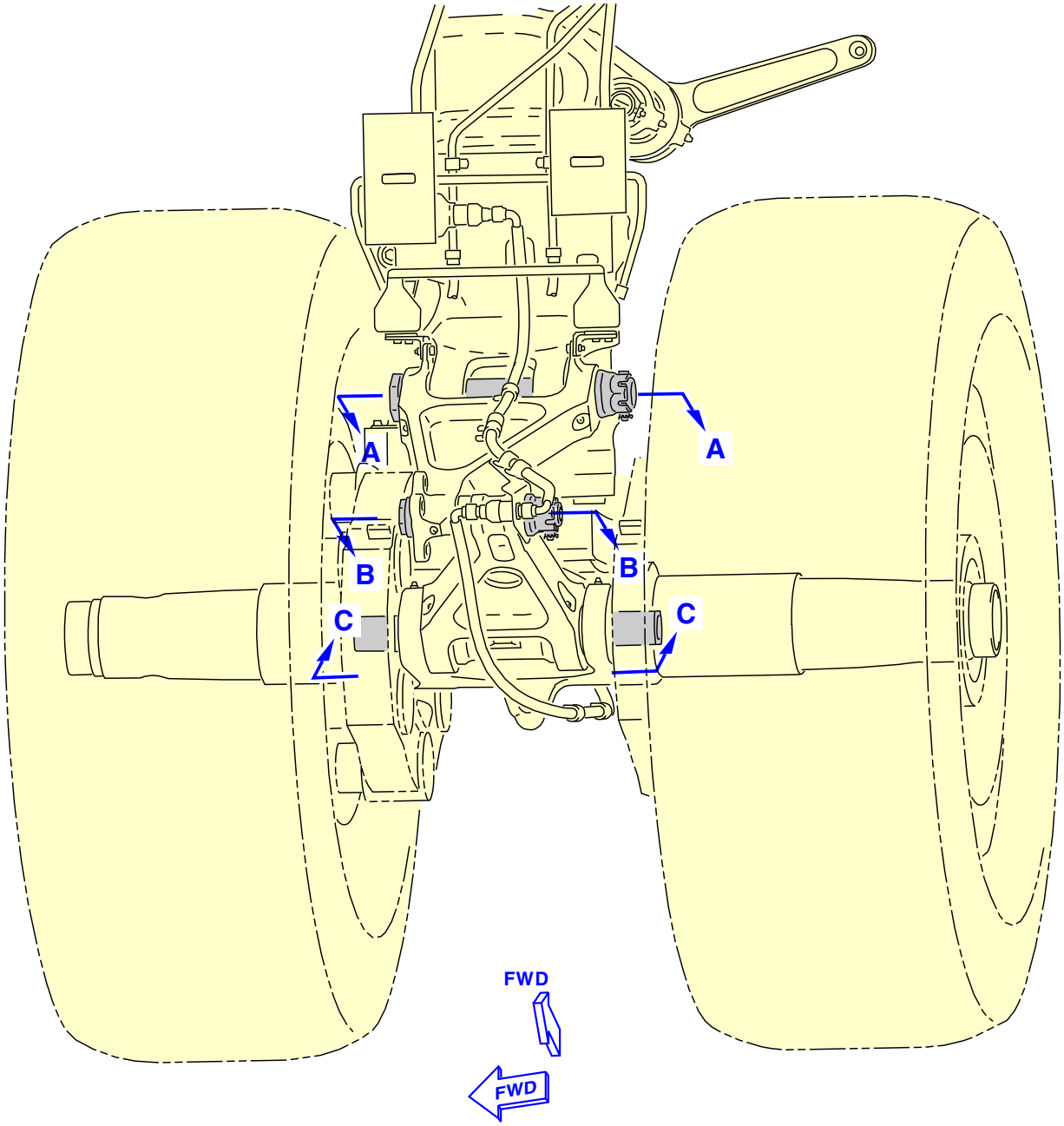
(a) Do this task: Main Landing Gear Upper Torsion Link Installation, TASK 32-11-51-400-801.

(b) Do this task: Main Landing Gear Lower Torsion Link Installation, TASK 32-11-51-400-802.

**——— END OF TASK ———**



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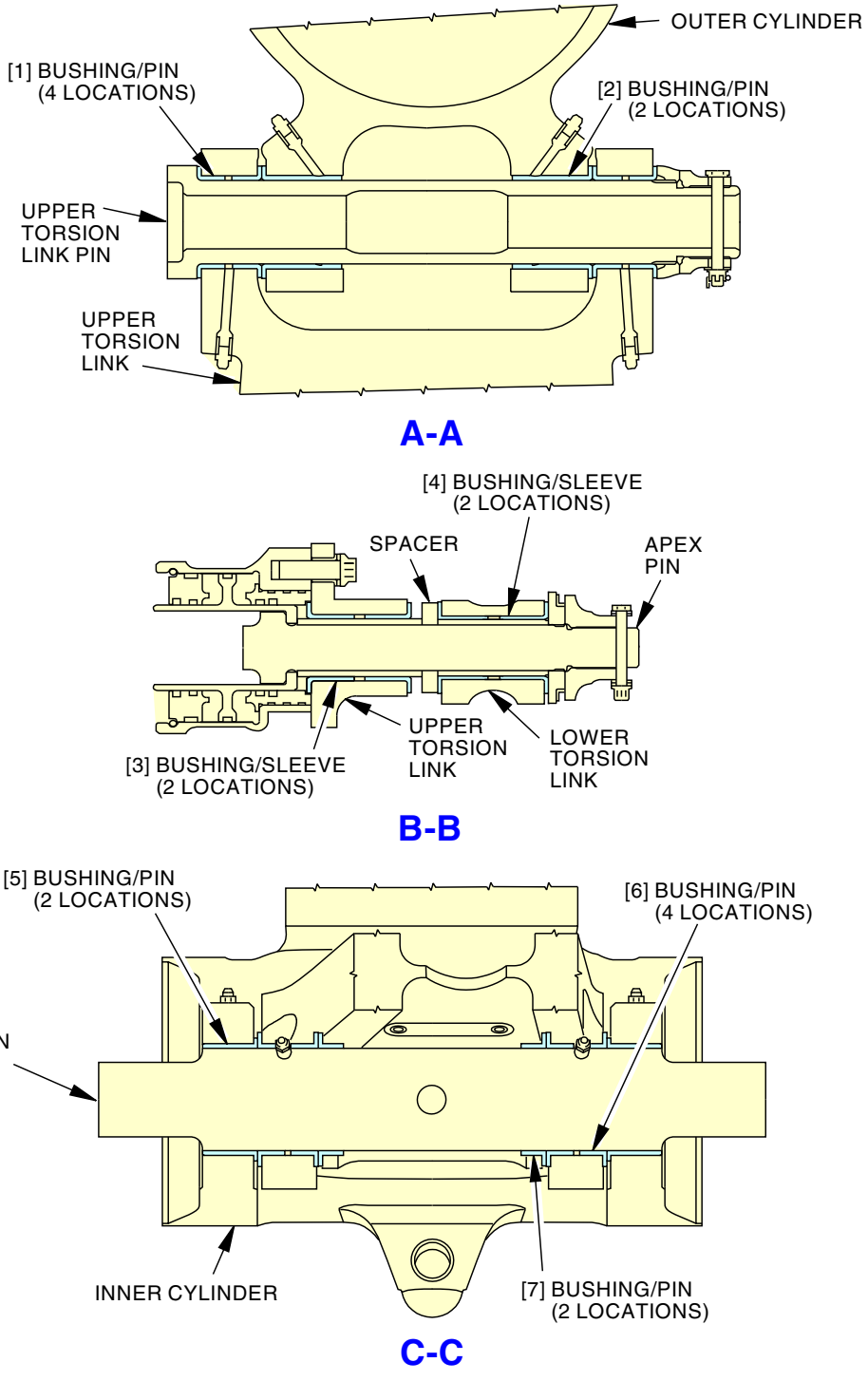



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**Main Landing Gear Torsion Wear Limits**
**Figure 601/32-11-51-990-802 (Sheet 1 of 2)**



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**Main Landing Gear Torsion Wear Limits**
**Figure 601/32-11-51-990-802 (Sheet 2 of 2)**



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## MAIN LANDING GEAR SIDE STRUT ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Main Landing Gear Upper Side Strut Removal

(2) Main Landing Gear Upper Side Strut Installation

(3) Main Landing Gear Lower Side Strut Removal

(4) Main Landing Gear Lower Side Strut Installation

(5) Main Landing Gear Side Strut Removal

(6) Main Landing Gear Side Strut Installation.

B. The lower side strut and the upper side strut are referred to as the "side strut" in this procedure.

**TASK 32-11-61-000-801**

### 2. Main Landing Gear Upper Side Strut Removal

(Figure 401)

#### A. General

(1) This task gives the instructions to remove the upper side strut.

#### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-91-000-801 | Main Gear Downlock Springs Removal (P/B 401) |

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1359 | Assembly - Wrench Adapter, C32029-3 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1367 | Driver - Slug, C32029-11 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1368 | Protector - Thread, C32029-12 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1369 | Protector - Thread, C32029-13 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |

#### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |



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(Continued)

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## E. Prepare for the Removal

SUBTASK 32-11-61-480-010

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-61-580-001

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-11-61-860-001

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-11-61-020-001

(4) Do this task: Main Gear Downlock Springs Removal, TASK 32-32-91-000-801.

## F. Main Landing Gear Upper Side Strut Removal

SUBTASK 32-11-61-020-002

(1) Disconnect the upper side strut [3] from the downlock strut [1]:

(a) Remove the cotter pin [6] from the downlock link pin [2].

(b) Remove the nut [5] and washer [4] from the downlock link pin [2].

(c) Remove the downlock link pin [2] to disconnect the upper side strut [3] from the downlock strut [1].

NOTE: Use the thread protector, C32029-13, SPL-1369, for the downlock link pin [2] when you do this step.

SUBTASK 32-11-61-020-003

(2) Disconnect the upper side strut [3] from the lower side strut [8]:

(a) Remove the cotter pin [13], nut [14], and washer [12] from the bolt [11].

(b) Remove the bolt [11] from the side strut pin [7].



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(c) Use a rope to support the upper end of the lower side strut [8] and attach the rope to the outboard side of the reaction link assembly [15].

NOTE: The lower side strut weighs approximately 48.3 lb (21.91 kg).

(d) Remove the end cap [9] from the side strut pin [7].

(e) Remove the side strut pin [7] to disconnect the upper side strut [3] from the lower side strut [8].

NOTE: Use the slug driver, C32029-11, SPL-1367, for the side strut pin [7] when you do this step.

**SUBTASK 32-11-61-020-004**

(3) Disconnect the upper side strut [3] from the reaction link assembly [15]:

(a) Remove the cotter pin [19], nut [18], and washer [17] from cross bolt [16].

(b) Remove the cross bolt [16] from the side strut pin [22].

(c) Remove the side strut nut [20] and side strut washer [21] from the side strut pin [22].

NOTE: Use wrench adapter, C32029-3, SPL-1359, to hold the head of the side strut pin [22] when you loosen the side strut nut [20].

(d) Remove the side strut pin [22] that holds the upper side strut [3] to the reaction link assembly [15].

NOTE: Use the thread protector, C32029-12, SPL-1368, for the side strut pin [22] when you do this step.

**SUBTASK 32-11-61-020-005**

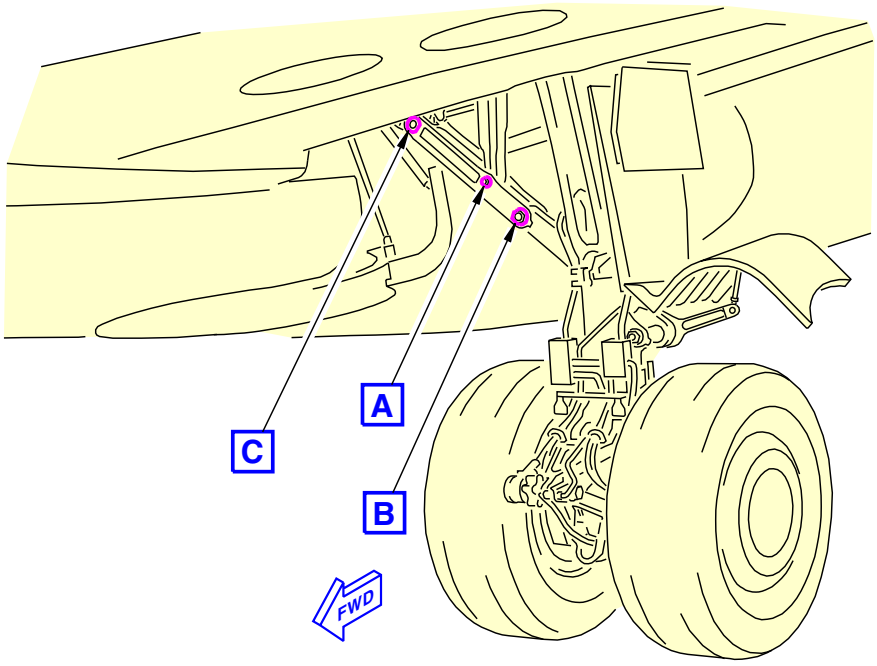
(4) Lower the upper side strut [3] carefully and remove it from the airplane.

NOTE: Make sure that the upper side strut is supported carefully when you lower it. The upper side strut weighs approximately 42.8 lb (19.41 kg).

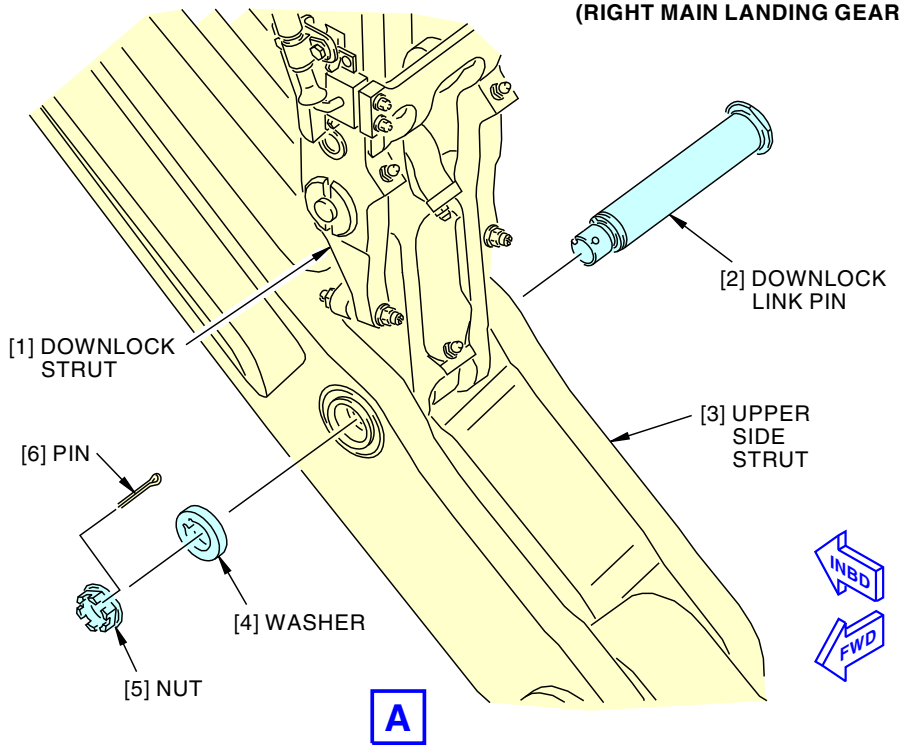
**——— END OF TASK ———**



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**LEFT MAIN LANDING GEAR**
**(RIGHT MAIN LANDING GEAR IS EQUIVALENT)**

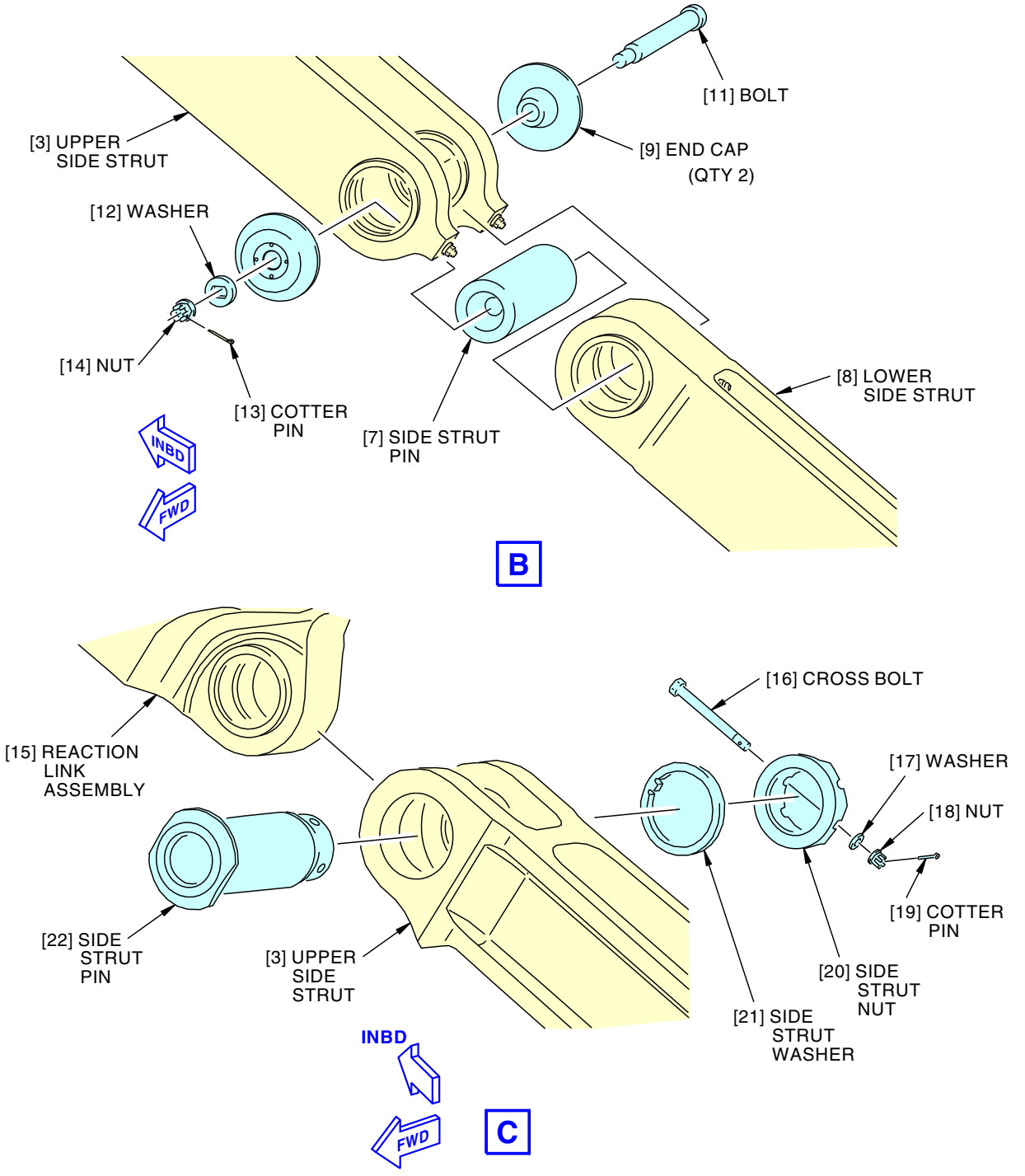



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**Main Landing Gear Upper Side Strut Installation**
**Figure 401/32-11-61-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Upper Side Strut Installation**
**Figure 401/32-11-61-990-801 (Sheet 2 of 2)**



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**TASK 32-11-61-400-801**

## 3. Main Landing Gear Upper Side Strut Installation

(Figure 401)

### A. General

(1) This task gives the instructions to install the upper side strut.

### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-21-11-640-801 | Main Landing Gear Upper End Components Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-00-710-802 | Main Landing Gear - Operational Test (P/B 501) |
| 32-32-91-400-801 | Main Gear Downlock Spring Installation (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1359 | Assembly - Wrench Adapter, C32029-3 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1368 | Protector - Thread, C32029-12 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1369 | Protector - Thread, C32029-13 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### E. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Upper side strut | 32-11-61-01-310 | SIA ALL |
| 6 | Cotter pin | 32-11-61-01-040 | SIA ALL |
| 13 | Cotter pin | 32-11-61-01-295 | SIA ALL |
| 19 | Cotter pin | 32-11-71-01-085 | SIA ALL |

### F. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |



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(Continued)

| Zone | Area |
|---|---|
| 744 | Right Main Landing Gear |

## G. Prepare for the Installation

SUBTASK 32-11-61-480-011

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

## H. Main Landing Gear Upper Side Strut Installation

SUBTASK 32-11-61-420-001

(1) Connect the upper side strut [3] to the reaction link assembly [15]:

(a) Lubricate the chrome plated surfaces of the side strut pin [22] with grease, D00633.

(b) Remove all unwanted grease, D00633.

(c) Put the upper side strut [3] in its position for connection to the reaction link assembly [15].

(d) Put the side strut pin [22] through the upper side strut [3] and the reaction link assembly [15].

NOTE: Use the thread protector, C32029-12, SPL-1368, for the side strut pin [22] when you do this step.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of the corrosion inhibiting material, G50136 to these items:

NOTE: Do not apply corrosion inhibiting material to the chrome plated surfaces.

1) The threads and thread reliefs of the side strut pin [22] and cross bolt [16].

2) The threads of the side strut nut [20] and nut [18].

3) The faces of the side strut washer [21] and washer [17].

(f) Remove all unwanted corrosion inhibiting material, G50136.

(g) Install the side strut washer [21] and side strut nut [20] on the side strut pin [22].

(h) Tighten the side strut nut [20] to 600 in-lb (67.79 N·m) to 900 in-lb (101.69 N·m).

NOTE: Use the wrench adapter, C32029-3, SPL-1359, to hold the head of the side strut pin [22] when you tighten the side strut nut [20].

(i) If it is necessary, loosen the side strut nut [20] to the nearest castellation to align the hole for the cross bolt [16].

(j) Install the cross bolt [16] in the side strut pin [22].

(k) Install the washer [17] and nut [18] on the cross bolt [16].



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(l) Tighten the nut [18] to 30 in-lb (3.39 N·m) to 50 in-lb (5.65 N·m).

(m) If it is necessary, loosen the nut [18] to the nearest castellation to align the holes for the new cotter pin [19].

(n) Install the new cotter pin [19] in the cross bolt [16].

SUBTASK 32-11-61-620-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(2) Apply a thin layer of the corrosion inhibiting material, G50136 to these items:

NOTE: Do not apply corrosion inhibiting material to the chrome plated surfaces.

(a) The inside diameter of the side strut pin [7], the inside unplated surface of the end cap [9]

(b) The threads of the nut [14]

(c) The face of the washer [12].

SUBTASK 32-11-61-160-001

(3) Remove all unwanted corrosion inhibiting material, G50136.

(a) Make sure that the drainage holes in the end cap [9] are clear of the corrosion inhibiting material, G50136 after the application.

SUBTASK 32-11-61-620-002

(4) Lubricate the chrome plated surfaces of the side strut pin [7] and the surfaces of the end cap [9] with grease, D00633.

SUBTASK 32-11-61-160-005

(5) Remove all unwanted grease, D00633.

SUBTASK 32-11-61-420-002

(6) Connect the upper side strut [3] to the lower side strut [8]:

(a) Remove the rope that supports the lower side strut [8] to the reaction link assembly [15].

(b) Put the upper side strut [3] in its position for connection to the lower side strut [8].

(c) Put the side strut pin [7] through the upper side strut [3] and the lower side strut [8].

(d) Install the end cap [9] on the side strut pin [7].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of the corrosion inhibiting material, G50136, to the threads, thread reliefs of the bolt [11], and its shank.

NOTE: Do not apply corrosion inhibiting material to the chrome plated surfaces.



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**CAUTION**

MAKE SURE THAT THE HEAD OF THE BOLT POINTS IN THE AFT DIRECTION. IF THE HEAD OF THE BOLT POINTS FORWARD, DAMAGE TO COMPONENTS AND THE AIRPLANE STRUCTURE WILL OCCUR.

(f) Install the bolt [11] in the side strut pin [7].

(g) Install the washer [12] and nut [14] on the bolt [11].

(h) Tighten the nut [14] to 30 in-lb (3.39 N·m) to 50 in-lb (5.65 N·m) more than the run on torque.

(i) If it is necessary, loosen the nut [14] to the nearest castellation to align the hole for the new cotter pin [13].

(j) Install the new cotter pin [13] in the bolt [11].

**SUBTASK 32-11-61-420-003**

(7) Connect the upper side strut [3] to the downlock strut [1]:

(a) Lubricate the chrome plated surfaces of the downlock link pin [2] with grease, D00633.

(b) Remove all unwanted grease, D00633.

(c) Put the downlock strut [1] in its position for connection to the upper side strut [3].

(d) Put the downlock link pin [2] through the upper side strut [3] and the downlock strut [1].

NOTE: Use the thread protector, C32029-13, SPL-1369, for the downlock link pin [2] when you do this step.

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of the corrosion inhibiting material, G50136 to these items:

NOTE: Do not apply corrosion inhibiting material to the chrome plated surfaces.

1) The threads and thread reliefs of the downlock link pin [2]

2) The threads of the nut [5]

3) The faces of the washer [4].

(f) Remove all unwanted corrosion inhibiting material, G50136.

(g) Install the washer [4] and nut [5] on the downlock link pin [2].

(h) Tighten the nut [5] to 360 in-lb (40.67 N·m) to 600 in-lb (67.79 N·m).

(i) If it is necessary, loosen the nut [5] to the nearest castellation to align the hole for the new cotter pin [6].

(j) Install the new cotter pin [6] in the downlock link pin [2].

**SUBTASK 32-11-61-420-004**

(8) Do this task: Main Gear Downlock Spring Installation, TASK 32-32-91-400-801.

**SUBTASK 32-11-61-640-001**

(9) Lubricate the lube fittings on the upper side strut. To lubricate them, refer to Main Landing Gear Upper End Components Servicing, TASK 12-21-11-640-801.



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SUBTASK 32-11-61-780-001

(10) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-11-61-710-001

(11) Do this task: Main Landing Gear - Operational Test, TASK 32-32-00-710-802.

SUBTASK 32-11-61-580-002

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(12) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**——— END OF TASK ———**

**TASK 32-11-61-000-802**

## 4. Main Landing Gear Lower Side Strut Removal

(Figure 402)

### A. General

(1) This task gives the instructions to remove the lower side strut.

### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-91-000-801 | Main Gear Downlock Springs Removal (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1367 | Driver - Slug, C32029-11 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1370 | Protector - Thread, C32029-14 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |


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(Continued)

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## E. Prepare for the Removal

SUBTASK 32-11-61-480-012

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-61-580-003

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-11-61-860-002

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-11-61-020-006

(4) Do this task: Main Gear Downlock Springs Removal, TASK 32-32-91-000-801.

## F. Main Landing Gear Lower Side Strut Removal

SUBTASK 32-11-61-020-007

(1) Disconnect the lower side strut [8] from the pushrod [41]:

(a) Remove the nut [42] and washer [43] from the bolt [46].

(b) Remove the bolt [46] to disconnect the lower side strut [8] from the pushrod [41].

(c) Isolate the pushrod [41] from the lower side strut [8].

SUBTASK 32-11-61-480-004

(2) Use a rope to hold the pushrod [41] and the inner door in its position.

SUBTASK 32-11-61-020-008

(3) Disconnect the lower side strut [8] from the shock strut [51]:

(a) Remove the cotter pin [49], nut [50], and washer [48] from the cross bolt [47].

(b) Remove the cross bolt [47] from the side strut pin [52].

(c) Remove the side strut nut [54] and side strut washer [53] from the side strut pin [52].



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(d) Remove the side strut pin [52] to disconnect the lower side strut [8] from the shock strut [51].

NOTE: Use the thread protector, C32029-14, SPL-1370, for the side strut pin [52] when you do this step.

**SUBTASK 32-11-61-020-009**

(4) Disconnect the lower side strut [8] from the upper side strut [3]:

(a) Remove the cotter pin [13], nut [14], and washer [12] from the bolt [11].

(b) Remove the bolt [11] from the side strut pin [7].

(c) Remove the end cap [9] from the side strut pin [7].

(d) Use a rope to support the upper end of the lower side strut [8] and attach the rope to the outboard side of the reaction link assembly [15].

NOTE: The lower side strut weighs approximately 48.3 lb (21.91 kg).

(e) Remove the side strut pin [7] to disconnect the upper side strut [3] from the lower side strut [8].

NOTE: Use the slug driver, C32029-11, SPL-1367, for the side strut pin [7] when you do this step.

**SUBTASK 32-11-61-020-010**

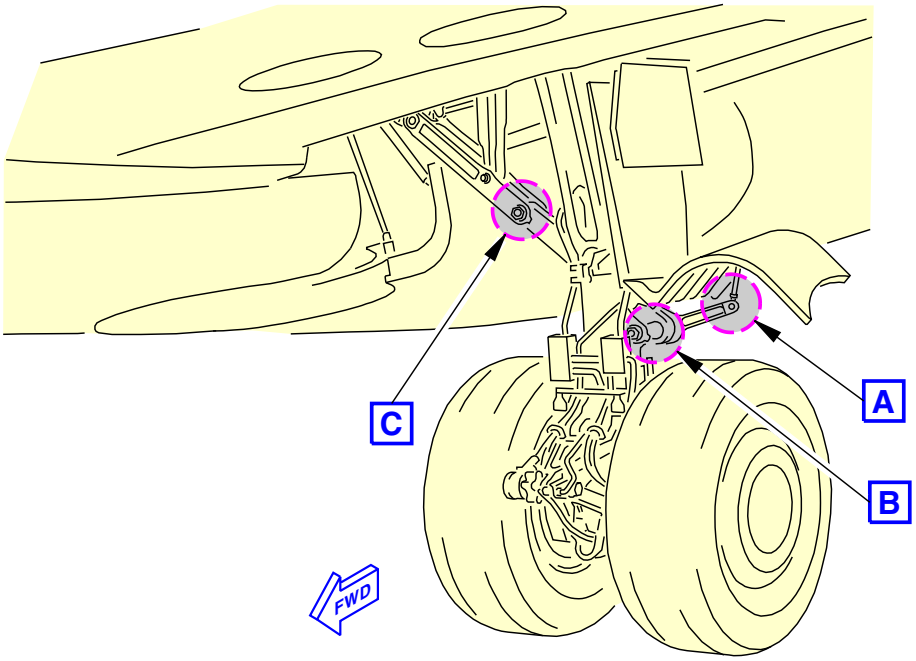
(5) Carefully lower and remove the lower side strut [8] from the airplane.

NOTE: The lower side strut [8] weighs approximately 48.3 lb (21.91 kg). Make sure that it is sufficiently supported.

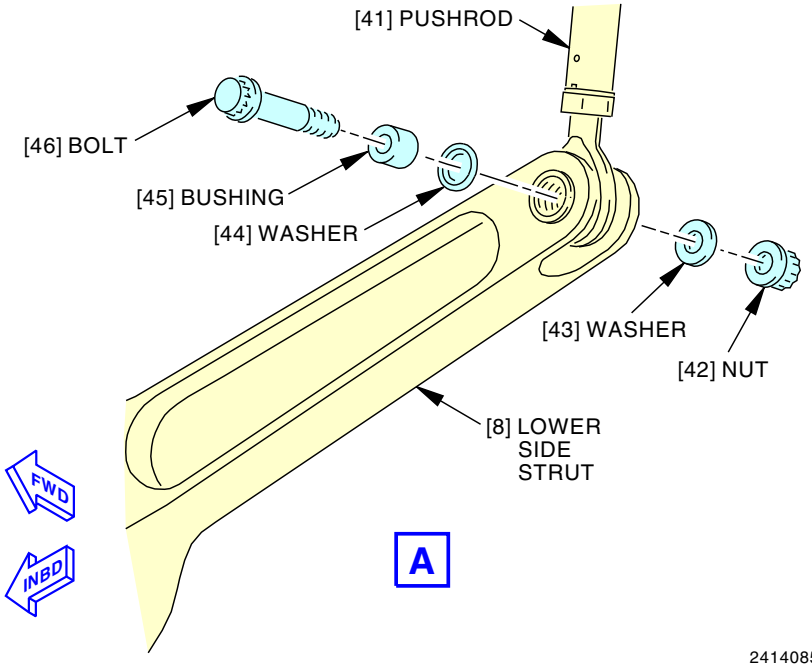
**——— END OF TASK ———**



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**LEFT MAIN LANDING GEAR**
**(RIGHT MAIN LANDING GEAR IS EQUIVALENT)**

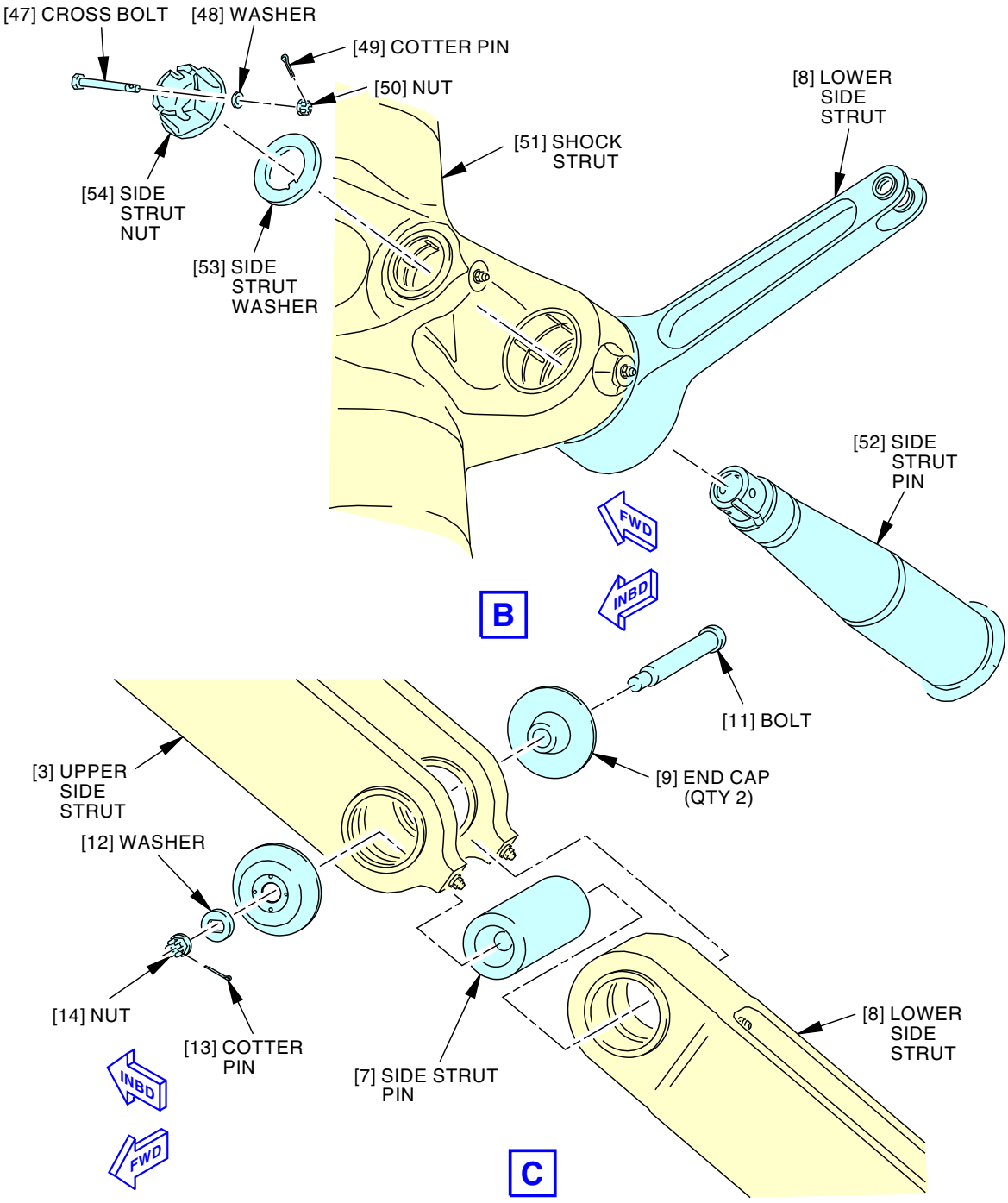



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**Main Landing Gear Lower Side Strut Installation**
**Figure 402/32-11-61-990-802 (Sheet 1 of 2)**



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**Main Landing Gear Lower Side Strut Installation**
**Figure 402/32-11-61-990-802 (Sheet 2 of 2)**



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**TASK 32-11-61-400-802**

## 5. Main Landing Gear Lower Side Strut Installation

(Figure 402)

### A. General

(1) This task gives the instructions to install the lower side strut.

### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-21-11-640-801 | Main Landing Gear Upper End Components Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-11-820-801 | Main Landing Gear Shock Strut Door Adjustment (P/B 501) |
| 32-32-00-710-802 | Main Landing Gear - Operational Test (P/B 501) |
| 32-32-91-400-801 | Main Gear Downlock Spring Installation (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1361 | Assembly - Wrench Adapter, C32029-39 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1370 | Protector - Thread, C32029-14 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### E. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 8 | Lower side strut | 32-11-61-01-350 | SIA ALL |
| 13 | Cotter pin | 32-11-61-01-295 | SIA ALL |
| 49 | Cotter pin | 32-11-61-05-040 | SIA ALL |

### F. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



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## G. Prepare for the Installation

SUBTASK 32-11-61-480-013

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

## H. Main Landing Gear Lower Side Strut Installation

SUBTASK 32-11-61-620-003

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Apply a thin layer of the corrosion inhibiting material, G50136 to these items:

NOTE: Do not apply corrosion inhibiting material to the chrome plated surfaces.

(a) The inside diameter of the side strut pin [7], the inside unplated surface of the end cap [9].

(b) The threads of the nut [14].

(c) The face of the washer [12].

SUBTASK 32-11-61-160-003

(2) Remove all unwanted corrosion inhibiting material, G50136.

(a) Make sure that the drainage holes in the end cap [9] are clear of the corrosion inhibiting material, G50136 after the application.

SUBTASK 32-11-61-620-004

(3) Lubricate the chrome plated surfaces of the side strut pin [7] and the surfaces of the end cap [9] with grease, D00633.

SUBTASK 32-11-61-160-004

(4) Remove all unwanted grease, D00633.

SUBTASK 32-11-61-420-005

(5) Connect the upper side strut [3] to the lower side strut [8]:

(a) Remove the rope that supports the lower side strut [8] to the reaction link assembly [15].

(b) Put the upper side strut [3] in its position for connection to the lower side strut [8].

(c) Put the side strut pin [7] through the upper side strut [3] and the lower side strut [8].

(d) Install the end cap [9] on the side strut pin [7].



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of the corrosion inhibiting material, G50136, to the threads, thread reliefs of the bolt [11], and its shank.

NOTE: Do not apply corrosion preventive material to the chrome plated surfaces.

**CAUTION**

MAKE SURE THAT THE HEAD OF THE BOLT POINTS IN THE AFT DIRECTION. IF THE HEAD OF THE BOLT POINTS FORWARD, DAMAGE TO COMPONENTS AND THE AIRPLANE STRUCTURE WILL OCCUR.

(f) Install the bolt [11] in the side strut pin [7].

(g) Install the washer [12] and nut [14] on the bolt [11].

(h) Tighten the nut [14] to 30 in-lb (3.39 N·m) to 50 in-lb (5.65 N·m) more than the run on torque.

(i) If it is necessary, loosen the nut [14] to the nearest castellation to align the hole for the new cotter pin [13].

(j) Install the new cotter pin [13] in the bolt [11].

**SUBTASK 32-11-61-420-006**

(6) Connect the lower side strut [8] to the shock strut [51]:

(a) Lubricate the chrome plated surfaces of the side strut pin [52] with grease, D00633.

(b) Remove all unwanted grease, D00633.

(c) Put the lower side strut [8] in its position for attachment to the shock strut [51].

(d) Put the side strut pin [52] through the lower side strut [8] and the clevis on the shock strut [51].

NOTE: Use the thread protector, C32029-14, SPL-1370, for the side strut pin [52] when you do this task.

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of the corrosion inhibiting material, G50136 to these items:

NOTE: Do not apply corrosion inhibiting material to the chrome plated surfaces.

1) The threads and thread reliefs of the side strut pin [52], nut [50], and cross bolt [47].

2) The threads of the side strut nut [54] and nut [50].

3) The faces of the side strut washer [53] and washer [48].

(f) Remove all unwanted corrosion inhibiting material, G50136.



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(g) Install the side strut washer [53] and side strut nut [54] on the side strut pin [52].

(h) Tighten the side strut nut [54] to 95 ft-lb (128.80 N·m) - 115 ft-lb (155.92 N·m) more than the run-on torque.

NOTE: Use the wrench adapter, C32029-39, SPL-1361, to hold the head of the side strut pin [52] when you tighten the side strut nut [54].

(i) If it is necessary, loosen the side strut nut [54] to the nearest castellation to align the hole for the cross bolt [47].

(j) Install the cross bolt [47] with the bolt head inboard in the side strut pin [52].

NOTE: Be sure that bolt head points inboard. Otherwise, the new cotter pin [49] can interfere with Ground Spoiler Interlock Valve Cable and cause premature failure of the cable.

(k) Install the washer [48] and nut [50] on the cross bolt [47].

(l) Tighten the nut [50] to 20 in-lb (2.26 N·m)-24 in-lb (2.71 N·m).

(m) If it is necessary, loosen the nut [50] to the nearest castellation to align the hole for the cotter pin [49].

(n) Install the cotter pin [49] in the cross bolt [47].

(o) Check the interior of the side strut pin [52] and repair the application of corrosion inhibiting material, G50136 as required.

**SUBTASK 32-11-61-080-001**

(7) Remove the rope that holds the pushrod [41] in its position.

**SUBTASK 32-11-61-420-015**

(8) Connect the lower side strut [8] to the pushrod [41]:

(a) Lubricate the nut [42], washer [43], and bolt [46] with grease, D00633.

(b) Remove all unwanted grease, D00633.

(c) Align the hole in the pushrod [41] with the hole in the lower side strut [8].

(d) Put the bushing [45] through the lower side strut [8] and the pushrod [41].

(e) Install the washer [44] on the bolt [46].

(f) Put the bolt [46] through the lower side strut [8] and the pushrod [41].

(g) Install the washer [43] and nut [42] on the bolt [46].

(h) Hand tighten the nut [42] until after final adjustments to the doors are made in the subsequent steps.

**SUBTASK 32-11-61-820-001**

(9) If you changed the length of pushrod [41], do the step that follows:

NOTE: No adjustment to the doors is necessary if the pushrod was not changed.

(a) Do this task: Main Landing Gear Shock Strut Door Adjustment, TASK 32-13-11-820-801.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-11-61-420-008**

(1) Do this task: Main Gear Downlock Spring Installation, TASK 32-32-91-400-801.

**SUBTASK 32-11-61-640-002**

(2) Lubricate the lube fittings on the lower side strut. To lubricate them, refer to Main Landing Gear Upper End Components Servicing, TASK 12-21-11-640-801.



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SUBTASK 32-11-61-780-002

(3) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-11-61-710-002

(4) Do this task: Main Landing Gear - Operational Test, TASK 32-32-00-710-802.

SUBTASK 32-11-61-580-004

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(5) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**——— END OF TASK ———**

**TASK 32-11-61-000-803**

## 6. Main Landing Gear Side Strut Removal

(Figure 403)

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) This task gives the instructions to remove the side strut.

### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-91-000-801 | Main Gear Downlock Springs Removal (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1359 | Assembly - Wrench Adapter, C32029-3 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1368 | Protector - Thread, C32029-12 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1369 | Protector - Thread, C32029-13 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |


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(Continued)

| Reference | Description |
|---|---|
| SPL-1370 | Protector - Thread, C32029-14 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |

**D. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**E. Prepare for the Removal**

SUBTASK 32-11-61-480-014

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-61-580-005

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-11-61-860-003

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-11-61-020-011

(4) Do this task: Main Gear Downlock Springs Removal, TASK 32-32-91-000-801.

**F. Main Landing Gear Side Strut Removal**

SUBTASK 32-11-61-020-012

(1) Disconnect the upper side strut [3] from the downlock strut [1] :

(a) Remove the cotter pin [6] from the downlock link pin [2].

(b) Remove the nut [5] and washer [4] from the downlock link pin [2].



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(c) Remove the downlock link pin [2] to disconnect the upper side strut [3] from the downlock strut [1].

NOTE: Use the thread protector, C32029-13, SPL-1369, for the downlock link pin [2] when you do this step.

**SUBTASK 32-11-61-020-013**

(2) Disconnect the lower side strut [8] from the pushrod [41]:

(a) Remove the nut [42] and washer [43] from the bolt [46].

(b) Remove the bolt [46] to disconnect the lower side strut [8] from the pushrod [41].

(c) Isolate the pushrod [41] from the lower side strut [8].

**SUBTASK 32-11-61-480-007**

(3) Use a rope to hold the pushrod [41] and the inner door in its position.

**SUBTASK 32-11-61-020-014**

(4) Disconnect the lower side strut [8] from the shock strut [51]:

(a) Remove the cotter pin [49], nut [50], and washer [48] from the cross bolt [47].

(b) Remove the cross bolt [47] from the side strut pin [52].

(c) Remove the side strut nut [54] and side strut washer [53] from the side strut pin [52].

(d) Remove the side strut pin [52] to disconnect the lower side strut [8] from the shock strut [51].

NOTE: Use the thread protector, C32029-14, SPL-1370, for the side strut pin [52] when you do this step.

**SUBTASK 32-11-61-020-015**

(5) Disconnect the upper side strut [3] from the reaction link assembly [15]:

(a) Remove the cotter pin [19], nut [18], and washer [17] from cross bolt [16].

(b) Remove the cross bolt [16] from the side strut pin [22].

(c) Remove the side strut nut [20] and side strut washer [21] from the side strut pin [22].

NOTE: Use the wrench adapter, C32029-3, SPL-1359, to hold the head of the side strut pin [22] when you loosen the side strut nut [20].

(d) Remove the side strut pin [22] that holds the upper side strut [3] to the reaction link assembly [15].

NOTE: Use the thread protector, C32029-12, SPL-1368, for the side strut pin [22] when you do this step.

**SUBTASK 32-11-61-020-016**

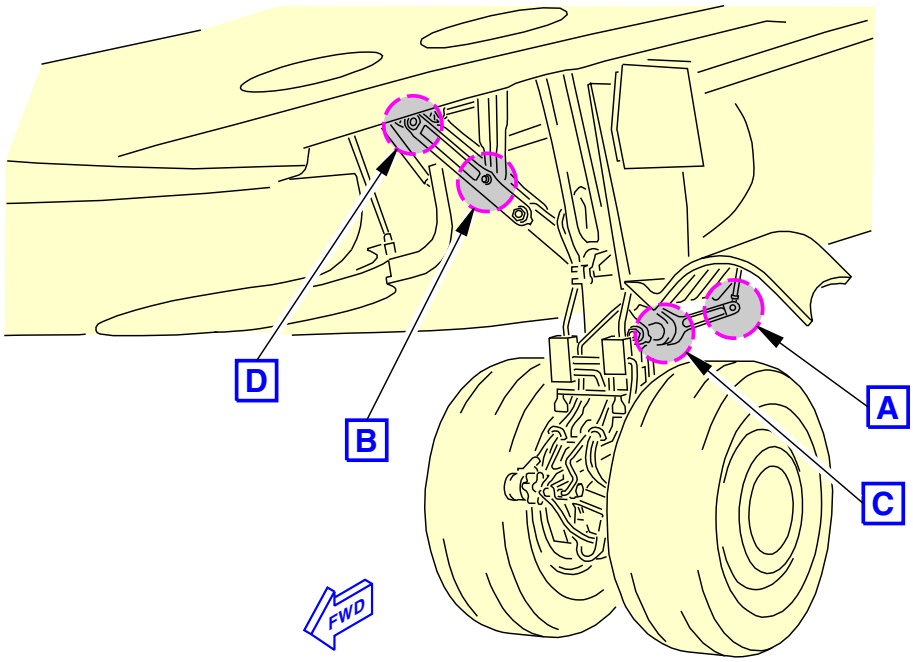
(6) Remove the assembly of the upper side strut [3] and the lower side strut [8] from the airplane.

NOTE: The side strut assembly weighs approximately 90.11 lb (40.87 kg). Make sure a minimum of two person will hold and lower the side strut when you remove it from the airplane.

**END OF TASK**



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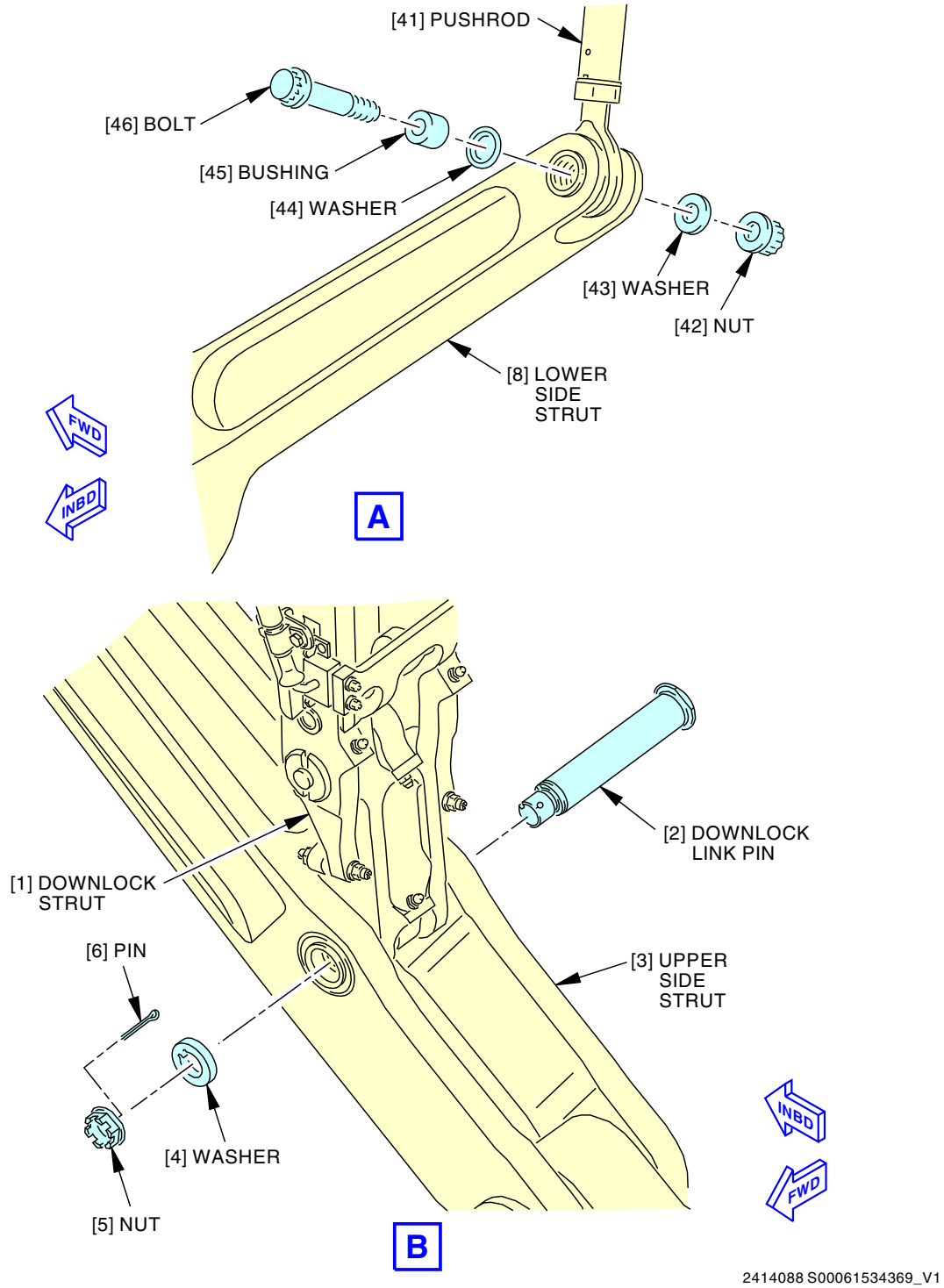

**LEFT MAIN LANDING GEAR**
**(RIGHT MAIN LANDING GEAR IS EQUIVALENT)**

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**Main Landing Gear Side Strut Installation**
**Figure 403/32-11-61-990-803 (Sheet 1 of 3)**



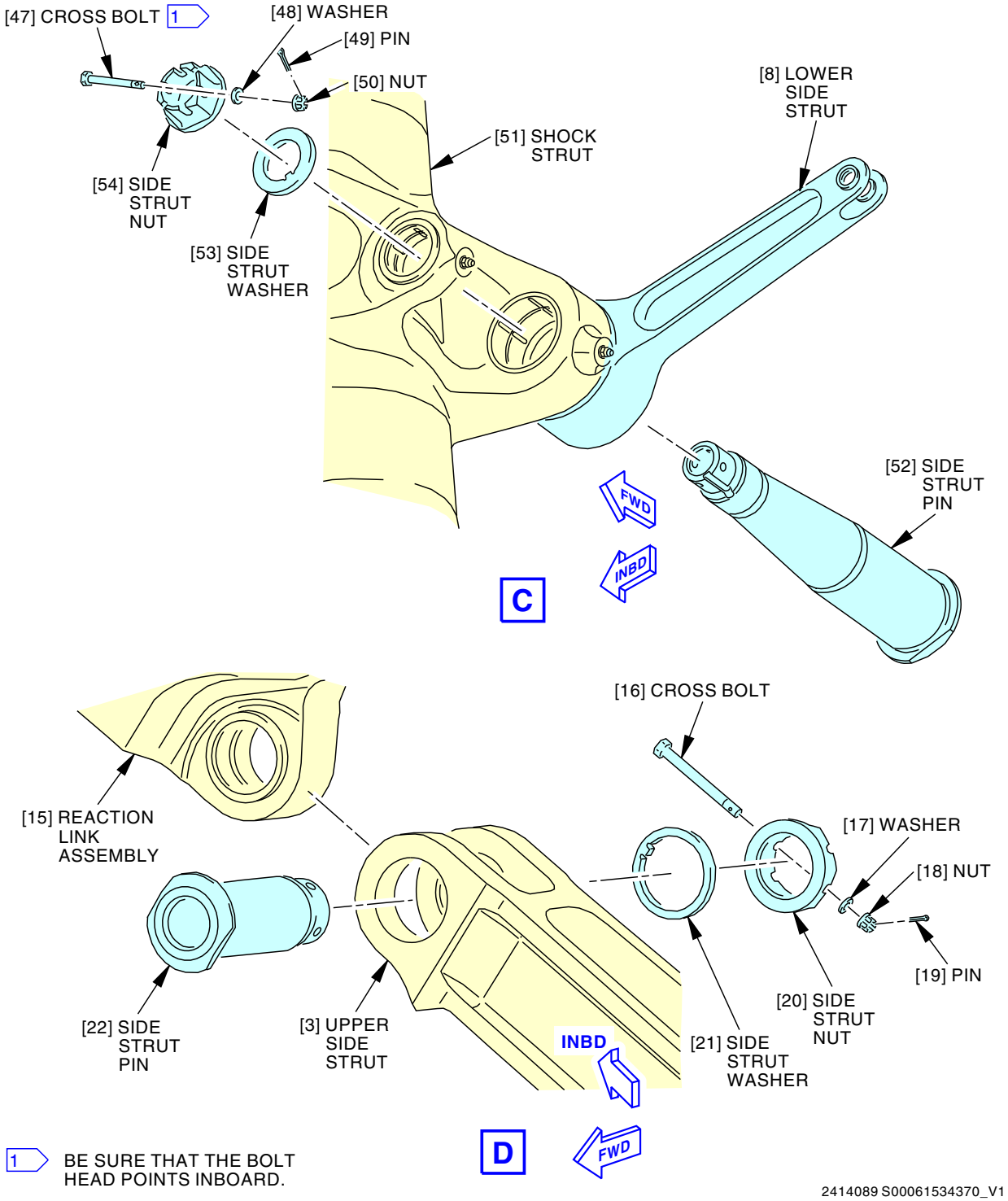
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Side Strut Installation**
**Figure 403/32-11-61-990-803 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Side Strut Installation**
**Figure 403/32-11-61-990-803 (Sheet 3 of 3)**



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**TASK 32-11-61-400-803**

## 7. Main Landing Gear Side Strut Installation

(Figure 403)

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) This task gives the instructions to install the side strut.

### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-21-11-640-801 | Main Landing Gear Upper End Components Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-11-820-801 | Main Landing Gear Shock Strut Door Adjustment (P/B 501) |
| 32-32-00-710-802 | Main Landing Gear - Operational Test (P/B 501) |
| 32-32-91-400-801 | Main Gear Downlock Spring Installation (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1359 | Assembly - Wrench Adapter, C32029-3 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1361 | Assembly - Wrench Adapter, C32029-39 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1368 | Protector - Thread, C32029-12 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1369 | Protector - Thread, C32029-13 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1370 | Protector - Thread, C32029-14 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### E. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Upper side strut | 32-11-61-01-310 | SIA ALL |
| 6 | Cotter pin | 32-11-61-01-040 | SIA ALL |


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(Continued)

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 8 | Lower side strut | 32-11-61-01-350 | SIA ALL |
| 19 | Cotter pin | 32-11-71-01-085 | SIA ALL |
| 49 | Cotter pin | 32-11-61-05-040 | SIA ALL |

**F. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**G. Prepare for the Installation**

SUBTASK 32-11-61-480-015

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**H. Main Landing Gear Side Strut Installation**

SUBTASK 32-11-61-420-009

(1) Connect the upper side strut [3] to the reaction link assembly [15]:

(a) Lubricate the chrome plated surfaces of the side strut pin [22] with grease, D00633.

(b) Remove all unwanted grease, D00633.

(c) Put the upper side strut [3] in its position for connection to the reaction link assembly [15].

(d) Put the side strut pin [22] through the upper side strut [3] and the reaction link assembly [15].

NOTE: Use the thread protector, C32029-12, SPL-1368, for the side strut pin [22] when you do this step.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of corrosion inhibiting material, G50136 to these items:

NOTE: Do not apply corrosion inhibiting materal to the chrome plated surfaces.

1) The threads and thread reliefs of the side strut pin [22] and cross bolt [16]

2) The threads of the side strut nut [20] and nut [18]

3) The faces of the side strut washer [21] and washer [17].



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(f) Remove all unwanted corrosion inhibiting material, G50136.

(g) Install the side strut washer [21] and side strut nut [20] on the side strut pin [22].

(h) Tighten the side strut nut [20] to 600 in-lb (67.79 N·m)-900 in-lb (101.69 N·m).

NOTE: Use the wrench adapter, C32029-3, SPL-1359, to hold the head of the side strut pin [22] when you tighten the side strut nut [20].

(i) If it is necessary, loosen the side strut nut [20] to the nearest castellation to align the hole for the cross bolt [16].

(j) Install the cross bolt [16] in the side strut pin [22].

(k) Install the washer [17] and nut [18] on the cross bolt [16].

(l) Tighten the nut [18] to 30 in-lb (3.39 N·m) to 50 in-lb (5.65 N·m).

(m) If it is necessary, loosen the nut [18] to the nearest castellation to align the holes for the new cotter pin [19].

(n) Install the new cotter pin [19] in the cross bolt [16].

**SUBTASK 32-11-61-420-010**

(2) Connect the lower side strut [8] to the shock strut [51]:

(a) Lubricate the chrome plated surfaces of the side strut pin [52] with grease, D00633.

(b) Remove all unwanted grease, D00633.

(c) Put the lower side strut [8] in its position for attachment to the shock strut [51].

(d) Put the side strut pin [52] through the lower side strut [8] and the clevis on the shock strut [51].

NOTE: Use the thread protector, C32029-14, SPL-1370, for the side strut pin [52] when you do this task.

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of corrosion inhibiting material, G50136 to these items:

NOTE: Do not apply corrosion inhibiting material to the chrome plated surfaces.

1) The threads and thread reliefs of the side strut pin [52], new cotter pin [49], and cross bolt [47].

2) The threads of the side strut nut [54] and nut [50].

3) The faces of the side strut washer [53] and washer [48].

(f) Remove all unwanted corrosion inhibiting material, G50136.

(g) Install the side strut washer [53] and side strut nut [54] on the side strut pin [52].

(h) Tighten the side strut nut [54] to 95 ft-lb (128.80 N·m)-115 ft-lb (155.92 N·m).

NOTE: Use the wrench adapter, C32029-39, SPL-1361, to hold the head of the side strut pin [52] when you tighten the side strut nut [54].

(i) Install the cross bolt [47] in the side strut pin [52].



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1) If it is necessary, loosen the side strut nut [54] to the nearest castellation to align the hole for the cross bolt [47].

(j) Install the washer [48] and nut [50] on the cross bolt [47].

(k) Tighten the nut [50] to 20 in-lb (2.26 N·m)-24 in-lb (2.71 N·m).

(l) If it is necessary, loosen the nut [50] to the nearest castellation to align the hole for the new cotter pin [49].

(m) Install the new cotter pin [49] in the cross bolt [47].

(n) Check the interior of side strut pin [52] and reapply corrosion inhibiting material, G50136 as required.

SUBTASK 32-11-61-080-002

(3) Remove the rope that holds the pushrod [41] in its position.

SUBTASK 32-11-61-420-011

(4) Connect the lower side strut [8] to the pushrod [41]:

(a) Lubricate the nut [42], washer [43], and bolt [46] with grease, D00633.

(b) Remove all unwanted grease, D00633.

(c) Align the hole in the pushrod [41] with the hole in the lower side strut [8].

(d) Put the bushing [45] through the lower side strut [8] and the pushrod [41].

(e) Install the washer [44] on the bolt [46].

(f) Put the bolt [46] through the lower side strut [8] and the pushrod [41].

(g) Install the washer [43] and nut [42] on the bolt [46].

NOTE: Do not tighten the nut [42]. Final torque to the nut will be done after final adjustments to the doors are made in the subsequent step.

SUBTASK 32-11-61-420-012

(5) Connect the upper side strut [3] to the downlock strut [1]:

(a) Lubricate the chrome plated surfaces of the downlock link pin [2] with grease, D00633.

(b) Remove all unwanted grease, D00633.

(c) Put the downlock strut [1] in its position for connection to the upper side strut [3].

(d) Put the downlock link pin [2] through the upper side strut [3] and the downlock strut [1].

NOTE: Use the thread protector, C32029-13, SPL-1369, for the downlock link pin [2] when you do this step.

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of corrosion inhibiting material, G50136 to these items:

NOTE: Do not apply corrosion inhibiting material to the chrome plated surfaces.

1) The threads and thread reliefs of the downlock link pin [2]

2) The threads of the nut [5]

3) The faces of the washer [4].



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(f) Remove all unwanted corrosion inhibiting material, G50136.

(g) Install the washer [4] and nut [5] on the downlock link pin [2].

(h) Tighten the nut [5] to 360 in-lb (40.67 N·m) to 600 in-lb (67.79 N·m).

(i) If it is necessary, loosen the nut [5] to the nearest castellation to align the hole for the new cotter pin [6].

(j) Install the new cotter pin [6] in the downlock link pin [2].

**SUBTASK 32-11-61-820-002**

(6) If you changed the length of pushrod [41], do the step that follows:

NOTE: No adjustment to the doors is necessary if the pushrod was not changed.

(a) Do this task: Main Landing Gear Shock Strut Door Adjustment, TASK 32-13-11-820-801.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-11-61-420-013**

(1) Do this task: Main Gear Downlock Spring Installation, TASK 32-32-91-400-801.

**SUBTASK 32-11-61-640-003**

(2) Lubricate the lube fittings on the side strut. To lubricate them, refer to Main Landing Gear Upper End Components Servicing, TASK 12-21-11-640-801.

**SUBTASK 32-11-61-780-003**

(3) For hydraulic systems A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-11-61-710-003**

(4) Do this task: Main Landing Gear - Operational Test, TASK 32-32-00-710-802.

**SUBTASK 32-11-61-580-006**

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(5) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**END OF TASK**



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## MAIN LANDING GEAR SIDE STRUT ASSEMBLY - INSPECTION/CHECK

### 1. General

A. This task supplies the data for a dimensional inspection of the side strut assembly for the main landing gear.

B. This task does not remove or install the side strut assembly. Refer to the MAIN LANDING GEAR SIDE STRUT ASSEMBLY - REMOVAL/INSTALLATION, PAGEBLOCK 32-11-61/401 for tasks to remove and install the side strut assembly for the main landing gear.

**TASK 32-11-61-200-801**

### 2. Main Landing Gear Side Strut Assembly Inspection

#### A. General

(1) This task gives the maximum design and wear clearances for the side strut assembly for the main landing gear.

NOTE: A certain quantity of free play is permitted as a result of design tolerances for all joints on the side strut assembly.

#### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### D. Main Landing Gear Side Strut Assembly Inspection

**SUBTASK 32-11-61-480-009**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-11-61-200-001**

(2) Examine the joints on the side strut assembly for the main landing gear.

(a) Make sure the all joints on the side strut assembly for the main landing gear are within the maximum design or wear clearances.

(b) If the joint exceeds the maximum wear clearance, then replace or repair the applicable part.



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**Main Landing Gear Side Strut Design and Wear Clearances**

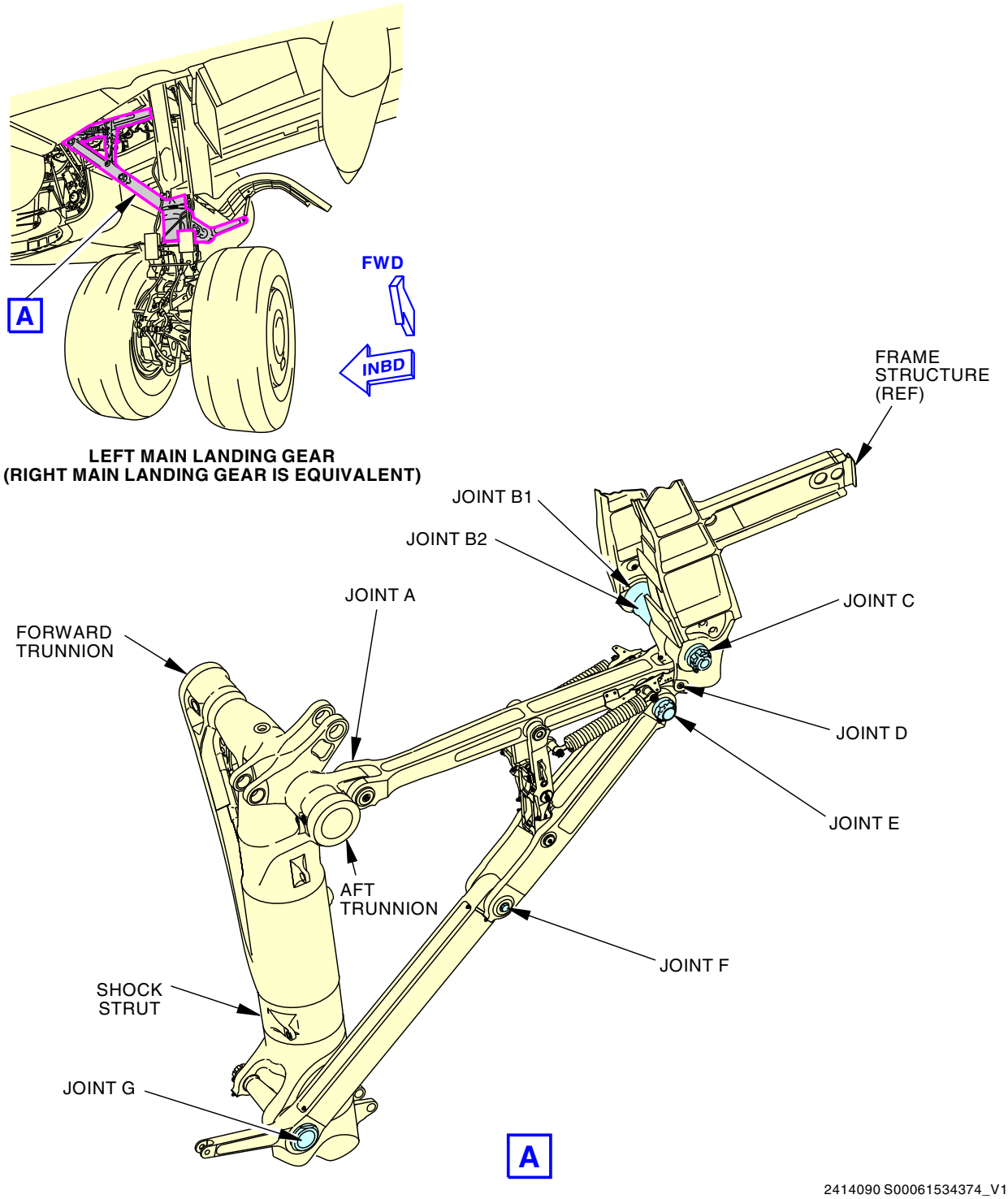
| Joint (Main Landing Gear Side Strut Design Clearance/Figure 601) | Maximum Design Clearances inches (mm) | Maximum Wear Clearance inches (mm) |
|---|---|---|
| A *[1] | 0.041 in. (1.041 mm) | 0.060 in. (1.524 mm) |
| B1**[2] | 0.105 in. (2.667 mm) | 0.150 in. (3.810 mm) |
| B2 *[3] | 0.201 in. (5.105 mm) | 0.240 in. (6.096 mm) |
| C *[4] | 0.105 in. (2.667 mm) | 0.150 in. (3.810 mm) |
| D *[5] | 0.050 in. (1.270 mm) | 0.070 in. (1.778 mm) |
| E *[6] | 0.041 in. (1.041 mm) | 0.061 in. (1.549 mm) |
| F *[7] | 0.021 in. (0.533 mm) | 0.043 in. (1.092 mm) |
| G *[8] | 0.068 in. (1.727 mm) | 0.098 in. (2.489 mm) |

*[1] Distance between the outboard end of the reaction link and outer cylinder.
*[2] Distance between flange face of hanger link to end of spacer.
*[3] Distance between the hanger link and the fuselage attach fitting.
*[4] Maximum axial free play for the side of body joint pin.
*[5] Distance between the inboard end of the reaction link and the lower end of the hanger link.
*[6] Distance between the upper end of the upper side strut and the reaction link.
*[7] Distance between the upper and lower side strut.
*[8] Distance between the lower end of the lower side strut and the outer cylinder.

**END OF TASK**



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**Main Landing Gear Side Strut Design Clearance**
**Figure 601/32-11-61-990-804**



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## MAIN LANDING GEAR SIDE BRACE ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Main Landing Gear Side Brace Removal

(2) Main Landing Gear Side Brace Installation.

**TASK 32-11-62-000-801**

### 2. Main Landing Gear Side Brace Assembly Removal

#### A. General

(1) This task gives the instructions to remove the Main Landing Gear (MLG) side strut assembly along with the MLG reaction link assembly.

(2) The MLG side strut assembly along with the MLG reaction link assembly is referred to as the MLG side brace assembly.

#### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1364 | Assembly - Slug Driver, C32029-8 (include in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1370 | Protector - Thread, C32029-14 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-8264 | Transportation Equipment - Tower Jack, Main Landing Gear<br>Part #: J32062-26 Supplier: 81205<br>Opt Part #: J32062-1 Supplier: 81205 |
| SPL-11946 | Assembly - Wrench Adapter, C32029-31 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-19644 | Dolly - MLG Side Strut<br>Part #: C32078-1 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |



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(Continued)

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## E. Prepare for the Removal

SUBTASK 32-11-62-480-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-62-580-001

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-11-62-860-001

(3) Remove the power from the hydraulic systems A and B (TASK 29-11-00-860-805).

SUBTASK 32-11-62-860-002

(4) Remove the pressure from the hydraulic reservoirs (TASK 29-09-00-860-802).

## F. Main Landing Gear Side Brace Assembly Removal

SUBTASK 32-11-62-020-001

(1) Do these steps to disconnect the lower side strut [2] from the pushrod [3].

(a) Remove the nut [4] and washer [5] from the bolt [8].

(b) Remove the bolt [8], washer [6], and bushing [7] to disconnect the lower side strut [2] from the pushrod [3].

(c) Isolate the pushrod [3] from the lower side strut [2].

(d) Use a rope to hold the pushrod [3] and the inner door in its position.

SUBTASK 32-11-62-020-002

(2) Do these steps to disconnect the lower side strut [2] from the shock strut [13].

(a) Remove the cotter pin [11], nut [12], and washer [10] from the cross bolt [9].

(b) Remove the cross bolt [9] from the side strut pin [14].

(c) Remove the side strut nut [16] and side strut washer [15] from the side strut pin [14].



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(d) Remove the side strut pin [14] to disconnect the lower side strut [2] from the shock strut [13].

NOTE: Use the thread protector, C32029-14, SPL-1370, for the side strut pin [14] when you do this step.

(e) Use the strap assembly to temporarily hold lower side strut [2] in its position.

**SUBTASK 32-11-62-480-002**

(3) Do these steps to install the strut support assembly to the side brace assembly [1].

NOTE: The strut support assembly is part of the side strut dolly, SPL-19644. For installation instructions, refer to the tool placard.

(a) Install the protective pad on the lower side strut [2].

(b) Use the transportation equipment, SPL-8264 to lift the strut support assembly into position under the side brace assembly [1].

1) Install the ball lock pins to lock the strut support assembly.

NOTE: The two side ball lock pins lock the strut support assembly to the transportation equipment, SPL-8264. The top ball lock pin locks the rotation of the strut support assembly. You can remove the top ball lock pin to rotate the strut support assembly.

2) If the strut support assembly is installed on the cart assembly, remove the thumb screws before you lift the strut support assembly away from the cart assembly.

NOTE: Do not lift the cart assembly with the strut support assembly.

(c) Secure the side brace assembly [1] to the strut support assembly.

1) Install the strap assembly that holds the side brace assembly [1] to the strut support assembly.

2) Tighten the swivel screws that secure the side brace assembly [1] to the strut support assembly.

**SUBTASK 32-11-62-020-003**

(4) Do these steps to disconnect the reaction link assembly [17] from the trunnion [18]:

(a) Remove the cotter pin [23], nut [22], and washer [21] from the cross bolt [19].

(b) Remove the cross bolt [19] from the trunnion pin [20].

(c) Remove the end cap [24] from the trunnion pin [20].

(d) Use the slug driver, C32029-8, SPL-1364, to remove the trunnion pin [20] that attaches the reaction link assembly [17] to the trunnion [18].

**SUBTASK 32-11-62-020-004**

(5) Disconnect the electrical harness [26].

**SUBTASK 32-11-62-020-005**

(6) Do these steps to disconnect the hydraulic line [28] and hydraulic line [28A] from the hydraulic tubes [27]:

(a) Disconnect the hydraulic lines [28] and hydraulic line [28A] from the hydraulic tubes [27].

(b) Install caps/plugs, STD-14686 on the hydraulic line [28] and hydraulic line [28A].

(c) Put tags on the hydraulic line [28] and hydraulic line [28A] to prevent the crossing of the hydraulic lines during the installation.

(d) Install caps/plugs, STD-14686 on the hydraulic tubes [27].



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SUBTASK 32-11-62-020-006

(7) Do these steps to remove the hanger link assembly [29] from the supporting structure:

(a) Remove the cotter pin [30], nut [31], and washer [32] from the cross bolt [33].

(b) Remove the cross bolt [33] from the hanger link assembly pin [36].

(c) Remove the nut [34] and washer [35] from the hanger link assembly pin [36] with wrench adapter, C32029-31, SPL-11946.

(d) Remove the hanger link assembly pin [36] and bushing [37] that attaches the hanger link assembly [29] to the supporting structure.

(e) Use the strap assembly to hold lower side strut [2] to the hanger link assembly [29].

SUBTASK 32-11-62-020-007

(8) Use the transportation equipment, SPL-8264 to lower the strut support assembly along with the side brace assembly [1] into position on the cart assembly.

(a) If it is necessary, disconnect the lower end of the support rod [50] and support rod [51] from the wheel well structure.

1) Remove the bolt [52], washer [53], bushing [54], washer [55], and nut [56].

(b) Install the top ball lock pin to lock the rotation of the strut support assembly.

(c) Install the thumb screws to secure the strut support assembly to the cart assembly.

(d) Remove the two side ball lock pins.

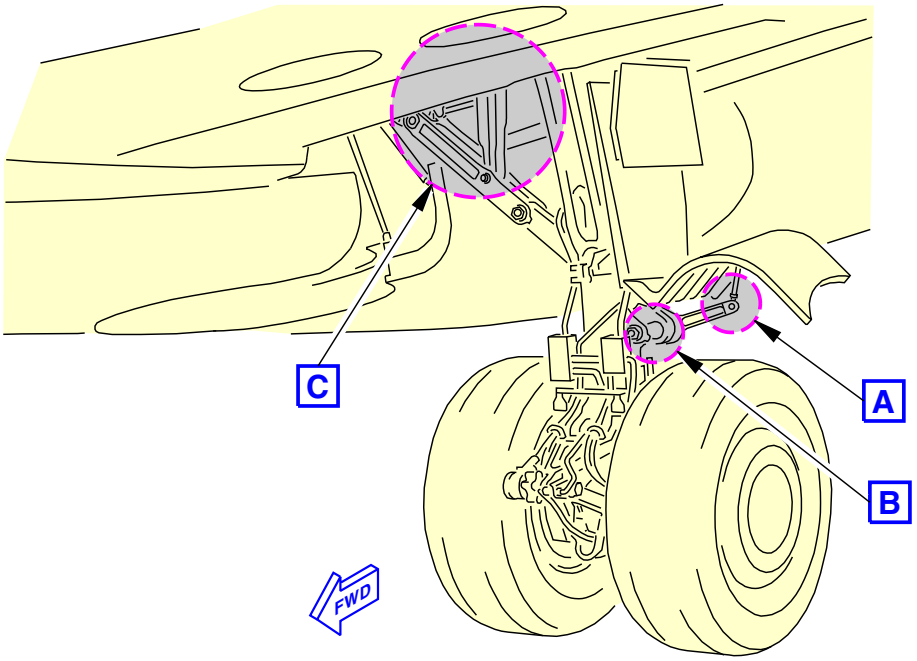
NOTE: The two side ball lock pins lock the strut support assembly to the transportation equipment, SPL-8264.

(e) Remove the transportation equipment, SPL-8264.

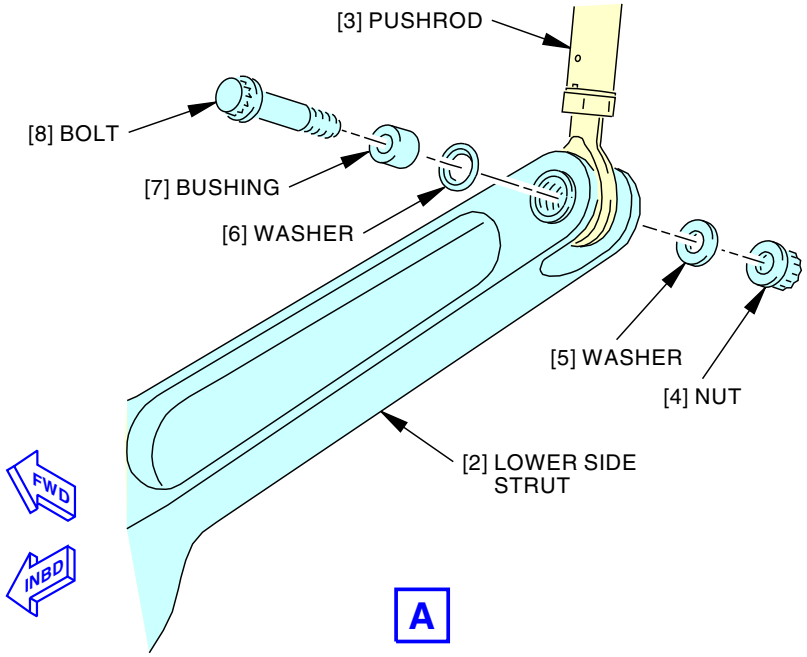
**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**LEFT MAIN LANDING GEAR**
**(RIGHT MAIN LANDING GEAR IS EQUIVALENT)**

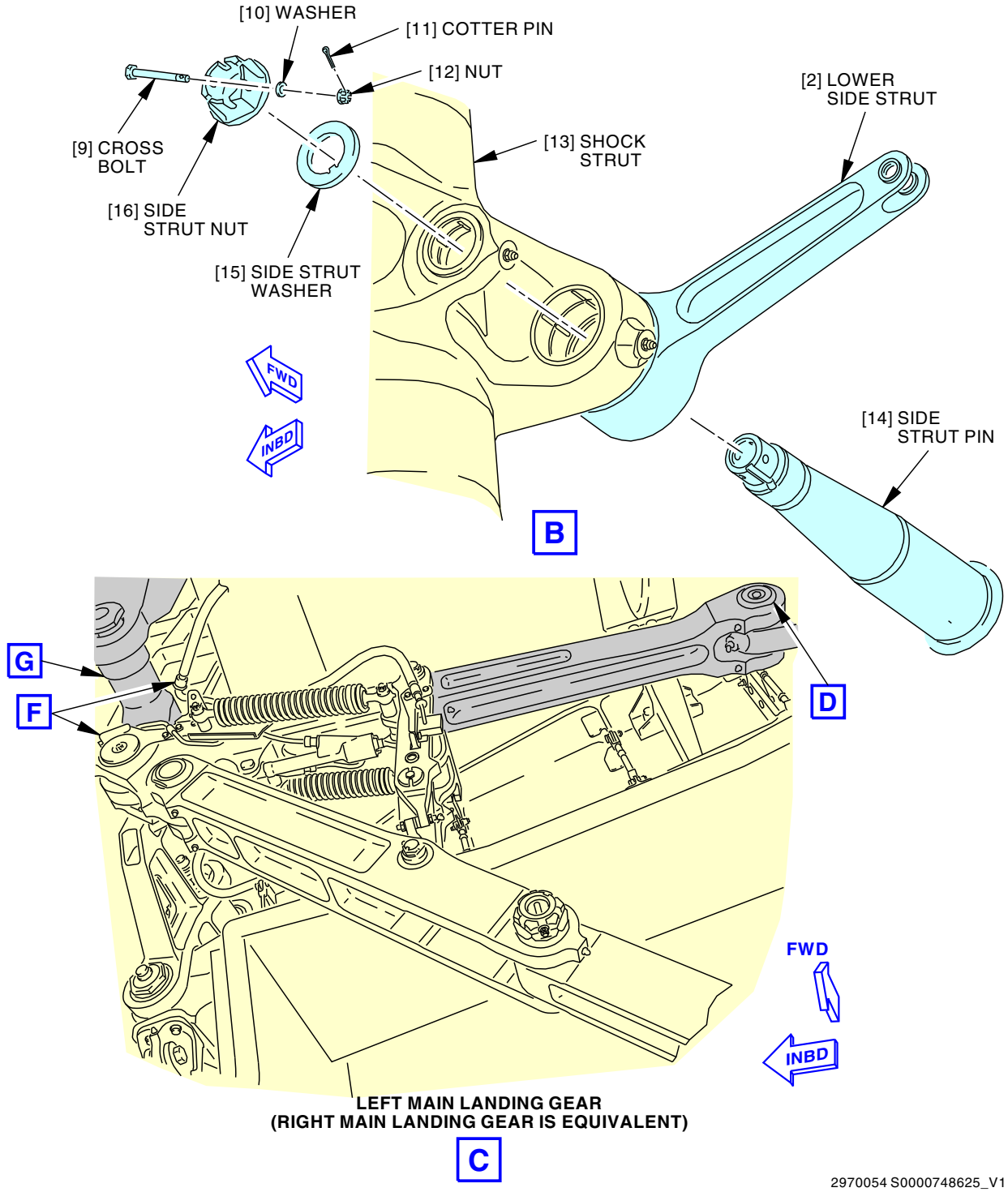



2970038 S0000748624_V1

**Main Landing Gear Side Brace Assembly Installation**
**Figure 401/32-11-62-990-801 (Sheet 1 of 5)**



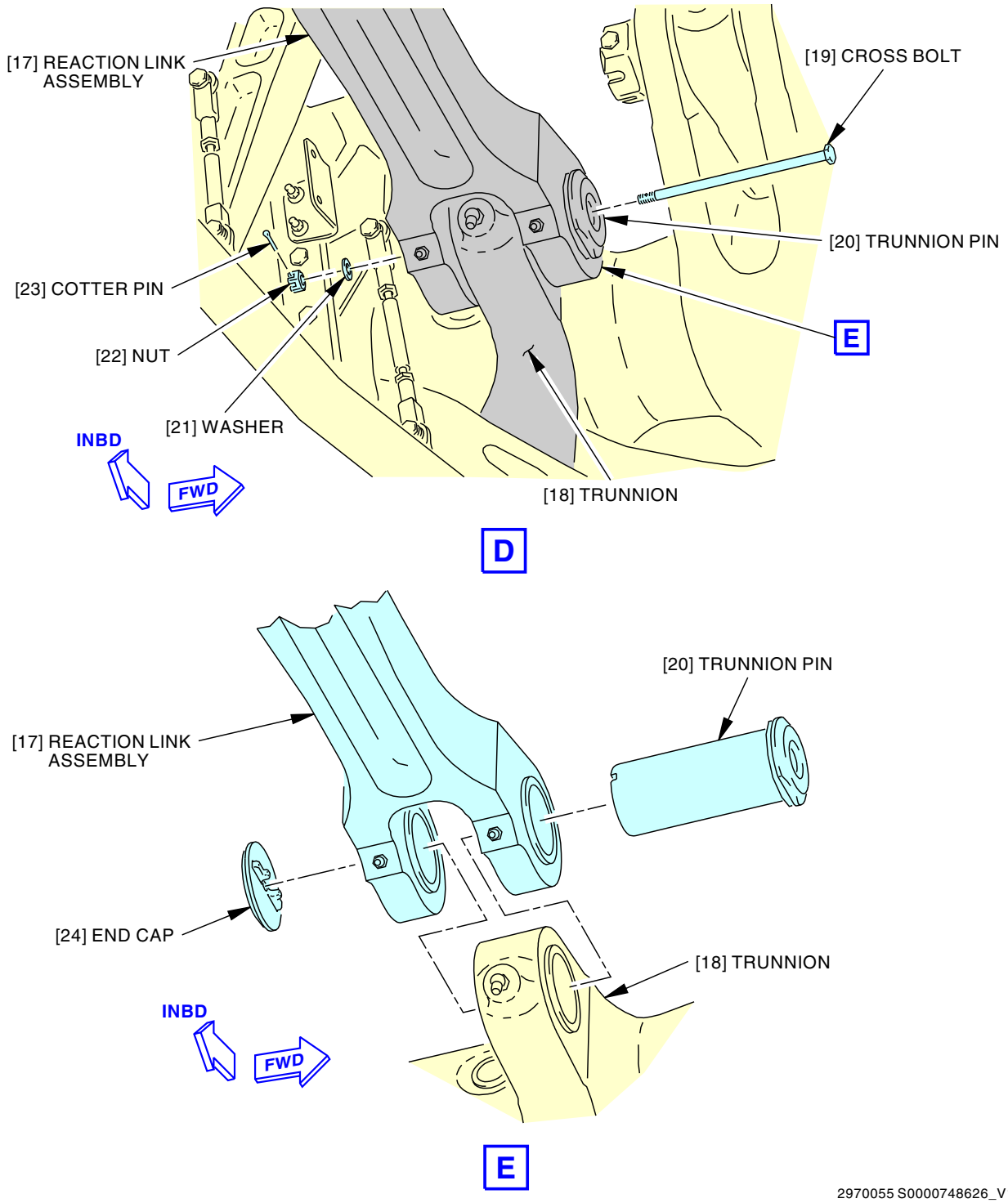
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Side Brace Assembly Installation**
**Figure 401/32-11-62-990-801 (Sheet 2 of 5)**



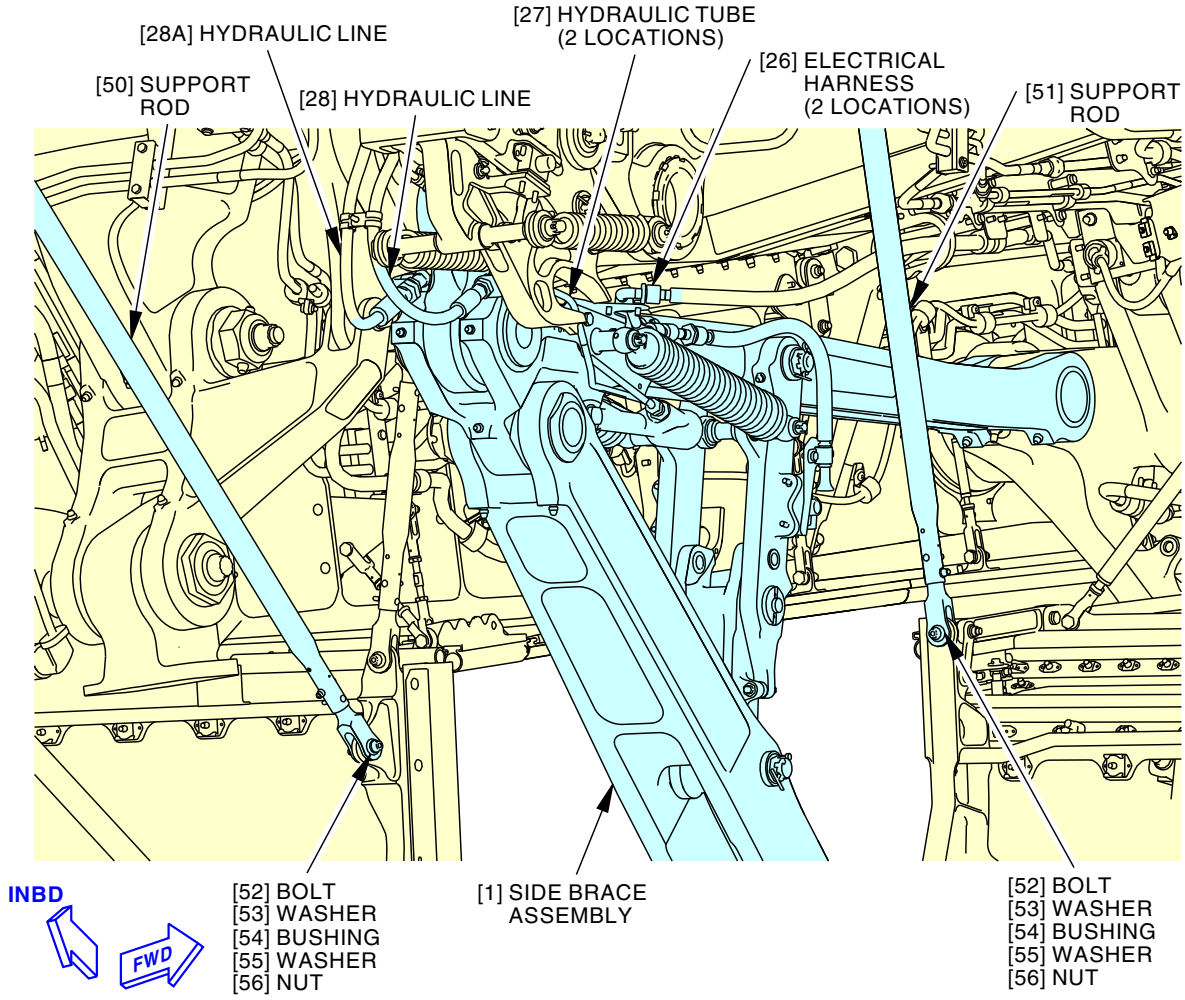
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**Main Landing Gear Side Brace Assembly Installation**
**Figure 401/32-11-62-990-801 (Sheet 3 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



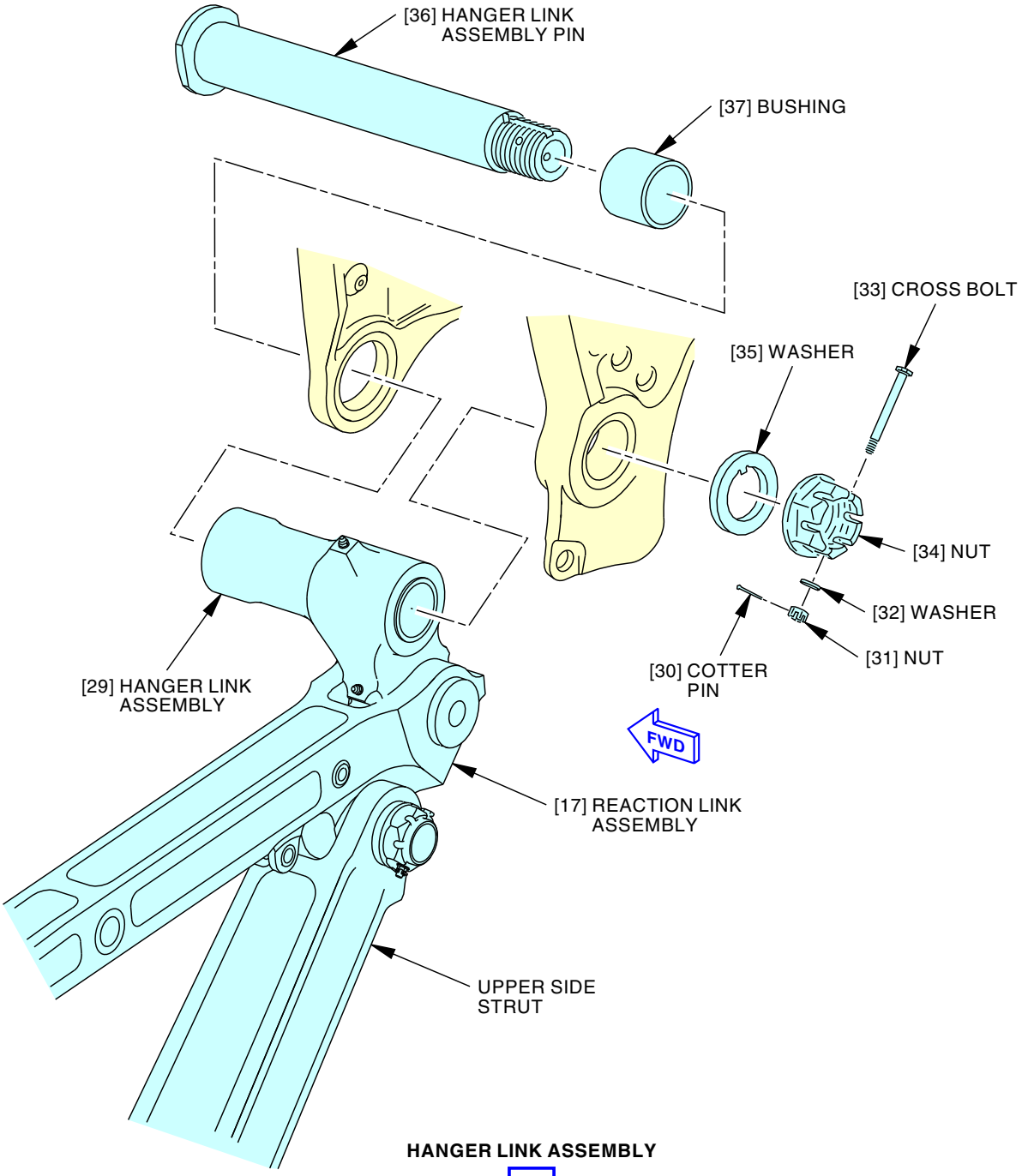

F

2970061 S0000748627_V1

**Main Landing Gear Side Brace Assembly Installation**
**Figure 401/32-11-62-990-801 (Sheet 4 of 5)**



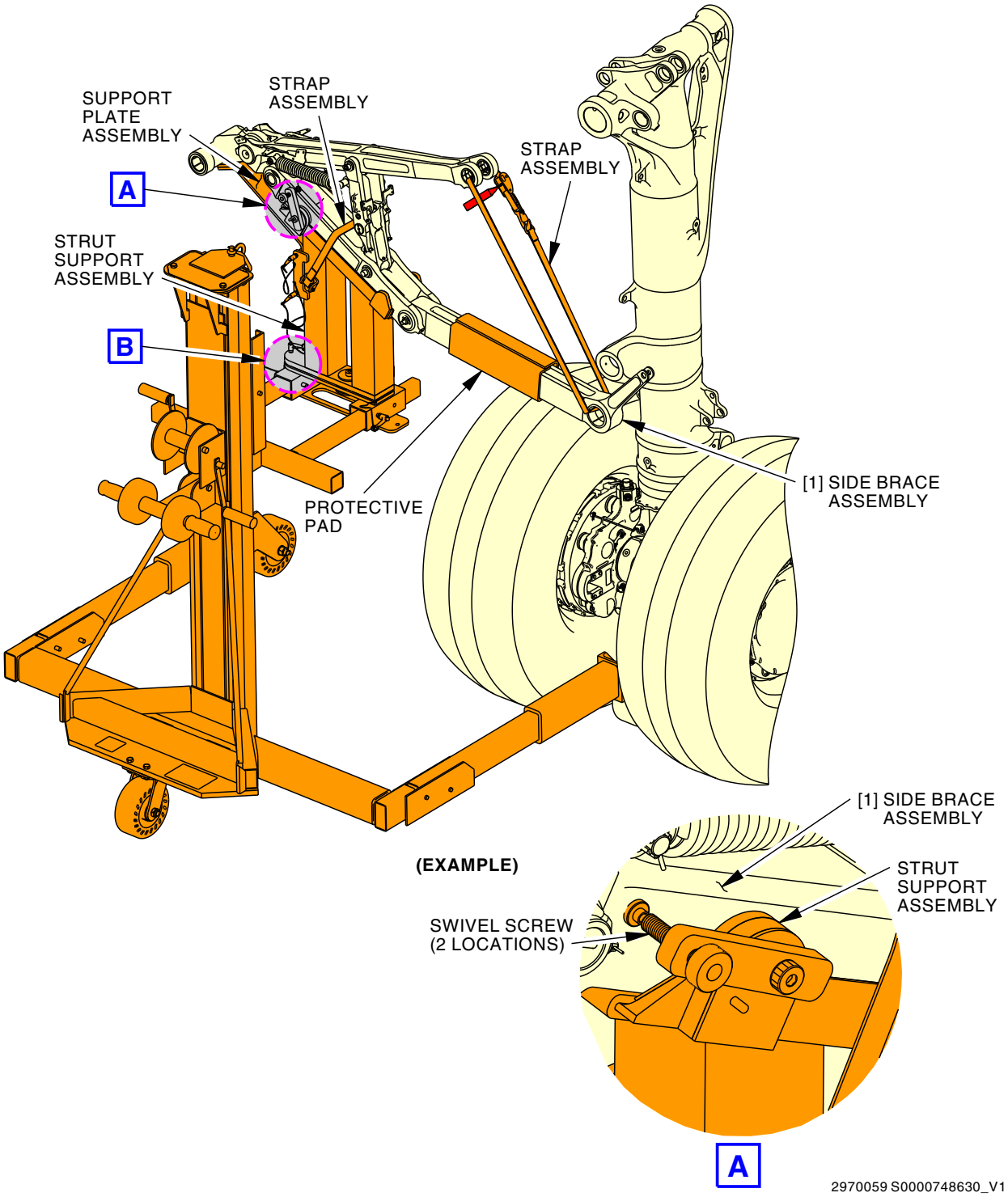
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**Main Landing Gear Side Brace Assembly Installation**
**Figure 401/32-11-62-990-801 (Sheet 5 of 5)**



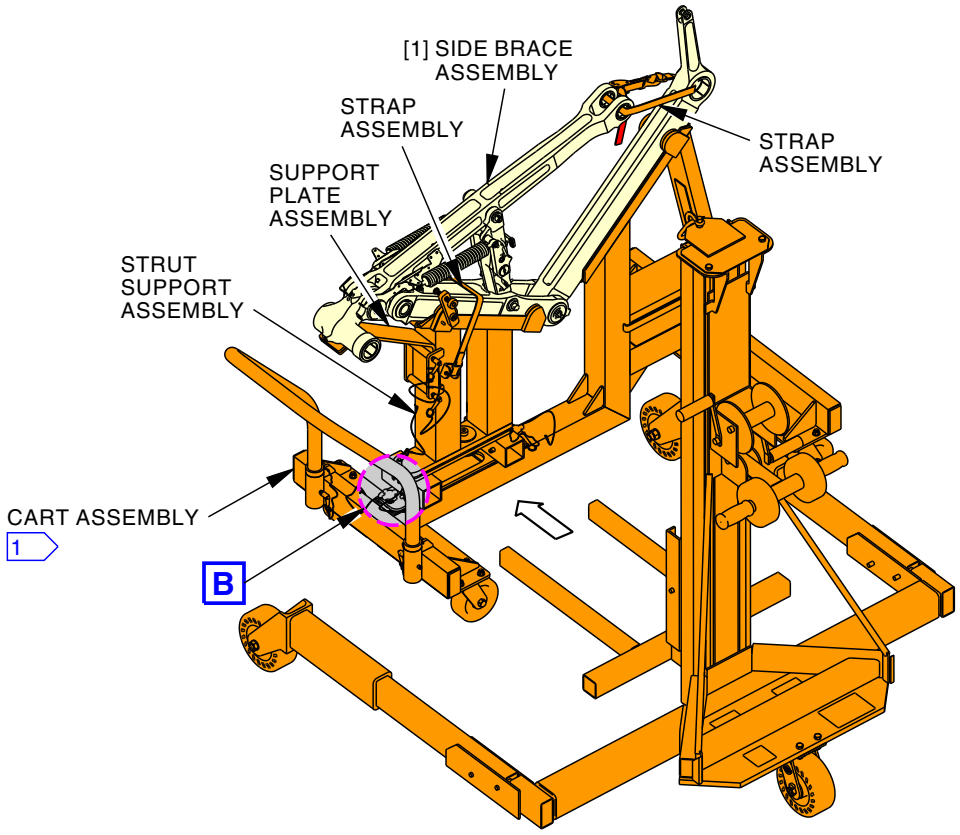
ECCN 9E991 BOEING PROPRIETARY - See title page for details



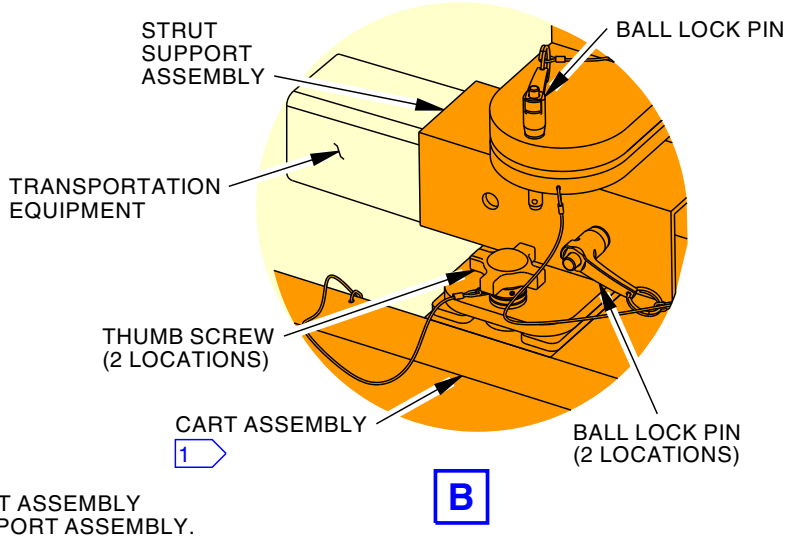

**Main Landing Gear Side Brace Assembly Rigging Equipment**
**Figure 402/32-11-62-990-802 (Sheet 1 of 2)**



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**(EXAMPLE)**




1 DO NOT LIFT THE CART ASSEMBLY WITH THE STRUT SUPPORT ASSEMBLY.

2970060 S0000748631_V1

**Main Landing Gear Side Brace Assembly Rigging Equipment**
**Figure 402/32-11-62-990-802 (Sheet 2 of 2)**



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**TASK 32-11-62-400-801**

## 3. Main Landing Gear Side Brace Assembly Installation

### A. General

(1) This task gives the instructions to install the Main Landing Gear (MLG) side strut assembly along with the MLG reaction link assembly.

(2) The MLG side strut assembly along with the MLG reaction link assembly is referred to as the MLG side brace assembly.

### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-21-11-640-801 | Main Landing Gear Upper End Components Servicing (P/B 301) |
| 20-10-44-400-801 | Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-11-820-801 | Main Landing Gear Shock Strut Door Adjustment (P/B 501) |
| 32-32-00-710-802 | Main Landing Gear - Operational Test (P/B 501) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1361 | Assembly - Wrench Adapter, C32029-39 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1370 | Protector - Thread, C32029-14 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-8264 | Transportation Equipment - Tower Jack, Main Landing Gear<br>Part #: J32062-26 Supplier: 81205<br>Opt Part #: J32062-1 Supplier: 81205 |
| SPL-11946 | Assembly - Wrench Adapter, C32029-31 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-19644 | Dolly - MLG Side Strut<br>Part #: C32078-1 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |



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(Continued)

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## F. Prepare for the Installation

SUBTASK 32-11-62-480-003

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

## G. Main Landing Gear Side Brace Assembly Installation

SUBTASK 32-11-62-480-004

**CAUTION** BE CAREFUL WHEN YOU MOVE THE SIDE BRACE ASSEMBLY INTO ITS POSITION. IF YOU DO NOT OBEY, DAMAGE TO THE COMPONENTS CAN OCCUR.

(1) Use the transportation equipment, SPL-8264 to lift the strut support assembly along with the side brace assembly [1] into position on the MLG.

NOTE: The strut support assembly is part of the side strut dolly, SPL-19644. For installation instructions, refer to the tool placard.

(a) If not already done, install the protective pad on the lower side strut [2].

(b) If not already done, secure the side brace assembly [1] to the strut support assembly.

1) Install the strap assembly to hold the side brace assembly [1] to the strut support assembly.

2) Tighten the swivel screws to secure the side brace assembly [1] to the strut support assembly.

(c) Install the ball lock pins to lock the strut support assembly.

NOTE: The two side ball lock pins lock the strut support assembly to the transportation equipment, SPL-8264. The top ball lock pin locks the rotation of the strut support assembly. You can remove the top ball lock pin to rotate the strut support assembly.

(d) If the strut support assembly is installed on the cart assembly, remove the thumb screws before you lift the strut support assembly away from the cart assembly.

NOTE: Do not lift the cart assembly with the strut support assembly.

SUBTASK 32-11-62-420-001

(2) Do these steps to connect the reaction link assembly [17] to the trunnion [18]:

(a) Lubricate the chrome plated surfaces of the trunnion pin [20] and the end cap [24] with grease, D00633.



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(b) Position the outboard end of the reaction link assembly [17] for attachment to the trunnion [18].

(c) Put the trunnion pin [20] through the reaction link assembly [17] and the trunnion [18].

(d) Install the end cap [24] on the trunnion pin [20].

(e) Put the cross bolt [19] through the trunnion pin [20] and the end cap [24].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(f) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) Do not apply corrosion inhibiting material to the chrome plated surfaces.
2) The threads and thread reliefs of the cross bolt [19].
3) The threads of the nut [22].
4) The faces of the washer [21].

(g) Remove all unwanted corrosion inhibiting material, G50136.

(h) Install the washer [21] and nut [22] on the cross bolt [19].

(i) If it is necessary, loosen the nut [22] to the nearest castellation that aligns with the hole for the cotter pin [23].

(j) Install the cotter pin [23] in the cross bolt [19].

**SUBTASK 32-11-62-420-002**

(3) Do these steps to install the hanger link assembly [29] into the supporting structure:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) Do not apply corrosion inhibiting material to the chrome plated surfaces.
2) The threads and thread reliefs of the hanger link assembly pin [36] and cross bolt [33].
3) The threads of the nut [34] and nut [31].
4) The faces of the washer [35] and washer [32].
5) Remove all unwanted corrosion inhibiting material, G50136.

(b) Prior to installation of the hanger link assembly pin [36], lubricate chrome plated surfaces with grease, D00633.

(c) Install the hanger link assembly pin [36] and bushing [37] that supports the hanger link assembly [29] to the supporting structure, through the hanger link assembly [29].



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(d) Install the washer [35] and nut [34] on the hanger link assembly pin [36].

NOTE: Do not tighten the nut [34] at this time.

SUBTASK 32-11-62-420-003

(4) Do these steps to connect the hydraulic line [28] and hydraulic line [28A] to the hydraulic tubes [27]:

(a) Remove the caps/plugs, STD-14686 from the hydraulic line [28], hydraulic line [28A], and hydraulic tubes [27].

(b) Connect the hydraulic line [28] and hydraulic line [28A] to the hydraulic tubes [27].

(c) Tighten the hydraulic line [28] to 140 ±7 in-lb (16 ±1 N·m).

(d) Tighten the hydraulic line [28A] to 270 ±14 in-lb (31 ±2 N·m).

(e) Remove the tags from the hydraulic line [28] and hydraulic line [28A].

SUBTASK 32-11-62-420-004

(5) Do these steps to connect the lower side strut [2] to the shock strut [13]:

(a) Lubricate the chrome plated surfaces of the side strut pin [14] with grease, D00633.

(b) Remove all unwanted grease, D00633.

(c) Put the lower side strut [2] in its position for attachment to the shock strut [13].

(d) Put the side strut pin [14] through the lower side strut [2] and the clevis on the shock strut [13].

NOTE: Use the thread protector, C32029-14, SPL-1370, for the side strut pin [14] when you do this task.

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of the corrosion inhibiting material, G50136 to these items:

1) Do not apply corrosion inhibiting material to the chrome plated surfaces.

2) The threads and thread reliefs of the side strut pin [14] and cross bolt [9].

3) The threads of the side strut nut [16] and nut [12].

4) The faces of the side strut washer [15] and washer [10].

(f) Remove all unwanted corrosion inhibiting material, G50136.

(g) Install the side strut washer [15] and side strut nut [16] on the side strut pin [14].

NOTE: Do not tighten the side strut nut [16] at this time.

(h) Check the interior of the side strut pin [14] and repair the application of corrosion inhibiting material, G50136 as required.

SUBTASK 32-11-62-420-005

(6) Do these steps to tighten the fasteners at the hanger link assembly pin [36]:

(a) Use wrench adapter, C32029-31, SPL-11946, to hold hanger link assembly pin [36] to tighten nut [34].



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(b) Tighten the nut [34] to 95 ft-lb (129 N·m) – 115 ft-lb (156 N·m) above run-on torque and loosen the nut to align the nearest castellation if it is necessary.

(c) Install the cross bolt [33] in the hanger link assembly pin [36].

(d) Install the nut [31] and washer [32] to the cross bolt [33].

(e) Tighten the nut [31] to 20 in-lb (2.3 N·m) – 24 in-lb (2.7 N·m) above run-on torque.

(f) If it is necessary, loosen the nut [31] to the nearest castellation that aligns with the hole for the cotter pin [30].

(g) Install the cotter pin [30] in the cross bolt [33].

SUBTASK 32-11-62-420-006

(7) Do these steps to tighten the fasteners at the side strut pin [14]:

(a) Tighten the side strut nut [16] to 95 ft-lb (128.80 N·m) – 115 ft-lb (155.92 N·m) more than the run-on torque.

NOTE: Use the wrench adapter, C32029-39, SPL-1361, to hold the head of the side strut pin [14] when you tighten the side strut nut [16].

(b) If it is necessary, loosen the side strut nut [16] to the nearest castellation to align the hole for the cross bolt [9].

(c) Install the cross bolt [9] with the bolt head inboard in the side strut pin [14].

1) Make sure that the bolt head points inboard.

NOTE: The cotter pin [11] can interfere with Ground Spoiler Interlock Valve Cable and cause premature failure of the cable.

(d) Install the washer [10] and nut [12] on the cross bolt [9].

(e) Tighten the nut [12] to 20 in-lb (2.26 N·m) – 24 in-lb (2.71 N·m).

(f) If it is necessary, loosen the nut [12] to the nearest castellation to align the hole for the cotter pin [11].

**CAUTION** MAKE SURE THAT THE COTTER PIN IS INSTALLED CORRECT. A CHAFF CONDITION CAN OCCUR TO THE SHEATHING ON THE CABLE OF THE GROUND SPOILER INTERLOCK. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT CAN OCCUR.

(g) Install the cotter pin [11] in the cross bolt [9].

1) Make sure that you install the cotter pin [11] in accordance with TASK 20-10-44-400-801, type B preferred installation method.

(h) Check the interior of the side strut pin [14] and repair the application of corrosion inhibiting material, G50136 as required.

SUBTASK 32-11-62-080-001

(8) Do these steps to remove the strut support assembly from the side brace assembly [1]:

(a) Remove the strap assembly that holds the side brace assembly [1] to the strut support assembly.

(b) Loosen the swivel screws that secure the side brace assembly [1] to the strut support assembly.

SUBTASK 32-11-62-080-002

(9) Use the transportation equipment, SPL-8264 to lower the strut support assembly into position on the cart assembly.

(a) Install the top ball lock pin to lock the rotation of the strut support assembly.



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(b) Install the thumb screws to secure the strut support assembly to the cart assembly.

(c) Remove the two side ball lock pins.

NOTE: The two side ball lock pins lock the strut support assembly to the transportation equipment, SPL-8264.

(d) Remove the transportation equipment, SPL-8264.

**SUBTASK 32-11-62-420-007**

(10) If removed, connect the lower end of the support rod [50] and support rod [51] from the wheel well structure.

(a) Install the bolt [52], washer [53], bushing [54], washer [55], and nut [56].

(b) Make sure that you install the countersunk washer under the bolt head and the plain washer under the nut.

**SUBTASK 32-11-62-420-008**

(11) Do these steps to connect the lower side strut [2] to the pushrod [3]:

(a) Remove the rope that holds the pushrod [3] in its position.

(b) Lubricate the nut [4], washer [5], and bolt [8] with grease, D00633.

(c) Remove all unwanted grease, D00633.

(d) Align the hole in the pushrod [3] with the hole in the lower side strut [2].

(e) Put the bushing [7] through the lower side strut [2] and the pushrod [3].

(f) Install the washer [6] on the bolt [8].

(g) Put the bolt [8] through the lower side strut [2] and the pushrod [3].

(h) Install the washer [5] and nut [4] on the bolt [8].

(i) Hand tighten the nut [4] until after final adjustments to the doors are made in the subsequent steps.

**SUBTASK 32-11-62-820-001**

(12) If you changed the length of pushrod [3], do the step that follows:

NOTE: No adjustment to the doors is necessary if the pushrod was not changed.

(a) Do this task: Main Landing Gear Shock Strut Door Adjustment, TASK 32-13-11-820-801.

## H. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-11-62-640-001**

(1) Lubricate the lube fittings on the MLG side brace assembly, do this task: Main Landing Gear Upper End Components Servicing, TASK 12-21-11-640-801.

**SUBTASK 32-11-62-860-004**

(2) For hydraulic systems A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-11-62-710-001**

(3) Do this task: Main Landing Gear - Operational Test, TASK 32-32-00-710-802.

**SUBTASK 32-11-62-790-002**

(4) Do a check of the hydraulic connections for leakage.



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SUBTASK 32-11-62-580-002

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(5) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**END OF TASK**



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## MAIN LANDING GEAR REACTION LINK ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Main Landing Gear Reaction Link Assembly Removal

(2) Main Landing Gear Reaction Link Assembly Installation.

**TASK 32-11-71-000-801**

### 2. Main Landing Gear Reaction Link Assembly Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-91-000-801 | Main Gear Downlock Springs Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1359 | Assembly - Wrench Adapter, C32029-3 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1360 | Assembly - Wrench Adapter, C32029-4 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1364 | Assembly - Slug Driver, C32029-8 (include in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1368 | Protector - Thread, C32029-12 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1369 | Protector - Thread, C32029-13 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |


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(Continued)

| Zone | Area |
|---|---|
| 744 | Right Main Landing Gear |

## D. Prepare for the Removal

SUBTASK 32-11-71-480-003

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-71-580-004

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-11-71-860-001

(3) Remove the power from the hydraulic systems A and B (TASK 29-11-00-860-805).

SUBTASK 32-11-71-860-008

(4) Remove the pressure from the hydraulic reservoirs (TASK 29-09-00-860-802).

## E. Main Landing Gear Reaction Link Assembly Removal

SUBTASK 32-11-71-020-001

(1) Do this task: Main Gear Downlock Springs Removal, TASK 32-32-91-000-801.

SUBTASK 32-11-71-020-002

(2) Do these steps to disconnect the hydraulic line [37] and hydraulic line [37A] from the hydraulic tubes [2]:

(a) Disconnect the hydraulic line [37] and hydraulic line [37A] from the hydraulic tubes [2] attached to the bracket assembly [38].

(b) Install caps/plugs, STD-14686, on the hydraulic line [37] and hydraulic line [37A].

(c) Put tags on the hydraulic line [37] and hydraulic line [37A] to prevent the crossing of the hydraulic line [37] and hydraulic line [37A] during the installation.

(d) Put tags on the hydraulic tubes [2] to prevent the crossing of the hydraulic tubes [2] during the installation.

(e) Disconnect the hydraulic tubes [2] from the downlock actuator [4].

(f) Install caps/plugs, STD-14686, on the hydraulic tubes [2].

(g) Remove the unions [68] from the downlock actuator [4].

(h) Remove the packings [3] from the ports of the downlock actuator [4] and discard them.



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(i) Install caps/plugs, STD-14686, in the ports of the downlock actuator [4].

SUBTASK 32-11-71-020-003

(3) Do these steps to disconnect the reaction link assembly [1] from the downlock actuator [4]:

(a) Remove the pin [11], nut [10], and washer [9] from the rod end pin [6].

(b) Remove the rod end pin [6] that attaches the head end of the downlock actuator [4] to the reaction link assembly [1].

(c) Remove the washers [7] and washer [8].

(d) Slowly lower the head end of the downlock actuator [4] to the upper end of the upper side strut [21].

(e) Use a tape to attach the head end of the downlock actuator [4] to the upper end of the upper side strut [21].

NOTE: This task will prevent the downlock actuator from moving when you do the subsequent steps.

SUBTASK 32-11-71-020-004

(4) Do these steps to disconnect the reaction link assembly [1] from the upper lock link [5]:

(a) Remove the pin [16] from the downlock link pin [13].

(b) Remove the nut [15] and washer [14] from the downlock link pin [13].

1) Use the wrench adapter, C32029-4, SPL-1360, to hold the head of the downlock link pin [13] when you loosen the nut [15].

(c) Remove the downlock link pin [13] that attaches the reaction link assembly [1] to the upper lock link [5].

(d) Use the thread protector, C32029-13, SPL-1369, when you do this step.

SUBTASK 32-11-71-020-005

(5) Do these steps to disconnect the reaction link assembly [1] from the upper side strut [21]:

(a) Remove the pin [23], nut [22], and washer [24] from crossbolt [17].

(b) Remove the crossbolt [17] from the side strut pin [20].

(c) Remove the side strut nut [18] and the side strut washer [19] from the side strut pin [20].

1) Use the wrench adapter, C32029-3, SPL-1359, to hold the head of the side strut pin [20] when you loosen the side strut nut [18].

(d) Attach a strap to the upper end of the upper side strut [21].

NOTE: The assembly of the upper side strut, lower side strut, and the lower lock link weigh approximately 130 lb (59 kg).

1) Lower the upper side strut [21] sufficiently for the removal of the reaction link assembly [1] in the subsequent steps.

2) Attach the upper end of the upper side strut [21] to the hanger link assembly [35].

(e) Use the thread protector, C32029-12, SPL-1368, to remove the side strut pin [20] that attaches the reaction link assembly [1] to the upper side strut [21].

SUBTASK 32-11-71-020-006

(6) Do these steps to disconnect the reaction link assembly [1] from the hanger link assembly [35]:

(a) Remove the pin assembly [31] from the reaction link assembly [1].

(b) Remove the pin [28], nut [29], and washer [30] from the crossbolt [25].

(c) Remove the crossbolt [25] from the end cap [27].



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(d) Remove the washer [26] from the crossbolt [25].

(e) Isolate the end cap [27], bracket assembly [38], hydraulic tube [2], electrical harness [12], spacers [32], and spacer [33] as an assembly from the reaction link assembly [1].

(f) If it is necessary to disconnect the electrical harness [12], do this step:

1) Remove the bolts for the bracket which holds the sensor to the upper lock link [5] to disconnect the electrical harness [12].

(g) Use the slug driver, C32029-8, SPL-1364, to remove the hanger link pin [34] that attaches the reaction link assembly [1] to the hanger link assembly [35].

**SUBTASK 32-11-71-020-007**

(7) If it is necessary, do these steps to remove the hanger link assembly [35] from the supporting structure:

(a) Disconnect the lower end of the support rod [69] and support rod [70] from the wheel well structure (Figure 401 (Sheet 7)).

1) Remove the bolt [71], washer [72], bushing [73], washer [74], and nut [75].

(b) Remove the pin [53], nut [52], and washer [51] from the bolt [50].

(c) Remove the bolt [50] from the hanger link assembly pin [46].

(d) Remove the nut [49] and washer [48] from the hanger link assembly pin [46].

(e) Remove the hanger link assembly pin [46] and bushing [47] that attaches the hanger link assembly [35] to the supporting structure.

(f) Remove the hanger link assembly [35].

**SUBTASK 32-11-71-020-008**

(8) Do these steps to disconnect the reaction link assembly [1] from the trunnion [41]:

(a) Remove the pin [44], nut [43], and washer [42] from the crossbolt [39].

(b) Remove the crossbolt [39] from the trunnion pin [40].

(c) Remove the end cap [45] from the trunnion pin [40].

(d) Use the slug driver, C32029-8, SPL-1364, to remove the trunnion pin [40] that attaches the reaction link assembly [1] to the trunnion [41].

**SUBTASK 32-11-71-020-009**

(9) Remove the reaction link assembly [1] from the airplane.

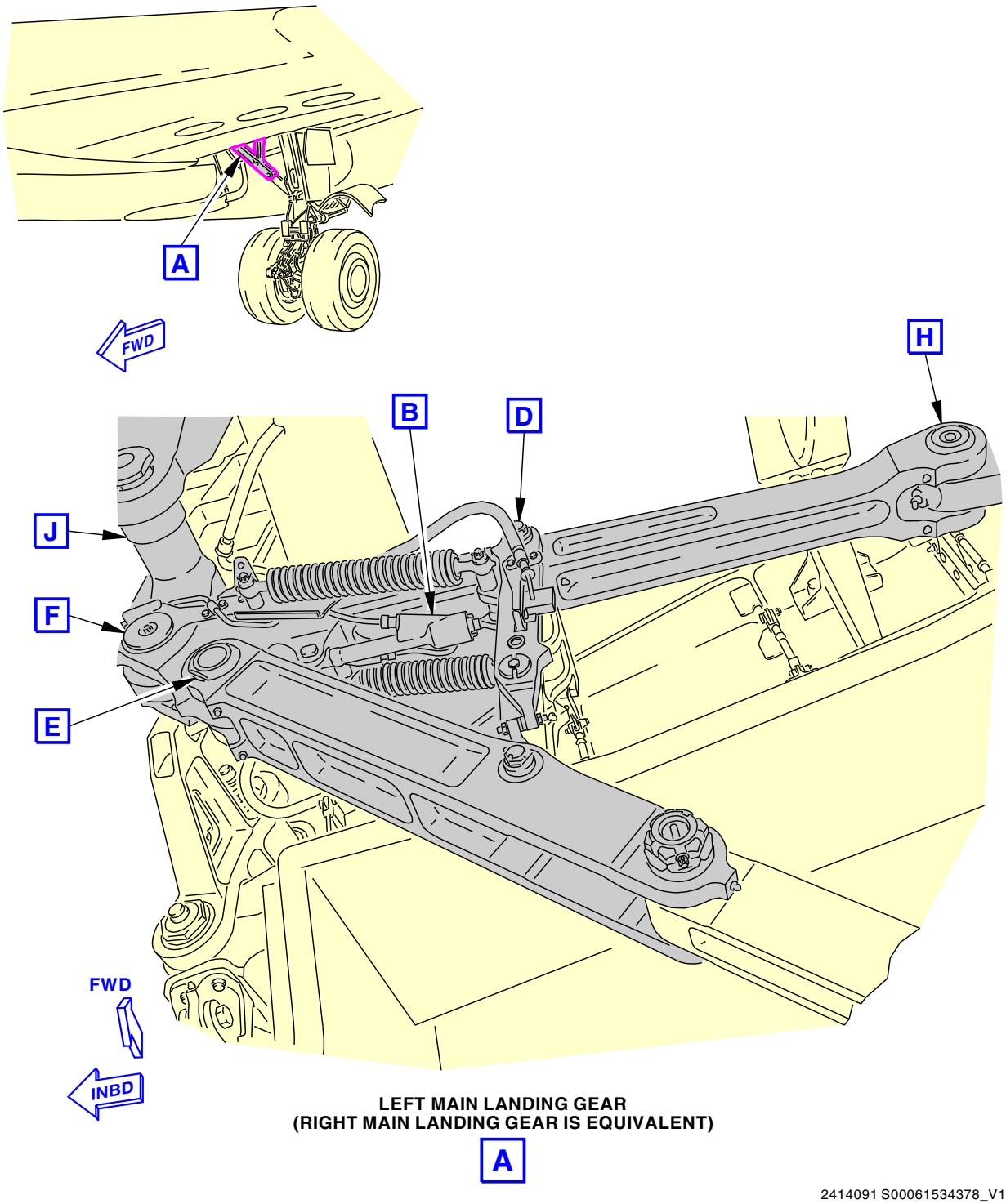
(a) Make sure that a minimum of two persons will hold the reaction link assembly [1] when you remove it from the airplane.

NOTE: The reaction link assembly weighs approximately 63.2 lb (28.7 kg).

**——— END OF TASK ———**



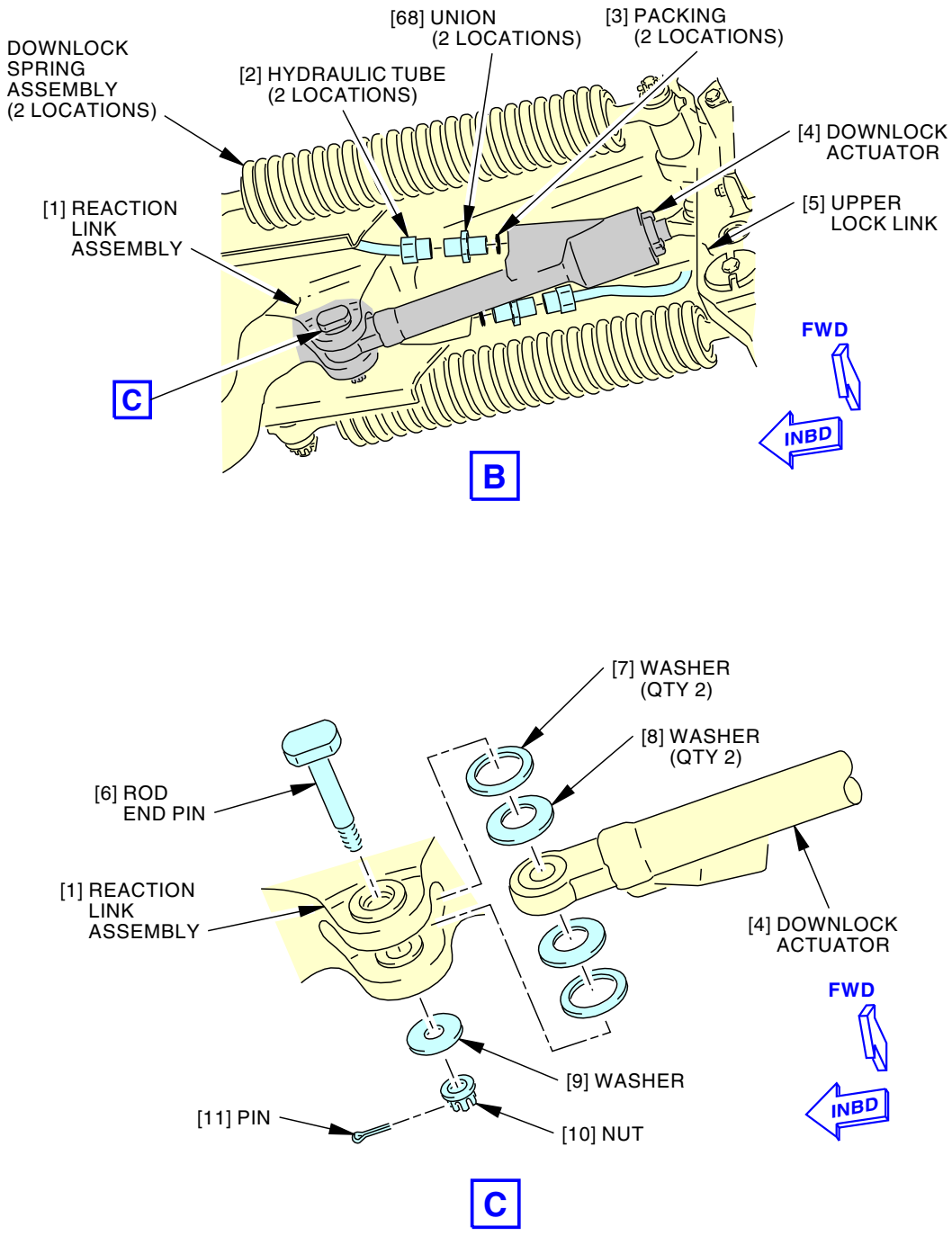
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**Main Landing Gear Reaction Link Assembly Installation**
**Figure 401/32-11-71-990-801 (Sheet 1 of 7)**



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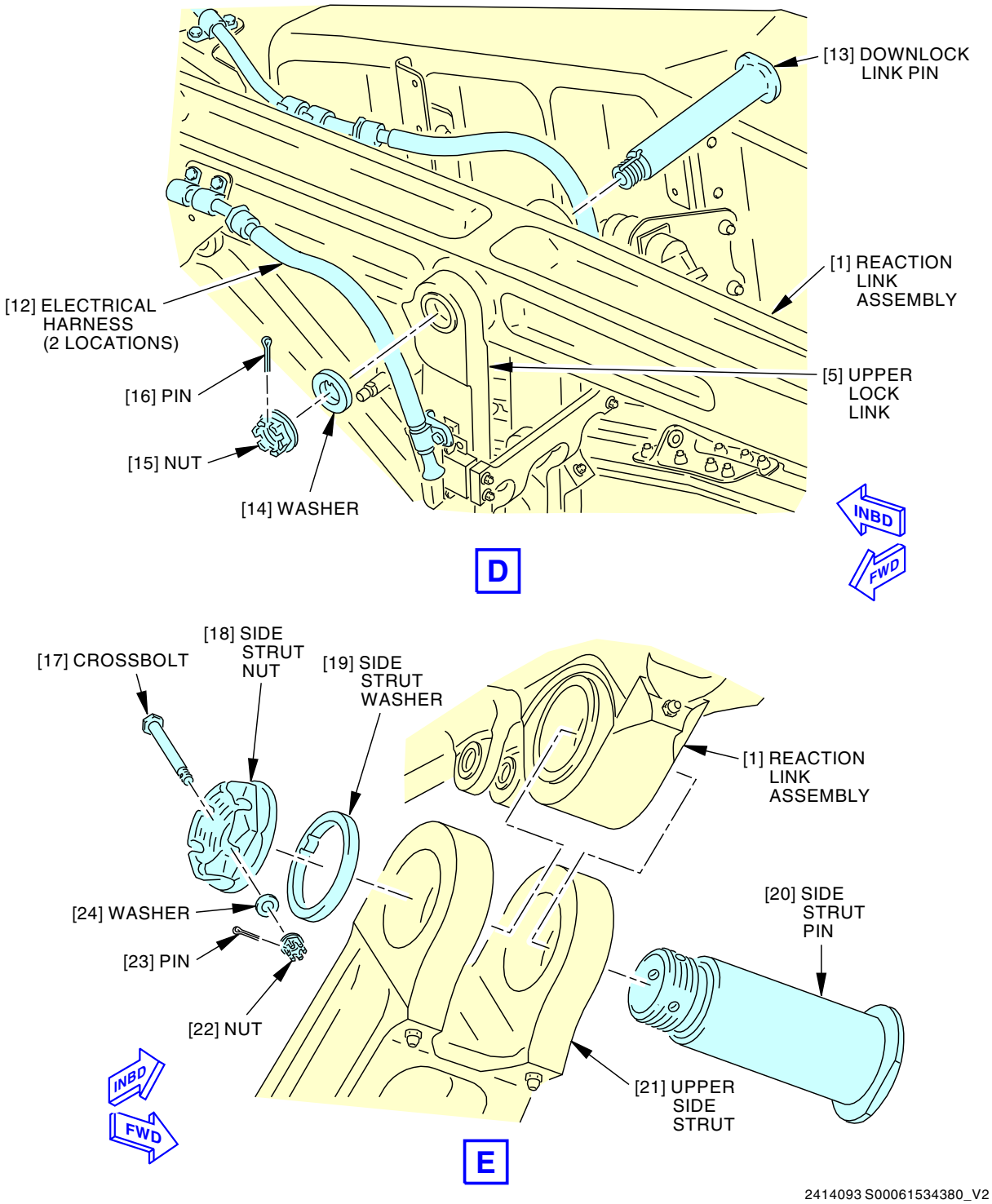



2414092 S00061534379_V4

**Main Landing Gear Reaction Link Assembly Installation**
**Figure 401/32-11-71-990-801 (Sheet 2 of 7)**



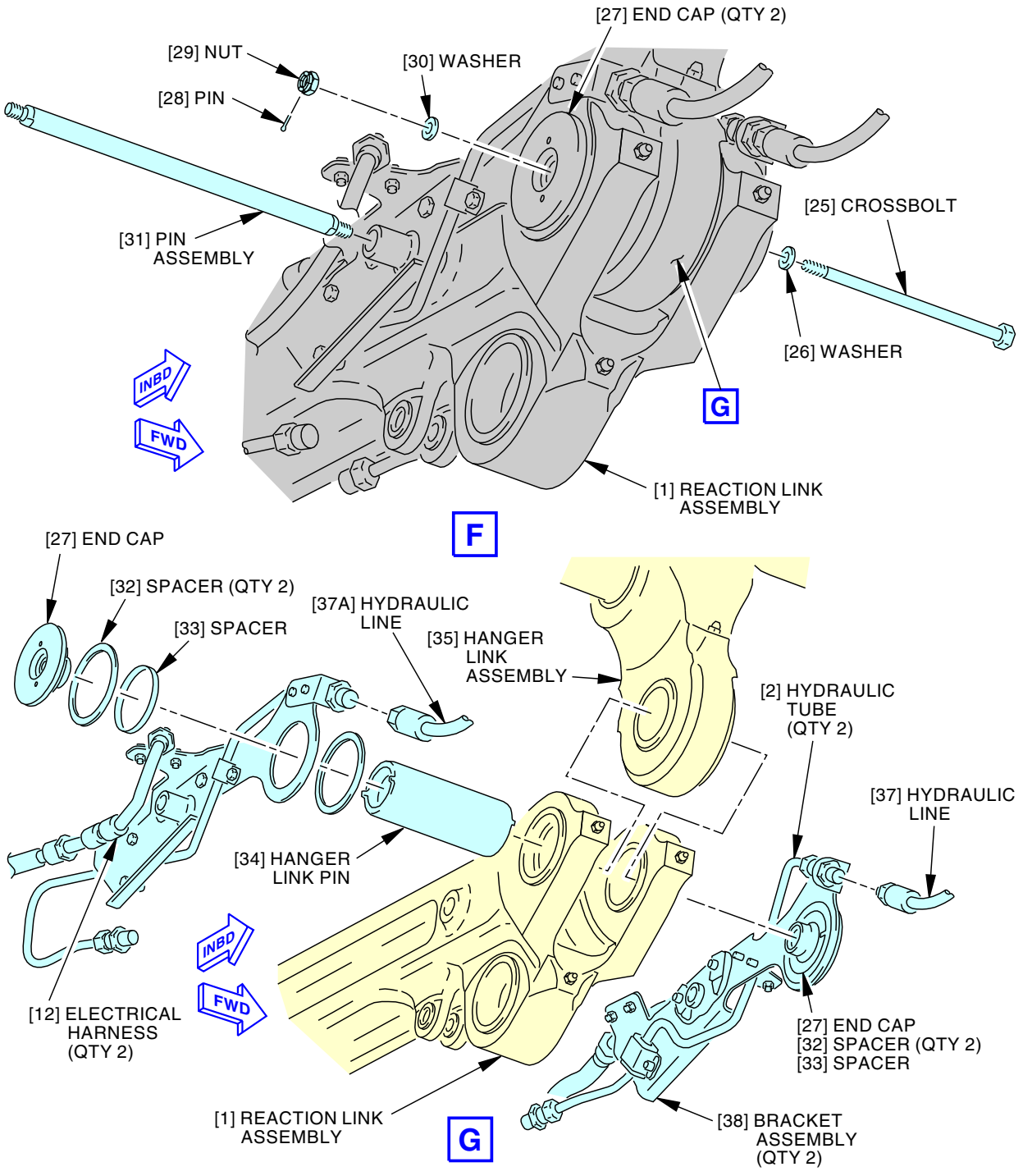
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Reaction Link Assembly Installation**
**Figure 401/32-11-71-990-801 (Sheet 3 of 7)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

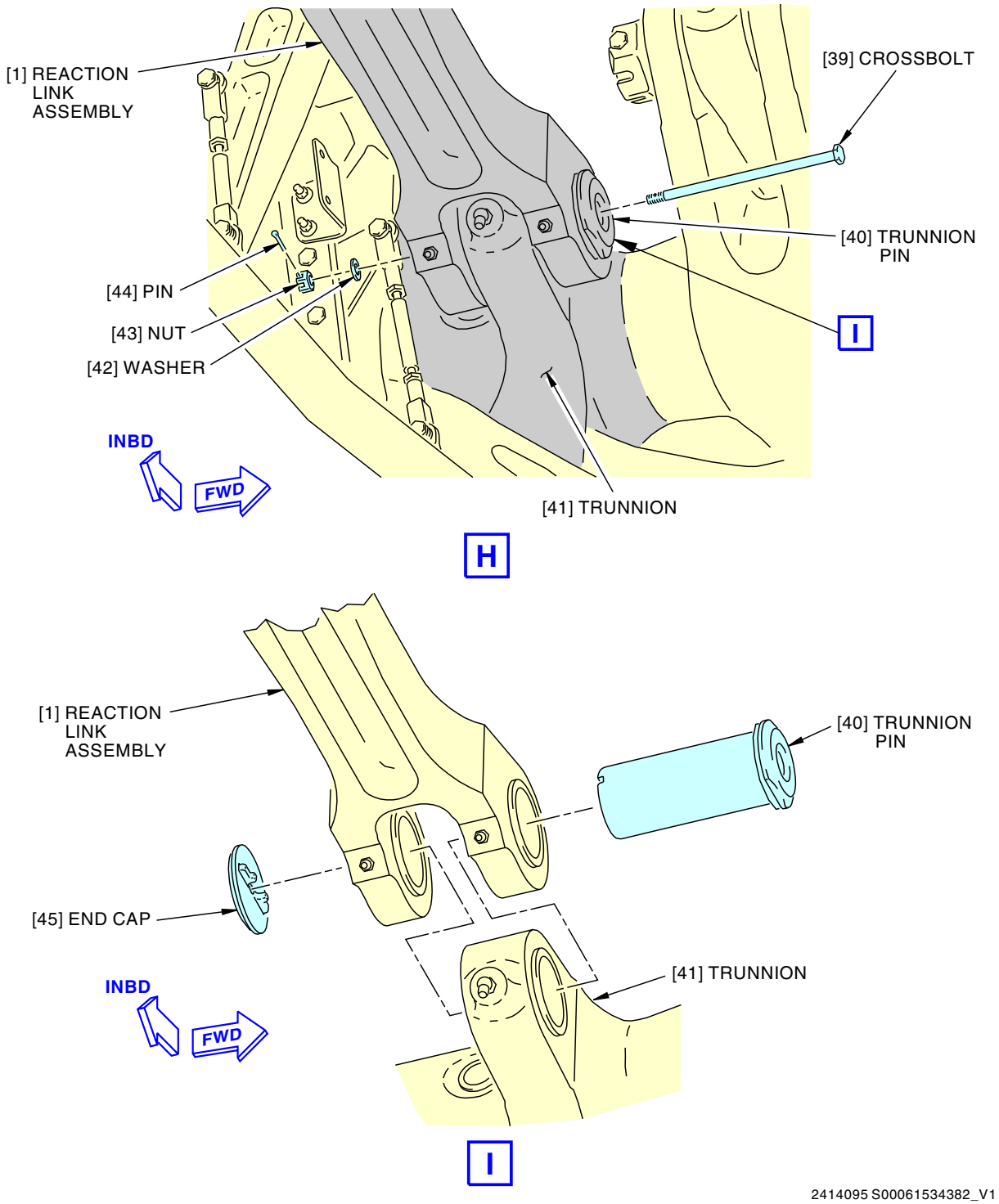



2414094 S00061534381_V3

**Main Landing Gear Reaction Link Assembly Installation**
**Figure 401/32-11-71-990-801 (Sheet 4 of 7)**



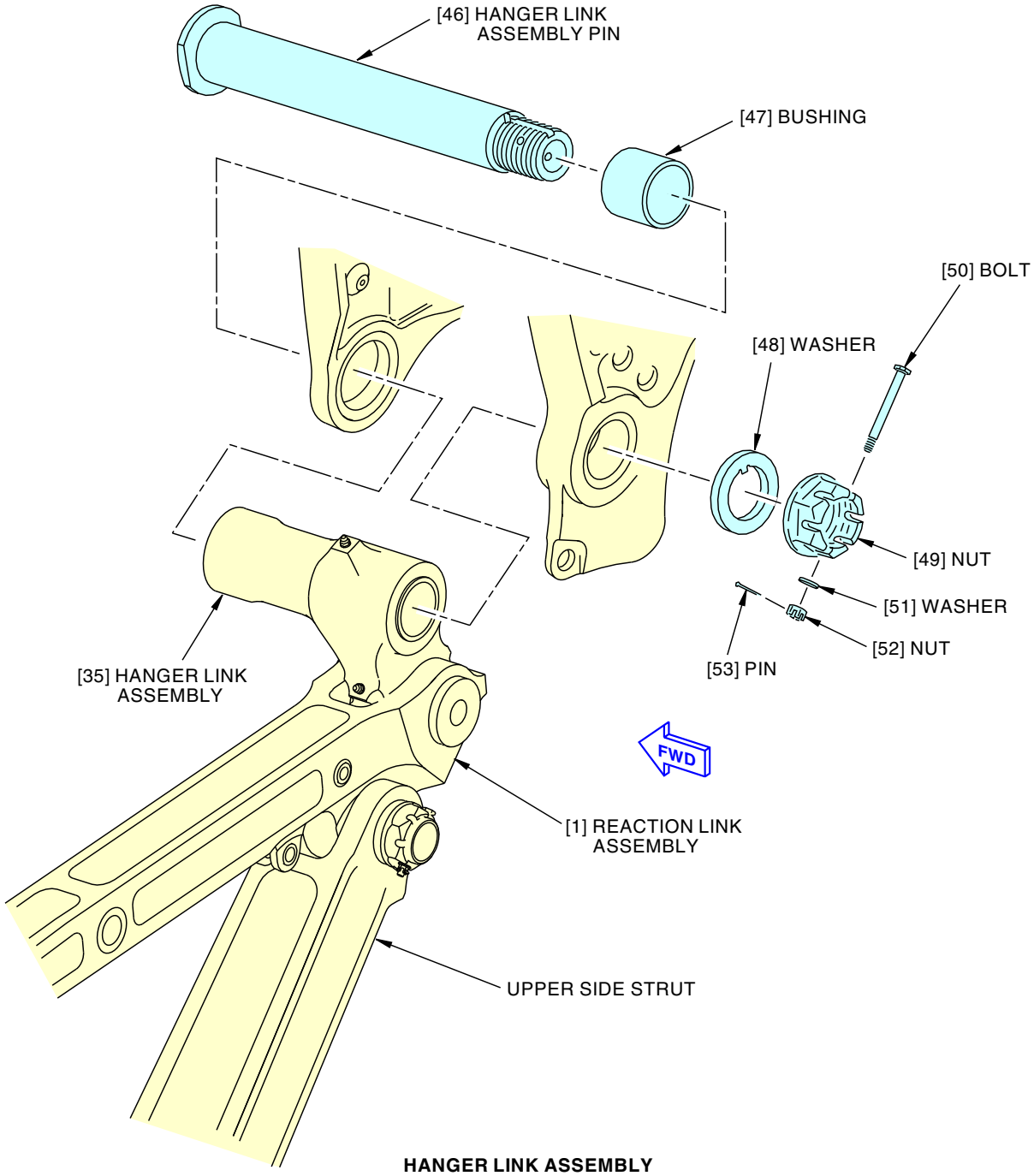
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**Main Landing Gear Reaction Link Assembly Installation**
**Figure 401/32-11-71-990-801 (Sheet 5 of 7)**



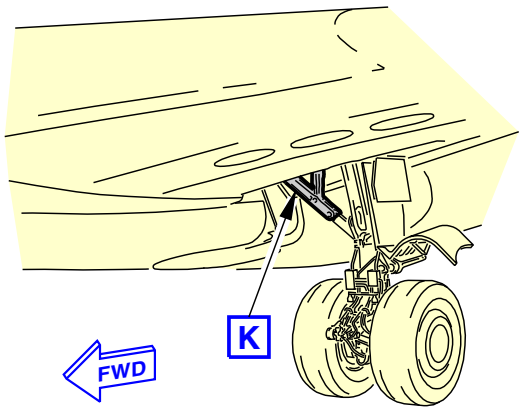
ECCN 9E991 BOEING PROPRIETARY - See title page for details

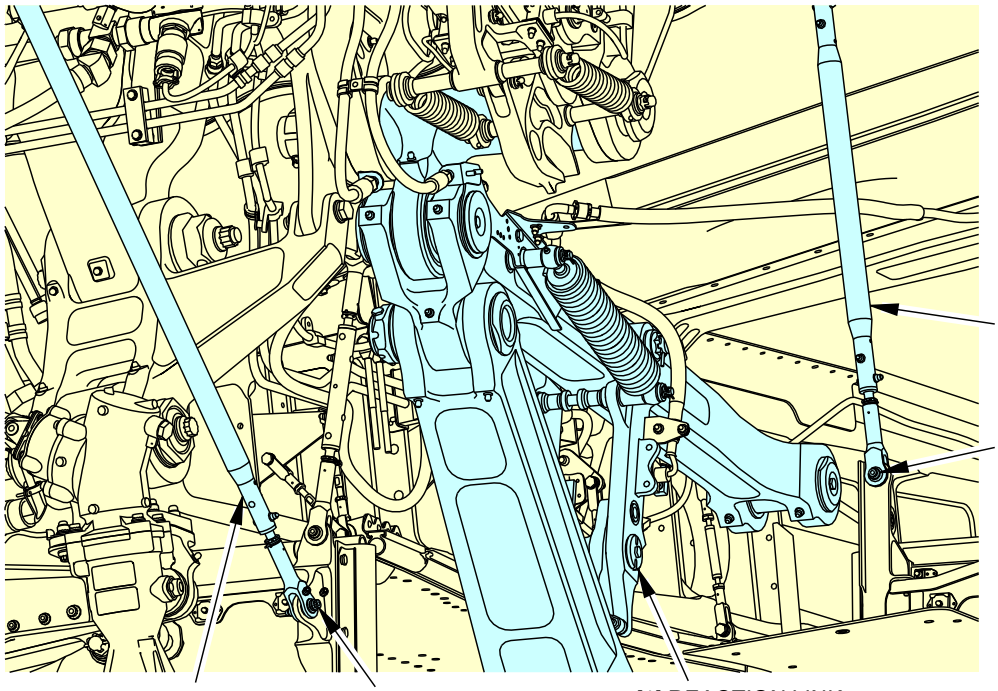



**Main Landing Gear Reaction Link Assembly Installation**
**Figure 401/32-11-71-990-801 (Sheet 6 of 7)**



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**LEFT MAIN LANDING GEAR**
**(RIGHT MAIN LANDING GEAR IS EQUIVALENT)**

K

2960800 S0000738503_V1

**Main Landing Gear Reaction Link Assembly Installation**
**Figure 401/32-11-71-990-801 (Sheet 7 of 7)**



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**TASK 32-11-71-420-801**

**3. Main Landing Gear Reaction Link Assembly Installation**

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-09-00-860-801 | Hydraulic Reservoirs Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-00-710-801 | Main Landing Gear Test - Component Replacement (P/B 501) |
| 32-32-00-710-802 | Main Landing Gear - Operational Test (P/B 501) |
| 32-32-51-400-801 | Main Gear Downlock Actuator Installation (P/B 401) |
| 32-32-91-400-801 | Main Gear Downlock Spring Installation (P/B 401) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1359 | Assembly - Wrench Adapter, C32029-3 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1360 | Assembly - Wrench Adapter, C32029-4 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1368 | Protector - Thread, C32029-12 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1369 | Protector - Thread, C32029-13 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Reaction link assembly | 32-11-71-01-105 | SIA ALL |
| | | 32-11-71-01-160 | SIA ALL |
| 3 | Packing | 32-32-51-01A-055 | SIA ALL |


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(Continued)

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 11 | Pin | 32-32-51-01-003 | SIA ALL |
| | | 32-32-51-01A-005 | SIA ALL |
| 16 | Pin | 32-11-71-01-010 | SIA ALL |
| 23 | Pin | 32-11-71-01-085 | SIA ALL |
| 28 | Pin | 32-11-71-01-055 | SIA ALL |
| 44 | Pin | 32-11-61-05-010 | SIA ALL |
| 53 | Pin | 32-11-61-05-075 | SIA ALL |

## E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## F. Prepare for the Installation

SUBTASK 32-11-71-480-004

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

## G. Main Landing Gear Reaction Link Assembly Installation

SUBTASK 32-11-71-420-001

(1) Do these steps to connect the reaction link assembly [1] to the trunnion [41]:

(a) Lubricate the chrome plated surfaces of the trunnion pin [40] and the end cap [45] with grease, D00633.

(b) Put the outboard end of the reaction link assembly [1] in position for attachment to the trunnion [41].

1) Make sure that a minimum of two persons will hold the reaction link assembly [1] when you install it to the airplane.

NOTE: The reaction link assembly weighs approximately 63.2 lb (28.7 kg).

(c) Put the trunnion pin [40] through the reaction link assembly [1] and the trunnion [41].

(d) Install the end cap [45] on the trunnion pin [40].

(e) Put the crossbolt [39] through the trunnion pin [40] and the end cap [45].



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(f) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) Do not apply corrosion inhibiting material to the chrome plated surfaces.
2) The threads and thread reliefs of the crossbolt [39]
3) The threads of the nut [43]
4) The faces of the washer [42].

(g) Remove all unwanted corrosion inhibiting material, G50136.

(h) Install the washer [42] and nut [43] on the crossbolt [39].

(i) If it is necessary, loosen the nut [43] to the nearest castellation that aligns with the hole for the new pin [44].

(j) Install the new pin [44] in the crossbolt [39].

**SUBTASK 32-11-71-020-010**

(2) If previously removed, do these steps to install the hanger link assembly [35] into the supporting structure:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) Do not apply corrosion inhibiting material to the chrome plated surfaces.
2) The threads and thread reliefs of the hanger link assembly pin [46] and bolt [50]
3) The threads of the nut [49] and nut [52]
4) The faces of the washer [48] and washer [51].
5) Remove all unwanted corrosion inhibiting material, G50136.

(b) Prior to installation of the hanger link assembly pin [46], lubricate chrome plated surfaces with grease, D00633.

(c) Install the hanger link assembly pin [46] and bushing [47] that supports the hanger link assembly [35] to the supporting structure, through the hanger link assembly [35].

(d) Install the washer [48] and nut [49] on the hanger link assembly pin [46].

(e) Tighten the nut [49] to 95 ft-lb (129 N·m) to 115 ft-lb (156 N·m) above run-on torque and loosen the nut to align the nearest castellation if it is necessary.

(f) Install the bolt [50] in the hanger link assembly pin [46].

(g) Install the nut [52] and washer [51] to the bolt [50].



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(h) Tighten the nut [52] until the nut [52] and the head of the bolt [50] are fully seated.

(i) If it is necessary, loosen the nut [52] to the nearest castellation that aligns with the hole for the new pin [53].

(j) Install the new pin [53] in the bolt [50].

(k) Remove all unwanted corrosion inhibiting material, G50136.

(l) Connect the lower end of the support rod [69] and support rod [70] to the wheel well structure.

1) Install the bolt [71], washer [72], bushing [73], washer [74], and nut [75].

2) Make sure that you install the countersunk washer under the bolt head and the plain washer under the nut.

**SUBTASK 32-11-71-420-002**

(3) Do these steps to connect the reaction link assembly [1] to the hanger link assembly [35]:

(a) Lubricate the chrome plated surfaces of the hanger link pin [34] and the end cap [27] with grease, D00633.

(b) Put the inboard end of the reaction link assembly [1] in its position for attachment to the hanger link assembly [35].

(c) Put the hanger link pin [34] through the reaction link assembly [1] and the hanger link assembly [35].

(d) Attach the assembly of the end cap [27], bracket assembly [38], hydraulic tube [2], electrical harness [12], spacers [32], and spacer [33] on each end of the hanger link pin [34].

(e) If it is necessary to connect the electrical harness [12], do this step:

1) Install the bolts for the bracket which holds the sensor to the upper lock link [5] to connect the electrical harness [12].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(f) Apply a thin layer of the corrosion inhibiting material, G50136, to the faces of the washer [26].

(g) Put the washer [26] on the crossbolt [25].

(h) Put the crossbolt [25] through the end caps [27].

(i) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) Do not apply corrosion inhibiting material to the chrome plated surfaces.

2) The threads and thread reliefs of the crossbolt [25]

3) The threads of the nut [29]

4) The faces of the washer [30].

(j) Remove all unwanted corrosion inhibiting material, G50136.

(k) Install the washer [30] and nut [29] on the crossbolt [25].

(l) Tighten the nut [29] to 40 ±10 in-lb (5 ±2 N·m).



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(m) If it is necessary, loosen the nut [29] to the nearest castellation that aligns with the hole for the new pin [28].

(n) Install the new pin [28] in the crossbolt [25].

(o) Put the pin assembly [31] through the bracket assembly [38] and the reaction link assembly [1].

**SUBTASK 32-11-71-420-003**

(4) Do these steps to connect the reaction link assembly [1] to the upper side strut [21]:

(a) Lubricate the chrome plated surfaces of the side strut pin [20] with grease, D00633.

(b) Remove the strap that supports the upper side strut [21] to the hanger link assembly [35].

(c) Put the upper side strut [21] in position for attachment to the reaction link assembly [1].

(d) Use the thread protector, C32029-12, SPL-1368, to put the side strut pin [20] through the upper side strut [21] and the reaction link assembly [1].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) Do not apply corrosion inhibiting material to the chrome plated surfaces.

2) The threads and thread reliefs of the side strut pin [20] and the crossbolt [17]

3) The threads of the side strut nut [18] and the nut [22]

4) The faces of the side strut washer [19] and the washer [24].

(f) Remove all unwanted corrosion inhibiting material, G50136.

(g) Install the side strut washer [19] and side strut nut [18] on the side strut pin [20].

(h) Tighten the side strut nut [18] to 750 ±150 in-lb (85 ±17 N·m).

1) Use the wrench adapter, C32029-3, SPL-1359, to hold the head of the side strut pin [20] when you tighten the side strut nut [18].

(i) If it is necessary, loosen the side strut nut [18] to the nearest castellation that aligns with the hole for the crossbolt [17].

(j) Install the crossbolt [17] in the side strut pin [20].

(k) Install the washer [24] and nut [22] on the crossbolt [17].

(l) Tighten the nut [22] to 40 ±10 in-lb (5 ±2 N·m).

(m) If it is necessary, loosen the nut [22] to the nearest castellation that aligns with the hole for the new pin [23].

(n) Install the new pin [23] in the crossbolt [17].

**SUBTASK 32-11-71-420-004**

(5) Do these steps to connect the reaction link assembly [1] to the upper lock link [5]:

(a) Lubricate the chrome plated surfaces of the downlock link pin [13] with grease, D00633.

(b) Put the upper lock link [5] in position for attachment to the reaction link assembly [1].



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(c) Use the thread protector, C32029-13, SPL-1369, to put the downlock link pin [13] through the upper lock link [5] and the reaction link assembly [1].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(d) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) Do not apply corrosion inhibiting material to the chrome plated surfaces.
2) The threads and thread reliefs of the downlock link pin [13]
3) The threads of the nut [15]
4) The faces of the washer [14].

(e) Remove all unwanted corrosion inhibiting material, G50136.

(f) Install the washer [14] and nut [15] on the downlock link pin [13].

(g) Tighten the nut [15] to 480 ±120 in-lb (54 ±14 N·m).

1) Use the wrench adapter, C32029-4, SPL-1360, to hold the head of the downlock link pin [13] when you tighten the nut [15].

(h) If it is necessary, loosen the nut [15] to the nearest castellation that aligns with the hole for the new pin [16].

(i) Install the new pin [16] in the downlock link pin [13].

**SUBTASK 32-11-71-640-001**

(6) Do these steps to connect the downlock actuator [4] to the reaction link assembly [1]:

(a) Lubricate the inside surface of the lug, the head end of the downlock actuator [4], and the rod end pin [6] with grease, D00633.

(b) Put the head end of the downlock actuator [4] in position for attachment to the reaction link assembly [1].

1) If it is necessary, retract or extend the downlock actuator [4] to align the head end to the reaction link assembly [1].

(c) Put the rod end pin [6] through the reaction link assembly [1], washers [7], washers [8], and the head end of the downlock actuator [4].

(d) Install the washer [9] and nut [10] on the rod end pin [6].

(e) Tighten the nut [10] to 20 ±5 in-lb (2 ±1 N·m).

(f) If it is necessary, loosen the nut [10] to the nearest castellation that aligns with the hole for the new pin [11].

(g) Install the new pin [11] in the rod end pin [6].

**SUBTASK 32-11-71-420-005**

(7) Do these steps to connect the hydraulic tubes [2] to the downlock actuator [4]:

(a) Lubricate these items with hydraulic fluid, D00153:

1) new packings [3]
2) unions [68].



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(b) Remove the caps/plugs, STD-14686, from the ports on the downlock actuator [4].

(c) Install the new packings [3] and unions [68] in the downlock actuator [4].

(d) Remove the caps/plugs, STD-14686, from the hydraulic tubes [2].

(e) Connect the hydraulic tubes [2] to the downlock actuator [4].

(f) Tighten the B-nuts on the hydraulic tubes [2] to 140 in-lb (16 N·m).

(g) Loosen the B-nuts on the hydraulic tubes [2] and re-tighten them to 140 ±7 in-lb (16 ±1 N·m).

(h) Remove the tags from the hydraulic tubes [2].

**SUBTASK 32-11-71-420-006**

(8) Do these steps to connect the hydraulic line [37] and hydraulic line [37A] to the hydraulic tubes [2] that are attached to the bracket assembly [38]:

(a) Remove the caps/plugs, STD-14686, from the hydraulic line [37] and hydraulic line [37A].

(b) Connect the hydraulic line [37] and hydraulic line [37A] to the hydraulic tubes [2].

(c) Tighten the hydraulic line [37] to 140 ±7 in-lb (16 ±1 N·m).

(d) Tighten the hydraulic line [37A] to 270 ±14 in-lb (31 ±2 N·m).

(e) Remove the tags from the hydraulic line [37] and hydraulic line [37A].

## H. Main Landing Gear Reaction Link Assembly Installation Test

**SUBTASK 32-11-71-420-007**

(1) Do this task: Main Gear Downlock Spring Installation, TASK 32-32-91-400-801.

**SUBTASK 32-11-71-710-001**

(2) Do this task: Main Gear Downlock Actuator Installation, TASK 32-32-51-400-801.

**SUBTASK 32-11-71-860-009**

(3) For hydraulic system A, do this task: Hydraulic Reservoirs Pressurization, TASK 29-09-00-860-801.

**SUBTASK 32-11-71-860-003**

(4) Do this task: Main Landing Gear - Operational Test, TASK 32-32-00-710-802.

NOTE: It is optional to perform the Main Landing Gear Test - Component Replacement, TASK 32-32-00-710-801 instead of the operational test if a hydraulic cart is not available.

**SUBTASK 32-11-71-210-001**

(5) Do a check of the hydraulic connections for leakage.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-11-71-860-004**

(1) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



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**(CAUTION PRECEDES)**



**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**——— END OF TASK ———**



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## MAIN LANDING GEAR HYDRAULIC SHIMMY DAMPER COMPONENTS - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the compensator assembly for the hydraulic shimmy damper on the main landing gear

(2) Installation of the compensator assembly for the hydraulic shimmy damper on the main landing gear

(3) Removal of the manifold assembly for the hydraulic shimmy damper on the main landing gear

(4) Installation of the manifold assembly for the hydraulic shimmy damper on the main landing gear

(5) Removal of the end gland assembly for the hydraulic shimmy damper on the main landing gear

(6) Installation of the end gland assembly for the hydraulic shimmy damper on the main landing gear

**TASK 32-11-81-000-801**

### 2. Main Landing Gear Shimmy Damper Compensator Removal

(Figure 201)

#### A. General

(1) This procedure has instructions to remove the compensator assembly from the hydraulic shimmy damper on the main landing gear torsion links.

#### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### D. Prepare for the Removal

**SUBTASK 32-11-81-480-028**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-11-81-480-002**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-11-81-860-001**

(3) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-11-81-860-002

(4) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

## E. Main Landing Gear Shimmy Damper Compensator Removal

SUBTASK 32-11-81-020-001

(1) Remove the lockwire from the compensator assembly [16].

SUBTASK 32-11-81-020-002

(2) Remove the compensator assembly [16] from the manifold assembly [4] on the shimmy damper [1].

(a) Remove the packing [14], backup ring [13], and backup ring [15] from the compensator assembly [16] and discard.

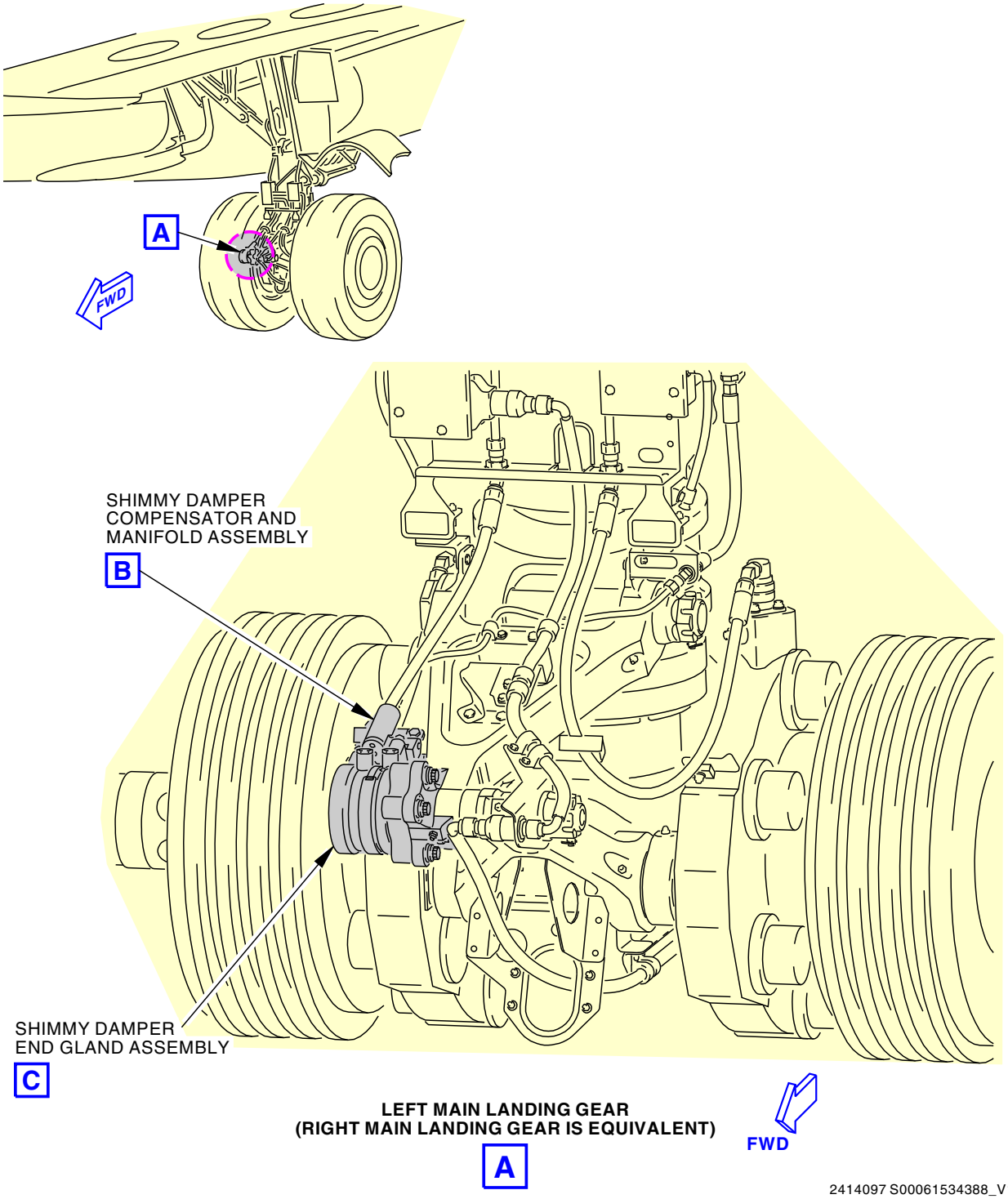
SUBTASK 32-11-81-480-003

(3) Install a plug in the port of the manifold assembly [4] for the compensator assembly [16].

——— END OF TASK ———



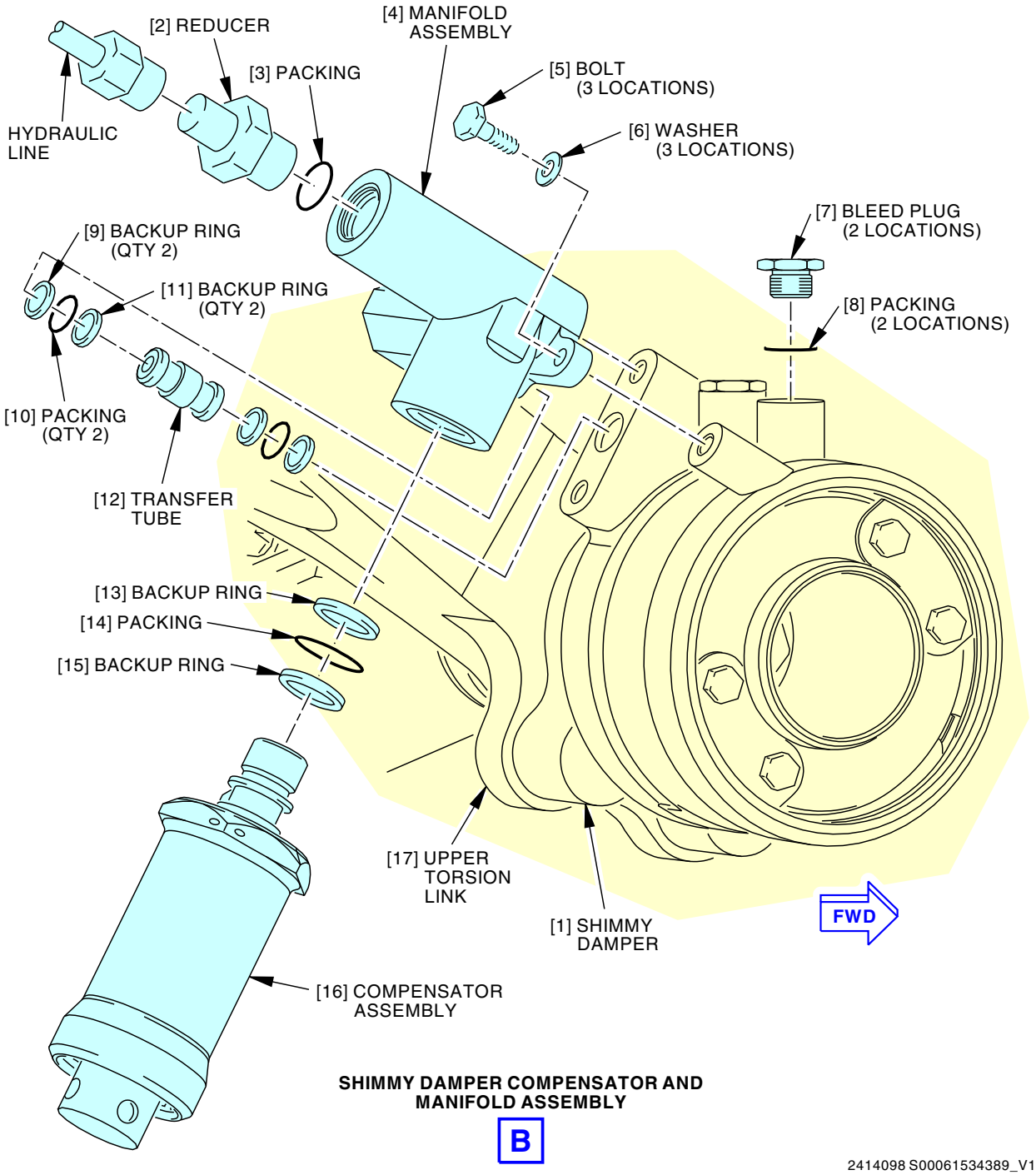
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Shimmy Damper Component Installation**
**Figure 201/32-11-81-990-801 (Sheet 1 of 3)**



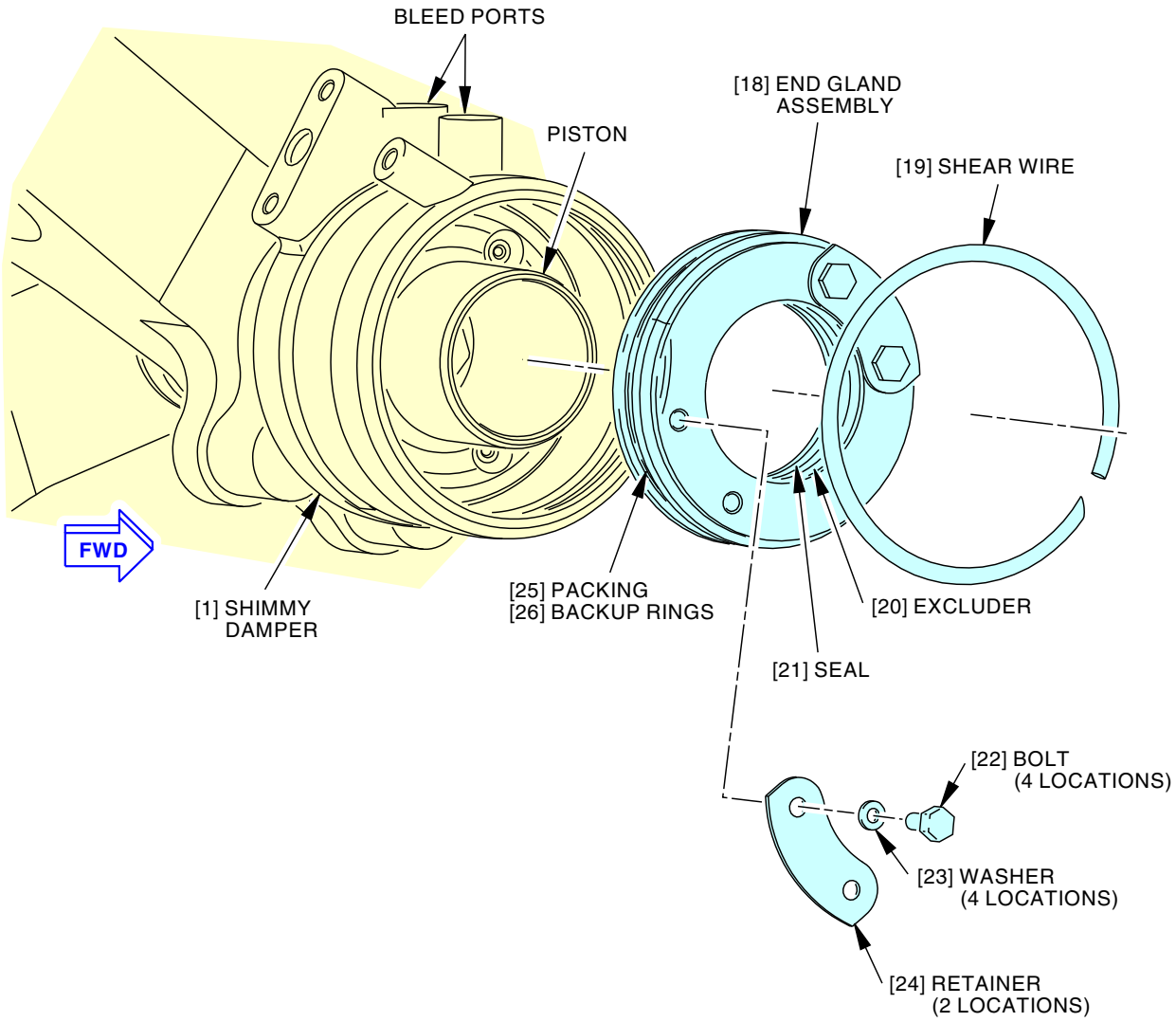
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**Main Landing Gear Shimmy Damper Component Installation**
**Figure 201/32-11-81-990-801 (Sheet 2 of 3)**



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**SHIMMY DAMPER END GLAND ASSEMBLY**

C

2414099 S00061534390_V1

**Main Landing Gear Shimmy Damper Component Installation**
**Figure 201/32-11-81-990-801 (Sheet 3 of 3)**



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TASK 32-11-81-400-801

## 3. Main Landing Gear Shimmy Damper Compensator Installation

(Figure 201)

### A. General

(1) This task has instructions to install the compensator assembly for the hydraulic shimmy damper on the main landing gear torsion links.

### B. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-11-81-870-801 | Hydraulic Shimmy Damper Bleeding (P/B 401) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Shimmy damper | 32-11-81-01-105 | SIA ALL |
| | | 32-11-81-01-370 | SIA ALL |
| 13 | Backup ring | 32-11-81-01-197 | SIA ALL |
| 14 | Packing | 32-11-81-01-195 | SIA ALL |
| 15 | Backup ring | 32-11-81-01-197 | SIA ALL |
| 16 | Compensator assembly | 32-11-81-01-235 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### F. Main Landing Gear Shimmy Damper Compensator Installation

SUBTASK 32-11-81-480-004

(1) Remove the plug from the manifold assembly [4] on the shimmy damper [1], if one is installed.

SUBTASK 32-11-81-420-001

(2) Make sure that the new packing [14], new backup ring [13], and new backup ring [15] are installed on the compensator assembly [16].

SUBTASK 32-11-81-420-002

(3) Lubricate the compensator assembly [16] thread area, new packing [14], new backup ring [13] and new backup ring [15] with hydraulic fluid, D00153.

SUBTASK 32-11-81-420-003

(4) Install the compensator assembly [16] in its location in the manifold assembly [4].

SUBTASK 32-11-81-420-004

(5) Tighten thecompensator assembly [16] to 385 ±19 in-lb (43.5 ±2.1 N·m).

SUBTASK 32-11-81-420-005

(6) Install lockwire on the compensator assembly [16] compensator to the closest bolt [5] for the manifold assembly [4].



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### G. Main Landing Gear Shimmy Damper Compensator Installation Test

SUBTASK 32-11-81-420-006

(1) Do this task: Hydraulic Shimmy Damper Bleeding, TASK 32-11-81-870-801.

(a) Make sure that there are no leaks at the compensator connection when you bleed the shimmy damper [1].

### H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-81-480-005

(1) Remove the chocks from around the landing gear tires.

SUBTASK 32-11-81-860-003

(2) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK

**TASK 32-11-81-000-802**

## 4. Main Landing Gear Shimmy Damper Manifold Assembly Removal

(Figure 201)

### A. General

(1) This task has instructions to remove the manifold assembly from the hydraulic shimmy damper on the main landing gear torsion links.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Removal

SUBTASK 32-11-81-480-029

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-81-480-007

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-11-81-860-004

(3) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-11-81-860-005

(4) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**E. Main Landing Gear Shimmy Damper Manifold Assembly Removal**

SUBTASK 32-11-81-020-003

(1) Disconnect the hydraulic line from the manifold assembly [4] on the shimmy damper [1].

SUBTASK 32-11-81-020-004

(2) If the replacement manifold assembly [4] does not have a reducer [2] installed, do these steps:

(a) Remove the reducer [2] and packing [3].

(b) Discard the packing [3].

SUBTASK 32-11-81-480-008

(3) Do these steps to remove the manifold assembly [4]:

(a) Remove the bolts [5] and washers [6] that connect the manifold assembly [4] to the shimmy damper [1].

(b) Remove the manifold assembly [4] from the shimmy damper [1].

(c) Remove the transfer tube [12] from its location.

NOTE: The transfer tube [12] can be in the manifold assembly [4] or the port for the manifold assembly [4].

(d) Remove the packings [10], backup rings [9], and backup rings [11] from the transfer tube [12] and discard.

**——— END OF TASK ———**

**TASK 32-11-81-400-802**

**5. Main Landing Gear Shimmy Damper Manifold Assembly Installation**

(Figure 201)

**A. General**

(1) This task has instructions to install the manifold assembly on the hydraulic shimmy damper on the main landing gear.

**B. References**

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-11-81-870-801 | Hydraulic Shimmy Damper Bleeding (P/B 401) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Shimmy damper | 32-11-81-01-105 | SIA ALL |
| | | 32-11-81-01-370 | SIA ALL |
| 3 | Packing | 32-11-81-01-100 | SIA ALL |
| 4 | Manifold assembly | 32-11-81-01-200 | SIA ALL |



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(Continued)

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 9 | Backup ring | 32-11-81-01-290 | SIA ALL |
| 10 | Packing | 32-11-81-01-285 | SIA ALL |
| 11 | Backup ring | 32-11-81-01-290 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**F. Main Landing Gear Shimmy Damper Manifold Assembly Installation**

**SUBTASK 32-11-81-420-007**

(1) Make sure that the mating surfaces on the manifold assembly [4] and on the shimmy damper [1] are clean.

**SUBTASK 32-11-81-480-009**

(2) Remove the plugs from the new manifold assembly [4] and from the shimmy damper [1], if they are installed.

**SUBTASK 32-11-81-480-010**

(3) Do these steps to install the transfer tube [12]:

(a) Install the new packing [10], new backup ring [9], and new backup ring [11] on the transfer tube [12] in their two locations.

(b) Lubricate the transfer tube [12], new packings [10], new backup rings [9], and new backup rings [11] with hydraulic fluid, D00153.

(c) Install the transfer tube [12] in its location in the shimmy damper [1].

**SUBTASK 32-11-81-480-011**

(4) Do these steps to install the manifold assembly [4]:

(a) Put the manifold assembly [4] in its location on the shimmy damper [1] (and the transfer tube [12]).

(b) Install the bolts [5] and washers [6] to connect the manifold assembly [4] to the shimmy damper [1].

NOTE: The shimmy damper [1] housing contains inserts at the manifold bolt [5] bolt locations.

(c) Install lockwire on the compensator assembly [16] to the closest bolt [5] for the manifold assembly [4].

**SUBTASK 32-11-81-020-005**

(5) If the new manifold assembly [4] does not have a reducer [2] installed, do these steps:

(a) Remove the plug from the port in the manifold assembly [4], if one is installed.

(b) Lubricate the reducer [2] and the new packing [3] with hydraulic fluid, D00153.

(c) Install the new packing [3] on the reducer [2].

(d) Install the reducer [2] in the manifold assembly [4].

**SUBTASK 32-11-81-480-012**

(6) Remove the cap from the reducer [2], if one is installed.

**SUBTASK 32-11-81-420-008**

(7) Connect the hydraulic line to the manifold assembly [4] on the shimmy damper [1].



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(a) Tighten the B-nut on the hydraulic line to 140 ±7 in-lb (16 ±1 N·m).

**G. Main Landing Gear Shimmy Damper Manifold Assembly Installation Test**

SUBTASK 32-11-81-420-009

(1) Do this task: Hydraulic Shimmy Damper Bleeding, TASK 32-11-81-870-801.

(a) Make sure that there are no leaks at the manifold connection and the hydraulic line connection when you bleed the shimmy damper [1].

**H. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-11-81-480-013

(1) Remove the chocks from around the landing gear tires.

SUBTASK 32-11-81-860-006

(2) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——— END OF TASK ———

**TASK 32-11-81-000-803**

## 6. Main Landing Gear Shimmy Damper End Gland Assembly Removal

(Figure 201)

**A. General**

(1) This task has instructions to remove the end gland assembly from the hydraulic shimmy damper on the main landing gear torsion links.

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**D. Prepare for the Removal**

SUBTASK 32-11-81-480-030

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-81-480-015

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-11-81-860-007

(3) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.


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SUBTASK 32-11-81-860-008

(4) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**E. Main Landing Gear Shimmy Damper End Gland Assembly Removal**

SUBTASK 32-11-81-020-020

(1) Carefully loosen and remove the bleed plugs [7] to release the pressure in the shimmy damper [1].

(a) Remove and discard the packings [8].

SUBTASK 32-11-81-020-006

(2) Remove the bolts [22] and washers [23] that hold the retainers [24] to the end gland assembly [18].

SUBTASK 32-11-81-020-007

(3) Remove the retainers [24] from the end gland assembly [18].

SUBTASK 32-11-81-020-008

(4) Remove the shear wire [19] from the inner diameter of the shimmy damper [1].

SUBTASK 32-11-81-020-009

(5) Remove the end gland assembly [18] from the shimmy damper [1].

SUBTASK 32-11-81-480-016

(6) Put a covering on the end of the shimmy damper [1] for protection.

**——— END OF TASK ———**

**TASK 32-11-81-400-803**

## 7. Main Landing Gear Shimmy Damper End Gland Assembly Installation

(Figure 201)

**A. General**

(1) This task has instructions to install the end gland assembly for the hydraulic shimmy damper on the main landing gear torsion links.

**B. References**

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-11-81-870-801 | Hydraulic Shimmy Damper Bleeding (P/B 401) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Shimmy damper | 32-11-81-01-105 | SIA ALL |
| | | 32-11-81-01-370 | SIA ALL |
| 8 | Packing | 32-11-81-01-305 | SIA ALL |
| 18 | End gland assembly | 32-11-81-01-355 | SIA ALL |
| | | 32-11-81-01-365 | SIA ALL |



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(Continued)

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 20 | Excluder | 32-11-81-01-330 | SIA ALL |
| 21 | Seal | 32-11-81-01-335 | SIA ALL |
| 25 | Packing | 32-11-81-01-315 | SIA ALL |
| 26 | Backup ring | 32-11-81-01-320 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**F. Main Landing Gear Shimmy Damper End Gland Assembly Installation**

SUBTASK 32-11-81-480-017

(1) If the seal [21] or packing [25] for the end gland assembly [18] are not installed, do these steps:

(a) Install the new excluder [20] in the inside groove closest to the outside face of the end gland assembly [18].

(b) Install the new seal [21] in the inside groove closest to the inside face of the end gland assembly [18].

(c) Install the new packing [25] and the new backup rings [26] in the outside groove on the end gland assembly [18].

SUBTASK 32-11-81-480-018

(2) Remove the covering from the end of the shimmy damper [1], if it is installed.

SUBTASK 32-11-81-480-019

(3) Lubricate all of the new seal [21] and new packing [25] for the end gland assembly [18] with hydraulic fluid, D00153.

SUBTASK 32-11-81-020-010

(4) Install the end gland assembly [18] in the shimmy damper [1].

(a) Make sure that the new backup rings [26] stay in their positions.

SUBTASK 32-11-81-020-011

(5) Install the shear wire [19] on the inner diameter of the shimmy damper [1].

NOTE: The shear wire must be in the groove in the end gland assembly, and the groove in the inner diameter of the shimmy damper.

SUBTASK 32-11-81-020-012

(6) Put the retainers [24] in their position on the end gland assembly [18].

SUBTASK 32-11-81-020-013

(7) Install the bolts [22] and washers [23] to hold the retainers [24] to the end gland assembly [18].

SUBTASK 32-11-81-390-001

(8) Lightly lubricate the new packings [8] with hydraulic fluid, D00153.

SUBTASK 32-11-81-420-021

(9) Install the packings [8] on the bleed plugs [7].

SUBTASK 32-11-81-420-022

(10) Install the bleed plugs [7] on the shimmy damper [1].


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**G. Main Landing Gear Shimmy Damper End Gland Assembly Installation Test**

SUBTASK 32-11-81-420-010

(1) Do this task: Hydraulic Shimmy Damper Bleeding, TASK 32-11-81-870-801.

(a) Make sure that there are no leaks at the end gland assembly [18] interface when you bleed the shimmy damper [1].

**H. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-11-81-480-020

(1) Remove the chocks from around the landing gear tires.

SUBTASK 32-11-81-860-009

(2) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## MAIN LANDING GEAR HYDRAULIC SHIMMY DAMPER - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the hydraulic shimmy damper from the main landing gear

(2) Installation of the hydraulic shimmy damper on the main landing gear

(3) Bleed the hydraulic shimmy damper on the main landing gear.

**TASK 32-11-81-000-804**

### 2. Main Landing Gear Shimmy Damper Removal

(Figure 401)

#### A. General

(1) This task provides instructions to remove the hydraulic shimmy damper from the torsion links.

#### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-11-51-020-801 | Main Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-45-11-000-801 | Main Landing Gear Wheel and Tire Assembly Removal (P/B 401) |

#### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Packing | 32-11-81-01-100 | SIA ALL |

#### D. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### E. Prepare for the Removal

**SUBTASK 32-11-81-480-031**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-11-81-480-022**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-11-81-860-010**

(3) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-11-81-860-011

(4) For the A and B hydraulic system, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

## F. Main Landing Gear Shimmy Damper Removal

SUBTASK 32-11-81-020-014

(1) Disconnect the hydraulic line from the manifold assembly [2] on the shimmy damper assembly [1].

SUBTASK 32-11-81-020-015

(2) If the replacement shimmy damper assembly [1] does not have a reducer [3] installed in the manifold assembly [2], do these steps:

(a) Remove the reducer [3] and packing [4] from the shimmy damper assembly [1] you removed.

(b) Discard the packing [4].

(c) Install the reducer [3] with a cap and a new packing [4] in the port of the manifold assembly [2] of the replacement shimmy damper assembly [1].

(d) As an alternative, install a plug in the port of the manifold assembly [2].

SUBTASK 32-11-81-580-001

(3) Lift the wheel and tire assemblies with jacks until they are clear of the ground (TASK 07-10-03-580-801).

SUBTASK 32-11-81-020-019

(4) Remove the left hand inboard or the right hand outboard tire of the main landing gear (Main Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-11-000-801).

SUBTASK 32-11-81-020-016

(5) Do this task: Main Landing Gear Torsion Link Disconnection, TASK 32-11-51-020-801.

SUBTASK 32-11-81-020-017

(6) Remove the shimmy damper assembly [1] from the upper torsion link [18].

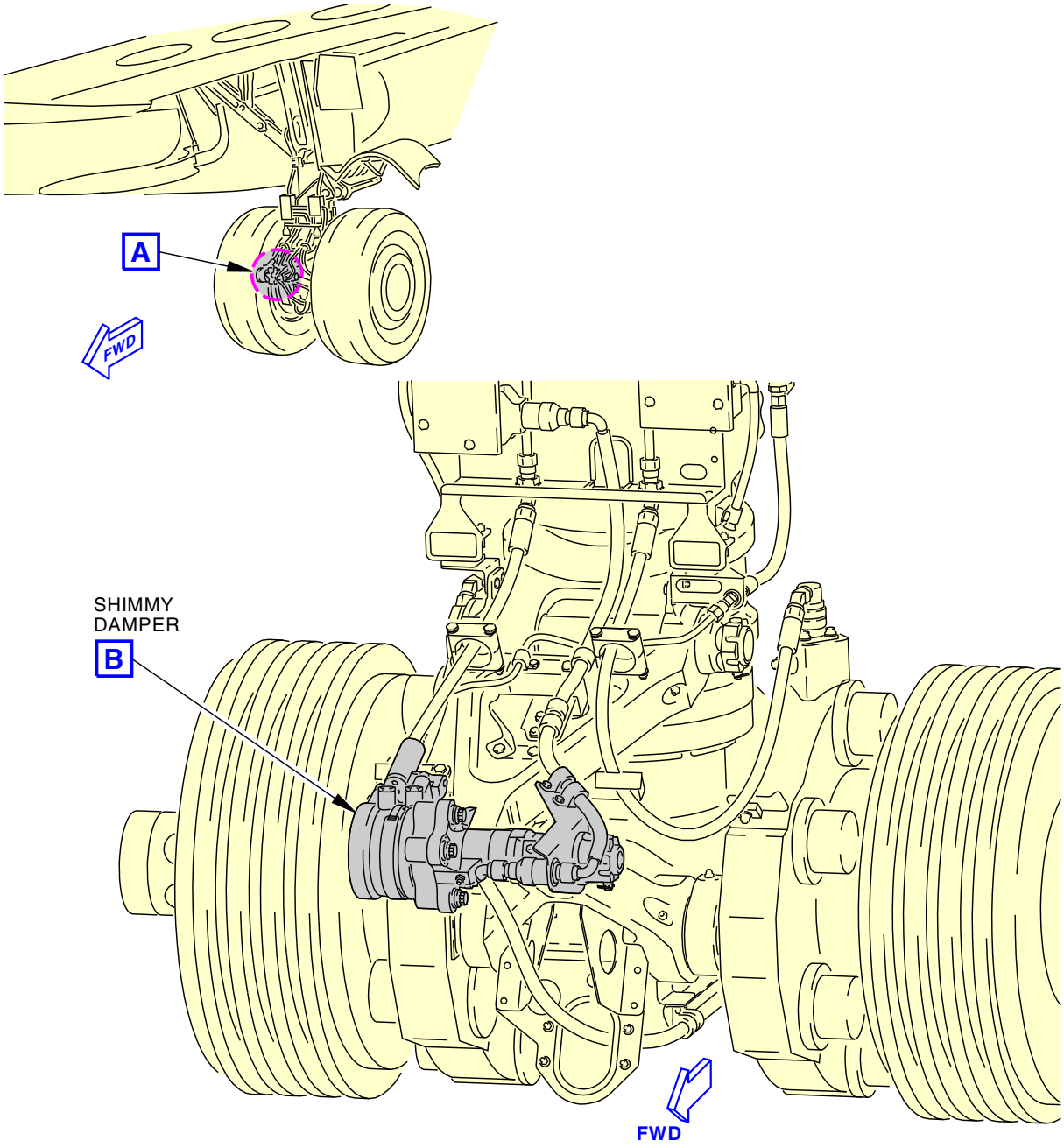
(a) Remove lockwire from bolts [16].

(b) Remove the bolts [16], washers [17], and straight sleeve [21] that holds the shimmy damper assembly [1] to the upper torsion link [18].

**——— END OF TASK ———**



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**LEFT MAIN LANDING GEAR**
**(RIGHT MAIN LANDING GEAR IS EQUIVALENT)**

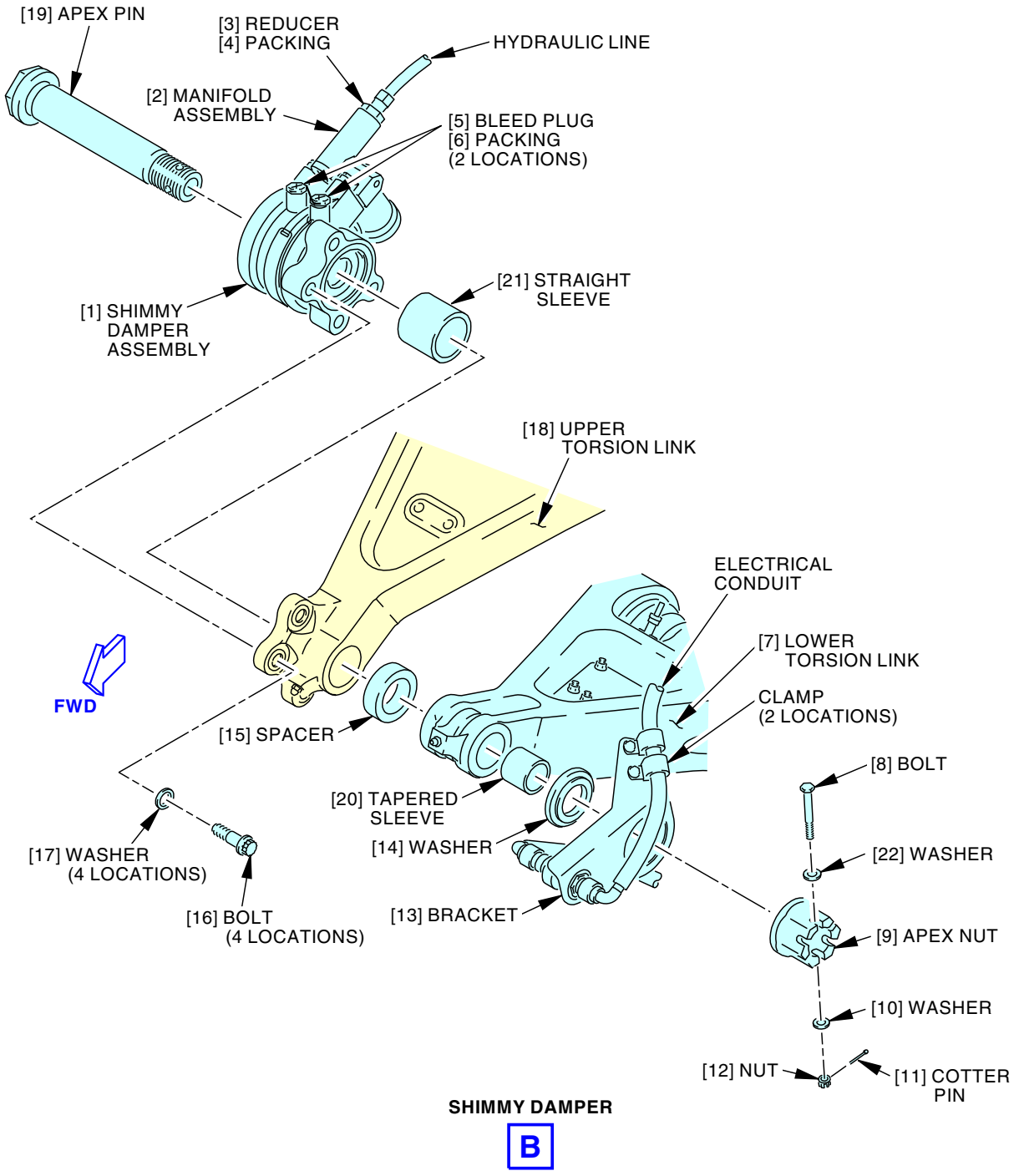
**A**

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**Main Landing Gear Shimmy Damper Installation**
**Figure 401/32-11-81-990-802 (Sheet 1 of 2)**



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**Main Landing Gear Shimmy Damper Installation**
**Figure 401/32-11-81-990-802 (Sheet 2 of 2)**



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**TASK 32-11-81-400-804**

## 3. Main Landing Gear Shimmy Damper Installation

(Figure 401)

### A. General

(1) This task has instructions to install the hydraulic shimmy damper for the main landing gear on the torsion links.

### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-11-51-400-803 | Main Landing Gear Torsion Link Connection (P/B 401) |
| 32-45-11-400-801 | Main Landing Gear Wheel and Tire Assembly - Installation (P/B 401) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50347 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Shimmy damper assembly | 32-11-81-01-370 | SIA ALL |
| 4 | Packing | 32-11-81-01-100 | SIA ALL |
| 11 | Cotter pin | 32-11-81-01-020 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### F. Main Landing Gear Shimmy Damper Installation

**SUBTASK 32-11-81-420-011**

(1) Prepare these parts for installation:



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**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136, to the thread reliefs, threads of the bolt [16], faces of the washer [17], inside diameter of the straight sleeve [21] and threads inside the shimmy damper assembly [1] attach holes.

(b) Apply a thin layer of grease, D00633, to the outside diameter of the straight sleeve [21].

1) Make sure that you install the bolts [16], washers [17], and straight sleeve [21] immediately while the grease, D00633, is wet.

(c) Apply a thin layer of corrosion inhibiting material, G50136, to the shimmy damper assembly [1] face common to the upper torsion link [18].

1) Make sure that no grease, D00633, is in or on the piston shaft of the damper.

(d) Remove excess grease, D00633.

**SUBTASK 32-11-81-420-012**

(2) Hold the shimmy damper assembly [1] in its position on the upper torsion link [18].

**SUBTASK 32-11-81-420-013**

**CAUTION** MAKE SURE THAT YOU INSTALL THE SLEEVES IN THE CORRECT LOCATIONS. IF YOU INSTALL THE SLEEVES IN THE INCORRECT LOCATIONS, VIBRATION CAN CAUSE DAMAGE TO COMPONENTS OF LANDING GEAR.

(3) Loosely install the bolts [16], washers [17], and straight sleeve [21] to hold the shimmy damper assembly [1] to the upper torsion link [18].

NOTE: The upper torsion link has a straight sleeve and the lower torsion link has a tapered sleeve. The straight sleeve is longer than the tapered sleeve.

**SUBTASK 32-11-81-420-014**

**CAUTION** MAKE SURE THAT YOU INSTALL THE SLEEVES IN THE CORRECT LOCATIONS. IF YOU INSTALL THE SLEEVES IN THE INCORRECT LOCATIONS, VIBRATION CAN CAUSE DAMAGE TO COMPONENTS OF LANDING GEAR.

(4) Do this task: Main Landing Gear Torsion Link Connection, TASK 32-11-51-400-803.

(a) When you connect the lower torsion link [7] and upper torsion link [18], do not tighten the apex nut [9] completely or install the bolt [8] for the apex nut [9].

**SUBTASK 32-11-81-420-015**

(5) Tighten the bolts [16] for the shimmy damper assembly [1], in a cross pattern, to 650 ±65 in-lb (73.4 ±7.4 N·m).

(a) Install MS20995NC32 lockwire, G50347, on the bolts [16] with the double-twist method.

**SUBTASK 32-11-81-420-016**

(6) Tighten the apex nut [9] to 54 ±4 ft-lb (73.2 ±5.4 N·m).



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(a) Advance the apex nut [9] to the nearest castellation that aligns with the hole in the apex pin [19].

(b) Tighten the apex nut [9] to a final torque of 150 ft-lb (203.4 N·m) maximum.

(c) Install the bolt [8], washer [10], washer [22], nut [12], and new cotter pin [11].

SUBTASK 32-11-81-020-018

(7) If the new shimmy damper assembly [1] does not have a reducer [3] and new packing [4] installed in the manifold assembly [2], do these steps:

(a) Remove the plug from the port in the manifold assembly [2], if one is installed.

(b) Lubricate the reducer [3] and new packing [4] with hydraulic fluid, D00153.

(c) Install the new packing [4] on the reducer [3].

(d) Install the reducer [3] in the manifold assembly [2].

SUBTASK 32-11-81-480-023

(8) Remove the cap on the reducer [3] , if one is installed.

SUBTASK 32-11-81-420-017

(9) Connect the hydraulic line to the reducer [3] on the shimmy damper assembly [1].

(a) Tighten the B-nut on the hydraulic line to 140 ±7 in-lb (16 ±1 N·m).

SUBTASK 32-11-81-420-020

(10) Install the wheel and tire assembly (TASK 32-45-11-400-801).

SUBTASK 32-11-81-080-001

(11) Remove the axle jacks from the main landing gear (TASK 07-10-03-580-801).

### G. Main Landing Gear Shimmy Damper Installation Test

SUBTASK 32-11-81-420-018

(1) Do this task: Hydraulic Shimmy Damper Bleeding, TASK 32-11-81-870-801.

(a) Make sure that there are no leaks at the hydraulic connection when you bleed the shimmy damper assembly [1].

### H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-81-860-012

(1) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**——— END OF TASK ———**

**TASK 32-11-81-870-801**

## 4. Hydraulic Shimmy Damper Bleeding

(Figure 401)

### A. General

(1) This task has instructions to bleed the hydraulic shimmy damper.

(2) The hydraulic shimmy damper has an internal piston with areas for hydraulic fluid on the two sides of the piston. To bleed the shimmy damper it is necessary to remove the air from the two fluid areas.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Bleed plug | 32-11-81-01-300 | SIA ALL |
| 6 | Packing | 32-11-81-01-305 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**F. Hydraulic Shimmy Damper Bleeding**

SUBTASK 32-11-81-480-032

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-81-860-013

(2) If the bleed plugs [5] need new packings [6], do these steps:

(a) For the A hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(b) Remove lockwire from the bleed plugs [5].

(c) Remove the bleed plug [5] from the shimmy damper assembly [1].

NOTE: Hydraulic return pressure that remains after you have depressurized system A will force fluid out the bleed port when you remove the bleed plug [5].

(d) Install the new packing [6] on the bleed plug [5].

(e) Install the bleed plug [5] in its location on the shimmy damper assembly [1].

SUBTASK 32-11-81-790-001

**WARNING** KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For the hydraulic system (system A), do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.



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SUBTASK 32-11-81-480-027

(4) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-11-81-840-001

(5) Do the steps that follow to bleed the air from the shimmy damper assembly [1] at the two bleed plugs [5]:

(a) Bleed one side of the shimmy damper assembly [1] piston:

NOTE: The shimmy damper assembly [1] hydraulic pressure is supplied from the return lines of hydraulic system (system A), to bleed the shimmy damper assembly [1] it is necessary to cycle the landing gear control lever.

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Move the landing gear control handle to the UP position.
2) Open one of the two bleed plugs [5].

NOTE: You can open either the left or the right bleed plug [5].

3) Move the landing gear control handle to the DN position.
4) Close the bleed plug [5].

(b) Continue to move the landing gear control handle and open and close the bleed plug [5] as stated above until the air is gone from the fluid flow.

(c) Bleed the other side of the shimmy damper assembly [1] piston through the bleed plug [5] that remains:

1) Do the steps that follow to bleed the shimmy damper assembly [1] from the other bleed plug [5]:
   a) Move the landing gear control handle to the UP position.
   b) Open the other bleed plug [5].
   c) Move the landing gear control handle to the DN position.
   d) Close the bleed plug [5].

(d) Continue to move the landing gear control handle and open and close the bleed plug [5] as stated above until the air is gone from the fluid flow.

(e) Install MS20995C32 lockwire, G01048 on the bleed plugs [5] with the double-twist method.

SUBTASK 32-11-81-860-014

(6) For the hydraulic system (system A), do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-11-81-860-015

(7) Do a check of the PSEU for faults generated by the bleeding procedure and clear them.

NOTE: When you move the landing gear control lever to bleed the shimmy damper assembly [1], the gear lock sensors will not transition their state. This will cause faults to be stored in the PSEU and cause the MAINT light to come on.

END OF TASK


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## MAIN LANDING GEAR FORWARD TRUNNION BEARING ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Main Landing Gear Forward Trunnion Bearing Assembly Removal

(2) Main Landing Gear Forward Trunnion Bearing Assembly Installation.

**TASK 32-11-83-000-801**

### 2. Main Landing Gear Forward Trunnion Bearing Assembly Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

#### A. References

| Reference | Title |
|---|---|
| 57-16-01-000-801 | MLG Forward Trunnion Housing Assembly Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-4360 | Wrench - Trunnion Spherical Bearing, MLG<br>Part #: C32023-12 Supplier: 81205<br>Opt Part #: C32023-1 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### D. Prepare for the Removal

**SUBTASK 32-11-83-020-008**

(1) Do this task: MLG Forward Trunnion Housing Assembly Removal, TASK 57-16-01-000-801

#### E. Main Landing Gear Forward Trunnion Bearing Assembly Removal

**SUBTASK 32-11-83-020-009**

(1) Do these steps to remove the bearing assembly [1] from the housing assembly [7]:

(a) Remove the lockwires from the nut retainer [6].

(b) Remove the nut retainer [6], pin assembly [4], and race assembly [5].

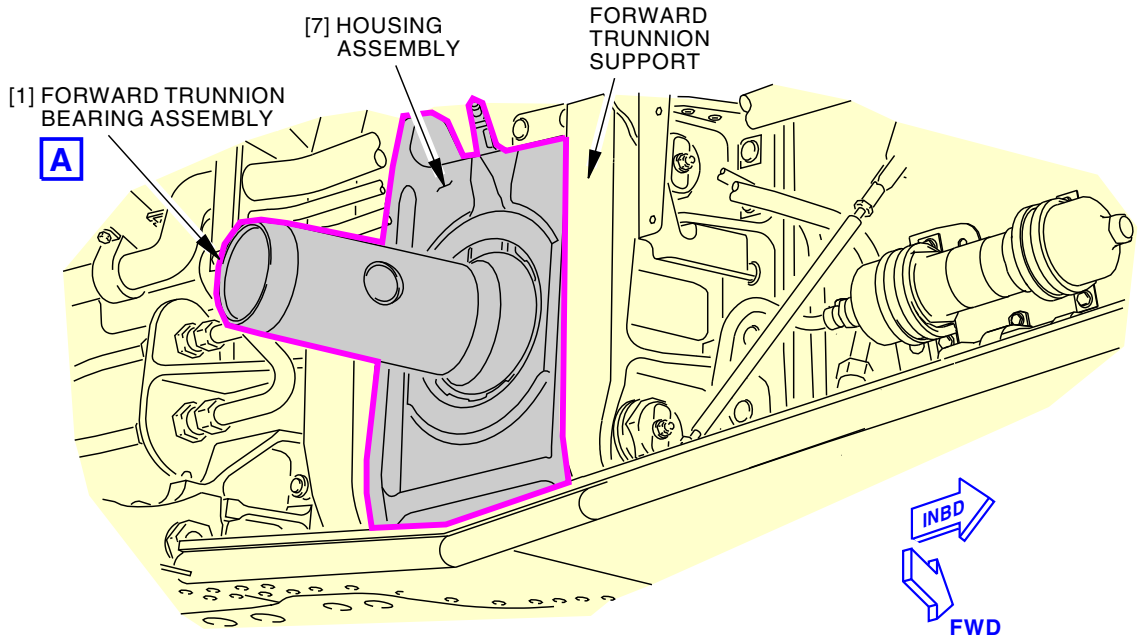
1) Use wrench, SPL-4360, or equivalent, to remove the nut retainer [6].

(c) Remove the retaining ring [3] and seal [2].

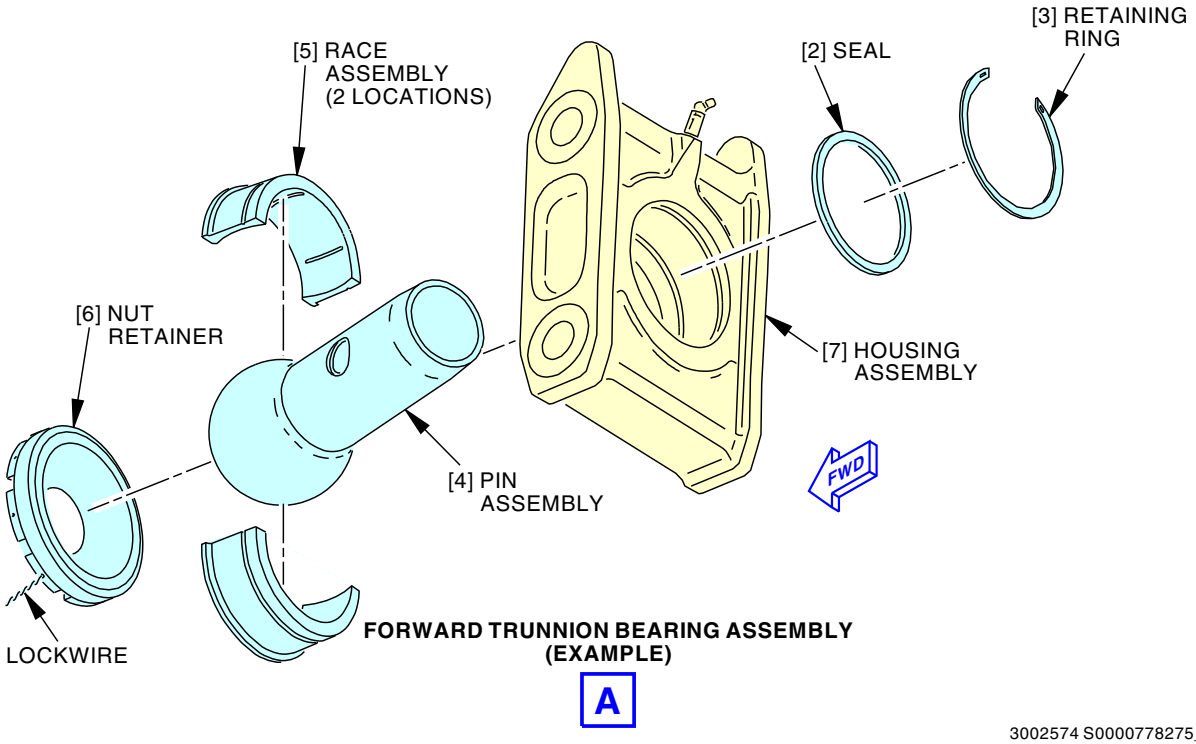
**END OF TASK**



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**FORWARD TRUNNION BEARING ASSEMBLY (MAIN LANDING GEAR REMOVED)**




**FORWARD TRUNNION BEARING ASSEMBLY (EXAMPLE)**

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**Main Landing Gear Forward Trunnion Bearing Assembly Installation**
**Figure 401/32-11-83-990-802**



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**TASK 32-11-83-400-801**

## 3. Main Landing Gear Forward Trunnion Bearing Assembly Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 57-16-01-400-801 | MLG Forward Trunnion Housing Assembly Installation (P/B 401) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-4360 | Wrench - Trunnion Spherical Bearing, MLG<br>Part #: C32023-12 Supplier: 81205<br>Opt Part #: C32023-1 Supplier: 81205 |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G01912 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Bearing assembly | 32-11-83-01-055 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### F. Main Landing Gear Forward Trunnion Bearing Assembly Installation

**SUBTASK 32-11-83-420-009**

(1) Install the forward trunnion bearing assembly [1], do these steps:

(a) Install the pin assembly [4] and race assembly [5] into the housing assembly [7].

1) Apply a coating of grease, D00633, to these parts before assembly.

2) Make sure that the splines of the race assembly [5] are in full contact with the housing assembly [7] splines before you install the nut retainer [6].

(b) Install the nut retainer [6].

1) Apply grease, D00633, to the nut retainer [6] threads.

2) Tighten the nut retainer [6] to 50 ft-lb (68 N·m) - 75 ft-lb (102 N·m).

a) Use the wrench, SPL-4360, or equivalent, to tighten the nut retainer [6].



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**CAUTION**

MAKE SURE THAT THE CLEARANCE BETWEEN THE RACE ASSEMBLY AND THE HOUSING ASSEMBLY IS LESS THAN 0.0050 INCH (0.1270 MM). IF THE CLEARANCE IS MORE THAN 0.0050 INCH (0.1270 MM) DURING THE INSTALLATION OF THE FORWARD TRUNNION BEARINGS, DAMAGE TO THE AIRPLANE CAN OCCUR.

3) Make sure that the clearance between the aft face of the race assembly [5] and the housing assembly [7] is 0.0050 in. (0.1270 mm) or less.

NOTE: It is not required to continue with the installation until a correct clearance is measured after tightening the nut retainer.

a) If a clearance of more than 0.0050 in. (0.1270 mm) is found, disassemble the nut retainer [6], pin assembly [4], and race assembly [5] to look for unwanted material between the mated parts.

(c) Install MS20995NC32 lockwire, G01912, onto the nut retainer [6] and housing assembly [7].

1) Install MS20995NC32 lockwire, G01912, with the double twist method.

(d) Apply a coating of grease, D00633, to the seal [2] and retaining ring [3].

(e) Install the seal [2] and retaining ring [3].

(f) Put grease, D00633, into the grease fitting on the housing assembly [7] until the grease can be seen at the aft edge of the bearing race.

## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-11-83-420-010**

(1) Do this task: MLG Forward Trunnion Housing Assembly Installation, TASK 57-16-01-400-801.

**——— END OF TASK ———**



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# MAIN LANDING GEAR AXLE - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the axle (referred to as the axle assembly [1]) for the main landing gear

(2) An installation of the axle for the main landing gear.

(3) A removal of the axle sleeve for the main landing gear

(4) An installation of the axle sleeve for the main landing gear.

**TASK 32-11-85-000-801**

## 2. Main Landing Gear Axle Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |
| 32-42-11-000-801 | Antiskid Wheel Speed Transducer Removal (P/B 401) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1864 | Puller Equipment - Axle Sleeve Assembly, MLG<br>Part #: C32032-125 Supplier: 81205<br>Opt Part #: C32032-98 Supplier: 81205 |

### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Removal

**SUBTASK 32-11-85-860-003**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-11-85-500-001**

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.


ECCN 9E991 BOEING PROPRIETARY - See title page for details

**(CAUTION PRECEDES)**

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

### E. Main Landing Gear Axle Removal

**SUBTASK 32-11-85-020-001**

(1) Do this task: Main Landing Gear Brake Removal, TASK 32-41-41-000-801.

NOTE: This procedure will also remove the wheel and tire assemblies.

**SUBTASK 32-11-85-020-019**

(2) Do this taskAntiskid Wheel Speed Transducer Removal, TASK 32-42-11-000-801

NOTE: Make sure that you attach a label to the wires to indicate the left and right connectors.

**SUBTASK 32-11-85-020-003**

(3) Do these steps to remove the wiring assembly from the axle assembly [1]:

(a) Loosen the elbow [4] for the electrical connector.

(b) Loosen the nut [5] to disconnect the electrical connector from the inner cylinder assembly [3].

(c) Pull the wiring assembly completely out of the axle assembly [1].

1) Make sure that you attach a label to the wires to indicate the left and the right connectors.

**SUBTASK 32-11-85-020-004**

**CAUTION**

DO NOT APPLY TOO MUCH FORCE WHEN YOU REMOVE THE BRAKE SLEEVE. IF YOU USE TOO MUCH FORCE, DAMAGE TO THE AIRPLANE AND THE SUPPORT EQUIPMENT CAN OCCUR.

(4) Use the puller equipment, SPL-1864, to remove the brake sleeve [2] from the axle assembly [1].

NOTE: Applied heat can decrease the force necessary for the removal.

**SUBTASK 32-11-85-020-005**

(5) Do these steps to remove the bracket [10]:

(a) Remove the cotter pin [9] from the pin [6].

(b) Remove the nut [8] and washer [7] from the pin [6].

(c) Remove the nuts [11] and washers [12] that hold the bracket [10] to the mounting studs.

(d) Slowly lower the bracket [10] to the ground.

**SUBTASK 32-11-85-020-006**

(6) Do these steps to remove the lower torsion link pin [16].

NOTE: It is necessary to remove the lower torsion link pin to get access to the pin that holds the axle to the inner cylinder assembly.

(a) Disconnect the lower torsion link [18] from the inner cylinder assembly [3] as follows:

1) Remove pin [13], nut [14] and washer [15] from the cross bolt [17].



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2) Remove the cross bolt [17] that holds the lower torsion link pin [16] to the spacer [19].

3) Hold the lower torsion link [18] and remove the lower torsion link pin [16] to disconnect the lower torsion link [18] from the inner cylinder assembly [3].

4) Remove the spacer [19] from the lower torsion link [18].

**SUBTASK 32-11-85-020-007**

(7) Do these steps to remove the axle assembly [1]:

(a) Remove the pin [6] that holds the axle assembly [1] to the inner cylinder assembly [3].

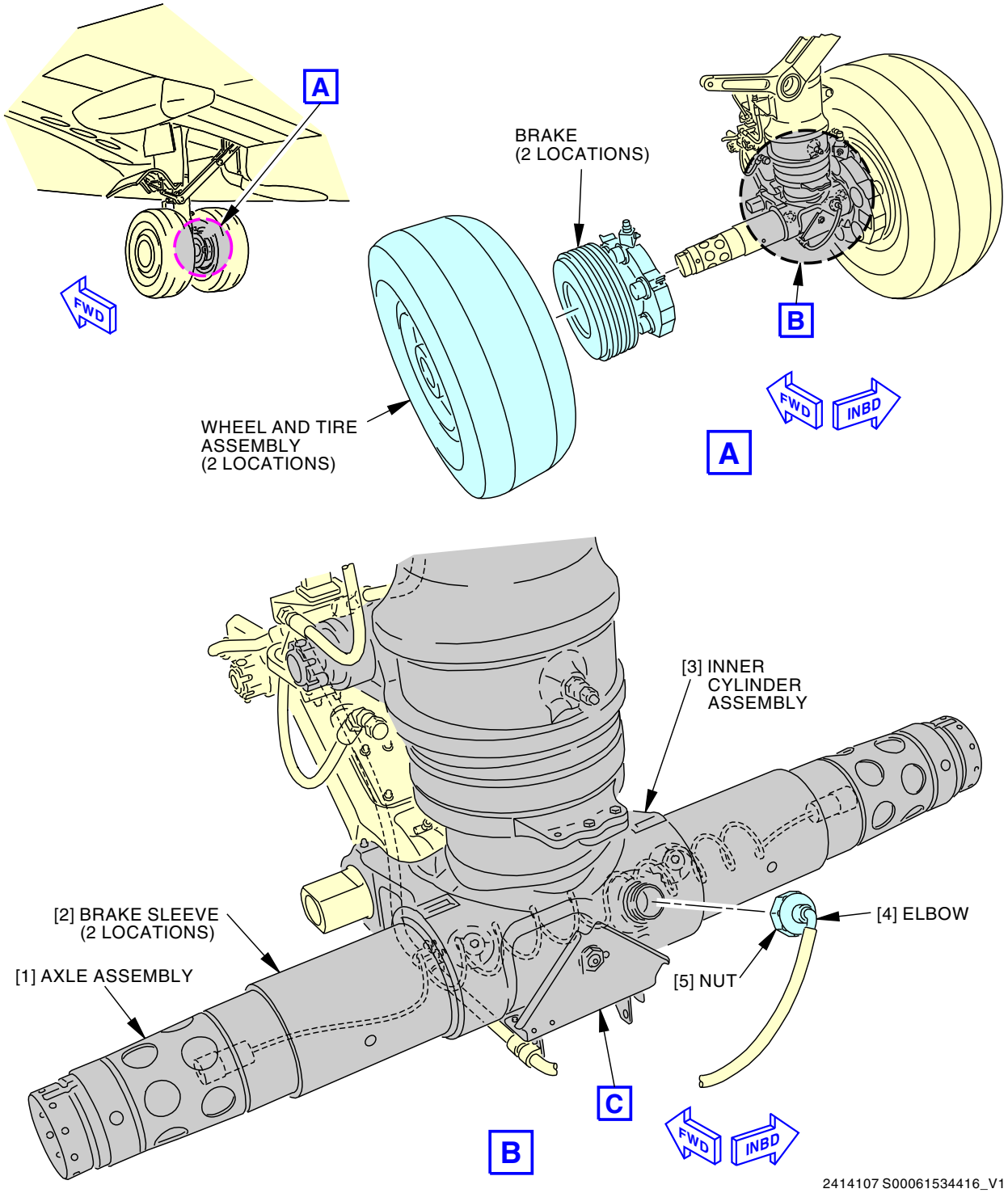
(b) Remove the axle assembly [1] from the airplane.

NOTE: If the removal of the axle assembly [1] is difficult, applied heat may be necessary. Use puller assembly, puller equipment, SPL-1864.

**——— END OF TASK ———**



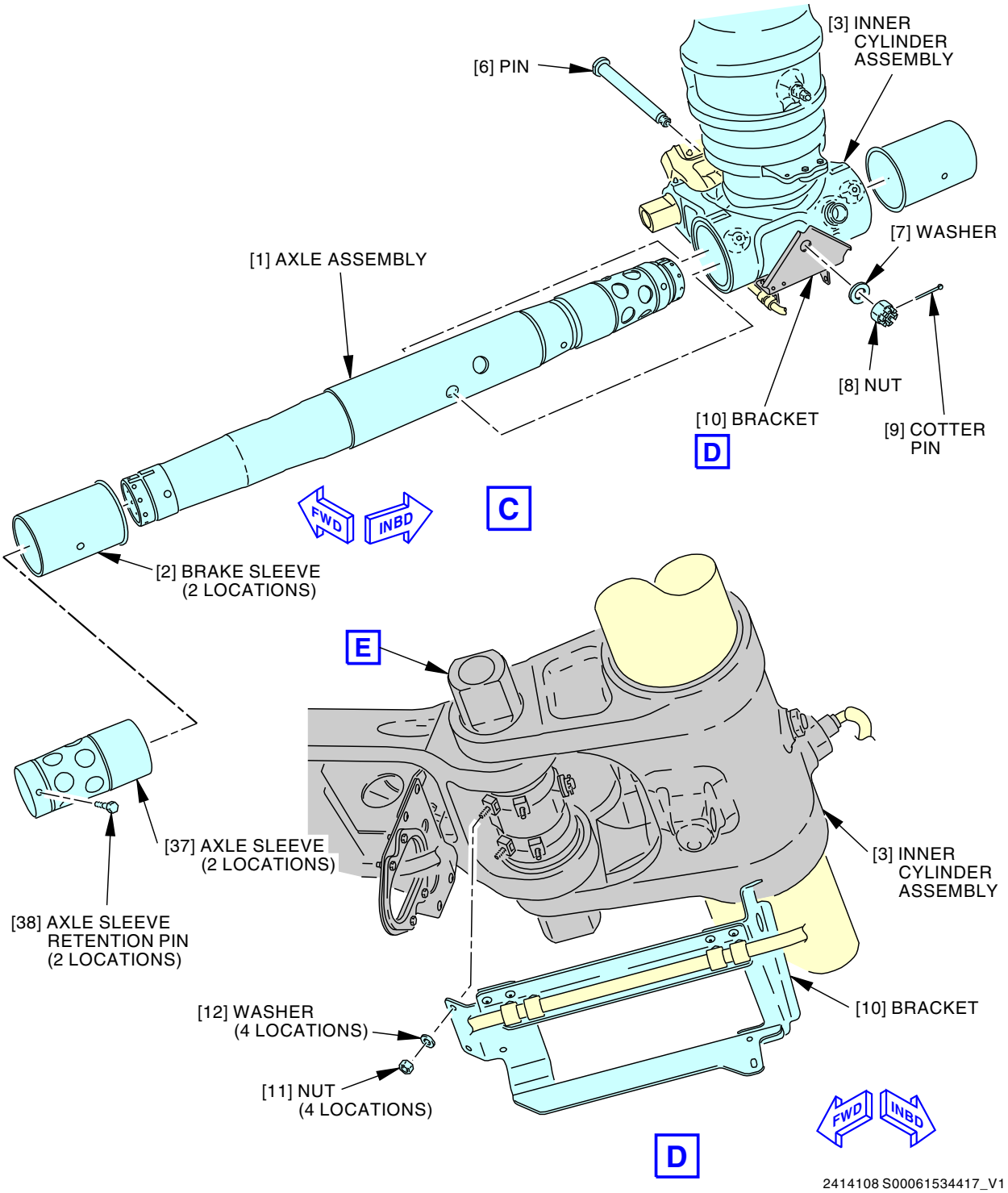
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**Main Landing Gear Axle Installation**
**Figure 401/32-11-85-990-801 (Sheet 1 of 3)**



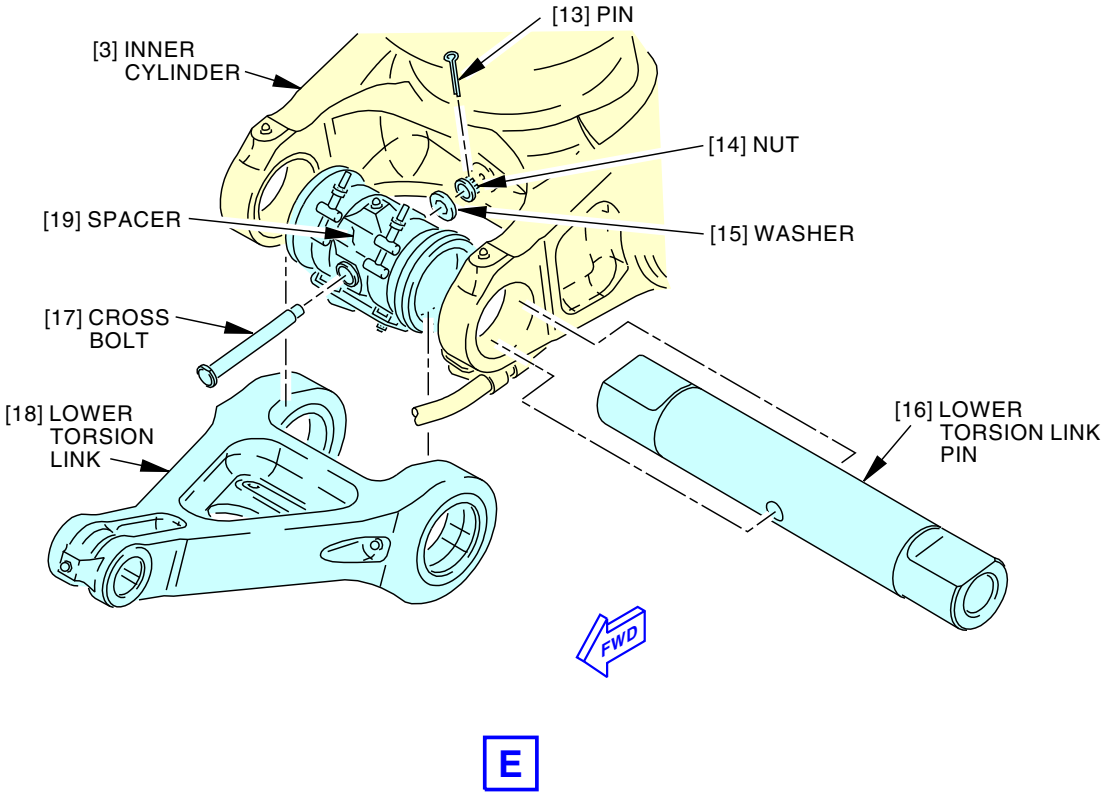
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**Main Landing Gear Axle Installation**
**Figure 401/32-11-85-990-801 (Sheet 2 of 3)**



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**Main Landing Gear Axle Installation**
**Figure 401/32-11-85-990-801 (Sheet 3 of 3)**



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**TASK 32-11-85-420-801**

## 3. Main Landing Gear Axle Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-21-11-640-802 | Main Landing Gear Lower End Components Servicing (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |
| 32-42-00-710-803 | Transducer Operational Test (P/B 501) |
| 32-42-11-400-801 | Antiskid Wheel Speed Transducer Installation (P/B 401) |
| 32-46-00-730-801 | Tire and Brake Monitoring System - System Test (P/B 501) |
| SWPM 20-60-03 | SPECIAL PROTECTION OF ELECTRICAL CONNECTORS |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Axle assembly | 32-11-85-01-045 | SIA ALL |
| 9 | Cotter pin | 32-11-85-01-005 | SIA ALL |
| 13 | Pin | 32-11-51-01-015 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Prepare for the Installation

**SUBTASK 32-11-85-860-002**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

### F. Main Landing Gear Axle Installation

**SUBTASK 32-11-85-420-001**

(1) Lightly lubricate the bushing bores of the inner cylinder assembly [3] with grease, D00633.


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SUBTASK 32-11-85-420-002

(2) Put the axle assembly [1] through the inner cylinder assembly [3].

SUBTASK 32-11-85-420-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(3) Apply a thin layer of corrosion inhibiting material, G50136 or Cor-Ban 27L Compound, G50237, to these items:

NOTE: Do not apply corrosion inhibiting material, G50136 or Cor-Ban 27L Compound, G50237, to the chrome plated surfaces of the pin [6].

(a) The head face of the pin [6]

(b) The threads and thread reliefs of the pin [6]

(c) The threads of the nut [8]

(d) The faces of the washer [7].

SUBTASK 32-11-85-020-008

(4) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-11-85-420-004

(5) Lubricate the chrome plated surfaces of pin [6] with grease, D00633.

SUBTASK 32-11-85-420-005

(6) Align the hole on the axle assembly [1] with the holes on the inner cylinder assembly [3] for the installation of the pin [6].

SUBTASK 32-11-85-420-006

(7) Put the pin [6] through the inner cylinder assembly [3] and the axle assembly [1].

SUBTASK 32-11-85-420-007

(8) Do these steps to install the lower torsion link pin [16].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136 or Cor-Ban 27L Compound, G50237, to these items:

1) The threads of nut [14].

2) The face of washer [15].

(b) Remove all excess corrosion inhibiting material, G50136.

(c) Lubricate the chrome plated surfaces of the lower torsion link pin [16] and cross bolt [17] with grease, D00633.



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(d) Remove all unwanted grease, D00633.

(e) Connect the lower torsion link [18] to the inner cylinder assembly [3]:

1) Put the lower torsion link [18] in its position on the inner cylinder assembly [3].

2) Put the lower torsion link pin [16] through the clevis on the inner cylinder assembly [3] and the spacer [19].

3) Align the hole in the lower torsion link pin [16] with hole in the spacer [19] for the installation of the cross bolt [17].

4) Put the cross bolt [17] through the spacer [19] and the lower torsion link pin [16].

5) Install the washer [15] and the nut [14] on the cross bolt [17].

6) Tighten the nut [14] to 160 in-lb (18 N·m) to 190 in-lb (21 N·m).

7) Install the new pin [13] in the cross bolt [17].

a) If it is necessary, loosen the nut [14] to the nearest castellation to align the hole for the new pin [13].

**SUBTASK 32-11-85-420-008**

(9) Put the bracket [10] in its position on the pin [6] for attachment to the mounting studs.

**SUBTASK 32-11-85-420-009**

(10) Install the washers [12] and the nuts [11] that hold the bracket [10] to the mounting studs.

(a) Tighten the nuts [11] with your hand.

**SUBTASK 32-11-85-420-010**

(11) Install the washer [7] and nut [8] on the pin [6].

**SUBTASK 32-11-85-420-011**

(12) Tighten the nut [8] to 160 in-lb (18 N·m) – 190 in-lb (21 N·m).

(a) If it is necessary, loosen the nut [8] to the nearest castellation to align the holes for the new cotter pin [9].

**SUBTASK 32-11-85-420-012**

(13) Install the new cotter pin [9] in the pin [6].

**SUBTASK 32-11-85-640-001**

(14) Do these steps to install the brake sleeve [2]:

(a) Apply a light coating of grease, D00633, to the lands of the axle assembly [1] and the axle assembly axle sleeve, where the brake sleeve [2] inside diameters set.

NOTE: Avoid use of too much grease, D00633, on the brake sleeve [2].

(b) Heat the brake sleeve [2] to 375 ±25°F (191 ±14°C).

(c) Install the brake sleeve [2] on the axle assembly [1].

(d) Remove all unwanted grease, D00633.

**SUBTASK 32-11-85-420-013**

(15) Do these steps to install the wiring assembly in the axle assembly [1]:

(a) Make sure that you connect the correct wires to the correct in-axle assembly.

(b) Before you connect the electrical connector to the inner cylinder assembly [3], examine the electrical connector for corrosion.


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**WARNING** DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(c) If there was corrosion, refer to SWPM 20-60-03 to correct the problem.

(d) Apply the D5026NS or ZC-026 compound, G50171, to the electrical connector (SWPM 20-60-03).

(e) Push the wiring through the hole on the inner cylinder assembly [3] and into the axle assembly [1].

(f) Tighten the nut [11] to connect the electrical connector to the inner cylinder assembly [3].

(g) Tighten the elbow [4].

(h) Install lockwire on the nut [11].

SUBTASK 32-11-85-420-014

(16) Install the in-axle assemblies (Antiskid Wheel Speed Transducer Installation, TASK 32-42-11-400-801).

SUBTASK 32-11-85-420-015

(17) Do this task: Main Landing Gear Brake Installation, TASK 32-41-41-400-801.

NOTE: This procedure will also install the wheel and tire assemblies.

SUBTASK 32-11-85-600-001

(18) For the grease fittings on the upper torsion link and the lower torsion link [18], do this task: Main Landing Gear Lower End Components Servicing, TASK 12-21-11-640-802.

SUBTASK 32-11-85-710-001

(19) Do a test of the transducer: Transducer Operational Test, TASK 32-42-00-710-803.

SUBTASK 32-11-85-730-001

(20) Do this task: Tire and Brake Monitoring System - System Test, TASK 32-46-00-730-801.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-85-580-001

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(1) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**END OF TASK**


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**TASK 32-11-85-000-802**

## 4. Main Landing Gear Axle Sleeve Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |
| 32-42-11-000-801 | Antiskid Wheel Speed Transducer Removal (P/B 401) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1864 | Puller Equipment - Axle Sleeve Assembly, MLG<br>Part #: C32032-125 Supplier: 81205<br>Opt Part #: C32032-98 Supplier: 81205 |

### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Removal

**SUBTASK 32-11-85-480-002**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-11-85-580-002**

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.


ECCN 9E991 BOEING PROPRIETARY - See title page for details

**E. Main Landing Gear Axle Sleeve Removal**

SUBTASK 32-11-85-020-009

(1) Do this task: Main Landing Gear Brake Removal, TASK 32-41-41-000-801.

NOTE: This procedure will also remove the wheel and tire assemblies.

SUBTASK 32-11-85-020-010

(2) Remove the in-axle assemblies (Antiskid Wheel Speed Transducer Removal, TASK 32-42-11-000-801).

(a) Make sure you attach a label to the wires to indicate the left and right connectors.

SUBTASK 32-11-85-860-006

(3) Make sure that the wiring assembly is stowed inside the axle assembly [1].

SUBTASK 32-11-85-020-012

**CAUTION**

DO NOT APPLY TOO MUCH FORCE WHEN YOU REMOVE THE BRAKE SLEEVE. IF YOU USE TOO MUCH FORCE, DAMAGE TO THE AIRPLANE AND THE SUPPORT EQUIPMENT CAN OCCUR.

(4) Remove the brake sleeve [2] from the axle assembly [1] with the puller equipment, SPL-1864.

NOTE: Applied heat can decrease the force necessary for the removal.

SUBTASK 32-11-85-020-013

(5) Do these steps to remove the axle sleeve [37] from the axle assembly [1]:

(a) Remove the axle sleeve retention pin [38].

1) Use the puller equipment, SPL-1864, RC-50 assembly to push the axle sleeve retention pin [38] out of the axle assembly [1].

(b) Remove the axle sleeve [37] with the puller equipment, SPL-1864.

NOTE: Applied heat may be required for removal.

**——— END OF TASK ———**

**TASK 32-11-85-420-802**

## 5. Main Landing Gear Axle Sleeve Installation

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-21-11-640-802 | Main Landing Gear Lower End Components Servicing (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |
| 32-42-11-400-801 | Antiskid Wheel Speed Transducer Installation (P/B 401) |

**B. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |



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**C. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 37 | Axle sleeve | 32-11-85-01-035 | SIA ALL |

**D. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**E. Prepare for the Installation**

SUBTASK 32-11-85-860-004

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**F. Main Landing Gear Axle Sleeve Installation**

SUBTASK 32-11-85-420-016

(1) Do the steps that follow steps to install the axle sleeve [37]:

(a) Apply a generous coating of grease, D00633, to the lands of the axle assembly [1], where the axle sleeve [37] inside diameters sit.

(b) Heat the axle sleeve [37] to 375 ±25°F (191 ±14°C).

(c) Align the retention pin holes in the axle sleeve [37] and the axle assembly [1] before installing the axle sleeve [37] on the axle assembly [1].

NOTE: The axle sleeve [37] will rapidly shrink to normal size and seize the axle assembly [1] , preventing further pin alignment efforts.

SUBTASK 32-11-85-420-017

(2) Do the steps that follow to install the axle sleeve retention pin [38]:

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply corrosion inhibiting material, G50136 or Cor-Ban 27L Compound, G50237, to the retention pin hole in the axle assembly [1], and the hole in the axle sleeve [37].

(b) Lightly press or tap the axle sleeve retention pin [38] to install the axle sleeve retention pin [38] into position.

NOTE: The head of the axle sleeve retention pin [38] must be flush or below the outside diameter of the axle sleeve [37].

SUBTASK 32-11-85-020-014

(3) Remove all unwanted corrosion inhibiting material, G50136 or Cor-Ban 27L Compound, G50237.


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SUBTASK 32-11-85-420-018

(4) Do these steps to install the brake sleeve [2]:

(a) Apply a light coating of grease, D00633, to the lands of the axle assembly [1] and the axle assembly sleeve, where the brake sleeve [2] inside diameters sit.

NOTE: Avoid use of too much grease, D00633, on the brake sleeve [2].

(b) Heat the brake sleeve [2] to 375 ±25°F (191 ±14°C).

(c) Install the brake sleeve [2] on the axle assembly [1].

(d) Remove all unwanted grease, D00633.

SUBTASK 32-11-85-420-020

(5) Install the in-axle assemblies (Antiskid Wheel Speed Transducer Installation, TASK 32-42-11-400-801).

SUBTASK 32-11-85-420-021

(6) Do this task: Main Landing Gear Brake Installation, TASK 32-41-41-400-801.

NOTE: This procedure will also install the wheel and tire assemblies.

(a) Make sure that you connect the correct wires to the correct in-axle assembly.

SUBTASK 32-11-85-600-002

(7) For the grease fittings on the upper torsion link and the lower torsion link [18], do this task: Main Landing Gear Lower End Components Servicing, TASK 12-21-11-640-802.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-11-85-580-003

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(1) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## MAIN LANDING GEAR AXLE - REPAIRS

### 1. General

A. This procedure contains these tasks:

(1) Main landing Gear Axle Repair

(2) Repair of the Axle Sleeve of the Main Landing Gear

(3) Repair of the Brake Sleeve of the Main Landing Gear

B. You can remove the cadium plating to inspect the base metal for heat damage on airplanes on which heavy braking gives sufficient heat to melt the cadium plating on the axle.

C. The repairs to the axle sleeves will be the blending out of scratches, scoring, and galling in the limits given.

**TASK 32-11-85-300-801**

### 2. Main Landing Gear Axle Repair

(Figure 801, Figure 802)

#### A. References

| Reference | Title |
|---|---|
| 05-51-07 P/B 201 | HIGH ENERGY STOP/HEAT DAMAGE CONDITION - MAINTENANCE PRACTICES |
| 32-11-85-000-802 | Main Landing Gear Axle Sleeve Removal (P/B 401) |
| 32-41-42-000-801 | Main Landing Gear Brake Sleeve Removal (P/B 401) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### C. Main Landing Gear Axle Repair

**SUBTASK 32-11-85-200-001**

(1) Refer to HIGH ENERGY STOP/HEAT DAMAGE CONDITION - MAINTENANCE PRACTICES, PAGEBLOCK 05-51-07/201 for axle heat damage inspection. If necessary, contact Boeing Engineering for an analysis of repair.

(2) Refer to Main Landing Gear Axle Sleeve Removal, TASK 32-11-85-000-802 and Main Landing Gear Brake Sleeve Removal, TASK 32-41-42-000-801.

**SUBTASK 32-11-85-300-008**

(3) Do a check of the diameter of the bearing supports after the axle sleeve installation.

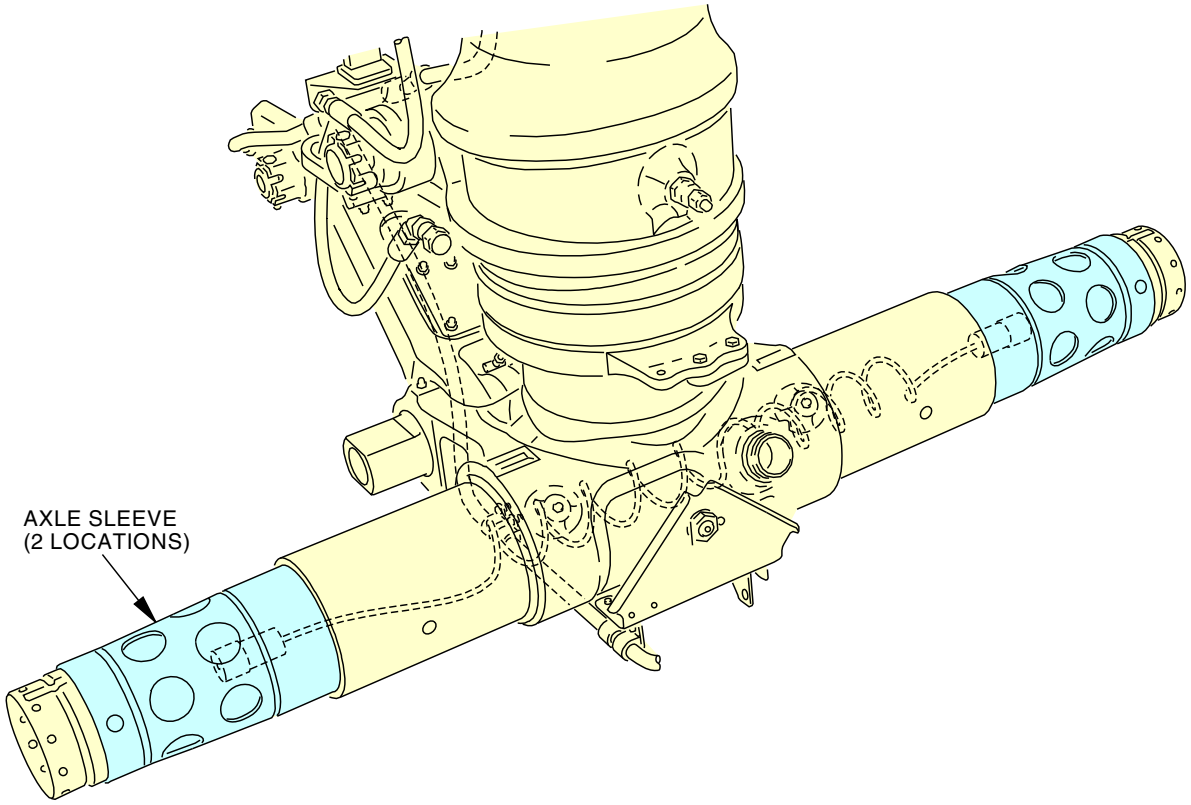
(a) Make sure the outer diameter of the small bearing support is 4.3266 in. (109.8956 mm) to 4.3293 in. (109.9642 mm).

(b) Make sure the outer diameter of large bearing support is 4.7466 in. (120.5636 mm) to 4.7491 in. (120.6271 mm).

**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

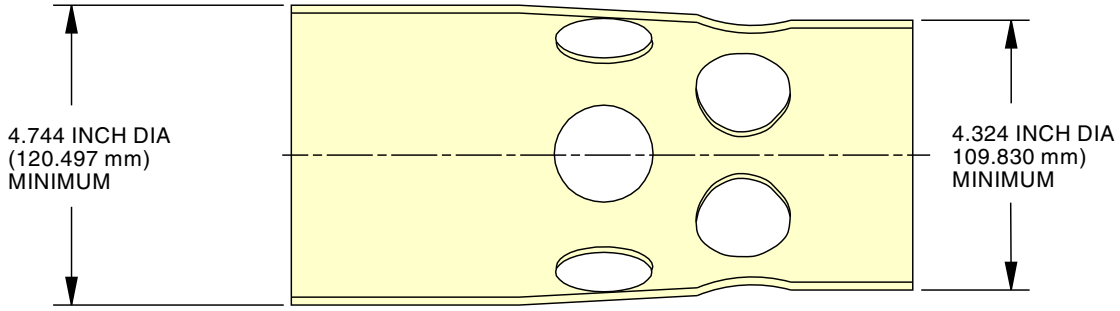



2414110 S00061534426_V1

**Axle Sleeve Installation**
**Figure 801/32-11-85-990-802**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




NOTE: THE DIMENSIONS OF THE AXLE SLEEVES YOU WILL INSTALL WILL BE DIFFERENT THAN THE AXLE SLEEVES YOU WILL REMOVE BECAUSE OF THE INTERFERENCE FIT.

2414111 S00061534427_V1

**Permitted Wear Limits of Installed Axle Sleeves**
**Figure 802/32-11-85-990-803**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-11-85-300-802**

**3. Repair of the Axle Sleeve of the Main Landing Gear**

(Figure 801, Figure 802)

**A. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**B. Procedure to Repair the Axle Sleeve of the Main Landing Gear.**

**SUBTASK 32-11-85-300-009**

(1) Do a check on the wear limits of the axle sleeve bearing boss.

(a) Examine the diameters of the inboard and the outboard bearing boss for worn areas as shown on Figure 802.

1) If worn areas on the bearing boss is more than the specified wear limits and the clearance between the wheel bearing and the boss is more than 0.006 in. (0.152 mm), you must remove the axle sleeve and replace or rework.

2) If worn areas on the bearing boss is more than the specified wear limits and the clearance between the wheel bearing and the boss is 0.006 in. (0.152 mm) or less, the axle sleeve can continue to be in service for 65 hours flying time before removal for replacement or repairs.

**SUBTASK 32-11-85-300-010**

(2) Repair the local damage on the bearing surfaces.

(a) Remove the sharp edges and make a smooth finish on the damage to a 0.50 in. (12.70 mm) radius.

NOTE: Do not reduce the wall thickness by more than 0.025 in. (0.635 mm) or more than 30 % of the total bearing area of any 90 degree segment when you rework.

(b) If damage is on the anti-rotation bolt hole, replace the sleeve or contact BOEING to make an analysis of a possible repair.

**——— END OF TASK ———**

**TASK 32-11-85-300-803**

**4. Repair of the Brake Sleeve of the Main Landing Gear**

(Figure 803, Figure 804)

**A. References**

| Reference | Title |
|---|---|
| 32-41-42-000-801 | Main Landing Gear Brake Sleeve Removal (P/B 401) |
| 32-41-42-420-801 | Main Landing Gear Brake Sleeve Installation (P/B 401) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**C. Procedure to Repair the Brake Sleeve of the Main Landing Gear.**

**SUBTASK 32-11-85-220-001**

(1) Do a check of the wear limits of the sleeve.



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(a) Measure the sleeve diameter in the worn and unworn areas of the sleeve.

1) Make sure that the difference in the sleeve diameter is 0.003 in. (0.076 mm) or less.

2) Make sure that the base metal is not exposed.

**SUBTASK 32-11-85-020-018**

(2) Replace the Brake Sleeve if the worn areas are more than specified or the base metal is exposed. Contact Boeing Engineering to perform an analysis of repair.

(a) Do the replacement of the brake sleeve in less than 65 hours of flight time, if the worn areas are more than the specified limits.

These are the tasks:

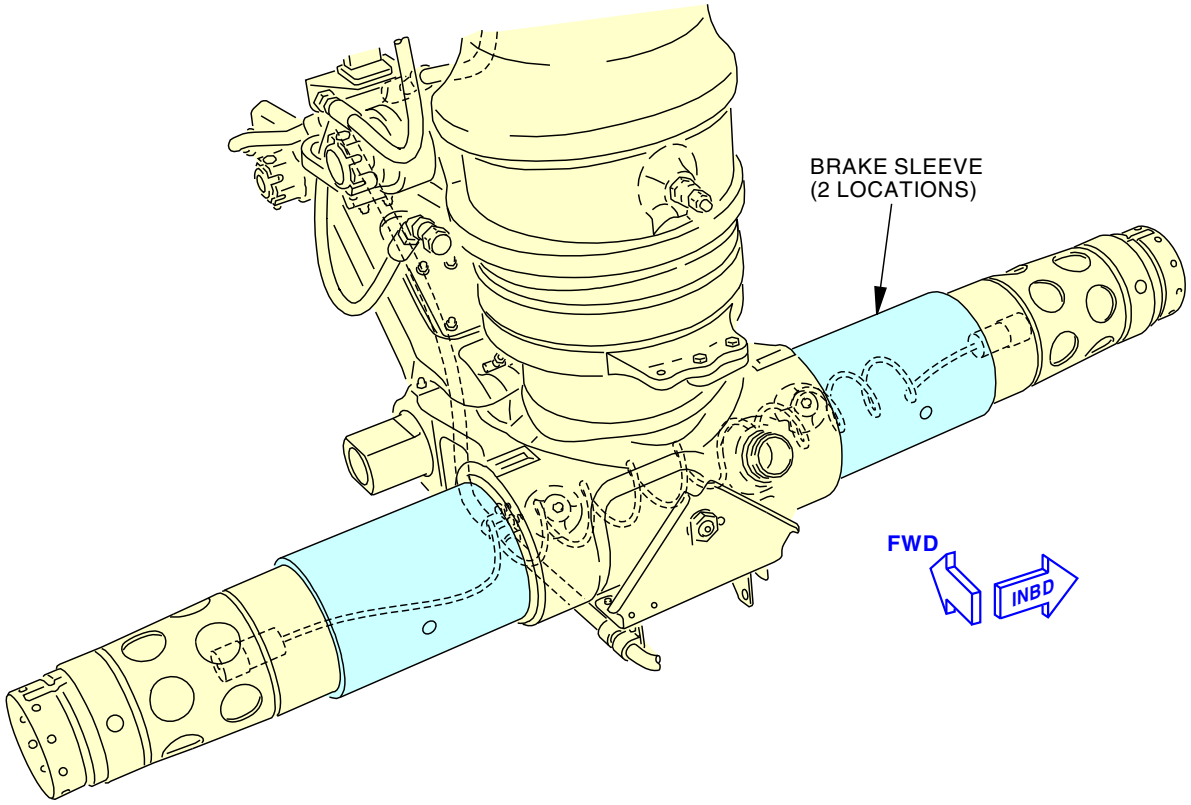
Main Landing Gear Brake Sleeve Removal, TASK 32-41-42-000-801.

Main Landing Gear Brake Sleeve Installation, TASK 32-41-42-420-801.

**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

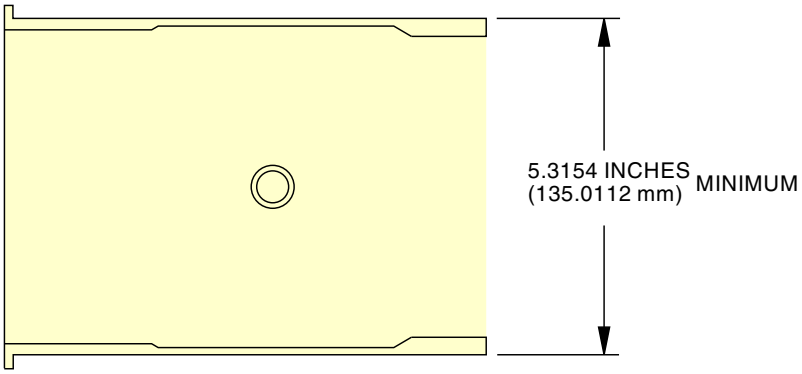



2414112 S00061534430_V1

**Brake Sleeve Installation**
**Figure 803/32-11-85-990-804**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




NOTE: THE DIMENSIONS OF THE BRAKE SLEEVE YOU WILL INSTALL WILL BE DIFFERENT THAN THE BRAKE SLEEVE YOU WILL REMOVE BECAUSE OF THE INTERFERENCE FIT.

2414113 S00061534431_V1

**Permitted Wear LImits of Installed Brake Sleeve**
**Figure 804/32-11-85-990-805**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## MAIN LANDING GEAR DOWNLOCK STRUT - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the reaction link assembly [6] and the link arm assembly for the main landing gear

(2) An installation of the reaction link assembly [6] and the link arm assembly for the main landing gear.

B. The assembly of the reaction link assembly [6] and the link arm assembly are referred to as the downlock strut [5] in this procedure.

**TASK 32-11-89-000-801**

### 2. Main Landing Gear Downlock Strut Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-91-000-801 | Main Gear Downlock Springs Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1360 | Assembly - Wrench Adapter, C32029-4 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1369 | Protector - Thread, C32029-13 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-12498 | MLG downlock release level tool<br>Part #: C32052-1 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



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## D. Prepare for the Removal

SUBTASK 32-11-89-480-003

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-11-89-860-001

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Lift the airplane on jacks until the main landing gear wheels are off of the ground (TASK 07-10-01-580-801).

SUBTASK 32-11-89-860-002

(3) Remove the power from hydraulic system A and B (TASK 29-11-00-860-805).

SUBTASK 32-11-89-020-001

(4) Do this task: Main Gear Downlock Springs Removal, TASK 32-32-91-000-801.

## E. Main Landing Gear Downlock Strut Removal

SUBTASK 32-11-89-020-002

(1) Do these steps to disconnect the hydraulic tubes [2] from the downlock actuator [4]:

(a) Put tags on the hydraulic tubes [2] to prevent the crossing of the hydraulic tubes [2] during the installation.

(b) Disconnect the hydraulic tubes [2] from the downlock actuator [4].

(c) Install the caps/plugs, STD-14686, on the hydraulic tubes [2].

(d) Remove the unions [28] from the downlock actuator [4].

(e) Remove the packings [3] from the ports of the downlock actuator [4] and discard them.

(f) Install the caps/plugs, STD-14686, in the ports of the downlock actuator [4].

SUBTASK 32-11-89-020-003

(2) Use the downlock release tool, SPL-12498, to manually release the Main Landing Gear (MLG) downlock mechanism.

SUBTASK 32-11-89-020-004

(3) Do these steps to disconnect the rod end of the downlock actuator [4] from the downlock strut [5]:

(a) Remove the spacer [7] from the rod end pin [8].

(b) From the forward side, remove the rod end pin [8] that holds the rod end of the downlock actuator [4] to the downlock strut [5].



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(c) Remove the spacers [9] and washers [10].

(d) Slowly lower the rod end of the downlock actuator [4] to the upper end of the upper side strut.

(e) Use tape to attach the rod end of the downlock actuator [4] to the upper end of the upper side strut.

NOTE: This will prevent the downlock actuator from moving when the subsequent steps are done.

**SUBTASK 32-11-89-020-005**

(4) Do these steps to disconnect the electrical harnesses [11] from the downlock strut [5]:

(a) Remove the nuts [20], washers [19], and bolts [18] to disconnect the brackets [17] from the downlock strut [5].

1) Remove the brackets [17] with the sensors attached.

(b) Isolate the brackets [17] from the downlock strut [5].

**SUBTASK 32-11-89-080-001**

(5) Remove the downlock pin from the MLG in order to remove the downlock strut [5] (TASK 32-00-01-080-801).

**SUBTASK 32-11-89-020-006**

(6) Do these steps to disconnect the downlock strut [5] from the reaction link assembly [6]:

(a) Remove the pin [22] from the downlock link pin [12].

(b) Remove the nut [21] and washer [23] from the downlock link pin [12].

1) Use a wrench adapter, C32029-4, SPL-1360, to hold the head of the downlock link pin [12] when the nut [21] is loosen.

(c) Remove the downlock link pin [12] that holds the downlock strut [5] to the reaction link assembly [6].

1) Use a thread protector, C32029-13, SPL-1369.

**SUBTASK 32-11-89-020-007**

(7) Do these steps to disconnect the downlock strut [5] from the upper side strut:

(a) Remove the pin [16] from the downlock link pin [13].

(b) Remove the nut [15] and washer [14] from the downlock link pin [13].

(c) Remove the downlock link pin [13].

1) Use a thread protector, C32029-13, SPL-1369.

**SUBTASK 32-11-89-020-008**

(8) Remove the downlock strut [5] from the airplane.

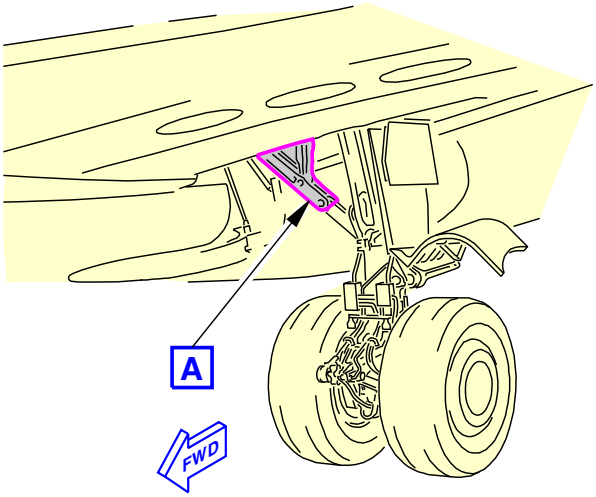
**SUBTASK 32-11-89-580-001**

(9) If the removal of the downlock strut [5] is difficult, do this task to decrease the weight on the gear: Lift the Airplane on Axle Jacks-Handling, TASK 07-10-03-580-801.

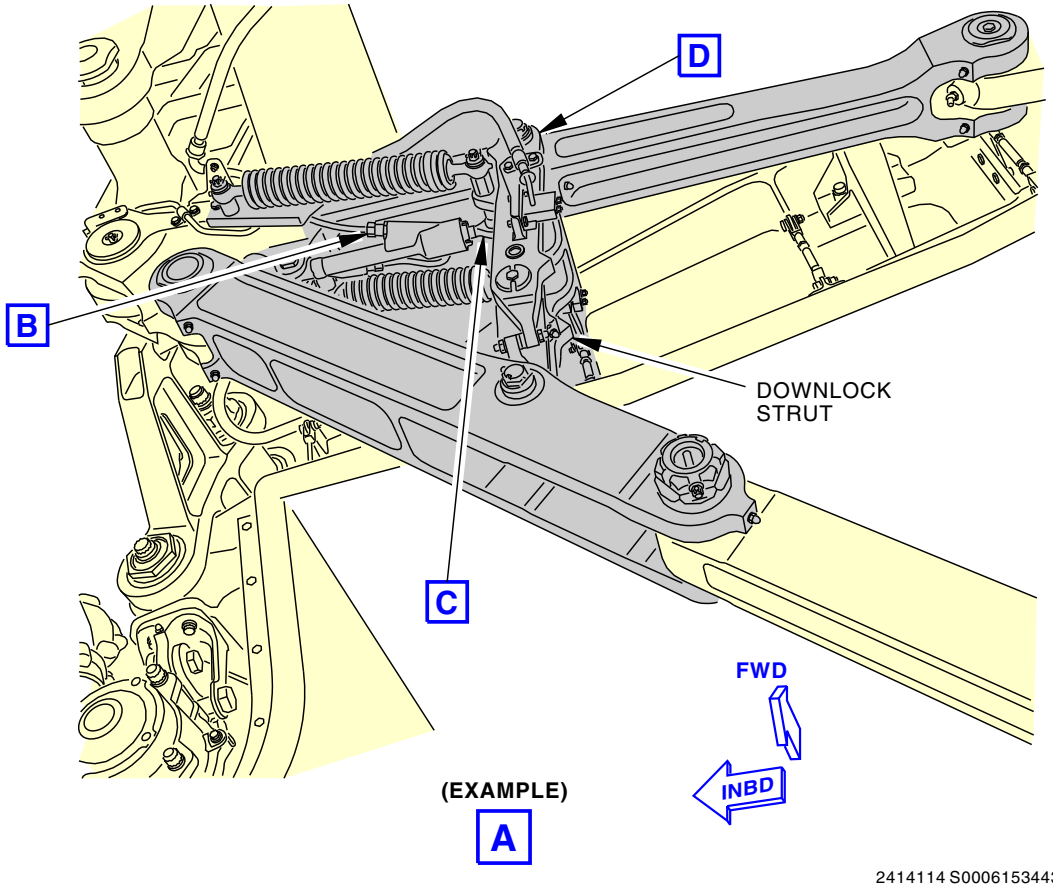
**——— END OF TASK ———**



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LEFT MAIN LANDING GEAR
(RIGHT MAIN LANDING GEAR IS OPPOSITE)

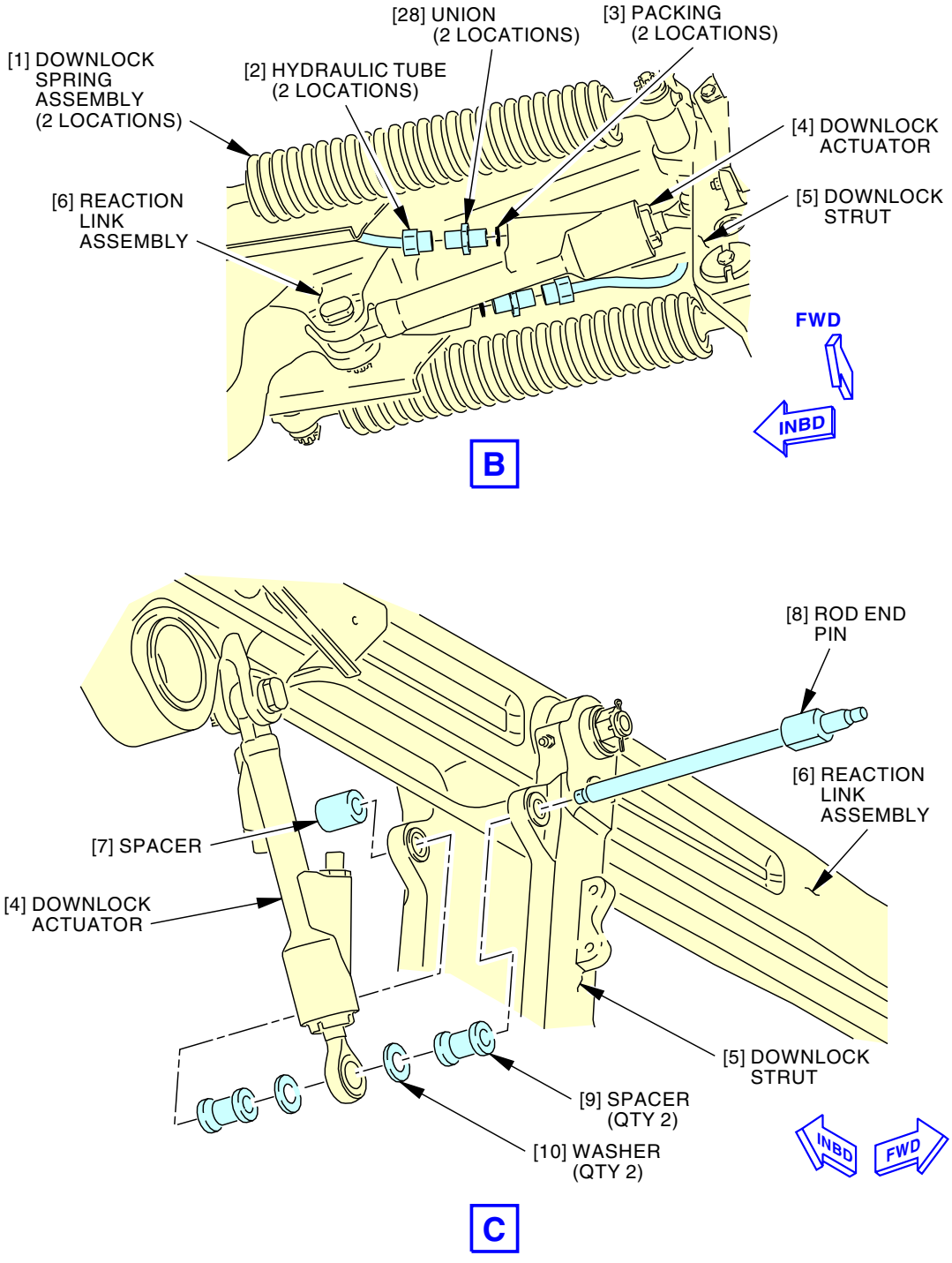



2414114 S00061534435_V2

Main Landing Downlock Strut Installation
Figure 401/32-11-89-990-801 (Sheet 1 of 3)



ECCN 9E991 BOEING PROPRIETARY - See title page for details

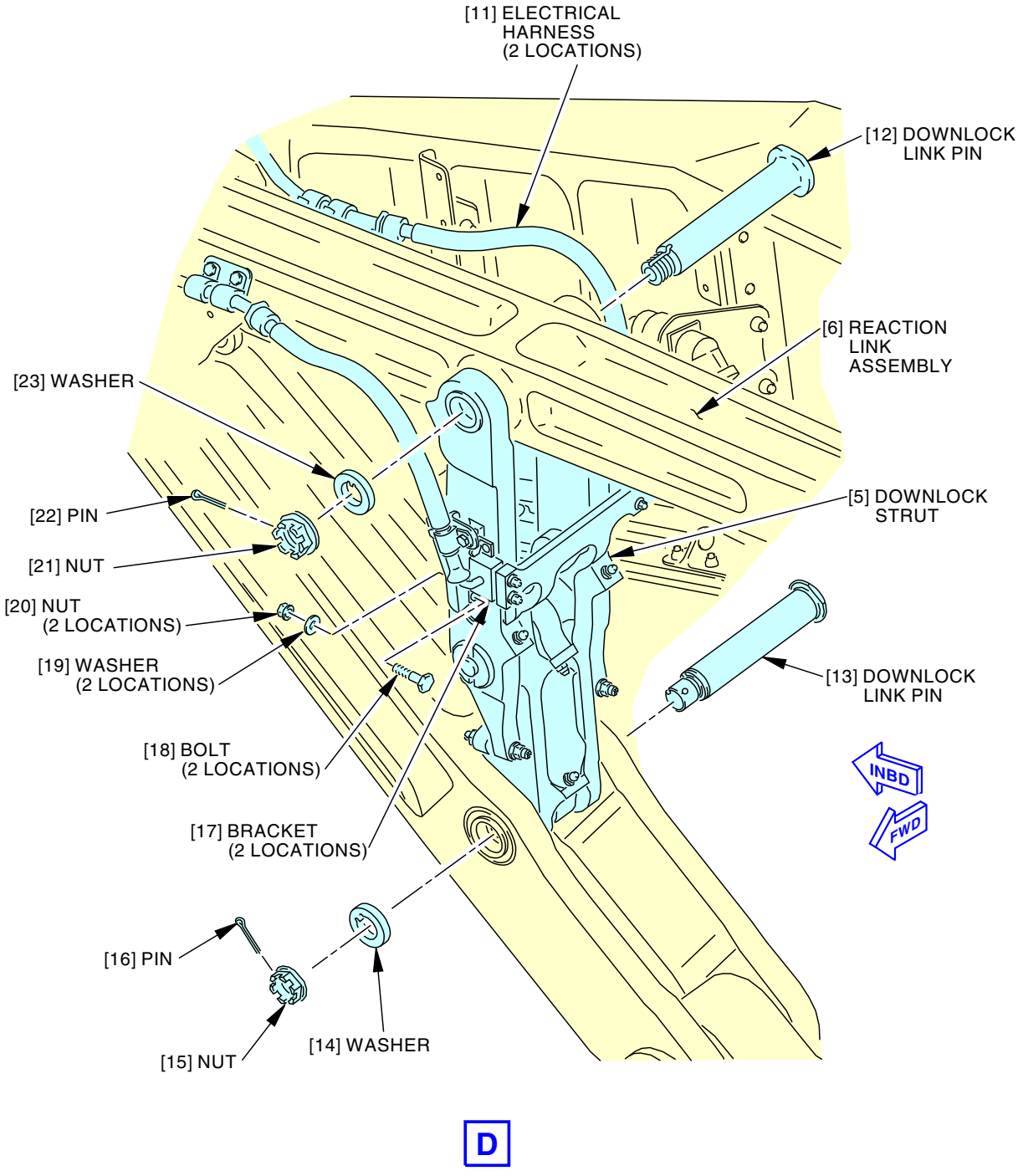



2414115 S00061534436_V3

**Main Landing Downlock Strut Installation**
**Figure 401/32-11-89-990-801 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Downlock Strut Installation**
**Figure 401/32-11-89-990-801 (Sheet 3 of 3)**



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**TASK 32-11-89-420-801**

**3. Main Landing Gear Downlock Strut Installation**

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-21-11-640-801 | Main Landing Gear Upper End Components Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-32-51-400-801 | Main Gear Downlock Actuator Installation (P/B 401) |
| 32-32-91-400-801 | Main Gear Downlock Spring Installation (P/B 401) |
| 32-61-31-220-801 | Main Landing Gear Down-and-Locked Sensor Clearance Measurement (P/B 501) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1360 | Assembly - Wrench Adapter, C32029-4 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-1369 | Protector - Thread, C32029-13 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205<br>Opt Part #: C32029-45 Supplier: 81205 |
| SPL-20083 | Assembly, Wrench Adapter, C32029-55 (included in C32029 kit)<br>Part #: C32029-87 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Packing | 32-32-51-01A-055 | SIA ALL |
| 5 | Downlock strut | 32-11-61-01-125 | SIA ALL |
| 16 | Pin | 32-11-61-01-040 | SIA ALL |
| 22 | Pin | 32-11-71-01-010 | SIA ALL |


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## E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## F. Main Landing Gear Downlock Strut Installation

**SUBTASK 32-11-89-420-001**

(1) Do these steps to connect the downlock strut [5] to the upper side strut:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the downlock link pin [13]
2) The threads of the nut [15]
3) The faces of the washer [14].

(b) Do not apply corrosion inhibiting material, G50136, to the chrome plated surfaces.

(c) Remove any excess corrosion inhibiting material, G50136.

(d) Lubricate the chrome plated surfaces of the downlock link pin [13] with grease, D00633.

(e) Put the downlock strut [5] in its position for attachment to the upper side strut.

(f) Put the downlock link pin [13] through the upper side strut and the downlock strut [5].

1) Use a thread protector, C32029-13, SPL-1369 when you do this task.

(g) Install the washer [14] and nut [15] on the downlock link pin [13].

(h) Tighten the nut [15] to 480 ±120 in-lb (54 ±14 N·m).

1) Use a wrench adapter, C32029-55, SPL-20083, to hold the head of the downlock link pin [13] when you tighten the nut [15].

(i) Install the new pin [16] in the downlock link pin [13].

1) If it is necessary, loosen the nut [15] to the nearest castellation that aligns with the holes for the new pin [16].

**SUBTASK 32-11-89-420-002**

(2) Do these steps to connect the downlock strut [5] to the reaction link assembly [6]:



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the downlock link pin [12]

2) The threads of the nut [21]

3) The faces of the washer [23].

(b) Do not apply corrosion inhibiting material, G50136, to the chrome plated surfaces.

(c) Remove all excess corrosion inhibiting material, G50136.

(d) Lubricate the chrome plated surfaces of the downlock link pin [12] with grease, D00633.

(e) Put the downlock strut [5] in its position for attachment to the reaction link assembly [6].

(f) Put the downlock link pin [12] through the downlock strut [5] and the reaction link assembly [6].

1) Use a thread protector, C32029-13, SPL-1369, when you do this task.

(g) Install the washer [23] and nut [21] on the downlock link pin [12].

(h) Tighten the nut [21] to 480 ±120 in-lb (54 ±14 N·m).

1) Use a wrench adapter, C32029-4, SPL-1360, to hold the head of the downlock link pin [12] when you tighten the nut [21].

(i) Install the new pin [22] in the downlock link pin [12].

1) If it is necessary, loosen the nut [21] to the nearest castellation that aligns with the holes for the new pin [22].

**SUBTASK 32-11-89-640-001**

(3) Do these steps to connect the rod end of the downlock actuator [4] to the downlock strut [5]:

(a) Lubricate the inside surface of the rod end pin [8] with grease, D00633.

1) Do not lubricate the downlock actuator [4] rod and head end bearing inside diameter.

(b) Put the rod end of the downlock actuator [4] in its position for attachment to the downlock strut [5].

1) If it is necessary, retract or extend the downlock actuator [4] to align the rod end of the downlock actuator [4] to the lug on the downlock strut [5].

(c) From the forward side, put the rod end pin [8] through the downlock strut [5], spacers [9], washers [10], and the rod end of the downlock actuator [4].

(d) Install the spacer [7] on the rod end pin [8].

(e) Remove all unwanted grease, D00633.

**SUBTASK 32-11-89-420-003**

(4) Do these steps to connect the hydraulic tubes [2] to the downlock actuator [4]:

(a) Lubricate these items with hydraulic fluid, D00153:

1) new packings [3]



ECCN 9E991 BOEING PROPRIETARY - See title page for details

2) unions [28].

(b) Remove the caps/plugs, STD-14686, from the ports on the downlock actuator [4].

(c) Install the new packings [3] and unions [28] in the downlock actuator [4].

(d) Remove the caps/plugs, STD-14686, from the hydraulic tubes [2].

(e) Connect the hydraulic tubes [2] to the downlock actuator [4].

(f) Tighten the B-nuts on hydraulic tubes [2] to 140 in-lb (16 N·m).

(g) Loosen the B-nuts on hydraulic tubes [2] and re-tighten them to 140 ±7 in-lb (16 ±1 N·m).

(h) Remove the tags from the hydraulic tubes [2].

SUBTASK 32-11-89-420-004

(5) Do this step to connect the electrical harnesses [11] to the downlock strut [5]:

(a) Install the nuts [20], washers [19], and bolts [18] to connect the brackets [17] to the downlock strut [5].

SUBTASK 32-11-89-820-001

(6) Do this task: Main Landing Gear Down-and-Locked Sensor Clearance Measurement, TASK 32-61-31-220-801

## G. Main Landing Gear Downlock Strut Installation Test

SUBTASK 32-11-89-420-005

(1) Do this task: Main Gear Downlock Spring Installation, TASK 32-32-91-400-801.

SUBTASK 32-11-89-610-001

(2) Lubricate the downlock strut [5] (TASK 12-21-11-640-801).

SUBTASK 32-11-89-860-003

(3) For hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-11-89-710-001

(4) Do a test of the downlock actuator [4] (TASK 32-32-51-400-801).

SUBTASK 32-11-89-790-001

(5) Examine the connections of the hydraulic tubes [2] for leakage.

## H. Put the Airplane Back to Its Usual Condition.

SUBTASK 32-11-89-080-002

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(1) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802, if it is necessary.

SUBTASK 32-11-89-800-001

(2) Remove the power from hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

# MAIN LANDING GEAR WHEEL WELL BLADE SEAL - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the blade seal from the wheel well of the main landing gear

(2) An installation of the blade seal on the wheel well of the main landing gear.

B. The blade seal can be replaced in segments or all at one time.

**TASK 32-12-12-000-801**

## 2. Main Landing Gear Wheel Well Blade Seal - Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### C. Prepare for the Removal

**SUBTASK 32-12-12-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

**SUBTASK 32-12-12-480-002**

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

### D. Main Landing Gear Wheel Well Blade Seal Removal

**SUBTASK 32-12-12-020-001**

(1) Do these steps to remove all the blade seal [4] from the wheel well:

(a) Remove the screws [1] and washers [2] that hold the blade seal [4] between the upper seal retainer [3] and the lower seal retainer [5].

(b) Isolate the upper seal retainer [3] from the blade seal [4] and the lower seal retainer [5].

(c) Remove the blade seal [4] from the wheel well.

(d) Hold the lower seal retainer [5] in place with tape.

**SUBTASK 32-12-12-020-002**

(2) Do these steps to remove a segment or segments of the blade seal [4] from the wheel well:

(a) Remove the screws [1] and washers [2] that hold the segment or segments of the blade seal [4] between the upper seal retainer [3] and the lower seal retainer [5].

(b) Loosen the adjacent screws to a segment or segments of the blade seal [4] you will remove to help in the removal of the blade seal [4].



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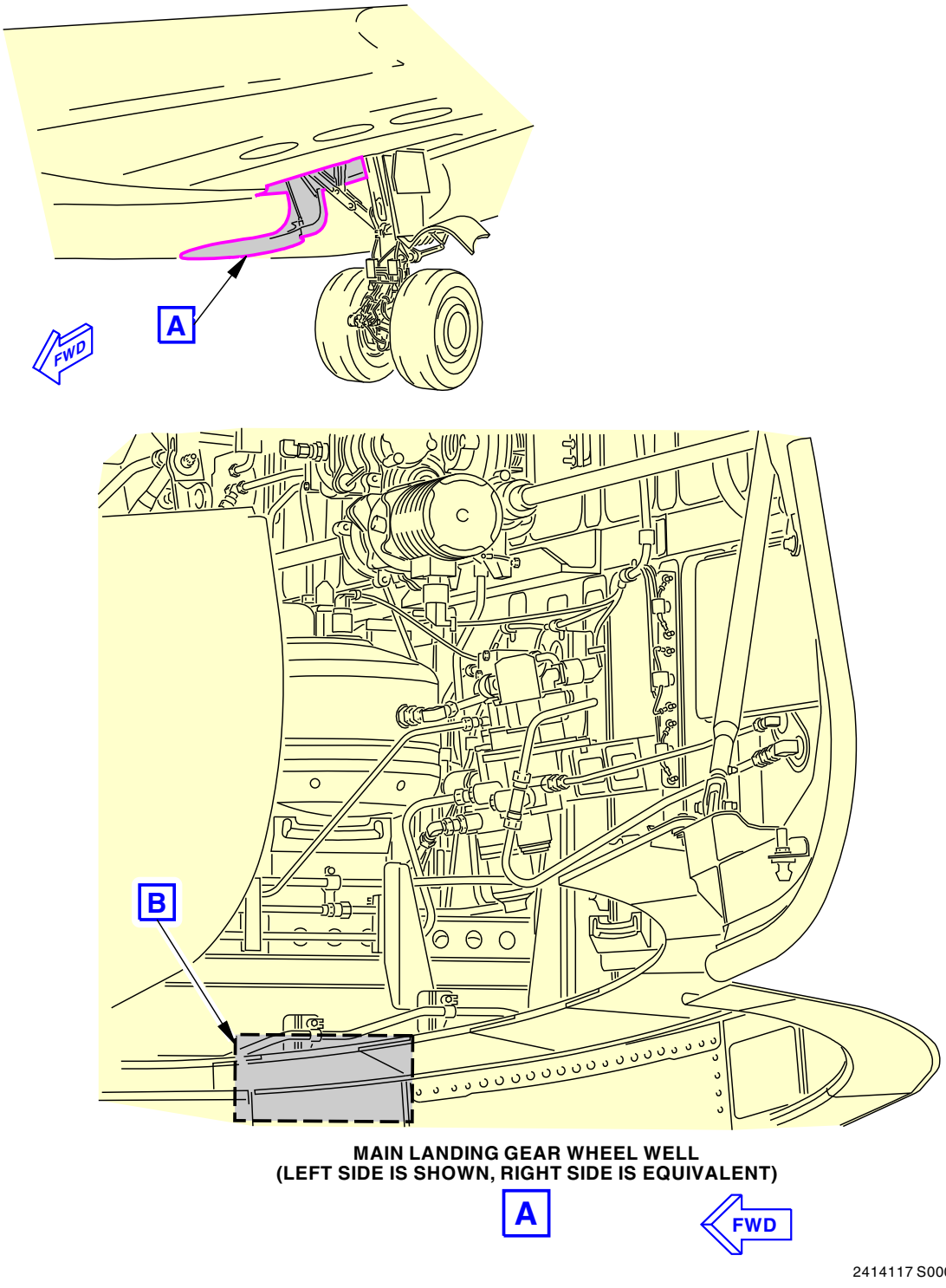
(c) Lift the upper seal retainer [3] lightly until you can remove a segment or segments of the blade seal [4].

(d) Remove a segment or segments of the blade seal [4] from the wheel well.

**——— END OF TASK ———**



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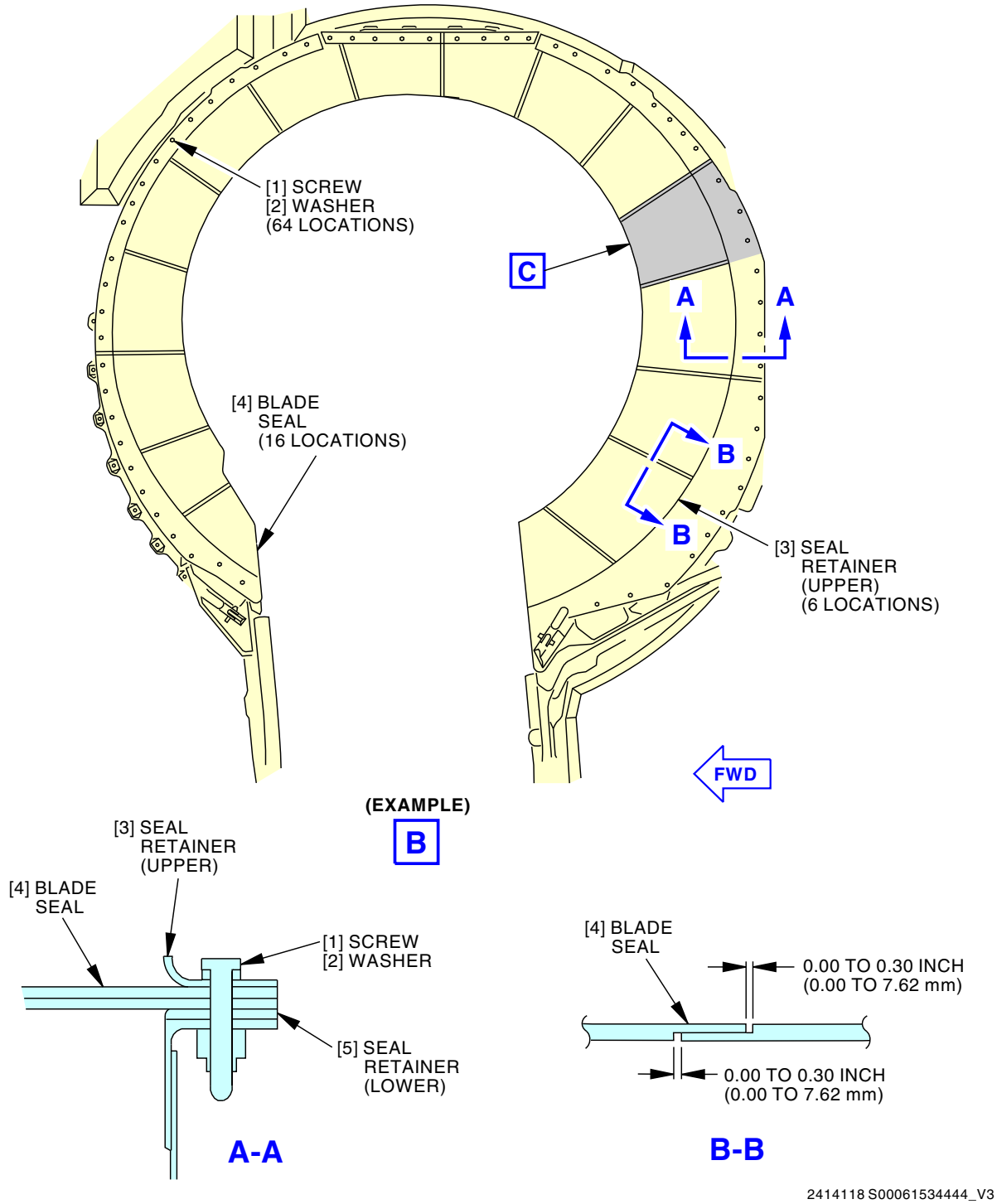

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

2414117 S00061534443_V1

**Main Landing Gear Wheel Well Blade Seal Installation**
**Figure 401/32-12-12-990-801 (Sheet 1 of 3)**



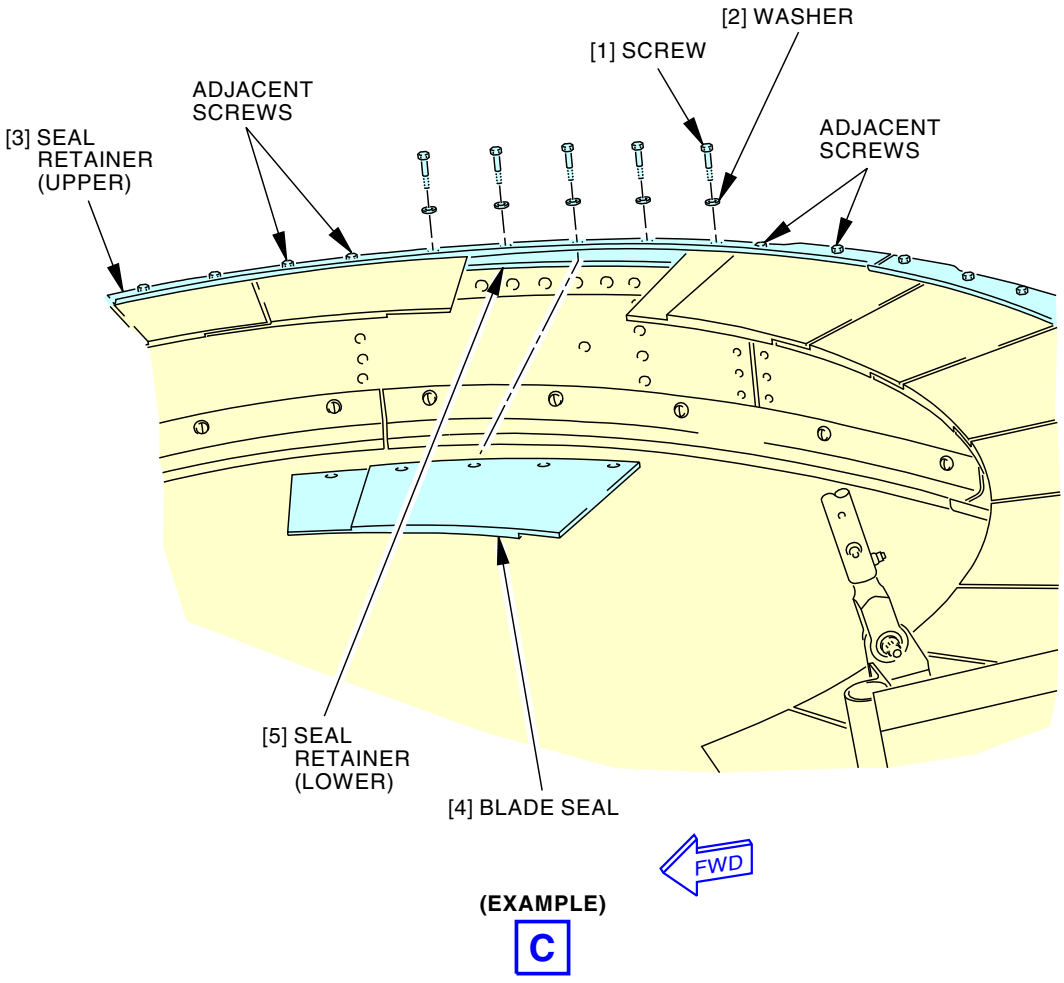
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Wheel Well Blade Seal Installation**
**Figure 401/32-12-12-990-801 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2414119 S00061534445_V2

**Main Landing Gear Wheel Well Blade Seal Installation**
**Figure 401/32-12-12-990-801 (Sheet 3 of 3)**



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**TASK 32-12-12-400-801**

**3. Main Landing Gear Wheel Well Blade Seal Installation**

(Figure 401)

**A. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Blade seal | 53-14-51-10A-025 | SIA ALL |
| | | 53-14-51-10A-030 | SIA ALL |
| | | 53-14-51-10A-035 | SIA ALL |
| | | 53-14-51-10A-050 | SIA ALL |
| | | 53-14-51-10A-055 | SIA ALL |
| | | 53-14-51-10A-060 | SIA ALL |
| | | 53-14-51-10A-065 | SIA ALL |
| | | 53-14-51-10A-080 | SIA ALL |
| | | 53-14-51-10A-085 | SIA ALL |
| | | 53-14-51-10A-095 | SIA ALL |
| | | 53-14-51-10A-100 | SIA ALL |
| | | 53-14-51-10A-115 | SIA ALL |
| | | 53-14-51-10A-120 | SIA ALL |
| | | 53-14-51-10A-135 | SIA ALL |
| | | 53-14-51-10A-140 | SIA ALL |
| | | 53-14-51-10A-145 | SIA ALL |

**B. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

**C. Main Landing Gear Wheel Well Blade Seal Installation**

**SUBTASK 32-12-12-420-001**

(1) Do these steps to install all the blade seal [4] on the wheel well:

(a) Remove the tape that holds the lower seal retainer [5] in position.

(b) Put the blade seal [4] and the upper seal retainer [3] in position on the lower seal retainer [5].

NOTE: Each blade seal [4] and seal retainer was designed to fit a specified area. Make sure you install the blade seal [4] and the seal retainer on the same position from which they were removed.

(c) Align the fastener holes on the blade seal [4] with the fastener holes on the upper seal retainer [3] and lower seal retainer [5].

(d) Install the screws [1] and washers [2] to hold the blade seal [4] between the upper seal retainer [3] and the lower seal retainer [5].

(e) Tighten the screws [1] to 15 in-lb (2 N·m) maximum.

1) Make sure there is a two thread minimum protrusion of the screw [1] through the nut plate element.



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SUBTASK 32-12-12-420-002

(2) Do these steps to install a segment or segments of the blade seal [4] on the wheel well:

(a) Lift the upper seal retainer [3] lightly until you can install a segment or segments of a blade seal [4] between the upper seal retainer [3] and the lower seal retainer [5].

(b) Align the fastener holes on the blade seal [4] with the fastener holes on the upper seal retainer [3] and the lower seal retainer [5].

(c) Install the screws [1] and washers [2] to hold the blade seal [4] between the upper seal retainer [3] and the lower seal retainer [5].

(d) Tighten the screws [1] to 15 in-lb (2 N·m) maximum.

1) Make sure there is a two thread minimum protrusion of the screw [1] through the nut plate element.

## D. Put the Airplane Back to Its Usual Condition

SUBTASK 32-12-12-080-001

(1) Remove chocks around the tires of all the landing gear.

——— END OF TASK ———



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## MAIN LANDING GEAR WHEEL WELL BLADE SEAL - INSPECTION/CHECK

### 1. General

A. This procedure contains the task to examine the blade seal on the wheel well of the main landing gear.

**TASK 32-12-12-200-801**

### 2. Main Landing Gear Wheel Well Blade Seal Inspection

(Figure 601)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-12-12-000-801 | Main Landing Gear Wheel Well Blade Seal - Removal (P/B 401) |
| 32-12-12-400-801 | Main Landing Gear Wheel Well Blade Seal Installation (P/B 401) |
| 32-41-93-710-802 | Gear Retract Braking Operational Test (P/B 501) |
| IFIM and do the applicable procedure(s) | Interactive Fault Isolation Manual |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-552 | Knife - Utility |
| STD-1074 | Scissors |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

#### D. Prepare for the Inspection

**SUBTASK 32-12-12-210-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-12-12-480-003**

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

#### E. Main Landing Gear Wheel Well Blade Seal Inspection

**SUBTASK 32-12-12-020-003**

(1) Examine the blade seal segments for tears in the half-thickness (overlap) areas.

(a) If one segment of the overlap area has a tear, do the steps that follow:(Go to IFIM and do the applicable procedure(s))



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1) Cut a sufficient area from the overlap to fully remove the tear with a scissors, STD-1074, or an utility knife, STD-552.

NOTE: The area of damage removal must be over or under an undamaged area of the adjacent blade seal segment.

(b) If both segments of the overlap area have a tear, do the steps that follow:

1) Replace one or both blade seal segments.

NOTE: If one blade seal segment is replaced, refer to the above step to repair the remaining damaged blade seal segment.

**SUBTASK 32-12-12-020-004**

(2) Examine the blade seal segments for tears in the full-thickness (non-overlap) areas.

(a) If you find a tear in a blade seal segment, replace the segment (TASK 32-12-12-000-801, TASK 32-12-12-400-801).

**SUBTASK 32-12-12-020-005**

(3) Examine the seal segments for damage possibly caused by friction wear when a tire enters the wheel well.

NOTE: Worn edges from friction with tires is usual, and local fraying of fabric along the worn edges is permitted. If the worn edge has no tears or separated sections, then there is no limit to the depth of wear and operators can replace blade seals at their discretion. Be advised, however, that blade seals which have worn beyond the point of contact with the tire could contribute to drag in the wheel well area.

(a) If you find damage to the blade seals which appears to have been caused by spinning tires, do this task: Gear Retract Braking Operational Test, TASK 32-41-93-710-802.

## F. Put the Airplane Back to Its Usual Condition

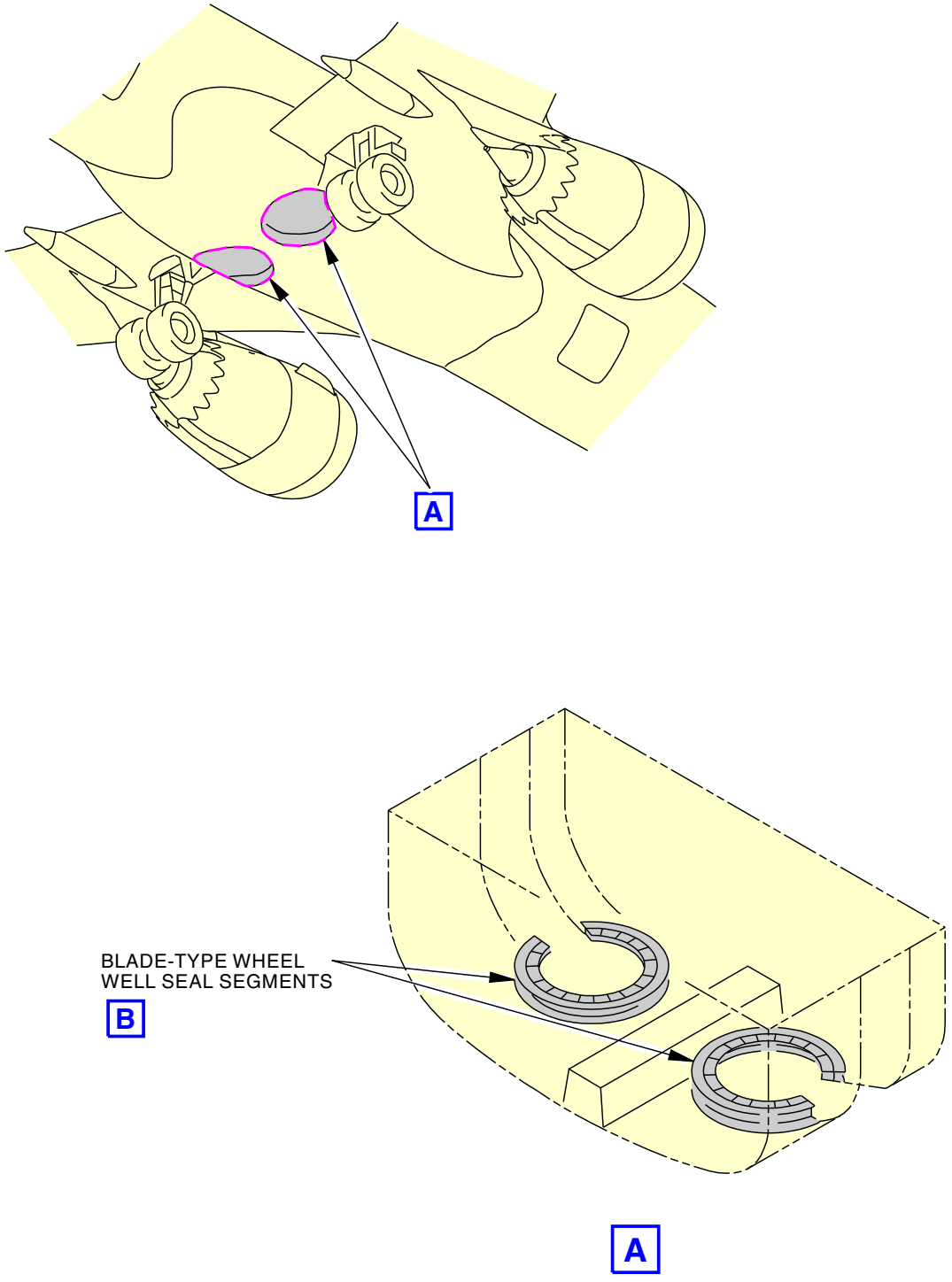
**SUBTASK 32-12-12-080-002**

(1) Remove the chocks around the tires of all the landing gear.

**——— END OF TASK ———**



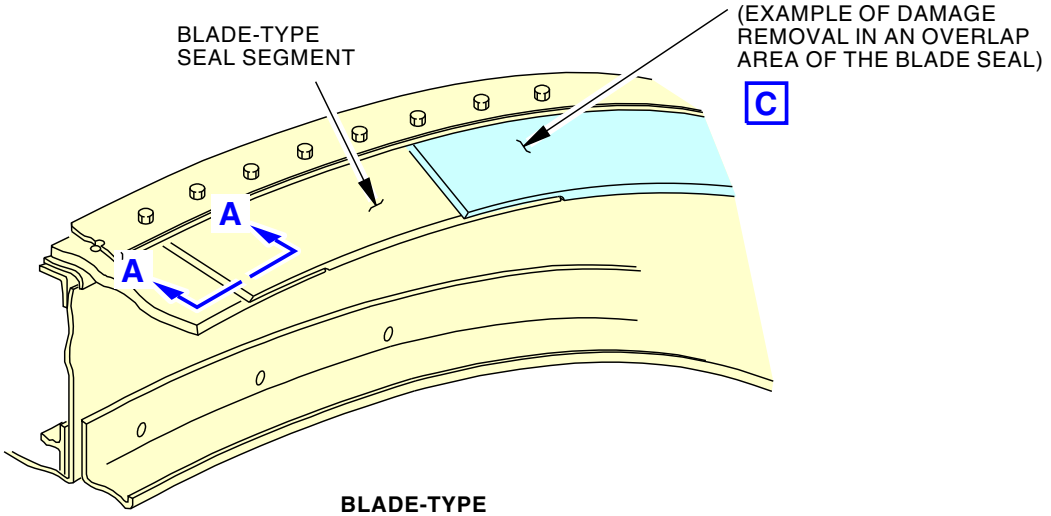
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Wheel Well Blade Seal Inspection/Check**
**Figure 601/32-12-12-990-802 (Sheet 1 of 3)**

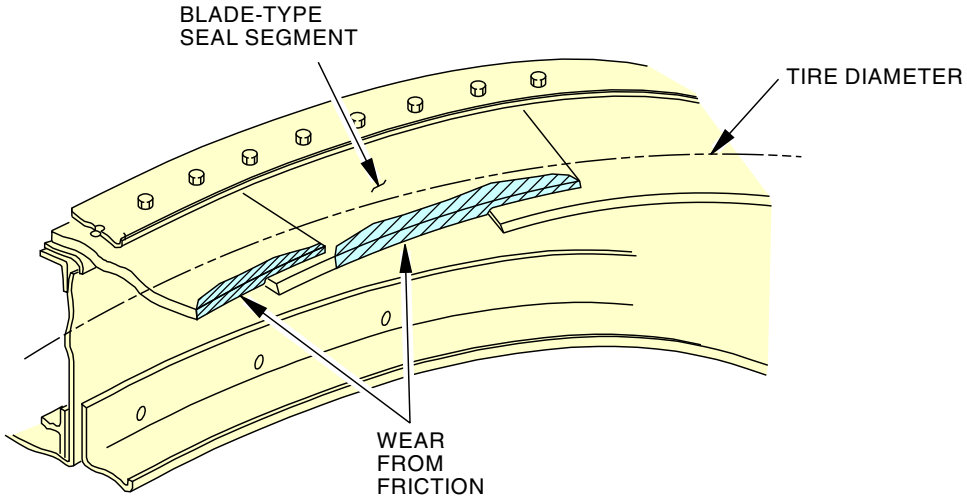


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**BLADE-TYPE
WHEEL WELL SEAL SEGMENT**

B




**BLADE-TYPE
WHEEL WELL SEAL SEGMENT
(EXAMPLE OF ACCEPTABLE FRICTION WEAR)**

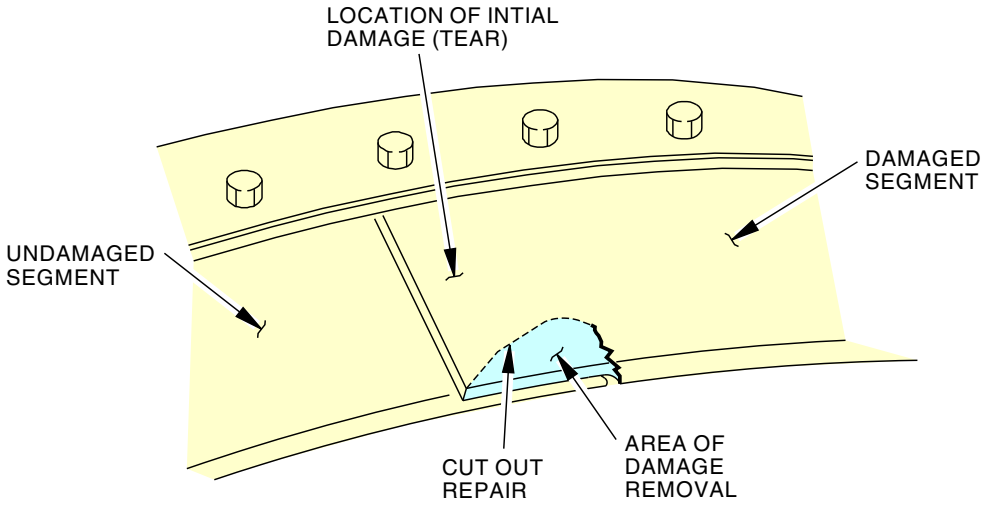
B

2414121 S00061534450_V1

**Main Landing Gear Wheel Well Blade Seal Inspection/Check
Figure 601/32-12-12-990-802 (Sheet 2 of 3)**

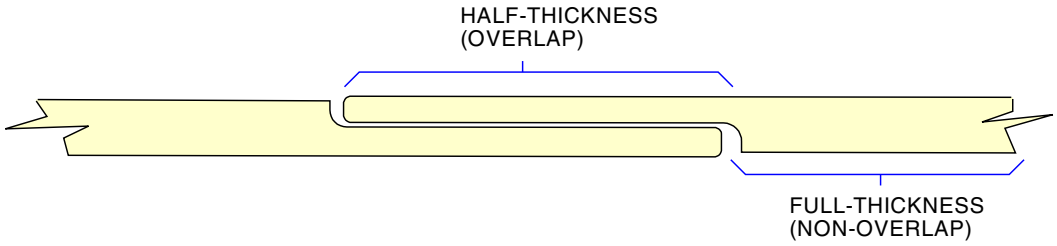


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**(EXAMPLE OF DAMAGE REMOVAL IN AN OVERLAP AREA OF A WHEEL WELL BLADE SEAL)**

**A**




**(EXAMPLE)**

**A-A**

2414122 S00061534451_V1

**Main Landing Gear Wheel Well Blade Seal Inspection/Check**
**Figure 601/32-12-12-990-802 (Sheet 3 of 3)**



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## MAIN LANDING GEAR SHOCK STRUT DOORS - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the center door from the shock strut (referred to as the center door [1]) of the main landing gear

(2) Installation of the center door on the shock strut of the main landing gear

(3) Removal of the inner door from the shock strut (referred to as the inner door [2]) of the main landing gear

(4) Installation of the inner door on the shock strut of the main landing gear

(5) Removal of the door assembly from the shock strut of the main landing gear

(6) Installation of the door assembly on the shock strut of the main landing gear

B. The assembly of the inner door [2] and the center door [1] is referred to as the "door assembly" in this procedure.

**TASK 32-13-11-000-801**

### 2. Main Landing Gear Center Door Removal

(Figure 401)

#### A. General

(1) This task gives the instructions to remove the center door [1].

NOTE: The inner door [2] and center door [1] are components of the door assembly. The hinge fittings installed on the inner door [2] and center door [1] can change the part number of the door assembly. Do a check of the IPC to make sure that the inner door [2] and center door [1] components are correct for the door assembly installed on the airplane.

#### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 732 | Left Main Landing Gear - Center Door |
| 733 | Left Main Landing Gear - Inboard Door |
| 734 | Left Main Landing Gear |
| 742 | Right Main Landing Gear - Center Door |
| 743 | Right Main Landing Gear - Inboard Door |
| 744 | Right Main Landing Gear |



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## D. Prepare for the Removal

SUBTASK 32-13-11-480-001

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-13-11-480-002

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

## E. Main Landing Gear Center Door Removal

SUBTASK 32-13-11-020-001

(1) Do these steps to remove the center door [1]:

(a) Remove the screw [111], nut [113], and washers [112] to disconnect the jumper cable [106] and jumper cable [28] from the center door [1] (View J).

(b) Remove the pins [24], nuts [23], washers [22], bolts [21], and bushing [27] from the forward and aft hinges [20] to disconnect the center door [1] from the inner door [2] (View D and E).

1) If it is necessary, remove the bolts [26] and pull the seal [25] to the down position for easy removal of the bolt [21].

(c) For the top aft hinge, remove the pin [10], nut [9], washer [77], spacers [7], washer [5], and bolt [4] to disconnect the tie rod [3] from the tray assembly [6] on the shock strut [8] (View B).

(d) For the top forward hinge, remove the pin [12], nut [13], washer [78], spacers [14], washer [15], and bolt [16] to disconnect from the tie rod [11] from the tray assembly [6] on the shock strut [8] (View C).

**SIA 001-014**

(e) Do these steps to remove the anti-rotation plate [68] and upper plate [88] (View D, E, A-A, and B-B):

1) Remove the bolt [70], washer [71], washer [58], and nut [59].

2) Remove the plate [68].

3) Remove the bolts [84], washers [85], washers [57], and nuts [87].

4) Remove the upper plate [88], shim [90], and spacer [91].

**SIA 015-999**

(f) Do these steps to remove the anti-rotation plate [68] (View D and A-A):

1) Remove the bolt [70], washer [71], washer [58], and nut [59].

2) Remove the plate [68].

**SIA 001-014**

(g) For the bottom aft hinge, remove the bolt [17], clip [69], washer [18], barrel nut [47], and retainer [48] to disconnect the center door [1] from the shock strut [8] (View A-A).



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**SIA 001-014 (Continued)**

(h) For the bottom forward hinge, remove the bolt [29], washer [30], washer [67], barrel nut [49], and retainer [50] to disconnect the center door [1] from the shock strut [8] (View B-B).

**SIA 015-999**

(i) For the bottom aft hinge, remove the pin [53], nut [52], washer [51], bolt [17], clip [69], and washer [18] to disconnect the center door [1] from the shock strut [8] (View A-A).

(j) For the bottom forward hinge, remove the pin [50], nut [49], washer [30], washer [67], bolt [29], and washer [55] to disconnect the bracket [54] and center door [1] from the shock strut [8] (View B-B).

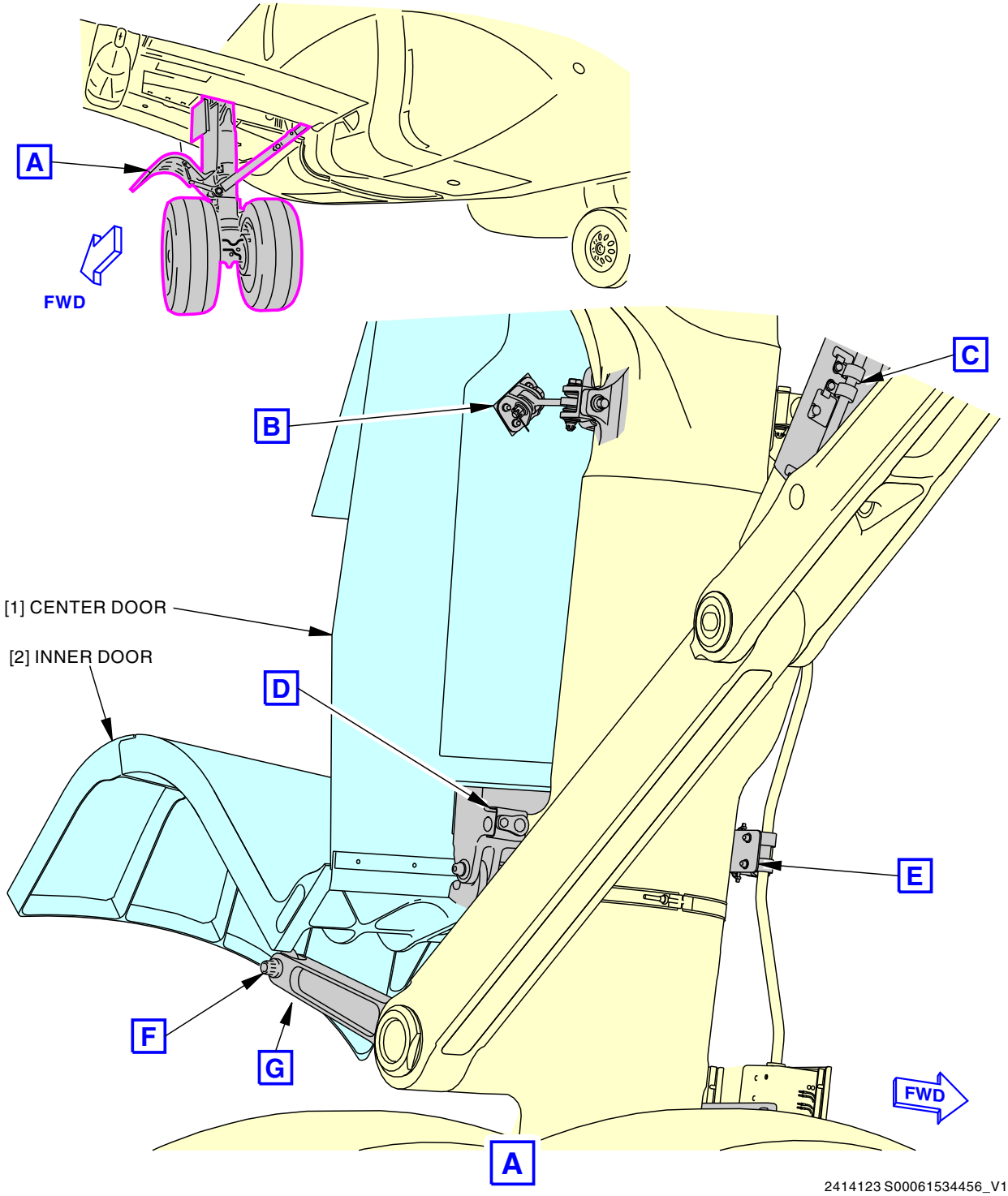
**SIA ALL**

(k) Remove the center door [1] from the airplane.

**——— END OF TASK ———**



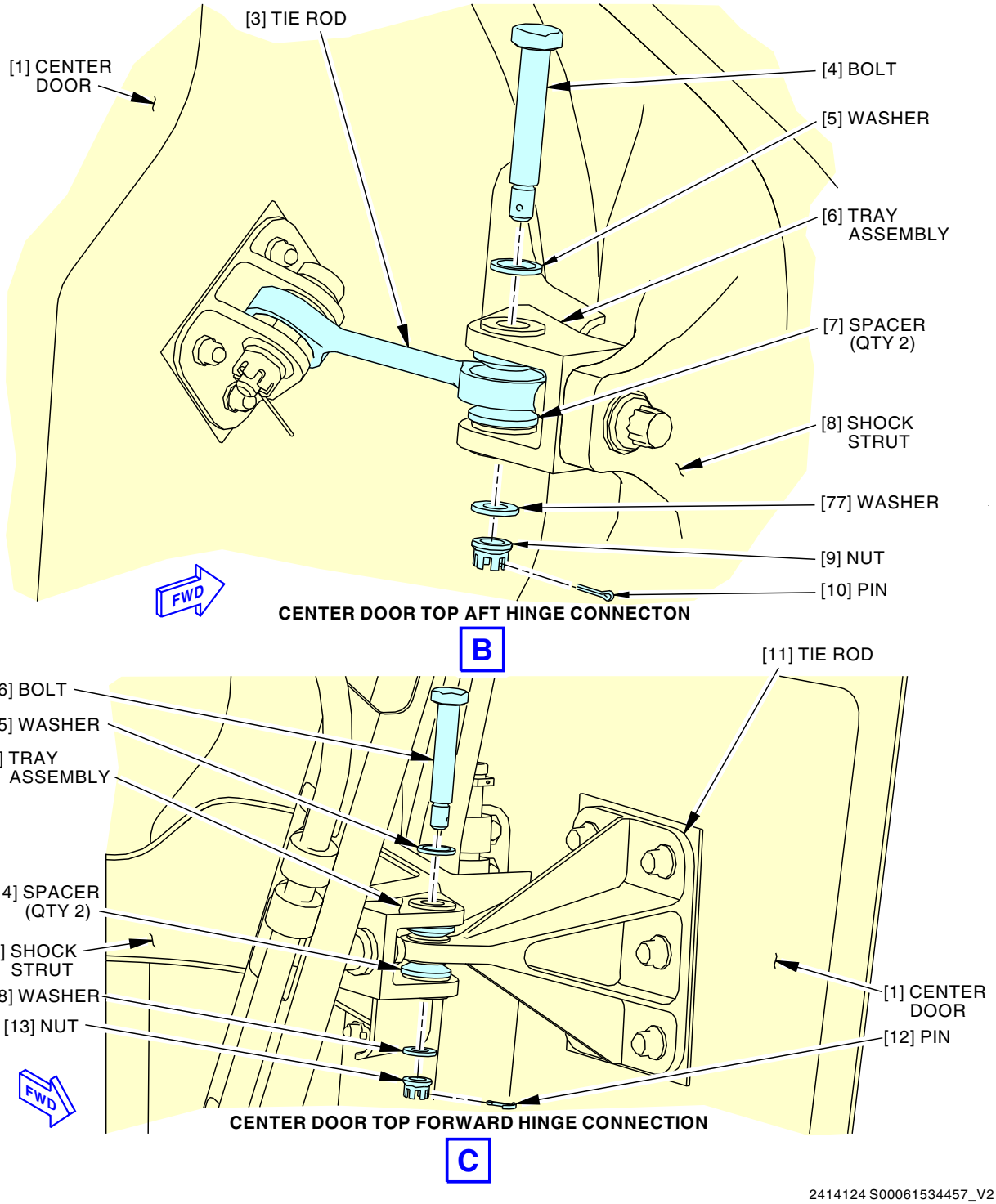
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 1 of 10)**



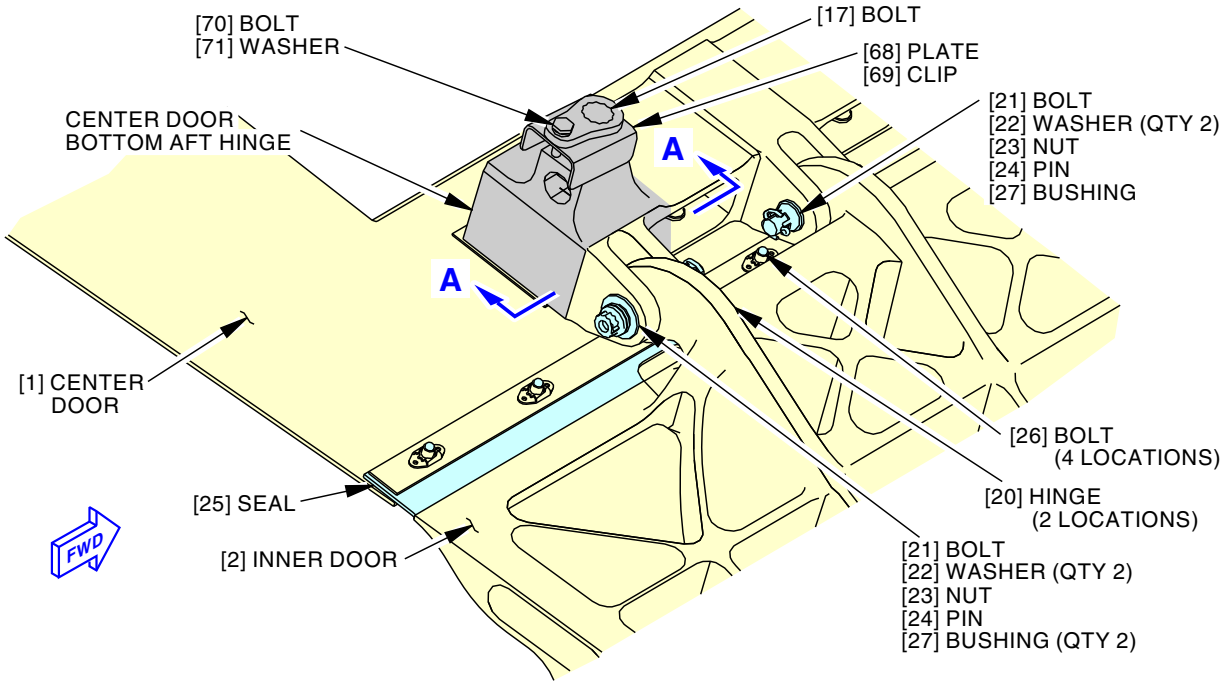
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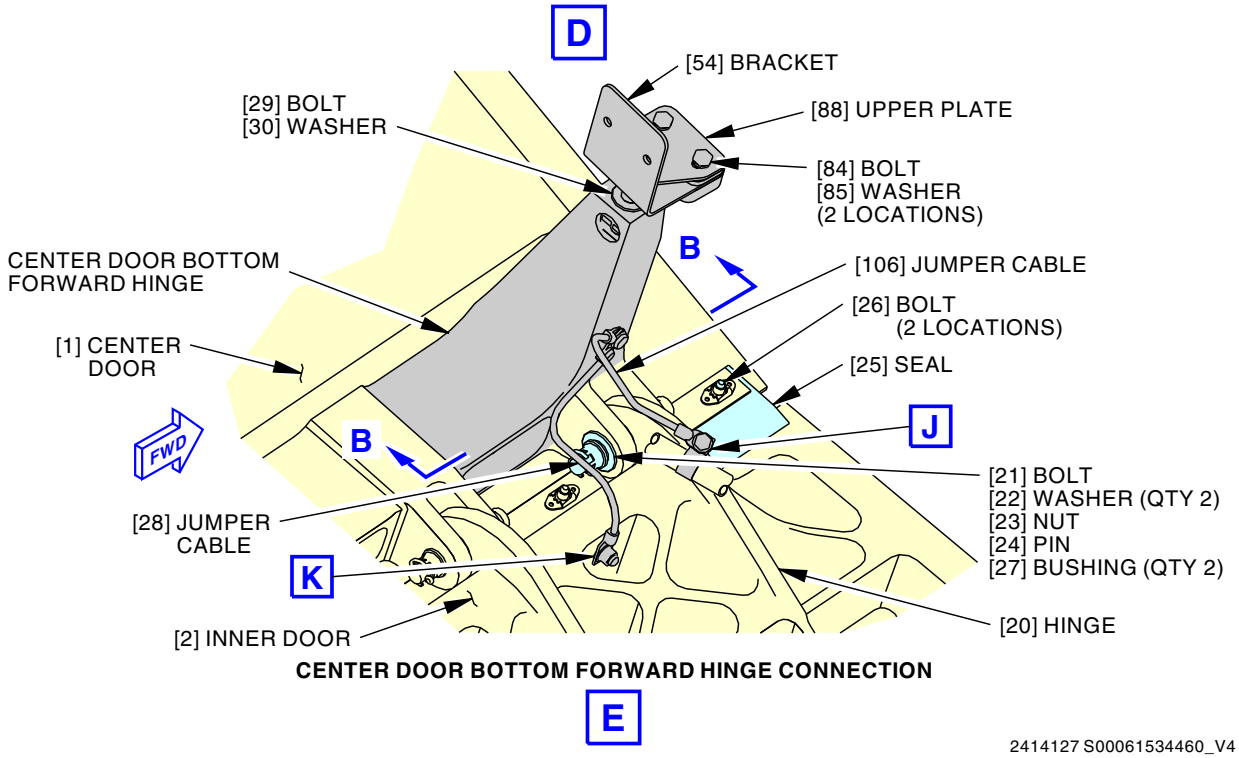

**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 2 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**CENTER DOOR BOTTOM AFT HINGE CONNECTION**



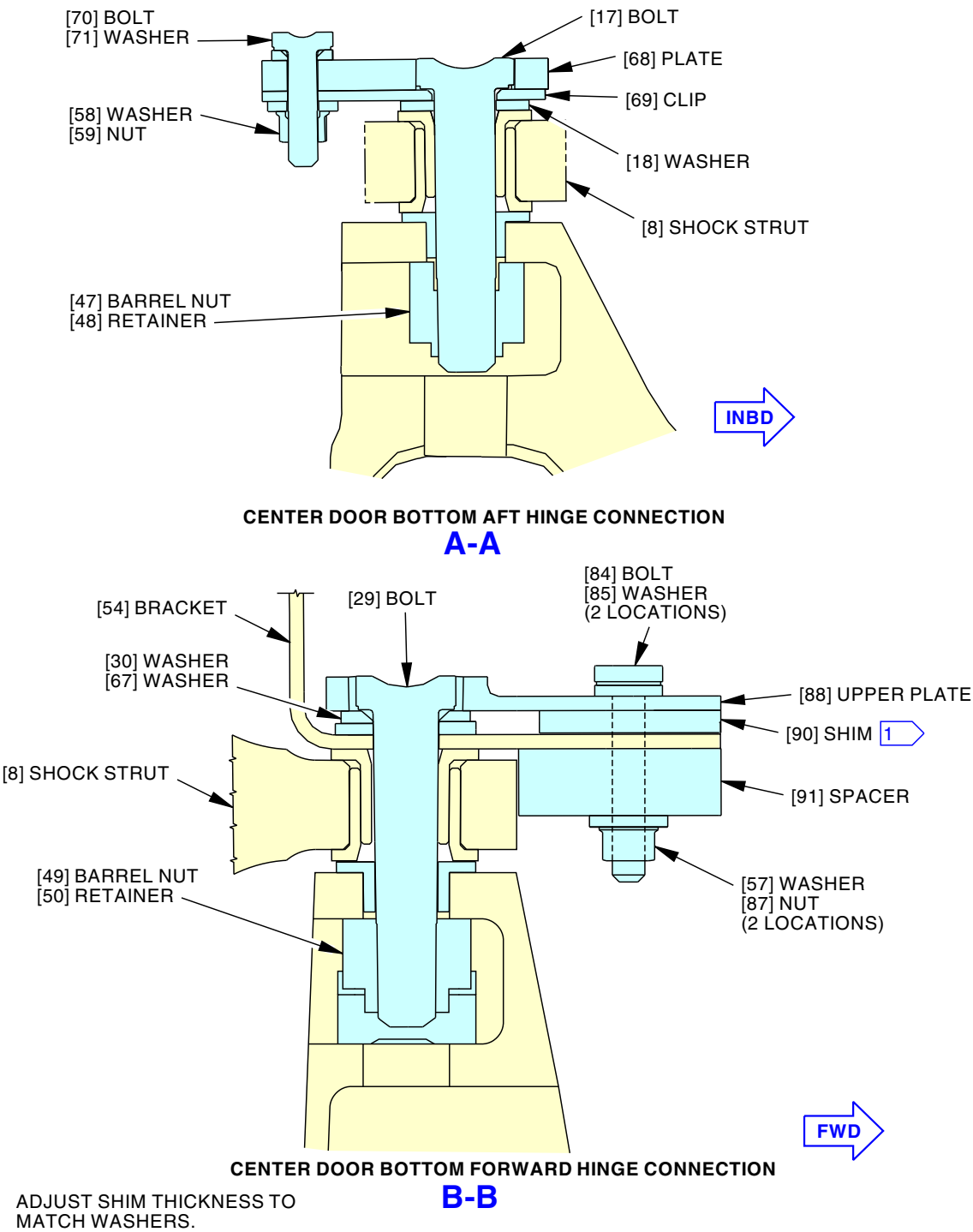

**CENTER DOOR BOTTOM FORWARD HINGE CONNECTION**

2414127 S00061534460_V4

**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 3 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

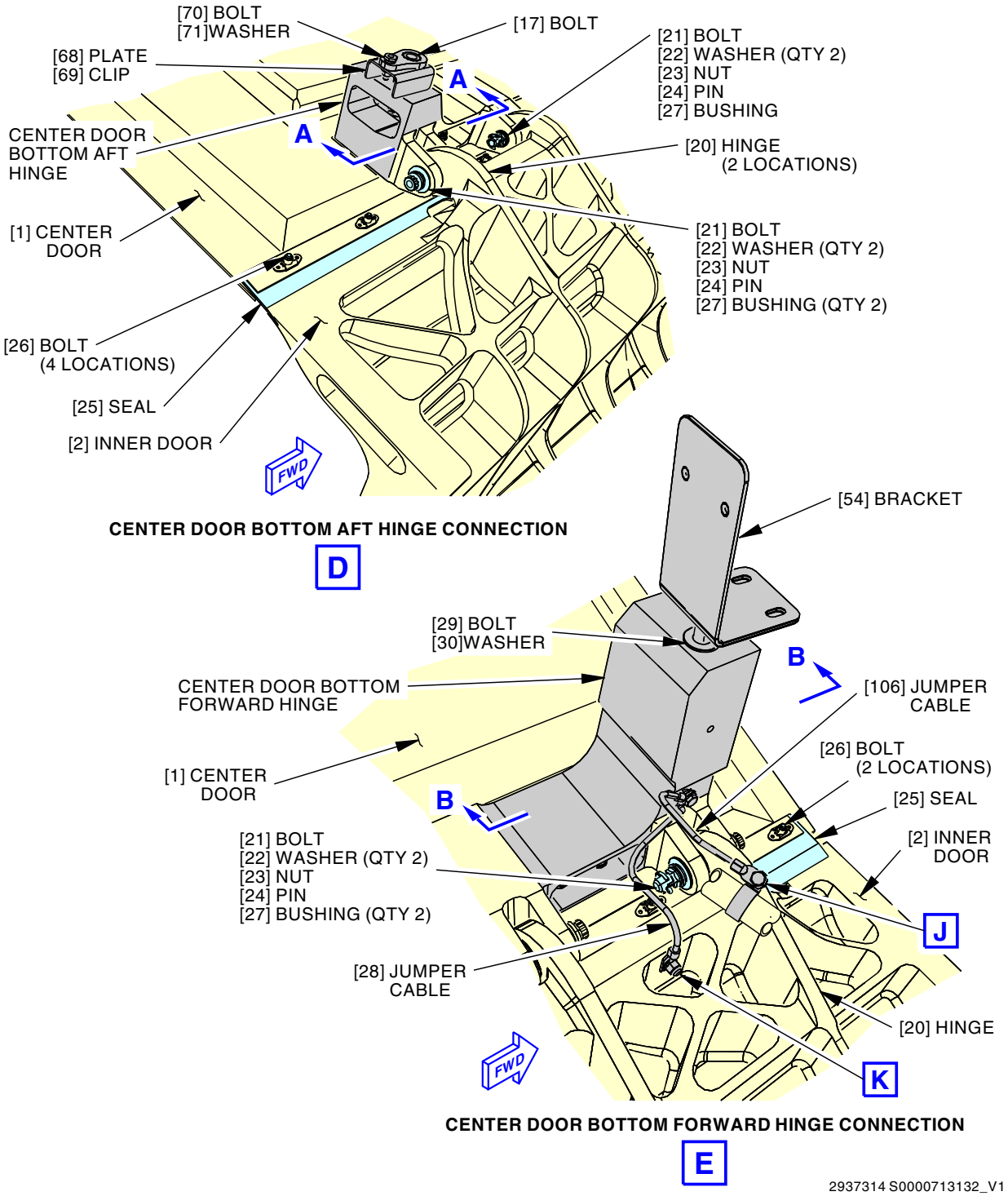



2414128 S00061534461_V3

**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 4 of 10)**



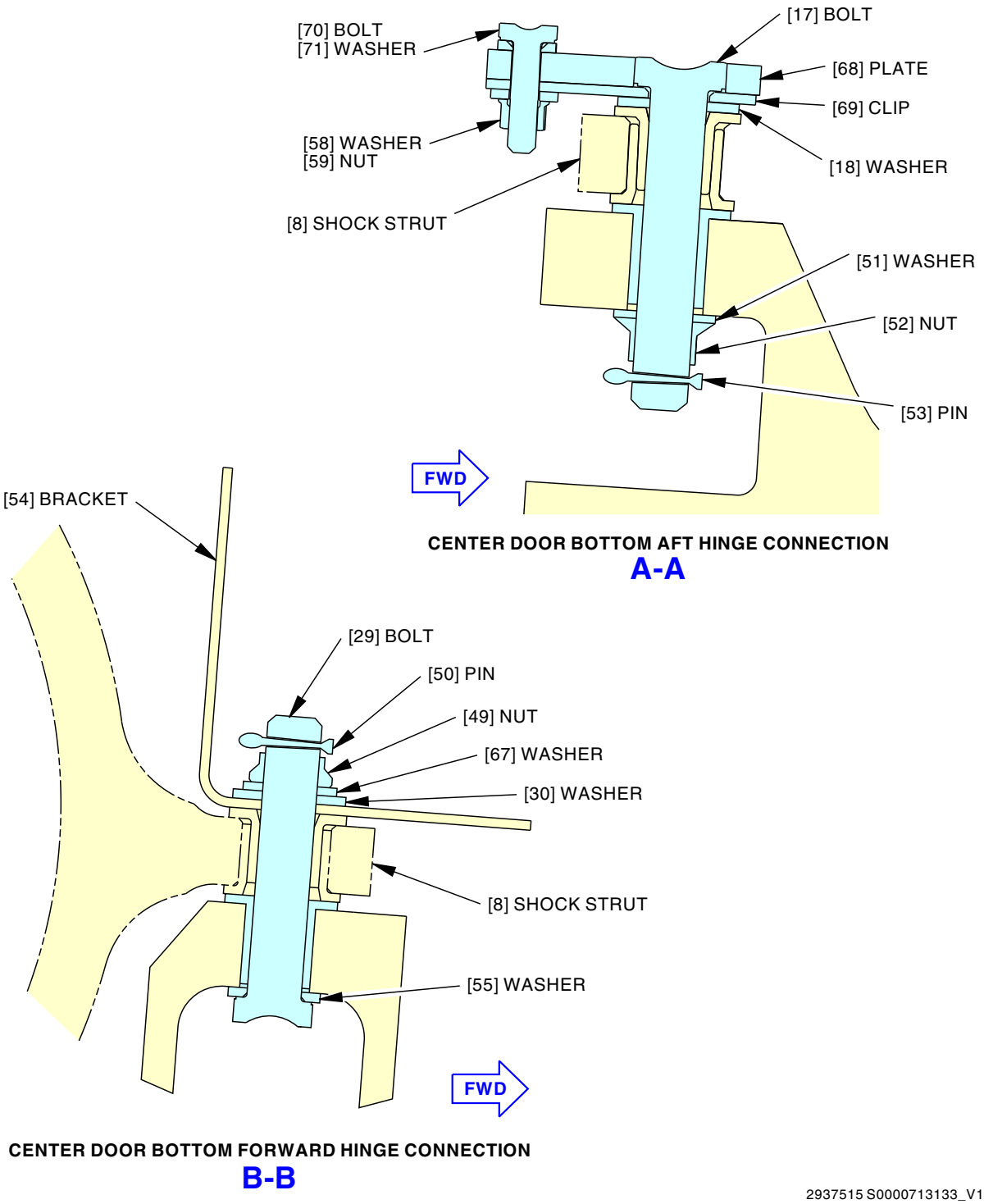
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 5 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

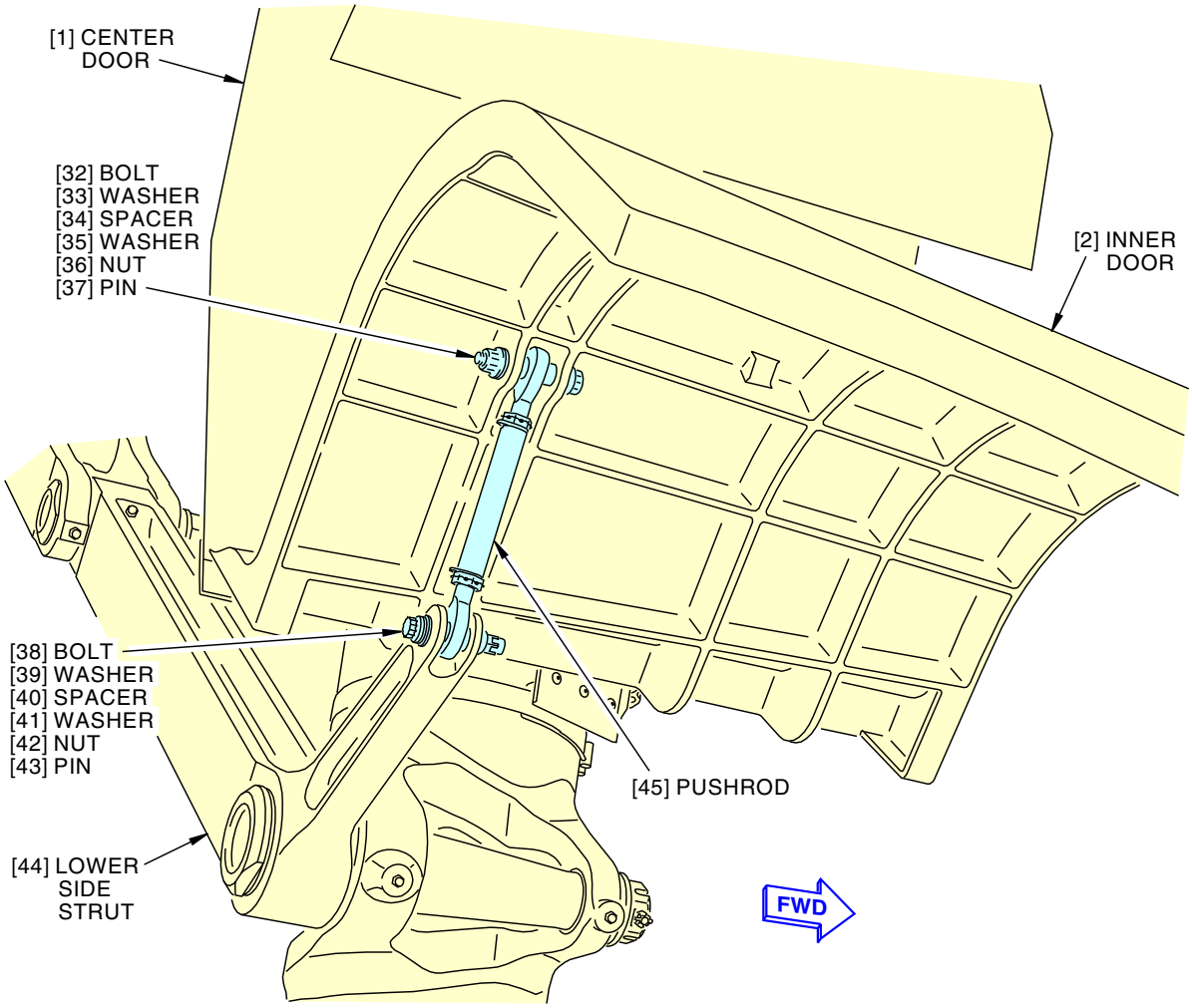



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**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 6 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**INNER DOOR PUSHROD CONNECTION**
**(RIGHT MAIN LANDING GEAR)**

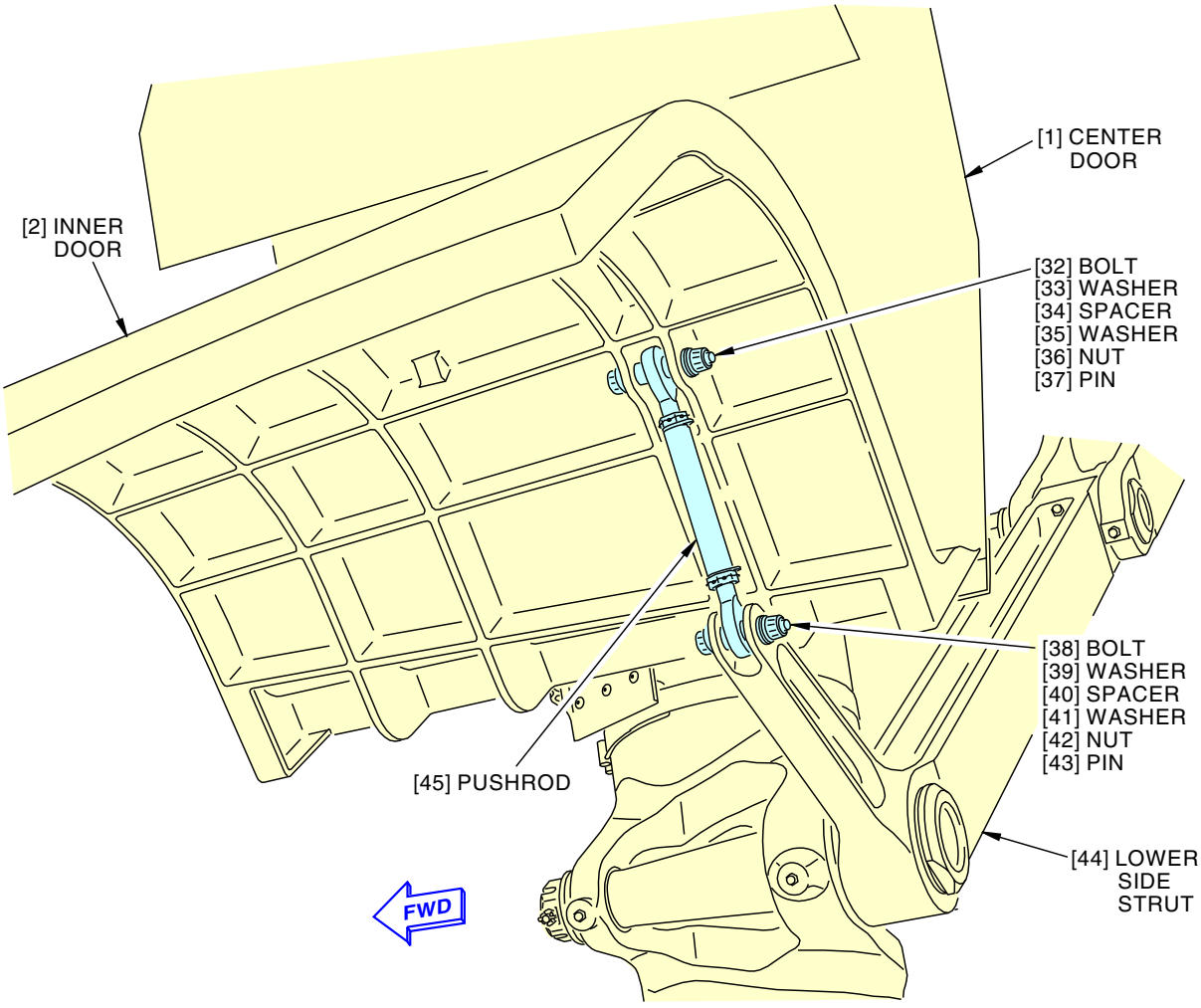
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**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 7 of 10)**



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**INNER DOOR PUSHROD CONNECTION**
**(LEFT MAIN LANDING GEAR)**

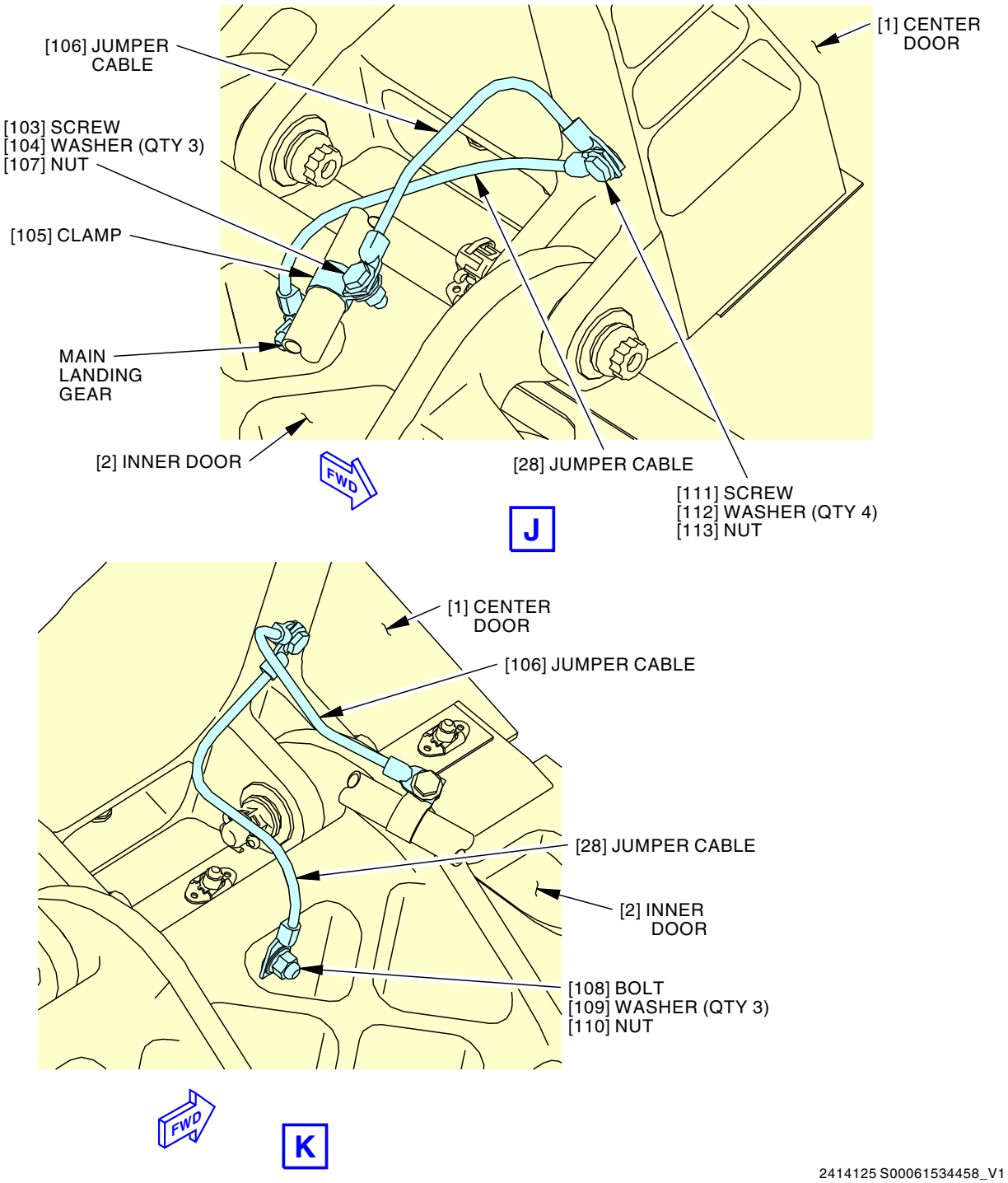
**G**

2414130 S00061534463_V1

**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 8 of 10)**



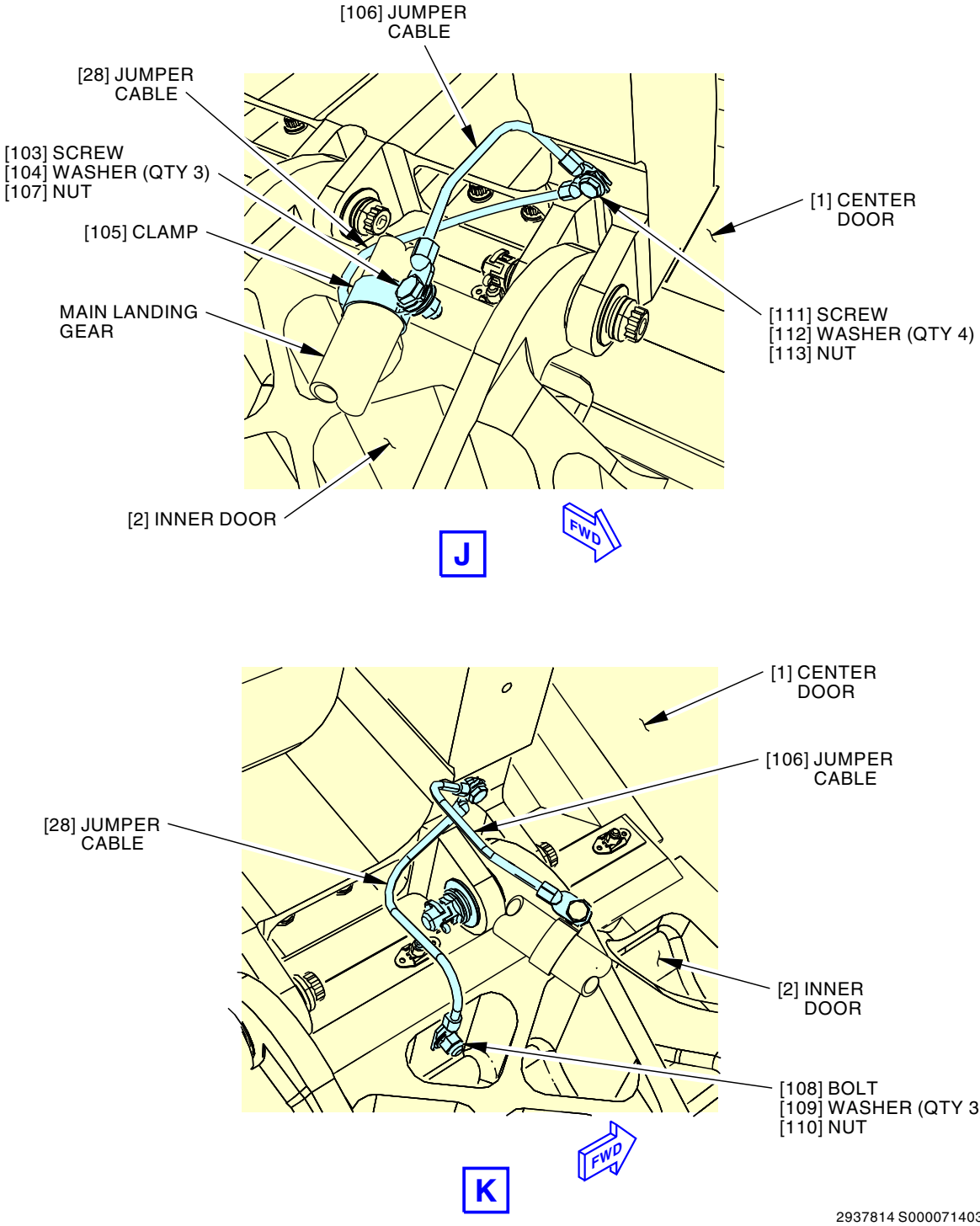
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**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 9 of 10)**



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**Main Landing Gear Shock Strut Doors Installation**
**Figure 401/32-13-11-990-801 (Sheet 10 of 10)**



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**TASK 32-13-11-420-801**

## 3. Main Landing Gear Center Door Installation

(Figure 401)

### A. General

(1) This task gives the instructions to install the center door [1].

NOTE: The inner door [2] and center door [1] are components of the door assembly. The hinge fittings installed on the inner door [2] and center door [1] can change the part number of the door assembly. Do a check of the IPC to make sure that the inner door [2] and center door [1] components are correct for the door assembly installed on the airplane.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-11-820-801 | Main Landing Gear Shock Strut Door Adjustment (P/B 501) |
| 51-21-72-370-801 | BMS10-79 Primer - Application (P/B 701) |
| 51-21-73-370-802 | BMS10-60 Topcoat Application (P/B 701) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-20-10 | REPLACEMENT OF GROUND STUDS AND BONDING JUMPER INSTALLATION |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| C00175 | Primer - Urethane Compatible, Corrosion Resistant | BMS10-79 Type III |
| C00700 | Coating - Protective Enamel (BAC 707 Gray Color, Gloss) | BMS10-60 Type I |
| G50398 | Pad - Adbrasive, Scotch-Brite Type S, Abrasive Pad | |



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(Continued)

| Reference | Description | Specification |
|---|---|---|
| G50492 | Pad - 3M Scotch Brite 7448 Ultra Fine Pad | MIL-A-9962A Type III Grade AAA |

**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Center door | Not Specified | |

**F. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 732 | Left Main Landing Gear - Center Door |
| 733 | Left Main Landing Gear - Inboard Door |
| 734 | Left Main Landing Gear |
| 742 | Right Main Landing Gear - Center Door |
| 743 | Right Main Landing Gear - Inboard Door |
| 744 | Right Main Landing Gear |

**G. Prepare for the Installation**

SUBTASK 32-13-11-480-003

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-13-11-480-004

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

**H. Main Landing Gear Center Door Installation**

SUBTASK 32-13-11-400-002

(1) Do these steps to install the center door [1] (Views D, E, A-A and B-B):

(a) Put the center door [1] in its position for connection to the shock strut [8] and the inner door [2].

**SIA 001-014**

(b) For the bottom aft hinge, install the bolt [17], plate [68], clip [69], washer [18], barrel nut [47], and retainer [48].

(c) For the bottom forward hinge, install the bolt [29], washer [30], washer [67], barrel nut [49], and retainer [50].

**SIA 015-999**

(d) For the bottom aft hinge, install the bolt [17], plate [68], clip [69], washer [18], washer [51], and nut [52].



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**SIA 015-999 (Continued)**

1) Do not tighten the bolt [17].

NOTE: Final torque to the bolt [17] and installation of the pin [53] will be done after final adjustments to the doors are made in the subsequent step.

(e) For the bottom forward hinge, install the bolt [29], washer [55], washer [30], washer [67], bracket [54], and nut [49].

1) Do not tighten the nut [49].

NOTE: Final torque to the nut [49] and installation of the pin [50] will be done after final adjustments to the doors are made in the subsequent step.

**SIA ALL**

**SUBTASK 32-13-11-400-003**

(2) Continue the center door [1] installation (Views B, C, D, and E):

(a) For the top aft hinge, install the bolt [4], washer [5], spacers [7], washer [77], and nut [9] to connect the tie rod [3] to the tray assembly [6] on the shock strut [8].

1) Do not tighten the nut [9].

NOTE: Final torque to the nut [9] and installation of the pin [10] will be done after final adjustments to the doors are made in the subsequent step.

(b) For the top forward hinge, install the bolt [16], washer [15], spacers [14], washer [78], and nut [13] to connect the tie rod [11] to the tray assembly [6] on the shock strut [8].

1) Do not tighten the nut [13].

NOTE: Final torque to the nut [13] and installation of the pin [12] will be done after final adjustments to the doors are made in the subsequent step.

(c) Install the bolts [21] to attach the center door [1] to the inner door [2]:

1) If it is necessary, remove the bolts [26] and pull the seal [25] slightly to the down position for easy installation of the bolt [21].

2) If removed, install the bolts [26].

(d) Install the bushings [27], washers [22], and nuts [23] on the bolts [21].

1) Do not tighten the nuts [23].

NOTE: Final torque to the nuts [23] and installation of the pins [24] will be done after final adjustments to the doors are made in the subsequent step.

**SUBTASK 32-13-11-820-001**

(3) Do this task: Main Landing Gear Shock Strut Door Adjustment, TASK 32-13-11-820-801.

**SIA 001-014**

**SUBTASK 32-13-11-420-001**

(4) Do these steps to safety the fasteners on the center door [1] (Views D, E, A-A and B-B):

(a) Tighten the bolt [17] and bolt [29] to between 398 in-lb (45.0 N·m) to 422 in-lb (47.7 N·m).

1) Tighten the bolt [17] and bolt [29] to the low torque value.

2) Tighten the bolts to align the head with the anti-rotation plate [68] and upper plate [88], if it is necessary.

(b) Adjust the thickness of shim [90] to match washer thickness.

(c) Install the plate [68], clip [69], bolt [70], washer [71], washer [58], and nut [59].



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**SIA 001-014 (Continued)**

(d) Install the upper plate [88], shim [90], spacer [91], bolt [84], washers [85], washers [57], and nuts [87].

**SIA 015-999**

SUBTASK 32-13-11-420-044

(5) Do these steps to safety the fasteners on the center door [1] (Views D, E, A-A and B-B):

(a) Install the pin [53] in the hole on the bolt [17].

1) If it is necessary, rotate the bolt [17] to access the bolt [17] pin hole in the pocket of the hinge fitting.

(b) Tighten the bolt [17] to between 200 in-lb (22.6 N·m).

1) Tighten the bolt [17] to align the head with the anti-rotation plate [68], if it is necessary.

(c) Install the plate [68], clip [69], bolt [70], washer [71], washer [58], and nut [59].

(d) Tighten the nut [49] to between 160 in-lb (18.1 N·m) to 240 in-lb (27.1 N·m).

(e) Install the pin [50] in the hole on the bolt [29].

**SIA ALL**

SUBTASK 32-13-11-420-003

(6) Tighten the nut [9] and install the pin [10] in the hole on the bolt [4] (View B).

(a) If it is necessary, loosen the nut [9] to the nearest castellation to align the holes for the pin [10].

SUBTASK 32-13-11-420-004

(7) Tighten the nut [13] and install the pin [12] in the hole on the bolt [16] (View C).

(a) If it is necessary, loosen the nut [13] to the nearest castellation to align the holes for the pin [12].

SUBTASK 32-13-11-420-005

(8) Tighten the nuts [23] and install the pins [24] in the hole on the bolts [21] (View D and E).

(a) If it is necessary, loosen the nuts [23] to the nearest castellation to align the holes for the pins [24].

(b) Make sure that there is a minimum gap of 0.300 in. (7.620 mm) between the washer [22] and the center door [1] hinge bushing.

1) If it is necessary, adjust the nuts [23] to meet the minimum gap requirement.

NOTE: Only required where the bushing [27] is installed.

SUBTASK 32-13-11-400-004

(9) Do these steps to prepare the jumper cable [106], jumper cable [28], and center door [1] for installation.

(a) Use Cleaning Procedure 1 to prepare the attachment surface for the jumper cable [106] and jumper cable [28], on the center door [1] (SWPM 20-20-00).

1) Use a very fine Scotch-Brite Type S pad, G50398, or an ultrafine Scotch-Brite 7448 pad, G50492.

2) Twist the pad with a circular movement while you push with your thumb.

(b) Manually apply coating, C00064 to the abraded surface on the center door [1].



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SUBTASK 32-13-11-420-006

(10) Install the jumper cable [106], jumper cable [28], screw [111], washers [112], and nut [113] on the center door [1] (View J).

SUBTASK 32-13-11-280-001

(11) Use an intrinsically safe approved bonding meter, COM-1550, to measure the resistance between the jumper cable [106], jumper cable [28] and the center door [1](SWPM 20-20-10).

(a) Make sure that the electrical bonding resistance is 0.001 ohm (1.0 miliohms) or less.

SUBTASK 32-13-11-110-002

(12) Refinish the abraded surfaces that you can see.

(a) Apply one coat of primer, C00175 (TASK 51-21-72-370-801).

(b) Apply coating, C00700 (TASK 51-21-73-370-802).

SUBTASK 32-13-11-390-001

(13) Apply a fillet seal with sealant, A00247, to the jumper cable [106], jumper cable [28], and fasteners (SWPM 20-20-10).

SUBTASK 32-13-11-420-042

(14) If the screw [103] was removed, do these steps to install the jumper cable [106] to the Main Landing Gear (MLG).

(a) Do these steps to prepare the jumper cable [106] and the MLG for installation.

1) Use solvent cleaning procedure to prepare the attachment surface for the jumper cable [106] on the MLG (SWPM 20-20-00).

(b) Install the jumper cable [106], screw [103], washers [104], clamp [105], and nut [107] on the MLG (View J).

(c) Use an intrinsically safe approved bonding meter, COM-1550, to measure the resistance between the jumper cable [106] and the MLG (SWPM 20-20-10).

1) Make sure that the electrical bonding resistance is 0.002 ohm (2.0 miliohms) or less.

(d) Apply a fillet seal with sealant, A00247, to the jumper cable [106] and fasteners (SWPM 20-20-10).

SUBTASK 32-13-11-420-043

(15) If the screw [108] was removed, do these steps to install the jumper cable [28] to the inner door [2]:

(a) Do these steps to prepare the jumper cable [28] and the inner door [2] for installation.

1) Use Cleaning Procedure 1 to prepare the attachment surface for the jumper cable [28] on the inner door [2] (SWPM 20-20-00).

a) Use a very fine Scotch-Brite Type S pad, G50398, or an ultrafine Scotch-Brite 7448 pad, G50492.

b) Twist the pad with a circular movement while you push with your thumb.

2) Manually apply coating, C00064 to the abraded surface on the inner door [2].

(b) Install the jumper cable [28], screw [108], washers [109], and nut [110] on the inner door [2] (View K).

(c) Use an intrinsically safe approved bonding meter, COM-1550, to measure the resistance between the jumper cable [28] and the inner door [2] (SWPM 20-20-10).

1) Make sure that the electrical bonding resistance is 0.001 ohm (1.0 miliohms) or less.



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(d) Refinish the abraded surfaces that you can see.

1) Apply one coat of primer, C00175 (TASK 51-21-72-370-801).

2) Apply coating, C00700 (TASK 51-21-73-370-802).

(e) Apply a fillet seal with sealant, A00247, to the jumper cable [28] and fasteners (SWPM 20-20-10).

END OF TASK

**TASK 32-13-11-000-802**

## 4. Main Landing Gear Inner Door Removal

(Figure 401)

### A. General

(1) This task gives the instructions to remove the inner door [2]r.

NOTE: The inner door [2] and center door [1] are components of the door assembly. The hinge fittings installed on the inner door [2] and center door [1] can change the part number of the door assembly. Do a check of the illustrated parts catalog to make sure that the inner door [2] and center door [1] components are correct for the door assembly installed on the airplane.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 732 | Left Main Landing Gear - Center Door |
| 733 | Left Main Landing Gear - Inboard Door |
| 734 | Left Main Landing Gear |
| 742 | Right Main Landing Gear - Center Door |
| 743 | Right Main Landing Gear - Inboard Door |
| 744 | Right Main Landing Gear |

### D. Prepare for the Removal

**SUBTASK 32-13-11-480-005**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-13-11-480-006**

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).



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**E. Main Landing Gear Inner Door Removal**

SUBTASK 32-13-11-020-002

(1) Do these steps to remove the inner door [2]:

(a) Remove the screw [108], washers [109], and nut [110] to disconnect the jumper cable [28] from the inner door [2] (View K).

(b) If you need to replace the pushrod [45] due to excessive wear, do these steps (View F or G):

1) Remove the pin [43], nut [42], washer [41], spacer [40], washer [39], and bolt [38] to disconnect the pushrod [45] from the lower side strut [44].

2) Remove the pin [37], nut [36], washer [35], spacer [34], washer [33], and bolt [32] to disconnect the inner door [2] from the pushrod [45].

(c) If you do not need to replace the pushrod [45], do this step (View F or G):

1) Remove the pin [37], nut [36], washer [35], spacer [34], washer [33], and bolt [32] to disconnect the inner door [2] from the pushrod [45].

(d) Remove the pins [24], nuts [23], washers [22], bolts [21], and bushing [27] from the forward and aft hinges [20] to disconnect the center door [1] from the inner door [2] (View D and E).

1) If it is necessary, remove the bolts [26] and pull the seal [25] to the down position for easy removal of the bolt [21].

(e) Remove the inner door [2] from the airplane.

**——— END OF TASK ———**

**TASK 32-13-11-420-802**

## 5. Main Landing Gear Inner Door Installation

(Figure 401)

**A. General**

(1) This task gives the instructions to install the inner door [2].

NOTE: The inner door [2] and center door [1] are components of the door assembly. The hinge fittings installed on the inner door [2] and center door [1] can change the part number of the door assembly. Do a check of the illustrated parts catalog to make sure that the inner door [2] and center door [1] components are correct for the door assembly installed on the airplane.

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-11-820-801 | Main Landing Gear Shock Strut Door Adjustment (P/B 501) |
| 51-21-72-370-801 | BMS10-79 Primer - Application (P/B 701) |
| 51-21-73-370-802 | BMS10-60 Topcoat Application (P/B 701) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-20-10 | REPLACEMENT OF GROUND STUDS AND BONDING JUMPER INSTALLATION |



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## C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |

## D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| C00175 | Primer - Urethane Compatible, Corrosion Resistant | BMS10-79 Type III |
| C00700 | Coating - Protective Enamel (BAC 707 Gray Color, Gloss) | BMS10-60 Type I |
| G50398 | Pad - Adbrasive, Scotch-Brite Type S, Abrasive Pad | |
| G50492 | Pad - 3M Scotch Brite 7448 Ultra Fine Pad | MIL-A-9962A Type III Grade AAA |

## E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 732 | Left Main Landing Gear - Center Door |
| 733 | Left Main Landing Gear - Inboard Door |
| 734 | Left Main Landing Gear |
| 742 | Right Main Landing Gear - Center Door |
| 743 | Right Main Landing Gear - Inboard Door |
| 744 | Right Main Landing Gear |

## F. Prepare for the Installation

**SUBTASK 32-13-11-480-007**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.


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SUBTASK 32-13-11-480-008

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

## G. Main Landing Gear Inner Door Installation

SUBTASK 32-13-11-420-007

(1) Do these steps to install the inner door [2]:

(a) Put the inner door [2] in its position for connection to the center door [1].

(b) Install the nuts [23], washers [22], bolts [21], and bushings [27] to the forward and aft hinges [20] to connect the inner door [2] to the center door [1] (Views D and E).

1) If the bolts [26] are installed, remove them and pull the seal [25] slightly to the down position for easy installation of the bolts [21].

2) Do not tighten the nuts [23].

NOTE: Final torque to the nuts [23] and installation of the pins [24] will be done after final adjustments to the doors are made in the subsequent step.

(c) To connect the inner door [2] to the pushrod [45], do these steps (View F or G):

1) Install the bolt [32], washer [33], spacer [34], washer [35], and nut [36] to hold the inner door [2] to the pushrod [45].

a) Do not tighten the nut [36].

NOTE: Final torque to the nut [36] and installation of the pin [37] will be done after final adjustments to the doors are made in the subsequent step.

2) If you need to connect the pushrod [45] to the lower side strut [44], do these steps:

a) Install the bolt [38], washer [39], spacer [40], washer [41], and nut [42] to connect the pushrod [45] to the lower side strut [44].

<1> Do not tighten the nut [42].

NOTE: Final torque to the nut [42] and installation of the pin [43] will be done after final adjustments to the doors are made in the subsequent step.

(d) Do these steps to prepare the jumper cable [28] and the inner door [2] for installation:

1) Use Cleaning Procedure 1 to prepare the attachment surface for the jumper cable [28] on the inner door [2] (SWPM 20-20-00).

a) Use a very fine Scotch-Brite Type S pad, G50398, or an ultrafine Scotch-Brite 7448 pad, G50492.

b) Twist the pad with a circular movement while you push with your thumb.

2) Manually apply coating, C00064 to the abraded surface on the inner door [2].

(e) Install the jumper cable [28], screw [108], washers [109], and nut [110] on the inner door [2] (View K).

(f) Use an intrinsically safe approved bonding meter, COM-1550, to measure the resistance between the jumper cable [28] and the inner door [2] (SWPM 20-20-10).

1) Make sure that the electrical bonding resistance is 0.001 ohm (1.0 miliohms) or less.

(g) Refinish the abraded surfaces that you can see.

1) Apply one coat of primer, C00175 (TASK 51-21-72-370-801).

2) Apply coating, C00700 (TASK 51-21-73-370-802).



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(h) Apply a fillet seal with sealant, A00247, to the jumper cable [28] and fasteners (SWPM 20-20-10).

SUBTASK 32-13-11-820-002

(2) Do this task: Main Landing Gear Shock Strut Door Adjustment, TASK 32-13-11-820-801.

(a) It is not necessary to complete the door adjustment task if you can do these steps:

1) Make sure that the same doors and pushrods that are being installed are the same ones that were removed.

2) Make sure that no adjustment was made on the existing pushrods.

3) Make sure that there is no damage to the lockwires on the pushrods.

4) Make sure that the MLG center door has not been adjusted since the inner door was removed.

SUBTASK 32-13-11-420-008

(3) Tighten the nut [23] and install the pin [24] in the bolt [21] (Views D and E).

(a) If it is necessary, loosen the nut [23] to the nearest castellation to align the holes for the pin [24].

(b) Make sure that there is a minimum gap of 0.300 in. (7.620 mm) between the washer [22] and the center door [1] hinge bushing.

1) If it is necessary, adjust the nuts [23] to meet the minimum gap requirement.

NOTE: Only required where the bushing [27] is installed.

SUBTASK 32-13-11-420-009

(4) Tighten the nut [36] and install the pin [37] in the hole in the bolt [32] (Views F and G).

(a) If it is necessary, loosen the nut [36] to the nearest castellation to align the holes for the pin [37].

SUBTASK 32-13-11-420-010

(5) Tighten the nut [42] and install the pin [43] in the hole in the bolt [38] (Views F and G).

(a) If it is necessary, loosen the nut [42] to the nearest castellation to align the holes for the pin [43].

**——— END OF TASK ———**

**TASK 32-13-11-000-803**

## 6. Main Landing Gear Door Assembly Removal

(Figure 401)

### A. General

(1) This task gives the instructions to remove the door assembly.

(a) It will give you the instruction to remove the inner door [2].

(b) It will then give you the instruction to remove the center door [1].

(c) The inner door [2] and center door [1] will stay attached.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |



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## C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 732 | Left Main Landing Gear - Center Door |
| 733 | Left Main Landing Gear - Inboard Door |
| 734 | Left Main Landing Gear |
| 742 | Right Main Landing Gear - Center Door |
| 743 | Right Main Landing Gear - Inboard Door |
| 744 | Right Main Landing Gear |

## D. Prepare for the Removal

SUBTASK 32-13-11-480-009

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-13-11-480-010

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

## E. Main Landing Gear Door Assembly Removal

SUBTASK 32-13-11-020-003

(1) Do these steps to remove the door assembly at the inner door [2] location:

(a) If you need to replace the pushrod [45] due to excessive wear, do these steps (View F or G):

1) Remove the pin [43], nut [42], washer [41], spacer [40], washer [39], and bolt [38] to disconnect the pushrod [45] from the lower side strut [44].

2) Remove the pin [37], nut [36], washer [35], spacer [34], washer [33], and bolt [32] to disconnect the inner door [2] from the pushrod [45].

(b) If you do not need to replace the pushrod [45], do this step (View F or G):

1) Remove the pin [37], nut [36], washer [35], spacer [34], washer [33], and bolt [32] to disconnect the inner door [2] from the pushrod [45].

SUBTASK 32-13-11-020-004

(2) Do these steps to remove the door assembly at the center door [1] location:

(a) Remove the screw [103], washers [104], clamp [105], and nut [107] to disconnect the jumper cable [106] from the Main Landing Gear (MLG) (View J).

(b) For the top aft hinge, remove the pin [10], nut [9], washer [77], spacers [7], washer [5], and bolt [4] to disconnect the tie rod [3] from the tray assembly [6] on the shock strut [8] (View B).

(c) For the top forward hinge, remove the pin [12], nut [13], washer [78], spacers [14], washer [15], and bolt [16] to disconnect the tie rod [11] from the tray assembly [6] on the shock strut [8] (View C).

(d) Do these steps to remove the anti-rotation plate [68] and upper plate [88] (Views D, E, A-A, and B-B):



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1) Remove the bolt [70], washer [71], washer [58] and nut [59].
2) Remove the plate [68].
3) Remove the bolts [84], washers [85], washers [57], and nuts [87].
4) Remove the upper plate [88], shim [90], and spacer [91].

(e) For the bottom aft hinge, remove the bolt [17], washer [18], plate [68], clip [69], barrel nut [47], and retainer [48] to disconnect the center door [1] from the shock strut [8] (View A-A).

(f) For the bottom forward hinge, remove the bolt [29], washer [30], washer [67], barrel nut [49], and retainer [50] to disconnect the center door [1] from the shock strut [8] (View B-B).

(g) Remove the door assembly (center door [1] and inner door [2]) from the airplane.

**——— END OF TASK ———**

**TASK 32-13-11-420-803**

## 7. Main Landing Gear Door Assembly Installation

(Figure 401)

### A. General

(1) This task gives the instructions to install the door assembly.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-11-820-801 | Main Landing Gear Shock Strut Door Adjustment (P/B 501) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-20-10 | REPLACEMENT OF GROUND STUDS AND BONDING JUMPER INSTALLATION |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |



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**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Center door | Not Specified | |

**F. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 732 | Left Main Landing Gear - Center Door |
| 733 | Left Main Landing Gear - Inboard Door |
| 734 | Left Main Landing Gear |
| 742 | Right Main Landing Gear - Center Door |
| 743 | Right Main Landing Gear - Inboard Door |
| 744 | Right Main Landing Gear |

**G. Prepare for the Installation**

SUBTASK 32-13-11-480-011

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-13-11-480-012

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

**H. Main Landing Gear Door Assembly Installation**

SUBTASK 32-13-11-400-005

(1) Do these steps to install the door assembly (center door [1] and inner door [2]) (View A-A and B-B):

(a) Put the door assembly (center door [1] and inner door [2]) in their position for connection to the shock strut [8] and the lower side strut [44].

(b) For the center door [1], bottom aft hinge, install the bolt [17], plate [68], clip [69], washer [18], barrel nut [47], and the retainer [48]

(c) For the center door [1], bottom forward hinge, install the bolt [29], washer [30], washer [67], barrel nut [49], and retainer [50]

SUBTASK 32-13-11-400-006

(2) Continue the door assembly (center door [1] and inner door [2]) installation:

(a) For the center door [1], top aft hinge, install the bolt [4], washer [5], spacers [7], washer [77], and nut [9] to connect the tie rod [3] to the tray assembly [6] on the shock strut [8] (View B).

1) Do not tighten the nut [9].

NOTE: Final torque to the nut [9] and installation of the pin [10] will be done after final adjustments to the doors are made in the subsequent step.

(b) For the center door [1], top forward hinge, install the bolt [16], washer [15], spacers [14], washer [78], and nut [13] to connect the tie rod [11] to the tray assembly [6] on the shock strut [8] (View C).



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1) Do not tighten the nut [13].

NOTE: Final torque to the nut [13] and installation of the pin [12] will be done after final adjustments to the doors are made in the subsequent step.

(c) To connect the inner door [2] to the pushrod [45], do these steps (View F or G):

1) Install the bolt [32], washer [33], spacer [34], washer [35], and nut [36] to hold the inner door [2] to the pushrod [45].

a) Do not tighten the nut [36].

NOTE: Final torque to the nut [36] and installation of the pin [37] will be done after final adjustments to the doors are made in the subsequent step.

2) If you need to connect the pushrod [45] to the lower side strut [44], do these steps:

a) Install the bolt [38], washer [39], spacer [40], washer [41], and nut [42] to connect the pushrod [45] to the lower side strut [44].

<1> Do not tighten the nut [42].

NOTE: Final torque to the nut [42] and installation of the pin [43] will be done after final adjustments to the doors are made in the subsequent step.

**SUBTASK 32-13-11-820-003**

(3) Do this task: Main Landing Gear Shock Strut Door Adjustment, TASK 32-13-11-820-801.

**SUBTASK 32-13-11-420-011**

(4) Do these steps to safety the fasteners on the center door [1] (Views D, E, A-A, and B-B):

(a) Tighten the bolt [17] and bolt [29] to 398 in-lb (45.0 N·m) to 422 in-lb (47.7 N·m).

1) Tighten the bolt [17] and bolt [29] to the low torque value.

2) Tighten the bolts to align the head with the anti-rotation plate [68] and upper plate [88], if it is necessary.

(b) Adjust the thickness of shim [90] to match washer thickness.

(c) Install the plate [68], clip [69], bolt [70], washer [71], washer [58], and nut [59].

(d) Install the upper plate [88], shim [90], spacer [91], bolt [84], washer [85], washer [57], and nut [87].

**SUBTASK 32-13-11-420-013**

(5) Tighten the nut [9] and install the pin [10] in the hole in the bolt [4] (View B).

(a) If it is necessary, loosen the nut [9] to the nearest castellation to align the holes for the pin [10].

**SUBTASK 32-13-11-420-014**

(6) Tighten the nut [13] and install the pin [12] in the hole in the bolt [16]. (View C).

(a) If it is necessary, loosen the nut [13] to the nearest castellation to align the holes for the pin [12].

**SUBTASK 32-13-11-420-015**

(7) Tighten the nut [36] and install the pin [37] in the hole in the bolt [32] (View F or G).

(a) If it is necessary, loosen the nut [36] to the nearest castellation to align the holes for the pin [37].

**SUBTASK 32-13-11-420-016**

(8) Tighten the nut [42] and install the pin [43] in the hole in the bolt [38] (View F or G).



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(a) If it is necessary, loosen the nut [42] to the nearest castellation to align the holes for the pin [43].

**SUBTASK 32-13-11-420-017**

(9) Do these steps to prepare the jumper cable [106] and Main Landing Gear (MLG) for installation.

(a) Use solvent cleaning procedure to prepare the attachment surface for the jumper cable [106] on the MLG (SWPM 20-20-00).

**SUBTASK 32-13-11-420-018**

(10) Install the jumper cable [106], screw [103], washers [104], clamp [105], and nut [107] on the MLG (View J).

**SUBTASK 32-13-11-280-002**

(11) Use an intrinsically safe approved bonding meter, COM-1550, to measure the resistance between the jumper cable [106] and the MLG (SWPM 20-20-10).

(a) Make sure that the electrical bonding resistance is 0.002 ohm (2.0 miliohms) or less.

**SUBTASK 32-13-11-390-002**

(12) Apply a fillet seal with sealant, A00247, to the jumper cable [106] and fasteners (SWPM 20-20-10).

**——— END OF TASK ———**



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## MAIN LANDING GEAR SHOCK STRUT DOOR - ADJUSTMENT/TEST

### 1. General

A. This procedure has this task:

(1) An adjustment of the main landing gear shock strut door.

**TASK 32-13-11-820-801**

### 2. Main Landing Gear Shock Strut Door Adjustment

(Figure 501, Figure 502, Figure 503, and Figure 504)

#### A. General

(1) This task gives the instructions to adjust the Main Landing Gear (MLG) shock strut door.

#### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-802 | Hydraulic System A or B Pressurization with a Portable Hydraulic Cart (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-21-000-802 | Main Landing Gear Wing Door Adjustment (P/B 501) |

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-163 | Portable Hydraulic Cart, 3000 PSI, 30 GPM<br>Part #: 5833 Supplier: 59603<br>Part #: 673A5FCBBCLMNY4 Supplier: 59603<br>Part #: 9780-0327 Supplier: 05172<br>Part #: HGPU50-30-1SX Supplier: 0022N<br>Part #: HT2000-1-E/1-S Supplier: H6394<br>Part #: HT2000-1-E/1-S2 Supplier: H6394<br>Part #: HT2000-1-F-S Supplier: H6394<br>Part #: HT2000-1-F-S2 Supplier: H6394<br>Part #: PH50D Supplier: 10000<br>Part #: PH50E Supplier: 10000<br>Opt Part #: 57301FC3BBCILMNY Supplier: 59603<br>Opt Part #: 57305KV3BBCI-A1 Supplier: 59603 |
| STD-858 | Tag - DO NOT OPERATE |

#### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G00440 | Lockwire - MS20995C41, Corrosion Resistant Steel - 0.041 Inch (1.0414 mm) Diameter | NASM20995 |



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## E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 731 | Left Main Landing Gear - Outboard Door |
| 734 | Left Main Landing Gear |
| 741 | Right Main Landing Gear - Outboard Door |
| 744 | Right Main Landing Gear |

## F. Prepare for the Adjustment

SUBTASK 32-13-11-480-015

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-13-11-860-004

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Lift the airplane with jacks until the MLG wheels are above the ground (TASK 07-10-01-580-801).

NOTE: Lift the airplane to a height that provides the clearance to retract the MLG.

SUBTASK 32-13-11-840-005

**WARNING** MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Connect the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to the ground service disconnect module for hydraulic system A (TASK 29-11-00-860-802).

## G. Main Landing Gear Shock Strut Door Adjustment

SUBTASK 32-13-11-860-005

(1) Do the steps that follow to retract the MLG:

(a) Remove the DO NOT OPERATE tag, STD-858 from the control lever for the landing gear.

(b) For the applicable adjusted MLG door, remove the downlock pin (TASK 32-00-01-080-801).



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**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE RETRACTION PATH FOR THE APPLICABLE LANDING GEAR. THE LANDING GEAR AND DOORS MOVE QUICKLY. THE MOVEMENT OF THE LANDING GEAR AND DOORS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(c) Move the control lever for the landing gear to the UP position.

(d) Attach a DO NOT OPERATE tag, STD-858, to the control lever for the landing gear.

(e) Close the MLG door as follows:

1) Slowly increase the hydraulic pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, until the MLG is in the up and locked position (TASK 29-11-00-860-802).

2) Make sure that the hydraulic pressure supplied by the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, does not go above 3200 psi (22,063 kPa).

3) With the MLG in the up and locked position, decrease the hydraulic pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to zero.

SUBTASK 32-13-11-820-009

(2) Calculate the Net Effect Value (NEV) of the center door [1].

(a) Measure and record the fit or clearance values at each of the edge zones in Table 501.

(b) Record the measured fit or clearance values.

(c) Compare the measured fit values to the values in Table 501.

**Table 501/32-13-11-993-803 MAIN LANDING GEAR CENTER DOOR CLEARANCE AND FLUSHNESS VALUES**

| EDGE ZONE | CLEARANCE | FLUSHNESS |
|---|---|---|
| A | 0.40 ±0.23 in. (10.160 ±5.842 mm) | +0.03 in. (0.76 mm)/-0.05 in. (-1.27 mm) |
| B | 0.33 ±0.10 in. (8.382 ±2.540 mm) | NO ADJUSTMENT NECESSARY |
| C | 0.40 ±0.23 in. (10.160 ±5.842 mm) | +0.03 in. (0.76 mm)/-0.05 in. (-1.27 mm) |
| DOOR FLUSHNESS DIAGRAM | | |
| - ------> Air Stream (V) | (NEGATIVE MISFAIR) | A negative tolerance (-) indicates the face of the mismatch faces aft. |
| + ------> Air Stream (V) | (POSITIVE MISFAIR) | A positive tolerance (+) indicates the face of the mismatch is into the air stream. |

SUBTASK 32-13-11-970-002

(3) If one or more of the measured values of the edge zone are more than the tolerances shown, find and convert all of the measured step (misfair) or clearance values into a NEV (Figure 502).

(a) Calculate the NEV for the interface.



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1) Add all of the calculated NEV values, both those in tolerance and those that are not in the tolerance and divide the result by the total number of measurements.

NOTE: The result is the total NEV for the interface.

(b) Do a check of the NEV result against Net Effect Limit (NEL) for the interface given in the chart.

NOTE: This value is usually 1.0. If the NEV for the interface is less than or equal to the NEL, the interface is aerodynamically acceptable.

(c) Make sure that the calculated NEV is within the NEL value (the interface meets the aerosmoothness requirements).

SUBTASK 32-13-11-840-006

(4) If the fit is not in tolerance, do the steps that follow:

(a) Remove the DO NOT OPERATE tag, STD-858 from the landing gear control lever.

(b) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to supply hydraulic pressure to the MLG.

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE RETRACTION PATH FOR THE APPLICABLE LANDING GEAR. THE LANDING GEAR AND DOORS MOVE QUICKLY. THE MOVEMENT OF THE LANDING GEAR AND DOORS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(c) Move the landing gear control lever to the DN position.

**WARNING**

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(d) Install the downlock pins on all the landing gears (TASK 32-00-01-480-801).

(e) Attach a DO NOT OPERATE tag, STD-858, to the control lever for the landing gear.

(f) Decrease the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to zero.

(g) Adjust the center door [1] as follows:

NOTE: A change in the adjustment of the center door can have an effect on the adjustment of the wing door.

1) Do a check of the wing door, do this task: Main Landing Gear Wing Door Adjustment, TASK 32-13-21-000-802.

2) To adjust the door at the bottom hinge line, adjust the washer stackup at the two mounting points.

NOTE: The maximum total combined washer thickness shall not exceed the thickness of three BACW10P533CA washers.

3) If it is necessary, adjust the grip length of the bolt.

4) Tighten the bolts, after the washers have been adjusted for fair.

5) Do a check again to make sure that the center door [1] is still in tolerance (Table 501).



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SUBTASK 32-13-11-220-003

(5) Measure and record the clearance A between the inner door [2] and fairing panel [9] and the clearance B between the inner door [2] and fairing panel [4] (Figure 503).

(a) Make sure that the clearances are in tolerance (Table 502).

**Table 502/32-13-11-993-805 MAIN LANDING GEAR SHOCK STRUT DOORS AND BONDING PARTS FIT CLEARANCES**

| Permitted Clearances Between the Inner Door and Fairing Panels |
|---|
| A: 0.4000 ±0.1200 in. (10.1600 ±3.0480 mm) |
| B: 0.4000 ±0.1200 in. (10.1600 ±3.0480 mm) |
| **SIA 015** |
| B: 0.4000 +0.1700 / -0.1200 in. (10.1600 +4.3180 / -3.0480 mm) |
| **SIA ALL** |

SUBTASK 32-13-11-820-010

(6) Measure the fit or clearance values for the inner door [2] at the edge zones in Table 503.

(a) Record the measured fit or clearance values.

(b) For all airplane MLG inner door [2] clearance and flushness checks, compare the measured fit values to the values in Table 503.

NOTE: After the inboard door rigging has been completed and with the door in the stowed position. The leading and trailing edges of the exterior surface of the inboard MLG door zones D and E inboard, should lie inside the exterior surface of the wing-to-body fairing.

**Table 503/32-13-11-993-804 MAIN LANDING GEAR INNER DOOR CLEARANCE AND FLUSHNESS VALUES**

| EDGE ZONE | CLEARANCE | FLUSHNESS |
|---|---|---|
| D(1) | 0.40 ±0.12 in. (10.16 ±3.05 mm) | -0.0694 ±0.0500 in. (-1.76 ±1.27 mm) |
| D(2) | 0.425 ±0.120 in. (10.79 ±3.05 mm) | -0.0985 ±0.0500 in. (-2.50 ±1.27 mm) |
| **SIA 004** | | |
| D | 0.40 +0.33 / -0.12 in. (10.16 +8.38 / -3.05 mm) | |
| D(1) | | -0.0694 ±0.0500 in. (-1.76 ±1.27 mm) |
| D(2) | | -0.0985 ±0.0500 in. (-2.50 ±1.27 mm) |
| **SIA 002** | | |
| D(2) | 0.40 +0.24 / -0.12 in. (10.16 +6.10 / -3.05 mm) | -0.0985 ±0.0500 in. (-2.50 ±1.27 mm) |
| **SIA 015** | | |
| D(1) | 0.40 +0.17 / -0.12 in. (10.16 +4.32 / -3.05 mm) | -0.0694 ±0.0500 in. (-1.76 ±1.27 mm) |
| D(2) | 0.425 +0.145 / -0.120 in. (10.795 +3.683 / -3.048 mm) | -0.0985 ±0.0500 in. (-2.50 ±1.27 mm) |
| **SIA ALL** | | |
| E(2) | 0.40 ±0.12 in. (10.16 ±3.05 mm) | -0.3526 ±0.0500 in. (-8.96 ±1.27 mm) |
| E(1) | 0.40 ±0.12 in. (10.16 ±3.05 mm) | -0.3021 ±0.0500 in. (-7.67 ±1.27 mm) |



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**Table 503/32-13-11-993-804 MAIN LANDING GEAR INNER DOOR CLEARANCE AND FLUSHNESS VALUES (Continued)**

| EDGE ZONE | CLEARANCE | FLUSHNESS |
|---|---|---|
| **SIA 013** | | |
| E(1) | 0.40 +0.19 / -0.12 in. (10.16 +4.83 / -3.05 mm) | -0.3021 ±0.0500 in. (-7.67 ±1.27 mm) |
| **SIA 016-999** | | |
| E(1) | 0.40 +0.17 / -0.12 in. (10.16 +4.32 / -3.05 mm) | -0.3021 ±0.0500 in. (-7.67 ±1.27 mm) |
| **SIA ALL** | | |
| F | 0.340 ±0.100 in. (8.64 ±2.54 mm) | -0.3526 ±0.0500 in. (-8.96 ±1.27 mm) |
| DOOR FLUSHNESS DIAGRAM | | |
| ------><br>Air Stream<br>(V) | (NEGATIVE MISFAIR) | A negative tolerance (-) indicates the face of the mismatch faces aft. |
| ------><br>Air Stream<br>(V) | (POSITIVE MISFAIR) | A positive tolerance (+) indicates the face of the mismatch is into the air stream. |

(c) Make sure that the inner door clearance and flushness measured values are within the limits in Table 503.

SUBTASK 32-13-11-840-007

(7) If the fit is not in tolerance, do the steps that follow:

(a) Remove the DO NOT OPERATE tag, STD-858 from the landing gear control lever.

(b) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to supply hydraulic pressure to the MLG.

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE RETRACTION PATH FOR THE APPLICABLE LANDING GEAR. THE LANDING GEAR AND DOORS MOVE QUICKLY. THE MOVEMENT OF THE LANDING GEAR AND DOORS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

**CAUTION** ONLY EXTEND THE MAIN GEAR IF THE CENTER DOOR IS ADJUSTED ZERO TO POSITIVE. NEGATIVE ADJUSTMENT CAN CAUSE THE OUTER DOOR TO HIT THE CENTER DOOR. DAMAGE CAN OCCUR TO THE TWO DOORS.

(c) Move the landing gear control lever to the DN position.

(d) Attach a DO NOT OPERATE tag, STD-858, to the landing gear control lever.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(e) Install the downlock pins on all the landing gears (TASK 32-00-01-480-801).

(f) Decrease the pressure from the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to zero.

(g) Remove the lockwires from the jamnuts [5] on pushrod [6].

(h) Loosen the jamnuts [5].

(i) Turn the pushrod [6] on either direction to adjust the pushrod [6].

(j) After the final adjustment, insert a 0.050 in. (1.270 mm) pin or wire into the inspection hole.

(k) Make sure that the wire is stopped by the rod end for adjustment to be acceptable.

(l) Tighten the jamnut [5] at each end.

(m) Install MS20995C41 lockwire, G00440, on the jamnuts [5].

(n) Do a check again to make sure that the inner door [2] is still in tolerance (Table 503).

**SUBTASK 32-13-11-220-004**

(8) Make sure that the clearance A between the inner door [2] and fairing panel [9] and the clearance B between the inner door [2] and fairing panel [4] are in tolerance (Table 502).

**SUBTASK 32-13-11-820-011**

(9) If it is necessary, adjust the pushrods [6] until the fit tolerances meet the tolerances (Table 501 or Table 503).

## H. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-13-11-840-008**

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

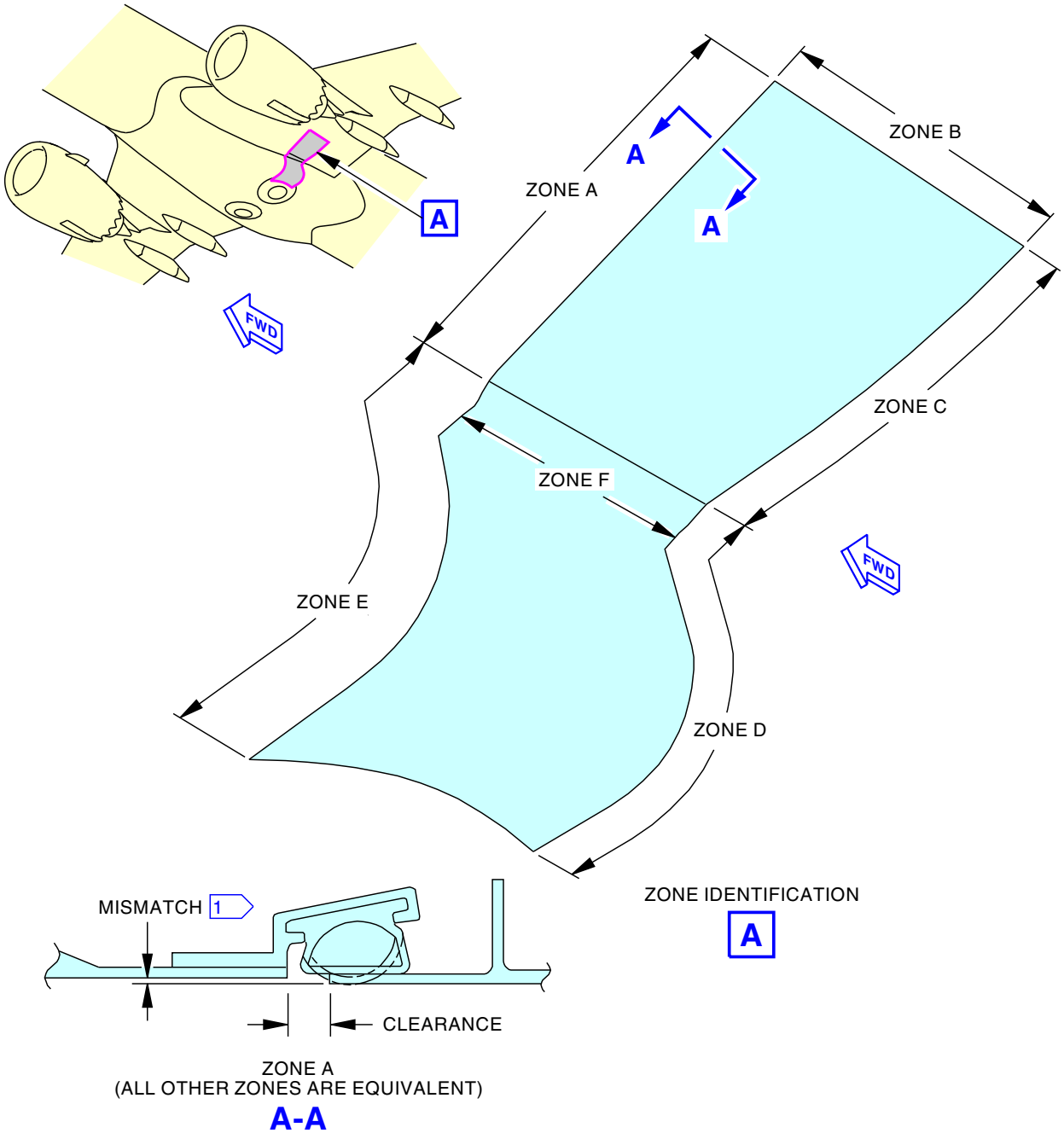
**SUBTASK 32-13-11-580-002**

(2) Lower the airplane and remove the jacks (TASK 07-10-01-580-802).

**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



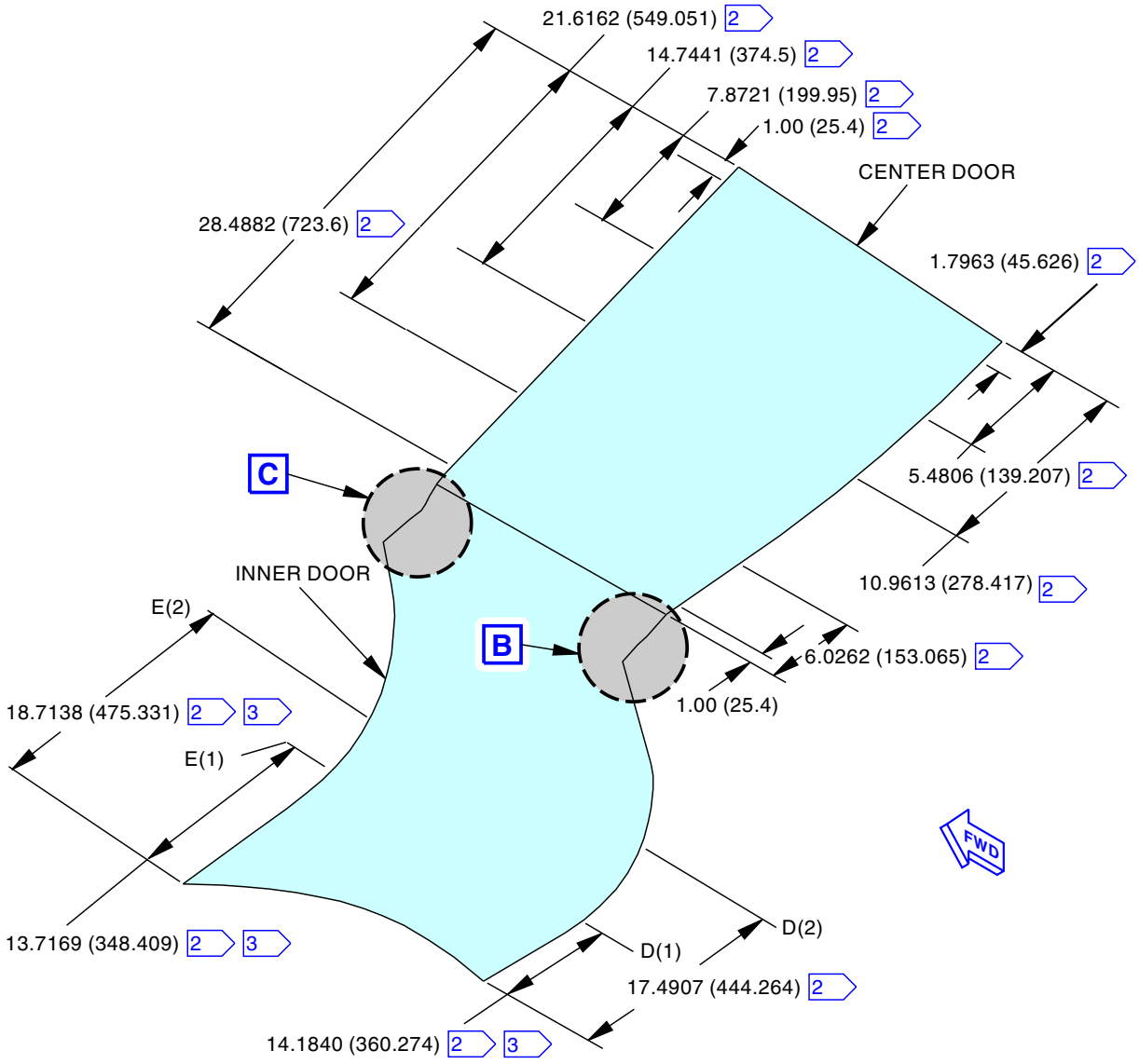

1 A POSITIVE TOLERANCE (+) INDICATES THE FACE OF THE MISMATCH IS FORWARD (INTO THE AIRSTREAM). A NEGATIVE TOLERANCE (-) INDICATES THE FACE OF THE MISMATCH FACES AFT.

2414131 S00061534471_V2

**Main Landing Gear Shock Strut Doors Fit Tolerances**
**Figure 501/32-13-11-990-806 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**DIMENSIONS**

**A**

**NOTE:**

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES). THESE MEASUREMENTS LOCATIONS ARE FOR STEP/MISFAIR BETWEEN THE DOOR AND THE PANEL.

2 THE DIMENSIONAL TOLERANCE IS ±0.5000 INCH (12.7 mm).

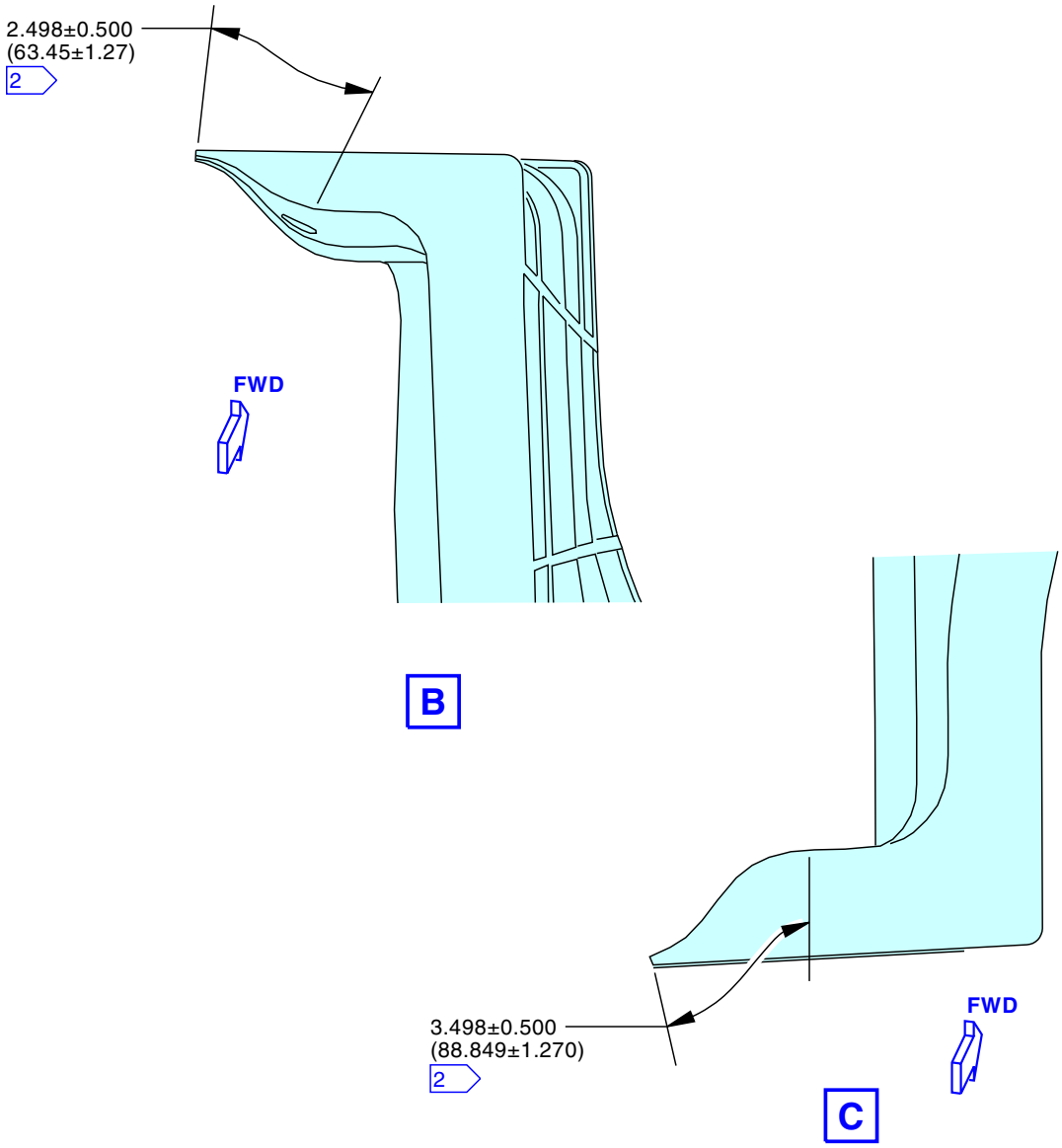
3 NEW CALCULATIONS ARE NOT REQUIRED.

2414132 S00061534472_V2

**Main Landing Gear Shock Strut Doors Fit Tolerances**
**Figure 501/32-13-11-990-806 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**NOTE:**

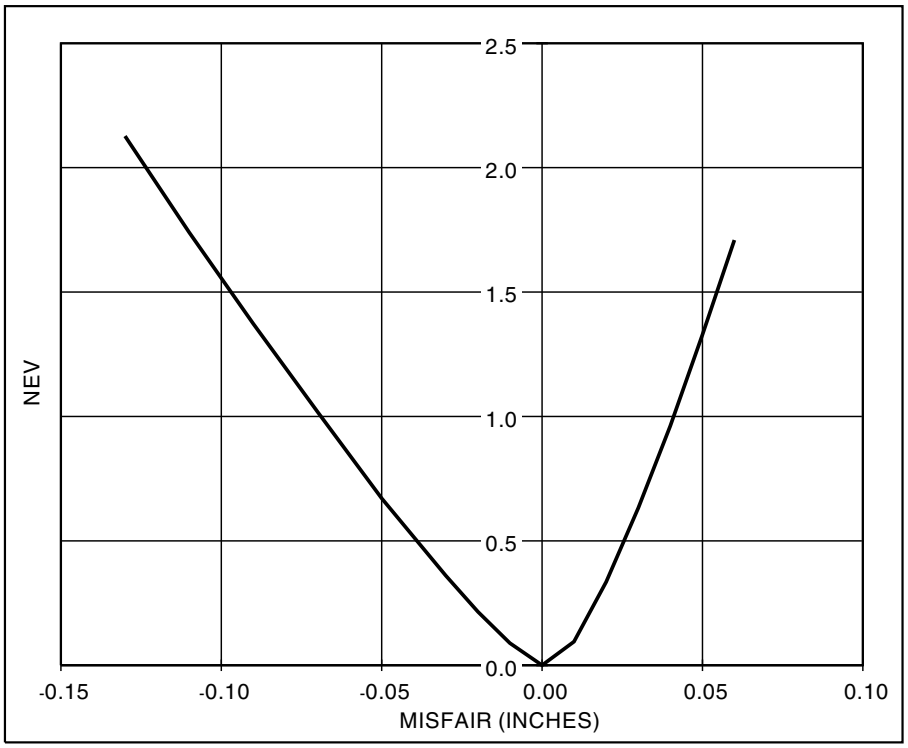
ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES). THESE MEASUREMENT LOCATIONS ARE FOR STEP/MISFAIR BETWEEN THE DOOR AND THE PANEL.

2414133 S00061534473_V2

**Main Landing Gear Shock Strut Doors Fit Tolerances**
**Figure 501/32-13-11-990-806 (Sheet 3 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




| MISFAIR | NEV |
|---|---|
| -0.130 | 2.127 |
| -0.110 | 1.741 |
| -0.090 | 1.373 |
| -0.070 | 1.019 |
| -0.050 | 0.671 |
| -0.030 | 0.361 |
| -0.020 | 0.215 |
| -0.010 | 0.089 |
| 0.000 | 0.000 |
| 0.010 | 0.095 |
| 0.020 | 0.335 |
| 0.030 | 0.633 |
| 0.040 | 0.962 |
| 0.050 | 1.329 |
| 0.060 | 1.709 |

1

**MAIN LANDING GEAR WING DOOR NET EFFECT VALUE CHART**

**NOTE:**

THE NET EFFECT LIMIT (NEL) FOR THIS ITEM IS 1.0.

IF ALL MEASURED STEP VALUES FOR THIS ITEM ARE BETWEEN-0.041 AND -0.069 THEN PASSAGE OF NEL IS ASSURED AND AN ACTUAL NEL CALCULATION IS NOT REQUIRED.

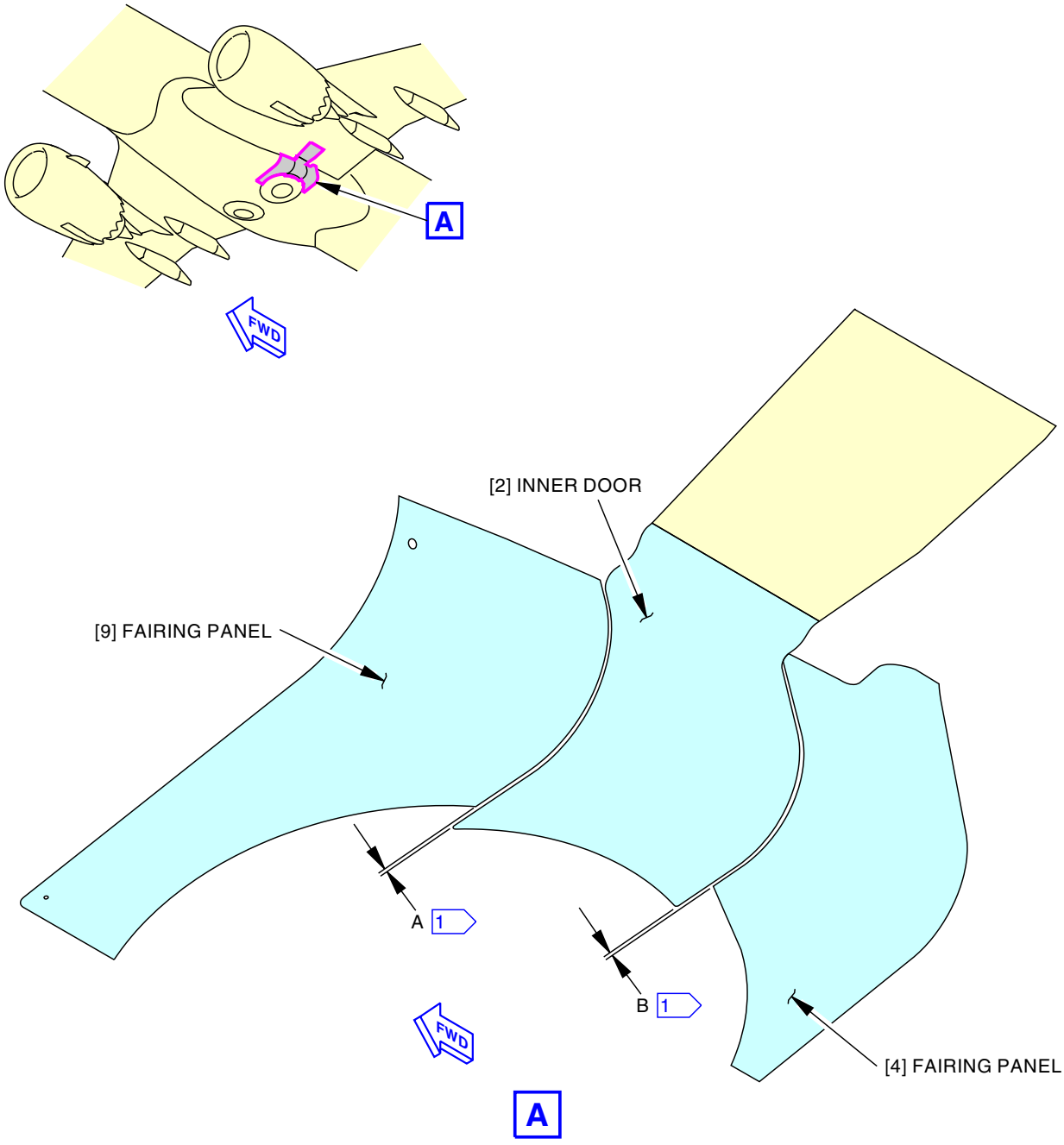
1 NEV OF 1.0 CORRESPONDS TO MISFAIR OF 0.041 AND -0.069.

2414134 S00061534474_V1

**Main Landing Gear Wing Door Net Effect Value Chart**
**Figure 502/32-13-11-990-807**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



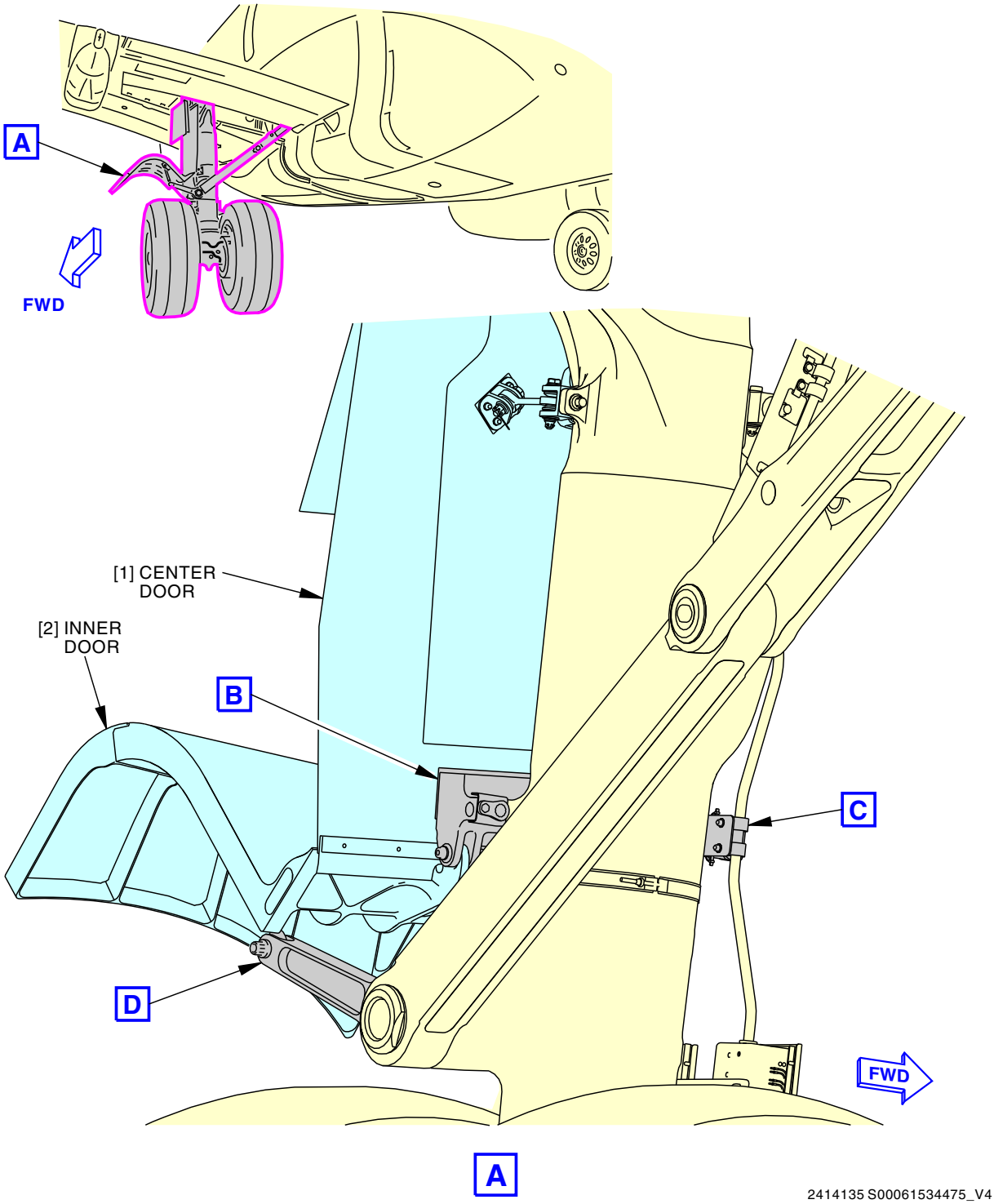

1 CLEARANCE BETWEEN THE INNER DOOR AND THE FAIRING PANEL

2806891 S0000644950_V5

**Main Landing Gear Shock Strut Doors and Bonding Parts Fit Clearances**
**Figure 503/32-13-11-990-808**



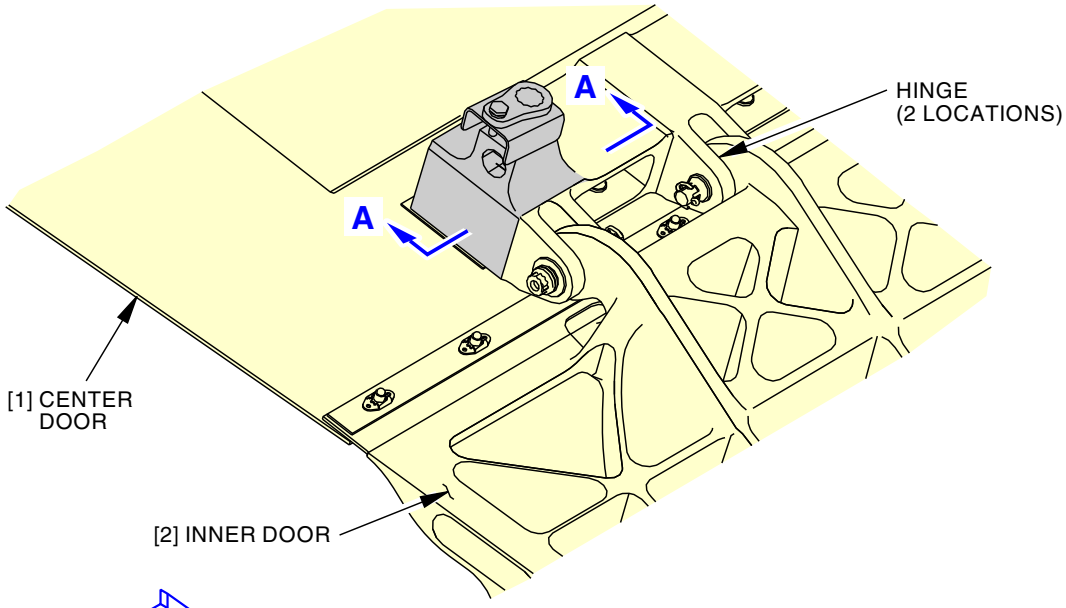
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Shock Strut Doors Adjustment**
**Figure 504/32-13-11-990-809 (Sheet 1 of 6)**

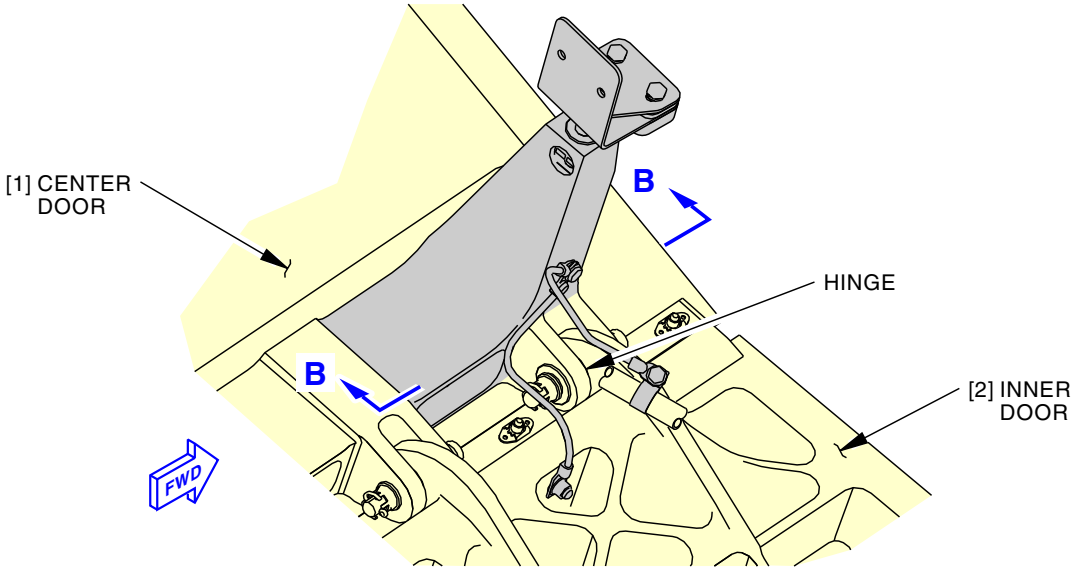


ECCN 9E991 BOEING PROPRIETARY - See title page for details




**CENTER DOOR BOTTOM AFT HINGE CONNECTION**

**B**




**CENTER DOOR BOTTOM FORWARD HINGE CONNECTION**

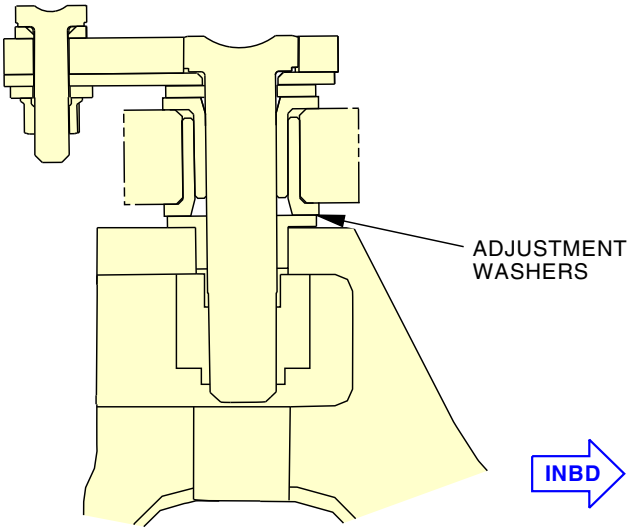
**C**

2937787 S0000713136_V1

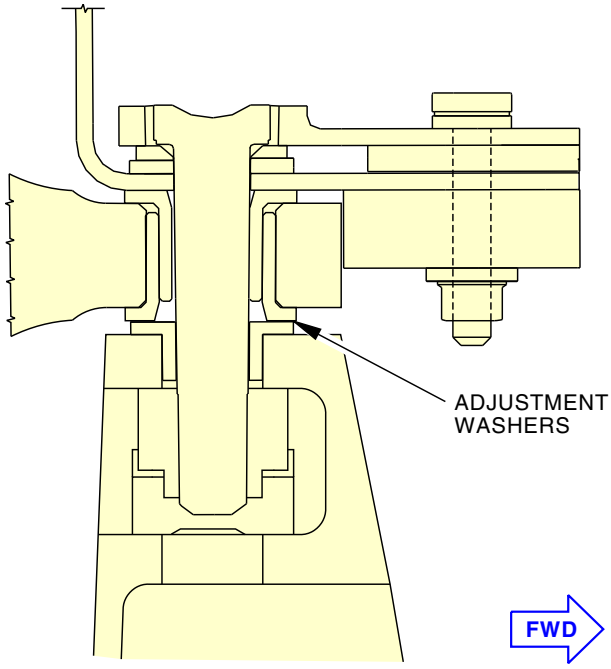
**Main Landing Gear Shock Strut Doors Adjustment**
**Figure 504/32-13-11-990-809 (Sheet 2 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




CENTER DOOR BOTTOM AFT HINGE CONNECTION
A-A



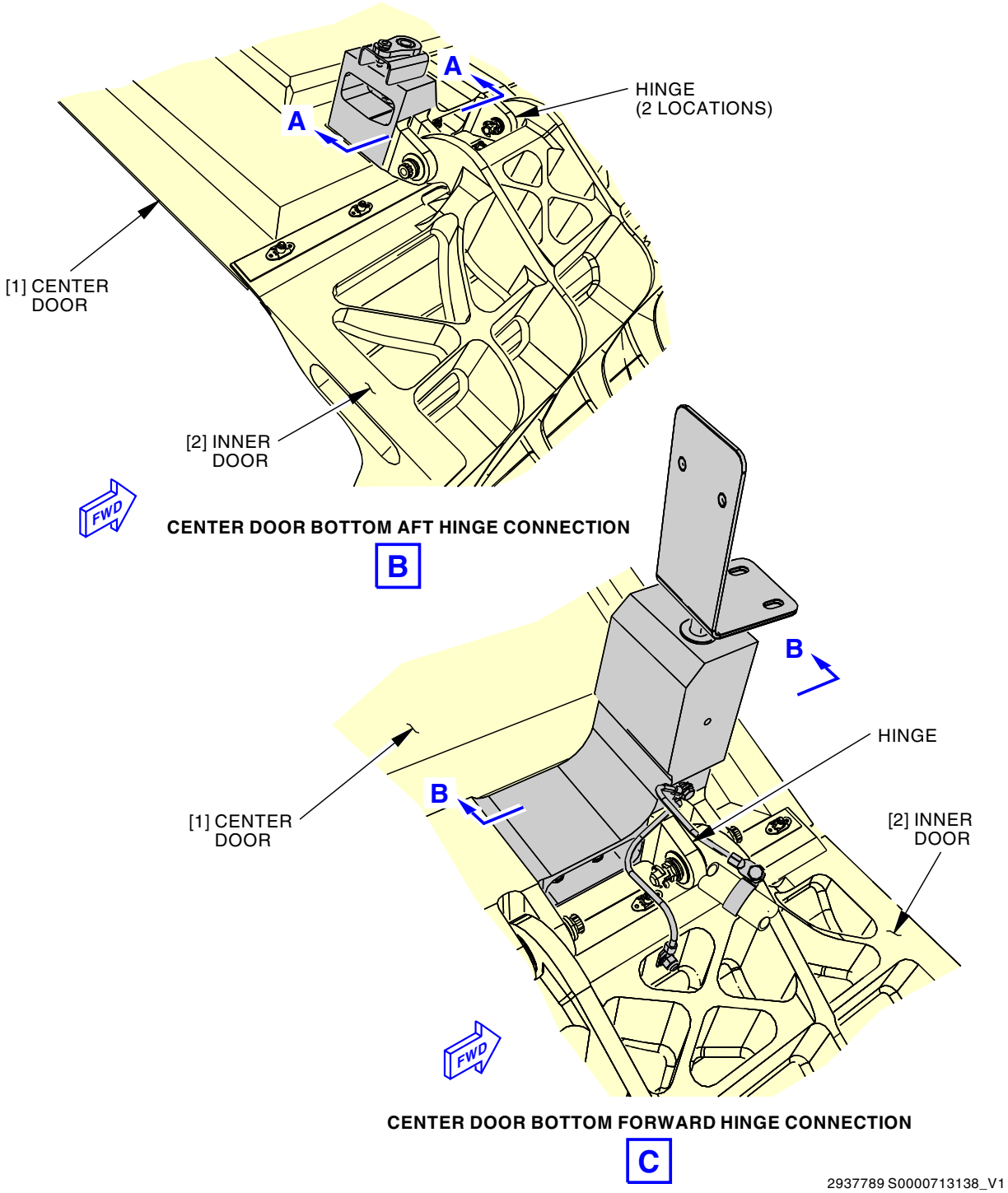

CENTER DOOR BOTTOM FORWARD HINGE CONNECTION
B-B

2937788 S0000713137_V1

**Main Landing Gear Shock Strut Doors Adjustment**
**Figure 504/32-13-11-990-809 (Sheet 3 of 6)**



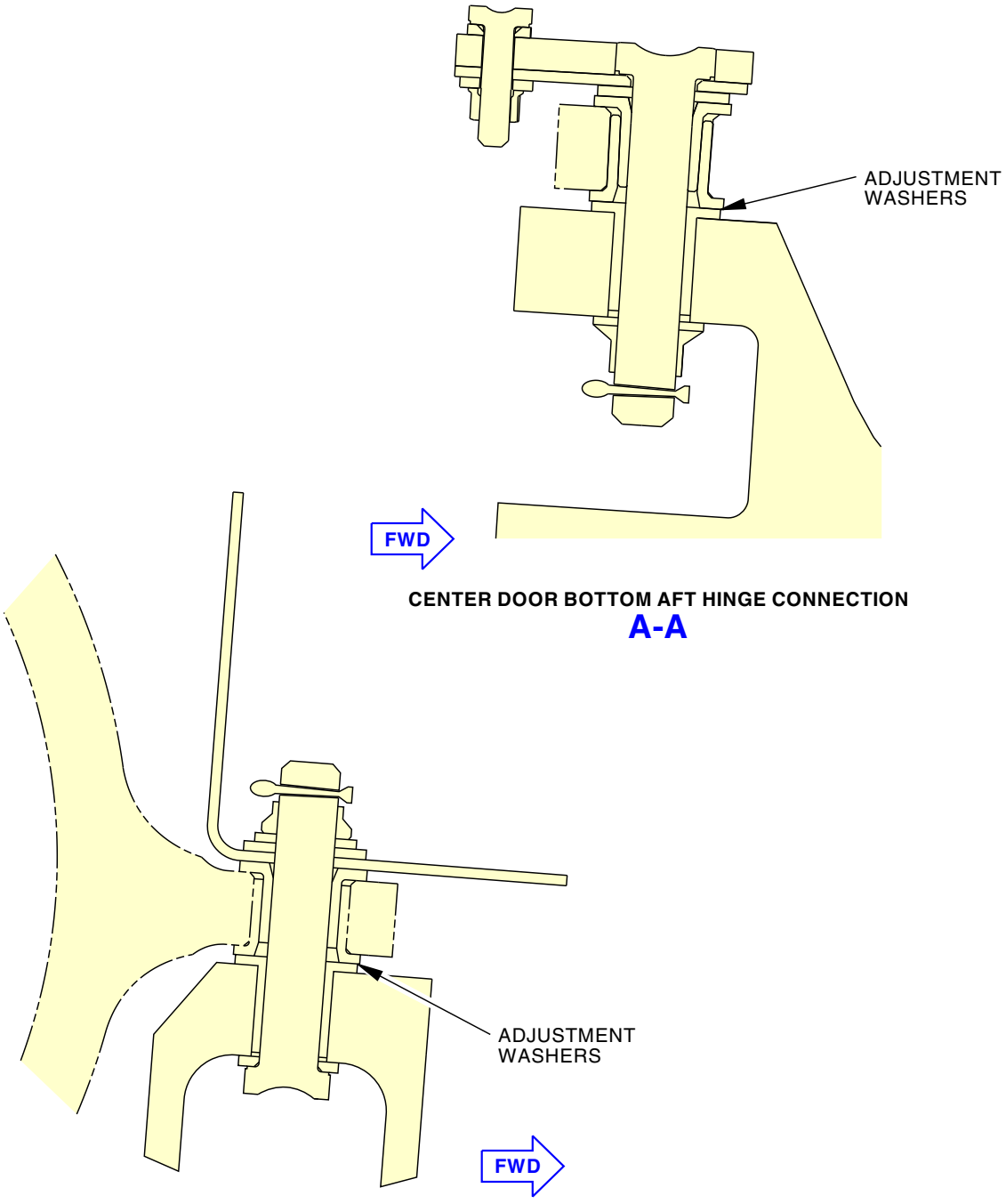
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Shock Strut Doors Adjustment**
**Figure 504/32-13-11-990-809 (Sheet 4 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

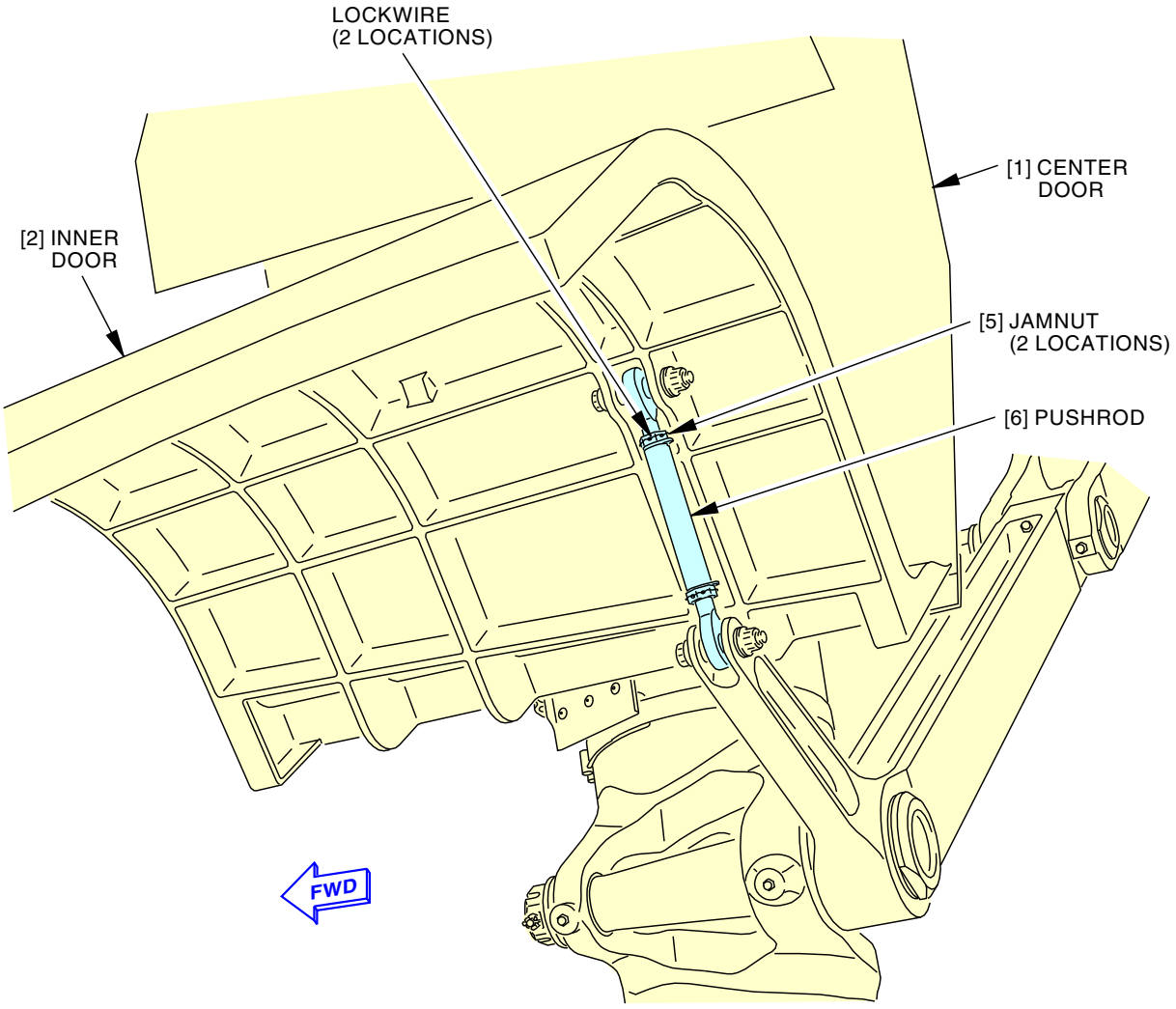



2937790 S0000713139_V1

**Main Landing Gear Shock Strut Doors Adjustment**
**Figure 504/32-13-11-990-809 (Sheet 5 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**INNER DOOR PUSHROD**

**D**

2414140 S00061534480_V3

**Main Landing Gear Shock Strut Doors Adjustment**
**Figure 504/32-13-11-990-809 (Sheet 6 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

# MAIN LANDING GEAR WING DOOR - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the main landing gear wing door

(2) An installation of the main landing gear wing door.

**TASK 32-13-21-000-801**

## 2. Main Landing Gear Wing Door Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G50079 | Scraper - Wood or Plastic | |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 731 | Left Main Landing Gear - Outboard Door |
| 734 | Left Main Landing Gear |
| 741 | Right Main Landing Gear - Outboard Door |
| 744 | Right Main Landing Gear |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

### E. Prepare for the Removal

**SUBTASK 32-13-21-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-13-21-480-002**

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).



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SUBTASK 32-13-21-010-001

(3) For the left main landing gear, open this access panel:

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

SUBTASK 32-13-21-010-002

(4) For the right main landing gear, open this access panel:

| Number | Name/Location |
|---|---|
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

## F. Main Landing Gear Wing Door Removal

SUBTASK 32-13-21-020-001

(1) Disconnect the outer door [16].

(a) Examine the condition of the pushrod [3] for wear and do the subsequent steps to disconnect the outer door [16].

(b) If you need to replace the pushrod [3], do the steps that follow:

1) Remove the cotter pin [5], nut [4], and washer [6] from the bolt [9].

2) Remove the bolt [9], washer [8], and bushing [7] to disconnect the pushrod [3] from the door actuator bracket [10].

3) Remove the washer [8] from the bolt [9].

(c) If you do not need to replace the pushrod [3], do the steps that follow:

1) Remove the cotter pin [13], nut [12], and washer [11] from the bolt [2].

2) Remove the bolt [2] and washer [1] to disconnect the forward hinge [14] from the pushrod [3].

3) Remove the washer [1] from the bolt [2].

SUBTASK 32-13-21-020-002

(2) Disconnect the outer door [16] from the hinge fitting [19] and hinge fitting [23]:

(a) Remove the bolt [30], washers [31], and nut [33] to disconnect the jumper cable [32] from the stabilizer link assembly.

1) Use scraper, G50079, to remove sealant from the end of the jumper cable [32].

(b) Remove the cotter pin [15], nut [17], and washer [18] from the bolt [22].

(c) Remove the bolt [22], washer [21], and bushing [20] to disconnect the forward hinge [14] from the hinge fitting [19].

(d) Remove the washer [21] from the bolt [22].

(e) Remove the cotter pin [29], nut [28], and washer [27] from the bolt [25].

(f) Remove the bolt [25] and washer [24] to disconnect the aft hinge [26] from the hinge fitting [23].

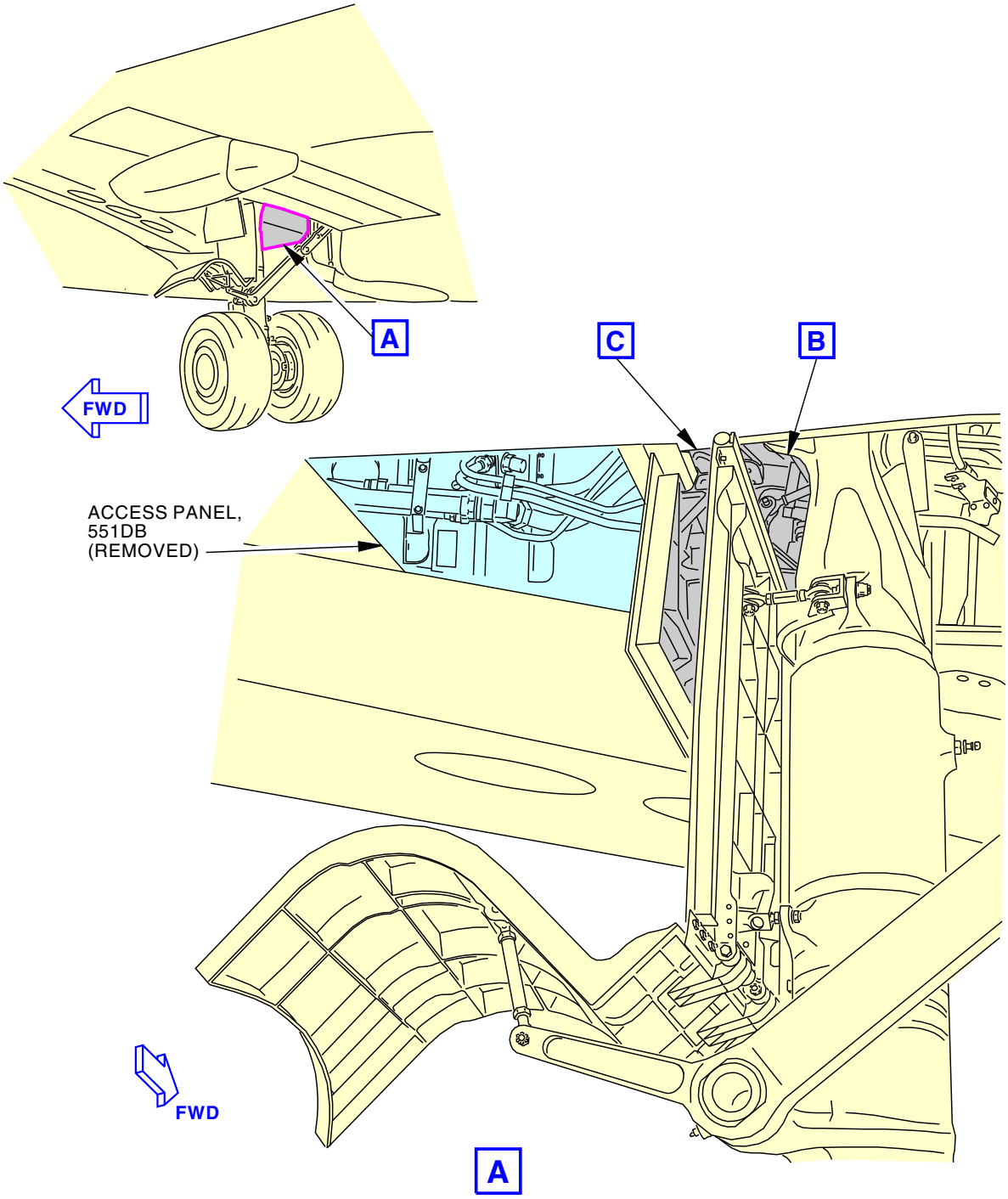
(g) Remove the washer [24] from the bolt [25].

(h) Remove the outer door [16] from the airplane.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

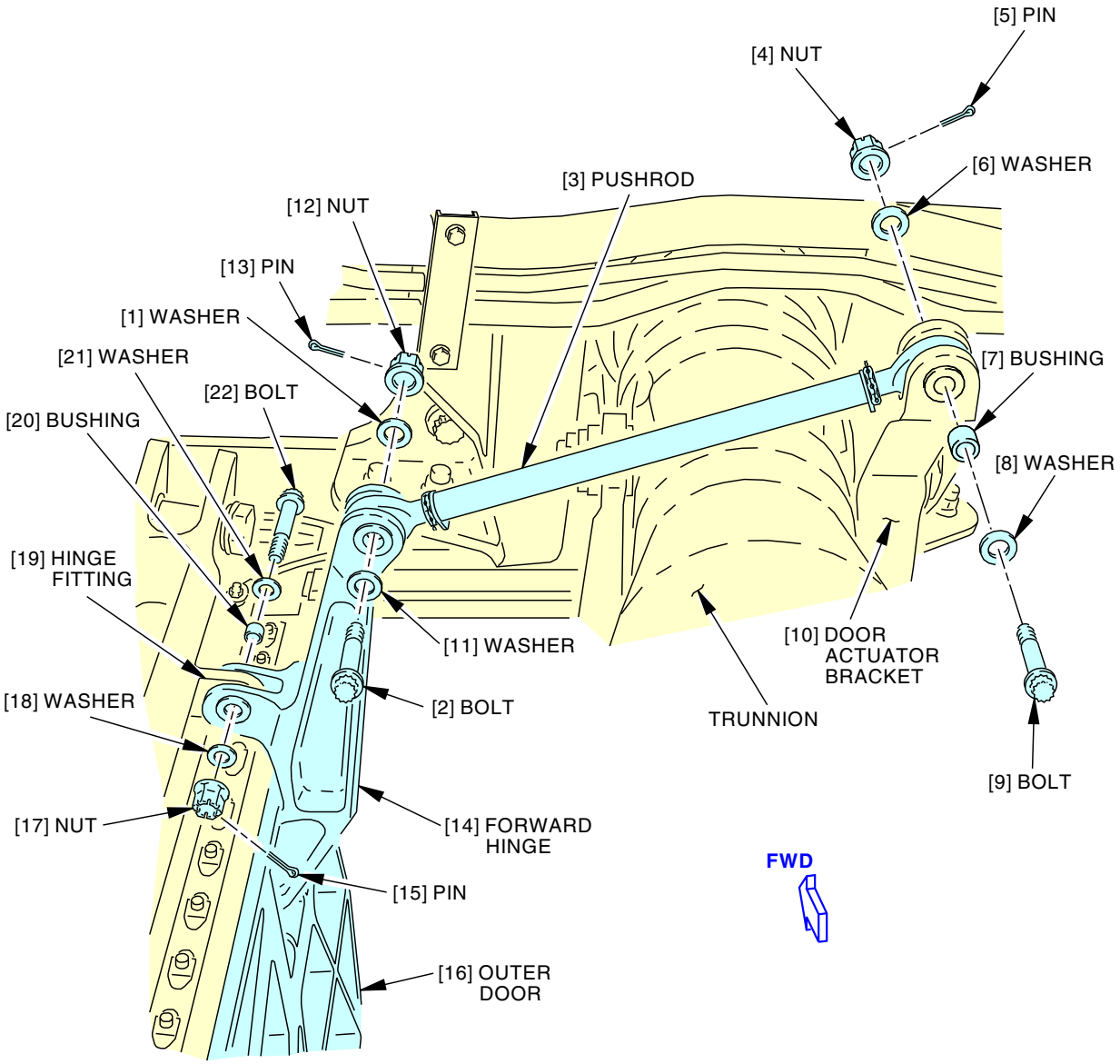



2414141 S00061534484_V1

**Main Landing Gear Wing Door Installation**
**Figure 401/32-13-21-990-801 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

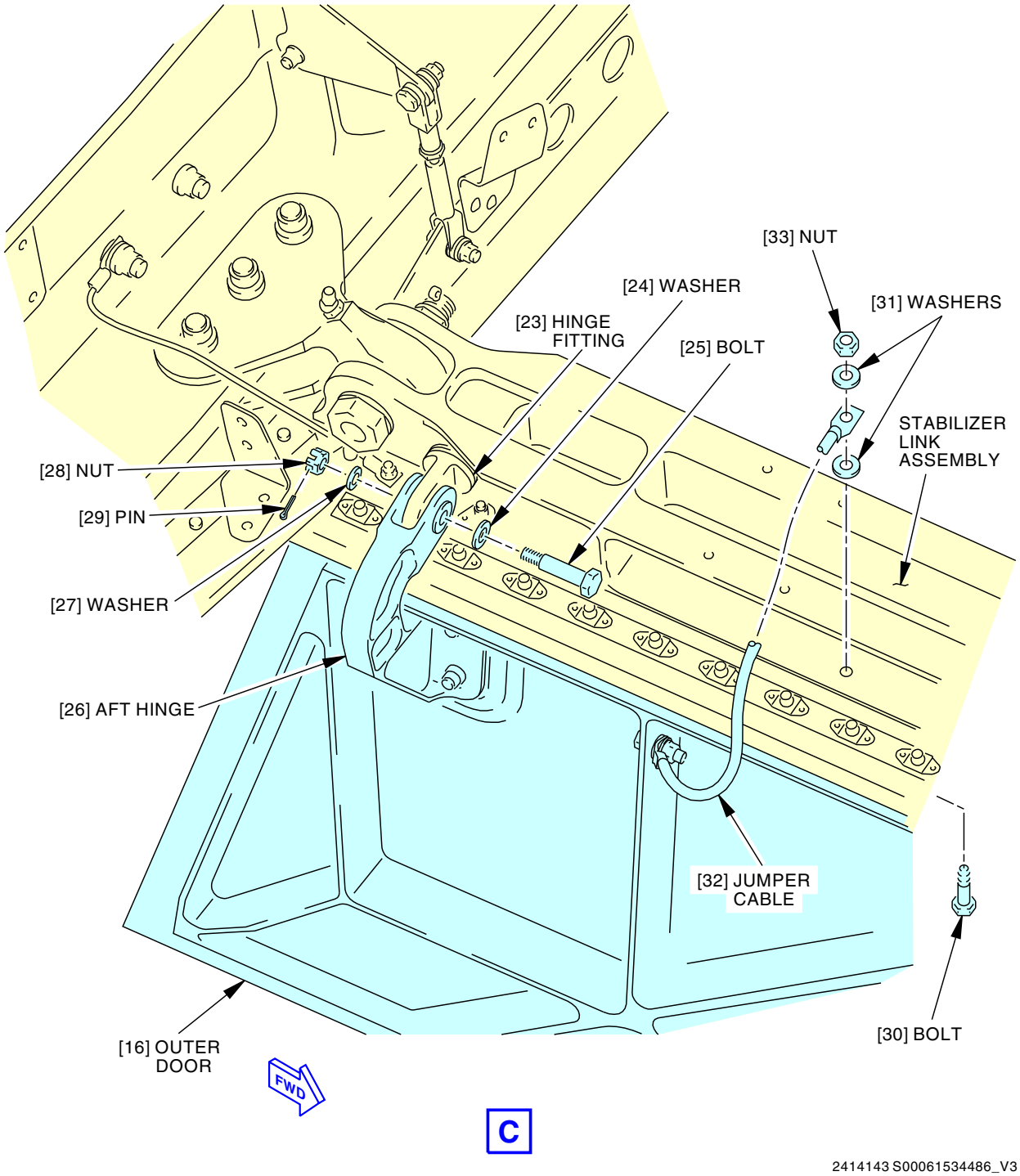



2414142 S00061534485_V1

**Main Landing Gear Wing Door Installation**
**Figure 401/32-13-21-990-801 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Wing Door Installation**
**Figure 401/32-13-21-990-801 (Sheet 3 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-13-21-420-801**

**3. Main Landing Gear Wing Door Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-21-000-802 | Main Landing Gear Wing Door Adjustment (P/B 501) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-614 | Bonding Meters - Non-Intrinsically Safe (For use in outside Class I, Divisions I & II non-hazardous locations. For hazardous locations, use COM-1550).<br>Part #: 247000 Supplier: 00426<br>Part #: 620LK Supplier: 1CRL2<br>Part #: BLR-0003-XX Supplier: KC432<br>Part #: BT51 Supplier: 00426<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659<br>Opt Part #: 247001 Supplier: 00426 |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| A50231 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 Class B |
| A50337 | Sealant - Fuel Tank | BMS5-45 Class B |
| A50359 | Sealant - Low Density, Non-Chromate Type | BMS5-142 Type II Class B |
| B00130 | Alcohol - Isopropyl | TT-I-735 |
| B00184 | Solvent - Presealing, Cleaning Solvent | BMS11-7 |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G00034 | Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze) | AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A) |
| G50262 | Wiper - Cleaning | BMS15-5 |
| G51464 | Abrasive - Aluminum Oxide paper, 60 grit or finer | |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Pin | 32-13-21-01-020 | SIA ALL |



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(Continued)

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 13 | Pin | 32-13-21-01-025 | SIA ALL |
| 15 | Pin | 32-13-21-01-280 | SIA ALL |
| 16 | Outer door | 32-13-21-01-375 | SIA ALL |
| | | 32-13-21-01-380 | SIA ALL |
| 29 | Pin | 32-13-21-01-285 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 731 | Left Main Landing Gear - Outboard Door |
| 734 | Left Main Landing Gear |
| 741 | Right Main Landing Gear - Outboard Door |
| 744 | Right Main Landing Gear |

**F. Access Panels**

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

**G. Prepare for the Installation**

**SUBTASK 32-13-21-480-003**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**H. Main Landing Gear Wing Door Installation**

**SUBTASK 32-13-21-420-001**

(1) Connect the outer door [16] to the hinge fitting [23] and hinge fitting [19]:

(a) Put the outer door [16] in its position in the hinge fitting [23] and hinge fitting [19].

(b) Install the washer [24] on the bolt [25].

(c) Align the hole in the aft hinge [26] to the hole in the hinge fitting [23].

(d) Put the bolt [25] through the aft hinge [26] and hinge fitting [23].

(e) Install the washer [27] and nut [28] on the bolt [25].

(f) Install the washer [21] on the bolt [22].

(g) Align the hole in the forward hinge [14] to the hole in the hinge fitting [19].

(h) Put the bolt [22] through the forward hinge [14] and hinge fitting [19].

(i) Install the washer [18] and nut [17] on the bolt [22].



ECCN 9E991 BOEING PROPRIETARY - See title page for details

(j) Hand tighten the nut [28] and nut [17] until final adjustment to the outer door [16] is made in the subsequent step.

1) After final adjustment to the outer door [16] and final torques to the nut [28] and nut [17] are applied, install the pin [29] and pin [15] in the bolt [25] and bolt [22].

**SUBTASK 32-13-21-420-002**

(2) Connect the outer door [16]:

(a) If you need to connect the outer door [16] to the pushrod [3], do the steps that follow:

1) Put the outer door [16] in its position for connection to the pushrod [3].
2) Install the washer [1] on the bolt [2].
3) Align the hole in the forward hinge [14] to the hole in the pushrod [3].
4) Apply grease, D00633, to the shank of the bolt [2].
5) Put the bolt [2] through the forward hinge [14] and pushrod [3].
6) Install the washer [11] and nut [12] on the bolt [2].
7) Hand tighten the nut [12] until final adjustment to the outer door [16] is made in the subsequent step.

a) After final adjustment to the outer door [16] and final torque to the nut [12] is applied, install the pin [13] in the bolt [2].

(b) If you need to connect the pushrod [3] to the door actuator bracket [10], do the steps that follow:

1) Put the pushrod [3] in its position for connection to the door actuator bracket [10].
2) Install the washer [8] on the bolt [9].
3) Align the hole in the pushrod [3] to the hole in the door actuator bracket [10].
4) Apply grease, D00633, to the shank of the bolt [9].
5) Put the bushing [7] through the door actuator bracket [10] and pushrod [3].
6) Put the bolt [9] through the door actuator bracket [10] and pushrod [3].
7) Install the washer [6] and nut [4] on the bolt [9].
8) Hand tighten the nut [4] until final adjustment to the outer door [16] is made in the subsequent step.

a) After final adjustment to the outer door [16] and final torque to the nut [4] is applied, install the pin [5] in the bolt [9].

(c) Install the jumper cable [32] as follows:

1) Clean the mating surface of the stabilizer link assembly with 60 grit wet/dry aluminum oxide sandpaper, G51464.
2) Use cotton wiper, G00034, moist in alcohol, B00130, to clean the mating surfaces of the bolt [30], washers [31], nut [33], and jumper cable [32].

a) If it is necessary, use wiper, G50262, to remove remaining solvent.

3) Apply sealant, A00247, to the under-head surface of the bolt [30].
4) Install the bolt [30], washers [31], nut [33] that attach the jumper cable [32] to the stabilizer link assembly.

a) Tighten the nut [33] to 28 in-lb (3 N·m) - 35 in-lb (4 N·m).
b) Make sure that the squeeze-out of sealant, A00247, between the bolt [30] and structure is continuous.



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c) Make sure that the squeeze-out of sealant, A00247, is not more than 0.2 in. (5.1 mm) in all directions.

<1> If it is necessary, use cotton wiper, G00034, moist in solvent, B00184, to remove excess of sealant, A00247.

5) Measure the electrical bonding resistance between the jumper cable [32] and stabilizer link assembly (SWPM 20-20-00).

a) Use the non-intrinsically safe bonding meter, COM-614.

b) Make sure that the electrical bonding resistance is 0.001 ohm (1 milliohm) or less.

6) Apply a fillet seal with sealant, A50337, or sealant, A50231, or sealant, A50359, to cover the bolt [30], washers [31], nut [33], and jumper cable [32].

a) Make sure that there is no excess sealant on the bolt [30] head.

**SUBTASK 32-13-21-820-001**

(3) Do this task: Main Landing Gear Wing Door Adjustment, TASK 32-13-21-000-802.

**SUBTASK 32-13-21-420-003**

(4) Tighten the nut [4] and install the pin [5] in the hole in the bolt [9].

(a) If it is necessary, loosen the nut [4] to the nearest castellation to align the hole for the pin [5].

**SUBTASK 32-13-21-420-004**

(5) Tighten the nut [12] and install the pin [13] in the hole in the bolt [2].

(a) If it is necessary, loosen the nut [12] to the nearest castellation to align the hole for the pin [13].

**SUBTASK 32-13-21-420-005**

(6) Tighten the nut [17] and install the pin [15] in the hole in the bolt [22].

(a) If it is necessary, loosen the nut [17] to the nearest castellation to align the hole for the pin [15].

**SUBTASK 32-13-21-420-006**

(7) Tighten the nut [28] and install the pin [29] in the hole in the bolt [25].

(a) If it is necessary, loosen the nut [28] to the nearest castellation to align the hole for the pin [29].

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-13-21-410-001**

(1) For the left main landing gear, do this step:

(a) Close this access panel:

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

**SUBTASK 32-13-21-410-002**

(2) For the right main landing gear, do this step:

(a) Close this access panel:

| Number | Name/Location |
|---|---|
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |



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END OF TASK



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## MAIN LANDING GEAR WING DOOR - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

(1) An adjustment of the wing door for the main landing gear.

B. This task is not necessary if:

(1) The same wing door that is removed is re-installed without modifications.

(2) The door attachment rod-end or hinge fittings were not disturbed during the wing door removal/installation procedures.

**TASK 32-13-21-000-802**

### 2. Main Landing Gear Wing Door Adjustment

(Figure 501, Figure 502)

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-802 | Hydraulic System A or B Pressurization with a Portable Hydraulic Cart (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-11-820-801 | Main Landing Gear Shock Strut Door Adjustment (P/B 501) |
| 32-32-00-710-801 | Main Landing Gear Test - Component Replacement (P/B 501) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-163 | Portable Hydraulic Cart, 3000 PSI, 30 GPM<br>Part #: 5833 Supplier: 59603<br>Part #: 673A5FCBBCLMNY4 Supplier: 59603<br>Part #: 9780-0327 Supplier: 05172<br>Part #: HGPU50-30-1SX Supplier: 0022N<br>Part #: HT2000-1-E/1-S Supplier: H6394<br>Part #: HT2000-1-E/1-S2 Supplier: H6394<br>Part #: HT2000-1-F-S Supplier: H6394<br>Part #: HT2000-1-F-S2 Supplier: H6394<br>Part #: PH50D Supplier: 10000<br>Part #: PH50E Supplier: 10000<br>Opt Part #: 57301FC3BBCILMNY Supplier: 59603<br>Opt Part #: 57305KV3BBCI-A1 Supplier: 59603 |
| STD-858 | Tag - DO NOT OPERATE |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |



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(Continued)

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 731 | Left Main Landing Gear - Outboard Door |
| 734 | Left Main Landing Gear |
| 741 | Right Main Landing Gear - Outboard Door |
| 744 | Right Main Landing Gear |

## D. Prepare for the Adjustment

SUBTASK 32-13-21-480-004

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-13-21-860-001

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Lift the airplane with jacks until the main landing gear wheels are above the ground and there is enough clearance to retract the main landing gear (TASK 07-10-01-580-801).

SUBTASK 32-13-21-840-001

**WARNING** KEEP PERSONS AND EQUIPMENT AWAY FROM ALL CONTROL SURFACES AND THE NOSE GEAR WHEN HYDRAULIC POWER IS SUPPLIED. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, AND THE NOSE GEAR ARE SUPPLIED WITH POWER BY THE HYDRAULIC SYSTEMS. INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR WHEN HYDRAULIC POWER IS SUPPLIED.

(3) Pressurize the hydraulic system A with a 3000 PSI, 30 GPM portable hydraulic cart, COM-163 (TASK 29-11-00-860-802).

NOTE: Alternatively, the main landing gear can also be extended/retracted with the electric motor driven pump (Main Landing Gear Test - Component Replacement, TASK 32-32-00-710-801).

## E. Main Landing Gear Wing Door Adjustment

SUBTASK 32-13-21-860-003

(1) Do the steps that follow to retract the main landing gear:

(a) Remove the DO NOT OPERATE tag, from the control lever for the landing gear.



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(b) For the applicable main landing gear for the door you are adjusting, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE RETRACTION PATH FOR THE APPLICABLE LANDING GEAR. THE LANDING GEAR AND DOORS MOVE QUICKLY. THE MOVEMENT OF THE LANDING GEAR AND DOORS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(c) Move the control lever for the landing gear to the UP position to retract the main landing gear.

(d) Attach a DO NOT OPERATE tag, STD-858, to the control lever for the landing gear.

(e) Do the steps that follow to close the main landing gear wing door:

1) To retract the main landing gear, slowly increase the hydraulic pressure that is supplied by the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, until the main landing gear is in the up and locked position.

2) Make sure that the hydraulic pressure supplied by the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, does not go above 3200 psi (22,063 kPa).

3) With the gear in the up and locked position, adjust the hydraulic pressure supplied by the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to zero.

**SUBTASK 32-13-21-820-002**

(2) Make sure that the fit of the wing door [11] is in tolerance (Table 501).

(a) Make a written record of the fit values that are not in tolerance.

(b) Use the "ALL" tolerances, in (Table 501), for all airplane main landing gear wing door clearance and flushness checks.

**Table 501/32-13-21-993-802 MAIN LANDING GEAR WING DOOR CLEARANCE AND FLUSHNESS VALUES**

| AIRPLANE EFFECTIVITY | EDGE ZONE | CLEARANCE | FLUSHNESS |
|---|---|---|---|
| ALL | A | 0.340 ±0.100 in. (8.636 ±2.540 mm) | |
| ALL | B | 0.400 ±0.230 in. (10.160 ±5.842 mm) | +0.03 in. (0.76 mm)/-0.05 in. (1.27 mm) (NEL=1.0) |
| ALL | C | 0.330 ±0.100 in. (8.382 ±2.540 mm) | |
| ALL | D | 0.400 ±0.230 in. (10.160 ±5.842 mm) | +0.03 in. (0.76 mm)/-0.05 in. (1.27 mm) (NEL=1.0) |

DOOR FLUSHNESS DIAGRAM




(NEGATIVE MISFAIR)

------>

V

A negative tolerance (-) indicates the face of the mismatch faces aft.

(POSITIVE MISFAIR)

------>

V

A positive tolerance (+) indicates the face of the mismatch is into the air stream.



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(c) Compare the fit values that are not in tolerance with the Net Effect Value (NEV) chart (Figure 501).

SUBTASK 32-13-21-840-002

(3) If the fit is not in tolerance, do the steps that follow:

(a) Extend the main landing gear:

1) Remove the DO NOT OPERATE tag, from the control lever for the landing gear.

2) Operate the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to supply hydraulic pressure to the main landing gear.

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE RETRACTION PATH FOR THE APPLICABLE LANDING GEAR. THE LANDING GEAR AND DOORS MOVE QUICKLY. THE MOVEMENT OF THE LANDING GEAR AND DOORS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

3) Move the control lever for the landing gear to the DN position to extend the main landing gear.

4) Attach a DO NOT OPERATE tag, STD-858, to the control lever for the landing gear.

5) For the applicable main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

6) Adjust the hydraulic pressure supplied by the 3000 PSI, 30 GPM portable hydraulic cart, COM-163, to zero.

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

7) Install the downlock pins on the main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-13-21-820-003

(4) Adjust the eyebolts of the hinge fittings [14] (Figure 502):

NOTE: A change in the adjustment of the outer door can have an effect on the adjustment of the shock strut doors. If it is necessary, do a check on the adjustment of the shock strut doors (TASK 32-13-11-820-801).

(a) Remove the pins [10], nuts [9], washers [8], washers [7], bushing [6] (on forward hinge [4] only), and bolts [5] to disconnect the wing door [11] from the lower stabilizer link [15].

(b) Remove the pins [19], washers [18], washers [17], and nuts [16] from the hinge fittings [14].

(c) Remove the washer [12] and washer [13] located on the shank of the eyebolt from the inboard side, under the lug, of the lower stabilizing beam to the outboard side, under the nut [16].

(d) Install the washers [17], washers [18], and nut [16] to the hinge fittings [14].

1) Tighten the nuts [16] to 700 in-lb (79.1 N·m).

2) Increase torque until first slot in the nut [16] aligns with the hinge bolt [5].

3) Make sure that the torque is 920 in-lb (103.9 N·m) or less.

4) Install the pin [19].



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(e) Install the bushing [6] (for the forward hinge [4] only), bolts [5], washers [7], washers [8], and nuts [9] to connect the wing door [11] to the lower stabilizer link [15].

1) Install the pins [10].

SUBTASK 32-13-21-220-001

(5) Make sure that the wing door [11] is still in tolerance (Table 501).

SUBTASK 32-13-21-970-001

(6) If one or more of the measured values are more than the tolerances shown in the chart (Figure 501), convert the measured step (misfair) into a NEV shown in the chart (Figure 501).

(a) Find the NEV for the interface:

1) Add all of the calculated NEV values, both those in tolerance and those that are not in the tolerance and divide the result by the total number of measurements.

NOTE: The result is the NEV for the interface.

2) Example of the NEV calculation:

<Flushness> (Point A: -0.03 in, Point B: 0.04 in, Point C: -0.04 in, Point D: 0.01 in) (NEV'A' + NEV'B' + NEV'C' + NEV'D')/4 =(0.55 + 1.5 + 0.8 + 0.3)/4=0.788 < 1.0 (Within Limit).

(b) Do a check of the NEV result against Net Effect Limit (NEL) for the interface given in the chart (Figure 501).

NOTE: This value is usually 1.0. If the NEV for the interface is less than or equal to the NEL, the interface is aerodynamically acceptable.

(c) If the calculated NEV is more than the NEL (the interface does not meet the aerosmoothness requirements), do the steps that follow:

1) Adjust the length of the pushrods [1] (Figure 502):

a) Loosen the jamnut [2] on the pushrod [1] at either end and turn the pushrod [1] in either direction.

b) After the final adjustment of the pushrod [1], insert a 0.050 in. (1.270 mm) diameter pin or wire into the inspection hole.

c) Make sure the wire that you insert into the inspection hole touches and is stopped by the pushrod [1] end.

NOTE: The wire must be stopped by the pushrod [1] end for the adjustment to be acceptable.

d) Tighten the jamnuts [2] and washers [3].

e) Install the lockwire.

(d) Make sure that the wing door [11] is still in tolerance (Table 501).

1) If it is necessary, re-adjust the pushrods [1] or eyebolts of the hinge fittings [14].

## F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-13-21-840-003

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-13-21-580-001

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



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**(CAUTION PRECEDES)**

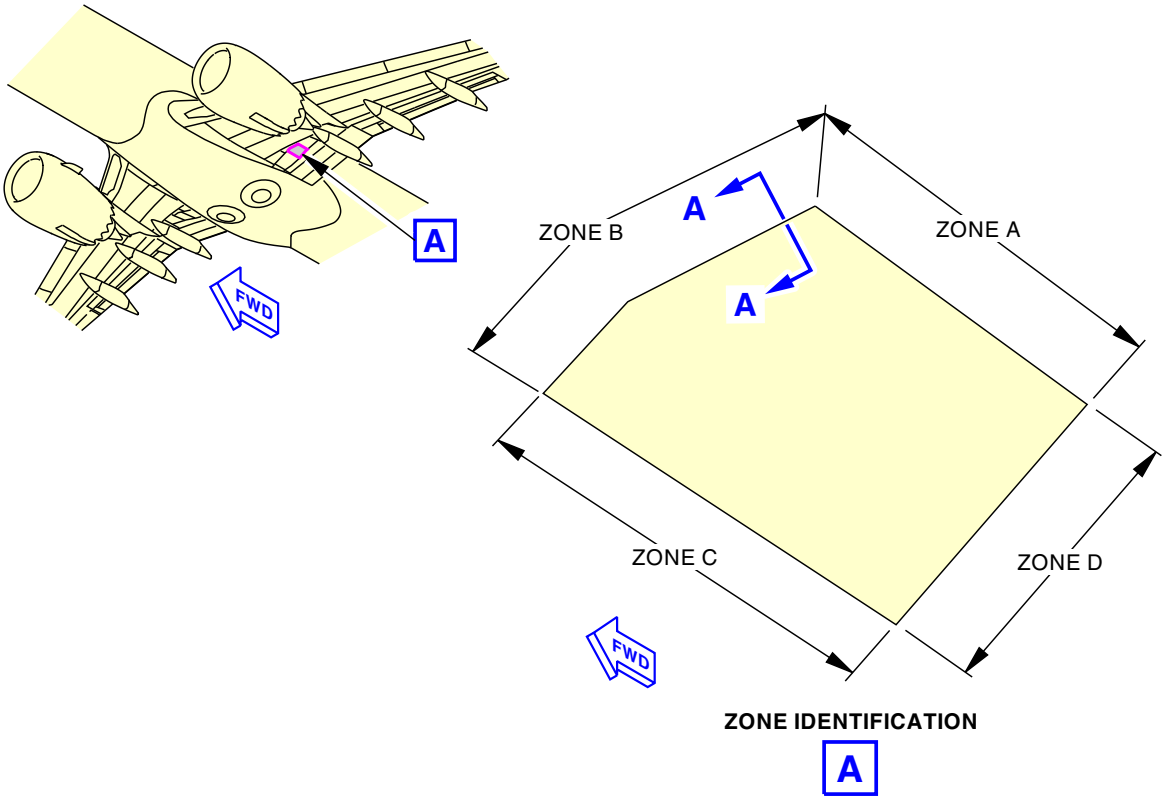
| | |
|---|---|
| **CAUTION** | MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR. |

(2) To lower the airplane and remove the jacks, do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**——— END OF TASK ———**

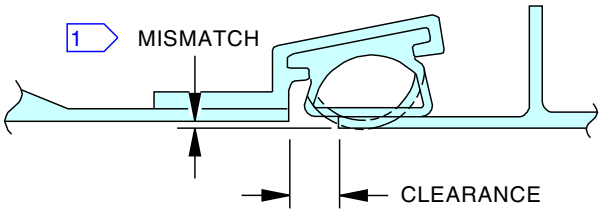


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**ZONE IDENTIFICATION**

**A**




**ZONE B**
**(ALL OTHER ZONES ARE EQUIVALENT)**

**A-A**

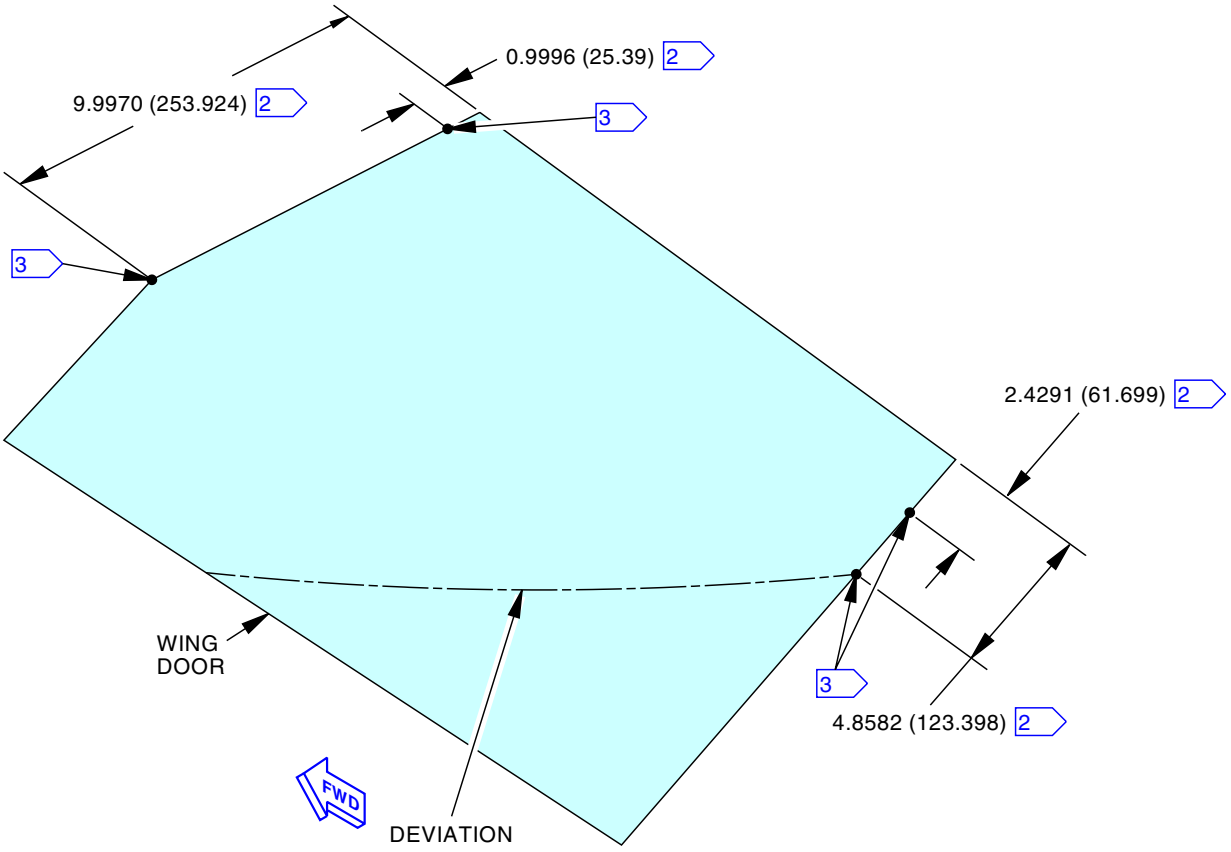
1 A POSITIVE TOLERANCE (+) INDICATES THE FACE OF THE MISMATCH IS FORWARD (INTO THE AIRSTREAM). A NEGATIVE TOLERANCE (-) INDICATES THE FACE OF THE MISMATCH FACES AFT.

2414144 S00061534490_V1

**Main Landing Gear Wing Door Fit Tolerances**
**Figure 501/32-13-21-990-802 (Sheet 1 of 3)**



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**MAIN LANDING GEAR WING DOOR DIMENSIONAL TOLERANCES**

**A**

**NOTE:**

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).

2 THE DIMENSIONAL TOLERANCE IS ±0.5000 INCH (12.7 mm).

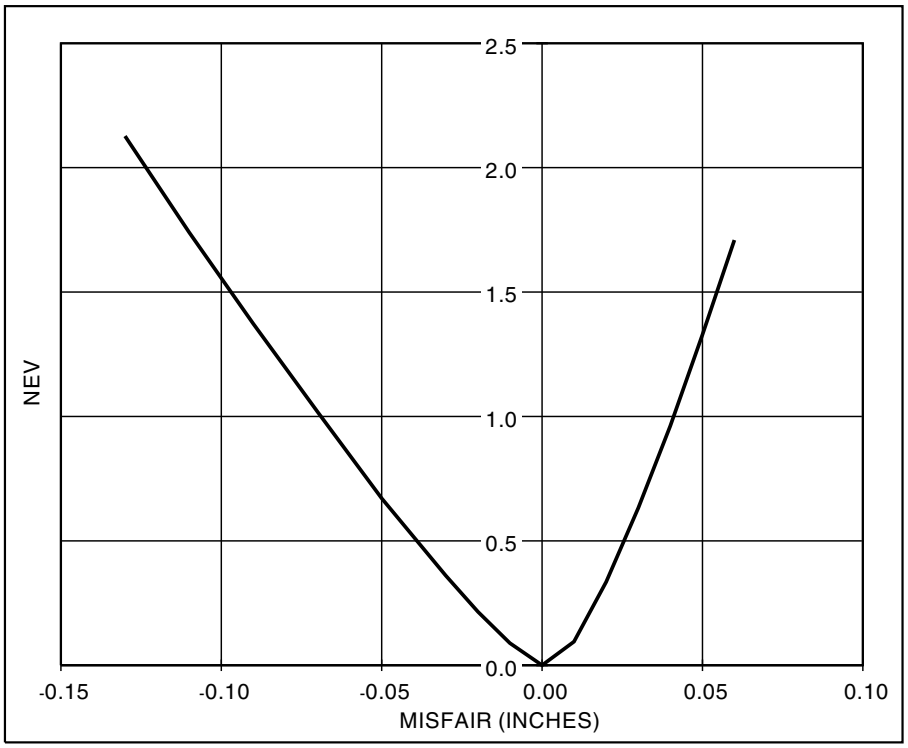
3 KEY MISFAIR INSPECTION POINTS.

2784082 S0000631550_V2

**Main Landing Gear Wing Door Fit Tolerances**
**Figure 501/32-13-21-990-802 (Sheet 2 of 3)**



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| MISFAIR | NEV |
|---|---|
| -0.130 | 2.127 |
| -0.110 | 1.741 |
| -0.090 | 1.373 |
| -0.070 | 1.019 |
| -0.050 | 0.671 |
| -0.030 | 0.361 |
| -0.020 | 0.215 |
| -0.010 | 0.089 |
| 0.000 | 0.000 |
| 0.010 | 0.095 |
| 0.020 | 0.335 |
| 0.030 | 0.633 |
| 0.040 | 0.962 |
| 0.050 | 1.329 |
| 0.060 | 1.709 |

4

**MAIN LANDING GEAR WING DOOR NET EFFECT VALUE CHART**

**NOTE:**

THE NET EFFECT LIMIT (NEL) FOR THIS ITEM IS 1.0.

IF ALL MEASURED STEP VALUES FOR THIS ITEM ARE BETWEEN-0.041 AND -0.069 THEN PASSAGE OF NEL IS ASSURED AND AN ACTUAL NEL CALCULATION IS NOT REQUIRED.

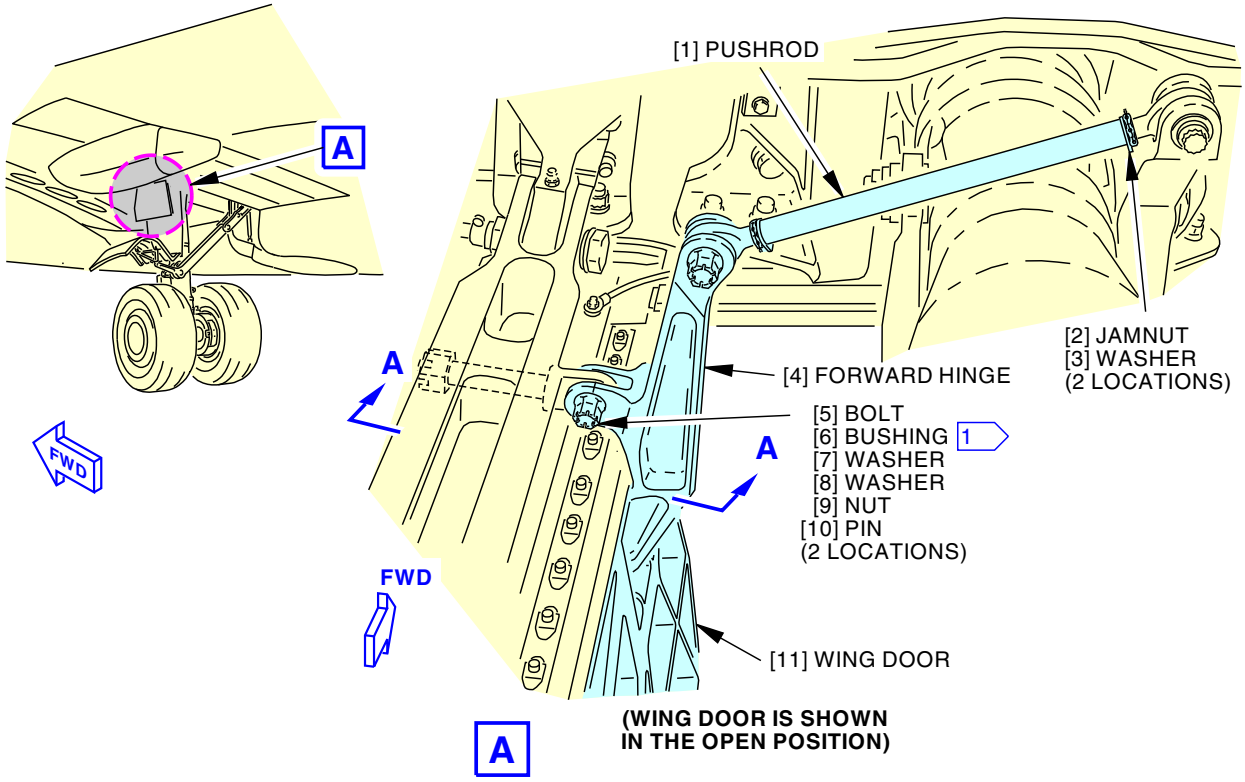
4 NEV OF 1.0 CORRESPONDS TO MISFAIR OF 0.041 AND -0.069.

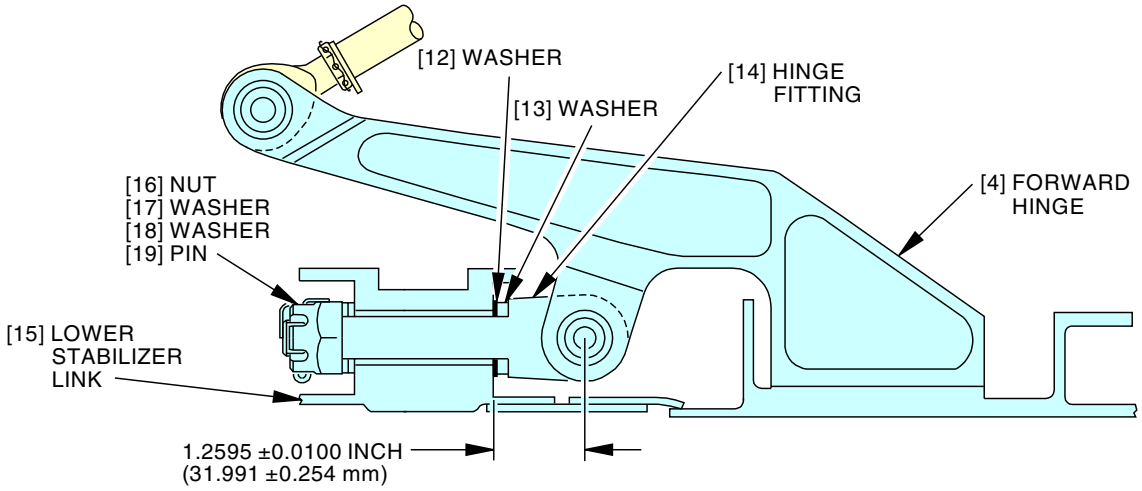
2840917 S0000662597_V1

**Main Landing Gear Wing Door Fit Tolerances**
**Figure 501/32-13-21-990-802 (Sheet 3 of 3)**



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**FORWARD CONNECTION IS SHOWN**
**(AFT CONNECTION IS EQUIVALENT)**

**A-A**

1 ON FORWARD HINGE ONLY.

2414147 S00061534493_V3

**Main Landing Gear Wing Door Adjustment**
**Figure 502/32-13-21-990-803**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## NOSE LANDING GEAR - MAINTENANCE PRACTICES

### 1. General

A. This procedure contains these tasks:

(1) The removal of the gas charging valve on the shock strut of the nose landing gear.

(2) The installation of the gas charging valve on the shock strut of the nose landing gear.

(3) The removal of the oil charging valve on the shock strut of the nose landing gear.

(4) The installation of the oil charging valve on the shock strut of the nose landing gear.

B. The gas charging valve is on the top of the shock strut of the nose landing gear. The gas charging valve is on the center of the top of the shock strut.

**TASK 32-21-00-000-801**

### 2. Nose Landing Gear Gas Charging Valve Removal

(Figure 201)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

#### C. Prepare for the Removal

**SUBTASK 32-21-00-860-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-21-00-860-002**

(2) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-21-00-860-003**

(3) Make sure that there is no pressure in the hydraulic systems A and B (TASK 29-11-00-860-805).

#### D. Nose Landing Gear Gas Charging Valve Removal

**SUBTASK 32-21-00-630-001**

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(1) Deflate the shock strut [1] for the nose landing gear fully:

(a) Remove the lockwire [6] from the gas charging valve [4] and the shock strut [1].



ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Discard the lockwire [6].

(b) Remove the dust cap [2] for the gas charging valve [4].

(c) Loosen the swivel nut [3] of the gas charging valve [4] for a maximum of two turns.

NOTE: Fluid in the shock strut [1] will have bubbles when you release the pressure.

1) Deflate the shock strut [1] slowly to prevent the leakage of the fluid through the gas charging valve [4].

(d) Loosen the swivel nut [3] of the gas charging valve [4] fully when all of the pressure in the shock strut [1] is released.

**SUBTASK 32-21-00-020-001**

(2) Remove the gas charging valve [4].

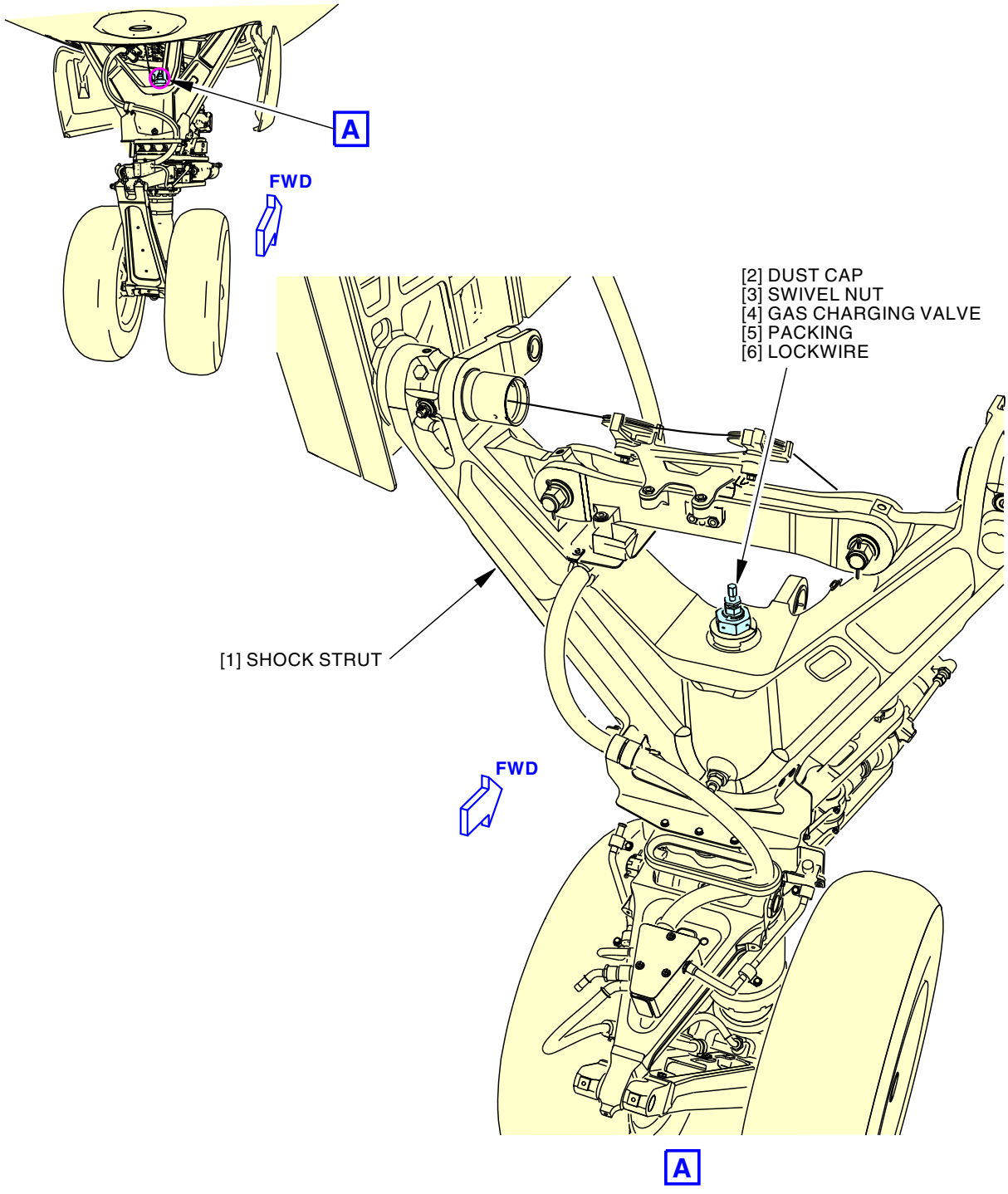
(a) Remove the packing [5] from the gas charging valve [4].

(b) Discard the packing [5].

**——— END OF TASK ———**



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**Nose Landing Gear Gas Charging Valve**
**Figure 201/32-21-00-990-801**



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**TASK 32-21-00-400-801**

## 3. Nose Landing Gear Gas Charging Valve Installation

(Figure 201)

### A. References

| Reference | Title |
|---|---|
| 12-15-41-610-801 | Nose Landing Gear Shock Strut Fluid Check (P/B 301) |
| 24-22-00-860-804 | Remove External Power (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| D50022 | Fluid - Landing Gear Shock Strut (Specifically For Preservation) | BMS3-32 Type I |
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Gas charging valve | 32-21-00-01-360 | SIA ALL |
| 5 | Packing | 32-21-00-01-170 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

### E. Nose Landing Gear Gas Charging Valve Installation

**SUBTASK 32-21-00-600-001**

(1) To install the new packing [5] on the gas charging valve [4], do these steps.

(a) Lubricate the new packing [5] with fluid, D00467, or fluid, D50022.

(b) Lubricate the surface of the gas charging valve [4] which the packing slides against with fluid, D00467, or fluid, D50022.

(c) Install the new packing [5] on the gas charging valve [4].

**SUBTASK 32-21-00-600-002**

(2) Lubricate the threads of the gas charging valve [4] with the fluid for the shock strut [1].

(a) Refer to Nose Landing Gear Shock Strut Fluid Check, TASK 12-15-41-610-801 for the fluid.

**SUBTASK 32-21-00-420-001**

(3) Install the gas charging valve [4] on the shock strut [1].

NOTE: The dust cap [2] and the swivel nut [3] of the gas charging valve [4] are installed when the shock strut [1] is serviced.

(a) Tighten the body of the gas charging valve [4] to 12 ±1 ft-lb (16 ±2 N·m).

(b) Install MS20995C32 lockwire, G01048, on the gas charging valve [4] and the shock strut [1] with the double twist method.

(c) Apply compound, A00226, on the gas charging valve [4] and the shock strut [1].

NOTE: This will make sure that the seal made by the compound, A00226, will break if the body of the gas charging valve [4] is loosened.



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SUBTASK 32-21-00-610-001

(4) Service the shock strut [1] (TASK 12-15-41-610-801).

**F. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-21-00-860-007

(1) If electrical power is not necessary, do this task: Remove External Power, TASK 24-22-00-860-804.

**——— END OF TASK ———**

**TASK 32-21-00-000-803**

**4. Nose Landing Gear Oil Charging Valve Removal**

(Figure 202)

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1829 | Valve - Drain, Landing Gear Shock Strut Oil<br>Part #: J32108-16 Supplier: 81205<br>Opt Part #: A32066-1 Supplier: 81205 |
| STD-1110 | Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter) |
| STD-1140 | Hose - Flexible, 1/2 Inch ID, BMS 3-11 Resistant, 10 Foot |

**C. Location Zones**

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

**D. Prepare for the Removal**

SUBTASK 32-21-00-800-001

**CAUTION** DO NOT DEFLATE OR SERVICE THE SHOCK STRUTS WHILE THE TAIL STAND IS INSTALLED. IF YOU DEFLATE OR SERVICE THE SHOCK STRUTS, THE LOAD ON THE TAIL STAND CAN BE TOO LARGE. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(1) Do not deflate or service the shock struts while the tail stand is installed.

SUBTASK 32-21-00-480-016

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).



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SUBTASK 32-21-00-860-028

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-21-00-860-020

(4) Make sure that there is no pressure in the hydraulic systems A and B (TASK 29-11-00-860-805).

## E. Nose Landing Gear Oil Charging Valve Removal

SUBTASK 32-21-00-020-018

**WARNING** CLEAR THE AREA BELOW THE NOSE BEFORE YOU DEFLATE THE SHOCK STRUT. IF YOU DEFLATE SHOCK STRUT, THE NOSE CAN MOVE DOWN AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(1) Deflate the shock strut [1] for the nose landing gear fully:

(a) Remove the dust cap [2] for the gas charging valve [4].

(b) Loosen the swivel nut [3] a maximum of two turns.

NOTE: Fluid in the shock strut [1] can have bubbles when you release the pressure. Deflate the shock strut slowly to prevent the leakage of the fluid through the gas charging valve [4].

(c) Loosen the swivel nut [3] fully when all of the pressure in the shock strut [1] is released.

NOTE: The shock strut [1] is fully deflated when the dimension from the lower surface of the lower steering plate to the upper surface of the tow fitting lug is 13.8 in. (351 mm).

SUBTASK 32-21-00-680-001

(2) Drain the oil from the shock strut [1]:

(a) Remove the cap assembly [8] from the oil charging valve [9].

(b) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110 in a position to catch the oil when the oil charging valve [9] is opened.

(c) Install the drain equipment on the oil charging valve [9]:

NOTE: The tool, landing gear shock strut drain valve, SPL-1829, could also be used, but it will take much longer to drain the shock strut.

1) Cut a length of ten foot hose (1/2 inch ID), STD-1140, long enough to reach the container on the floor.

2) Insert a small allen wrench in the end of the cut length of tubing so that the long end of the allen wrench is flush with the end of the tube and the short end goes through the wall of the tube.

3) Install the cut length of tubing onto the oil charging valve [9] so that the allen wrench goes into the check valve and holds it open to drain the oil.

(d) Remove the drain equipment when you have removed all of the oil.

SUBTASK 32-21-00-020-019

(3) Remove the oil charging valve [9] as follows:



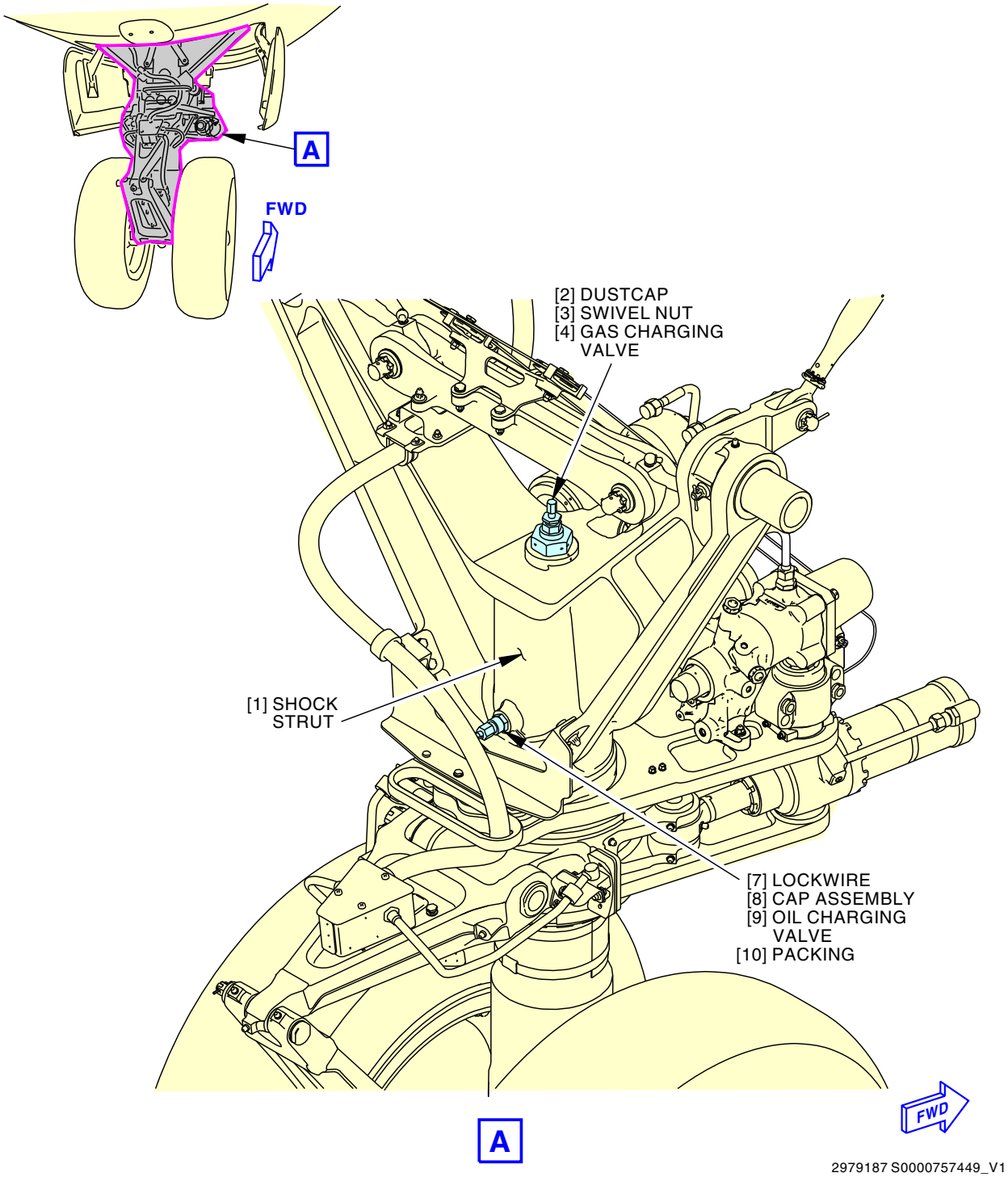
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(a) Remove the lockwire [7] from the oil charging valve [9].
    1) Discard the lockwire [7].
(b) Remove the oil charging valve [9].
(c) Remove the packing [10] from the oil charging valve [9].
    1) Discard the packing [10].

**——— END OF TASK ———**



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**Nose Landing Gear Oil Charging Valve Installation**
**Figure 202/32-21-00-990-809**



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**TASK 32-21-00-400-803**

## 5. Nose Landing Gear Oil Charging Valve Installation

(Figure 202)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 24-22-00-860-802 | Remove Electrical Power (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 9 | Oil charging valve | 32-21-00-01-035 | SIA ALL |
| 10 | Packing | 32-21-00-01-030 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

### E. Prepare for the Installation

**SUBTASK 32-21-00-480-017**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-21-00-860-023**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

### F. Nose Landing Gear Oil Charging Valve Installation

**SUBTASK 32-21-00-420-019**

(1) To install the new packing [10] on the oil charging valve [9], do these steps:

(a) Lubricate the new packing [10] with the fluid for the shock strut [1].

1) Refer to Nose Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-41-610-802 for the fluid.

(b) Lubricate the surface of the oil charging valve [9] which the packing slides against with the fluid for the shock strut [1].

1) Refer to Nose Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-41-610-802 for the fluid.



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(c) Install the new packing [10] on the oil charging valve [9].

SUBTASK 32-21-00-640-005

(2) Lubricate the threads of the oil charging valve [9] with the fluid for the shock strut [1].

(a) Refer to Nose Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-41-610-802 for the fluid.

SUBTASK 32-21-00-420-021

(3) Install the oil charging valve [9] on the shock strut [1].

NOTE: The cap assembly [8] is installed when the shock strut [1] is serviced.

(a) Torque the body of the oil charging valve [9] to 22 ft-lb (30 N·m) – 25 ft-lb (34 N·m).

(b) Install the lockwire [7] (MS20995C32 lockwire, G01048) on the oil charging valve [9] and the shock strut [1] using the double twist method.

(c) Apply compound, A00226 to oil charging valve [9] and the shock strut [1].

NOTE: This will make sure that the seal made by the compound, A00226, will break if the body of the oil charging valve [9] is loosened.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-21-00-600-003

(1) Service the shock strut [1], do this task: Nose Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-41-610-802.

SUBTASK 32-21-00-860-026

(2) If electrical power is not necessary, do this task: Remove Electrical Power, TASK 24-22-00-860-802.

SUBTASK 32-21-00-860-027

(3) Remove the downlock pins, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

——— END OF TASK ———



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## NOSE LANDING GEAR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the nose landing gear

(2) An installation of the nose landing gear.

**TASK 32-21-00-000-802**

### 2. Nose Landing Gear Removal

(Figure 401, Figure 402)

NOTE: This procedure is a scheduled maintenance task.

#### A. References

| Reference | Title |
|---|---|
| 07-10-03 P/B 201 | JACK AIRPLANE AXLES - MAINTENANCE PRACTICES |
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-45-21-000-801 | Nose Landing Gear Wheel and Tire Assembly Removal (P/B 401) |
| 32-51-00-820-801 | General Check of the Nose Wheel Steering System Adjustment (P/B 501) |
| 32-51-31-000-802 | Nose Gear Steering System Cables Removal (P/B 401) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-4938 | Insertion/Removal - contact (size 16, backshell side)<br>Part #: M81969/1-03 Supplier: 11139<br>Part #: M81969/14-03 Supplier: 11139 |
| SPL-1821 | Adjustable Spanner Wrench (0.75 to 2.00 Inch Dia. Retainer, 0.12 x 0.12 Key Arm)<br>Part #: F72959-40 Supplier: 81205<br>Opt Part #: F72959-4 Supplier: 81205 |
| SPL-1871 | Strap - Retention, NLG/MLG Inner Cylinder<br>Part #: C32030 -31 Supplier: 81205<br>Opt Part #: C32030-10 Supplier: 81205 |
| SPL-10305 | Outrigger Equipment - Nose Landing Gear Installation/Removal<br>Part #: C32049-1 Supplier: 81205 |


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| Reference | Description |
|---|---|
| SPL-14481 | R/I Equipment - Trunnion Pin, NLG (Alignment Pin Assy is included in kit)<br>Part #: C32054-1 Supplier: 81205 |
| STD-837 | String |
| STD-6545 | Rope - Nylon |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |
| STD-15079 | R/I Equipment - Trunnion Pin, NLG (Note: C32054-3 Slide Hammer Assembly is included in SPL-14481 kit) |
| STD-15082 | R/I Equipment - Trunnion Pin, NLG (Note: C32054-7 Puller Pin Assembly is included in SPL-14481 kit) |
| STD-15083 | R/I Equipment - Trunnion Pin, NLG (Note: C32054-8 Cross Pin is included in SPL-14481 kit) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| G50980 | Tape - 3M Scotch 811 Removable Tape | |

**D. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 713 | Nose Landing Gear |

**E. Access Panels**

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |

**F. Prepare for the Removal**

SUBTASK 32-21-00-480-012

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-21-00-860-008

(2) For hydraulic system A, make sure that the hydraulic power is removed (TASK 29-11-00-860-805).

SUBTASK 32-21-00-860-009

(3) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |


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(Continued)

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

**SUBTASK 32-21-00-020-002**

(4) Disconnect the nwsa/nwsb cables [49] (TASK 32-51-31-000-802).

(a) Install the rig pin NS10 in the drum for the First Officer's control wheel (TASK 32-51-00-820-801).

(b) Install the rig pin NS2 in the drum for the Captain's control wheel (TASK 32-51-00-820-801).

(c) To get access to the cable turnbuckle [1], do this step:

1) Open this access panel:

(Nose Wheel Well Access Panels Removal, TASK 53-14-01-020-801)

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |

(d) Remove the locking clip [2] for the cable turnbuckle [1] (View B, Figure 401).

(e) Loosen the tension at the cable turnbuckle [1].

(f) Disconnect the nwsa/nwsb cables [49] at the cable turnbuckle [1] (View K, Figure 401).

(g) Remove the bolts [88], washers [89], and pulleys [87] from the bracket that is outboard of the left trunnion pin [63].

1) Remove the nwsa/nwsb cables [49] from the guard [90] and grooves of the pulleys [87].

**SUBTASK 32-21-00-020-003**

(5) Disconnect the conduit [4] from the junction box [5].

(a) Remove the lockwire on the conduit [4] and to the junction box [5].

(b) Disconnect the conduit [4] from the junction box [5].

(c) Remove the screws [10] and washers [3] for the junction box cover [9] (View C, Figure 401).

(d) Disconnect the plug [6] from the connector on the wheel well overhead (View D, Figure 401).

(e) Identify the wires in the plug [6] that go to the landing gear and label them or make a drawing to be used during installation.

(f) Use a contact insertion / removal, COM-4938, tool to remove the wires from the plug [6].

(g) Attach a string, STD-837, long enough to feed through the rigid conduit [7] to the junction box [5], to each wire removed from the plug [6].

(h) Pull the wires through to the junction box [5].

1) Do not pull the string, STD-837, all the way through the conduit.

NOTE: It will be more easier to re-insert the wires later.



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(i) Untie the string, STD-837, from the wires and leave hanging.

SUBTASK 32-21-00-020-020

(6) To disconnect the down lock sensor plug [80] and rigid conduit [81] from the wheel well, do these steps:

(a) Disconnect the plug [80] from the connector on the wheel well wall (View M, Figure 401).

(b) Remove the screws [82] and the clamps [83].

(c) Remove the screws [84], washers [85] and clamp [86].

(d) Remove the rigid conduit [81] from the clamps [83] and clamp [86].

(e) Install a protective cap on the plug [80].

## G. Nose Landing Gear Removal

SUBTASK 32-21-00-020-004

(1) Disconnect all of the hydraulic lines [25] (View F, Figure 401).

(a) Loosen the swivel nut to disconnect each hydraulic line [25] from the swivel [24].

(b) Put caps/plugs, STD-14686, on the hydraulic lines [25].

(c) Install caps/plugs, STD-14686, on each of the hydraulic ports of the swivel [24].

(d) Attach tags to identify the swivel port and hydraulic lines [25] to prevent the crossing of the lines during the installation.

SUBTASK 32-21-00-020-005

(2) Disconnect the right upper rod assembly [26] (View G, Figure 401).

(a) Remove the pin [31], nut [32], and washer [30].

(b) Remove the bolt [27], washer [28], and bushing [29] from the clevis of the right trunnion [23].

(c) Use a nylon rope, STD-6545, to hold the upper rod assembly [26] away from the work area.

SUBTASK 32-21-00-020-006

(3) Disconnect the left upper rod assembly [41] (View I, Figure 401).

(a) Remove the pin [43], nut [42], and washer [44].

(b) Remove the bolt [47], washer [46], and bushing [45] from the clevis of the left trunnion [40].

(c) Use a nylon rope, STD-6545, to hold the upper rod assembly [41] away from the work area.

SUBTASK 32-21-00-020-007

(4) Remove each pulley [50] (View J, Figure 401).

(a) Remove the nut [52] and washer [53] from the bolt [55].

(b) Remove the bolt [55] and washer [48] that hold the pulley [50] from the bracket [51].

(c) Remove the washer [48] from the bolt [55].

(d) Remove the pulley [50] from the bracket [51].

(e) Remove the nwsa/nwsb cables [49] from the groove of the pulley [50].

SUBTASK 32-21-00-020-016

(5) Remove the bracket [51] (View J, Figure 401).

(a) Remove the bolts [75], washers [76], and nuts [77].



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SUBTASK 32-21-00-020-008

(6) Remove the seal [65] (View K, Figure 401).

(a) Remove the lockwire from the screw [58] and lock [57].

(b) Remove the screw [58] that holds the lock [57] to the left trunnion pin [63].

(c) Remove the lock [57] from the left trunnion pin [63].

(d) Use spanner wrench, SPL-1821 (face lug adapter), to remove the trunnion pin nut [68] from the left trunnion pin [63].

(e) Pull the seal ring [69] and seal [65] from the left trunnion pin [63].

1) If it is difficult to pull the seal [65], hold the eyebolt [67] and pull the seal [65] out of the left trunnion pin [63].

(f) Remove the nut [64], washer [56], and inboard retainer [66] from the eyebolt [67].

(g) Remove the eyebolt [67] from the left trunnion pin [63].

(h) Remove the outboard retainer [66] from the eyebolt [67].

(i) Isolate the segments of the seal [65] from the nwsa/nwsb cables [49].

(j) Pull the nwsa/nwsb cables [49] from the trunnion pin nut [68], seal ring [69], and left trunnion pin [63].

(k) Attach identification tags to the nwsa/nwsb cables [49].

(l) Wind the nwsa/nwsb cables [49] into a coil and attach them to the trunnion of the gear with Scotch 811 removable tape, G50980.

SUBTASK 32-21-00-020-009

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(7) Deflate the shock strut [17] (View E, Figure 401).

(a) Remove the dust cap [14] for the gas charging valve [16].

(b) Loosen the swivel nut [15] a maximum of two turns.

(c) Deflate the shock strut slowly to prevent the leakage of the fluid through the gas valve.

NOTE: Fluid in the shock strut will have bubbles when the pressure is released.

(d) Loosen the swivel nut [15] fully when all of the pressure in the shock strut [17] is released.

SUBTASK 32-21-00-480-002

(8) Install the retention strap, SPL-1871, with the marker facing up to hold the shock strut [17] in its compressed position.

SUBTASK 32-21-00-580-001

(9) Lift the airplane nose (TASK 07-10-21-580-801).

(a) Make sure that the chocks are installed at the main landing gear after the nose landing gear is lifted.

SUBTASK 32-21-00-020-010

(10) Remove the nose gear wheel and tire assembly (TASK 32-45-21-000-801).

NOTE: If the Outrigger R/I Equipment, SPL-10305, will be used, the wheel and tire assembly must not be removed from the nose gear.



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SUBTASK 32-21-00-020-011

(11) Disconnect the lower drag strut [19] (View E, Figure 401).

(a) Remove the pin [11], nut [22], washer [21], and bolt [13] from the pin [18].

(b) Remove the nut [12] and washer [20] from the pin [18].

(c) Hold the lower drag strut [19] in position and remove the pin [18].

(d) Use a nylon rope, STD-6545, to hold the lower drag strut [19] away from the work area.

NOTE: When the pin is removed the lower drag strut will move forward.

SUBTASK 32-21-00-580-002

(12) If it is necessary, lift the gear with an axle jack to reduce the weight of the gear when the left trunnion pin [63] and right trunnion pin [37] are removed (TASK 07-10-03-580-803).

SUBTASK 32-21-00-020-012

(13) Remove the right trunnion pin [37] (View H, Figure 401).

(a) Remove the pin [35], nut [36], washer [34], and bolt [33].

(b) Remove the swivel [24] from the right trunnion pin [37].

(c) Use the nose landing gear trunnion pin alignment pin assembly, SPL-14481, puller pin assembly, STD-15082, slide hammer assembly, STD-15079, and cross pin, STD-15083, to remove the right trunnion pin [37] from the right trunnion [23].

1) Make sure that the spacer [39] is caught that is between the sidewall of the nose wheel well and right trunnion [23].

(d) Discard the O-ring [74].

SUBTASK 32-21-00-020-013

(14) Remove the left trunnion pin [63] (Figure 402).

(a) Remove the pin [59], nut [60], washer [78], and bolt [62] (View K, Figure 401).

(b) Use the nose landing gear trunnion pin alignment pin assembly, SPL-14481, puller pin assembly, STD-15082, slide hammer assembly, STD-15079, and cross pin, STD-15083, to remove the left trunnion pin [63] from the left trunnion [40].

1) Make sure that the spacer [71] is caught that is between the sidewall of the nose wheel well and left trunnion [40] (View L, Figure 401).

(c) Remove the cable guard [70] from the left trunnion pin [63].

(d) Discard the O-ring [74].

SUBTASK 32-21-00-860-010

(15) Measure the thickness of the spacer [39] and spacer [71] that were between the sidewalls of the wheel well and nose landing gear trunnion.

NOTE: The thickness of the washer stacks are special for each airplane.

(a) Make a record of the measurement of the washer stack for use when the washer stack is installed.

SUBTASK 32-21-00-020-014

(16) Remove the nose landing gear from the airplane.

(a) Move the nose landing gear forward in the wheel well.

(b) Turn the gear approximately 90 degrees such that it is clear of the wheel well sidewalls and nose wheel well doors.

(c) Lower the nose landing gear at point E until it clears the nose wheel well (PAGEBLOCK 07-10-03/201).



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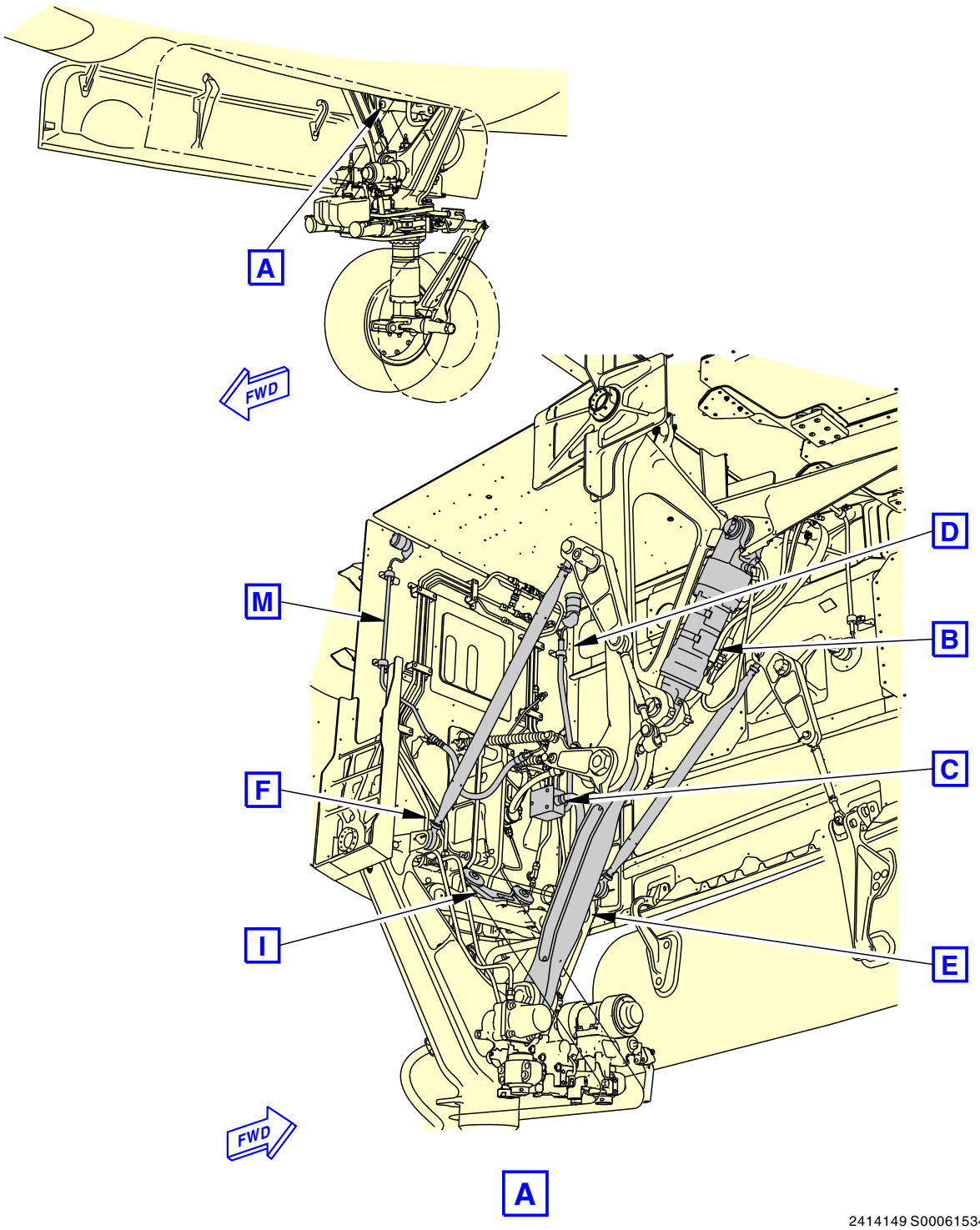
(d) If it is necessary, use a dolly or the Outrigger R/I Equipment, SPL-10305, to transport the nose landing gear.

1) When the Outrigger R/I Equipment, SPL-10305, is installed and will be left unattended, chock the nose landing gear tires and lock the caster brake (PAGEBLOCK 10-11-05/201).

**——— END OF TASK ———**



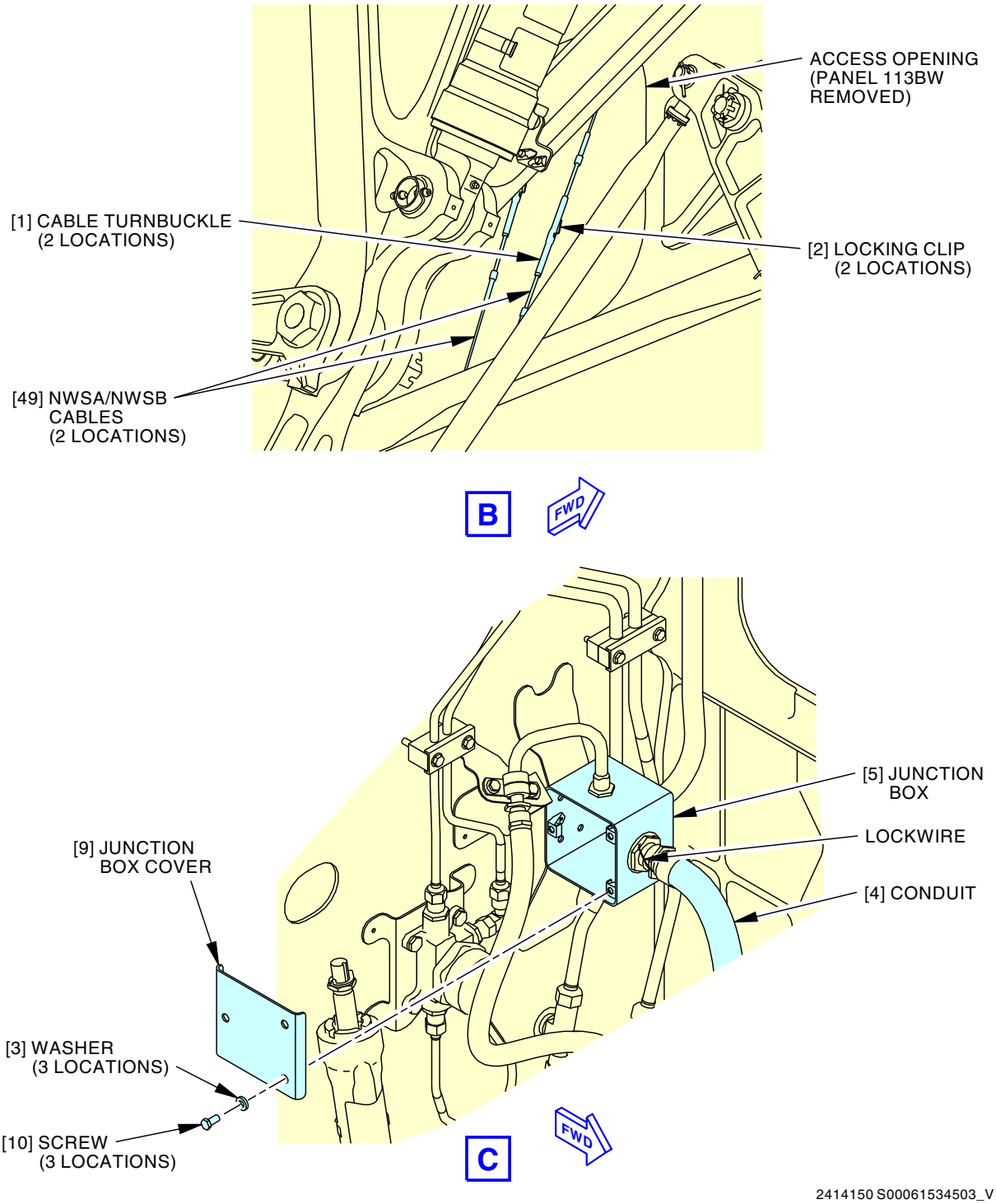
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Installation**
**Figure 401/32-21-00-990-802 (Sheet 1 of 9)**



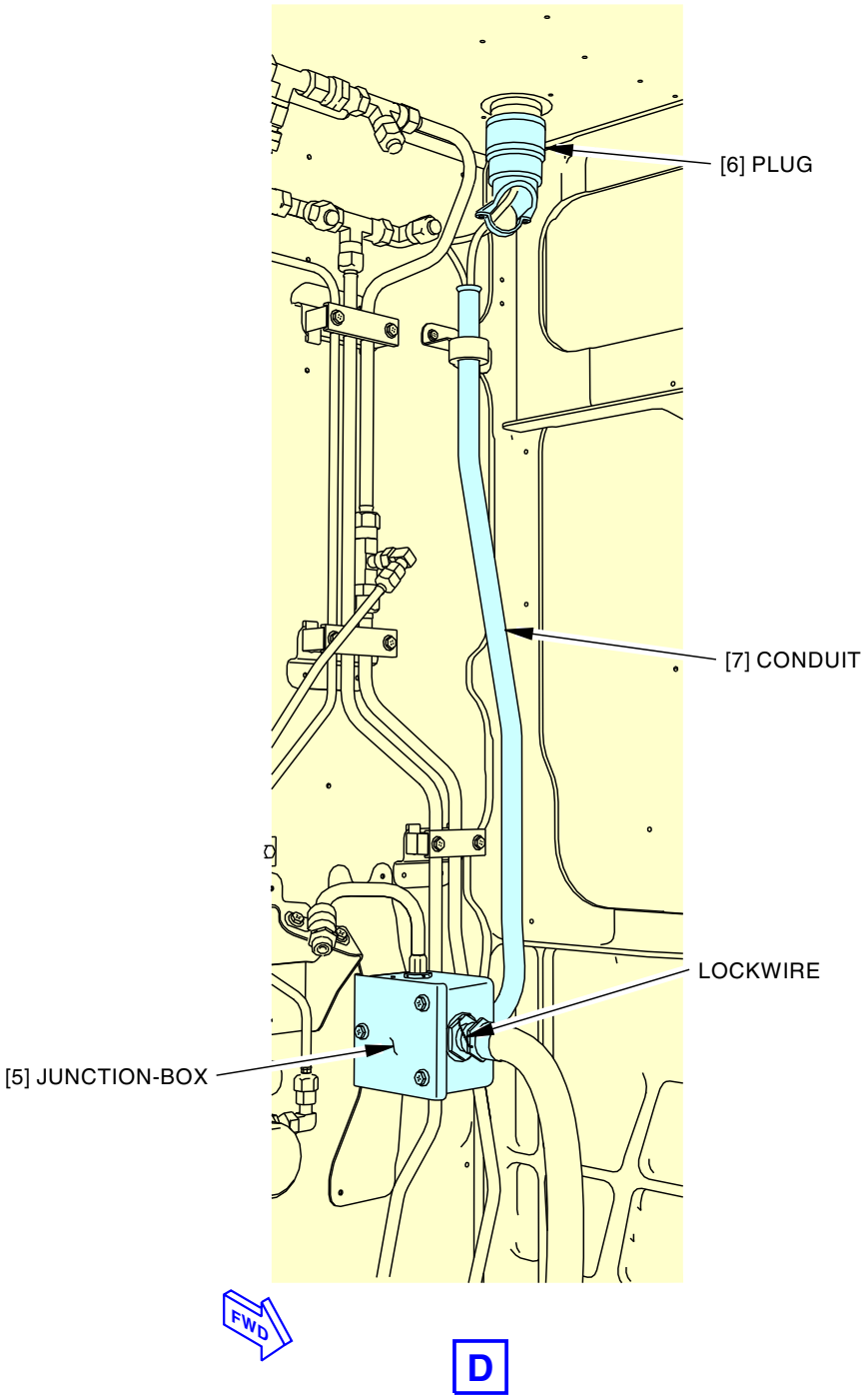
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Installation**
**Figure 401/32-21-00-990-802 (Sheet 2 of 9)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

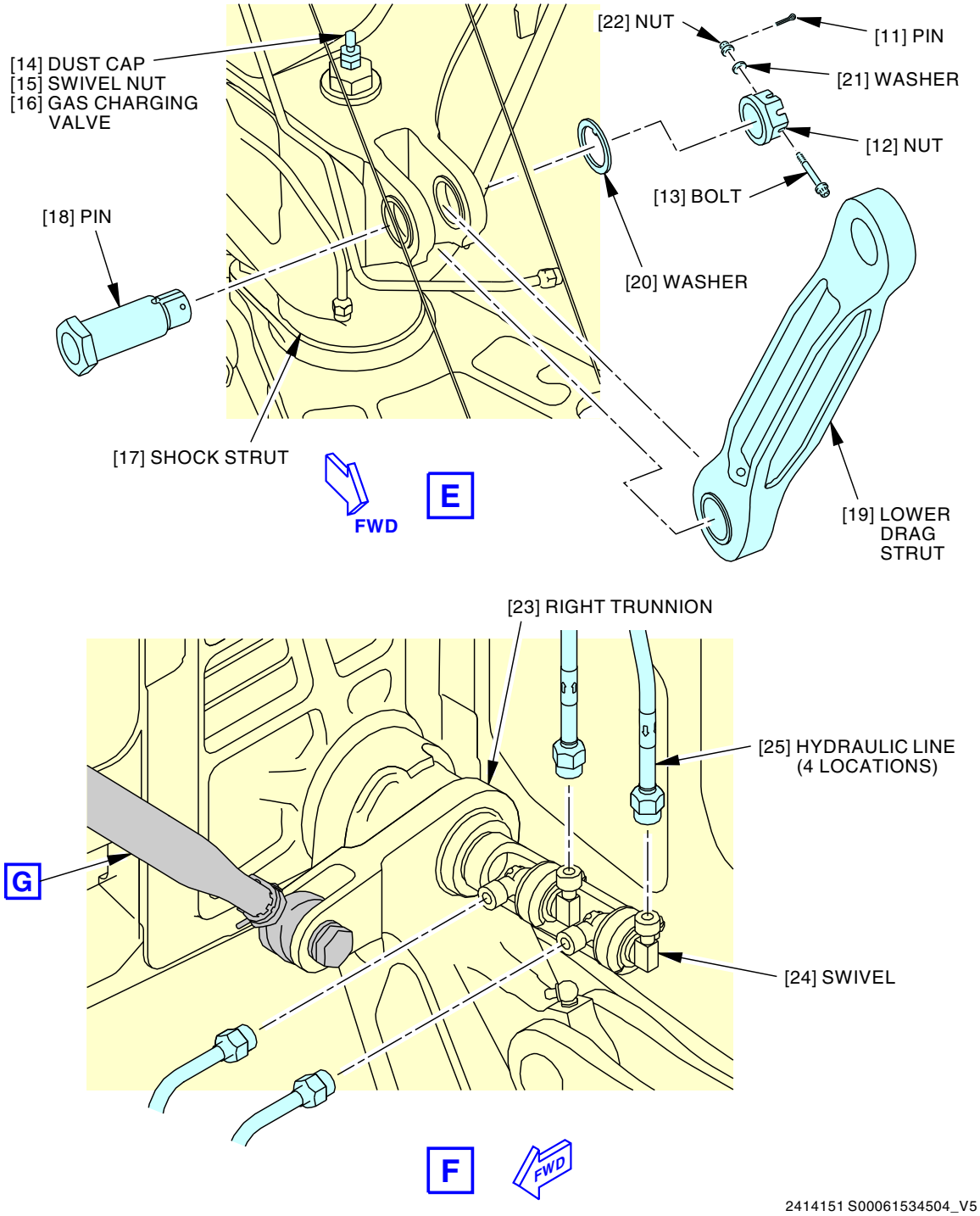



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**Nose Landing Gear Installation**
**Figure 401/32-21-00-990-802 (Sheet 3 of 9)**



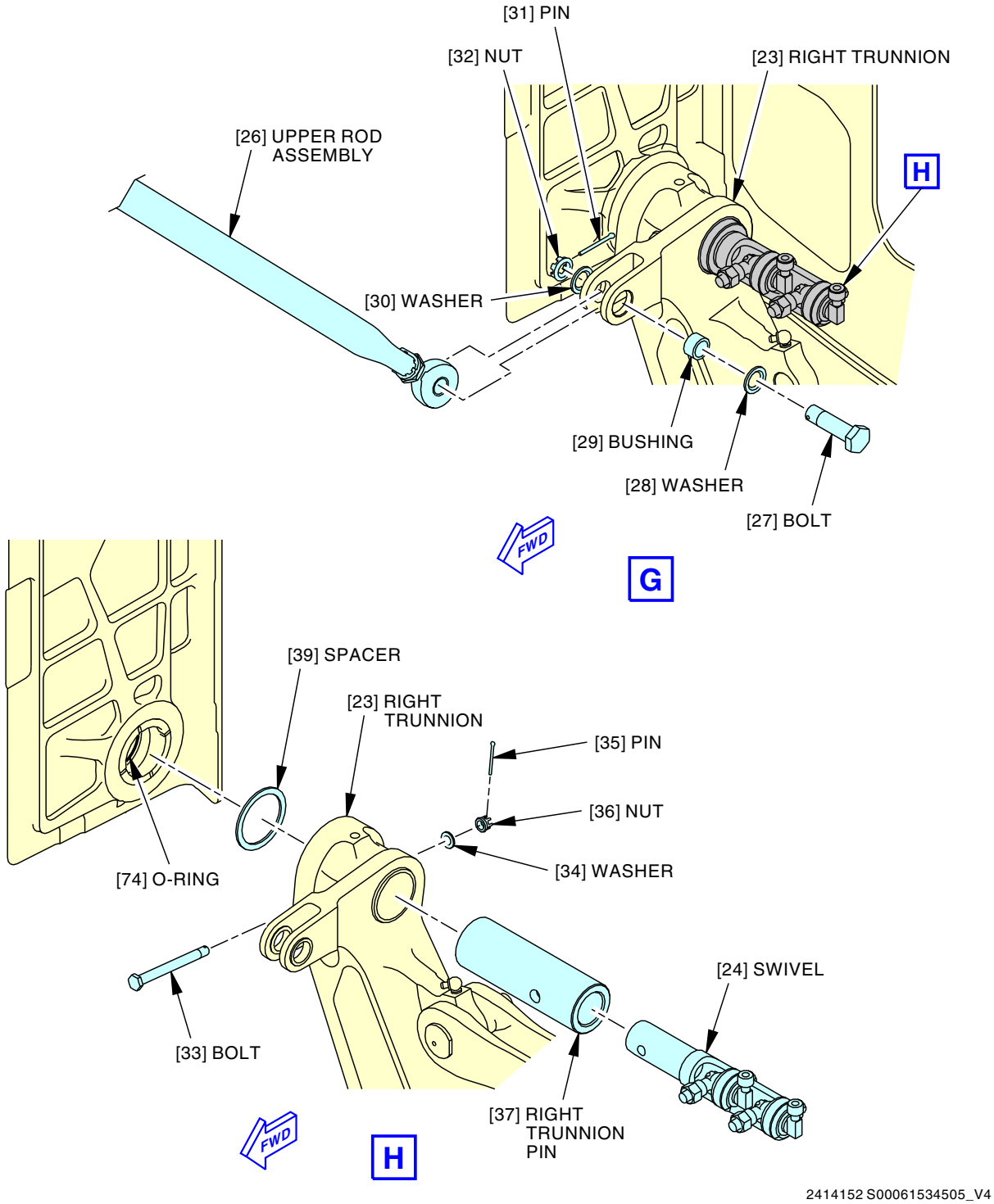
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Installation**
**Figure 401/32-21-00-990-802 (Sheet 4 of 9)**



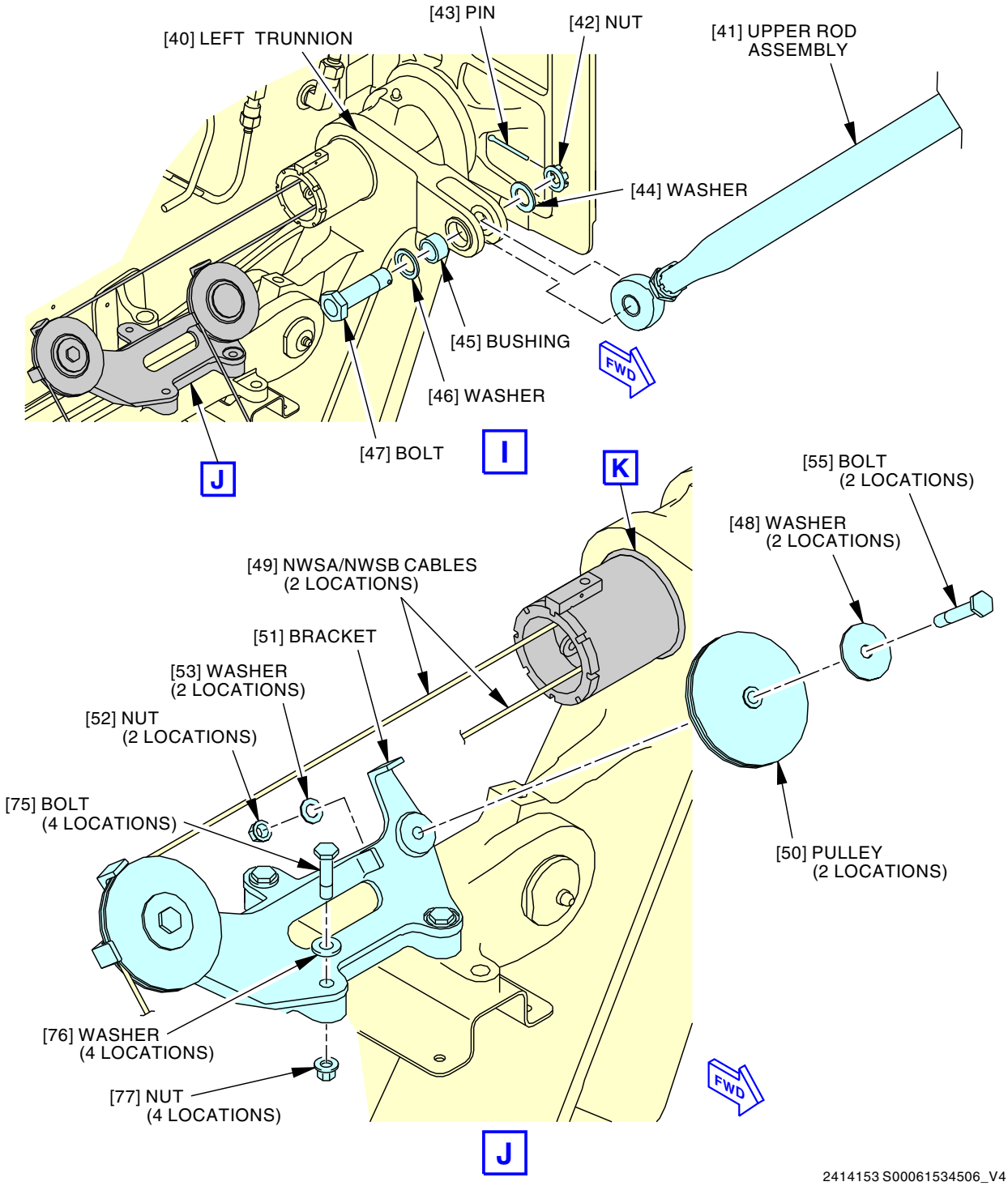
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Installation**
**Figure 401/32-21-00-990-802 (Sheet 5 of 9)**



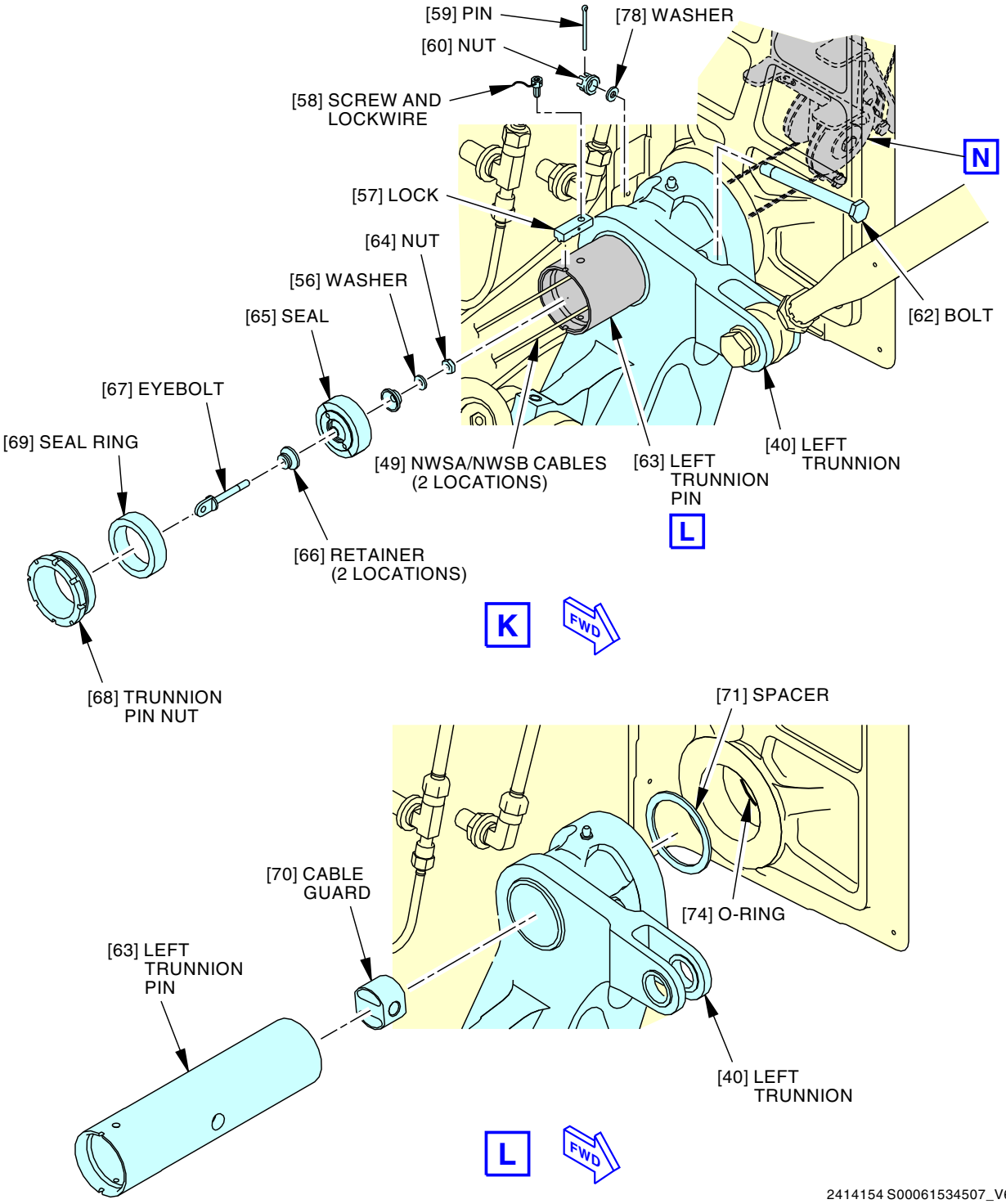
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Installation**
**Figure 401/32-21-00-990-802 (Sheet 6 of 9)**



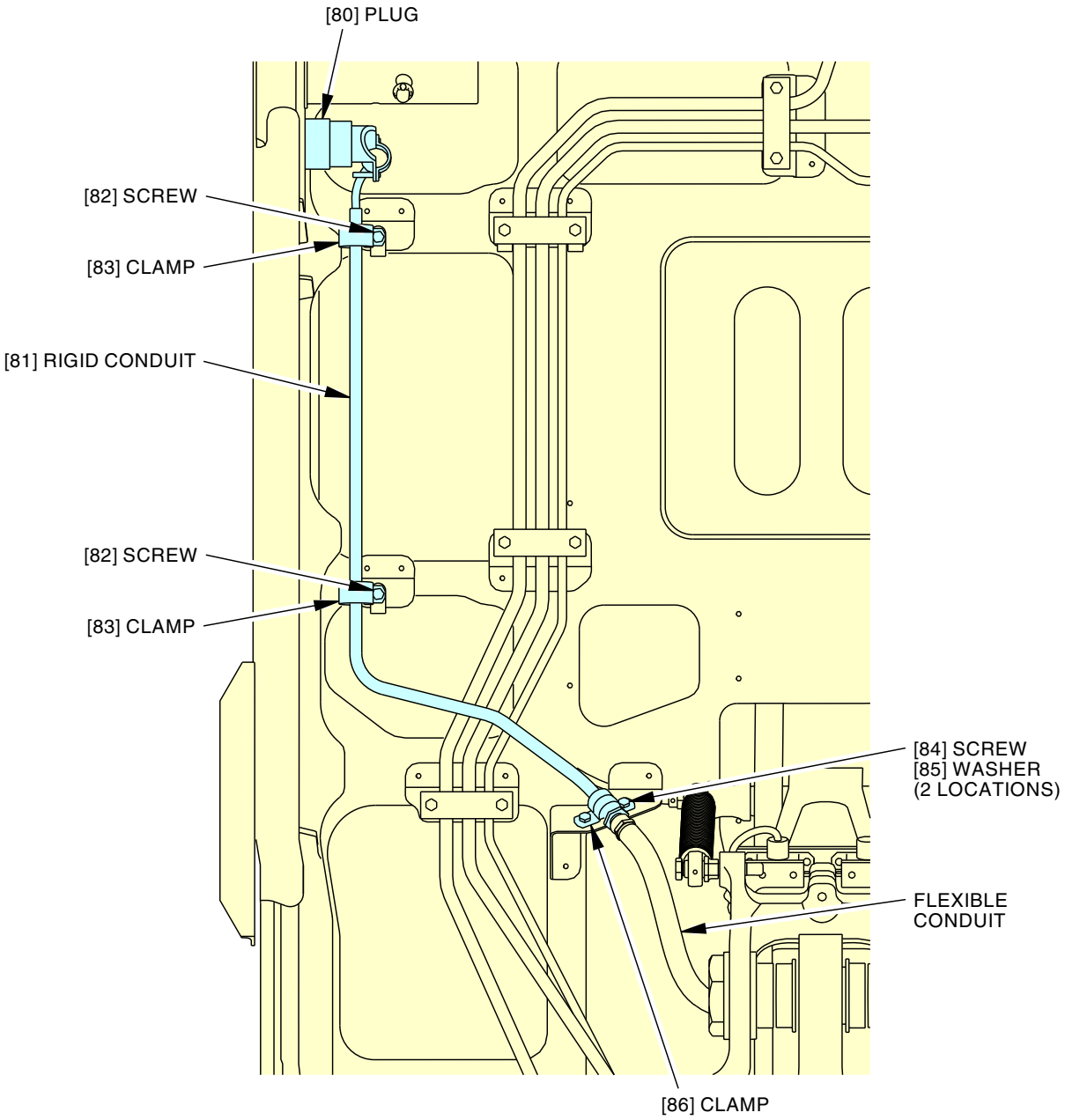
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**Nose Landing Gear Installation**
**Figure 401/32-21-00-990-802 (Sheet 7 of 9)**



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**(VIEW IN THE AFT DIRECTION)**

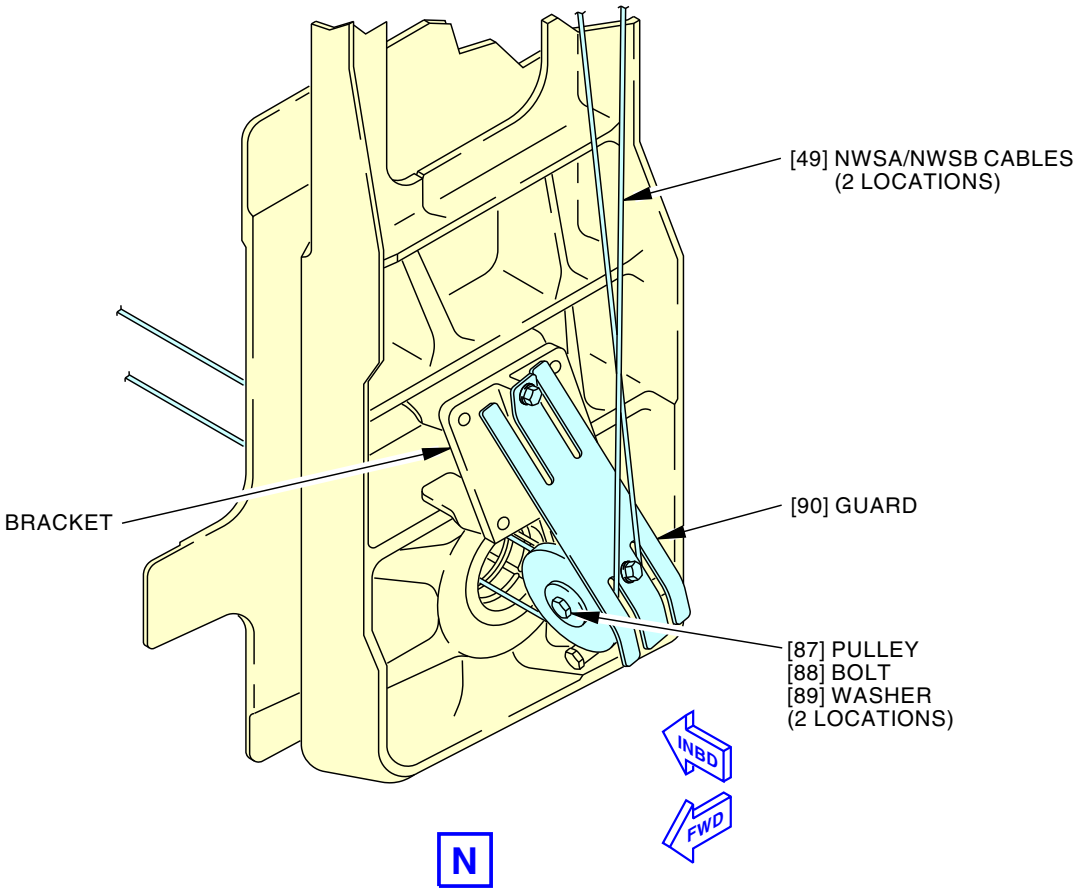
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3030213 S0000800602_V1

**Nose Landing Gear Installation**
**Figure 401/32-21-00-990-802 (Sheet 8 of 9)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

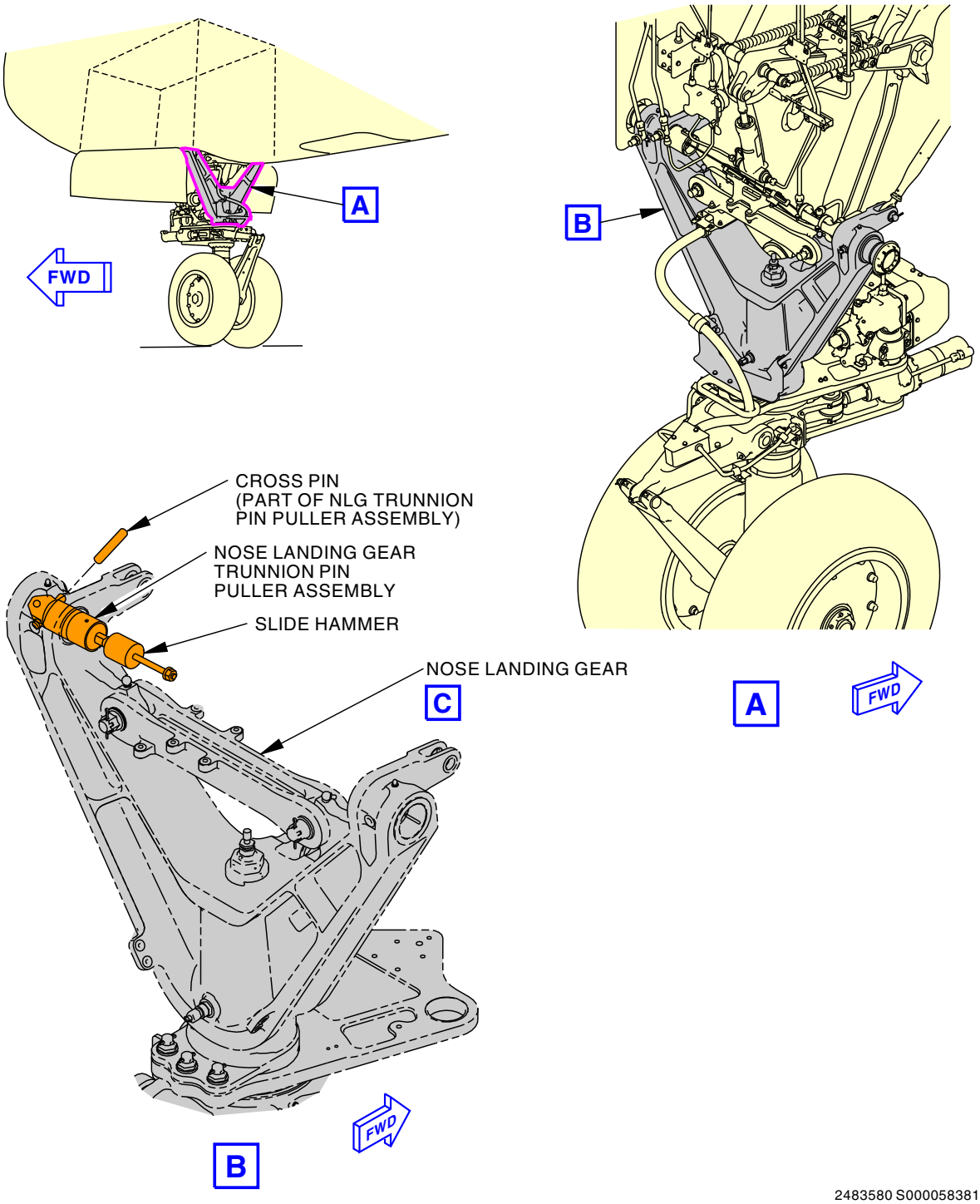



3030973 S0000801965_V1

**Nose Landing Gear Installation**
**Figure 401/32-21-00-990-802 (Sheet 9 of 9)**



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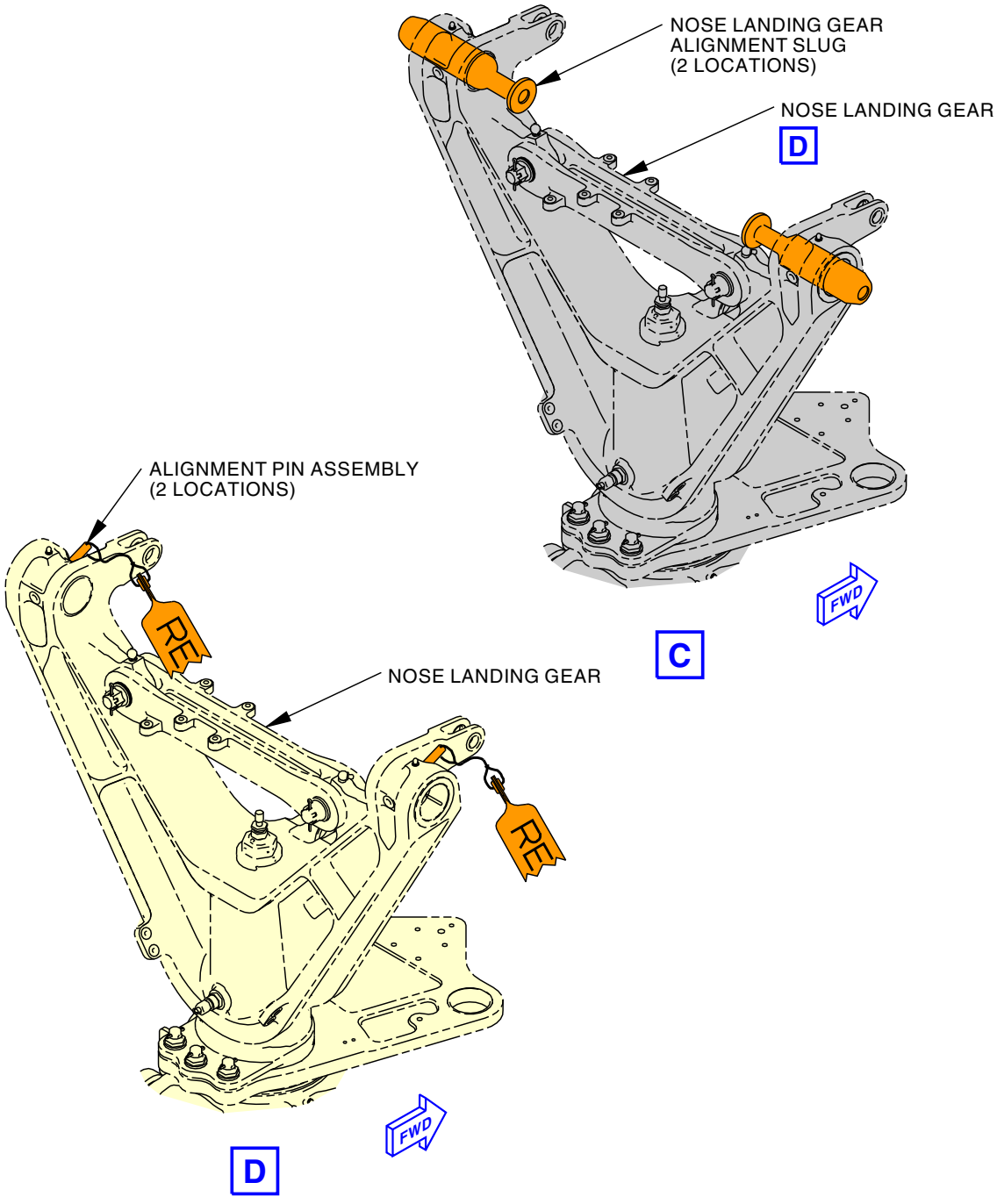



2483580 S0000583816_V3

**Trunnion Pin, Nose Landing Gear Removal/Installation Equipment**
**Figure 402/32-21-00-990-808 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2483630 S0000583819_V1

**Trunnion Pin, Nose Landing Gear Removal/Installation Equipment**
**Figure 402/32-21-00-990-808 (Sheet 2 of 2)**



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**TASK 32-21-00-400-802**

**3. Nose Landing Gear Installation**

(Figure 401, Figure 402)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 05-51-91-790-801 | Cabin Pressure Leak Test (P/B 201) |
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 10-11-05-480-801 | Chock Installation During Engine Operation (P/B 201) |
| 10-11-05-500-801 | Chock Installation Winds/Gusts Maximum 40 mph (35 Knots) (P/B 201) |
| 10-11-05-500-802 | Chock Installation in Winds More Than 35 Knots - Handling (P/B 201) |
| 12-15-41-610-801 | Nose Landing Gear Shock Strut Fluid Check (P/B 301) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 12-15-41-610-803 | Nose Landing Gear Shock Strut Servicing, Airplane on Jacks (P/B 301) |
| 12-21-21-640-801 | Nose Landing Gear Upper End Components Servicing (P/B 301) |
| 12-21-21-640-802 | Nose Landing Gear Lower End Components Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-21-00-710-801 | Nose Landing Gear Steering Broken Cable Compensator Operational Check (P/B 601) |
| 32-33-00-710-802 | Nose Landing Gear Operational Test (P/B 501) |
| 32-35-00-730-801 | Nose Gear Manual Extension System Test - Airplane on Jacks (P/B 501) |
| 32-45-21-400-801 | Nose Landing Gear Wheel and Tire Assembly Installation (P/B 401) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |
| 32-51-00-820-801 | General Check of the Nose Wheel Steering System Adjustment (P/B 501) |
| 32-51-00-820-805 | Nose Wheel Steering System Adjustment (P/B 501) |
| 32-51-31-400-802 | Nose Gear Steering System Cables Installation (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.



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| Reference | Description |
|---|---|
| COM-4938 | Insertion/Removal - contact (size 16, backshell side)<br>Part #: M81969/1-03 Supplier: 11139<br>Part #: M81969/14-03 Supplier: 11139 |
| SPL-1821 | Adjustable Spanner Wrench (0.75 to 2.00 Inch Dia. Retainer, 0.12 x 0.12 Key Arm)<br>Part #: F72959-40 Supplier: 81205<br>Opt Part #: F72959-4 Supplier: 81205 |
| SPL-1871 | Strap - Retention, NLG/MLG Inner Cylinder<br>Part #: C32030 -31 Supplier: 81205<br>Opt Part #: C32030-10 Supplier: 81205 |
| SPL-10305 | Outrigger Equipment - Nose Landing Gear Installation/Removal<br>Part #: C32049-1 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |
| STD-15080 | R/I Equipment - Trunnion Pin, NLG (Note: C32054-4 Alignment Pin Assembly is included in SPL-14481 kit) |
| STD-15081 | R/I Equipment - Trunnion Pin, NLG (Note: C32054-6 Trunnion Dummy Pin is included in SPL-14481 kit) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G01912 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50225 | Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter | NASM20995 |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 11 | Pin | 32-21-00-02-010 | SIA ALL |
| 31 | Pin | 32-22-11-03-005 | SIA ALL |
| 35 | Pin | 32-21-00-02-045 | SIA ALL |
| 43 | Pin | 32-22-11-03-005 | SIA ALL |
| 59 | Pin | 32-21-00-02-045 | SIA ALL |
| 65 | Seal | 32-21-21-01-040 | SIA ALL |
| 74 | O-ring | 32-21-00-02-070 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 713 | Nose Landing Gear |


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**F. Access Panels**

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |

**G. Prepare for the Installation**

SUBTASK 32-21-00-480-003

(1) If it is necessary, use a dolly or the Outrigger R/I Equipment, SPL-10305, to move the nose landing gear.

(a) When the Outrigger R/I Equipment, SPL-10305, is installed and will be left unattended, do these steps:

1) Chock the nose landing gear tires, do one of these tasks:

- Chock Installation During Engine Operation, TASK 10-11-05-480-801
- Chock Installation Winds/Gusts Maximum 40 mph (35 Knots), TASK 10-11-05-500-801
- Chock Installation in Winds More Than 35 Knots - Handling, TASK 10-11-05-500-802.

2) Lock the caster brake.

SUBTASK 32-21-00-480-004

(2) Install the retention strap, SPL-1871, with the marker facing up to hold the shock strut [17] in its compressed position.

SUBTASK 32-21-00-620-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(3) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

(a) The threads and thread reliefs of the bolt [62] and bolt [33]

(b) The threads of the nut [60] and nut [36]

(c) The faces of the washer [78] and washer [34].

SUBTASK 32-21-00-160-001

(4) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-21-00-640-001

(5) Lubricate the following items with grease, D00633:

(a) The shank of the bolt [62] and bolt [33]

(b) The shank of left trunnion pin [63] and right trunnion pin [37]

(c) The spacer [39] and spacer [71]

(d) The cable guard [70].

SUBTASK 32-21-00-160-002

(6) Remove all unwanted grease, D00633.



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## H. Nose Landing Gear Installation

**SUBTASK 32-21-00-560-002**

(1) Put the nose landing gear in its position for installation on the sidewall of the nose wheel well.

**SUBTASK 32-21-00-580-003**

(2) Lift the nose landing gear with an axle jack until the right trunnion [23] and left trunnion [40] align with the mating hole in the sidewall of the nose wheel well (TASK 07-10-03-580-803).

**SUBTASK 32-21-00-420-002**

(3) Install the right trunnion pin [37] (View H, Figure 401).

(a) Put the spacer [39] in its position between the right trunnion [23] and sidewall of the nose wheel well.

(b) Apply grease, D00633, and install the new O-ring [74] inside nose wheel well trunnion bushing.

(c) Use the trunnion dummy pin, STD-15081, to put the right trunnion pin [37] through the right trunnion [23], spacer [39], and sidewall of the nose wheel well (Figure 402).

(d) Use the alignment pin assembly, STD-15080, to make sure that the hole in the right trunnion pin [37] for the bolt [33] aligns with the mating hole in the right trunnion [23] (Figure 402).

(e) Put the right trunnion pin [37] through the right trunnion [23], spacer [39], and sidewall of the nose wheel well.

1) Make sure that the hole in the right trunnion pin [37] for the bolt [33] aligns with the mating hole in the right trunnion [23].

(f) Put the swivel [24] through the right trunnion pin [37].

1) Make sure that the hole in the swivel [24] for the bolt [33] aligns with the mating hole in the right trunnion pin [37] and right trunnion [23].

(g) Put the bolt [33] through the right trunnion [23], right trunnion pin [37], and swivel [24].

(h) Install the washer [34] and nut [36] on the bolt [33].

(i) Tighten the nut [36] to 20 in-lb (2.3 N·m) - 24 in-lb (2.7 N·m) plus the run-on torque.

(j) Install the pin [35] in the bolt [33].

1) If it is necessary, loosen the nut [36] to the nearest castellation to align the holes for the pin [35].

**SUBTASK 32-21-00-420-003**

(4) Install the left trunnion pin [63] (View K, Figure 401).

(a) Put the spacer [71] in its position between the left trunnion [40] and sidewall of the nose wheel well (View L, Figure 401).

(b) Apply grease, D00633, and install the new O-ring [74] inside nose wheel well trunnion bushing.

(c) Use the trunnion dummy pin, STD-15081, to put the left trunnion pin [63] through the left trunnion [40], spacer [71], and in the left sidewall of the nose wheel well (Figure 402).

(d) Use the alignment pin assembly, STD-15080, to make sure that the hole in the left trunnion pin [63] for the bolt [62] aligns with the mating hole in the left trunnion [40] (Figure 402).

(e) Put the left trunnion pin [63] through the left trunnion [40], spacer [71], and in the left sidewall of the nose wheel well.

(f) Put the cable guard [70] into the left trunnion pin [63].



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1) Make sure that the hole in the cable guard [70] for the bolt [62] that aligns with the mating hole in the left trunnion pin [63] and left trunnion [40].

(g) Put the bolt [62] through the left trunnion [40], left trunnion pin [63], and cable guard [70].

(h) Install the washer [78] and nut [60] on the bolt [62].

(i) Tighten the nut [60] to 20 in-lb (2.3 N·m) - 24 in-lb (2.7 N·m) plus the run-on torque.

(j) Install the pin [59] in the bolt [62].

1) If it is necessary, loosen the nut [60] to the nearest castellation to align the holes for the pin [59].

**SUBTASK 32-21-00-220-001**

(5) Measure the total axial free play in the trunnion.

NOTE: If the total axial free play is not correct, this will not cause any damage to the landing gear structure, but there may be a loud noise during landing gear extension/retraction.

(a) Use a thickness gage to measure the clearance between the spacer [39], spacer [71], and bushing faces of the sidewall or the trunnion on the two sides of the nose landing gear.

(b) Make sure that the combined clearance of the two trunnions is 0.008 in. (0.203 mm) - 0.015 in. (0.381 mm).

(c) If it is necessary to get the correct clearance, adjust the spacer [39] and spacer [71] stack thickness.

**SUBTASK 32-21-00-080-001**

(6) Remove the axle jack after the correct clearance has been achieved.

**SUBTASK 32-21-00-420-014**

(7) Install the bracket [51] (View J, Figure 401).

(a) Install the bolt [75], washer [76], and nut [77].

**SUBTASK 32-21-00-420-004**

(8) Install the pulleys [50] (View J, Figure 401).

(a) Put the nwsa/nwsb cable [49] in their position on the groove of the pulley [50].

(b) Put each pulley [50] in its position on the bracket [51].

(c) Install the washer [48] on the bolt [55].

(d) Put the bolt [55] through the pulley [50] and bracket [51].

(e) Install the washer [53] and nut [52] on the bolt [55].

**SUBTASK 32-21-00-710-005**

(9) Do the operational check of the broken cable compensator, do this task: Nose Landing Gear Steering Broken Cable Compensator Operational Check, TASK 32-21-00-710-801.

**SUBTASK 32-21-00-420-005**

**CAUTION** MAKE SURE THAT THE STEERING CABLES DO NOT CROSS. CROSSED CABLES CAN INCREASE CABLE FRICTION WHICH CAN CAUSE DAMAGE TO THE CABLES.

(10) Connect the nwsa/nwsb cables [49] (View K, Figure 401) (TASK 32-51-31-400-802).

(a) Make sure that the rig pin NS2 is in the drum for the Captain's control wheel (TASK 32-51-00-820-801).



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(b) Make sure that the rig pin NS10 is in the drum for the First Officer's control wheel (TASK 32-51-00-820-801).

(c) Put the nwsa/nwsb cable [49] through the inboard side of the trunnion pin nut [68], seal ring [69], and left trunnion pin [63].

1) Make sure that one nwsa/nwsb cable [49] goes over the trunnion pin bolt and one nwsa/nwsb cable [49] goes under the trunnion pin bolt where the nwsa/nwsb cables [49] go through the trunnion.

(d) For the pulleys [87] on the bracket that is outboard of the left trunnion pin [63], do these steps:

1) Put the nwsa/nwsb cables [49] in the grooves of the pulleys [87] and through the guard [90].

2) Install the pulleys [87], bolts [88], and washers [89].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

a) Install the bolts [88] with Cor-Ban 27L Compound, G50237 (preferred), or corrosion inhibiting material, G50136 (optional).

b) Tighten the bolts [88] to 73 in-lb (8 N·m) - 77 in-lb (9 N·m).

(e) Connect each nwsa/nwsb cable [49] to the cable turnbuckle [1] (View B, Figure 401).

(f) Remove the identification tags attached to the nwsa/nwsb cables [49].

(g) Install the locking clips [2] on the cable turnbuckles [1].

**SUBTASK 32-21-00-410-001**

(11) Install the seal [65] (View K, Figure 401).

(a) Assemble the seal [65] around the nwsa/nwsb cables [49] at the inboard end of the left trunnion pin [63].

(b) Install one retainer [66] on the eyebolt [67].

(c) Put the eyebolt [67] through the seal [65].

(d) Install the other retainer [66], washer [56], and nut [64] on the eyebolt [67].

(e) Tighten the nut [64] sufficiently to clamp the seal [65].

(f) Loosen the nut [64] to approximately 1/4 turn until you can turn the eyebolt [67] with your fingers.

(g) Put the seal [65] into the left trunnion pin [63] until it touches the stop.

(h) Install the seal ring [69] into the left trunnion pin [63].



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SUBTASK 32-21-00-620-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(12) Apply a thin layer of the corrosion inhibiting material, G50136, to the trunnion pin nut [68].

SUBTASK 32-21-00-420-006

(13) Install the trunnion pin nut [68] (View K, Figure 401).

(a) Install the trunnion pin nut [68] on the inboard side of the left trunnion pin [63].

(b) Use spanner wrench, SPL-1821, to tighten the trunnion pin nut [68] to 100 in-lb (11 N·m) - 150 in-lb (17 N·m).

(c) If it is necessary, loosen the trunnion pin nut [68] to align with the vernier of the lock holes.

(d) Install the lock [57] on the inboard side of the left trunnion pin [63].

(e) Install the screw [58] that holds the lock [57] to the left trunnion pin [63].

(f) Install the MS20995NC32 lockwire, G01912, on the screw [58].

SUBTASK 32-21-00-710-001

(14) Make sure that the seal [65] will turn freely from the extended cable position of the gear to a simulated gear retracted cable position.

NOTE: This step will make sure that the cables will not become twisted when the gear is retracted.

SUBTASK 32-21-00-620-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(15) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

(a) The threads and thread reliefs of the bolt [27] and bolt [47]

(b) The threads of the nut [32] and nut [42]

(c) The faces of the washer [28], washer [30], washer [44], and washer [46].

SUBTASK 32-21-00-160-003

(16) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-21-00-640-002

(17) Lubricate the chrome plated surfaces of the bolt [27], bolt [47], bushing [29], and bushing [45] with grease, D00633.

SUBTASK 32-21-00-160-004

(18) Remove all unwanted grease, D00633.



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SUBTASK 32-21-00-420-007

(19) Connect the left upper rod assembly [41] (View I, Figure 401).

(a) Put the upper rod assembly [41] in its position on the clevis of the left trunnion [40].

(b) Put the bushing [45] through the clevis of the left trunnion [40] and rod end of the upper rod assembly [41].

(c) Install the washer [46] on the bolt [47].

(d) Put the bolt [47] through the clevis of the left trunnion [40] and rod end of the upper rod assembly [41].

(e) Install the washer [44] and nut [42] on the bolt [47].

(f) Tighten the nut [42] to 325 in-lb (36.7 N·m) - 360 in-lb (40.7 N·m).

(g) Install the pin [43] in the bolt [47].

1) If it is necessary, loosen the nut [42] to the nearest castellation to align the holes for the pin [43].

SUBTASK 32-21-00-420-008

(20) Connect the right upper rod assembly [26] (View G, Figure 401).

(a) Put the upper rod assembly [26] to the right trunnion [23].

(b) Put the bushing [29] through the clevis of the right trunnion [23] and rod end of the upper rod assembly [26].

(c) Install the washer [28] on the bolt [27].

(d) Put the bolt [27] through the clevis of the right trunnion [23] and the rod end of the upper rod assembly [26].

(e) Install the washer [30] and nut [32] on the bolt [27].

(f) Tighten the nut [32] to 325 in-lb (36.7 N·m) - 360 in-lb (40.7 N·m).

(g) Install the pin [31] in the bolt [27].

1) If it is necessary, loosen the nut [32] to the nearest castellation to align the holes for the pin [31].

SUBTASK 32-21-00-420-009

(21) Connect the hydraulic lines [25] (View F, Figure 401).

(a) Remove the plug from the hydraulic ports of the swivel [24].

(b) Remove the caps/plugs, STD-14686, from the hydraulic lines [25].

(c) Connect the hydraulic lines [25] to the swivel [24].

(d) Remove the tags from the swivel ports and the hydraulic lines [25].

SUBTASK 32-21-00-620-004

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(22) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

(a) The threads and thread reliefs of the pin [18]



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(b) The threads of the nut [12]

(c) The faces of the washer [20] and washer [21]

(d) The shank of bolt [13].

SUBTASK 32-21-00-160-005

(23) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-21-00-640-003

(24) Lubricate the shank of the pin [18] with grease, D00633.

SUBTASK 32-21-00-160-006

(25) Remove all unwanted grease, D00633.

SUBTASK 32-21-00-420-010

(26) Connect the lower drag strut [19] (View E, Figure 401).

(a) Put the lower drag strut [19] in its position on the clevis of the shock strut [17].

(b) Put the pin [18] through the clevis of the shock strut [17] and lower drag strut [19].

(c) Install the washer [20] and nut [12] on the pin [18].

(d) Tighten the nut [12] to 600 in-lb (67.8 N·m) - 700 in-lb (79.1 N·m).

1) Loosen the nut [12] to the nearest castellation to align the holes for the bolt [13].

(e) Install the bolt [13] in the pin [18].

(f) Install the washer [21] on the bolt [13].

(g) Install the nut [22] on the bolt [13].

(h) Install the cotter pin [11] in the bolt [13].

1) If it is necessary, loosen the nut [22] to the nearest castellation to align the holes for the cotter pin [11].

SUBTASK 32-21-00-420-011

(27) Do this task: Nose Landing Gear Wheel and Tire Assembly Installation, TASK 32-45-21-400-801.

SUBTASK 32-21-00-420-012

(28) Connect the wires to the plug [6] (View D, Figure 401).

(a) Pull the wires through the conduit.

1) Connect the conduit [4] to the junction box [5] (View C, Figure 401).

2) Install MS20995C20 lockwire, G50225, on the conduit [4] and to the junction box [5].

3) Attach the strings hanging out of the end of the rigid conduit [7] that lead to the junction box [5] to the wires coming out of the conduit [4].

4) Pull the wires all the way through the rigid conduit [7].

(b) Connect the wires to the plug [6] with a contact insertion / removal, COM-4938, tool using the drawing you made during the removal.

(c) Install the screws [10] and washers [3] to attach the junction box cover [9] on the junction box [5].

SUBTASK 32-21-00-420-022

(29) To connect the down lock sensor plug [80] and rigid conduit [81] to the wheel well, do these steps:

(a) Remove the protective cap from the plug [80].



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(b) Put the rigid conduit [81] into position (View M, Figure 401).

(c) Install the clamp [86] with the screw [84] and washer [85].

(d) Install the clamps [83] with the screws [82].

(e) Connect the plug [80] to the connector on the wheel well wall.

## I. Nose Landing Gear Installation Test

SUBTASK 32-21-00-410-002

(1) Close this access panel:

(Nose Wheel Well Access Panels Installation, TASK 53-14-01-420-801)

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |

(a) Do this task: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

SUBTASK 32-21-00-080-002

(2) Remove the retention strap, SPL-1871, from the nose landing gear.

SUBTASK 32-21-00-610-002

(3) Lubricate the nose landing gear (TASK 12-21-21-640-801, TASK 12-21-21-640-802).

SUBTASK 32-21-00-610-005

(4) If it is necessary, do this task: Nose Landing Gear Shock Strut Servicing, Airplane on Jacks, TASK 12-15-41-610-803.

SUBTASK 32-21-00-860-011

(5) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-21-00-790-001

(6) Do a check of the swivel [24] for leakage.

SUBTASK 32-21-00-860-012

(7) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-21-00-710-002

(8) Do this task: Nose Landing Gear Operational Test, TASK 32-33-00-710-802.

SUBTASK 32-21-00-710-003

(9) Do this task: Nose Gear Manual Extension System Test - Airplane on Jacks, TASK 32-35-00-730-801.

SUBTASK 32-21-00-820-001

(10) Adjust the nwsa/nwsb cables [49] (TASK 32-51-00-820-805).



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SUBTASK 32-21-00-710-004

(11) Do this task: Nose Wheel Steering System Test (Airplane on Ground), TASK 32-51-00-700-801.

SUBTASK 32-21-00-860-013

(12) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-21-00-860-014

(13) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-21-00-200-001

(14) Do a check of the pressure and extension of the shock strut.

(a) Measure the pressure and extension of the shock strut.

1) Make sure that the pressure you measure is still correct for the extension of the shock strut (TASK 12-15-41-610-801).

2) If the pressure is not correct for the extension of the shock strut, fully service the shock strut (TASK 12-15-41-610-802).

NOTE: If the pressure is not correct for the extension of the shock strut, the shock strut does not have the proper amount of fluid.

**——— END OF TASK ———**



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## NOSE LANDING GEAR - INSPECTION/CHECK

### 1. General

A. This procedure contains these tasks:

(1) An inspection of the nose landing gear

(2) An inspection of the nose landing gear torsional freeplay

(3) An operational check of the nose landing gear steering broken cable compensator.

B. This procedure does not remove or install the nose landing gear. Refer to (Nose Landing Gear Gas Charging Valve Removal, TASK 32-21-00-000-801) and (Nose Landing Gear Gas Charging Valve Installation, TASK 32-21-00-400-801) to remove and install the nose landing gear.

**TASK 32-21-00-200-801**

### 2. Nose Landing Gear - Inspection

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

#### A. General

(1) This task provides the regular inspection of the nose landing gear.

(2) Refer to these tasks: Phase I Inspection, TASK 05-51-01-210-801, High Energy Stop, TASK 05-51-07-210-801, Brake Seizure Conditional Inspection, TASK 05-51-15-210-801 and Phase I Inspection, TASK 05-51-35-210-801, for special inspection procedures on these conditions:

(a) After a hard or overweight landing.

(b) After a brake seizure when the airplane is towing or is moving at the high speed on the ground.

(c) After the gear has collided with an obstacle.

(d) After a high energy stop.

#### B. References

| Reference | Title |
|---|---|
| 05-51-01-210-801 | Phase I Inspection (P/B 201) |
| 05-51-07-210-801 | High Energy Stop (P/B 201) |
| 05-51-15-210-801 | Brake Seizure Conditional Inspection (P/B 201) |
| 05-51-35-210-801 | Phase I Inspection (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-00-11-100-802 | Nose Landing Gear Steering Actuators Chrome Surfaces Cleaning (P/B 701) |
| 32-00-11-100-803 | Nose Landing Gear Retract Actuator Chrome Surfaces Cleaning (P/B 701) |
| 32-45-00-700-801 | Wheels Fast Check (Wheel Installed on the Airplane) (P/B 601) |
| 32-45-00-700-803 | Landing Gear Tire Inspection (P/B 601) |

#### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |



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(Continued)

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |

**D. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 713 | Nose Landing Gear |

**E. Nose Landing Gear Inspection**

**SUBTASK 32-21-00-480-005**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-21-00-480-006**

(2) Put chocks around the tires of all the landing gear (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

**SUBTASK 32-21-00-210-001**

(3) Examine the upper components of the nose landing gear:

(a) Examine the drag strut for cracks, damage, and worn areas on the attach points.

(b) Examine the trunnion pins of the drag strut for worn areas and looseness.

(c) For the retract actuator, do these steps:

1) Examine the retract actuator for these items:

a) Damage, looseness, and security of actuator components and attachment bolts.

b) Dirt, scratches, and debris on the exposed piston chrome and actuator body rod end nut.

c) Leaks and loose hydraulic connections.

2) Do this task: Nose Landing Gear Retract Actuator Chrome Surfaces Cleaning, TASK 32-00-11-100-803.

(d) Examine the lock links for cracks, damage, and worn areas on the attach points.

(e) Examine the lock link springs for worn areas, damage, and security of attachments.

(f) Examine the lock actuator and hydraulic transfer cylinder for loose mounting bolts and leaks.

(g) Examine the shock strut for these items:

1) For leaks and specified extension.

2) For cracks on the outer cylinder lugs.

3) Dirt, scratches, or galling on the external surface of the inner cylinder.

(h) Examine the manual extension release mechanism.



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(i) Make sure that the wheel well doors are correctly attached to the push rods and door hinges.

(j) Examine the door linkage for worn areas, damage, and security of attachments.

**SUBTASK 32-21-00-210-002**

(4) Examine the lower end components of the nose landing gear:

(a) Remove the summing mechanism cover.

(b) Examine the summing mechanism, do these steps:

1) Examine the summing mechanism cover for cracks, damage, and worn areas on the attach points.

2) Examine the summing mechanism for damage and worn areas.

3) Examine the steering metering valve for damage, leaks, and security of attachments.

4) For the steering actuators, do these steps:

a) Examine the steering actuators for these items:

<1> Damage, looseness, and security of actuator components and attachment bolts.

<2> Dirt, scratches, and debris on exposed piston chrome and actuator body rod end nut.

<3> Leaks at the rod end seal and trunnion swivels.

b) Do this task: Nose Landing Gear Steering Actuators Chrome Surfaces Cleaning, TASK 32-00-11-100-802.

5) Examine the hydraulic connections for leaks.

6) Examine the steering cables to cable pulleys attachment.

(c) Examine the upper and lower steering sleeve:

1) Make sure that the top steering sleeve is securely attached to the outer cylinder.

a) Examine the mounting bolts that attach the top steering sleeve to the outer cylinder for looseness or wear below the bolt heads.

b) Look for cracks in compound, A00226, at the mounting nuts that attach the top steering sleeve to the outer cylinder.

c) Look for cracks in sealant, A00247, at the interface between the top steering sleeve and outer cylinder.

NOTE: Cracks in the sealant at the interface between the top steering sleeve and outer cylinder could let moisture enter and cause corrosion.

2) Make sure that the lower steering plate and retainer nut on the steering collar are tightly attached with no unusual or excessive play in the assembled joint.

a) Examine the lower steering plate for cracks, dirt, or worn areas.

(d) Install the summing mechanism cover.

(e) Examine the tires and wheels of the nose landing gear (Landing Gear Tire Inspection, TASK 32-45-00-700-803 and Wheels Fast Check (Wheel Installed on the Airplane), TASK 32-45-00-700-801).

(f) Examine the safety sensors and all electrical wiring for security and chafing.

(g) Examine the torsion links:



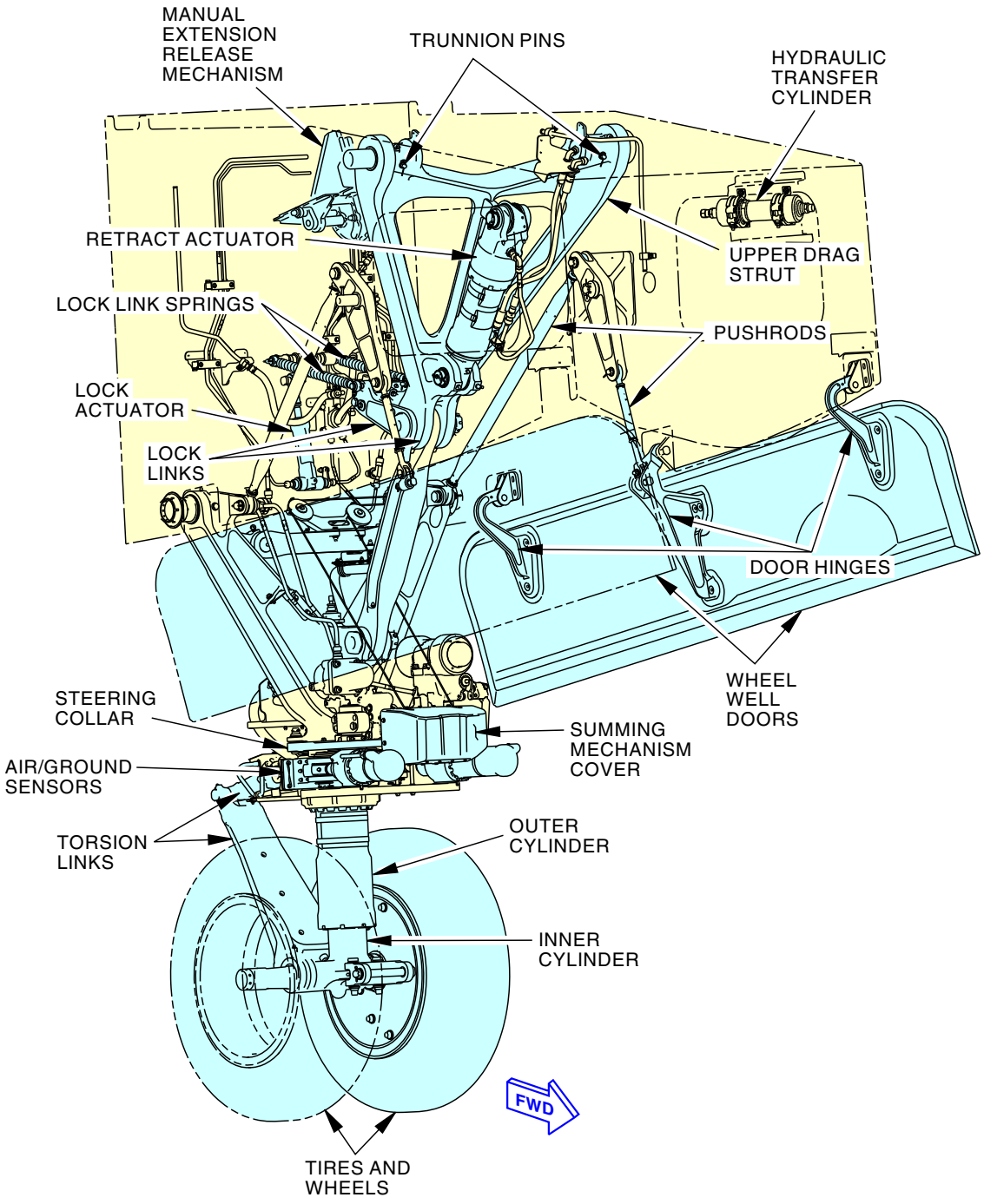
ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Make sure that the attachments to the shock strut are correct.
2) Examine the attachment lugs of the torsion links for cracks.
3) Examine the torsion links, for cracks and loose mounting bolts.

——— END OF TASK ———



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**Nose Landing Gear Inspection**
**Figure 601/32-21-00-990-803**



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**TASK 32-21-00-700-801**

## 3. Nose Landing Gear Torsional Freeplay Inspection

(Figure 601, Figure 602)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 12-15-41-610-803 | Nose Landing Gear Shock Strut Servicing, Airplane on Jacks (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1557 | Gauge - Force<br>Part #: DG-200 Supplier: 92456<br>Part #: FDIX 100 Supplier: 0BFD9<br>Part #: FDIX 50 Supplier: 0BFD9<br>Part #: LG-050 Supplier: 92456<br>Part #: LG-100 Supplier: 92456<br>Opt Part #: DPP-500G Supplier: 92456<br>Opt Part #: DPPH-150 Supplier: 92456<br>Opt Part #: DPPH-200 Supplier: 92456<br>Opt Part #: DPPH-50 Supplier: 92456<br>Opt Part #: FDI 100 Supplier: 0BFD9<br>Opt Part #: FDI 50 Supplier: 0BFD9<br>Opt Part #: FDV 100 Supplier: 0BFD9<br>Opt Part #: FDV 50 Supplier: 0BFD9 |
| SPL-1891 | Equipment - Freeplay, NLG<br>Part #: C32044-1 Supplier: 81205 |

### C. Prepare for the Inspection

**SUBTASK 32-21-00-860-015**

(1) Remove the pressure from the hydraulic systems A and B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-21-00-860-016**

(2) Lift the nose of the airplane with jacks until the shock strut is fully extended (TASK 07-10-21-580-801).

**SUBTASK 32-21-00-020-015**

**WARNING** CLEAR THE AREA BELOW THE NOSE BEFORE YOU DEFLATE THE SHOCK STRUT. IF YOU DEFLATE SHOCK STRUT, THE NOSE CAN MOVE DOWN AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Deflate the shock strut for the nose landing gear:


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(a) Remove the cap for the gas valve which is on the top of the shock strut.

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(b) Loosen the gas valve swivel nut a maximum of two turns.

NOTE: Fluid in the shock strut will have bubbles when you release the pressure. Deflate the shock strut slowly to prevent the leakage of the fluid through the gas valve.

(c) Loosen the gas valve swivel nut fully when all of the pressure in the shock strut is released.

NOTE: The shock strut is fully deflated when the dimension "X" is 13.8 in. (350.5 mm).

**SUBTASK 32-21-00-580-004**

(4) Lift the nose landing gear with the axle jack until you see approximately 4 in. (101.6 mm) of the chrome surface on the inner cylinder, do this task: Lift the Nose Landing Gear Axle With Axle Jacks-Handling, TASK 07-10-03-580-803.

**SUBTASK 32-21-00-480-007**

(5) Install the equipment, SPL-1891, on the nose landing gear.

(a) Install the collar assemblies, C32044-4 and C32044-5, on the two actuator rods of the steering cylinders.

(b) Set the collar assemblies, C32044-4 and C32044-5, tightly against the actuator end plates to prevent any movement of the actuator rods.

**SUBTASK 32-21-00-480-008**

(6) Set the dial indicator gage on the platform on the forward side of the wheel on the axle centerline to read the front and the aft motion of the right wheel rim.

NOTE: The gage must be installed on the forward side of the wheel on the axle centerline as near to the outboard edge of the rim as possible.

**SUBTASK 32-21-00-480-009**

(7) Install the lever arm assembly, C32044-2, on the tow fitting between the wheels on the nose landing gear.

## D. Nose Landing Gear Torsional Freeplay Inspection

**SUBTASK 32-21-00-720-001**

(1) Do these steps to examine the torsional free play of the nose landing gear:

(a) Measure 60 in. (1524 mm) on the lever arm assembly, C32044-2, from the shock strut centerline.

(b) From the 60 in. (1524 mm) you measured on the lever arm assembly, C32044-2, use the force gauge, COM-1557, to apply a clockwise pull of 30 lbf (133 N).

(c) Set the dial indicator gage to "0" and loosen the load.

(d) Apply a counterclockwise pull of 30 lbf (133 N) on the lever arm assembly, C32044-2, as in step (b).

(e) Write the value that you get on the dial indicator gage and loosen the load.

(f) Do the above five steps for a total of five cycles.

(g) Get the average value of the torsional free play.



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1) Make sure that the average value is less than 0.20 in. (5.1 mm).

NOTE: The free play agrees with 1°arc (0.017 rad).

**SUBTASK 32-21-00-700-001**

(2) If the torsional free play is satisfactory, put the airplane in its usual condition.

**SUBTASK 32-21-00-700-002**

(3) If the torsional free play stays more than the approved maximum, contact Boeing Service Engineering.

## E. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-21-00-080-003**

(1) Remove the dial indicator gage, dial indicator platform, and the lever arm assembly, C32044-2.

**SUBTASK 32-21-00-080-004**

(2) Remove the collar assemblies, C32044-4 and C32044-5, from the two actuator rods of the steering cylinders.

**SUBTASK 32-21-00-860-017**

(3) Inflate the shock strut for the nose landing gear (TASK 12-15-41-610-803).

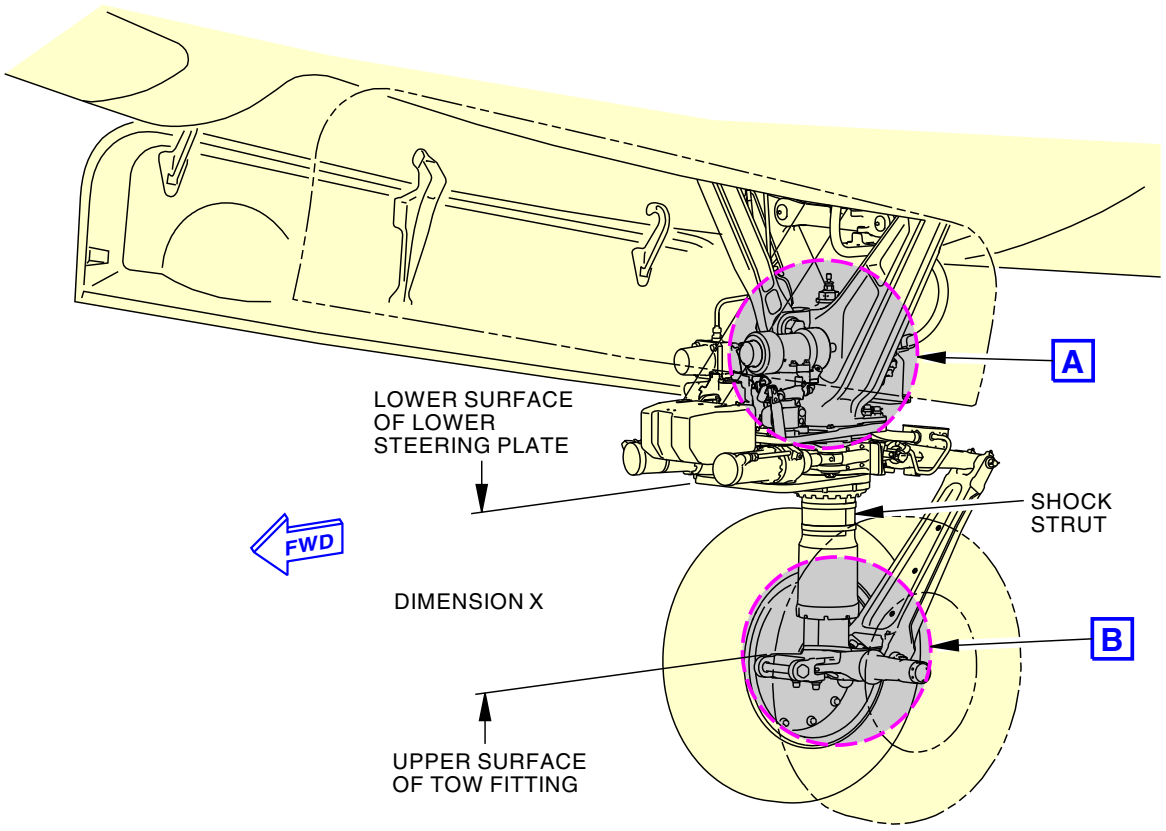
**SUBTASK 32-21-00-860-018**

(4) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**——— END OF TASK ———**



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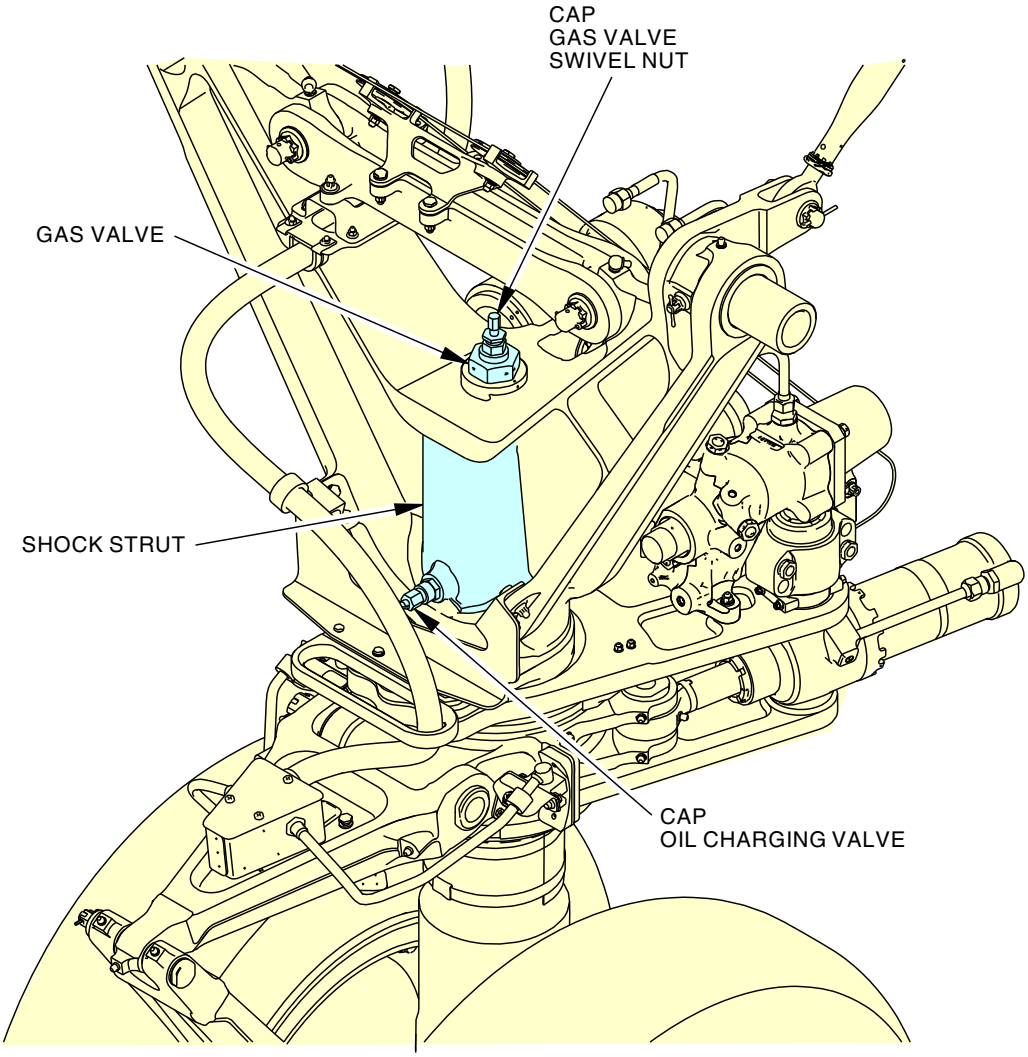



2414157 S00061534514_V2

**Nose Landing Gear Torsional Free Play Inspection**
**Figure 602/32-21-00-990-804 (Sheet 1 of 4)**



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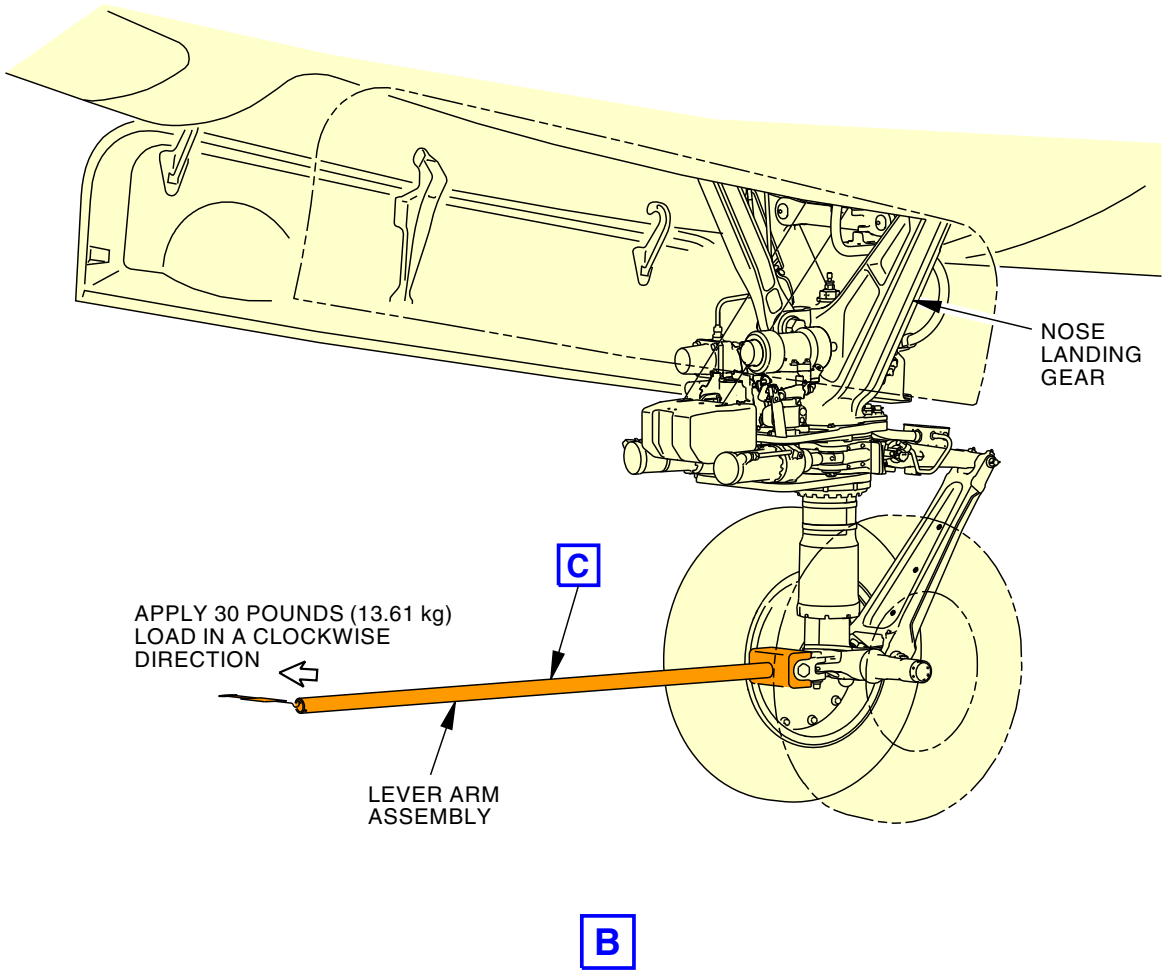



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**Nose Landing Gear Torsional Free Play Inspection**
**Figure 602/32-21-00-990-804 (Sheet 2 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

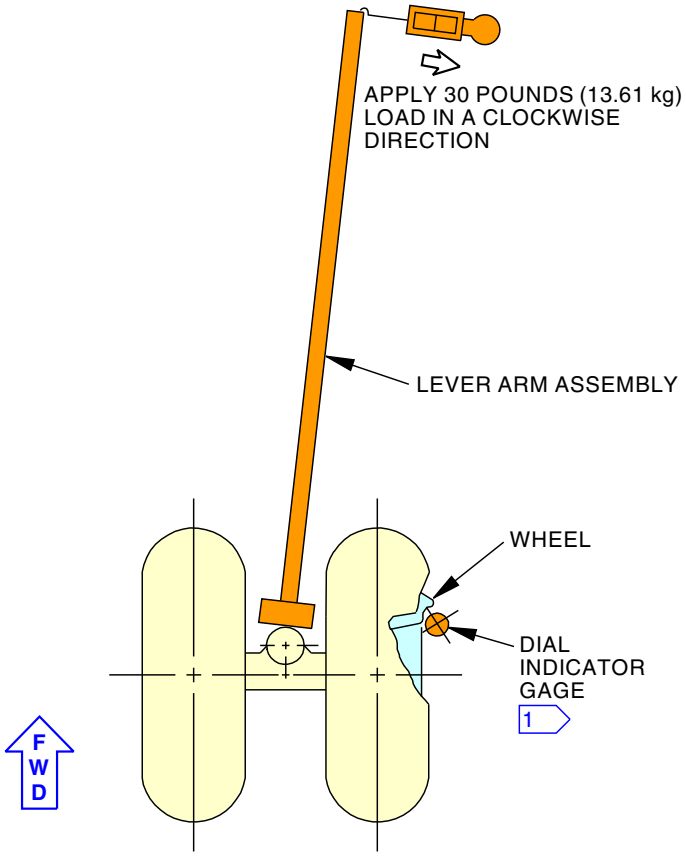



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**Nose Landing Gear Torsional Free Play Inspection**
**Figure 602/32-21-00-990-804 (Sheet 3 of 4)**



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1 POSITION GAGE IN FORE AND AFT DIRECTION

2414160 S00061534517_V1

**Nose Landing Gear Torsional Free Play Inspection**
**Figure 602/32-21-00-990-804 (Sheet 4 of 4)**



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**TASK 32-21-00-710-801**

## 4. Nose Landing Gear Steering Broken Cable Compensator Operational Check

(Figure 603)

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) This task gives instructions on how to do an operational check for the Nose Landing Gear Steering Broken Cable Compensator.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |
| 32-51-00-820-801 | General Check of the Nose Wheel Steering System Adjustment (P/B 501) |
| 32-51-31-400-802 | Nose Gear Steering System Cables Installation (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### D. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 713 | Nose Landing Gear |

### E. Prepare for the Operational Check

**SUBTASK 32-21-00-420-018**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-21-00-420-016**

(2) Install chocks around all landing gear tires (PAGEBLOCK 10-11-05/201).

### F. Nose Landing Gear Steering Broken Cable Compensator Operational Check

**SUBTASK 32-21-00-010-001**

(1) Remove the summing mechanism cover to get access to the compensator and summing levers.



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SUBTASK 32-21-00-480-013

(2) Install these rig pins from the rigging pin kit, SPL-1585 (TASK 32-51-00-820-801).

(a) The rig pin in the captain's steering tiller.

(b) The rig pin in the rudder pedal interconnect quadrant.

SUBTASK 32-21-00-020-017

(3) Disconnect the turnbuckles for the lower section of the steering cables.

(a) Make sure there is enough slack in the steering cables that the summing levers can move freely.

NOTE: Removal of the entire steering cable is not necessary.

SUBTASK 32-21-00-710-006

(4) Hold the left summing lever and while you move the right summing lever.

(a) Make sure that the compensator mechanism moves freely with no binding or sticking.

SUBTASK 32-21-00-710-007

(5) Hold the right summing lever while you move the left summing lever.

(a) Make sure that the compensator mechanism moves freely with no binding or sticking.

SUBTASK 32-21-00-710-008

(6) Move both compensator summing levers so that the compensator cam roller is free of the cam.

(a) Make sure that the cam roller turns freely with no sticking or binding.

SUBTASK 32-21-00-420-017

(7) Connect the turnbuckles for the lower section of the steering cables.

SUBTASK 32-21-00-820-002

(8) Rig the nose gear steering system cables to their original configuration (TASK 32-51-31-400-802).

SUBTASK 32-21-00-080-007

(9) Remove these rig pins:

(a) The rig pin in the captain's steering tiller.

(b) The rig pin in the rudder pedal interconnect quadrant.

SUBTASK 32-21-00-710-009

(10) Do a check of the nose wheel steering system (TASK 32-51-00-700-801).

SUBTASK 32-21-00-410-003

(11) Install the summing mechanism cover.

## G. Put the Airplane Back to Its Usual Condition

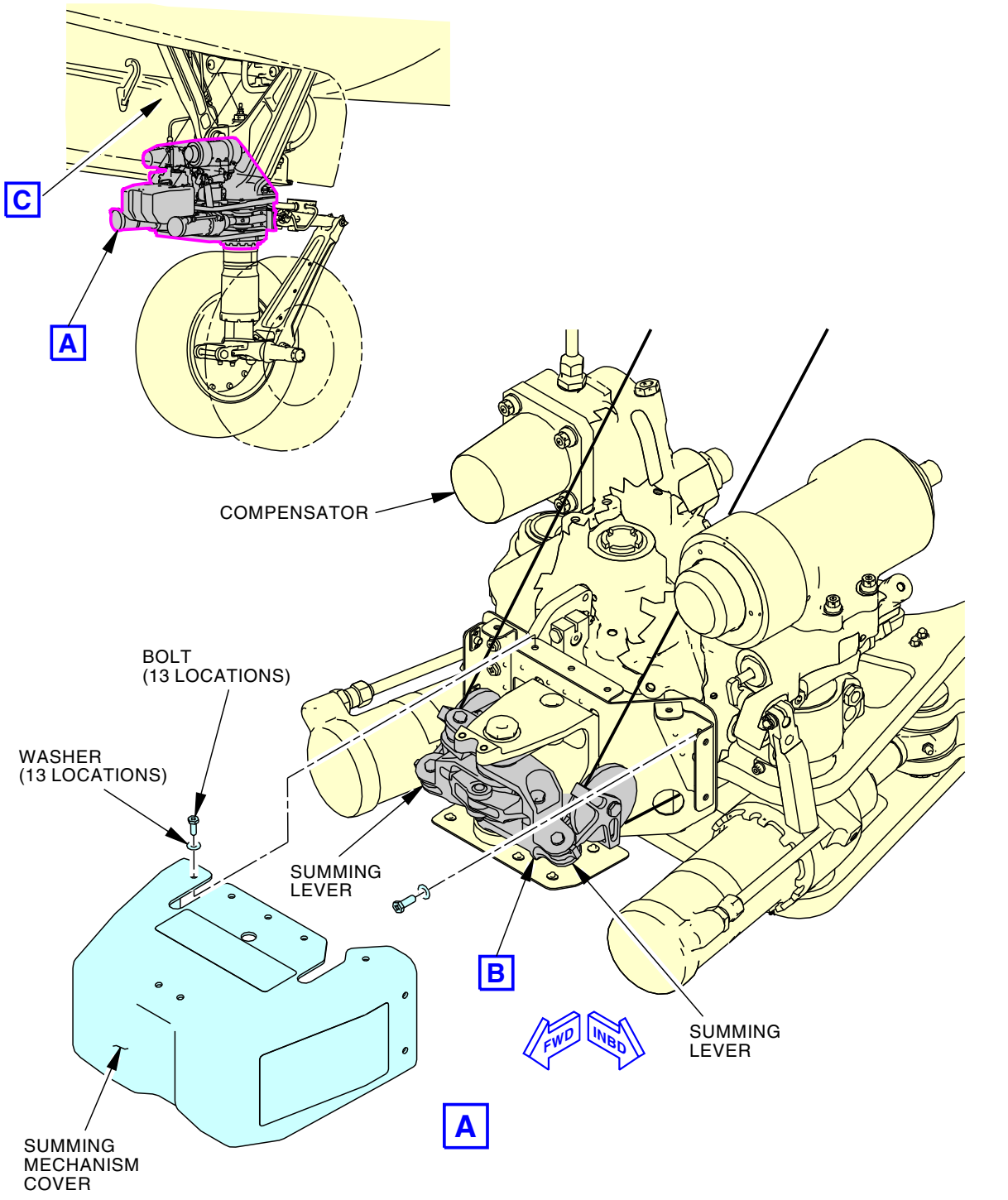
SUBTASK 32-21-00-080-005

(1) Remove chocks from all landing gear tires, if it is necessary.

**——— END OF TASK ———**



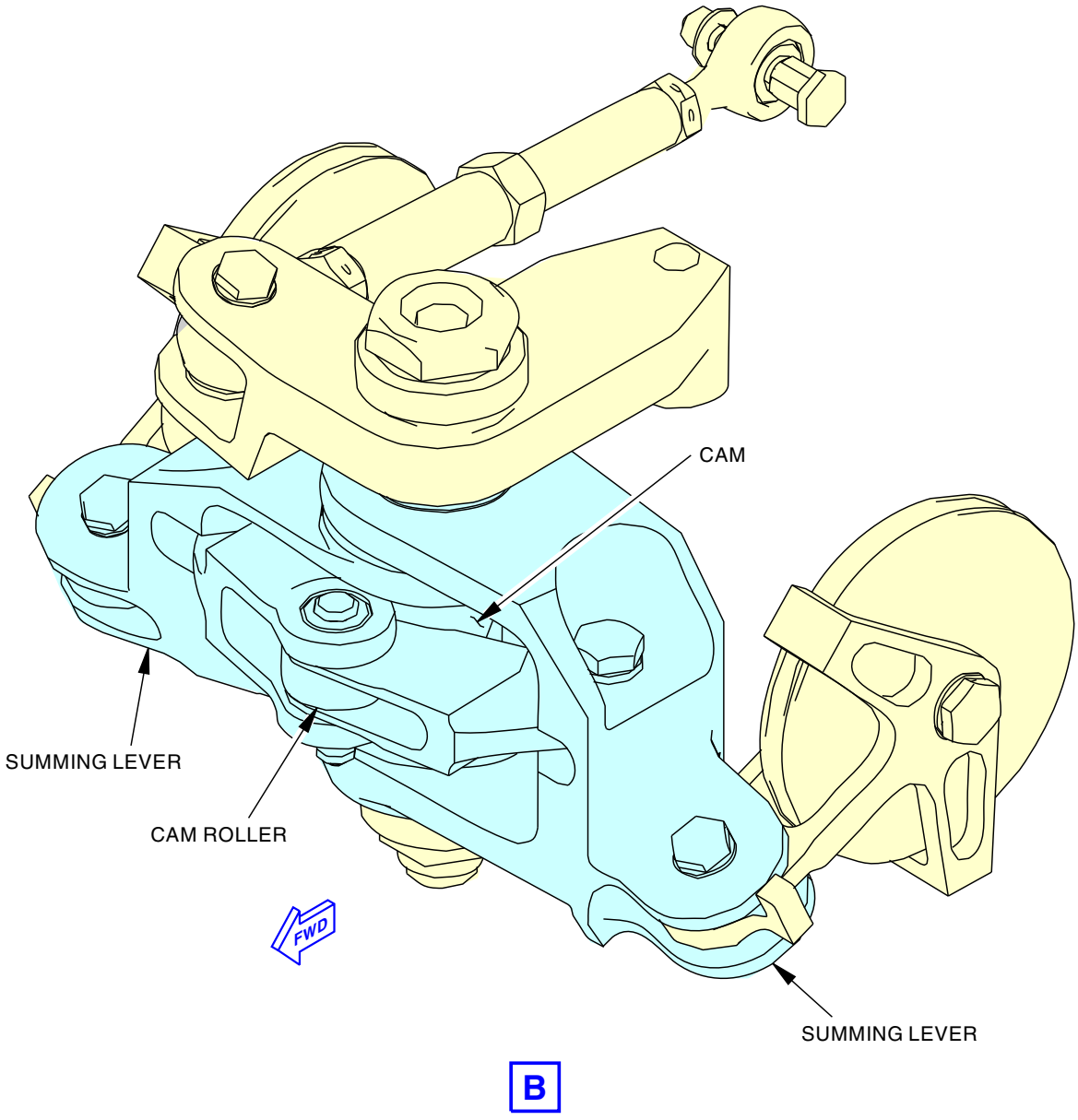
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**Nose Landing Gear Steering Broken Cable Compensator Operational Check**
**Figure 603/32-21-00-990-807 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

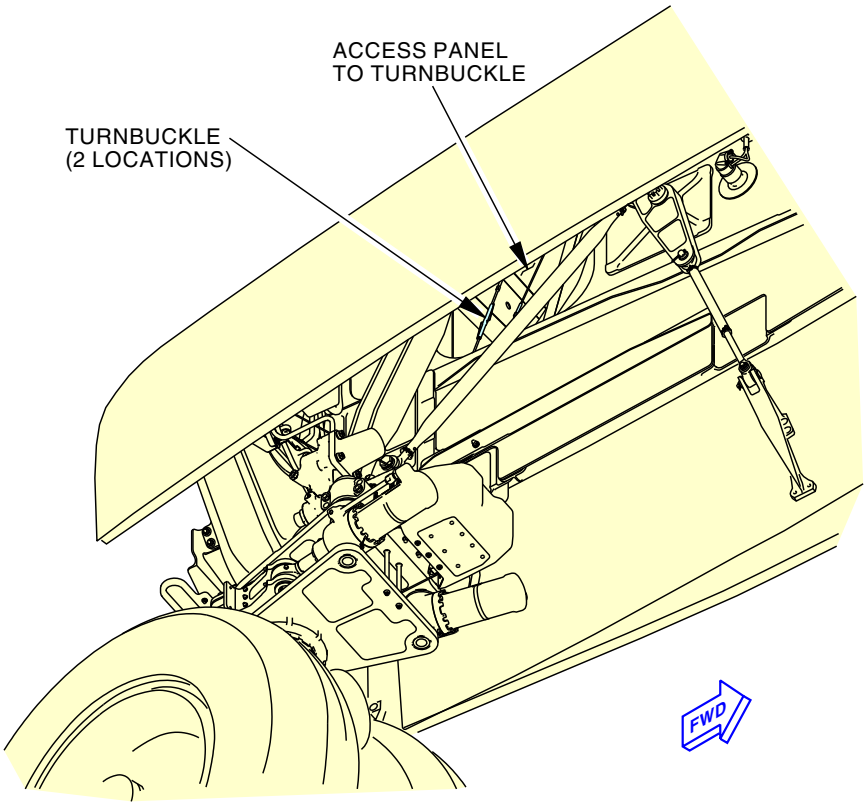



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**Nose Landing Gear Steering Broken Cable Compensator Operational Check**
**Figure 603/32-21-00-990-807 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




C

2551276 S0000607905_V2

**Nose Landing Gear Steering Broken Cable Compensator Operational Check**
**Figure 603/32-21-00-990-807 (Sheet 3 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## NOSE LANDING GEAR - REPAIRS

### 1. General

A. This procedure contains these tasks:

(1) Repair of the flexible conduit on the nose landing gear.

**TASK 32-21-00-300-801**

### 2. Flexible Conduit on the Nose Landing Gear Repair

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| SWPM 20-10-91 | Repair of Flexible Electrical conduit |

#### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| B00067 | Alcohol - Denatured, Ethyl (Ethanol) | AMS 3002 (Supersedes O-E-760) |
| B50073 | Alcohol - Isopropyl | ASTM D 770 |
| G00150 | Tape - Nitto P-421 NAT (Formerly Permacel) PTFE Film Tape | |
| G50392 | Sleeving - Expandable, Braided (Teflon, PFA) | BMS13-52 Type IV |

#### C. Prepare for the Flexible Conduit on the Nose Landing Gear Repair

SUBTASK 32-21-00-480-010

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-21-00-480-011

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

#### D. Flexible Conduit on the Nose Landing Gear Repair

SUBTASK 32-21-00-960-001

(1) To replace the Teflon tape [4], do these steps:

(a) Remove the Teflon tape [4] which extends approximately 12 in. (305 mm) on the flexible conduit [1].

(b) Clean the conduit with alcohol, B00067, or alcohol, B50073.

(c) Wind the Teflon tape [4] (Nitto P-421 tape, G00150) on the area where the flexible conduit [1] touches the bracket [2].

1) Make sure the Teflon tape [4] does not extend more than 3 in. (76 mm) from the bracket [2].

(d) Apply a second layer of Teflon tape [4] which winds at the opposite start/end.

(e) Attach a string at the two ends of the Teflon tape [4].



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SUBTASK 32-21-00-300-001

(2) Use these steps to find the necessary repair if the flexible conduit [1] is damaged:

(a) Clean the flexible conduit [1] with alcohol, B00067, or alcohol, B50073.

(b) Examine the worn area.

1) Replace the flexible conduit [1] if damage extends through the outer silicone rubber, through the stainless steel and into the Teflon tubing at the next maintenance opportunity.

2) Replace or repair the flexible conduit [1] if there are worn or broken strands to the stainless steel braid.

3) If there are tears or cuts which do not extend through the outer silicone rubber layer, no repair is necessary.

SUBTASK 32-21-00-300-002

(3) Follow these steps if a repair of the flexible conduit [1] is necessary (SWPM 20-10-91):

NOTE: A protective outer sleeve, G50392, with a 0.75 in. (19.05 mm) diameter and natural color can be installed on the flexible conduit [1] at this time if desired.

(a) Cut frayed material from the damaged area of the flexible conduit [1] to prevent damage to the inner conduit layers.

(b) Wind the area with Teflon tape [4] (Nitto P-421 tape, G00150) with a minimum of three wrappings.

(c) Wind each layer in the opposite direction of the previous layer.

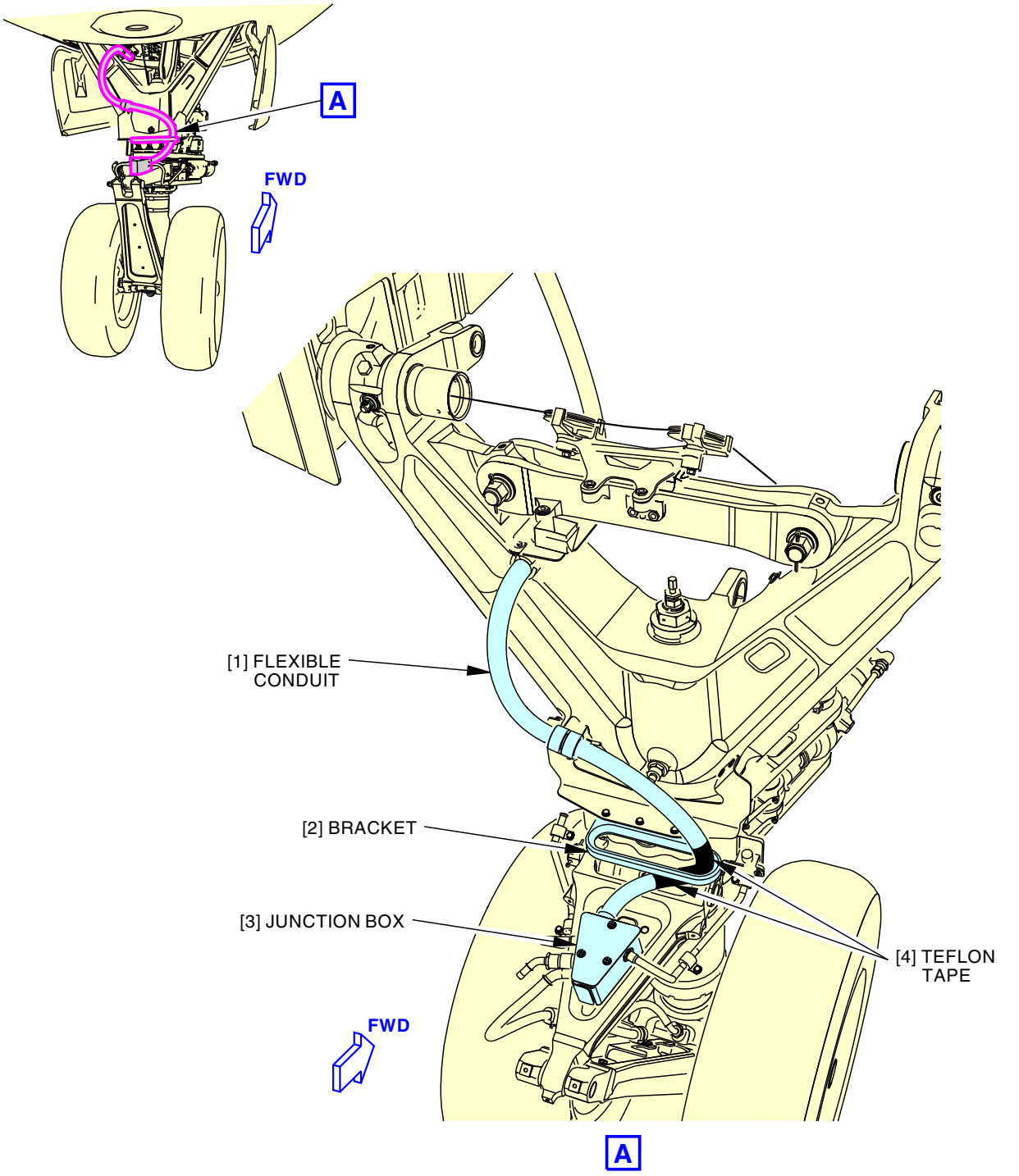
(d) Extend the Teflon tape [4] wrapping 1 in. (25 mm) or more from each end of the worn or damaged area.

(e) Attach a string around the two ends of the Teflon tape [4].

**——— END OF TASK ———**



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**Nose Gear Flexible Conduit**
**Figure 801/32-21-00-990-805**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## NOSE LANDING GEAR SHOCK STRUT SEALS - REPAIRS

### 1. General

A. This procedure has these tasks:

(1) A replacement of the active seals with the spare seals on the lower bearing carrier. The inner cylinder is partly removed from the outer cylinder, the leaky, active seals are removed, and spare seals are installed.

(2) An installation of new dynamic seals, new static seals, and new spare seals on the lower bearing carrier. The inner cylinder is fully removed from the outer cylinder, the lower bearing carrier is removed, and all of the seals are removed and replaced.

(a) This task contains steps to replace the metering pin seal on the inner cylinder.

(3) A replacement of the scraper ring. This task is used when the scraper ring is damaged and inner cylinder removal is not possible.

(4) A check for hydraulic leaks on the shock strut of the nose landing gear.

(5) A check for hydraulic leaks on the shock strut metering pin of the nose landing gear.

B. Make sure that all working areas, tools, and your hands are clean when you handle the elastomer seals. Some greases can cause the elastomer seals to swell too much. This can cause the seals to leak.

C. It is acceptable to install the spare dynamic seal in place of the active dynamic seal (cap seal assembly) to reduce leakage past the shock strut dynamic seal in cold weather. Re-install the cap seal assembly when warm weather returns.

NOTE: If the airplane will be operated for an extended period of time with the spare dynamic seal installed in the active dynamic seal position, it is recommended to keep a spare dynamic seal in the spare dynamic seal position in case the active seal develops a leak and needs to be replaced.

A daily cleaning of the inner cylinder chrome is recommended, when operating the airplane with the spare dynamic seal in the active position (PAGEBLOCK 32-00-10/701). The cold weather dynamic seal is installed on all current production airplanes and has helped reduce this issue.

**TASK 32-21-11-960-801**

### 2. Active Seals with the Spare Seals Replacement

(Figure 801, Figure 802, Figure 803, Figure 804)

#### A. General

(1) This task replaces the active static seals and the active dynamic seals with the spare seals on the lower bearing carrier of the nose landing gear.

(2) For this task you will partly disassemble the nose gear strut inner cylinder from the outer cylinder, pull the lower bearing carrier out of the outer cylinder and replace the active seals with the spare seals that are already installed.

(3) It is recommended that the spare seals only be used to replace the active seals if there are no replacement seals available or if the inner cylinder cannot be removed from the outer cylinder.

#### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |



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(Continued)

| Reference | Title |
|---|---|
| 07-10-06-580-803 | Lower the Airplane Nose (P/B 201) |
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-31-000-803 | Nose Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-21-31-400-803 | Nose Landing Gear Torsion Link Connection (P/B 401) |
| 32-45-21-000-801 | Nose Landing Gear Wheel and Tire Assembly Removal (P/B 401) |

## C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1376 | Scraper Plunger, C32016-2 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1377 | Scraper Reducer, C32016-3 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1378 | Scraper Retainer, C32016-4 or -67 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1379 | Scraper Lock Assy, C32016-5 or -68 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1381 | Dynamic Seal Stuffer, C32016-7 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1829 | Valve - Drain, Landing Gear Shock Strut Oil<br>Part #: J32108-16 Supplier: 81205<br>Opt Part #: A32066-1 Supplier: 81205 |
| SPL-1867 | Wrench - Nose Landing Gear Oleo Gland Nut<br>Part #: C32025-7 Supplier: 81205<br>Opt Part #: C32025-1 Supplier: 81205 |



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(Continued)

| Reference | Description |
|---|---|
| SPL-4047 | Seal Puller Assy, C32016-6 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-12809 | Strap Assembly, C32016-59 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| STD-1110 | Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter) |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| D00589 | Lubricant - Hydraulic Assembly - AFS-682 | |
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**E. Location Zones**

| Zone | Area |
|---|---|
| 711 | Nose Landing Gear Door - Left |

**F. Prepare for the Replacement**

**SUBTASK 32-21-11-420-040**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-21-11-860-001**

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.


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SUBTASK 32-21-11-020-001

**WARNING** CLEAR THE AREA BELOW THE NOSE BEFORE YOU DEFLATE THE SHOCK STRUT. IF YOU DEFLATE SHOCK STRUT, THE NOSE CAN MOVE DOWN AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Deflate the shock strut [4] for the nose landing gear:

(a) Remove the cap [1] for the gas charging valve [2], that is on the top of the shock strut [4].

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(b) Loosen the swivel nut [3] a maximum of two turns.

NOTE: Fluid in the shock strut can have bubbles when you release the pressure.

1) Deflate the shock strut [4] slowly to prevent the leakage of the fluid through the gas charging valve [2].

(c) Loosen the swivel nut [3] fully when all of the pressure in the shock strut [4] is released.

NOTE: The shock strut is fully deflated when the dimension "X" is 13.8 in. (35.1 cm).

SUBTASK 32-21-11-680-001

(4) Drain the hydraulic fluid from the shock strut [4]:

(a) Remove the cap [5] from the oil charging valve [6].

(b) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110, in a position to catch the hydraulic fluid when the oil charging valve [6] is opened.

(c) Install the drain equipment on the oil charging valve [6]:

NOTE: The landing gear shock strut drain valve, SPL-1829, could also be used, but it will take much longer to drain the shock strut.

1) Cut a length of plastic tubing, sufficiently long to reach the container on the floor.

2) Insert a small allen wrench in the end of the length of tubing so that the long end of the allen wrench is flush with the end of the tube and the short end goes through the wall of the tube.

3) Install the tubing on the oil charging valve [6] so that the allen wrench goes into the check valve and holds it open to drain the hydraulic fluid.

(d) Remove the drain equipment when you have removed all of the hydraulic fluid.

SUBTASK 32-21-11-020-002

(5) Do this task: Nose Landing Gear Torsion Link Disconnection, TASK 32-21-31-000-803.

SUBTASK 32-21-11-480-002

(6) Lift the nose of the airplane until there is more than enough room to install the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) on the inner cylinder [12] after the gland nut [17] has been removed (TASK 07-10-21-580-801).

SUBTASK 32-21-11-580-001

(7) Use axle jack to hold the inner cylinder [12] in its position in the outer cylinder [9] (TASK 07-10-03-580-803).

SUBTASK 32-21-11-020-003

(8) Do this task: Nose Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-21-000-801.



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SUBTASK 32-21-11-020-004

(9) Disconnect the gland nut [17] from the outer cylinder [9]:

(a) Remove the bolt [14], washer [15], and lockplate [16] to release the gland nut [17].

(b) Use the wrench, SPL-1867, to disconnect the gland nut [17] from the outer cylinder [9].

1) Keep the gland nut [17] in its position against the outer cylinder [9] after you have disconnected it from the outer cylinder [9].

SUBTASK 32-21-11-580-002

(10) Lift the nose of the airplane until there is enough room to install the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) and the scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) on the gland nut [17] (TASK 07-10-21-580-801).

SUBTASK 32-21-11-480-003

(11) Install the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) and the scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) on the gland nut [17].

NOTE: This will make sure that the scraper ring for the gland nut does not come out of its groove.

(a) Install the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) on the gland nut [17].

(b) Install the scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) to hold the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) in its position on the gland nut [17].

SUBTASK 32-21-11-020-005

(12) Move the gland nut [17] down at the inner cylinder [12].

(a) If the scraper ring [24] comes out of its groove, use the scraper plunger [80] (scraper plunger, C32016-2, SPL-1376) and the scraper reducer [81] (scraper reducer, C32016-3, SPL-1377) to install the scraper ring [24] back in its groove.

SUBTASK 32-21-11-020-006

(13) Move the lower bearing carrier [23]:

(a) Loosely install the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) around the inner cylinder [12].

(b) Push the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) up, so that you can install it correctly at the bottom of the outer cylinder [9].

(c) Align the holes in the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) with the holes in the lower bearing carrier [23] for the puller screws [78].

(d) Install the puller screws [78] to hold the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) to the lower bearing carrier [23].

(e) Tighten the retainer screws on each side of the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047).

(f) Install the strap assembly [75] (strap assembly, C32016-59, SPL-12809) around the axle and connect the ends to the shoulder bolts on each side of the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047).

SUBTASK 32-21-11-580-003

(14) Lift the airplane until the lower bearing carrier [23] is completely out of the outer cylinder [9] (TASK 07-10-21-580-801).



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## G. Active Static and Active Dynamic Seal with the Spare Seals Replacement

**SUBTASK 32-21-11-900-001**

(1) Replace the active static seal [28] with a spare static seal [27] (Figure 801, Figure 802, Figure 803):

NOTE: Some greases can cause the elastomer seals to swell too much. This can cause the seals to leak.

(a) Make sure that your hands are clean when you handle the elastomer seals.

(b) Remove the two backup rings [29] from the active static seal [28].

(c) Make sure that the two backup rings [29] are serviceable.

NOTE: The recommended installation is to replace all the old backup rings with new backup rings. Use the old backup rings only after a full inspection, and new rings are not available.

1) Replace the two backup rings [29] if they have nicks, scratches or other damage.

(d) Use a plastic cutting tool with a backup strip to cut the active static seal [28] from its outer groove in the lower bearing carrier [23].

(e) Move the spare static seal [27] out of the spare seal groove in the lower bearing carrier [23].

**CAUTION**

DO NOT APPLY VASELINE OR PETROLATUM TO THE SEALS. THIS CAN CAUSE THE SEAL MATERIAL TO BECOME LARGER. DAMAGE TO THE SEALS CAN OCCUR.

(f) Wipe the spare static seal [27] and the backup rings [29] to remove unwanted hydraulic fluid and assembly lubricant.

(g) Put the spare static seal [27] in the static seal groove in the lower bearing carrier [23].

(h) Put the white backup rings [29] on the spare static seal [27] with the rounded edge of the backup rings [29] against the seal.

**SUBTASK 32-21-11-020-007**

(2) Remove the seal retainer [18]:

(a) Remove the bearing carrier pins [30] for the seal retainer [18].

(b) Move the seal retainer [18] away from the lower bearing carrier [23] to get access to the elastomer ring [19].

(c) Use tape to hold the seal retainer [18] in position on the inner cylinder [12], and to prevent it from moving down on the lower bearing carrier [23].

**SUBTASK 32-21-11-900-002**

(3) Replace the elastomer ring [19] with the spare dynamic seal [26]:

(a) Make sure that your hands are clean when you handle the elastomer seals.

NOTE: Some greases can cause the elastomer seals to swell too much. This can cause the seals to leak.

(b) Move the lower bearing carrier [23] up and down the inner cylinder [12] to move the elastomer ring [19], backup ring [21], and cap seal [20] from the inner groove of the lower bearing carrier [23].



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(c) If the elastomer ring [19] does not come out of the inner groove of the lower bearing carrier [23], remove it with a tool that is not sharp.

NOTE: Hardened steel cotter pin removal tools work well for removing the dynamic seal.

1) Remove the backup ring [21], and cap seal [20] from the elastomer ring [19] and discard.

NOTE: Use a plastic cutting tool to cut the cap seal.

2) Use a plastic cutting tool with a back-up strip to cut the elastomer ring [19] from the inner groove of the lower bearing carrier [23] and discard.

(d) Remove the four backup rings [22] from the spare dynamic seal groove and retain for installation.

(e) Remove the spare dynamic seal [26] from its groove in the lower bearing carrier [23] and move it down on the inner cylinder [12].

NOTE: The round sealing surface of the seal must be against the chrome on the inner cylinder.

**CAUTION**

DO NOT APPLY VASELINE OR PETROLATUM TO THE SEALS. THIS CAN CAUSE THE SEAL MATERIAL TO BECOME LARGER. DAMAGE TO THE SEALS CAN OCCUR.

(f) Apply a thin layer of fluid, D00467, or AFS-682 lubricant, D00589, to the spare dynamic seal [26] and the backup rings [22].

NOTE: AFS-682 lubricant, D00589, will help keep the backup rings in their positions.

(g) Put the white backup ring [22] on the spare dynamic seal [26] with the rounded edge of the backup ring [22] against the spare dynamic seal [26].

(h) Put one brown backup ring [22] on the outside of each white backup ring [22].

1) Put the split in the brown backup rings [22] in the opposite positions on the diameter from the split in the adjacent white backup rings [22].

**CAUTION**

MAKE SURE THAT THE BACKUP RINGS AND THE SEAL STAY TOGETHER WHEN YOU INSTALL THE SEAL. IF THE BACKUP RINGS AND THE SEAL MOVE APART, THEY WILL NOT INSTALL CORRECTLY. THIS CAN CAUSE DAMAGE TO THE SEAL AND THE BACKUP RINGS.

(i) Use the dynamic seal stuffer [82] (dynamic seal stuffer, , C32016-7, SPL-1381) to install the spare dynamic seal [26], and the backup rings [22] in the active seal location in the lower bearing carrier [23] (View F-F, Figure 802).

(j) Put the seal retainer [18] in its position on the lower bearing carrier [23].

(k) Make sure that the seal retainer [18] is flush to the lower bearing carrier [23] all around the circumference before installing the bearing carrier pins [30].

NOTE: If the seal retainer [18] is not flush, the spare dynamic seal [26] and backup rings [22] may not be installed correctly.

(l) If it is necessary, apply a thin layer of AFS-682 lubricant, D00589, to the bearing carrier pins [30] to hold them in position while the lower bearing carrier [23] is re-installed into the outer cylinder [9].

NOTE: AFS-682 lubricant, D00589, will help keep the bearing carrier pin in position. The material is a very thick, sticky material and heavy quantities can cause the lower bearing carrier to be difficult to re-install.



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1) Use the minimum quantity of AFS-682 lubricant, D00589, necessary to retain the bearing carrier pins [30].

2) Remove excess AFS-682 lubricant, D00589.

**CAUTION** DO NOT USE FORCE TO INSTALL THE RETENTION PINS INTO THEIR POSITIONS. THE PINS WILL INSTALL FREELY. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE SEAL RETAINER.

(m) Install the bearing carrier pins [30] to retain the seal retainer [18] to the lower bearing carrier [23].

1) If the bearing carrier pins [30] are not free during installation, then make sure that the seal retainer [18] is flush to the lower bearing carrier [23], then reinsert the bearing carrier pins [30].

NOTE: If the seal retainer is not flush, the spare dynamic seal and backup rings may not have been correctly installed.

## H. Put the Airplane Back to Its Usual Condition.

SUBTASK 32-21-11-420-001

(1) Move the lower bearing carrier [23] up the inner cylinder [12] into the outer cylinder [9].

SUBTASK 32-21-11-640-001

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(2) Apply a thin layer of corrosion inhibiting material, G50136, to the threads of the gland nut [17] and to the threads of the outer cylinder [9].

SUBTASK 32-21-11-420-002

(3) Install the gland nut [17]:

(a) Move the gland nut [17] up to the outer cylinder [9] and engage the threads.

(b) Use the wrench, SPL-1867, to tighten the gland nut [17] to 100 ft-lb (136 N·m) - 125 ft-lb (169 N·m).

(c) Remove excess corrosion inhibiting compound.

SUBTASK 32-21-11-420-003

(4) Install the lockplate [16] for the gland nut [17] (Figure 802):

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136, to the shank and threads of bolts [14] and washers [15].


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(b) Install the lockplate [16] in the holes that will put the tab of the lockplate [16] as close to a outer cylinder [9] slot as possible.

1) If it is necessary, loosen the gland nut [17] slightly to align slot on the end of outer cylinder [9] with the lockplate [16] tab.

(c) Install the bolts [14] and washers [15].

(d) Tighten the bolts [14].

(e) Install MS20995C32 lockwire, G01048, on the bolts [14].

**SUBTASK 32-21-11-420-004**

(5) Install the oil charging valve [6]:

(a) Remove and discard the old packing [7].

(b) Apply a thin layer of fluid, D00467, to a new packing [7].

(c) Install the new packing [7] on the oil charging valve [6].

(d) Install the oil charging valve [6] and tighten it to 22 ft-lb (30 N·m) - 25 ft-lb (34 N·m).

(e) Install the cap [5] loosely.

NOTE: You will tighten it in the shock strut servicing task.

(f) Apply compound, A00226, to the oil charging valve [6].

NOTE: This will make sure that the seal made by compound, A00226, will break if the oil charging valve becomes loose.

**SUBTASK 32-21-11-080-001**

(6) Lower and remove the axle jack (TASK 07-10-06-580-803).

**SUBTASK 32-21-11-080-002**

(7) Lower the airplane nose and remove the jacks (TASK 07-10-21-580-802).

**SUBTASK 32-21-11-420-005**

(8) Do this task: Nose Landing Gear Torsion Link Connection, TASK 32-21-31-400-803.

**SUBTASK 32-21-11-600-001**

(9) Do this task: Nose Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-41-610-802.

**SUBTASK 32-21-11-420-006**

(10) Make sure that the swivel nut [3] is tightened to 6 ±1 ft-lb (8 ±1 N·m).

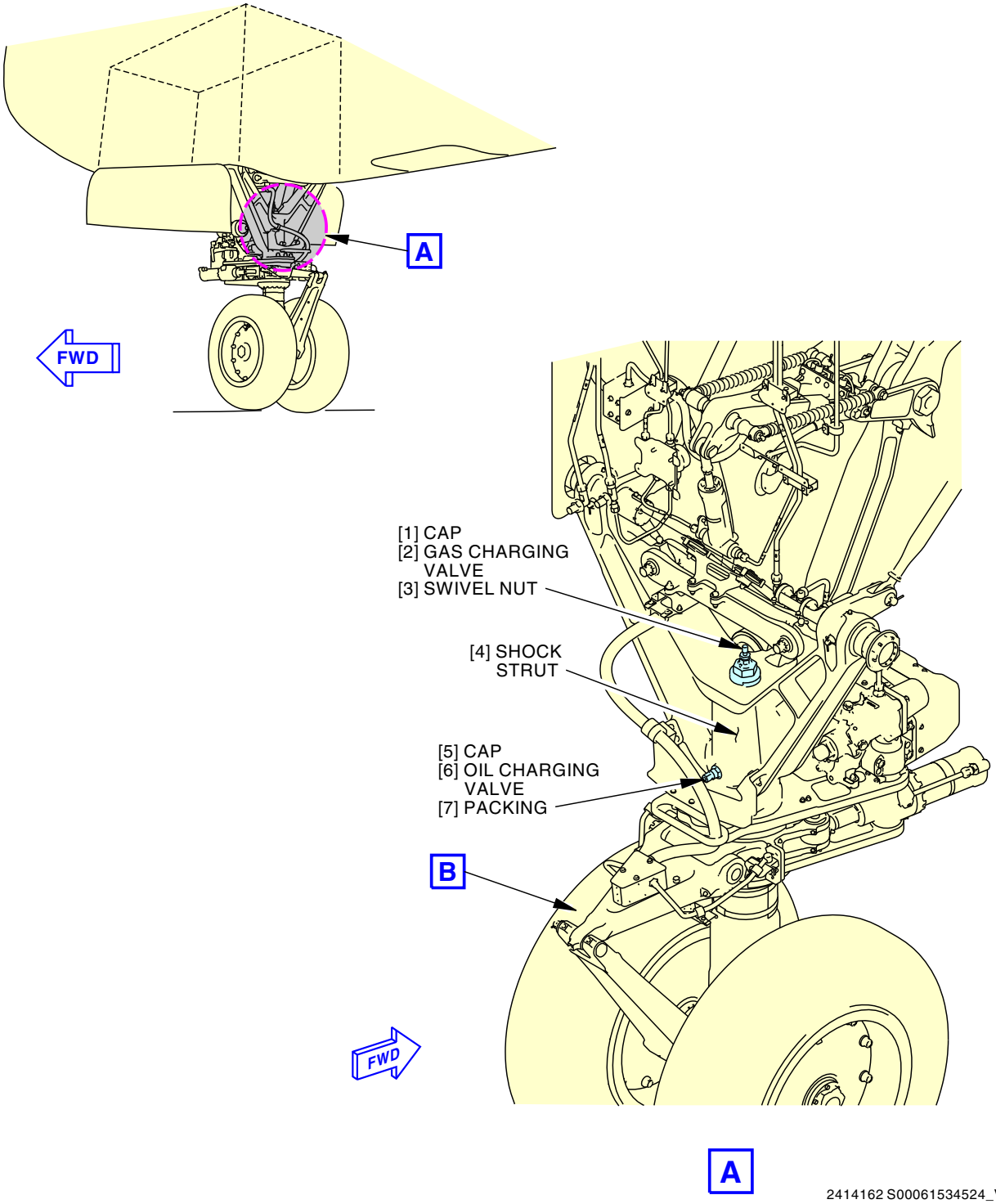
**SUBTASK 32-21-11-420-026**

(11) Make sure that the cap [1] is installed for the gas charging valve [2].

**——— END OF TASK ———**



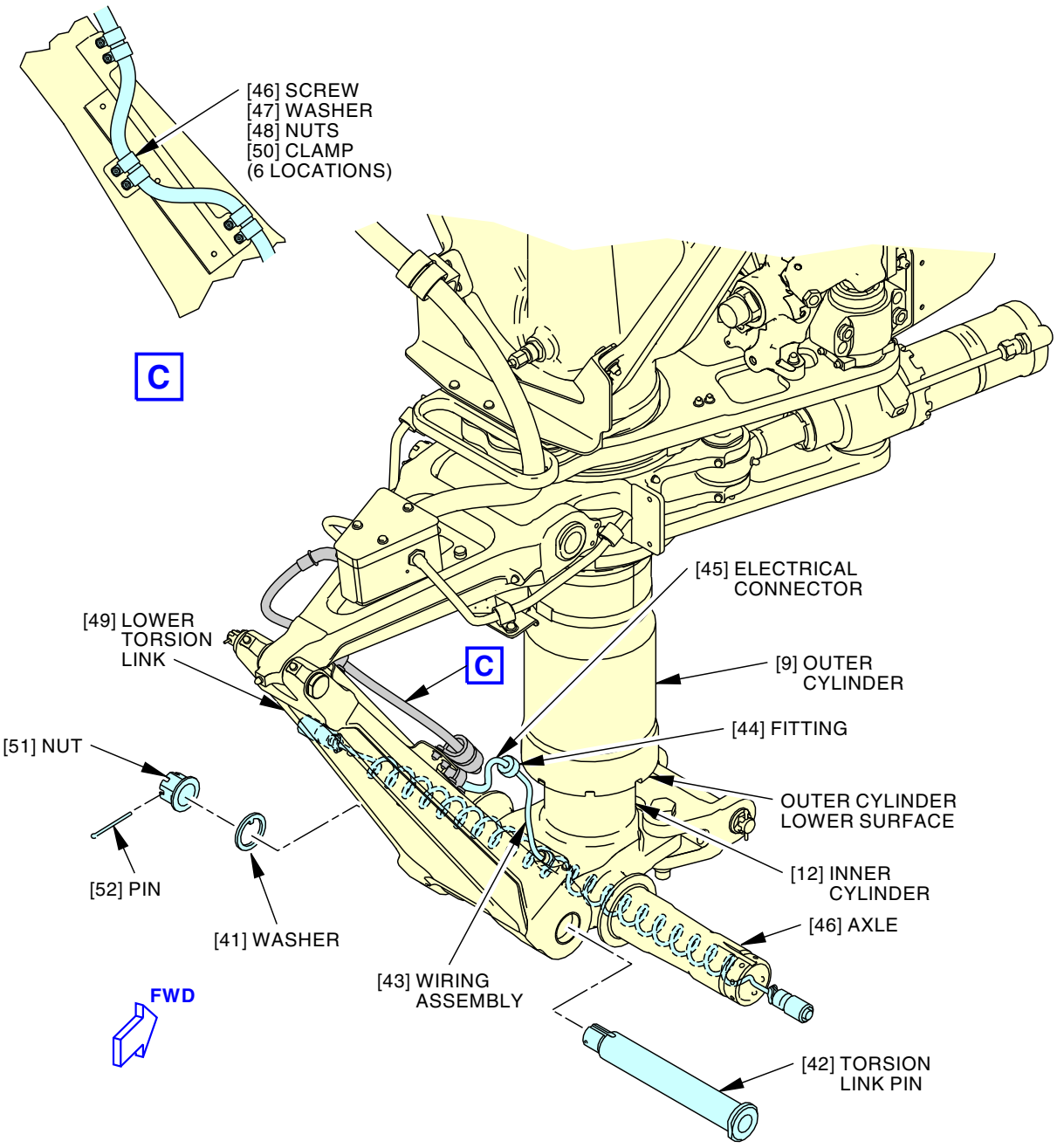
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Shock Strut Seal Replacement**
**Figure 801/32-21-11-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

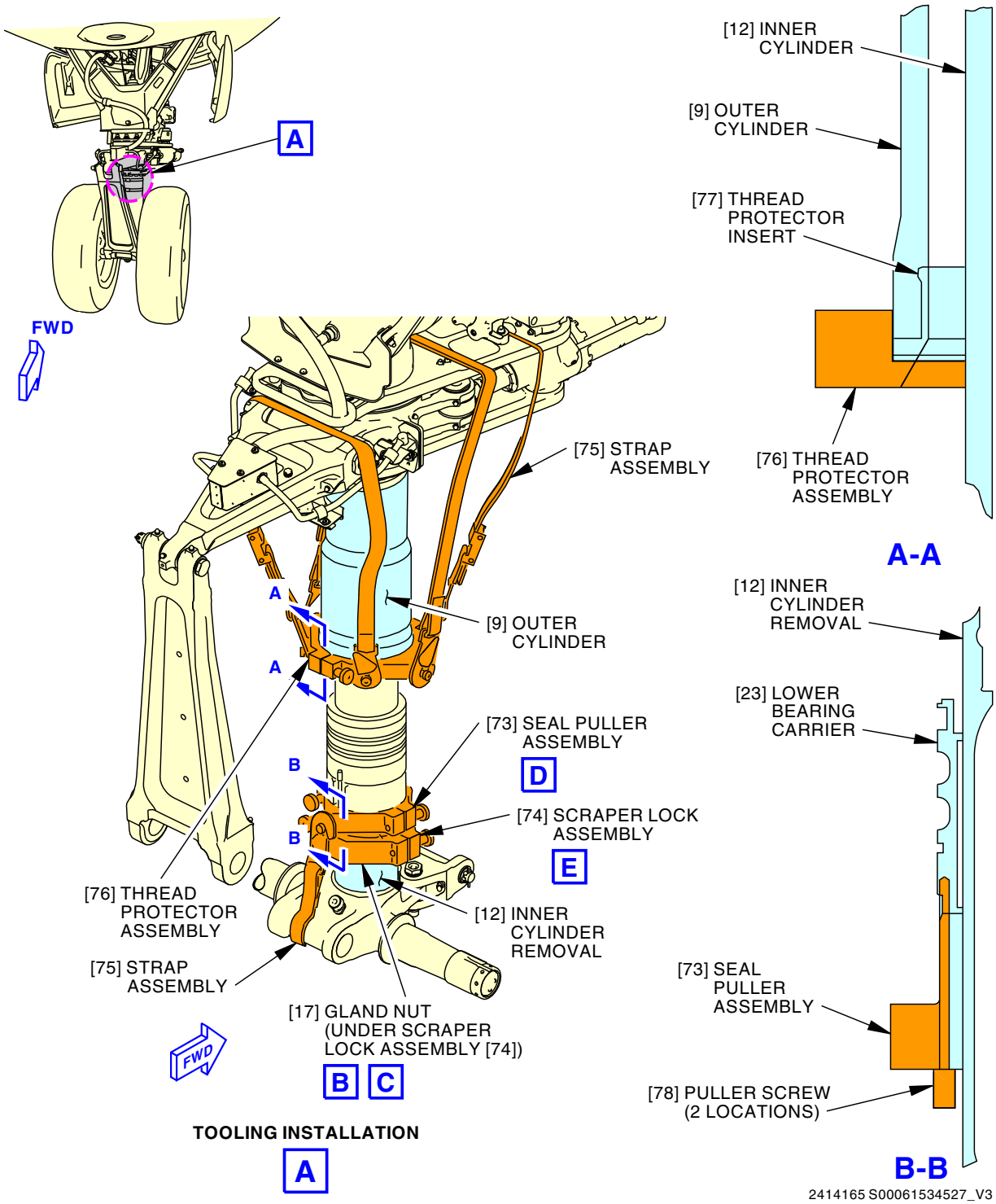



2414163 S00061534525_V4

**Nose Landing Gear Shock Strut Seal Replacement**
**Figure 801/32-21-11-990-801 (Sheet 2 of 2)**



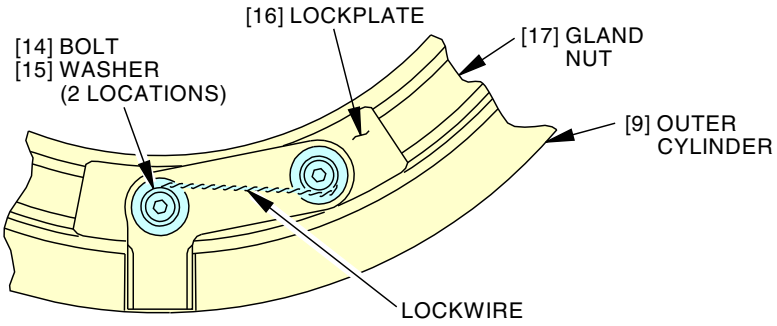
ECCN 9E991 BOEING PROPRIETARY - See title page for details



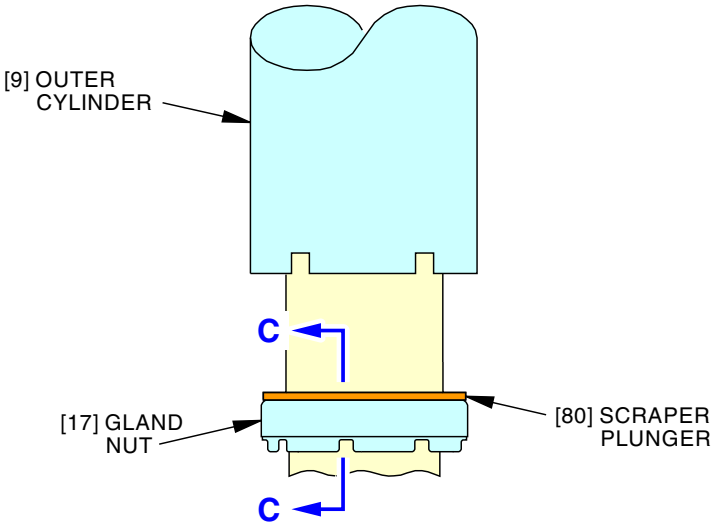

**Removal of the Inner Cylinder from the Outer Cylinder**
**Figure 802/32-21-11-990-802 (Sheet 1 of 7)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




B




**OPTIONAL - USE SCRAPER PLUNGER TO REINSTALL SCRAPER RING [24]**

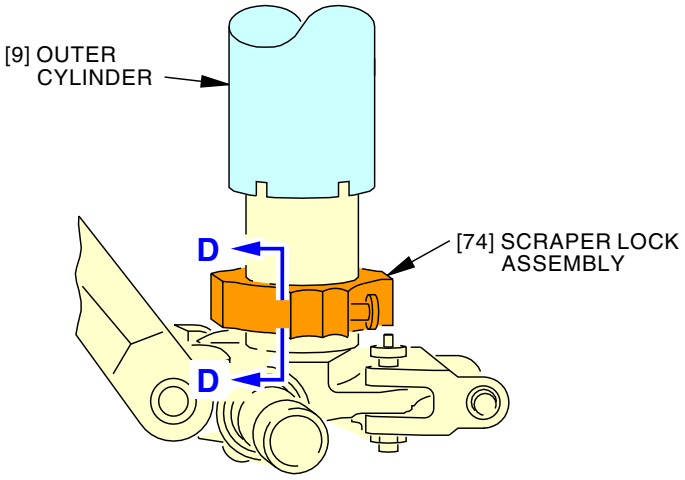
C

2414166 S00061534528_V2

**Removal of the Inner Cylinder from the Outer Cylinder**
**Figure 802/32-21-11-990-802 (Sheet 2 of 7)**

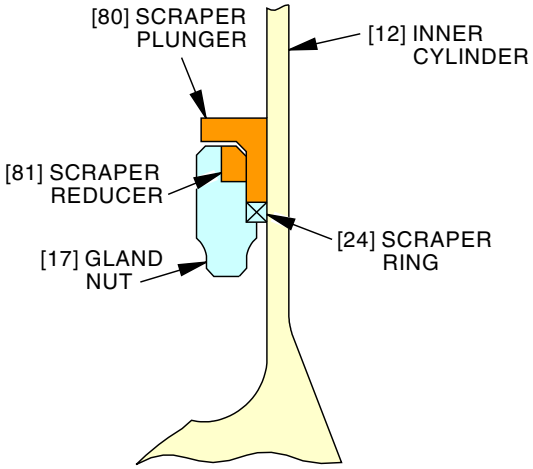


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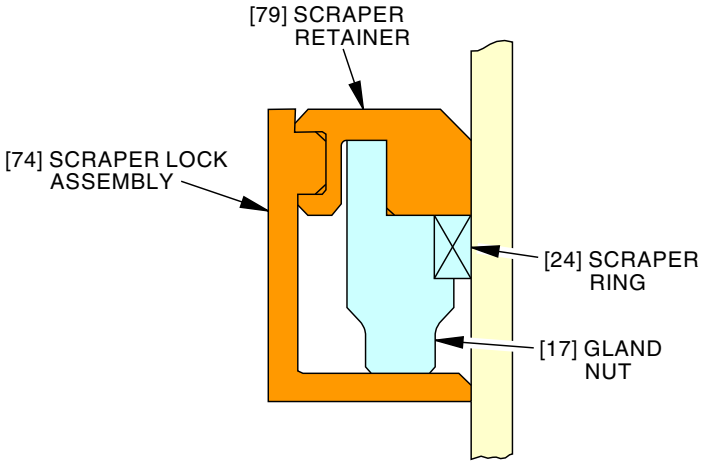



**INSTALL THE GLAND NUT SCRAPER RING RETAINER**

**D**




**C-C**



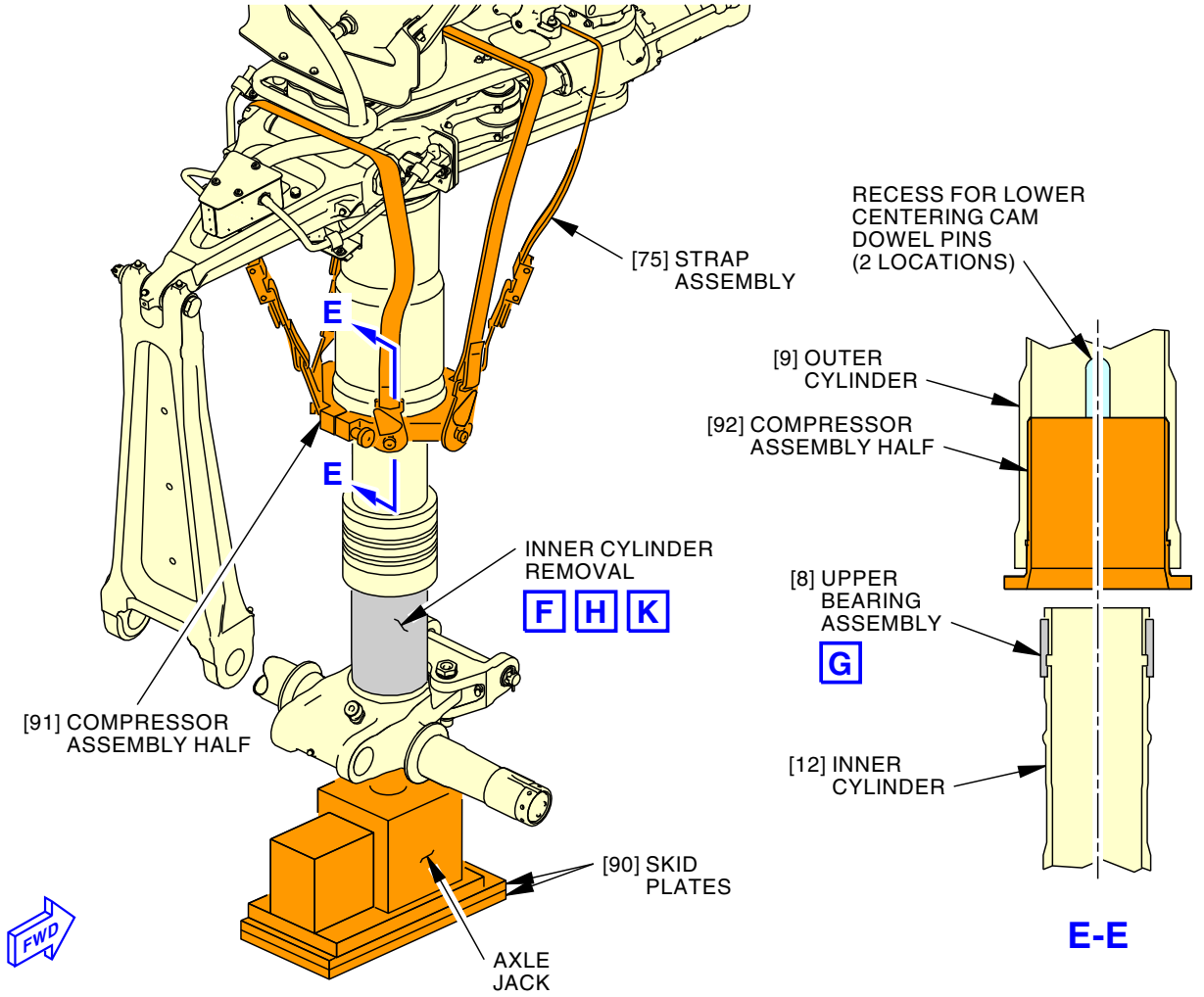

**D-D**

2414167 S00061534529_V2

**Removal of the Inner Cylinder from the Outer Cylinder**
**Figure 802/32-21-11-990-802 (Sheet 3 of 7)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**INNER CYLINDER REMOVAL FROM THE OUTER CYLINDER**

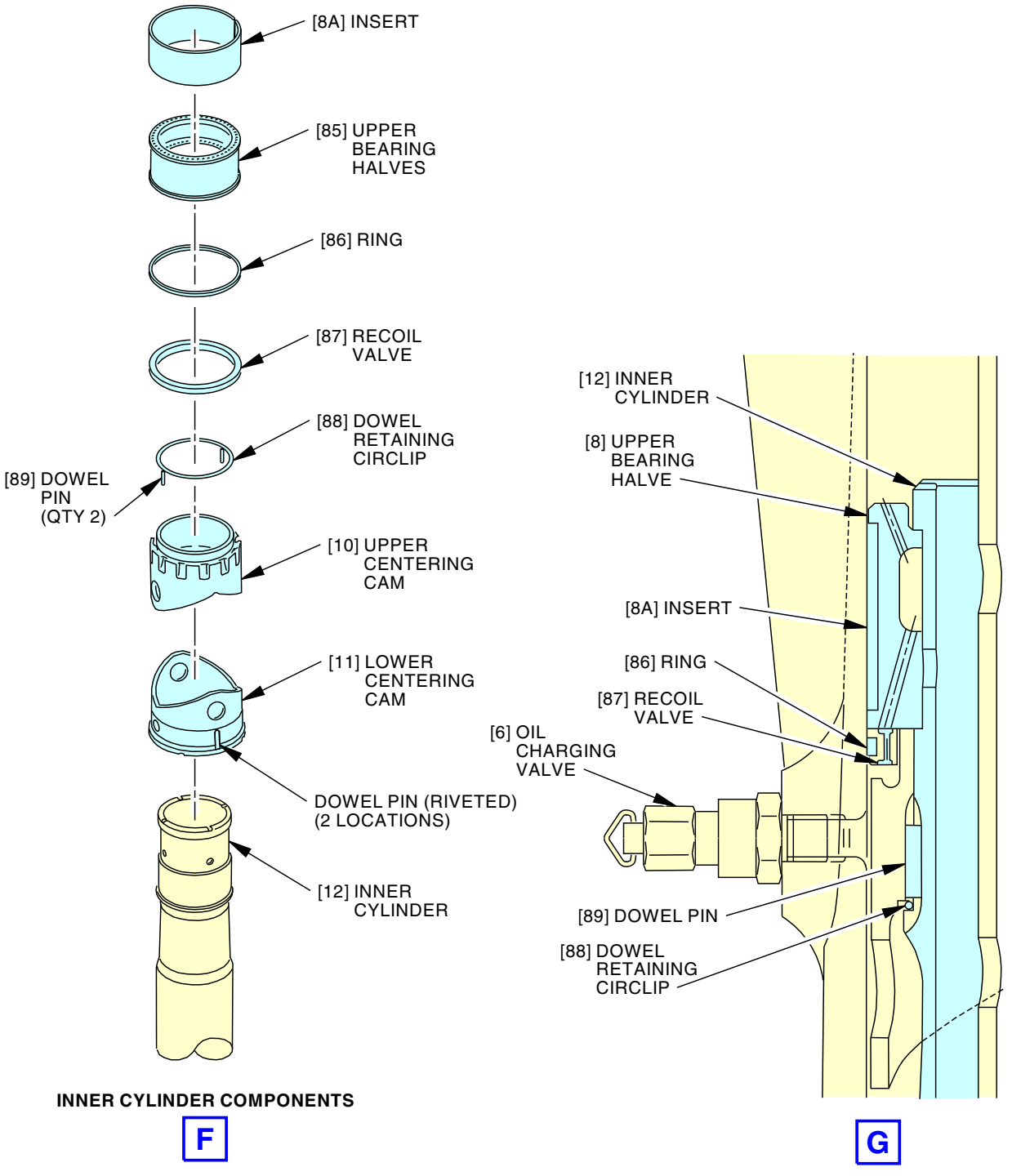
E

2414168 S00061534530_V4

**Removal of the Inner Cylinder from the Outer Cylinder**
**Figure 802/32-21-11-990-802 (Sheet 4 of 7)**



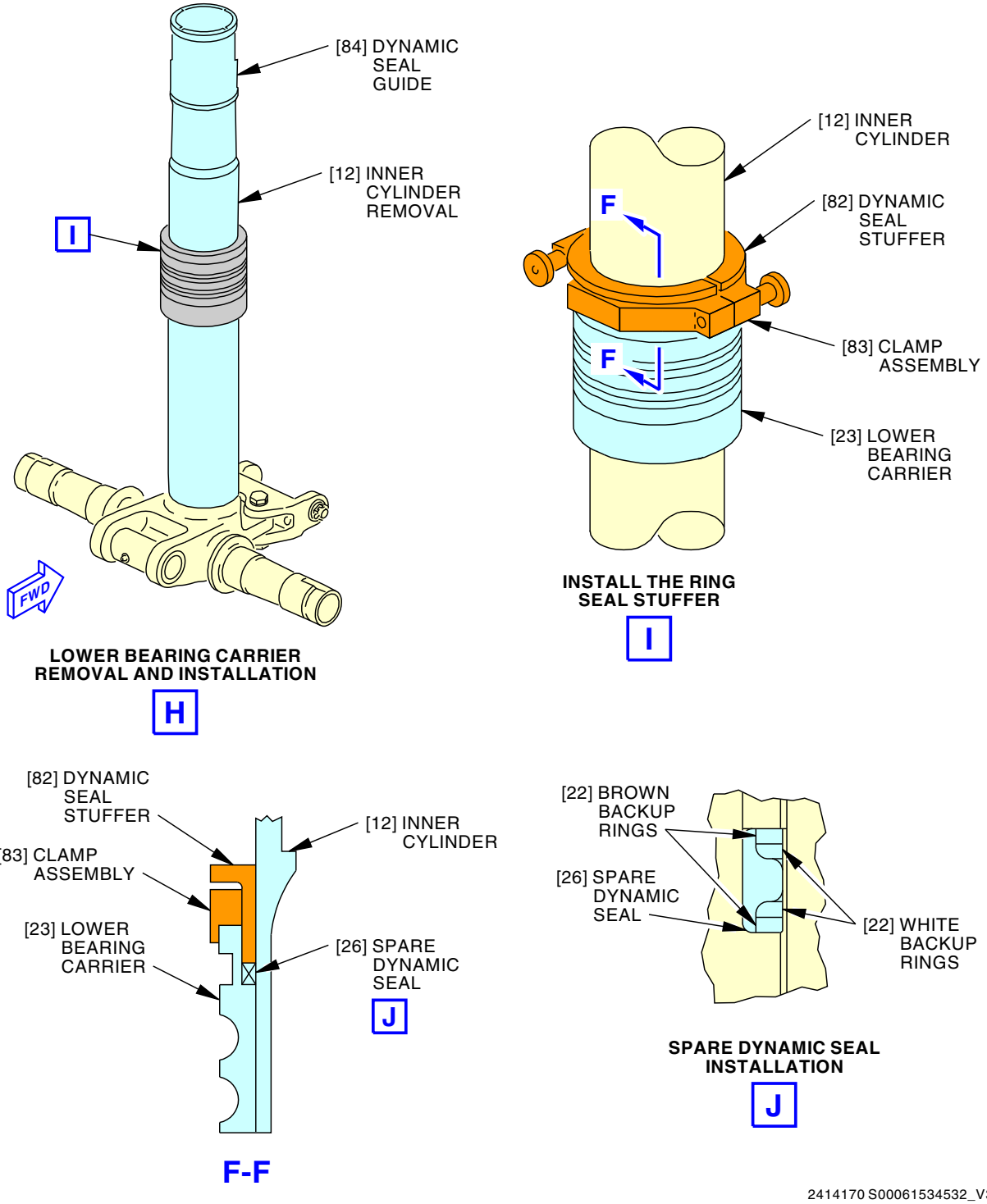
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Removal of the Inner Cylinder from the Outer Cylinder**
**Figure 802/32-21-11-990-802 (Sheet 5 of 7)**



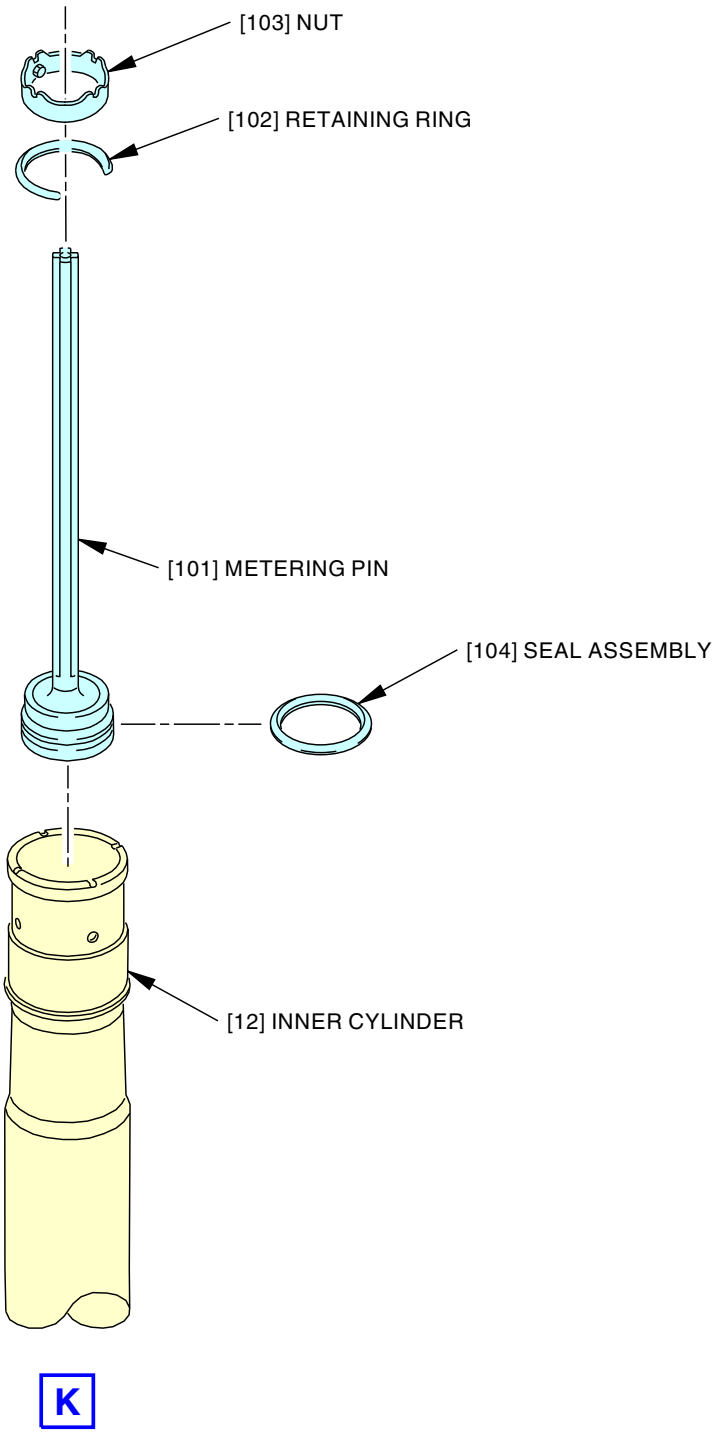
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Removal of the Inner Cylinder from the Outer Cylinder**
**Figure 802/32-21-11-990-802 (Sheet 6 of 7)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

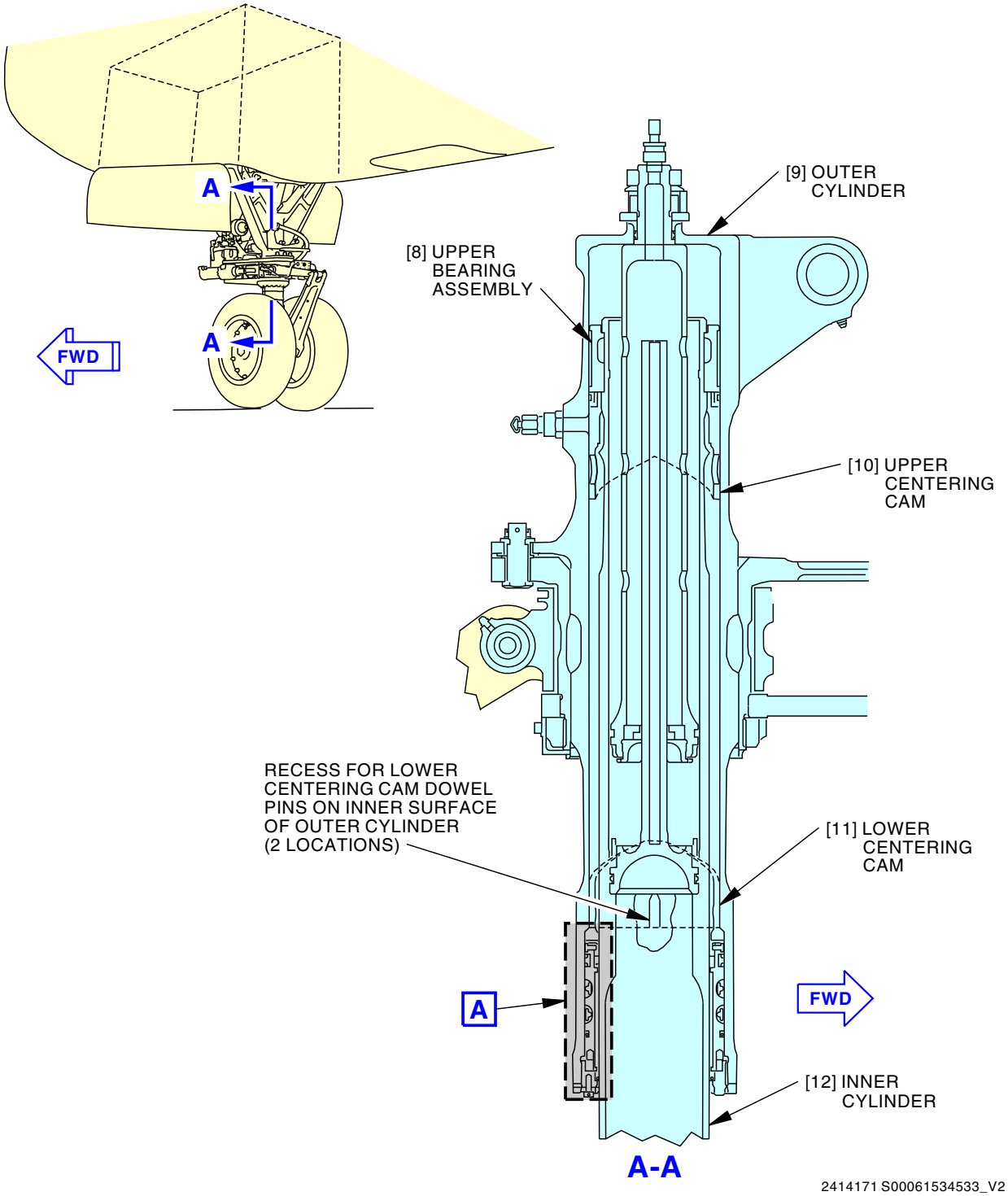



2877044 S0000681205_V1

**Removal of the Inner Cylinder from the Outer Cylinder**
**Figure 802/32-21-11-990-802 (Sheet 7 of 7)**



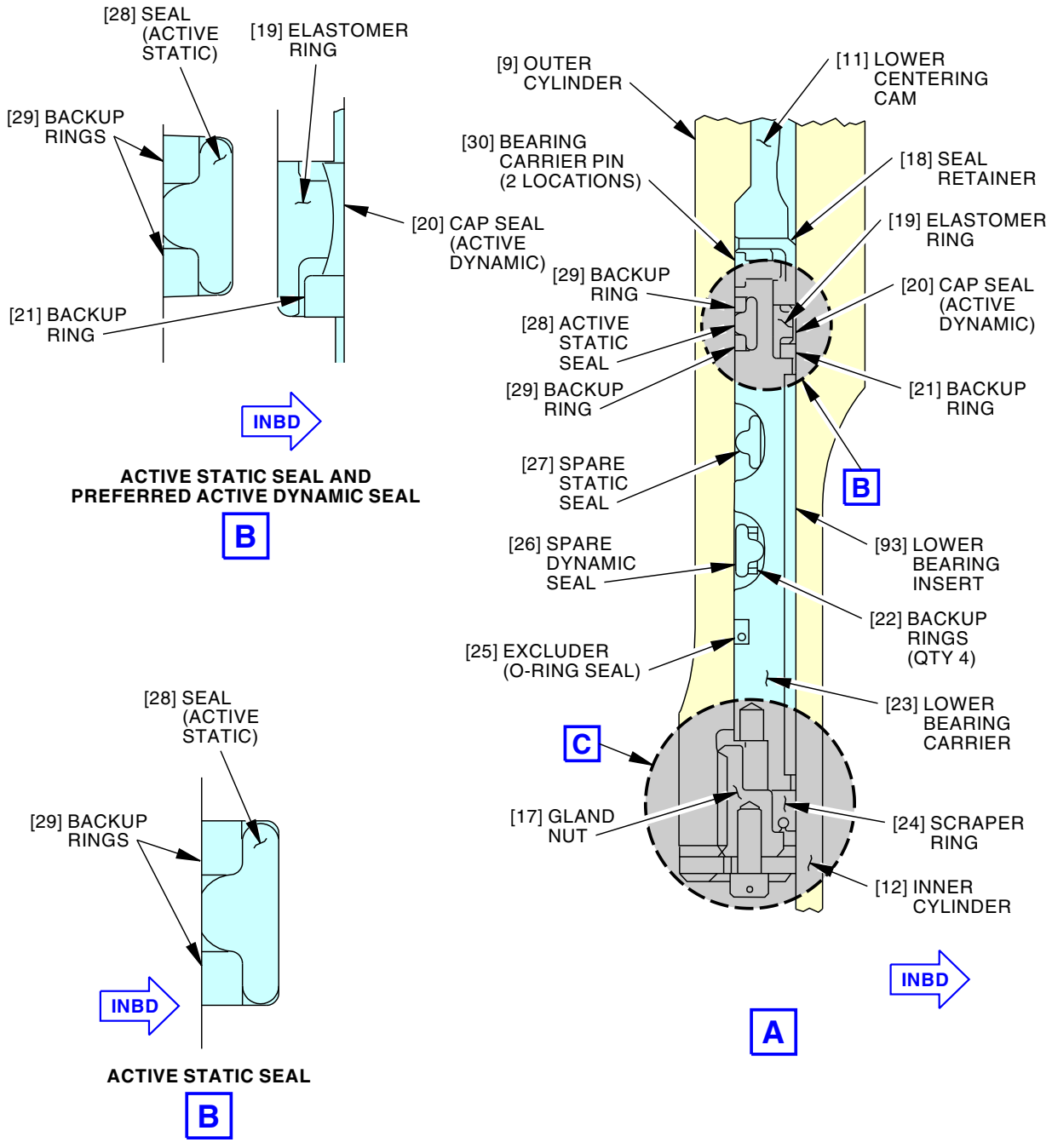
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Lower Bearing Carrier Seal Replacement**
**Figure 803/32-21-11-990-803 (Sheet 1 of 3)**



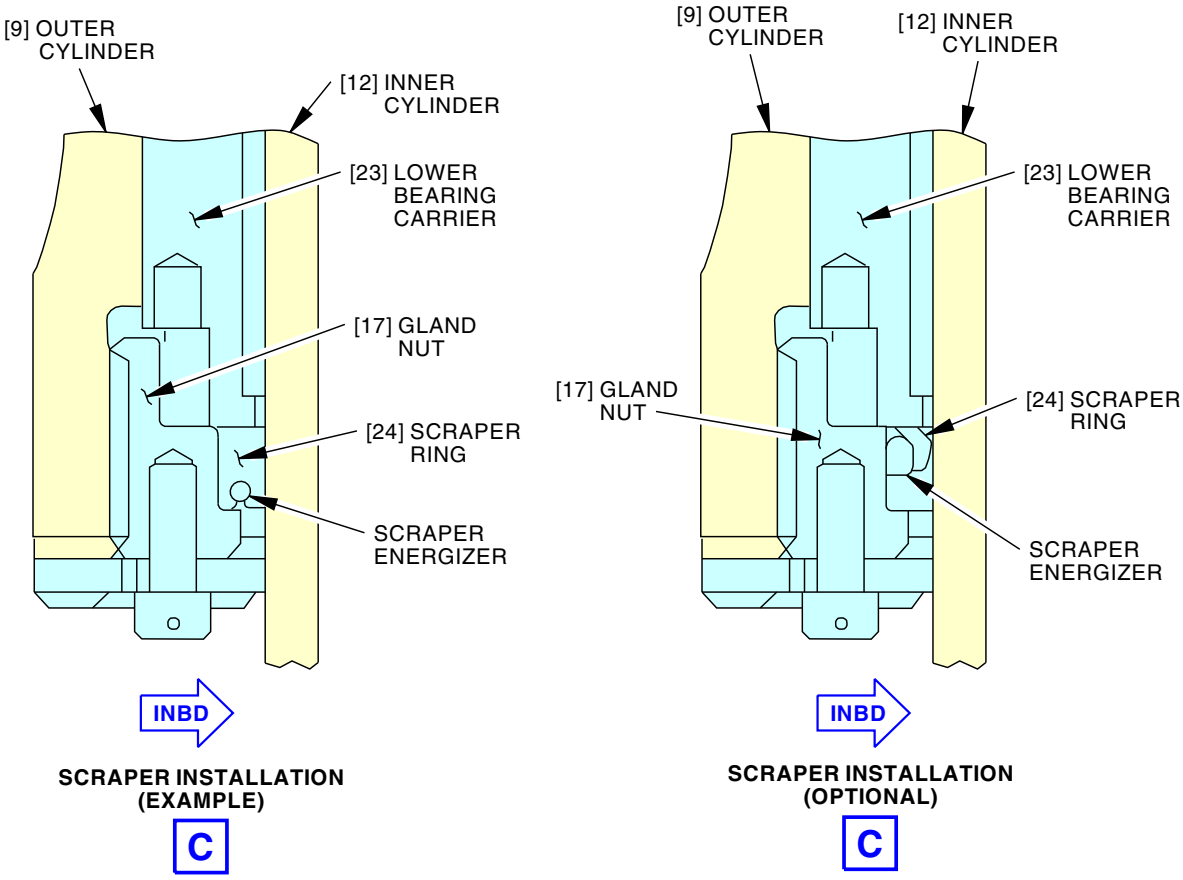
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Lower Bearing Carrier Seal Replacement**
**Figure 803/32-21-11-990-803 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

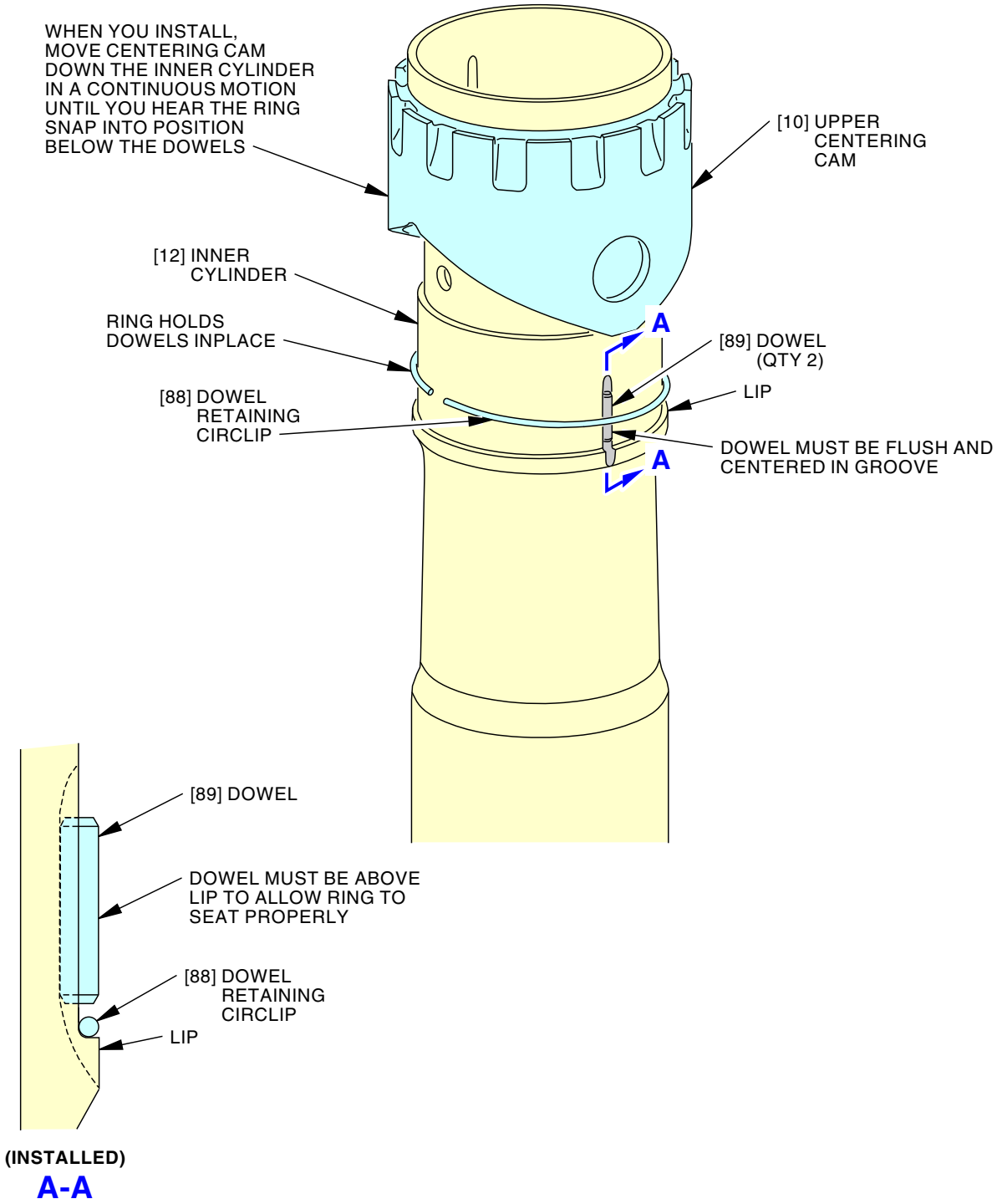



2414173 S00061534535_V4

**Lower Bearing Carrier Seal Replacement**
**Figure 803/32-21-11-990-803 (Sheet 3 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

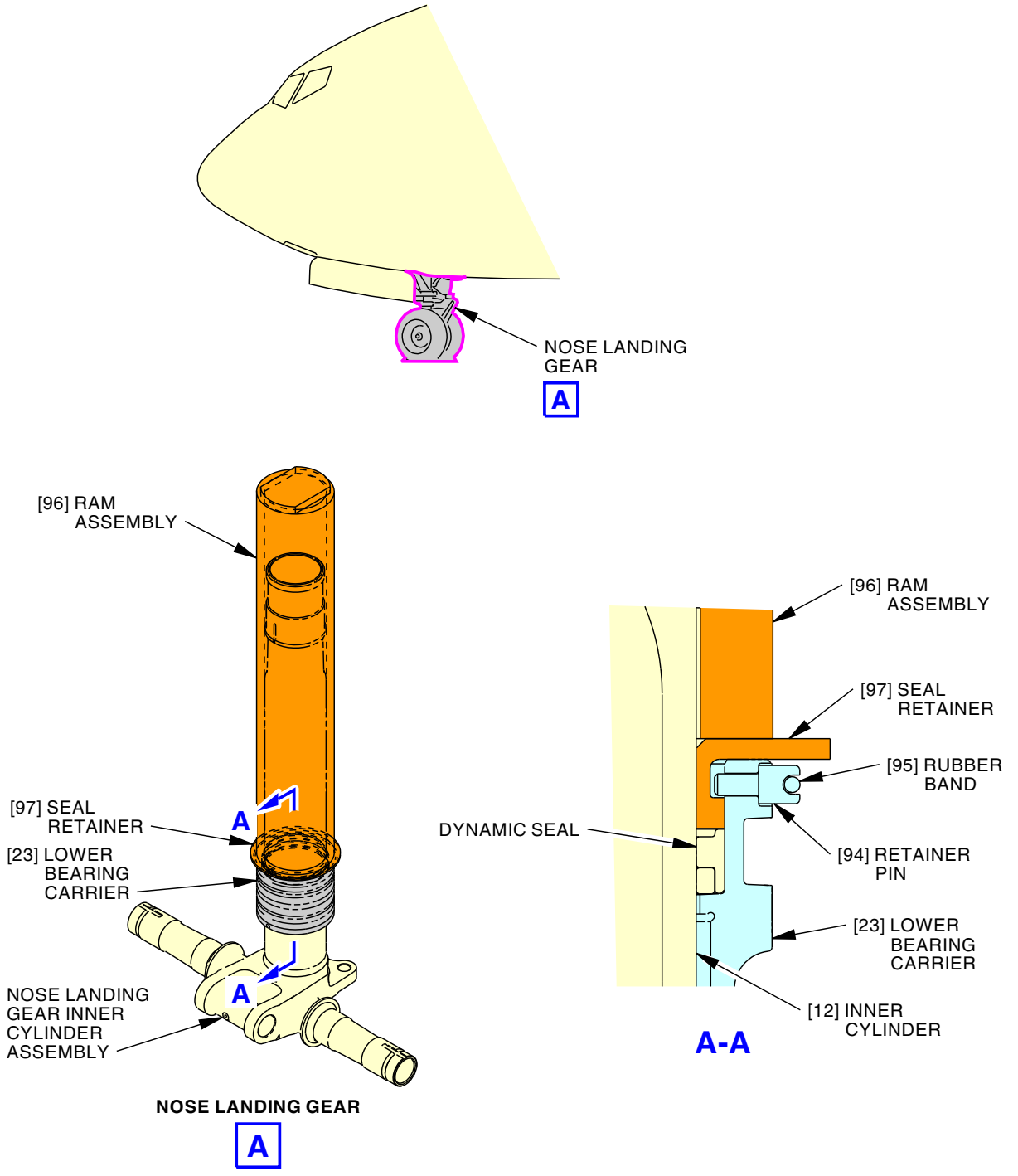



2414174 S00061534536_V3

**Upper Centering Cam Replacement**
**Figure 804/32-21-11-990-804**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2414175 S00061534537_V4

**Dynamic Seal Installation using Optional Tooling**
**Figure 805/32-21-11-990-805**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-21-11-960-802**

## 3. Seals and Spare Seals Replacement

(Figure 801, Figure 802, Figure 803, Figure 804, Figure 805)

### A. General

(1) This task provides instructions to replace the active seals and spare seals of the nose landing gear.

NOTE: To complete this task it is necessary to disassemble the inner cylinder from the outer cylinder.

(2) Use this task when there are no spare seals available on the lower bearing carrier to replace the active seals, and you will install a new 3-piece active dynamic seal.

(3) It is recommended that the spare seals only be used to replace the active seals if there are no replacement seals available or if the inner cylinder cannot be removed from the outer cylinder.

### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 07-10-06-580-803 | Lower the Airplane Nose (P/B 201) |
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-45-21-000-801 | Nose Landing Gear Wheel and Tire Assembly Removal (P/B 401) |
| 32-45-21-400-801 | Nose Landing Gear Wheel and Tire Assembly Installation (P/B 401) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1376 | Scraper Plunger, C32016-2 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1377 | Scraper Reducer, C32016-3 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

| Reference | Description |
|---|---|
| SPL-1378 | Scraper Retainer, C32016-4 or -67 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1379 | Scraper Lock Assy, C32016-5 or -68 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1382 | Dynamic Seal Guide, C32016-45 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1383 | Compressor Assy Half, C32016-10 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1384 | Thread Protector Assy, C32016-11 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1385 | Thread Protector Half, C32016-21 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1829 | Valve - Drain, Landing Gear Shock Strut Oil<br>Part #: J32108-16 Supplier: 81205<br>Opt Part #: A32066-1 Supplier: 81205 |
| SPL-1867 | Wrench - Nose Landing Gear Oleo Gland Nut<br>Part #: C32025-7 Supplier: 81205<br>Opt Part #: C32025-1 Supplier: 81205 |
| SPL-1895 | Equipment - Removal/Installation, Metering Pin and Retainer Ring, NLG<br>Part #: C32035-1 Supplier: 81205 |
| SPL-3927 | Assembly - Strap (C32017-60 Part of Kit C32017-52 and -53)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-4047 | Seal Puller Assy, C32016-6 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-12809 | Strap Assembly, C32016-59 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |


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(Continued)

| Reference | Description |
|---|---|
| SPL-13124 | Removal/Installation Equipment - NLG Lower Seals<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-13125 | Retainer Pin, C32016-56 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-13126 | Ram Assembly, C32016-47 (included in C32016 kit)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-13129 | Rubber Band, C32016-58 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-23426 | Seal Retainer, C32016-55 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| STD-1110 | Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter) |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| D00589 | Lubricant - Hydraulic Assembly - AFS-682 | |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| D50022 | Fluid - Landing Gear Shock Strut (Specifically For Preservation) | BMS3-32 Type I |
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |
| G50225 | Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter | NASM20995 |

**E. Location Zones**

| Zone | Area |
|---|---|
| 711 | Nose Landing Gear Door - Left |

**F. Prepare for the Replacement**

**SUBTASK 32-21-11-420-041**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).



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SUBTASK 32-21-11-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-21-11-020-008

**WARNING** CLEAR THE AREA BELOW THE NOSE BEFORE YOU DEFLATE THE SHOCK STRUT. IF YOU DEFLATE SHOCK STRUT, THE NOSE CAN MOVE DOWN AND CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(3) Deflate the shock strut [4] for the nose landing gear, do these steps:

(a) Remove the cap [1] for the gas charging valve [2], that is on the top of the shock strut [4].

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(b) Loosen the swivel nut [3] a maximum of two turns.

NOTE: Fluid in the shock strut can have bubbles when you release the pressure.

1) Deflate the shock strut [4] slowly to prevent the leakage of the fluid through the gas charging valve [2].

(c) Loosen the swivel nut [3] fully when all of the pressure in the shock strut [4] is released.

SUBTASK 32-21-11-680-002

(4) Drain the hydraulic fluid from the shock strut [4], do these steps:

(a) Remove the cap [5] from the oil charging valve [6].

(b) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110, in a position to catch the hydraulic fluid when the oil charging valve [6] is opened.

(c) Install the drain equipment on the oil charging valve [6], do these steps:

NOTE: The landing gear shock strut drain valve, SPL-1829, could also be used, but it will take much longer to drain the shock strut.

1) Cut a length of plastic tubing, sufficiently long to reach the container on the floor.

2) Insert a small Allen wrench in the end of the length of tubing, so that the long end of the Allen wrench is flush with the end of the tube and short end goes through the wall of the tube.

3) Install the tubing on the oil charging valve [6] so that the Allen wrench goes into the check valve and holds it open to drain the hydraulic fluid.

(d) Remove the drain equipment when you have removed all of the hydraulic fluid.



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SUBTASK 32-21-11-580-004

**WARNING** DO NOT LIFT THE NOSE OF THE AIRPLANE MORE THAN 84 INCHES (2.13 METERS). THE AIRPLANE WILL NOT BE STABLE IF YOU LIFT THE NOSE MORE THAN 84 INCHES (2.13 METERS). DAMAGE TO EQUIPMENT AND PERSONNEL CAN OCCUR.

(5) Lift the nose of the airplane until the lower surface of the shock strut outer cylinder [9] is approximately 36 in. (914 mm) above the ground (TASK 07-10-21-580-801).

NOTE: If lifting the nose outside in windy conditions, or if other maintenance is being performed at the same time as lifting the airplane nose, you may want to use a tail support to stabilize the airplane.

SUBTASK 32-21-11-010-001

(6) Remove the wheels (TASK 32-45-21-000-801).

SUBTASK 32-21-11-020-032

(7) Disconnect the electrical connector [45] and wiring assembly [43], do these steps:

(a) Remove the screws [46], washers [47], nuts [48], and clamps [50] from the lower torsion link [49].

(b) Remove lockwire from the fitting [44].

(c) Loosen the fitting [44] to disconnect the electrical connector [45] from the inner cylinder [12].

(d) Pull the wiring assembly [43] completely out of the axle [46] and inner cylinder [12].

(e) Make sure to attach a label to the wires to indicate the left and right connectors.

## G. Strut Torsion Links Disassembly

SUBTASK 32-21-11-020-010

(1) Disconnect the lower torsion link [49] from the inner cylinder [12], do these steps:

(a) Use a jack to hold the inner cylinder [12] in its position in the outer cylinder [9], or when the inner cylinder [12] is moved out of or into the outer cylinder [9] unless otherwise directed (TASK 07-10-03-580-803).

(b) Remove the pin [52], nut [51], and washer [41] from the torsion link pin [42].

(c) Remove the torsion link pin [42] to disconnect the lower torsion link [49]l from the inner cylinder [12].

(d) Supply a rope or other suitable tieback for the torsion links to hold them out of the work area.

SUBTASK 32-21-11-020-011

**WARNING** WHEN THE GLAND NUT IS LOOSENED AND MOVED DOWN THE INNER CYLINDER, IT CAN CAUSE A SHOCK-STRUT FLUID LEAK. USE LINT-FREE CLOTH PADS TO ABSORB LEAKAGE. SHOCK STRUT FLUID CAN CAUSE INJURY TO PERSONNEL.

(2) Disconnect the gland nut [17] from the outer cylinder [9], do these steps:

(a) Measure and write down, the dimension from the gland nut [17] lower surface to the outer cylinder [9] lower surface.

NOTE: This measurement will be used to make sure that the stackup of the lower bearing carrier components upon reinstallation in the outer cylinder is correct.

(b) Remove the bolt [14], washer [15], and lockplate [16] to release the gland nut [17].


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(c) Wrap towels around the inner cylinder [12], one on top of the other, to absorb fluid when you slowly loosen the gland nut [17].

1) Let the fluid drip from the towels into a bucket.

(d) Use the wrench, SPL-1867, to slowly loosen the gland nut [17] until the fluid begins to flow from the outer cylinder [9].

1) When the fluid flow stops, disconnect the gland nut [17] from the outer cylinder [9].

(e) Hold the gland nut [17] in its position against the outer cylinder [9] after you have disconnected it from the outer cylinder [9].

**SUBTASK 32-21-11-480-005**

(3) Install the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) and scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) on the gland nut [17], do these steps:

NOTE: This will make sure that the scraper ring for the gland nut does not come out of its groove.

(a) Install the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) on the gland nut [17].

(b) Install the scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) to hold the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) in its position on the gland nut [17].

**SUBTASK 32-21-11-020-012**

(4) Move the gland nut [17] down to the bottom of the inner cylinder [12].

(a) If the scraper ring [24] comes out of its groove, use the scraper plunger [80] (scraper plunger, C32016-2, SPL-1376) and scraper reducer [81] (scraper reducer, C32016-3, SPL-1377) to install the scraper ring [24] back in its groove.

**SUBTASK 32-21-11-020-013**

(5) Move and lower the lower bearing carrier [23], do these steps:

(a) Loosely install the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) around the inner cylinder [12].

(b) Push the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) up, such that it will install correctly at the bottom of the outer cylinder [9].

(c) Align the holes in the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) with the holes in the lower bearing carrier [23] for the puller screws [78].

(d) Install the puller screws [78] to hold the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) to the lower bearing carrier [23].

(e) Tighten the retainer puller screw [78] on each side of the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047).

(f) Use the jack to lift the inner cylinder [12] until the scraper lock assembly [74] is approximately 6 in. (152 mm) below the seal puller assembly [73].

(g) Install the strap assembly [75] (strap assembly, C32016-59, SPL-12809) around the axle and connect the ends to the shoulder bolts on each side of the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047.

(h) Use the jack to lower the inner cylinder [12] until the lower bearing carrier [23] is completely out of the outer cylinder [9].

1) Do not lower the inner cylinder [12] more than necessary.



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(i) Move the lower bearing carrier [23] by hand down on top of the gland nut [17].

NOTE: The bearing carrier pins may fall to ground during the movement of the lower bearing carrier down the inner cylinder.

(j) Remove the bearing carrier pins [30].

1) Keep the bearing carrier pin [30] for the re-installation.

(k) Remove the inner cylinder [12] from the outer cylinder [9], do these steps:

**WARNING** MAKE SURE THAT A MINIMUM OF TWO PERSONS WILL HOLD THE INNER CYLINDER WHEN YOU DO THE SUBSEQUENT STEPS. THE INNER CYLINDER IS HEAVY. INJURY TO PERSONS OR DAMAGE TO THE EQUIPMENT CAN OCCUR.

1) Use two people to lift the inner cylinder [12] off of the jack.

2) Move the jack away from the area.

**WARNING** MAKE SURE TO KEEP THE CYLINDER VERTICAL. THE INNER CYLINDER CONTAINS SHOCK STRUT FLUID WHICH CAN FLOW OUT. USE A CONTAINER TO CONTAIN THE REMAINING FLUID. THE FLUID CAN CAUSE INJURY TO PERSONNEL OR EQUIPMENT.

3) Lower the inner cylinder [12] out of the outer cylinder [9].

(l) Pour the remaining shock strut fluid into a suitable 5 gal (19 l) container.

NOTE: Total strut fluid is approximately 0.88 gal (3.3 l).

1) If it is necessary, flush the inner cylinder [12] may flushed with fluid, D00467, to make sure that there is no debris upon reassembly.

NOTE: Debris from normal operation sometimes accumulates in the shock strut fluid.

(m) Move the inner cylinder [12], lower bearing carrier [23], and gland nut [17] to a suitable location for further disassembly.

NOTE: Two persons can transport the inner cylinder by holding the assembly by the axles and holding the inner cylinder upright.

SUBTASK 32-21-11-840-001

(6) Use a plastic bag of suitable proportions to cover the open inner cylinder [12] and outer cylinder [9] when you are not directly working on them.

NOTE: This will keep dirt or debris from getting inside the inner cylinder and outer cylinder.

## H. Metering Pin Seal Replacement

SUBTASK 32-21-11-960-003

(1) Do these steps if it is required to replace the metering pin seal assembly [104] (Figure 802).

NOTE: The metering pin seal assembly should be replaced if the leakage exceed the rates in Table 801.

(a) Remove the metering pin [101] from the inner cylinder [12], do these steps:

1) Use the metering pin and retainer ring equipment, SPL-1895, to remove the nut [103] and retaining ring [102] from the inner cylinder [12].

2) Remove the metering pin [101] from the inner cylinder [12].

3) Remove the seal assembly [104] from the metering pin [101].

(b) Install the metering pin [101] in the inner cylinder [12], do these steps:



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1) Cover the seal assembly [104] with fluid, D00467.
2) Install the seal assembly [104] on the metering pin [101].
3) Apply a layer of hydraulic fluid, D00467, to the threads of nut [103].
4) Put the flat lip of the retaining ring [102] against the mating face of the metering pin [101].
5) Use the metering pin and retainer ring equipment, SPL-1895, to compress the retaining ring [102] on the metering pin [101].
6) Install the nut [103] to hold the retaining ring [102] compressed between the metering pin [101] and nut [103]
7) Install the metering pin [101], retaining ring [102] and nut [103] in the inner cylinder [12].
8) Use the metering pin and retainer ring equipment, SPL-1895, to loosen the nut [103] and let the retaining ring [102] expand into the groove in the inner cylinder [12].
9) Use the metering pin and retainer ring equipment, SPL-1895, to torque the nut [103] to 75 ft-lb (101.7 N·m) - 100 ft-lb (135.6 N·m).

## I. Inner Cylinder Component Disassembly

**SUBTASK 32-21-11-020-014**

(1) Remove the upper bearing assembly [8] and recoil valve [87] from the top of the inner cylinder [12], do these steps:

(a) Remove the insert [8A] from the upper bearing halfs [85].

NOTE: Pull the insert apart slightly and slide it up and off the upper bearing halfs.

1) Inspect the insert [8A] for damage and excessive wear.

a) Make sure that the insert [8A] thickness is greater than or equal to 0.0865 in. (2.1971 mm).

b) If it is necessary, replace the insert [8A].

(b) Remove the upper bearing halfs [85] from the inner cylinder [12].

(c) Remove the recoil valve [87] and ring [86].

**SUBTASK 32-21-11-020-015**

(2) Remove the upper centering cam [10] and lower centering cam [11] from the inner cylinder [12].

(a) Remove the dowel retaining circlip [88] and dowels [89] from the inner cylinder [12].

**SUBTASK 32-21-11-020-016**

(3) Remove the lower bearing carrier [23] from the inner cylinder [12], do these steps:

(a) Use rubber mallet and lightly hit the bottom of the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) until the lower bearing carrier [23] can be pulled off at the top of the inner cylinder [12].

NOTE: The lower bearing carrier is coated with a dry lubricant film. The film may be worn and appear uneven, this is not cause for the lower bearing carrier replacement.

(b) Remove the puller screw [78] to disconnect the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) from the lower bearing carrier [23].

(c) Remove the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) from the lower bearing carrier [23].

(d) Remove the lower bearing insert [93] from the lower bearing carrier [23].



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1) Inspect the lower bearing insert [93] for damage and excessive wear.

a) Make sure that the lower bearing insert [93] thickness is greater than or equal to 0.0865 in. (2.1971 mm).

b) If it is necessary, replace the lower bearing insert [93].

(e) Install the lower bearing insert [93] on the lower bearing carrier [23].

SUBTASK 32-21-11-020-017

(4) Remove the seal retainer [18]:

(a) Move the seal retainer [18] away from the lower bearing carrier [23] to get access to the elastomer ring [19].

**J. Active Dynamic Seal, Active Static Seal, and Spare Seal Replacement**

NOTE: Do this task in a sheltered and clean environment. Make sure that all fay surfaces of components have been cleaned and are free of debris before re-assembly.

NOTE: You may disassemble the lower bearing carrier components all at once to aid in cleaning of the lower bearing carrier before reassembly.

SUBTASK 32-21-11-900-003

(1) If there is any sign of damage or wear on the old scraper ring [24], install a new scraper ring [24] on the gland nut [17], do these steps:

NOTE: The scraper ring prevents dirt and debris from entering the shock strut when the inner cylinder and outer cylinder compress.

(a) Remove the gland nut [17] from the inner cylinder [12].

(b) Remove the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) and scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) from the gland nut [17].

(c) Remove the old scraper ring [24] from its groove on the gland nut [17].

(d) Install the new scraper ring [24] in its groove on the gland nut [17].

1) Make sure to use the correct scraper configuration to be installed in its groove on the gland nut [17].

NOTE: There are two possible scraper configurations used for installation (Figure 803).

SUBTASK 32-21-11-480-006

(2) Install the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) and scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) on the gland nut [17], do these steps:

NOTE: This will make sure that the new scraper ring for the gland nut does not come out of its groove.

(a) Install the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) on the gland nut [17].

(b) Install the scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) to hold the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) in its position on the gland nut [17].

SUBTASK 32-21-11-900-004

(3) If there is any sign of damage or wear on the old excluder [25], replace the excluder [25] on the lower bearing carrier [23], do these steps:

NOTE: The excluder prevents dirt and debris from damaging the active static seal.



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(a) Remove the excluder [25] from its groove in the lower bearing carrier [23].

(b) Install the new excluder [25] in its groove in the lower bearing carrier [23], do these steps:

1) Put the excluder [25] in a sealed plastic bag and submerge the bag in hot water (not boiling) for 3-5 minutes.

2) Apply a thin layer of fluid, D50022, (preferred) or fluid, D00467, (alternative) onto the excluder [25].

3) Put fluid, D50022, (preferred) or fluid, D00467, (alternative) on the surface on which the excluder [25] will move.

4) Put the excluder [25] in position evenly on the carrier with the spring or elastomer facing down (toward the gland nut [17]).

NOTE: Zip ties can be used to help with this step.

5) Carefully slide the excluder [25] into position in its carrier groove.

6) Make sure that you move the seal evenly down the carrier and do not let it roll over.

7) Make sure that the excluder [25] stays in its correct position until it reaches room temperature and has conformed to its original shape.

NOTE: A compression ring can be used to lightly hold the excluder in its position until it reaches room temperature.

**SUBTASK 32-21-11-900-005**

(4) Replace the active static seal [28], do these steps (Figure 803):

(a) Make sure that your hands are clean when you handle the elastomer seals.

NOTE: Some greases can cause the elastomer seals to swell too much. This can cause the seals to leak.

(b) Replace the backup rings [29] from the active static seal [28].

(c) Remove the active static seal [28] from its groove on the lower bearing carrier [23].

**CAUTION**

DO NOT APPLY VASELINE OR PETROLATUM TO THE SEALS. THIS CAN CAUSE THE SEAL MATERIAL TO BECOME LARGER. DAMAGE TO THE SEALS CAN OCCUR.

(d) You may apply a very thin layer of fluid, D00467, or AFS-682 lubricant, D00589, to the new active static seal [28] and backup rings [29] to help keep the rings in their position during installation.

NOTE: The material is a very thick and sticky and large quantities can cause the lower bearing carrier to be difficult to re-install.

1) Use the minimum quantity of AFS-682 lubricant, D00589, necessary to keep the parts in position.

2) Remove excess AFS-682 lubricant, D00589.

NOTE: Use of excess AFS-682 lubricant, D00589, can cause problems with assembly of the components.

(e) Install the new active static seal [28] in its groove on the lower bearing carrier [23].



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CAUTION

MAKE SURE THAT THE RADIUS OF THE BACKUP RING IS AGAINST THE SEAL RADIUS. IF THE BACKUP RINGS ARE NOT INSTALLED CORRECTLY, DAMAGE CAN OCCUR.

(f) Install the first backup ring [29] on the active static seal [28] with the rounded edge of the backup ring [29] against the seal.

(g) Install the second backup ring [29] with the split in the opposite position on the diameter of the lower bearing carrier [23] as the split of the first backup ring [29] installed.

SUBTASK 32-21-11-900-006

(5) Replace the spare static seals [27], do these steps:

(a) Make sure that your hands are clean when you handle the elastomer seals.

NOTE: Some greases can cause the elastomer seals to swell too much. This can cause the seals to leak.

(b) Install the new spare static seals [27] in its groove on the lower bearing carrier [23].

NOTE: The spare static seals should be installed as shown in (Figure 803).

SUBTASK 32-21-11-900-007

CAUTION

MAKE SURE THAT THE BACKUP RING, THE CAP, AND THE SEAL STAY TOGETHER WHILE YOU INSTALL THE SEAL. IF THE BACKUP RING, THE CAP, AND THE SEAL MOVE APART, THEY WILL NOT INSTALL CORRECTLY. THIS CAN CAUSE DAMAGE TO THE SEAL, THE CAP, AND THE BACKUP RING.

(6) Replace the active dynamic seal, do these steps:

(a) Remove the cap seal [20], backup ring [21], and elastomer ring [19] from the inner groove on the lower bearing carrier [23].

CAUTION

DO NOT APPLY VASELINE OR PETROLATUM TO THE SEALS. THIS CAN CAUSE THE SEAL MATERIAL TO BECOME LARGER. DAMAGE TO THE SEALS CAN OCCUR.

(b) You can apply a thin layer of fluid, D00467, or AFS-682 lubricant, D00589, to the elastomer ring [19], cap seal [20], and backup ring [21] to help keep the backup rings [21] in position during installation.

NOTE: The material is very thick and sticky and large quantities can cause the lower bearing carrier to be difficult to re-install.

1) Use the minimum quantity of AFS-682 lubricant, D00589, necessary to keep the parts in position.

2) Remove excess AFS-682 lubricant, D00589.

NOTE: Use of excess AFS-682 lubricant, D00589, can cause problems with assembly of the components.

(c) The three parts of the active dynamic seal can be assembled on the inner cylinder [12] and then put in the dynamic seal groove of the lower bearing carrier [23] or the parts can be installed in the groove one at a time.

(d) Install the backup ring [21] of the new dynamic seal in the inner groove for the active dynamic seal.

NOTE: The edge radius should be facing up and towards the elastomer ring.



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CAUTION

DO NOT PUT THE CAP SEAL INTO THE SEAL RETAINER WHILE IT MOVES DOWN THE INNER CYLINDER. IF YOU DO NOT OBEY, DAMAGE TO THE SEAL CAN OCCUR.

(e) Install the cap seal [20] in the inner groove for the active dynamic seal.

(f) Install the elastomer ring [19] in its groove on the lower bearing carrier [23] (View B, Figure 803).

NOTE: The wide seal edge is pointed toward the bottom of the lower bearing carrier.

SUBTASK 32-21-11-900-008

(7) Replace the spare dynamic seal [26], do these steps:

(a) Install a spare dynamic seal [26] if there is no spare dynamic seal in the spare seal groove on the lower bearing carrier [23].

(b) Install the spare dynamic seal backup rings [22] in the spare seal groove on the lower bearing carrier [23].

SUBTASK 32-21-11-420-008

(8) Install the seal retainer [18] or optional seal retainer [97], do these steps:

NOTE: You may use optional seal retainer (seal retainer, C32016-55, SPL-23426) to help install the dynamic seal correctly.

(a) Put the seal retainer [18] in its position on the lower bearing carrier [23].

(b) Make sure that the seal retainer [18] is flush to the lower bearing carrier [23] all around the circumference before you install the bearing carrier pins [30].

NOTE: If the seal retainer is not flush, the active dynamic seal and the backup rings may not be installed correctly.

(c) You may apply a thin layer of AFS-682 lubricant, D00589, to the bearing carrier pins [30] to hold them in position while the lower bearing carrier [23] is re-installed into the outer cylinder [9].

NOTE: AFS-682 lubricant, D00589, will help keep the bearing carrier pins in position.

1) Use the minimum quantity of AFS-682 lubricant, D00589, necessary to retain the bearing carrier pins [30].

NOTE: The material is very thick and sticky and large quantities can cause the lower bearing carrier to be difficult to re-install.

2) Remove excess AFS-682 lubricant, D00589.

CAUTION

DO NOT FORCE THE PINS INTO THEIR POSITION. THE PINS MUST INSTALL FREELY. IF YOU FORCE THE PINS INTO THEIR POSITION, IT CAN CAUSE DAMAGE TO THE SEAL RETAINER.

(d) Install the bearing carrier pins [30] to keep the seal retainer [18] in the lower bearing carrier [23].

1) If the bearing carrier pins [30] are not free during installation, make sure that the seal retainer [18] is flush to the lower bearing carrier [23], then reinsert the bearing carrier pins [30].

NOTE: If the seal retainer is not flush, the active dynamic seal may have not been installed correctly.

(e) Install the optional seal retainer [97], do these steps:



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1) Put the optional seal retainer [97] in its position on the lower bearing carrier [23].
2) Install the retainer pins [94] to connect the seal retainer to the lower bearing carrier [23].
3) Install the rubber band [95] to hold the retainer pins [94] in position.

SUBTASK 32-21-11-840-002

**WARNING** MAKE SURE THAT A MINIMUM OF TWO PERSONS WILL HOLD THE INNER CYLINDER WHEN YOU DO THE SUBSEQUENT STEPS. THE INNER CYLINDER IS HEAVY. INJURY TO PERSONS OR DAMAGE TO THE EQUIPMENT CAN OCCUR.

(9) Hold the inner cylinder [12] in a vertical position.

SUBTASK 32-21-11-480-007

(10) Coat the dynamic seal guide [84] (dynamic seal guide, C32016-45, SPL-1382) and lower bearing carrier [23] with fluid, D00467.

SUBTASK 32-21-11-480-008

(11) Install the dynamic seal guide [84] (dynamic seal guide, C32016-45, SPL-1382) at the top of the inner cylinder [12].

SUBTASK 32-21-11-420-009

(12) Install the lower bearing carrier [23], do these steps:

NOTE: You can install the lower bearing carrier into the dynamic seal guide (dynamic seal guide, C32016-45, SPL-1382), at the workbench and then install the dynamic seal guide (dynamic seal guide, C32016-45, SPL-1382) with the lower bearing carrier onto the top of the inner cylinder.

**CAUTION** MAKE SURE THAT THE BACKUP RINGS AND THE SEAL STAY TOGETHER WHEN YOU MOVE THE LOWER BEARING CARRIER. IF THE BACKUP RINGS AND THE SEAL MOVE APART, THEY WILL NOT INSTALL CORRECTLY. THIS CAN CAUSE DAMAGE TO THE SEAL AND THE BACKUP RINGS.

(a) Put the lower bearing carrier [23] in its position for installation on the inner cylinder [12], do these steps:

(b) Use a rubber mallet and lightly hit the top of the lower bearing carrier [23] until it passes the dynamic seal guide [84] (dynamic seal guide, C32016-45, SPL-1382).

(c) Move the lower bearing carrier [23] down to the bottom of the inner cylinder [12].

1) Use ram assembly, C32016-47, SPL-13126, as necessary to help install the lower bearing carrier [23] onto the inner cylinder [12].
2) If you used optional seal retainer [97] (NLG lower seal, SPL-13124) for the installation, remove the rubber band [95] (rubber band, C32016-58, SPL-13129), retainer pin [94] (retainer pin, C32016-56, SPL-13125) and seal retainer [97] (NLG lower seal, SPL-13124).
3) After you remove the optional seal retainer [97] (NLG lower seal, SPL-13124), look down into the lower bearing carrier [23] and examine the dynamic seal.
   a) Make sure that the dynamic seal appears fully seated.
4) Install the production seal retainer [18] and bearing carrier pins [30] onto the lower bearing carrier [23].


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SUBTASK 32-21-11-020-018

(13) Remove the dynamic seal guide [84] (dynamic seal guide, C32016-45, SPL-1382) from the inner cylinder [12].

## K. Inner Cylinder Components Assembly

SUBTASK 32-21-11-420-010

(1) Install these items:

(a) Install the lower centering cam [11] on the inner cylinder [12].

NOTE: There are two dowel pins loosely attached to the lower centering cam. These dowel pins must be aligned with the recesses inside the outer cylinder when you assemble the inner cylinder and outer cylinder assemblies in the subsequent steps. Align the centering cam dowel pins with the strut axle, or gland nut lockable recesses on the outer cylinder to align the pins to the pin recesses. The dowel pins are designed to be loosely held in place with 0.005 in. (0.13 mm) – 0.015 in. (0.38 mm) dowel movement after the rivet is in position.

(b) Put the upper centering cam dowels [89] in position on the inner cylinder [12] (Figure 804).

1) Make sure that each dowel [89] is centered and flush in it's centering cam groove.

2) Make sure that the dowels [89] is in position above the lip, on the inner cylinder [12].

NOTE: This will let the dowel retaining circlip to later move into its installed position.

(c) Put the dowel retaining circlip [88] approximately mid-point on the dowels [89] to hold the dowels [89] in position on the inner cylinder [12].

(d) Install the upper centering cam [10] on the inner cylinder [12].

1) Carefully push the dowel retaining circlip [88] down the dowels [89], with the upper centering cam [10], until the dowels [89] are in position in the upper centering cam [10].

NOTE: The dowel retaining circlip will snap over the bottom of the dowels into the circlip groove, that retains the dowels up inside the upper centering cam.

(e) Install the upper bearing assembly [8] and recoil valve [87] on the inner cylinder [12], do these steps:

1) Install the ring [86] on the recoil valve [87], if it was removed.

2) Install the recoil valve [87] and ring [86] on top of the upper centering cam [10].

3) Install the upper bearing half [85] on the inner cylinder [12].

(f) Install the insert [8A] on the upper bearing halfs [85].

1) Use hand pressure to make an overlap of ¼ in. (6.4 mm) to the insert [8A] to keep its round shape.

NOTE: This will keep the insert snug against the upper bearing halfs.

2) Use the compressor assembly half [92] (compressor assy half, C32016-10, SPL-1383) to hold the bearing closed during inner cylinder [12] installation.



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SUBTASK 32-21-11-420-011

CAUTION: MAKE SURE THAT YOU INSTALL THE COMPRESSOR ASSEMBLY BEFORE YOU INSTALL THE INNER CYLINDER. IF YOU DO NOT, THE TOOL CAN CAUSE DAMAGE TO THE THREADS OF THE OUTER CYLINDER AND UPPER BEARING ASSEMBLY.

(2) Install the compressor assembly half [92] (compressor assy half, C32016-10, SPL-1383), do these steps:

(a) Install the compressor assembly half [92] (compressor assy half, C32016-10, SPL-1383), such that it fits at the bottom of the outer cylinder [9].

(b) Install the strap assembly [75] (strap assembly, C32016-59, SPL-12809) around the outer cylinder [9] and connect the ends to the shoulder bolts on the side of the compressor assembly half [92] (compressor assy half, C32016-10, SPL-1383).

1) Tighten the strap assembly [75] (strap assembly, SPL-3927).

SUBTASK 32-21-11-420-012

CAUTION: DO NOT LIFT THE AIRPLANE WITH THE AXLE JACK. IF YOU LIFT THE AIRPLANE WITH THE AXLE JACK, IT CAN CAUSE DAMAGE TO EQUIPMENT.

(3) Install the inner cylinder [12] in the outer cylinder [9], do these steps:

WARNING: MAKE SURE THAT A MINIMUM OF TWO PERSONS WILL HOLD THE INNER CYLINDER WHEN YOU DO THE SUBSEQUENT STEPS. THE INNER CYLINDER IS HEAVY. INJURY TO PERSONS OR DAMAGE TO THE EQUIPMENT CAN OCCUR.

CAUTION: BE CAREFUL NOT TO CAUSE DAMAGE TO THE INNER CYLINDER OR THE METERING PIN. DAMAGE TO THESE PARTS CAN CAUSE DAMAGE TO THE SEALS.

CAUTION: MAKE SURE THAT YOU HAVE THE DOWEL PINS ON THE LOWER CENTERING CAM ALIGNED WITH THE RECESSES IN THE OUTER CYLINDER OR THE AXLE CENTERLINE. IF NOT ALIGNED, IT CAN CAUSE DAMAGE TO THE DOWEL PINS AND THE INNER CYLINDER.

(a) Put the inner cylinder [12] in position to install in the outer cylinder [9].

1) You can use the Centering Assembly C32016-35, or manually move the lower centering cam [11], to help align the lower centering cam dowel pins with the dowel pin recesses inside the outer cylinder [9].

2) Align the dowel pins with the axle centerline or the gland nut tablock recesses on the outer cylinder [9].

(b) Manually lift the inner cylinder [12], into the outer cylinder [9], until the top edge of the chrome surface of the inner cylinder [12] is level with the lower surface of the compressor assembly half [92] (compressor assy half, C32016-10, SPL-1383).

NOTE: Use great care in installing the inner cylinder into the outer cylinder to keep from damaging the lower bearing carrier dowel pins that are loosely riveted to the carrier, and are easily caused to be detached from the carrier if acted upon with much force.



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(c) Use a floor jack to hold the inner cylinder [12] in position.

SUBTASK 32-21-11-080-003

(4) Remove the compressor assembly half [92] (compressor assy half, C32016-10, SPL-1383), do these steps:

(a) Remove the strap assembly [75] (strap assembly, C32016-59, SPL-12809) from the outer cylinder [9] and compressor assembly half [92] (compressor assy half, C32016-10, SPL-1383).

(b) Remove the compressor assembly half [92] (compressor assy half, C32016-10, SPL-1383) from the outer cylinder [9].

SUBTASK 32-21-11-420-013

**CAUTION**

MAKE SURE THAT YOU HAVE THE DOWEL PINS ON THE LOWER CENTERING CAM ALIGNED WITH THE RECESSES IN THE OUTER CYLINDER OR THE AXLE CENTERLINE. IF NOT ALIGNED, IT CAN CAUSE DAMAGE TO THE DOWEL PINS AND THE INNER CYLINDER.

(5) Carefully put the thread protector insert [77] (thread protector half, C32016-21, SPL-1385) between the outer cylinder [9] and inner cylinder [12].

NOTE: The thread protector will expand and push against the outer cylinder, this will protect the static seals from the gland nut threads on the outer cylinder.

SUBTASK 32-21-11-480-009

(6) Install the thread protector assembly [76] (thread protector assembly, C32016-11, SPL-1384), do these steps:

(a) Install the thread protector assembly [76] (thread protector assembly, C32016-11, SPL-1384), so that it fits at the bottom of the outer cylinder [9].

(b) Install the strap assembly [75] (strap assembly, C32016-59, SPL-12809) around the outer cylinder [9] and connect the ends to the shoulder bolts on the side of the thread protector assembly [76] (thread protector assembly, C32016-11, SPL-1384).

1) Tighten the strap assembly [75] (strap assembly, C32016-59, SPL-12809).

SUBTASK 32-21-11-480-010

(7) Install the seal puller assembly [73] (seal puller assembly, C32016-6, SPL-4047) around the inner cylinder [12] to support the lower bearing carrier [23].

NOTE: It is not necessary to install the two puller screws, as the inner cylinder will push on the seal puller assembly and lower bearing carrier as the inner cylinder is pushed into position. The two plastic skid plates can be put upright, between the lower bearing carrier and scraper lock assembly, to give extra height to move the lower bearing carrier up into the outer cylinder.

SUBTASK 32-21-11-580-006

**CAUTION**

MAKE SURE THAT YOU HAVE THE DOWEL PINS ON THE LOWER CENTERING CAM ALIGNED WITH THE RECESSES IN THE OUTER CYLINDER OR THE AXLE CENTERLINE. IF NOT ALIGNED, IT CAN CAUSE DAMAGE TO THE DOWEL PINS AND THE INNER CYLINDER.

(8) Use two people to lift the inner cylinder [12] until you feel the dowels [89] of the lower centering cam [11] engage the groves in the outer cylinder [9].

(a) If it is necessary, with the lower centering cam dowel pins engaged in their recesses, use a jack to push on and fully seat the lower bearing carrier [23] in the outer cylinder [9].



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(b) Make sure that the static seals and backup rings stay in their positions as the lower bearing carrier [23] is installed.

1) You may apply a thin layer of fluid, D00467, or AFS-682 lubricant, D00589, to the elastomer ring [19], cap seal [20], and backup ring [21] to help keep the backup ring [21] in position during the installation.

NOTE: AFS-682 lubricant, D00589, will help keep the backup ring in its position.

a) Use the minimum quantity of AFS-682 lubricant, D00589, necessary to keep the parts in position.

NOTE: The material is very thick and sticky and large quantities can cause the lower bearing carrier to be difficult to re-install. Use of excess AFS-682 lubricant, D00589, can cause problems with assembly of the components.

b) Remove excess AFS-682 lubricant, D00589.

**CAUTION**

DO NOT LET THE INNER CYLINDER LOWER BACK DOWN WITHOUT THE THREAD PROTECTOR INSTALLED. DAMAGE TO THE SEALS CAN OCCUR.

(c) Remove the thread protector assembly [76] when the lower surface of the lower bearing carrier [23], is aligned with the lower surface of the thread protector assembly [76].

NOTE: As you lift the inner cylinder, adjust the supporting jack to stay within ½ in. (13 mm) of the inner cylinder.

**SUBTASK 32-21-11-020-019**

(9) Remove the seal puller assembly [73] and skid plates.

**SUBTASK 32-21-11-020-020**

(10) Remove the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) and scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) from the gland nut [17].

**SUBTASK 32-21-11-640-002**

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(11) Apply a liberal quantity of corrosion inhibiting material, G50136, to the threads of the gland nut [17] and threads of the outer cylinder [9].

**SUBTASK 32-21-11-420-014**

(12) Install the gland nut [17], do these steps:

(a) Move the gland nut [17] up on the inner cylinder [12] and engage the threads to the outer cylinder [9].

(b) Use the wrench, SPL-1867, to torque the gland nut [17] to 100 ft-lb (135.6 N·m) - 125 ft-lb (169.5 N·m).

(c) Remove all excess corrosion inhibiting material, G50136.



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SUBTASK 32-21-11-420-015

(13) Install the lockplate [16] for the gland nut [17] (Figure 802):

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin coat of corrosion inhibiting material, G50136, to the shank of the unplated bolts, threads, thread reliefs, and washer faces prior to installation.

(b) Install the lockplate [16] in the holes that will put the tab of the lockplate [16] as close as possible to a slot in the outer cylinder [9].

1) If it is necessary, loosen the gland nut [17] slightly to align lockplate [16] with the slot in the outer cylinder [9].

(c) Install the bolt [14] and washer [15].

(d) Tighten the bolt [14].

(e) Install MS20995C32 lockwire, G01048, on the bolt [14].

SUBTASK 32-21-11-420-038

(14) Before connecting the electrical connector [45] and wiring assembly [43], examine the electrical connector [45] for corrosion.

**WARNING** DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, correct the problem (SWPM 20-60-03).

(b) Apply D5026NS or ZC-026 compound, G50171, to the electrical connector [45] (SWPM 20-60-03).

SUBTASK 32-21-11-420-039

(15) Connect the wiring assembly [43] and electrical connector [45], do these steps:

(a) Put the wiring assembly [43] into the inner cylinder [12] and axle [46].

(b) Torque the fitting [44] to 45 in-lb (5.1 N·m) - 55 in-lb (6.2 N·m), to connect the electrical connector [45] to the inner cylinder [12].

(c) Install MS20995C20 lockwire, G50225, on the fitting [44].

(d) Put the electrical connector [45] in its position for the attachment to the clamps [50].

(e) Install the washers [47], screws [46], and nuts [48], to hold the electrical harness to the clamps [50].

SUBTASK 32-21-11-420-016

(16) Install components removed for access.



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SUBTASK 32-21-11-420-017

(17) Connect the lower torsion link [49] to the inner cylinder [12], do these steps:

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the torsion link pin [42]
2) The threads of the nut [51]
3) The faces of the washer [41]
4) The mating surfaces of the torsion link pin [42].
5) Apply a thin layer of grease, D00633, to the chromed surfaces of the torsion link pin [42].

(b) Remove all unwanted corrosion inhibiting material, G50136.

(c) Put the lower torsion link [49] in its position on the inner cylinder [12].

(d) Put the torsion link pin [42] through the lower torsion link [49] and inner cylinder [12].

(e) Install the washer [41] and nut [51] on the torsion link pin [42].

(f) Torque the nut [51] to 250 in-lb (28.2 N·m) - 300 in-lb (33.9 N·m) more than the run-on torque.

(g) If it is necessary, loosen the nut [51] to the nearest castellation to align the holes for the pin [52].

1) If there is no clearance, loosen the nut [51] to one more castellation and do a check again.

(h) Install the pin [52] in the torsion link pin [42].

SUBTASK 32-21-11-980-001

**CAUTION** DO NOT LIFT THE AIRPLANE NOSE OFF THE AIRPLANE NOSE JACK WHEN YOU MOVE THE INNER CYLINDER TO THE FULLY COMPRESSED POSITION. STOP MOVEMENT OF THE INNER CYLINDER IF THERE IS RESISTANCE. DAMAGE TO EQUIPMENT CAN OCCUR.

(18) If it is not fully compressed, use a jack to move the inner cylinder [12] from the fully extended to the fully compressed position.

NOTE: There is a total travel is 15.50 in. (39.4 cm) for a fully compressed strut.

SUBTASK 32-21-11-080-004

(19) Lower and remove the axle jack, do this task: Lower the Airplane Nose, TASK 07-10-06-580-803.

SUBTASK 32-21-11-410-001

(20) Install the wheels (TASK 32-45-21-400-801).

SUBTASK 32-21-11-080-005

(21) Lower the airplane nose and remove the jacks (TASK 07-10-21-580-802).



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SUBTASK 32-21-11-420-018

(22) If it is removed, install the oil charging valve [6], do these steps:

(a) Remove and discard the old packing [7].

(b) Apply a thin layer of fluid, D00467, on the new packing [7].

(c) Install the new packing [7] on the oil charging valve [6].

(d) Install the oil charging valve [6] and torque it to 22 ft-lb (30 N·m) - 25 ft-lb (34 N·m).

(e) Install the cap [5] loosely.

NOTE: You will tighten it in the shock strut servicing task.

(f) Apply compound, A00226, to the oil charging valve [6].

NOTE: This will make sure that the seal made by the compound, A00226, will break if the oil changing valve becomes loose.

SUBTASK 32-21-11-600-002

(23) Do this task: Nose Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-41-610-802.

SUBTASK 32-21-11-420-019

(24) Make sure that the swivel nut [3] is torqued to 5 ft-lb (6.8 N·m) - 7 ft-lb (9.5 N·m) and the cap [1] is installed for the gas charging valve [2].

SUBTASK 32-21-11-710-001

(25) Do the subsequent sections in this task: Nose Wheel Steering System Test (Airplane on Ground), TASK 32-51-00-700-801:

(a) General

(b) Prepare to Test the Steering System of the Nose Wheel

(c) Do the Steering Centering Test

(d) Put the Airplane Back to Its Usual Condition.

**END OF TASK**

**TASK 32-21-11-960-803**

## 4. Scraper Ring Replacement

(Figure 801)

### A. General

(1) This task is used when the scraper ring [24] is damaged and replacement is necessary but removal of the inner cylinder [12] is not possible.

(2) It is acceptable to operate the aircraft with a missing section of the energizer ring or other damage to the scraper ring. The scraper ring should be replaced with a new solid scraper ring or split scraper ring at the earliest maintenance opportunity to avoid excessive damage to the dynamic seal. If you do not have a split scraper ring available, you can cut a solid scraper ring or the damaged scraper ring to re-install it.

NOTE: The installation of a split scraper ring is also a temporary repair and should be replaced when the nose landing gear is disassembled for other maintenance or overhaul.



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**B. References**

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-31-000-803 | Nose Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-21-31-400-803 | Nose Landing Gear Torsion Link Connection (P/B 401) |
| 32-45-21-000-801 | Nose Landing Gear Wheel and Tire Assembly Removal (P/B 401) |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1378 | Scraper Retainer, C32016-4 or -67 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1379 | Scraper Lock Assy, C32016-5 or -68 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1829 | Valve - Drain, Landing Gear Shock Strut Oil<br>Part #: J32108-16 Supplier: 81205<br>Opt Part #: A32066-1 Supplier: 81205 |
| SPL-1867 | Wrench - Nose Landing Gear Oleo Gland Nut<br>Part #: C32025-7 Supplier: 81205<br>Opt Part #: C32025-1 Supplier: 81205 |
| STD-1110 | Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter) |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**E. Location Zones**

| Zone | Area |
|---|---|
| 711 | Nose Landing Gear Door - Left |


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## F. Prepare for the Repair

SUBTASK 32-21-11-420-042

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-21-11-710-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-21-11-710-003

(3) Deflate the shock strut [4] for the nose landing gear:

(a) Remove the cap [1] for the gas charging valve [2] that is on the top of the shock strut [4].

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(b) Loosen the swivel nut [3] a maximum of two turns.

NOTE: Fluid in the shock strut can have bubbles when you release the pressure.

1) Deflate the shock strut [4] slowly to prevent the leakage of the fluid through the gas charging valve [2].

(c) Loosen the swivel nut [3] fully when all of the pressure in the shock strut [4] is released.

NOTE: The shock strut is fully deflated when the dimension "X" is 13.8 in. (350.5 mm).

SUBTASK 32-21-11-170-001

(4) Drain the hydraulic fluid from the shock strut [4]:

(a) Remove the cap [5] from the oil charging valve [6].

(b) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110, in a position to catch the hydraulic fluid when the oil charging valve [6] is opened.

(c) Install the drain equipment on the oil charging valve [6]:

NOTE: The landing gear shock strut drain valve, SPL-1829, could also be used, but it will take much longer to drain the shock strut.

1) Cut a length of plastic tubing, sufficiently long to reach the container on the floor.

2) Insert a small allen wrench in the end of the length of tubing so that the long end of the allen wrench is flush with the end of the tube and the short end goes through the wall of the tube.

3) Install the tubing on the oil charging valve [6] so that the allen wrench goes into the check valve and holds it open to drain the hydraulic fluid.

(d) Remove the drain equipment when you have removed all of the hydraulic fluid.

SUBTASK 32-21-11-020-022

(5) Do this task: Nose Landing Gear Torsion Link Disconnection, TASK 32-21-31-000-803.



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SUBTASK 32-21-11-580-008

(6) Lift the nose of the airplane until there is about five inches of chrome exposed (TASK 07-10-21-580-801).

SUBTASK 32-21-11-020-023

(7) Use an axle jack to hold the inner cylinder [12] in its position in the outer cylinder [9] (TASK 07-10-03-580-803).

SUBTASK 32-21-11-020-024

(8) Do this task: Nose Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-21-000-801.

## G. Scraper Ring Replacement

SUBTASK 32-21-11-020-025

(1) Disconnect the gland nut [17] from the outer cylinder [9]:

(a) Remove the bolt [14], washer [15], and the lockplate [16] to release the gland nut [17].

(b) Use the wrench, SPL-1867, to disconnect the gland nut [17] from the outer cylinder [9].

(c) Remove the scraper ring [24] from the gland nut [17].

(d) Remove the damaged scraper ring [24], but do not damage the inner cylinder [12] in the removal process.

(e) Install the wave cut scraper ring [24] on the inner cylinder [12] and slide it into the gland nut [17].

SUBTASK 32-21-11-420-020

(2) Install the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) and the scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) on the gland nut [17].

NOTE: This will make sure that the scraper ring for the gland nut does not come out of its groove.

(a) Install the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) on the gland nut [17].

(b) Install the scraper lock assembly [74] (scraper lock assembly, C32016-5 or -68, SPL-1379) to hold the scraper retainer [79] (scraper retainer, C32016-4 or -67, SPL-1378) in its position on the gland nut [17].

SUBTASK 32-21-11-600-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(3) Apply a thin layer of corrosion inhibiting material, G50136, to the threads of the gland nut [17] and to the threads of the outer cylinder [9].

SUBTASK 32-21-11-420-021

(4) Install the gland nut [17]:

(a) Move the gland nut [17] up to the outer cylinder [9] and engage the threads.

(b) Use the wrench, SPL-1867, to tighten the gland nut [17] to 100 ft-lb (136 N·m) - 125 ft-lb (169 N·m).

(c) Remove all excess corrosion inhibiting compound.



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SUBTASK 32-21-11-420-022

(5) Install the lockplate [16] for the gland nut [17] (Figure 802):

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136 to the shank and threads of bolts [14] and washers [15].

(b) Install the lockplate [16] in the holes that will put the tab of the lockplate [16] as close to an outer cylinder [9] slot as possible.

1) If it is necessary, loosen the gland nut [17] slightly to align slot in the outer cylinder [9] with the lockplate [16].

(c) Install the bolts [14] and washers [15].

(d) Tighten the bolts [14].

(e) Install MS20995C32 lockwire, G01048, on the bolts [14].

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-21-11-420-023

(1) Install the oil charging valve [6]:

(a) Remove and discard the old packing [7].

(b) Apply a thin layer of fluid, D00467, on a new packing [7].

(c) Install the new packing [7] on the oil charging valve [6].

(d) Install the oil charging valve [6] and tighten it to 22 ft-lb (30 N·m) - 25 ft-lb (34 N·m).

(e) Install the cap [5] loosely.

NOTE: You will tighten it in the shock strut servicing task.

(f) Apply compound, A00226, to the oil charging valve [6].

NOTE: This will make sure that the seal made by compound, A00226, will break if the oil charging valve becomes loose.

SUBTASK 32-21-11-580-009

(2) Lower and remove the axle jack (TASK 07-10-21-580-802).

SUBTASK 32-21-11-580-010

(3) Lower the airplane nose and remove the jacks (TASK 07-10-21-580-802).

SUBTASK 32-21-11-580-011

(4) Do this task: Nose Landing Gear Torsion Link Connection, TASK 32-21-31-400-803.

SUBTASK 32-21-11-420-024

(5) Do this task: Nose Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-41-610-802.

SUBTASK 32-21-11-420-025

(6) Make sure that the swivel nut [3] is tightened to 5 ft-lb (6.8 N·m) - 7 ft-lb (9.5 N·m).



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SUBTASK 32-21-11-420-027

(7) Make sure that the cap [1] is installed for the gas charging valve [2].

——— END OF TASK ———

TASK 32-21-11-200-801

## 5. Nose Landing Gear Shock Strut Seal Leakage Check

(Figure 801, Figure 802, Figure 803)

### A. General

(1) This task gives the instructions to make sure a shock strut [4] is serviceable when you find fluid leakage on the inner cylinder [12].

NOTE: During the initial landing cycles of a new landing gear it is usual to have hydraulic fluid streaks on the shock strut [4]. These streaks are caused by hydraulic fluid applied to the shock strut seals during seal installation and will stop after more landing cycles occur. These streaks are different from the actual continuous drips that are the indication of shock strut seal leakage.

### B. References

| Reference | Title |
|---|---|
| 05-51-01-210-801 | Phase I Inspection (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 09-10-00-580-801 | Nose Gear Maintenance Towing (P/B 201) |
| 12-15-41-610-801 | Nose Landing Gear Shock Strut Fluid Check (P/B 301) |
| 12-21-21-640-802 | Nose Landing Gear Lower End Components Servicing (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 711 | Nose Landing Gear Door - Left |

### D. Shock Strut Seal Leak Check

NOTE: If the inspection finds a fault on the scraper ring [24], you must replace the damaged scraper ring [24].

NOTE: The inner cylinder [12] must be removed from the outer cylinder [9] to replace the production scraper ring [24]. If the inner cylinder [12] cannot be removed from the outer cylinder [9] at this time, then refer to task Scraper Ring Replacement, TASK 32-21-11-960-803

SUBTASK 32-21-11-480-011

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-21-11-210-001

(2) Inspect the shock struts [4] for leakage.



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SUBTASK 32-21-11-210-002

(3) If you find leakage of the shock strut fluid on the inner cylinder [12], do the steps that follow to make sure the shock strut [4] is serviceable:

(a) Do a check for leaks for 5 minutes:

1) Wipe the surface of the inner cylinder [12] with a clean cloth to remove all of the fluid from the leak.

2) Monitor the inner cylinder [12] where it touches the outer cylinder [9] for 5 minutes.

a) Make sure the extension of the inner cylinder [12] does not change during this time.

3) Make a record of the location and the number of drops which come from the seals during the 5 minutes.

(b) Tow the airplane to cause movement between the inner cylinder [12] and the outer cylinder [9] (TASK 09-10-00-580-801).

NOTE: The minimum distance the airplane must be moved is two airplane lengths.

(c) Do a check for leaks for 5 minutes:

1) Wipe the surface of the inner cylinder [12] with a clean cloth to remove all of the fluid from the leak.

2) Monitor the inner cylinder [12] where it touches the outer cylinder [9] for 5 minutes.

a) Make sure the extension of the inner cylinder [12] does not change during this time.

3) Make a record of the location and the number of drops which come from the seals during the 5 minutes.

(d) Calculate the average of the number of drops which came from the seals during both of the 5 minute measurements.

SUBTASK 32-21-11-210-003

(4) If the leakage stopped, do the steps that follow:

(a) Continue to monitor the shock strut [4] for leakage on subsequent landings.

1) If you see more signs of leakage, do the entire leak check procedure again.

a) If you find a continuous leakage flow on subsequent landings, the shock strut [4] is not serviceable.

**CAUTION**

IF THE AIRPLANE MADE A LANDING WITH A DEFLATED OR FLAT STRUT, DO THE HARD LANDING INSPECTION. MAKE SURE THAT NO DAMAGE OCCURRED. A DEFLATED OR FLAT STRUT CAN CAUSE DAMAGE DURING A LANDING.

(b) If you do not find leakage on subsequent landings, examine the fluid level of the shock strut [4] within 3 days or 10 flight cycles (TASK 12-15-41-610-801).

NOTE: If the leakage has stopped, there is no addition action necessary.

1) If the shock strut [4] has low pressure or is deflated, do this task: Phase I Inspection, TASK 05-51-01-210-801.

SUBTASK 32-21-11-210-004

(5) If there was leakage, but the average was less than 20 drops during the two 5 minute periods (Table 801), do the steps that follow:

NOTE: 20 drops is equal to 1.0 cc.



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(a) Continue to monitor the shock strut [4] for leakage on subsequent landings until you replace the seals.

1) If the leakage continues or increases, do the entire seal leak check procedure again.

**CAUTION** IF THE AIRPLANE MADE A LANDING WITH A DEFLATED OR FLAT STRUT, DO THE HARD LANDING INSPECTION. MAKE SURE THAT NO DAMAGE OCCURRED. A DEFLATED OR FLAT STRUT CAN CAUSE DAMAGE DURING A LANDING.

(b) If you do not find leakage on subsequent landings, examine the fluid level of the shock strut [4] within 3 days or 10 flight cycles (TASK 12-15-41-610-801).

1) If the shock strut [4] has low pressure or is deflated, do this task: Phase I Inspection, TASK 05-51-01-210-801.

(c) Continue to monitor the fluid level of the shock strut [4] at no more than 3 day or 10 flight cycle intervals, until you replace the seals (TASK 12-15-41-610-801).

**SUBTASK 32-21-11-210-005**

(6) If the average leakage was more than 20 drops during the two 5 minute periods, but was not continuous (Table 801), do the steps that follow:

NOTE: 20 drops is equal to 1.0 cc.

**CAUTION** IF THE AIRPLANE MADE A LANDING WITH A DEFLATED OR FLAT STRUT, DO THE HARD LANDING INSPECTION. MAKE SURE THAT NO DAMAGE OCCURRED. A DEFLATED OR FLAT STRUT CAN CAUSE DAMAGE DURING A LANDING.

(a) Do this task: Nose Landing Gear Shock Strut Fluid Check, TASK 12-15-41-610-801.

1) If the shock strut [4] has low pressure or is deflated, do this task: Phase I Inspection, TASK 05-51-01-210-801.

(b) Continue to monitor the fluid level of the shock strut [4] after each flight until you replace the seals.

**SUBTASK 32-21-11-210-006**

(7) If the fluid leaked continuously during the 5 minute period (Table 801), the shock strut [4] is not serviceable and you must replace the shock strut seals.

## E. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-21-11-580-012**

(1) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

**SUBTASK 32-21-11-640-003**

(2) Do this task: Nose Landing Gear Lower End Components Servicing, TASK 12-21-21-640-802.

**END OF TASK**



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**TASK 32-21-11-200-802**

## 6. Nose Landing Gear Shock Strut Metering Pin Seal Leakage Check

(Figure 801, Figure 802, Figure 803)

### A. General

(1) This task gives the instructions to a shock strut [4] is serviceable when you find fluid leakage on the lower portion of the inner cylinder [12] coming from the drain hole and collecting on the jack ball or adjacent surfaces.

NOTE: It is common, especially with elevated ambient temperatures, to have the Corrosion Inhibiting Compound (CIC) applied to the inner wall of the Inner Cylinder become less viscous and form indications on in the Inner cylinder drain hole and areas adjacent to the drain hole including the jack ball. If this occurs, indications of CIC will be thicker and have a wax like consistency. Indications fitting this description should not be considered a leak.

NOTE: This task has associated leak rates for determining action by the operator. This Task assumes that no other leaks have been noted elsewhere on the strut including static and dynamic seals, fill and charging valves, and orifice support tube static seal located at the top of the strut adjacent to the charging valve. If multiple areas of leakage are found, contact Service Engineering.

### B. References

| Reference | Title |
|---|---|
| 05-51-01-210-801 | Phase I Inspection (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-15-41-610-801 | Nose Landing Gear Shock Strut Fluid Check (P/B 301) |
| 12-21-21-640-802 | Nose Landing Gear Lower End Components Servicing (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 711 | Nose Landing Gear Door - Left |

### D. Shock Strut Metering Pin Seal Leak Check

**SUBTASK 32-21-11-480-018**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-21-11-210-007**

(2) Inspect the shock strut [4] for leakage.

**SUBTASK 32-21-11-211-001**

(3) If you find leakage of the shock strut fluid on the inner cylinder [12] drain hole and jack ball, do the steps that follow to make sure the shock strut [4] is serviceable:



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(a) Do a check for leaks for 5 minutes:

1) Wipe the surface of the inner cylinder [12] drain hole and surfaces adjacent to the drain hole and jack ball with a clean cloth to remove all of the fluid from the leak.

2) Monitor the inner cylinder [12] drain hole and surfaces adjacent to the drain hole and jack ball for 5 minutes.

a) Make sure the extension of the inner cylinder [12] does not change during this time.

3) Make a record of the location and the number of drops which come from the drain hole during the 5 minutes.

(b) Do this task: Nose Landing Gear Lower End Components Servicing, TASK 12-21-21-640-802

NOTE: This step is intended to depressurize the strut and repressurize to reposition the seal contact interface with the sealing surface.

(c) Do a check for leaks for 5 minutes:

1) Wipe the surface of the inner cylinder [12] drain hole and surfaces adjacent to the drain hole and jack ball with a clean cloth to remove all of the fluid from the leak.

2) Monitor the inner cylinder [12] drain hole and surfaces adjacent to the drain hole and jack ball for 5 minutes.

a) Make sure the extension of the inner cylinder [12] does not change during this time.

3) Make a record of the location and the number of drops which come from the drain hole during the 5 minutes.

(d) Calculate the average of the number of drops which came from the drain hole during both of the 5 minute measurements.

**SUBTASK 32-21-11-211-002**

(4) If the leakage stopped, do the steps that follow:

(a) Continue to monitor the shock strut [4] for leakage on subsequent landings.

1) If you see more signs of leakage, do the entire leak check procedure again.

a) If you find a continuous leakage flow on subsequent landings, the shock strut [4] is not serviceable.

**CAUTION**

IF THE AIRPLANE MADE A LANDING WITH A DEFLATED OR FLAT STRUT, DO THE HARD LANDING INSPECTION. MAKE SURE THAT NO DAMAGE OCCURRED. A DEFLATED OR FLAT STRUT CAN CAUSE DAMAGE DURING A LANDING.

(b) If you do not find leakage on subsequent landings, examine the fluid level of the shock strut [4] within 3 days or 10 flight cycles (TASK 12-15-41-610-801).

NOTE: If the leakage has stopped, there is no addition action necessary.

1) If the shock strut [4] has low pressure or is deflated, do this task: Phase I Inspection, TASK 05-51-01-210-801.

**SUBTASK 32-21-11-211-003**

(5) If there was leakage, but the average was less than 20 drops during the two 5 minute periods (Table 801), do the steps that follow:



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**Table 801/32-21-11-993-801 Nose Landing Gear Strut Leakage Rates**

| COMPONENTS | NORMAL OPERATION LIMITS *[1] | DISPATCH LIMITS TO AVOID DELAY *[1] |
|---|---|---|
| Shock Strut Seals | Less than 20 drops | More than 20 drops but not continuous |
| Metering Pin Seal | Less than 20 drops | More than 20 drops but not continuous |

*[1] There are approximately 20 drops in a cubic centimeter or 75600 drops in a gallon.

NOTE: 20 drops is equal to 1.0 cc.

(a) Continue to monitor the shock strut [4] for leakage on subsequent landings until you replace the seal.

1) If the leakage continues or increases, do the entire seal leak check procedure again.

**CAUTION** IF THE AIRPLANE MADE A LANDING WITH A DEFLATED OR FLAT STRUT, DO THE HARD LANDING INSPECTION. MAKE SURE THAT NO DAMAGE OCCURRED. A DEFLATED OR FLAT STRUT CAN CAUSE DAMAGE DURING A LANDING.

(b) If you do not find leakage on subsequent landings, examine the fluid level of the shock strut [4] within 3 days or 10 flight cycles (TASK 12-15-41-610-801).

1) If the shock strut [4] has low pressure or is deflated, do this task: Phase I Inspection, TASK 05-51-01-210-801.

(c) Continue to monitor the fluid level of the shock strut [4] at no more than 3 day or 10 flight cycle intervals, until you replace the seal (TASK 12-15-41-610-801).

**SUBTASK 32-21-11-210-008**

(6) If the average leakage was more than 20 drops during the two 5 minute periods, but was not continuous (Table 801), do the steps that follow:

NOTE: 20 drops is equal to 1.0 cc.

**CAUTION** IF THE AIRPLANE MADE A LANDING WITH A DEFLATED OR FLAT STRUT, DO THE HARD LANDING INSPECTION. MAKE SURE THAT NO DAMAGE OCCURRED. A DEFLATED OR FLAT STRUT CAN CAUSE DAMAGE DURING A LANDING.

(a) Do this task: Nose Landing Gear Shock Strut Fluid Check, TASK 12-15-41-610-801.

1) If the shock strut [4] has low pressure or is deflated, do this task: Phase I Inspection, TASK 05-51-01-210-801.

(b) Continue to monitor the fluid level of the shock strut [4] after each flight until you replace the seal.

**SUBTASK 32-21-11-020-031**

(7) If the fluid leaked continuously during the 5 minute period (Table 801), the shock strut [4] is not serviceable and you must replace the seal assembly [104].

(a) Do this task to replace the active static seal [28], cap seal [20] and metering pin seal assembly [104]: Seals and Spare Seals Replacement, TASK 32-21-11-960-802.

(b) Do a visual check on the spare static seal [27], spare dynamic seal [26] and the scraper ring [24].



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1) Replace if necessary.

## E. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-21-11-580-020**

(1) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

**SUBTASK 32-21-11-610-003**

(2) Do this task: Nose Landing Gear Lower End Components Servicing, TASK 12-21-21-640-802.

**——— END OF TASK ———**



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## NOSE LANDING GEAR TOW FITTING - REMOVAL/INSTALLATION

### 1. General

A. This procedure contains two tasks. The first task removes the tow fitting from the nose landing gear. The second task installs the tow fitting on the nose landing gear.

**TASK 32-21-14-000-801**

### 2. Nose Landing Gear Tow Fitting Removal

#### A. General

(1) This procedure supplies instructions to remove the nose landing gear tow fitting.

#### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

#### D. Prepare for the Removal

**SUBTASK 32-21-14-480-001**

**WARNING** MAKE CERTAIN LANDING GEAR DOWNLOCK PINS ARE INSTALLED TO PREVENT INADVERTENT RETRACTION OF LANDING GEAR, WITH POSSIBLE INJURY TO PERSONNEL.

(1) Make sure the downlocks are installed on the nose and main landing gear (TASK 32-00-01-480-801).

#### E. Nose Landing Gear Tow Fitting Removal

**SUBTASK 32-21-14-020-002**

(1) Remove these parts:

(a) The nuts [9].

(b) The washers [10].

(c) The bolts [3].

(d) The washers [4].

**SUBTASK 32-21-14-020-003**

(2) If removal of the tow fitting bolt [1] is necessary, remove these parts:

(a) The pin [7].

(b) The nut [6].

(c) The washer [5].

(d) The bolt [1].

(e) The washer [2].

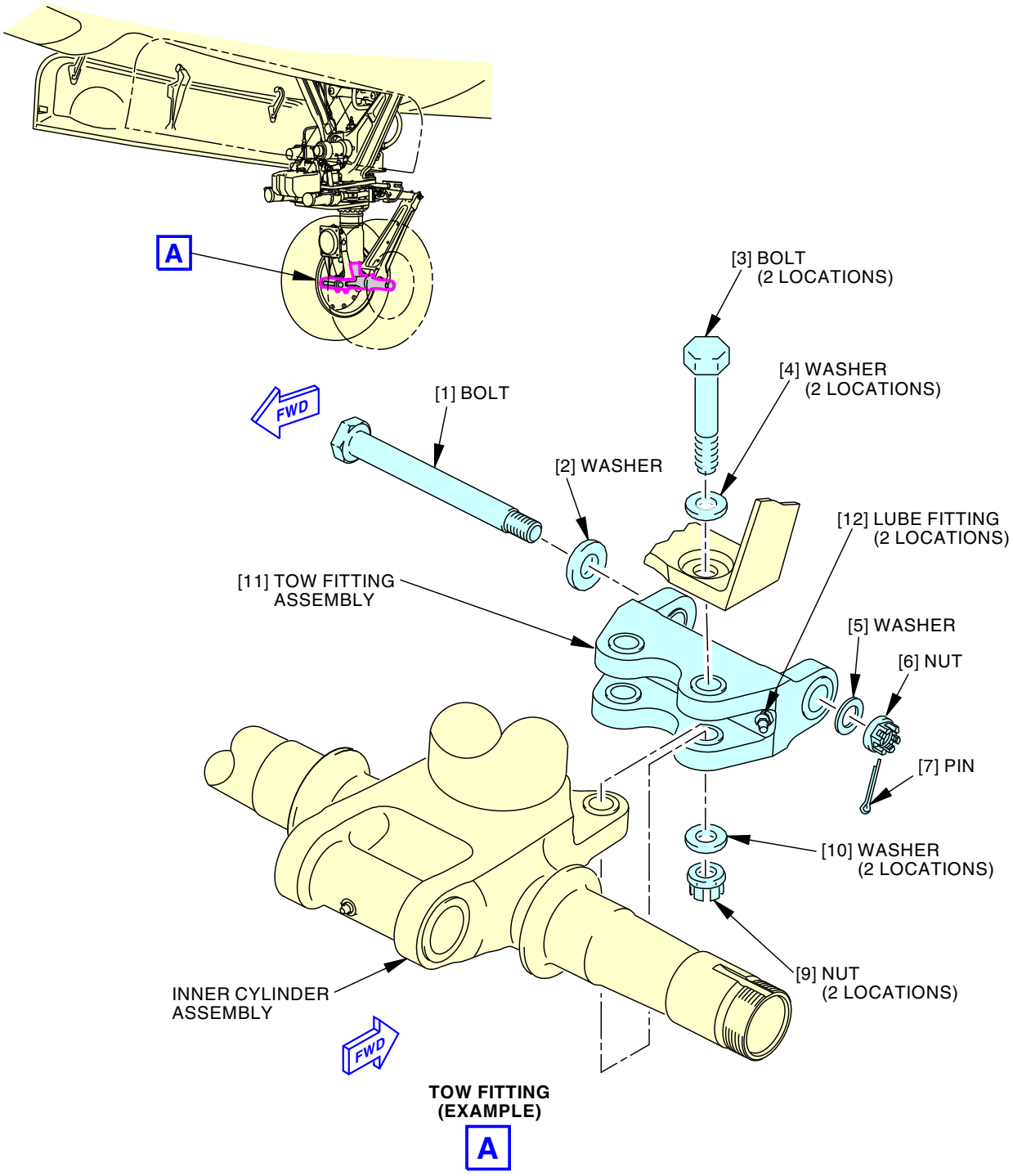
**SUBTASK 32-21-14-020-004**

(3) Remove the tow fitting assembly [11] from the inner cylinder assembly.

**END OF TASK**



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**Nose Landing Gear Tow Fitting Installation**
**Figure 401/32-21-14-990-802**



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**TASK 32-21-14-400-801**

## 3. Nose Landing Gear Tow Fitting Installation

### A. General

(1) This procedure supplies instructions to install the tow fitting and tow fitting bolt.

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00013 | Grease - Aircraft And Instrument Grease | MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827) |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 7 | Pin | 32-21-00-01-040 | SIA ALL |
| 11 | Tow fitting assembly | 32-21-00-01-070 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

### E. Nose Gear Tow Fitting and Tow Fitting Bolt Installation

**SUBTASK 32-21-14-916-001**

(1) If the tow fitting assembly [11] installation is necessary, do these steps:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin coat of corrosion inhibiting material, G50136 to the shank of the unplated bolt [1], the bolt threads and thread reliefs, and to the faces of washer [2] and washer [5] prior to installation. Wipe off the excess.

(b) Insert the tow fitting bolt [1] into the washer [2] and then into the tow fitting assembly [11].

(c) Install the washer [5] and the nut [6] to connect the tow fitting bolt [1] to the tow fitting assembly [11].

(d) Tighten the nut [6] to 160 in-lb (18 N·m) – 190 in-lb (21 N·m) above run-on torque and back off to align the nearest castellation.

(e) Install the pin [7].

(f) Lubricate the two lube fittings [12] with grease, D00633, or alternate grease, D00013.

**SUBTASK 32-21-14-916-002**

(2) Do the steps that follow to install the tow fitting assembly [11] on the inner cylinder assembly:



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin coat of corrosion inhibiting material, G50136 to the shank of the unplated bolts [3], the bolt threads and bolt reliefs, and to the faces of the washers [4] and washers [10] prior to installation. Wipe off the excess corrosion inhibiting material, G50136.

(b) Hold the tow fitting assembly [11] in position.

(c) Install the bolts [3] into the washers [4] and then into the tow fitting assembly [11].

(d) Install the washers [10] and nuts [9] to the bolts [3].

(e) Install self-locking nuts [9] and tighten the nuts [9] to 250 in-lb (28 N·m) – 300 in-lb (34 N·m) above the run-on torque.

NOTE: If a BACN10JC self-locking nut is used on a bolt that has a hole for a cotter pin, it is recommended that the nut not be used again after removal. The edges of the hole will make the self-locking feature unserviceable.

**——— END OF TASK ———**



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## NOSE LANDING GEAR DRAG STRUT - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the drag strut for the nose landing gear

(2) Installation of the drag strut for the nose landing gear.

**TASK 32-21-21-000-801**

### 2. Nose Landing Gear Drag Strut Removal

(Figure 401, Figure 402)

NOTE: This procedure is a scheduled maintenance task.

#### A. References

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-33-52-000-801 | Nose Gear Lock Spring Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1871 | Strap - Retention, NLG/MLG Inner Cylinder<br>Part #: C32030 -31 Supplier: 81205<br>Opt Part #: C32030-10 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |
| STD-15078 | R/I Equipment - Trunnion Pin, NLG (Note: C32054-2 Puller Assembly is included in SPL-14481 kit) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 713 | Nose Landing Gear |



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## D. Prepare for the Removal

SUBTASK 32-21-21-420-008

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-21-21-580-001

(2) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

NOTE: Lower the jack that supports the tail of the airplane while you lift the nose landing gear.

SUBTASK 32-21-21-580-002

(3) If it is necessary to lift the gear with an axle jack to reduce the weight of the gear when you remove the right trunnion pin [1], and the left trunnion pin [2], do this task: Lift the Nose Landing Gear Axle With Axle Jacks-Handling, TASK 07-10-03-580-803.

SUBTASK 32-21-21-860-001

(4) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-21-21-860-002

(5) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-21-21-480-002

(6) Install chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

SUBTASK 32-21-21-020-001

(7) Do this task: Nose Gear Lock Spring Removal, TASK 32-33-52-000-801.

SUBTASK 32-21-21-080-001

(8) Remove the downlock pin for the nose landing gear (TASK 32-00-01-080-801).

## E. Nose Landing Gear Drag Strut Removal

SUBTASK 32-21-21-020-002

(1) If it is necessary, disconnect the hydraulic hose connection from the rod end of the retract actuator [3]:

NOTE: These steps are only necessary if the retract actuator [3] will be removed.

(a) Disconnect the hydraulic UP-hose at the fitting on the retract actuator [3].


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(b) Disconnect the hydraulic DOWN-hose at the reducer [4] and the tube [8].

1) If it is necessary, remove the clamp [7], two screws [5] and washers [6] from the bracket.

(c) Install caps/plugs, STD-14686, on the hydraulic hoses and the fittings on the retract actuator [3].

SUBTASK 32-21-21-020-003

(2) Disconnect the rod end of the retract actuator [3]:

(a) Remove the nut [12], and washer [14] from each of the two bolts [16].

(b) Remove the bolts [16] from the nut [15].

(c) Remove the nut [15] from the pin [9].

(d) Remove the pin [9] that holds the rod end of the retract actuator [3] and the washer [18] or washers [18] from the upper drag strut [17].

SUBTASK 32-21-21-020-004

(3) Disconnect the forward lock link [20]:

NOTE: This step will also disconnect the lower drag strut [10] from the upper drag strut [17].

(a) Remove the pin [13] from the bolt [22].

(b) Remove the nut [25], and washer [24] from the bolt [22].

(c) Remove the bolt [22] from the pin [19].

(d) Remove the nut [23] and washer [21] from the pin [19].

(e) Remove the pin [19] to disconnect the forward lock link [20] from the upper drag strut [17] and lower drag strut [10].

SUBTASK 32-21-21-020-005

**WARNING** FULLY EXTEND THE SHOCK STRUT BEFORE YOU DISCONNECT THE DRAG BRACE. IF IT IS NOT FULLY EXTENDED, THE COMPRESSED SHOCK STRUT CAN CAUSE INJURIES.

(4) Disconnect the lower drag strut [10] from the shock strut [29]:

(a) Remove the pin [26] from the bolt [28].

(b) Remove the nut [33] and washer [32] from the bolt [28].

(c) Remove the bolt [28] from the pin [30].

(d) Remove the nut [27] and washer [31] from the pin [30].

(e) Remove the pin [30] that holds the lower drag strut [10] from the shock strut [29].

SUBTASK 32-21-21-480-003

(5) Use the retention strap, SPL-1871, to hold the shock strut [29] in the compressed position.

SUBTASK 32-21-21-020-006

(6) Disconnect the upper drag strut [17] from the bracket [43]:

NOTE: This step will also remove the bracket [43], which contains the down position sensor target. Keep the bracket [43] for the installation procedure.

(a) Remove the nut [34] and washer [35] from the bolt [36].

(b) Remove the bolt [36] and washer [35] to disconnect the upper drag strut [17] from the bracket [43].

(c) Remove the washer [35] from the bolt [36].



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SUBTASK 32-21-21-020-007

(7) Remove the right trunnion pin [1] and left trunnion pin [2]:

(a) Remove the pin [38] from each bolt [40].

(b) Remove the nut [37] and washer [39] from each bolt [40].

(c) Remove the bolts [40] that hold the right trunnion pin [1] and left trunnion pin [2] to the sidewall of the nose wheel well.

(d) Remove the right trunnion pin [1] and left trunnion pin [2] to disconnect the upper drag strut [17] from the sidewall of the nose wheel well.

1) Use the puller assembly, STD-15078 to remove the right trunnion pin [1] and left trunnion pin [2] from the inboard side of the upper drag strut [17].

(e) Discard the O-rings [42].

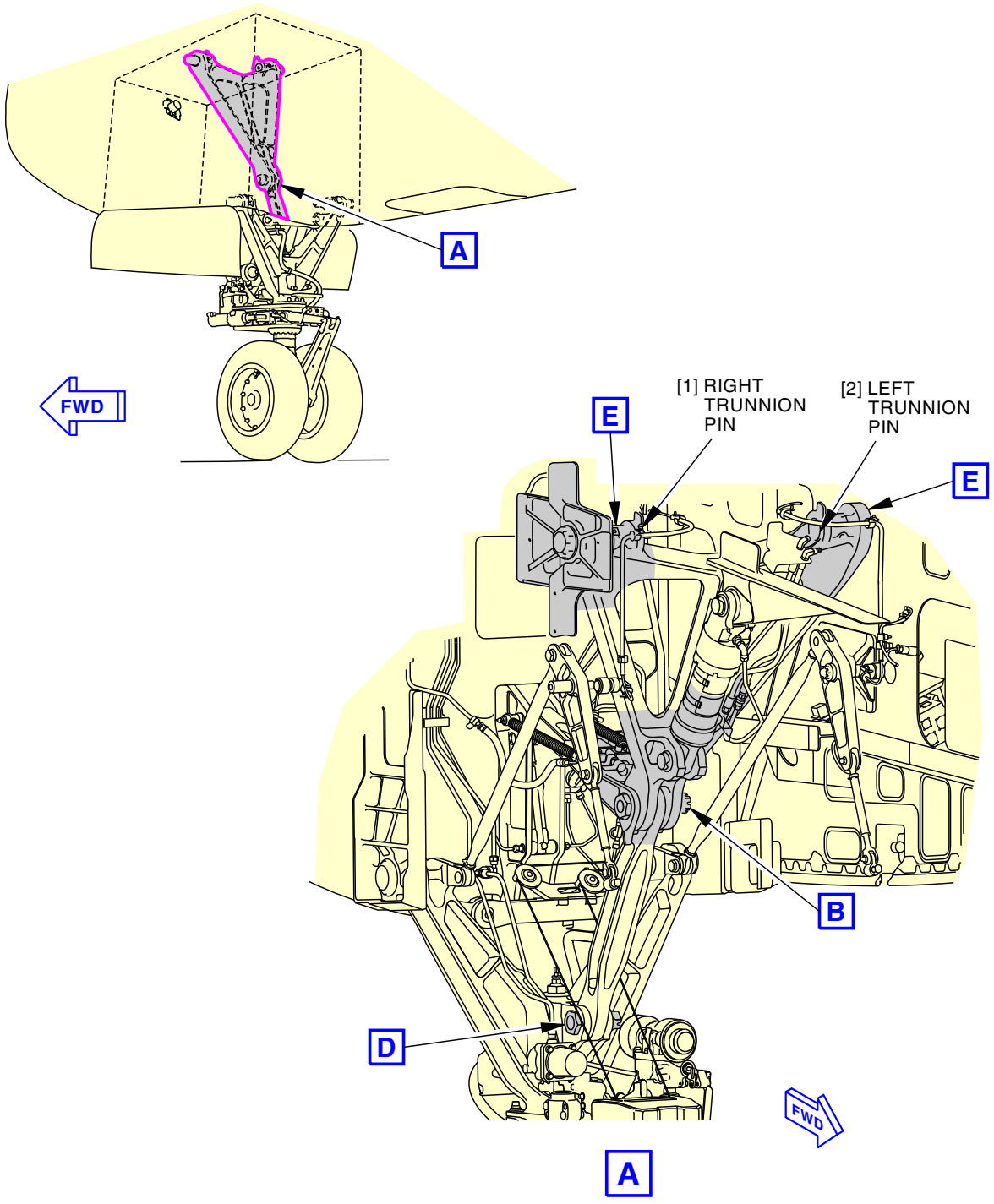
SUBTASK 32-21-21-020-008

(8) Remove the upper drag strut [17] from the airplane.

——— END OF TASK ———



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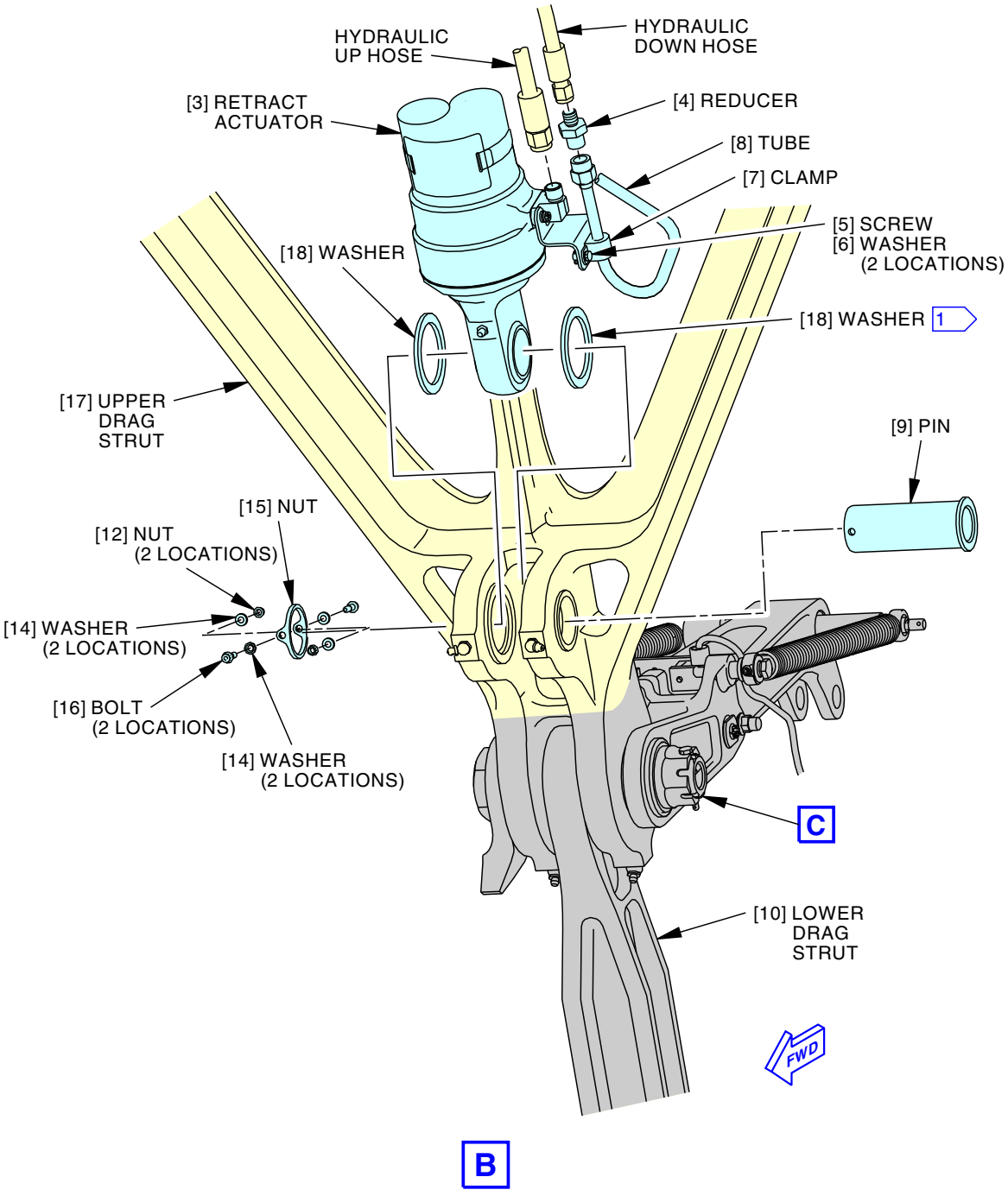



2414177 S00061534549_V1

**Nose Landing Gear Drag Strut Installation**
**Figure 401/32-21-21-990-801 (Sheet 1 of 5)**



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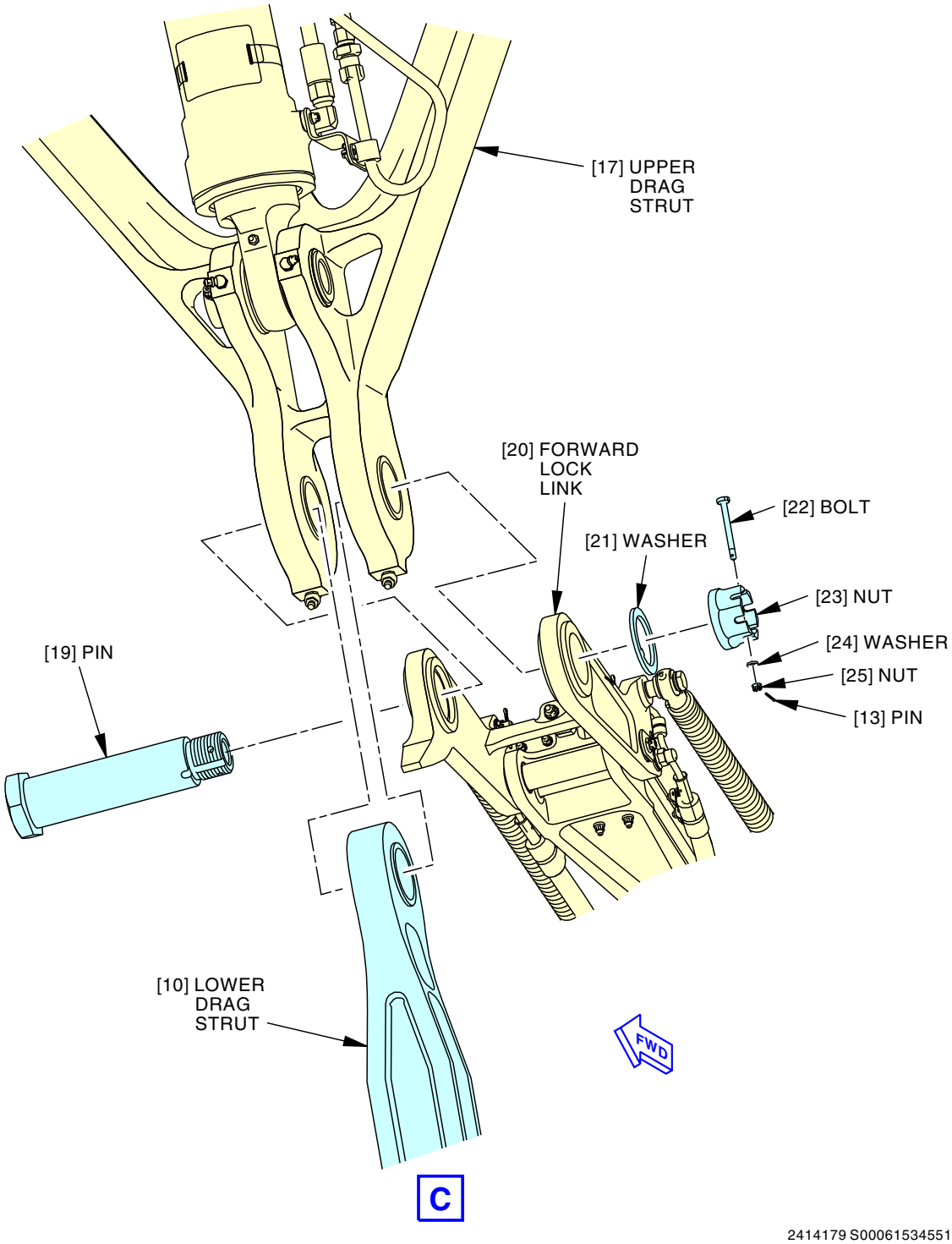

1 NOT INSTALLED ON ALL AIRCRAFT

2414178 S00061534550_V1

**Nose Landing Gear Drag Strut Installation**
**Figure 401/32-21-21-990-801 (Sheet 2 of 5)**



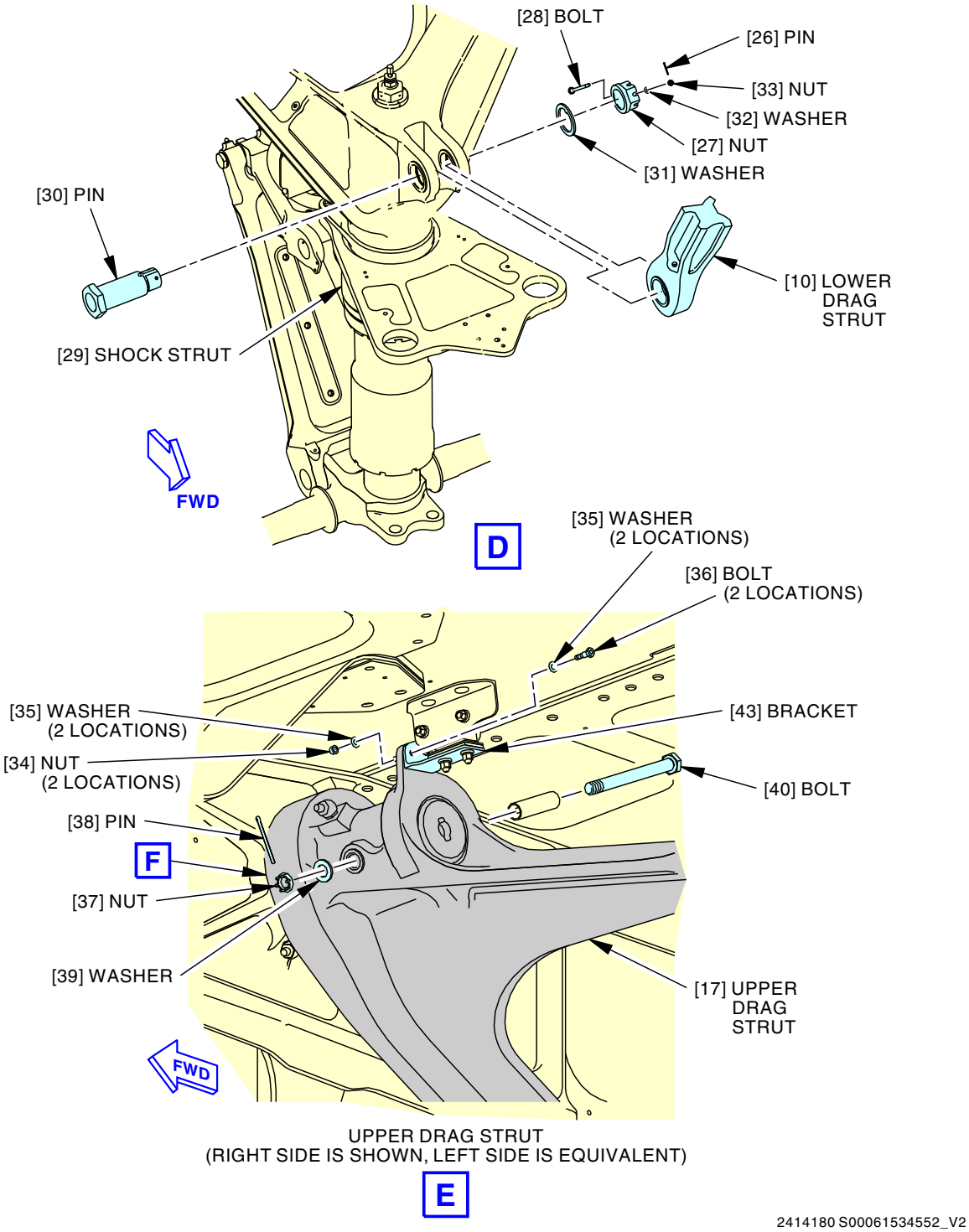
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Drag Strut Installation**
**Figure 401/32-21-21-990-801 (Sheet 3 of 5)**



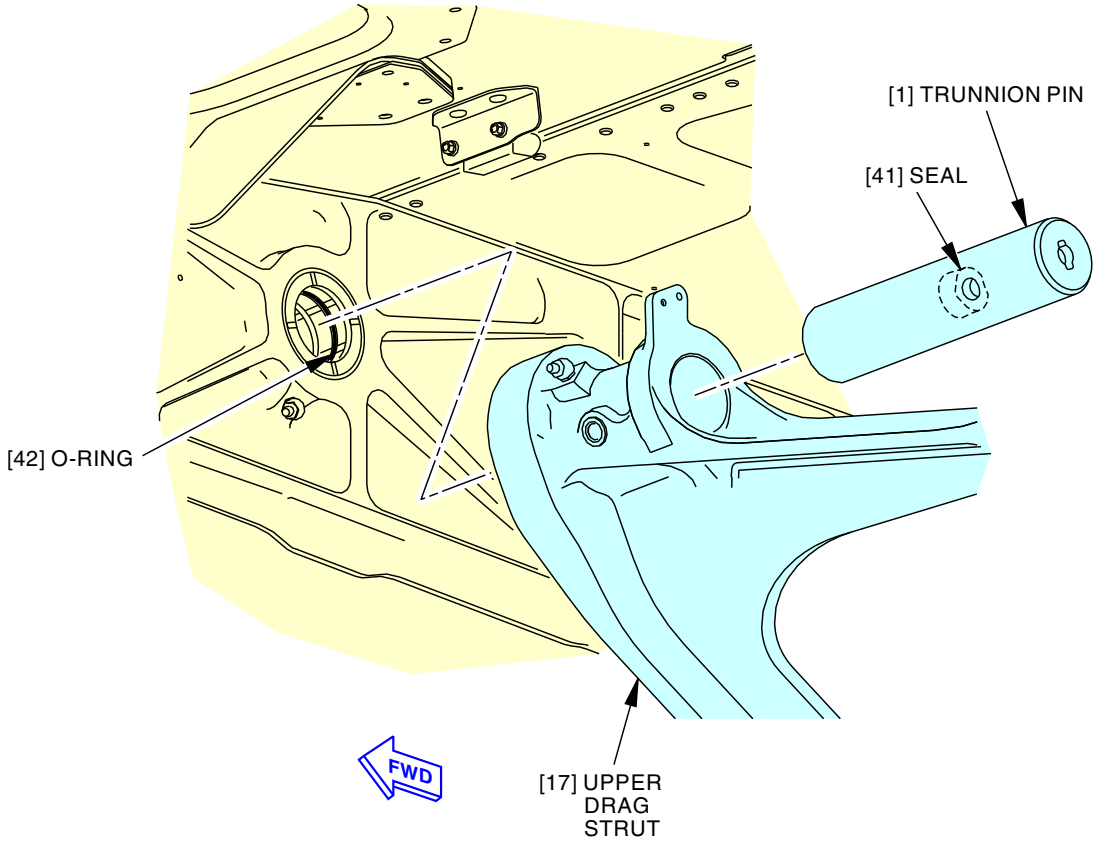
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Drag Strut Installation**
**Figure 401/32-21-21-990-801 (Sheet 4 of 5)**



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**UPPER DRAG STRUT**
**(RIGHT SIDE IS SHOWN, LEFT SIDE IS EQUIVALENT)**

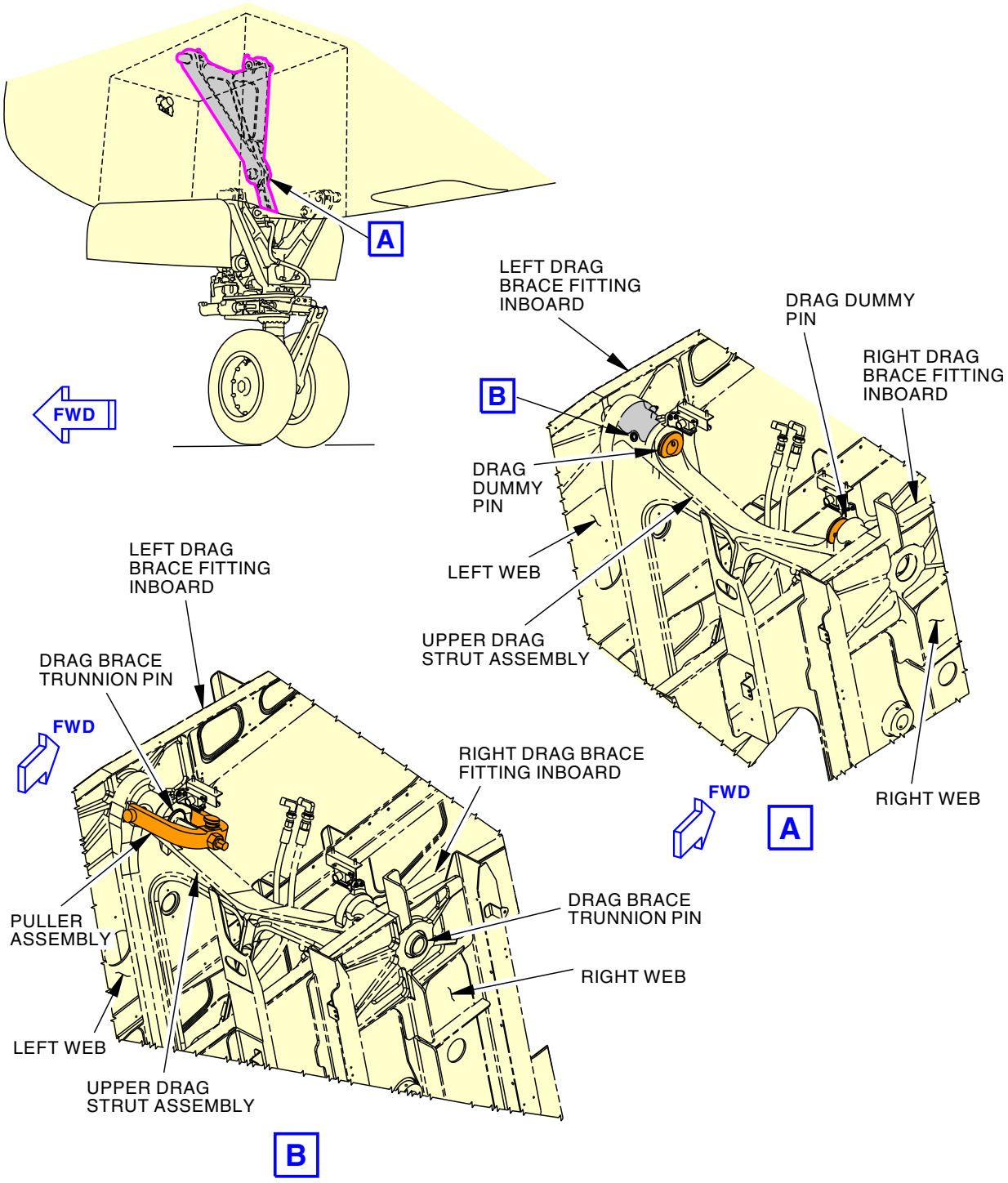
**F**

2414181 S00061534553_V2

**Nose Landing Gear Drag Strut Installation**
**Figure 401/32-21-21-990-801 (Sheet 5 of 5)**



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2414182 S00061534554_V3

**Drag Strut Trunnion Pin Removal and Installation Equipment**
**Figure 402/32-21-21-990-803**



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**TASK 32-21-21-400-801**

**3. Nose Landing Gear Drag Strut Installation**

(Figure 401, Figure 402)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-21-21-640-801 | Nose Landing Gear Upper End Components Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 32-33-00-710-802 | Nose Landing Gear Operational Test (P/B 501) |
| 32-33-52-400-801 | Nose Gear Lock Spring Installation (P/B 401) |
| 32-35-00-730-801 | Nose Gear Manual Extension System Test - Airplane on Jacks (P/B 501) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |
| 32-61-51-400-801 | Nose Landing Gear Down Position Sensor Installation (P/B 401) |

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |
| STD-15084 | R/I Equipment - Trunnion Pin, NLG (Note: C32054-9 Drag Dummy Pin is included in SPL-14481 kit) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50346 | Compound - Corrosion Preventive | BMS3-26 Type II |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 10 | Lower drag strut | 32-21-21-01-175 | SIA ALL |
| 17 | Upper drag strut | 32-21-21-01-150 | SIA ALL |
| 42 | O-ring | 32-21-00-02-070 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 713 | Nose Landing Gear |



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## F. Prepare for the Installation

SUBTASK 32-21-21-620-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

(a) The shank and the threads of the bolts [40]

1) Apply a thick layer of the corrosion inhibiting material, G50136, to the bolts [40].

(b) The threads and thread reliefs of the nuts [37]

(c) The faces of the washers [39]

(d) The pins [38].

SUBTASK 32-21-21-160-001

(2) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-21-21-640-001

(3) Lubricate the chrome plated surfaces of the right trunnion pin [1] and left trunnion pin [2] with grease, D00633.

SUBTASK 32-21-21-160-002

(4) Remove all unwanted grease, D00633.

## G. Nose Landing Gear Drag Strut Installation

SUBTASK 32-21-21-560-001

(1) Put the upper drag strut [17] in its position for installation on the sidewall of the nose wheel well.

SUBTASK 32-21-21-580-003

(2) Align the upper drag strut [17] with the mating hole in the sidewall of the nose wheel well.

SUBTASK 32-21-21-420-001

(3) Install the right trunnion pin [1] and left trunnion pin [2]:

(a) Make sure that the seal [41] is installed in the right trunnion pin [1] and left trunnion pin [2].

(b) Apply grease, D00633, and install the new O-rings [42] inside nose wheel well trunnion bushing.

(c) Use the drag dummy pins, STD-15084, to align the upper drag strut [17] and sidewall of the nose wheel well (Figure 402).

(d) Put the right trunnion pin [1] and left trunnion pin [2] through the upper drag strut [17] and sidewall of the nose wheel well.

(e) Put the bolts [40] through the right trunnion pin [1] and left trunnion pin [2].

(f) Install the washer [39] and nut [37] on each bolt [40].

(g) Torque each nut [37] to 20 in-lb (2.3 N·m) - 24 in-lb (2.7 N·m) more than the run-on torque.



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(h) If it is necessary, loosen the nut [37] to the nearest castellation to align the holes for each pin [38].

(i) Install the pin [38] in each bolt [40].

(j) Turn the seal [41] as necessary to fully seat the seal [41] against the crossbolt.

**CAUTION**

WEAR SAFETY GLASSES DURING APPLICATION, AND IF APPLICATION OF SOLVENT RESULTS IN IRRITATION, USE AN AIR PURIFYING ORGANIC VAPOR CARTRIDGE RESPIRATOR. USE NITRILE GLOVES AND WASH YOUR HANDS WITH MOISTURE CREAM AFTER APPLICATION. STORE DPM 6380-4 CLEANER/SOLVENT IN FLAMMABLE RESISTANT CONTAINERS IN QUANTITIES NO LARGER THAN 1 GALLON.

(k) Reapply compound, G50346, if it is necessary, to coat the interior surface of the right trunnion pin [1] and left trunnion pin [2].

**SUBTASK 32-21-21-420-002**

(4) Connect the upper drag strut [17] to the bracket [43]:

(a) Put the washer [35] on each bolt [36].

(b) Align the hole in the upper drag strut [17] to the hole in the bracket [43].

(c) Put the bolts [36] through the bracket [43] and upper drag strut [17].

(d) Install the washer [35] and nut [34] on each bolt [36].

**SUBTASK 32-21-21-620-002**

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

(a) The threads and thread reliefs of the pin [30] and bolt [28]

(b) The threads of the nut [27] and nut [33]

(c) The faces of the washer [31] and washer [32]

(d) To the pin [26].

**SUBTASK 32-21-21-160-003**

(6) Remove all unwanted corrosion inhibiting material, G50136.

**SUBTASK 32-21-21-640-002**

(7) Lubricate the shank of the pin [30] and bolt [28] with grease, D00633.

**SUBTASK 32-21-21-160-004**

(8) Remove all unwanted grease, D00633.

**SUBTASK 32-21-21-420-003**

(9) Connect the lower drag strut [10]:

(a) Make sure that the drag brace lubrication fittings are on the right side.

(b) Put the lower drag strut [10] in its position on the shock strut [29].



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(c) Put the pin [30] through the shock strut [29] and lower drag strut [10].

(d) Install the washer [31] and nut [27] on the pin [30].

(e) Torque the nut [27] to 650 ±50 in-lb (73 ±6 N·m).

(f) Loosen the nut [27] to the nearest castellation to align the holes for the bolt [28].

(g) Install the bolt [28] in the pin [30].

(h) Install the washer [32] on the bolt [28].

(i) Install the nut [33] on the bolt [28].

(j) If it is necessary, loosen the nut [33]n to the nearest castellation to align the holes for the pin [26].

(k) Install the pin [26] in the bolt [28].

SUBTASK 32-21-21-620-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(10) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

(a) The threads and thread reliefs of the pin [19] and bolt [22]

(b) The threads of the nut [23] and nut [25]

(c) The faces of the washer [21] and washer [24]

(d) The pin [13].

SUBTASK 32-21-21-160-005

(11) Remove all unwanted corrosion inhibiting material, G50136.

SUBTASK 32-21-21-420-004

(12) If a nut and bolt is installed in the downlock pin hole, remove it and install a downlock pin in that location.

(13) Connect the forward lock link [20] and lower drag strut [10]:

NOTE: This step will also connect the lower drag strut [10] to the upper drag strut [17].

(a) Put the lower drag strut [10] and forward lock link [20] in their positions on the upper drag strut [17].

(b) Put the pin [19] through the forward lock link [20], upper drag strut [17], and lower drag strut [10].

(c) Install the washer [21] and nut [23] on the pin [19].

(d) Torque the nut [23] to 95 in-lb (10.7 N·m) - 115 in-lb (13.0 N·m) more than the run-on torque.

(e) Loosen the nut [23] to the nearest castellation to align the hole for the bolt [22].

(f) Install the bolt [22] in the pin [19].

(g) Install the washer [24] and nut [25] on the bolt [22].

(h) If it is necessary, loosen the nut [25] to the nearest castellation to align the holes for the pin [13].



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(i) Install the pin [13] in the bolt [22].

SUBTASK 32-21-21-420-005

(14) If the retract actuator [3] was removed, hold the retract actuator [3] and do these steps to connect the retract actuator [3] to the upper drag strut [17]:

(a) Put the rod end of the retract actuator [3] and washer [18] or washers [18] in their position on the upper drag strut [17].

(b) Put the pin [9] through the upper drag strut [17], rod end of the retract actuator [3] and washer [18] or washers [18].

(c) Install the nut [15] on the pin [9].

(d) Install the bolts [16] , washers [14], and nuts [15] in the pin [9].

SUBTASK 32-21-21-080-002

(15) If they were installed, remove the caps/plugs, STD-14686, from the hydraulic hoses.

SUBTASK 32-21-21-420-006

(16) If the retract actuator [3] was removed, connect the hydraulic hoses to the retract actuator [3].

(a) If it is necessary, torque the B-nuts on the hydraulic hoses to 110 ±6 in-lb (12 ±1 N·m).

(b) If it is necessary for the hydraulic DOWN-hose, install the clamp [7], two screws [5], and washers [6] at the bracket to attach the tube [8] and reducer [4].

SUBTASK 32-21-21-720-001

(17) Do a post installation check of the nose landing gear down position sensor (TASK 32-61-51-400-801).

NOTE: This step is necessary because the bracket [43], which contains the down position sensor target, was removed.

## H. Nose Landing Gear Drag Strut Installation Test

SUBTASK 32-21-21-420-007

(1) Do this task: Nose Gear Lock Spring Installation, TASK 32-33-52-400-801.

SUBTASK 32-21-21-610-001

(2) Lubricate the upper components of the nose landing gear (TASK 12-21-21-640-801).

SUBTASK 32-21-21-860-003

(3) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-21-21-860-004

(4) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.


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SUBTASK 32-21-21-710-001

(5) Do this task: Nose Landing Gear Operational Test, TASK 32-33-00-710-802.

SUBTASK 32-21-21-710-002

(6) Do this task: Nose Gear Manual Extension System Test - Airplane on Jacks, TASK 32-35-00-730-801.

SUBTASK 32-21-21-710-003

(7) Do this task: Nose Wheel Steering System Test (Airplane on Ground), TASK 32-51-00-700-801.

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-21-21-860-005

(1) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

——— END OF TASK ———



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## NOSE LANDING GEAR DRAG STRUT - INSPECTION/CHECK

### 1. General

A. This task is a visual inspection of the upper drag strut of the nose landing gear.

B. This task does not remove or install the drag strut. Refer to NOSE LANDING GEAR DRAG STRUT - REMOVAL/INSTALLATION, PAGEBLOCK 32-21-21/401, for procedures to remove and install the drag strut of the nose landing gear.

**TASK 32-21-21-200-801**

### 2. Nose Landing Gear Drag Strut Inspection

#### A. General

(1) This procedure give wear limits and repair data for the drag strut of the nose landing gear.

#### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-21-000-801 | Nose Landing Gear Drag Strut Removal (P/B 401) |
| SRM 53-10-90 | FUSELAGE - SECTION 41 FITTINGS |

#### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-1107 | Gauge - Feeler, 0.0 - 0.5 Inch, Readable to 1/1000th |

#### D. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 713 | Nose Landing Gear |

#### E. Nose Landing Gear Drag Strut Inspection

**SUBTASK 32-21-21-480-004**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-21-21-020-009**

(2) Examine the upper drag brace bushings for these forms of damage:

NOTE: It is not necessary to remove the nose landing gear drag brace strut assembly for a visual inspection for these conditions:

(a) corrosion

(b) cracks in bushing or fillet seal

(c) scratches along the rim of the bushing



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SUBTASK 32-21-21-410-001

(3) Use a 0.0 - 0.5 Inch feeler gauge, STD-1107, to do a check for 0.156 in. (3.962 mm) to 0.200 in. (5.080 mm) clearance between the structure support bushings and the nose landing gear drag strut upper trunnion bushings assemblies.

NOTE: To have satisfactory results the 0.0 - 0.5 Inch feeler gauge, STD-1107, must show smooth transition while being installed or removed.

(a) If the 0.0 - 0.5 Inch feeler gauge, STD-1107, can be installed and removed without force, the check is satisfactory.

(b) If the check is satisfactory, put the airplane back to its usual condition.

(c) If the bushing shows damage or if smooth transition of the 0.0 - 0.5 Inch feeler gauge, STD-1107, can not be satisfied, do this task: Nose Landing Gear Drag Strut Removal, TASK 32-21-21-000-801.

SUBTASK 32-21-21-200-001

(4) Refer to SRM SUBJECT 53-10-90 for the inspection and removal of damage to the nose landing gear drag strut fittings.

**END OF TASK**



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## NLG SHOCK STRUT INNER CYLINDER - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these two tasks:

(1) Removal of the inner cylinder for the nose landing gear

(2) Installation of the inner cylinder for the nose landing gear

**TASK 32-21-24-000-801**

### 2. NLG Inner Cylinder Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-11-960-802 | Seals and Spare Seals Replacement (P/B 801) |
| 32-21-14-000-801 | Nose Landing Gear Tow Fitting Removal (P/B 401) |
| 32-21-31-000-802 | Nose Landing Gear Lower Torsion Link Removal (P/B 401) |
| 32-45-21-000-801 | Nose Landing Gear Wheel and Tire Assembly Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1376 | Scraper Plunger, C32016-2 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1377 | Scraper Reducer, C32016-3 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1378 | Scraper Retainer, C32016-4 or -67 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1379 | Scraper Lock Assy, C32016-5 or -68 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1829 | Valve - Drain, Landing Gear Shock Strut Oil<br>Part #: J32108-16 Supplier: 81205<br>Opt Part #: A32066-1 Supplier: 81205 |



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(Continued)

| Reference | Description |
|---|---|
| SPL-1867 | Wrench - Nose Landing Gear Oleo Gland Nut<br>Part #: C32025-7 Supplier: 81205<br>Opt Part #: C32025-1 Supplier: 81205 |
| SPL-1895 | Equipment - Removal/Installation, Metering Pin and Retainer Ring, NLG<br>Part #: C32035-1 Supplier: 81205 |
| SPL-3927 | Assembly - Strap (C32017-60 Part of Kit C32017-52 and -53)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| SPL-4047 | Seal Puller Assy, C32016-6 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| STD-1110 | Container - Hydraulic Fluid Resistant, 5 Gallon (19 Liter) |
| STD-3906 | Mallet - Rubber |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

## C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

## D. Prepare for the Removal

**SUBTASK 32-21-24-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-21-24-860-001**

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-21-24-020-001**

**WARNING** MAKE SURE THAT PERSONNEL AND EQUIPMENT ARE AWAY FROM THE AREA BELOW THE NOSE BEFORE YOU DEFLATE THE SHOCK STRUT. WHEN YOU DEFLATE THE SHOCK STRUT, THE NOSE CAN MOVE DOWN. THIS CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(3) Deflate the shock strut [4] for the nose landing gear:

(a) Remove the cap [1] for the gas charging valve [2] which is on the top of the shock strut [4].



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**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(b) Loosen the swivel nut [3] a maximum of two turns.

1) Deflate the shock strut [4] slowly to prevent the leakage of the fluid through the gas charging valve [2].

NOTE: Fluid in the shock strut [4] can have bubbles when you release the pressure.

(c) Loosen the swivel nut [3] fully when all of the pressure in the shock strut [4] is released.

NOTE: The shock strut [4] is fully deflated when the dimension "X" is13.8 in. (350.5 mm).

SUBTASK 32-21-24-680-001

(4) Drain the hydraulic fluid from the shock strut [4]:

NOTE: Very little fluid will come out.

(a) Remove the cap [5] from the oil charging valve [6].

(b) Put a 5 gallon (19 liter) hydraulic fluid resistant container, STD-1110, in a position to catch the hydraulic fluid when the oil charging valve [6] is opened.

(c) Install the drain equipment on the oil charging valve [6]:

NOTE: The tool, landing gear shock strut drain valve, SPL-1829, could also be used, but it will take much longer to drain the shock strut [4].

1) Cut a length of plastic tubing, long enough to reach the container on the floor.

2) Insert a small Allen wrench in the end of the length of tubing, such that the long end of the Allen wrench is flush with the end of the tube and the short end penetrates the wall of the tube.

3) Install the tubing on the oil charging valve [6] such that the Allen wrench goes into the check valve and holds it open to drain the hydraulic fluid.

(d) Remove the drain equipment when you have removed all of the hydraulic fluid.

SUBTASK 32-21-24-580-001

(5) Lift the nose of the airplane until the shock strut [4] extends approximately 10 in. (254 mm) (TASK 07-10-21-580-801).

SUBTASK 32-21-24-020-002

(6) Remove the tow fitting (TASK 32-21-14-000-801).

SUBTASK 32-21-24-020-003

(7) Remove the NLG wheel and tire (TASK 32-45-21-000-801).

SUBTASK 32-21-24-020-004

(8) Do this task: Nose Landing Gear Lower Torsion Link Removal, TASK 32-21-31-000-802.

## E. NLG Inner Cylinder Removal

(Figure 401)

SUBTASK 32-21-24-020-005

(1) Disconnect the gland nut [18] from the outer cylinder [9] (Figure 401 (Sheet 3)):

(a) Remove the bolt [15], washer [16], and lockplate [17] to release the gland nut [18].

(b) Use the wrench, SPL-1867, to remove the gland nut [18] from the outer cylinder [9].



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1) Keep the gland nut [18] in its position against the outer cylinder [9] after you have removed it from the outer cylinder [9].

**SUBTASK 32-21-24-580-002**

(2) Lift the nose of the airplane until there is enough room to install the scraper retainer, C32016-4 or -67, SPL-1378 (scraper retainer [61]), and the scraper lock assembly, C32016-5 or -68, SPL-1379 (scraper lock assembly [56]), on the gland nut [18] (TASK 07-10-21-580-801) (Figure 401 (Sheet 7)).

**SUBTASK 32-21-24-480-002**

(3) Install the scraper retainer, C32016-4 or -67, SPL-1378 (scraper retainer [61]), and the scraper lock assembly, C32016-5 or -68, SPL-1379 (scraper lock assembly [56]), on the gland nut [18] (Figure 401 (Sheet 7)).

NOTE: This will make sure the scraper ring [21] for the gland nut [18] does not come out of its groove.

(a) Install the scraper retainer, C32016-4 or -67, SPL-1378 (scraper retainer [61]), on the gland nut [18].

(b) Install the scraper lock assembly, C32016-5 or -68, SPL-1379 (scraper lock assembly [56]), to hold the scraper retainer, C32016-4 or -67, SPL-1378 (scraper retainer [61]), in its position on the gland nut [18].

**SUBTASK 32-21-24-020-006**

(4) Move the gland nut [18] down at the inner cylinder [14] (Figure 401 (Sheet 7)).

(a) If the scraper ring [21] comes out of its groove, use the scraper plunger, C32016-2, SPL-1376 (scraper plunger [62]), and the scraper reducer, C32016-3, SPL-1377 (scraper reducer [63]), to install the scraper ring [21] back in its groove.

**SUBTASK 32-21-24-020-007**

(5) Move the lower bearing carrier [20] (Figure 401 (Sheet 6)):

(a) Loosely install the seal puller assembly, C32016-6, SPL-4047 (seal puller assembly [55]) around the inner cylinder [14].

(b) Push the seal puller assembly, C32016-6, SPL-4047 (seal puller assembly [55]), up, such that it will install correctly at the bottom of the outer cylinder [9].

(c) Align the holes in the seal puller assembly, C32016-6, SPL-4047 (seal puller assembly [55]), with the holes in the lower bearing carrier [20] for the puller screws [60].

(d) Install the puller screws [60] to hold the seal puller assembly, C32016-6, SPL-4047 (seal puller assembly [55]), to the lower bearing carrier [20].

(e) Tighten the retainer screws on each side of the seal puller assembly, C32016-6, SPL-4047 (seal puller assembly [55]).

(f) Install the strap assembly, SPL-3927 (strap assembly [57]), around the axle and connect the ends to the shoulder bolts on each side of the seal puller assembly, C32016-6, SPL-4047 (seal puller assembly [55]).

**SUBTASK 32-21-24-580-003**

(6) Lift the airplane until the lower bearing carrier [20] is completely out of the outer cylinder [9] (TASK 07-10-21-580-801).

**SUBTASK 32-21-24-020-008**

(7) Remove the inner cylinder [14] from the outer cylinder [9]:

(a) Remove the downlock pin from the nose landing gear (TASK 32-00-01-080-801).



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**WARNING** DO NOT PUT A PLUG IN THE OPEN PORTS OF THE RETRACT ACTUATOR. THE HYDRAULIC LINES CAN BREAK AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Disconnect the hydraulic UP-hose at the bracket on the retract actuator.

(c) Disconnect the hydraulic DOWN-hose at the fitting on the retract actuator.

(d) Put caps/plugs, STD-14686, on the hydraulic lines.

(e) Push up on the lock link to move it from the locked overcenter position.

(f) Optional: Connect a hydraulic pump to the retract actuator.

NOTE: The pressure line from the pump must be connected to the Up port of the actuator. The return line to the pump must be connected to the Down port of the actuator.

**WARNING** HOLD THE INNER CYLINDER WITH A ROPE BEFORE YOU CONNECT OR DISCONNECT THE CYLINDERS. IF YOU DO NOT HOLD THE INNER CYLINDER IN ITS POSITION, IT WILL FALL. THE INNER CYLINDER IS HEAVY AND CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

**CAUTION** BE CAREFUL NOT TO CAUSE DAMAGE TO THE INNER CYLINDER OR THE METERING PIN. DAMAGE TO THESE PARTS CAN CAUSE DAMAGE TO THE SEALS.

(g) Slowly apply pressure to the retract actuator to remove the inner cylinder [14] from the outer cylinder [9].

NOTE: This will move the nose landing gear forward.

(h) Remove the inner cylinder [14].

**SUBTASK 32-21-24-840-001**

**WARNING** MAKE SURE THAT A MINIMUM OF TWO PERSONS WILL HOLD THE INNER CYLINDER WHEN YOU DO THE SUBSEQUENT STEPS. THE INNER CYLINDER IS HEAVY. INJURY TO PERSONS OR DAMAGE TO THE EQUIPMENT CAN OCCUR.

(8) Hold the inner cylinder [14] in a vertical position.

## F. Inner Cylinder Component Removal

NOTE: Do these steps if the inner cylinder [14] you will install does not have these components installed.

**SUBTASK 32-21-24-020-009**

(1) Remove the metering pin [11] from the inner cylinder [14] (Figure 401 (Sheet 9)):

(a) Use the metering pin and retainer ring equipment, SPL-1895, to remove the nut [12] and retaining ring [67] from the inner cylinder [14].

(b) Remove the metering pin [11] from the inner cylinder [14].

(c) Remove the seal assembly [75] from the metering pin [11].



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SUBTASK 32-21-24-020-010

(2) Remove the upper bearing [8] and the recoil valve [70] from the top of the inner cylinder [14] (Figure 401 (Sheet 10)):

(a) Remove the upper bearing [8] from the upper bearing carrier [68].

1) Pull the upper bearing [8] apart slightly and slide it up and off the upper bearing carrier [68].

(b) Remove the upper bearing carrier [68] halves from the inner cylinder [14].

(c) Remove the recoil valve ring [69].

(d) Remove the recoil valve [70] from the upper centering cam [10].

SUBTASK 32-21-24-020-011

(3) Remove the upper centering cam [10] and lower centering cam [13] from the inner cylinder [14] (Figure 401 (Sheet 10)).

(a) Remove the upper centering cam [10] from the inner cylinder [14].

(b) Remove the dowel retaining circlip [71] and dowel [72] from the inner cylinder [14].

(c) Remove the lower centering cam [13] from the inner cylinder [14].

SUBTASK 32-21-24-020-012

(4) Remove the lower bearing carrier [20] from the inner cylinder [14] (Figure 401 (Sheet 6)):

(a) Use a rubber mallet, STD-3906, and lightly hit the bottom of the seal puller assembly, C32016-6, SPL-4047 (seal puller assembly [55]), until the lower bearing carrier [20] can be pulled out off the top of the inner cylinder [14].

NOTE: The lower bearing carrier [20] is coated with a dry lube film. The film may be worn and appear uneven, this is not cause for the lower bearing carrier [20] replacement.

(b) Remove the puller screw [60] to disconnect the seal puller assembly, C32016-6, SPL-4047 (seal puller assembly [55]), from the lower bearing carrier [20].

(c) Remove the seal puller assembly, C32016-6, SPL-4047 (seal puller assembly [55]) from the inner cylinder [14] .

(d) Put the lower bearing carrier [20] on a table or bench.

SUBTASK 32-21-24-020-013

(5) Remove the seal retainer [19] (Figure 401 (Sheet 3)):

(a) Remove the bearing carrier pin [22] for the seal retainer [19].

(b) Move the seal retainer [19] away from the lower bearing carrier [20] to get access to the active dynamic seal [23].

NOTE: It is recommended, if replacement seals are available, that all active and spare seals be replaced while the inner cylinder is removed. See task: Seals and Spare Seals Replacement, TASK 32-21-11-960-802

SUBTASK 32-21-24-900-001

(6) Install a new scraper ring [21] on the gland nut [18] if there is any sign of damage or wear on the old scraper ring [21] (Figure 401 (Sheet 3)):

NOTE: The scraper ring [21] prevents dirt and debris from entering the shock strut [4] when the inner cylinder [14] and outer cylinder [9] compress.



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(a) Make sure to use the correct scraper configuration to be installed in its groove on the gland nut [18].

NOTE: There are two possible scraper configurations used for installation (Figure 401 (Sheet 4)).

(b) Remove the gland nut [18] from the inner cylinder [14] (Figure 401 (Sheet 7)).

(c) Remove the scraper retainer, C32016-4 or -67, SPL-1378 (scraper retainer [61]), and the scraper lock assembly, C32016-5 or -68, SPL-1379 (scraper lock assembly [56]), from the gland nut [18].

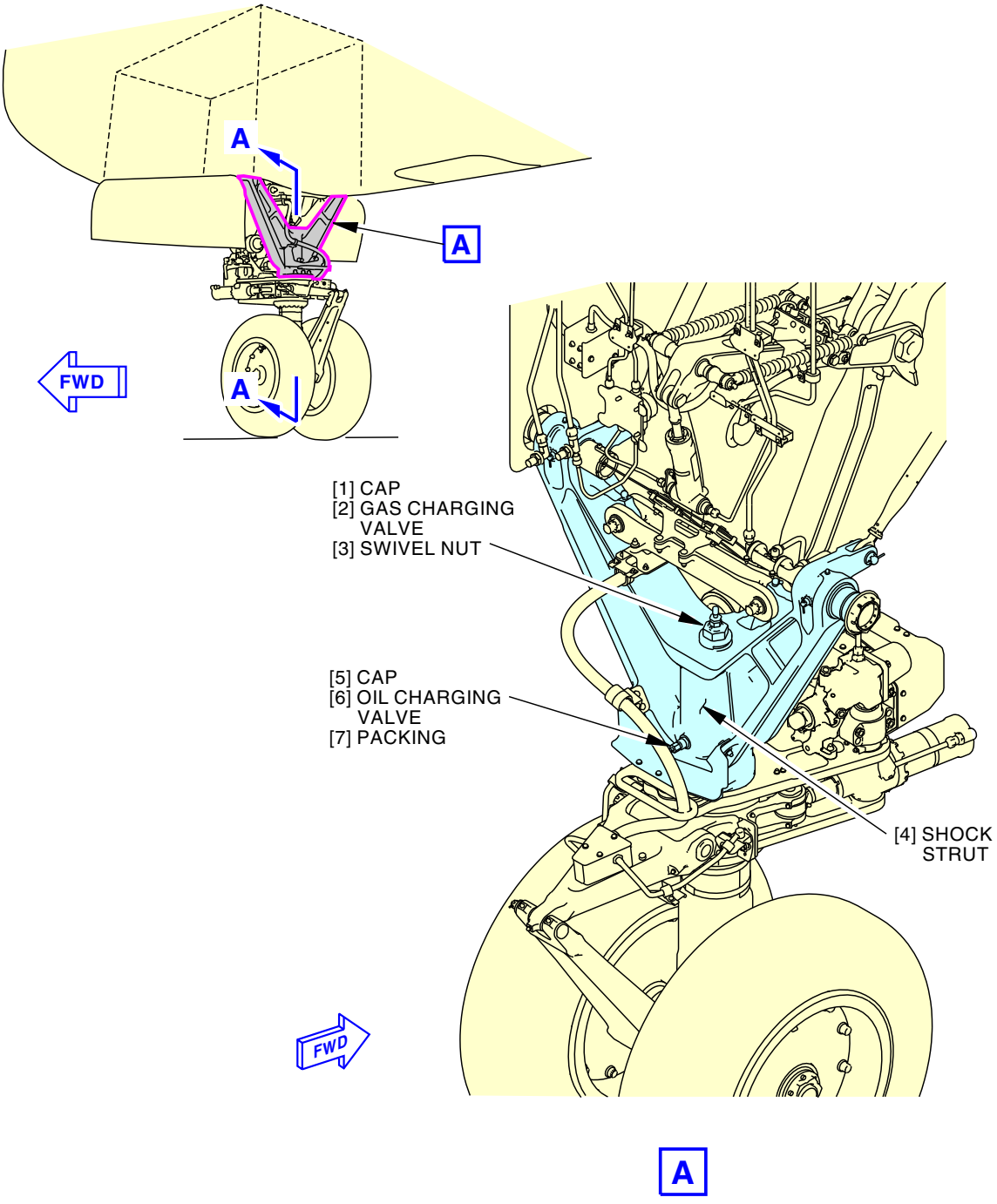
(d) Remove the old scraper ring [21] from its groove on the gland nut [18].

(e) Install the new scraper ring [21] in its groove on the gland nut [18].

**END OF TASK**



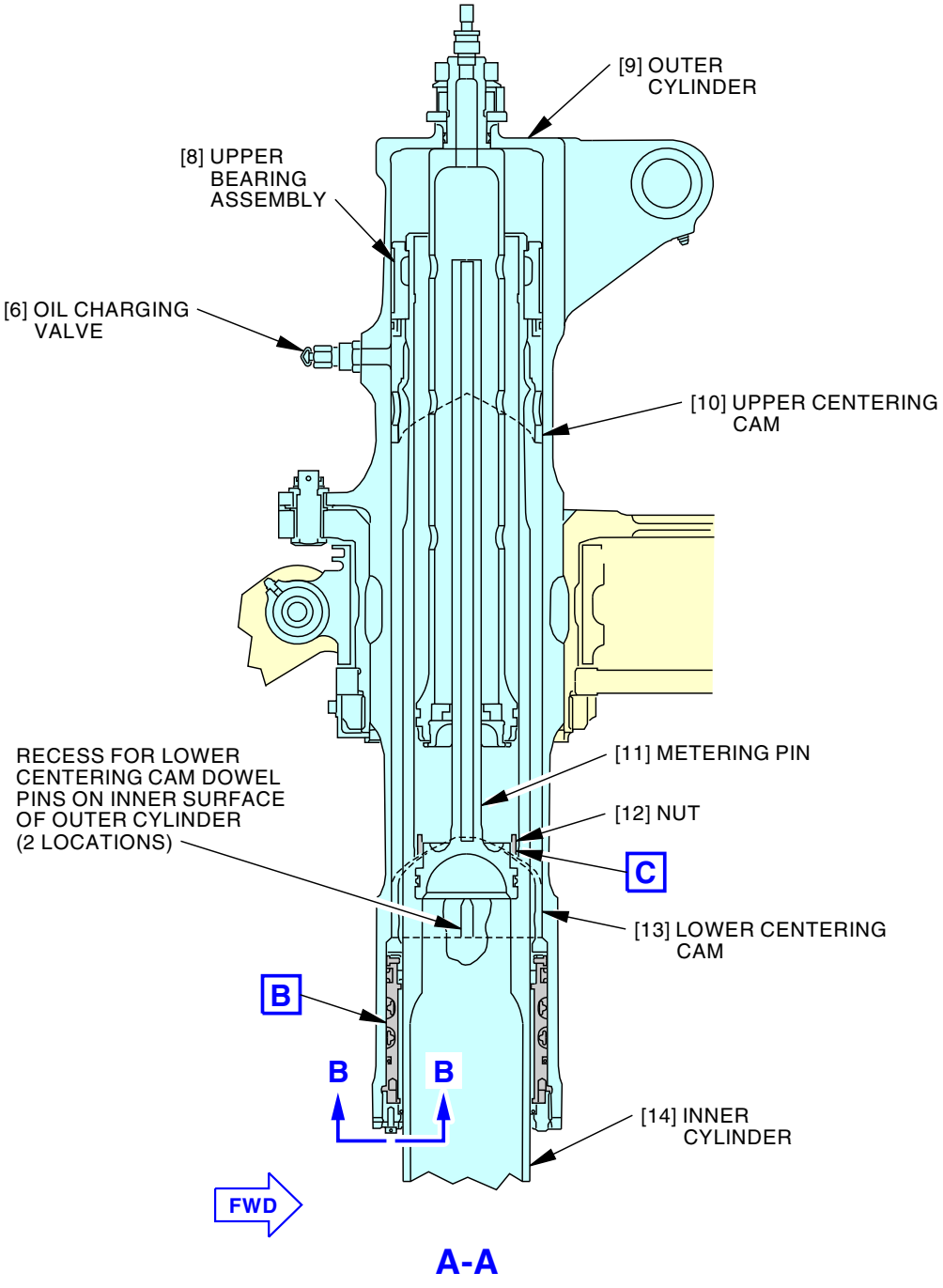
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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 1 of 11)**



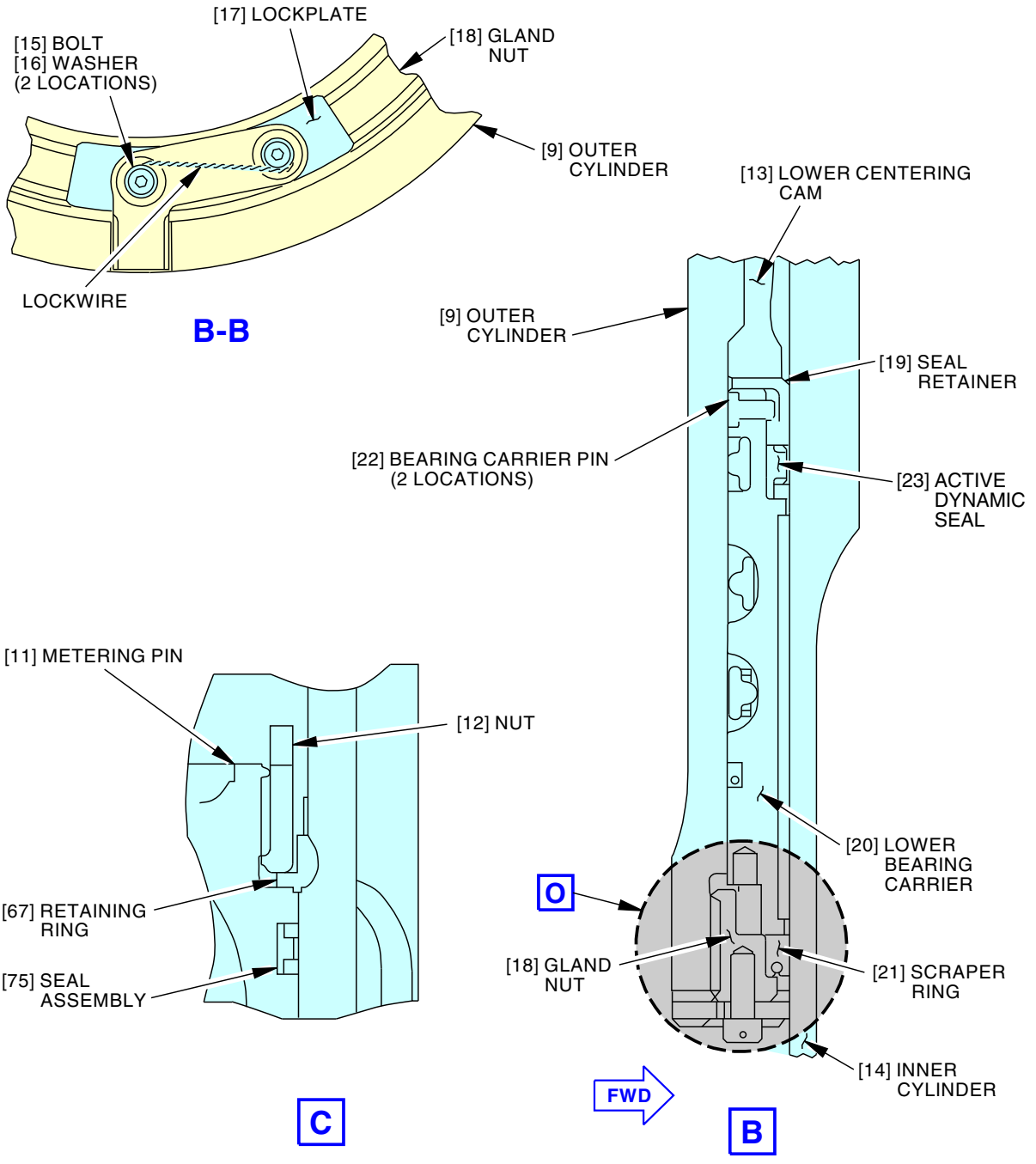
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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 2 of 11)**



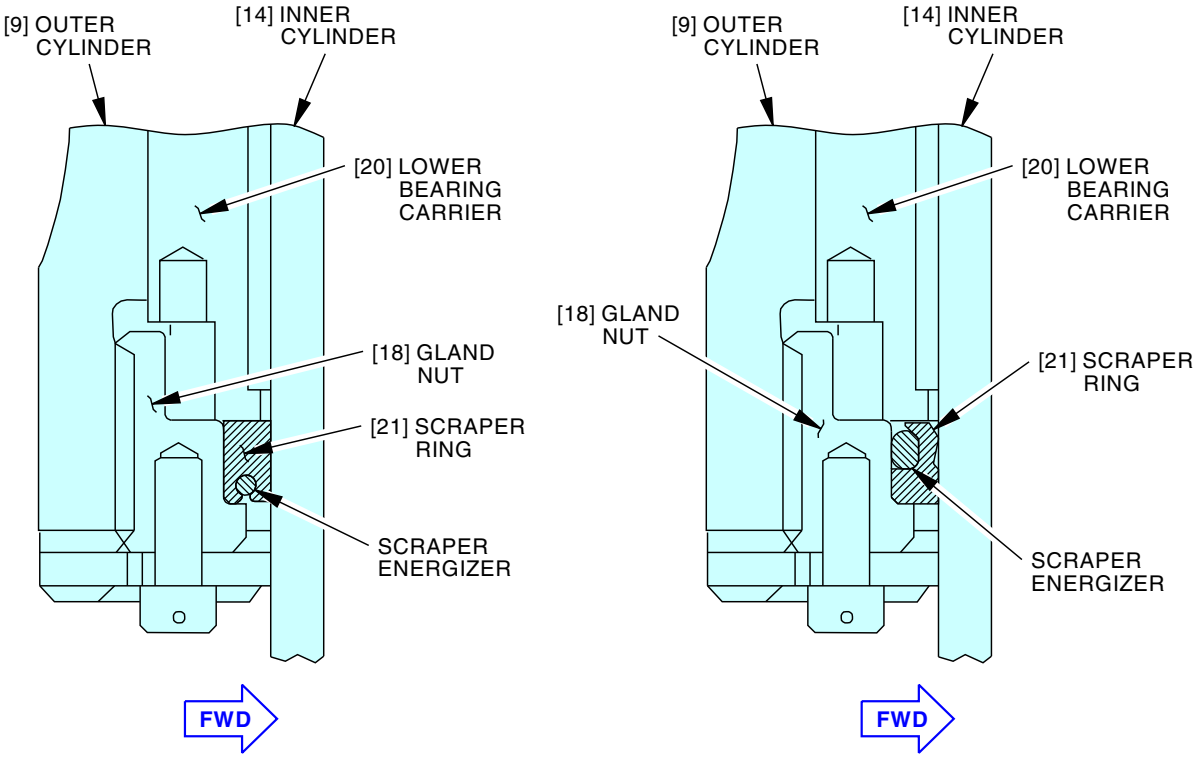
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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 3 of 11)**



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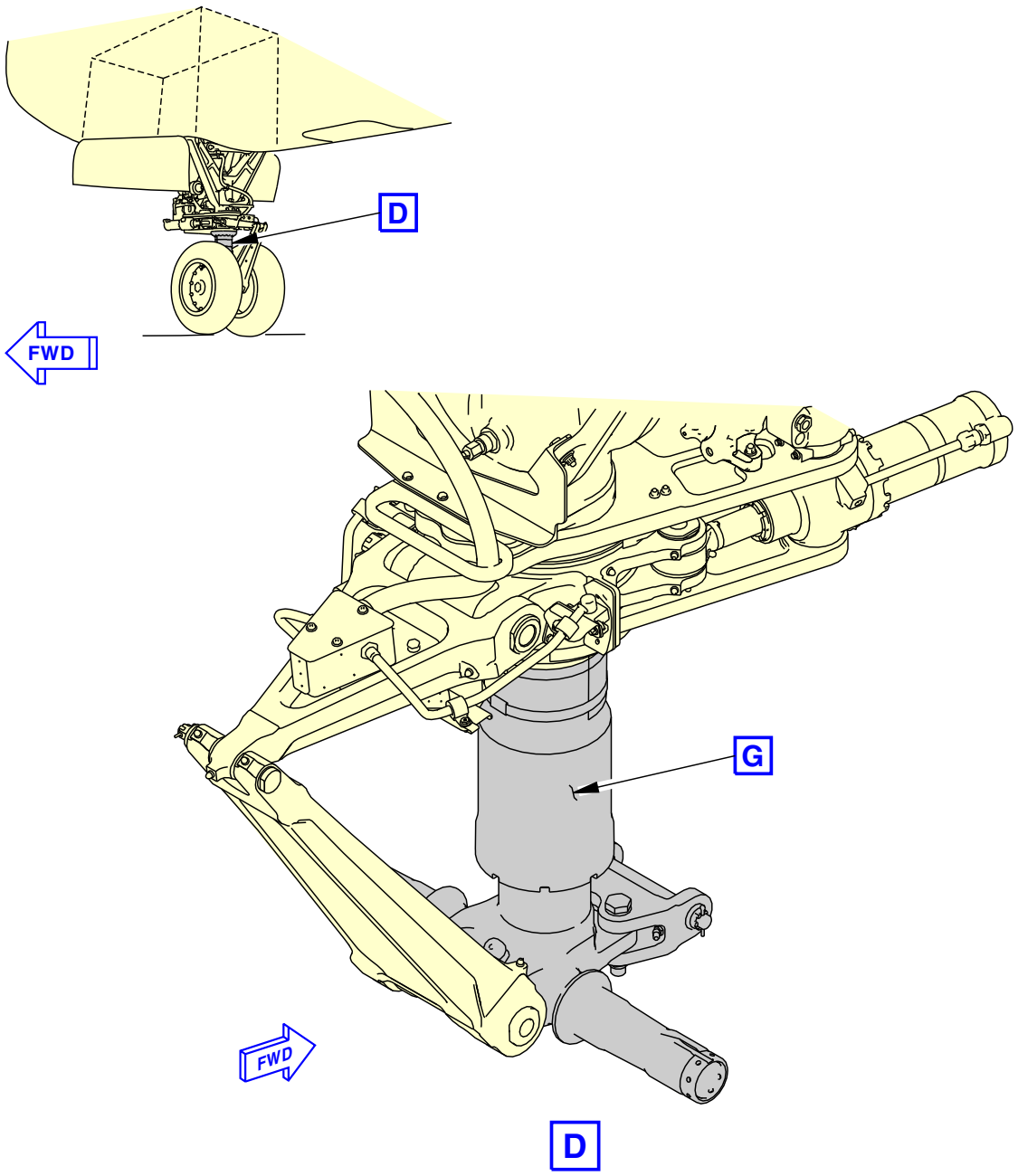



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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 4 of 11)**



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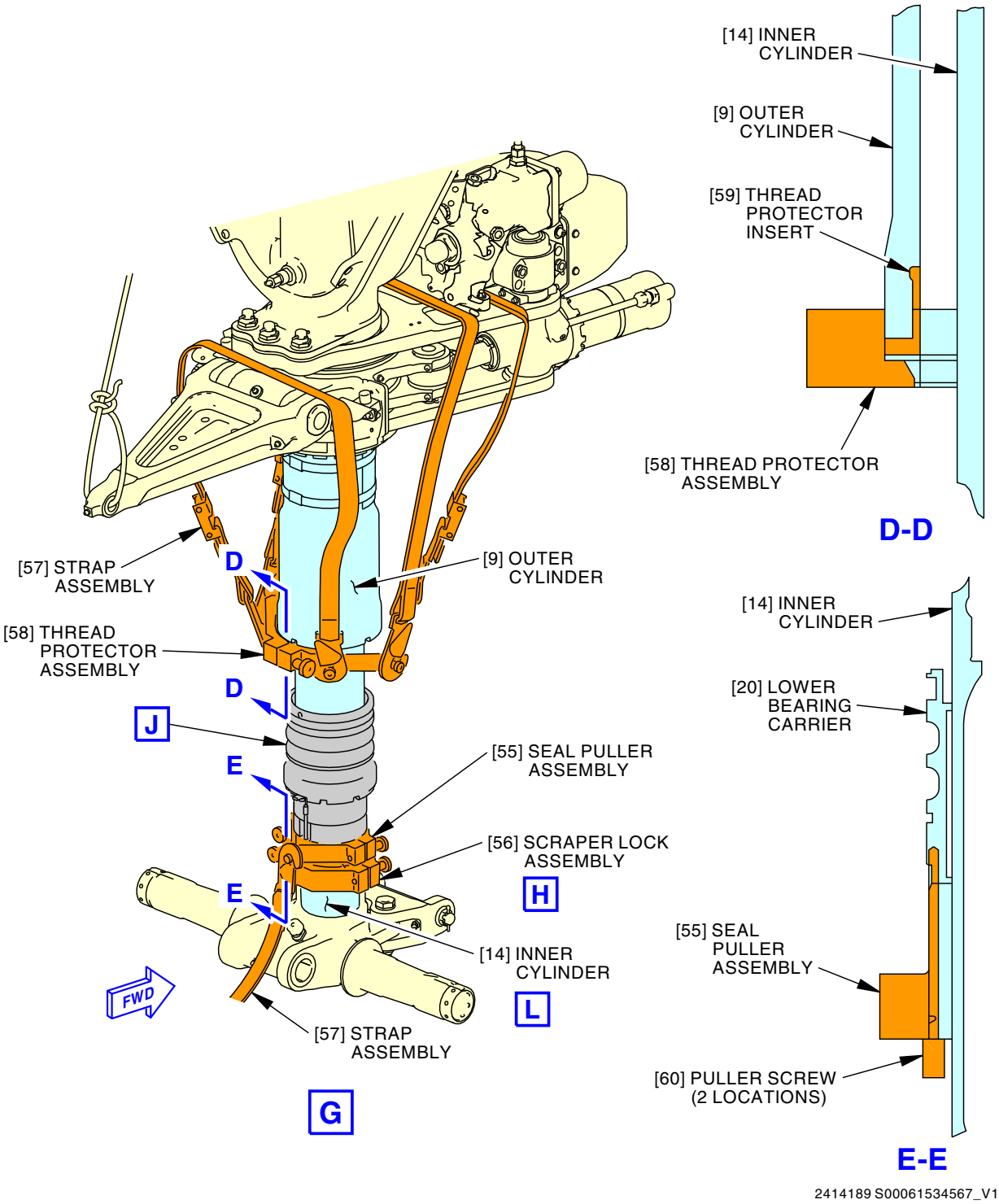

NOTE: WHEELS AND TIRES REMOVED
FOR CLARITY.

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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 5 of 11)**



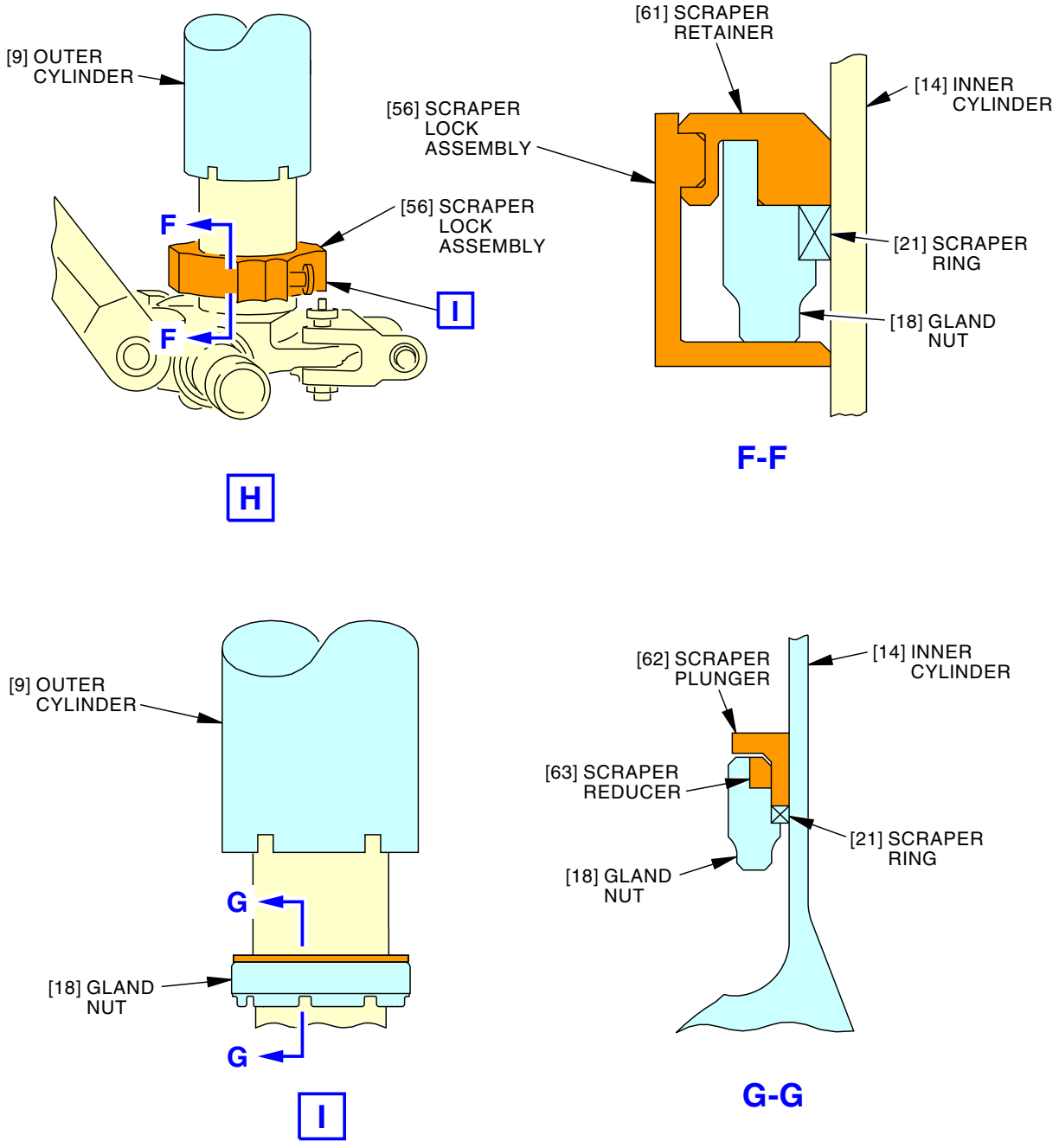
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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 6 of 11)**



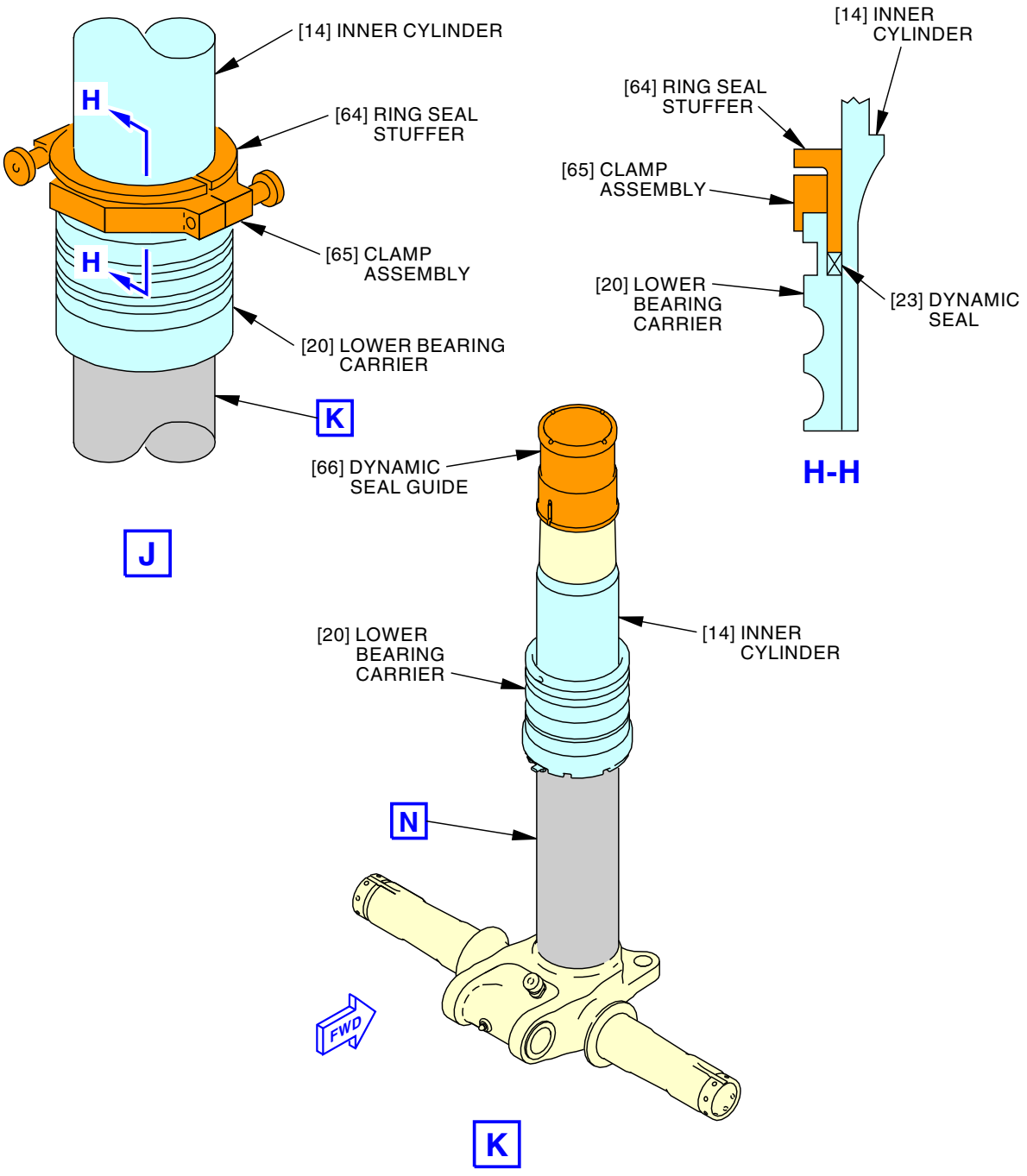
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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 7 of 11)**



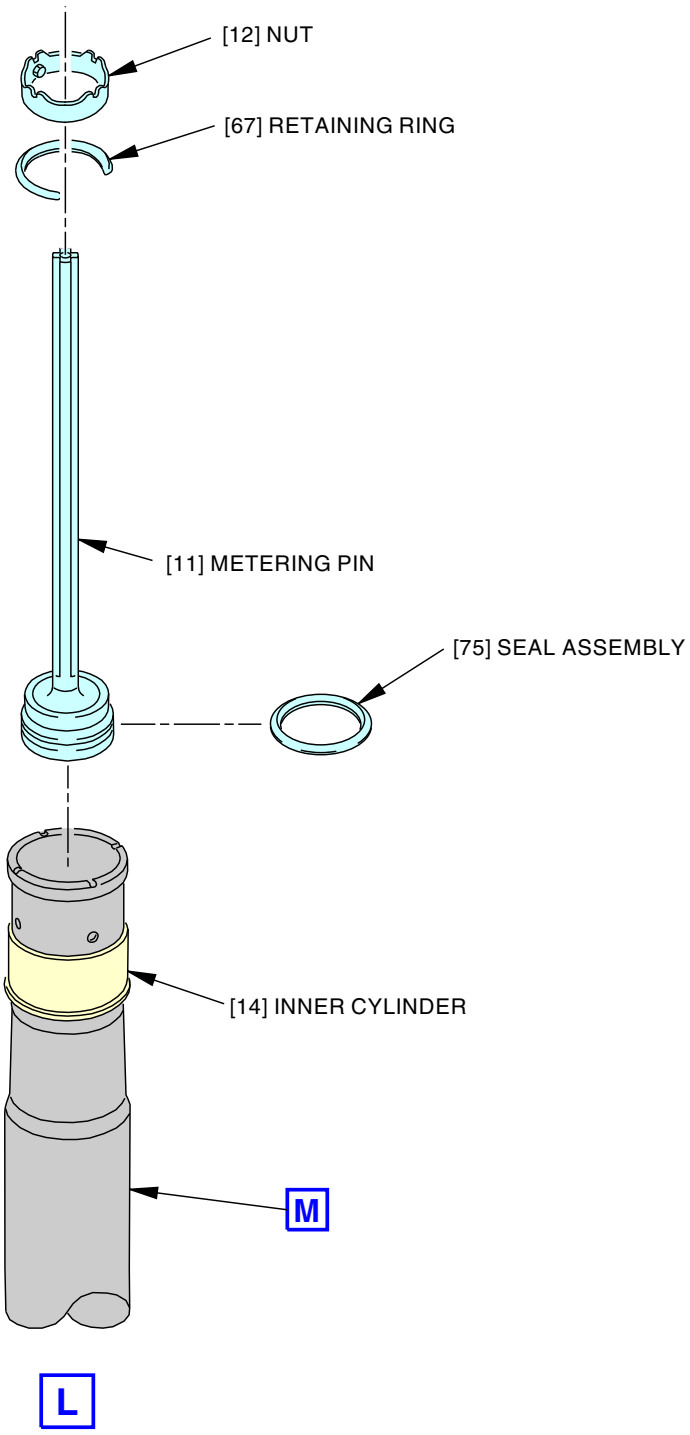
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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 8 of 11)**



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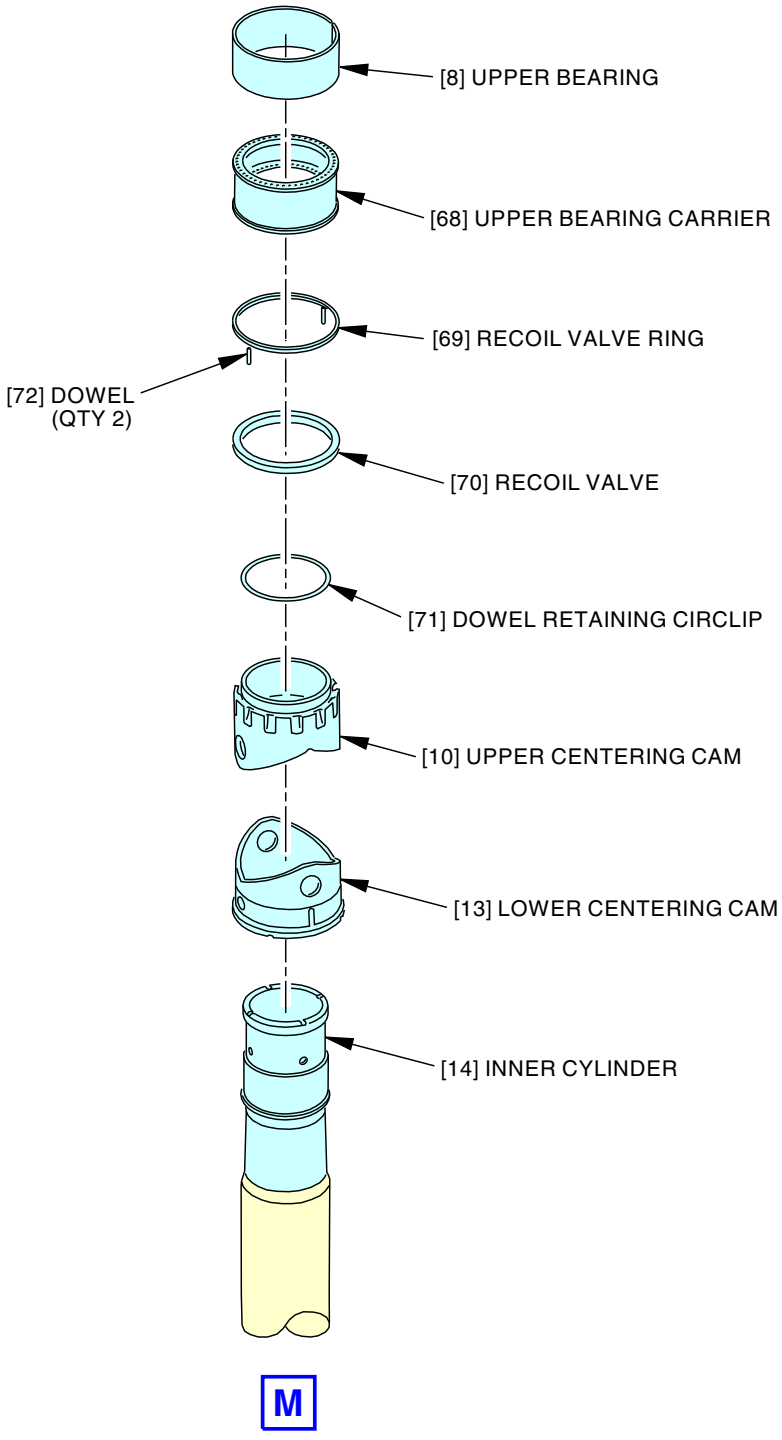



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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 9 of 11)**



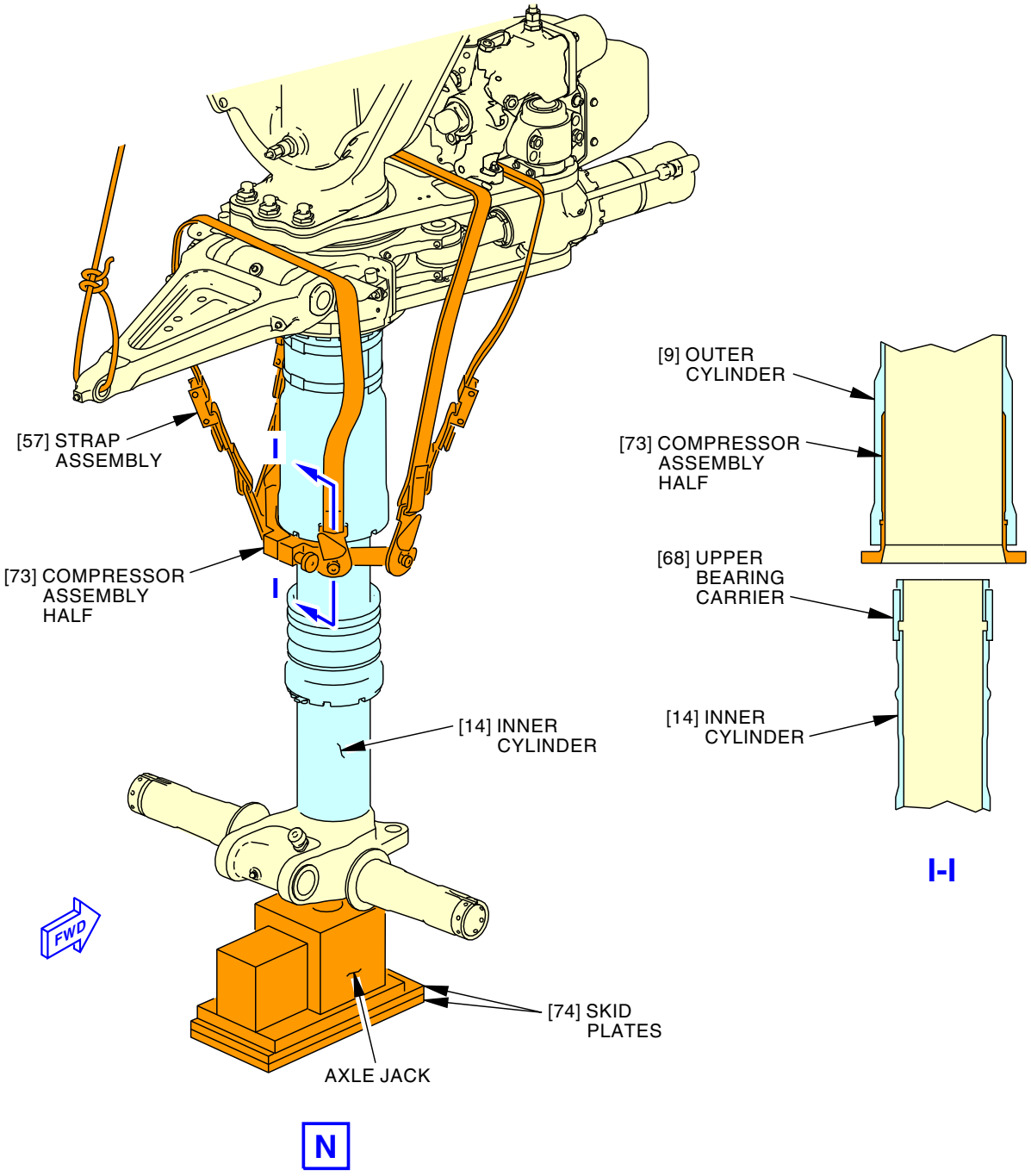
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 10 of 11)**



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**Nose Landing Gear Shock Strut Inner Cylinder Installation**
**Figure 401/32-21-24-990-801 (Sheet 11 of 11)**



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**TASK 32-21-24-400-801**

**3. NLG Inner Cylinder Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 12-21-21-640-802 | Nose Landing Gear Lower End Components Servicing (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-14-400-801 | Nose Landing Gear Tow Fitting Installation (P/B 401) |
| 32-21-31-400-802 | Nose Landing Gear Lower Torsion Link Installation (P/B 401) |
| 32-45-21-400-801 | Nose Landing Gear Wheel and Tire Assembly Installation (P/B 401) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1376 | Scraper Plunger, C32016-2 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1377 | Scraper Reducer, C32016-3 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1378 | Scraper Retainer, C32016-4 or -67 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1379 | Scraper Lock Assy, C32016-5 or -68 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1382 | Dynamic Seal Guide, C32016-45 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |



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(Continued)

| Reference | Description |
|---|---|
| SPL-1383 | Compressor Assy Half, C32016-10 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1384 | Thread Protector Assy, C32016-11 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1385 | Thread Protector Half, C32016-21 (included in C32016 eqpt)<br>Part #: C32016-66 Supplier: 81205<br>Opt Part #: C32016-33 Supplier: 81205<br>Opt Part #: C32016-46 Supplier: 81205 |
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1867 | Wrench - Nose Landing Gear Oleo Gland Nut<br>Part #: C32025-7 Supplier: 81205<br>Opt Part #: C32025-1 Supplier: 81205 |
| SPL-1895 | Equipment - Removal/Installation, Metering Pin and Retainer Ring, NLG<br>Part #: C32035-1 Supplier: 81205 |
| SPL-3927 | Assembly - Strap (C32017-60 Part of Kit C32017-52 and -53)<br>Part #: C32017-67 Supplier: 81205<br>Opt Part #: C32017-52 Supplier: 81205<br>Opt Part #: C32017-53 Supplier: 81205 |
| STD-3906 | Mallet - Rubber |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |
| D00467 | Fluid - Landing Gear Shock Strut | BMS3-32 Type II |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 2 | Gas charging valve | 32-21-00-01-360 | SIA ALL |
| 6 | Oil charging valve | 32-21-00-01-035 | SIA ALL |
| 7 | Packing | 32-21-00-01-030 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |


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## F. Components on the Inner Cylinder Installation

NOTE: Do these steps if the inner cylinder [14] you will install does not have these components installed.

SUBTASK 32-21-24-420-001

(1) Install the gland nut [18] on the inner cylinder [14] (Figure 401 (Sheet 7)).

(a) If the scraper ring [21] comes out of its groove, use the scraper plunger, C32016-2, SPL-1376 (scraper plunger [62]) and the scraper reducer, C32016-3, SPL-1377 (scraper reducer [63]), to install the scraper ring [21] back in its groove.

SUBTASK 32-21-24-420-002

(2) Install the seal retainer [19] (Figure 401 (Sheet 3)):

(a) Put the seal retainer [19] in its position on the lower bearing carrier [20].

(b) Install the bearing carrier pins [22] to connect the seal retainer [19] to the lower bearing carrier [20].

SUBTASK 32-21-24-840-002

**WARNING** MAKE SURE THAT A MINIMUM OF TWO PERSONS WILL HOLD THE INNER CYLINDER WHEN YOU DO THE SUBSEQUENT STEPS. THE INNER CYLINDER IS HEAVY. INJURY TO PERSONS OR DAMAGE TO THE EQUIPMENT CAN OCCUR.

(3) Hold the inner cylinder [14] in a vertical position.

SUBTASK 32-21-24-480-003

(4) Install the dynamic seal guide, C32016-45, SPL-1382 (dynamic seal guide [66]), at the top of the inner cylinder [14] (Figure 401 (Sheet 8)).

SUBTASK 32-21-24-420-003

(5) Install the lower bearing carrier [20]:

**CAUTION** MAKE SURE THAT THE BACKUP RINGS AND THE SEAL STAY TOGETHER WHEN YOU MOVE THE LOWER BEARING CARRIER. IF THE BACKUP RINGS AND THE SEAL MOVE APART, THEY WILL NOT INSTALL CORRECTLY. THIS CAN CAUSE DAMAGE TO THE SEAL AND THE BACKUP RINGS.

(a) Put the lower bearing carrier [20] in its position for installation on the inner cylinder [14].

(b) Use rubber mallet, STD-3906, and lightly hit the top of the lower bearing carrier [20] until it passes the dynamic seal guide, C32016-45, SPL-1382 (dynamic seal guide [66]).

(c) Move the lower bearing carrier [20] down to the bottom of the inner cylinder [14] .

SUBTASK 32-21-24-020-014

(6) Remove the dynamic seal guide, C32016-45, SPL-1382 (dynamic seal guide [66]), from the inner cylinder [14].

SUBTASK 32-21-24-420-004

(7) Install these items (Figure 401 (Sheet 10)):

(a) Install the lower centering cam [13] on the inner cylinder [14].

(b) Install the dowels [72] in their position on the inner cylinder [14].

(c) Install the dowel retaining circlip [71] on the inner cylinder [14] and on the dowels [72] to hold the dowels [72] in position.

(d) Install the upper centering cam [10] on the inner cylinder [14].



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(e) Verify the dowels [72] line up with the grooves on the upper centering cam [10] as it is installed on the inner cylinder [14].

(f) Verify dowel retaining circlip [71] snaps into the groove just below the dowels [72] on the inner cylinder [14].

(g) Install the upper bearing carrier [68] and the recoil valve [70] on the inner cylinder [14]:

1) Install the recoil valve [70] on the top of the upper centering cam [10].

2) Install the recoil valve ring [69] on the recoil valve [70] if it was removed.

3) Install the upper bearing carrier [68] on the inner cylinder [14].

(h) Install the upper bearing [8] on the upper bearing carrier [68] halves (Figure 401 (Sheet 11)).

1) If the upper bearing [8] does not fit tightly around the upper bearing carrier [68], use the compressor assy half, C32016-10, SPL-1383 (compressor assembly half [73]), to hold the upper bearing [8] closed during inner cylinder [14] installation.

2) Make an overlap of 0.25 in. (6.35 mm) to the upper bearing [8] to keep its round shape.

**SUBTASK 32-21-24-420-005**

(8) Install the metering pin [11] in the inner cylinder [14] (Figure 401 (Sheet 9)):

(a) Cover the seal assembly [75] fully with fluid, D00467.

(b) Install the seal assembly [75] on the metering pin [11].

(c) Install the metering pin [11], retaining ring [67], and nut [12] in the inner cylinder [14].

1) Install the retaining ring [67] on the metering pin [11] with the flange side first (Figure 401).

(d) Use the metering pin and retainer ring equipment, SPL-1895, to loosen the nut [12] and let the retaining ring [67] expand into the groove in the inner cylinder [14].

(e) Use the metering pin and retainer ring equipment, SPL-1895, to tighten the nut [12] to 75 ft-lb (101.7 N·m) - 100 ft-lb (135.6 N·m).

## G. Inner Cylinder in the Outer Cylinder Installation

**SUBTASK 32-21-24-420-006**

(1) Install the compressor assy half, C32016-10, SPL-1383 (compressor assembly half [73]) (Figure 401 (Sheet 11)):

(a) Install the compressor assy half, C32016-10, SPL-1383 (compressor assembly half [73]), such that it fits at the bottom of the outer cylinder [9].

(b) Install the strap assembly, SPL-3927 (strap assembly [57]), around the outer cylinder [9] and connect the ends to the shoulder bolts on the side of the compressor assy half, C32016-10, SPL-1383 (compressor assembly half [73]).

1) Tighten the strap assembly, SPL-3927 (strap assembly [57]).

**SUBTASK 32-21-24-420-007**

(2) Install the inner cylinder [14] in the outer cylinder [9]:

**CAUTION** BE CAREFUL NOT TO CAUSE DAMAGE TO THE INNER CYLINDER OR THE METERING PIN. DAMAGE TO THESE PARTS CAN CAUSE DAMAGE TO THE SEALS.

(a) Put the inner cylinder [14] in position to install in the outer cylinder [9].



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(b) Disconnect the hydraulic pump from the retract actuator.

(c) Remove the caps/plugs, STD-14686, from the hydraulic lines.

(d) Connect the hydraulic UP-hose at the bracket on the retract actuator.

1) Tighten the B-nut on the hydraulic UP-hose to 110 ±6 in-lb (12 ±1 N·m).

(e) Connect the hydraulic DOWN-hose at the fitting on the retract actuator.

1) Tighten the B-nut on the hydraulic DOWN-hose to 110 ±6 in-lb (12 ±1 N·m).

(f) Move the nose landing gear aft while you put the inner cylinder [14] into the outer cylinder [9].

(g) Push down on the lock link to move it to the locked overcenter position.

(h) Install the downlock pin in the nose landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-21-24-080-001**

(3) Remove the compressor assy half, C32016-10, SPL-1383 (compressor assembly half [73]):

(a) Remove the strap assembly, SPL-3927 (strap assembly [57]), around the outer cylinder [9] and to the shoulder bolts on the side of the compressor assy half, C32016-10, SPL-1383 (compressor assembly half [73]).

(b) Remove the compressor assy half, C32016-10, SPL-1383 (compressor assembly half [73]), from the outer cylinder [9].

**SUBTASK 32-21-24-420-008**

(4) Carefully put the thread protector half, C32016-21, SPL-1385 (thread protector insert [59]), between the outer cylinder [9] and the inner cylinder [14] (Figure 401 (Sheet 6)).

NOTE: The thread protector insert [59] will expand and push against the outer cylinder [9]. This will protect the static seals from the gland nut [18] threads on the outer cylinder [9].

**SUBTASK 32-21-24-480-004**

(5) Install the thread protector assembly, C32016-11, SPL-1384 (thread protector assembly [58]) (Figure 401 (Sheet 6)):

(a) Install the thread protector assembly, C32016-11, SPL-1384 (thread protector assembly [58]), such that it fits at the bottom of the outer cylinder [9].

(b) Install the strap assembly, SPL-3927 (strap assembly [57]), around the outer cylinder [9] and connect the ends to the shoulder bolts on the side of the thread protector assembly, C32016-11, SPL-1384 (thread protector assembly [58]).

1) Tighten the strap assembly, SPL-3927 (strap assembly [57]).

**SUBTASK 32-21-24-580-004**

(6) Lift the nose landing gear with an axle jack until the lower bearing carrier [20] moves into the recess between the inner cylinder [14] and outer cylinder [9] (TASK 07-10-03-580-803) .

(a) Make sure the static seals stay in their positions as the lower bearing carrier [20] is installed.

(b) Continue to lift the nose landing gear with an axle jack until the shock strut extension is reduced to 3.5 ±0.5 in. (88.9 ±12.7 mm) (TASK 07-10-03-580-803) .

**SUBTASK 32-21-24-020-015**

(7) Remove the thread protector assembly, C32016-11, SPL-1384 (thread protector assembly [58]), and the thread protector half, C32016-21, SPL-1385 (thread protector insert [59]) (Figure 401 (Sheet 6)).



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SUBTASK 32-21-24-020-016

(8) Remove the scraper retainer, C32016-4 or -67, SPL-1378 (scraper retainer [61]), and the scraper lock assembly, C32016-5 or -68, SPL-1379 (scraper lock assembly [56]), from the gland nut [18] (Figure 401 (Sheet 7)).

SUBTASK 32-21-24-640-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(9) Apply a liberal quantity of corrosion inhibiting material, G50136, to the threads of the gland nut [18] and the threads of the outer cylinder [9].

SUBTASK 32-21-24-420-009

(10) Install the gland nut [18]:

(a) Move the gland nut [18] up on the inner cylinder [14] and engage the threads to the outer cylinder [9].

(b) Use the wrench, SPL-1867, for the gland nut [18] to tighten the gland nut [18] to 100 ft-lb (135.6 N·m) - 125 ft-lb (169.5 N·m).

SUBTASK 32-21-24-420-010

(11) Install the lockplate [17] for the gland nut [18] (Figure 401 (Sheet 3)):

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136, to the shank and threads of bolts [15] and washers [16].

(b) Install the lockplate [17] in the holes such that it requires the least amount of back off of the gland nut [18] to align the tab of the lockplate [17] with the slot on the outer cylinder [9].

1) If it is necessary, loosen the gland nut [18] slightly to align slot in the outer cylinder [9] with the lockplate [17] tab.

(c) Install the bolts [15] and washers [16].

(d) Tighten the bolts [15].

(e) Install lockwire on the bolts [15].

(f) Remove all excess corrosion inhibiting material, G50136.

SUBTASK 32-21-24-420-011

(12) Do this task: Nose Landing Gear Lower Torsion Link Installation, TASK 32-21-31-400-802.

SUBTASK 32-21-24-420-015

(13) Do this task: Nose Landing Gear Tow Fitting Installation, TASK 32-21-14-400-801.



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SUBTASK 32-21-24-420-019

(14) Do this task:Nose Landing Gear Wheel and Tire Assembly Installation, TASK 32-45-21-400-801.

SUBTASK 32-21-24-980-001

(15) Move the inner cylinder [14] from the fully extended to the fully compressed position.

NOTE: Make sure the total travel is 15.50 in. (39.4 cm).

SUBTASK 32-21-24-860-002

(16) Remove the NLG towing lever pin, SPL-1499 from the towing lever.

SUBTASK 32-21-24-420-017

(17) Install the oil charging valve [6], if removed:

(a) Remove and discard the old packing [7].

(b) Apply a thin layer of fluid, D00467, on the new packing [7].

(c) Install the new packing [7] on the oil charging valve [6].

(d) Install the oil charging valve [6] and tighten it to 22 ft-lb (29.8 N·m) - 25 ft-lb (33.9 N·m).

(e) Install the cap [5] loosely.

NOTE: You will tighten it in the shock strut servicing task.

(f) Apply compound, A00226, to the oil charging valve [6].

NOTE: Apply it to make sure the seal made by the compound, A00226, will break if the oil charging valve [6] becomes loose.

SUBTASK 32-21-24-600-001

(18) Do this task: Nose Landing Gear Shock Strut Servicing, Airplane on the Ground, TASK 12-15-41-610-802.

SUBTASK 32-21-24-420-018

(19) Make sure the swivel nut [3] is tightened to 5 ft-lb (6.8 N·m) - 7 ft-lb (9.5 N·m) and the cap [1] is installed for the gas charging valve [2].

SUBTASK 32-21-24-710-002

(20) Do a test on the steering system of the nose wheel (TASK 32-51-00-700-801).

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-21-24-580-005

(1) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-21-24-640-002

(2) Lubricate the lube fittings on the torsion links (TASK 12-21-21-640-802).

**——— END OF TASK ———**



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## NOSE LANDING GEAR TORSION LINKS - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the upper torsion link (referred to as the upper torsion link [15]) from the nose landing gear

(2) An installation of the upper torsion link on the nose landing gear.

(3) A removal of the lower torsion link (referred to as the lower torsion link [11]) from the nose landing gear

(4) An installation of the lower torsion link on the nose landing gear.

(5) The disconnection of the torsion links of the nose landing gear

(6) The connection of the torsion links of the nose landing gear.

**TASK 32-21-31-000-801**

### 2. Nose Landing Gear Upper Torsion Link Removal

(Figure 401)

#### A. General

(1) This procedure supplies instructions to remove the upper torsion link.

#### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-837 | String |
| STD-6545 | Rope - Nylon |

#### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

#### E. Prepare for the Removal

**SUBTASK 32-21-31-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

#### F. Nose Landing Gear Upper Torsion Link Removal

**SUBTASK 32-21-31-020-001**

(1) Disconnect the box assembly [38] from the upper torsion link [15]:

NOTE: Disconnect the box assembly [38] with the electrical conduits [22]attached.

(a) Remove the screws [44] and washers [45] to remove the cover [46] from the box assembly [38].



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(b) Remove the nuts [33] and washers [34] from the bolt [36].

(c) Remove the bolts [36] and washers [35] from the upper torsion link [15].

(d) Remove the washers [35] from the bolts [36].

SUBTASK 32-21-31-020-002

(2) Remove the clamps [25] that hold the electrical conduits [22] to the bracket [26]:

(a) Remove the screws [23] that hold the clamps [25] to the bracket [26].

(b) Remove the clamps [25] and the nut clips [24] from the bracket [26].

SUBTASK 32-21-31-020-003

(3) Remove the bracket [26] from the upper torsion link [15]:

(a) Remove the nut [43] and washers [42] from the bolts [39].

(b) Remove the bracket [26] and washers [41] from the bolts [39].

(c) Remove the bolts [39] and washers [40] from the upper torsion link [15].

(d) Remove the washers [40] from the bolts [39].

SUBTASK 32-21-31-020-004

(4) Disconnect the sensor brackets [17] from the upper torsion link [15]:

NOTE: Disconnect the sensor brackets [17] with the sensors [16] and the electrical conduits [22] attached.

(a) Remove the nuts [21] and washers [20] from the bolts [18].

(b) Remove the bolts [18] that hold the sensor brackets [17] to the upper torsion link [15].

(c) Remove the washers [19] from the bolts [18].

(d) Isolate the sensor brackets [17] from the upper torsion link [15].

1) If it is necessary, use a string, STD-837, to hold the sensor brackets [17] and attach the string, STD-837, over the top of the outer cylinder.

SUBTASK 32-21-31-480-002

(5) Use a nylon rope, STD-6545, to hold the upper end of the lower torsion link [11] to the outer cylinder.

NOTE: This task will hold the lower torsion link [11] in its position when you remove and install the upper torsion link [15] in the subsequent steps.

SUBTASK 32-21-31-020-005

(6) Remove the upper torsion link [15] from the nose landing gear:

(a) Remove the pin [14], nut [13] and washer [12] from the apex pin [6].

(b) Remove the apex pin [6] to disconnect the upper torsion link [15] from the lower torsion link [11].

(c) Remove the pin [2], nut [1] and washer [3] from the torsion link pin [5].

(d) Remove the torsion link pin [5] to disconnect the upper torsion link [15] from the steering collar [4].

(e) Isolate the box assembly [38] from the upper torsion link [15].

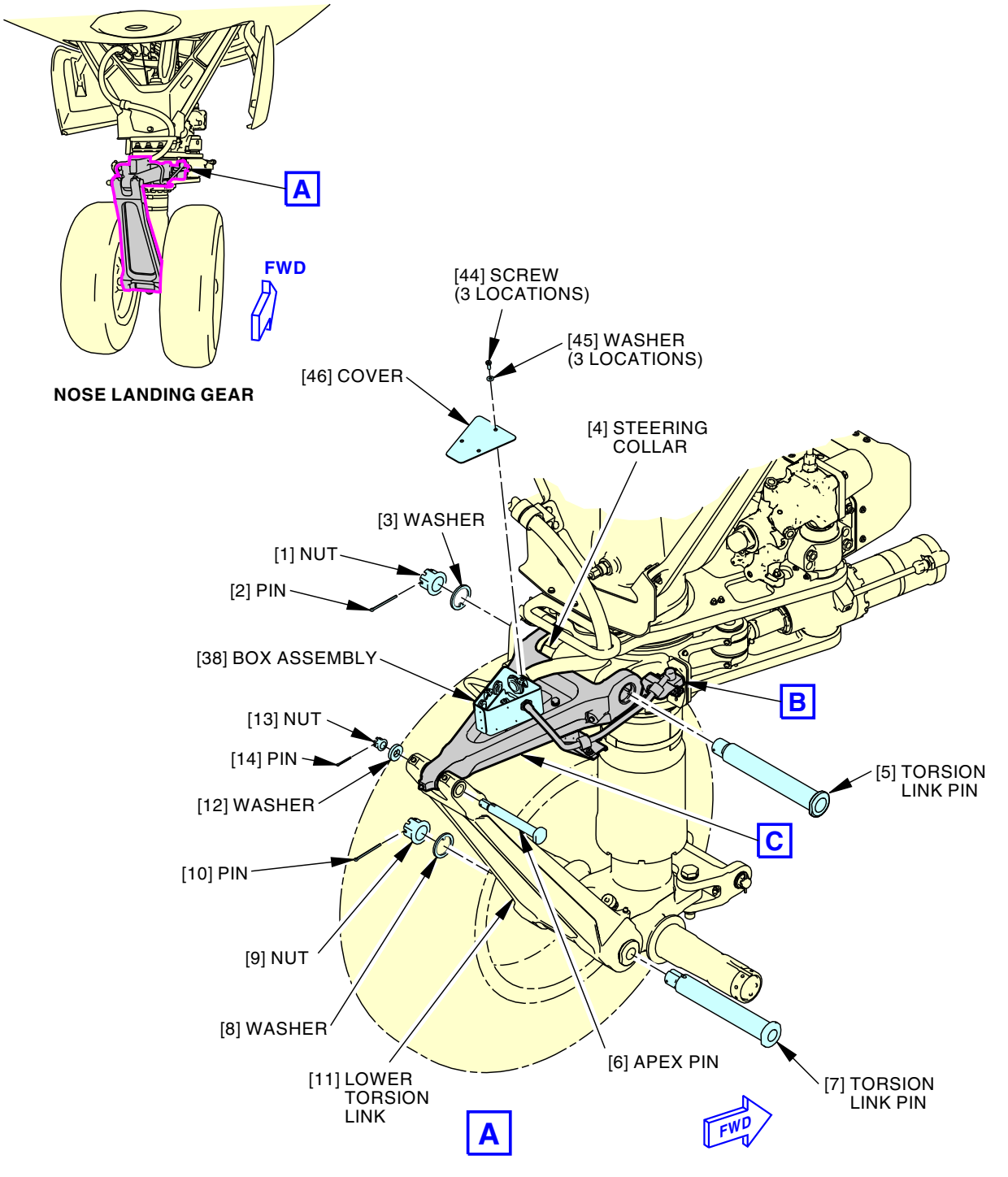
1) If it is necessary, use a string, STD-837, to hold the box assembly [38] and attach the string, STD-837, to the outer cylinder.

(f) Remove the upper torsion link [15] from the airplane.

**END OF TASK**



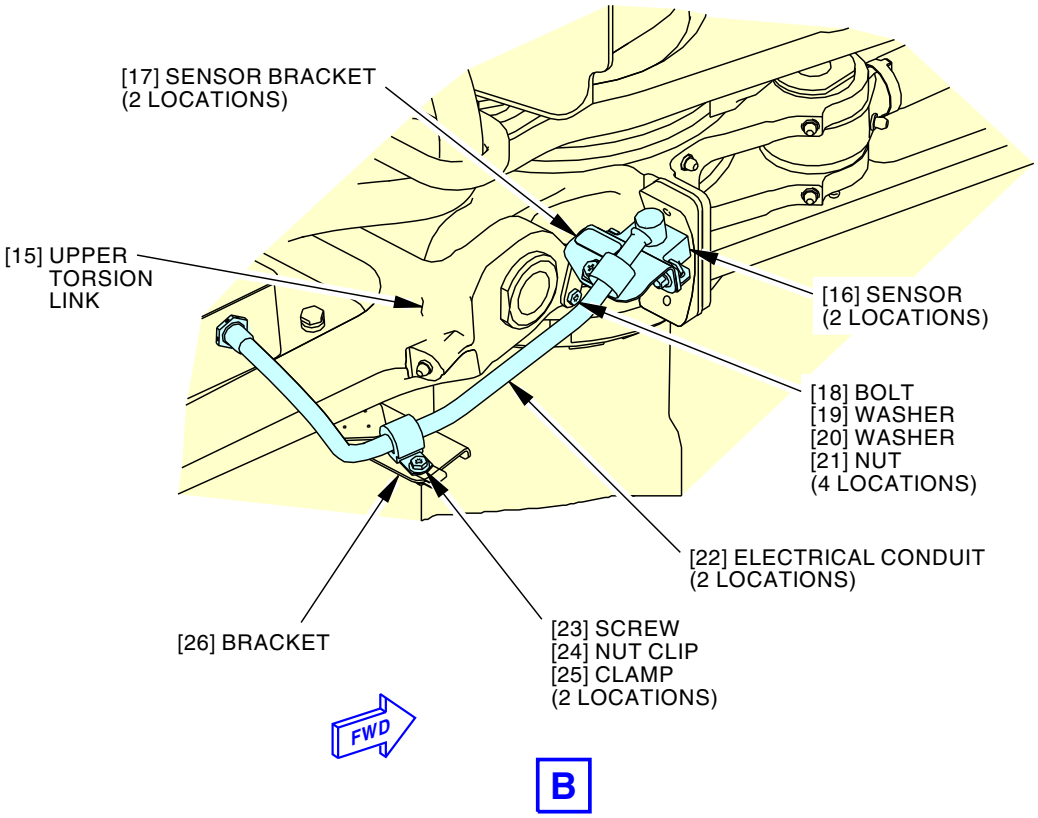
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**Nose Landing Gear Torsion Links Installation**
**Figure 401/32-21-31-990-801 (Sheet 1 of 3)**



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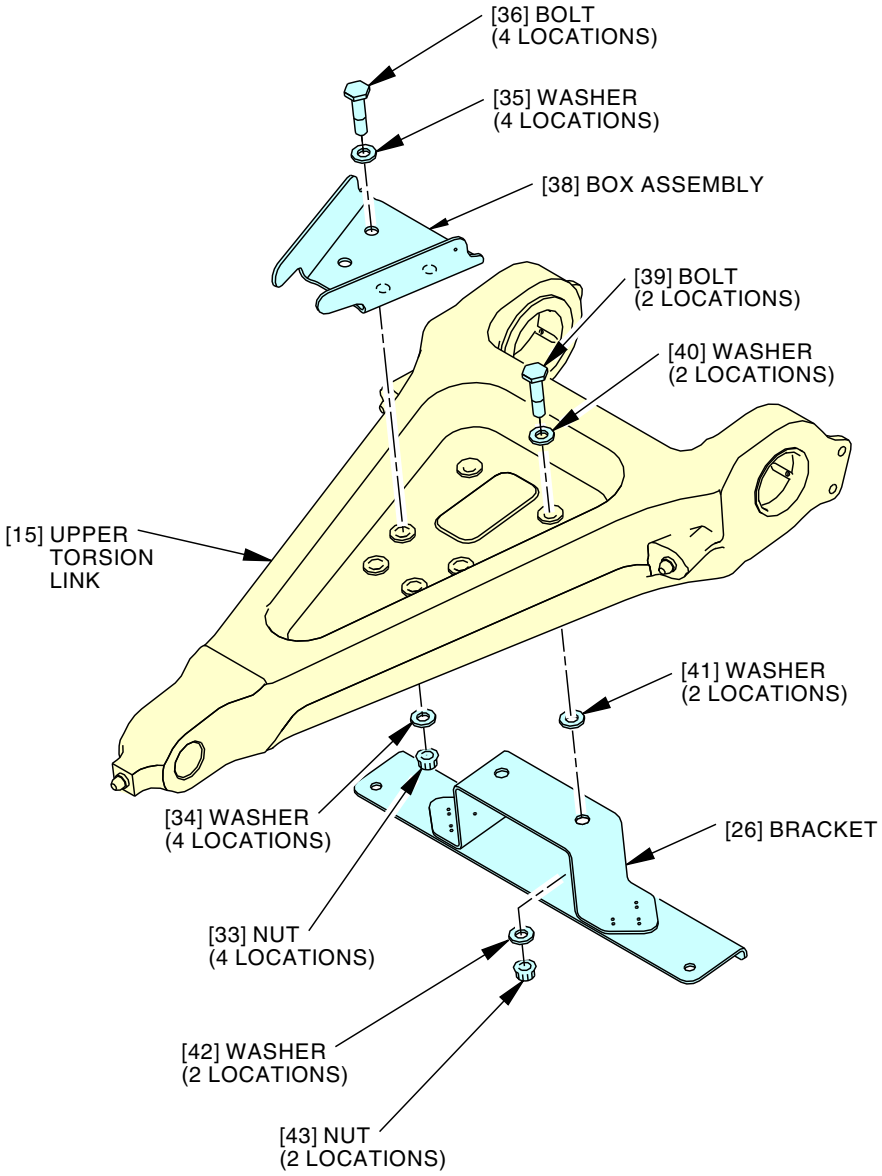



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**Nose Landing Gear Torsion Links Installation**
**Figure 401/32-21-31-990-801 (Sheet 2 of 3)**



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**Nose Landing Gear Torsion Links Installation**
**Figure 401/32-21-31-990-801 (Sheet 3 of 3)**



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**TASK 32-21-31-400-801**

## 3. Nose Landing Gear Upper Torsion Link Installation

(Figure 401)

### A. General

(1) This procedure supplies instructions to install the upper torsion link [15].

### B. References

| Reference | Title |
|---|---|
| 12-21-21-640-802 | Nose Landing Gear Lower End Components Servicing (P/B 301) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-837 | String |
| STD-6545 | Rope - Nylon |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### E. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 11 | Lower torsion link | 32-21-31-01-100 | SIA ALL |
| 15 | Upper torsion link | 32-21-31-01-070 | SIA ALL |
| 38 | Box assembly | 32-21-51-15-125 | SIA ALL |
| 46 | Cover | 32-21-51-11A-080 | SIA ALL |

### F. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

### G. Nose Landing Gear Upper Torsion Link Installation

**SUBTASK 32-21-31-420-001**

(1) Connect the upper torsion link [15] to the steering collar [4]:

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the torsion link pin [5]
2) The threads of the nut [1]
3) The faces of the washer [3]
4) The mating surfaces of the upper torsion link [15] and the steering collar [4].

(b) Remove excess corrosion inhibiting material, G50136.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

(c) Put the upper torsion link [15] in its position on the steering collar [4].

(d) Put the torsion link pin [5] through the upper torsion link [15] and the steering collar [4].

(e) Install the washer [3] and the nut [1] on the torsion link pin [5]].

(f) Tighten the nut [1] to 21 ft-lb (28.5 N·m) - 25 ft-lb (33.9 N·m) more than the run-on torque.

(g) If it is necessary, loosen the nut [1] to the nearest castellation to align the holes for the pin [2].

(h) Install the pin [2] in the torsion link pin [5].

SUBTASK 32-21-31-420-002

(2) Connect the upper torsion link [15] to the lower torsion link [11]:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the apex pin [6]

2) The threads of the nut [13]

3) The faces of the washer [12]

4) The mating surfaces of the upper torsion link [15] and the lower torsion link [11].

(b) Remove excess corrosion inhibiting material, G50136.

(c) Align the apex holes in the upper torsion link [15], and the lower torsion link [11].

(d) Put the apex pin [6] through the lower torsion link [11] and the upper torsion link [15].

(e) Install the washer [12] and the nut [13] on the apex pin [6].

(f) Tighten the nut [13] to 160 in-lb (18.1 N·m) - 190 in-lb (21.5 N·m) more than the run-on torque.

(g) Install the pin [14] in the apex pin [6].

1) If it is necessary, loosen the nut [13] to the nearest castellation to align the holes for the pin [14].

SUBTASK 32-21-31-080-001

(3) Remove the nylon rope, STD-6545,that holds the upper end of the lower torsion link [11] to the outer cylinder.

SUBTASK 32-21-31-020-006

(4) Connect the sensor brackets [17] to the upper torsion link [15]:



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the bolts [18]
2) The threads of the nuts [21]
3) The faces of the washers [19] and washers [20]

(b) Remove any excess corrosion inhibiting material, G50136.

(c) If a string, STD-837, is attached to the sensor brackets [17] and the outer cylinder, remove the string, STD-837.

(d) Put the sensor brackets [17] in their position on the upper torsion link [15].

(e) Install the washers [19] on the bolts [18].

(f) Put the bolts [18] through the upper torsion link [15], and the sensor brackets [17].

(g) Install the washers [20] and the nuts [21] on the bolts [18].

(h) Tighten the nuts [21].

**SUBTASK 32-21-31-020-007**

(5) Connect the box assembly [38] to the upper torsion link [15]:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and shank of the bolts [36]
2) The threads of the nut [33]
3) The faces of the washers [34] and washers [35].

(b) Remove excess corrosion inhibiting material, G50136.

(c) If a string, STD-837, is attached to the box assembly [38] and the outer cylinder, remove the string, STD-837.

(d) Put the box assembly [38] in its position on the upper torsion link [15].

(e) Install the washers [35] on the bolts [36].

(f) Put the bolts [36] through the box assembly [38] and the upper torsion link [15].

(g) Install the washers [34] and the nuts [33] on the bolts [36].

(h) Install the cover [46] on the box assembly [38].

(i) Install the screws [44] and washers [45].



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SUBTASK 32-21-31-020-008

(6) Install the bracket [26] on the upper torsion link [15]:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:
  1) The threads and shank of the bolts [39]
  2) The threads of the nuts [43]
  3) The faces of the washers [40], washers [41], washers [42].

(b) Remove excess corrosion inhibiting material, G50136.

(c) Install the washers [40] on the bolts [39].

(d) Put the bolts [39] through the upper torsion link [15], washers [41] and the bracket [26].

(e) Install the washers [42] and nuts [43] on the bolts [39].

SUBTASK 32-21-31-420-003

(7) Install the clamps [25] that hold the electrical conduits [22] to the bracket [26]:

(a) Put the electrical conduits [22] in their position on the bracket [26].

(b) Install the clamps [25] and the nut clips [24] on the bracket [26].

(c) Put the screws [23] through the clamps [25], nut clips [24] and bracket [26].

### H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-21-31-640-001

(1) Lubricate the lube fittings on the upper torsion link [15] (TASK 12-21-21-640-802).

——— END OF TASK ———

## TASK 32-21-31-000-802

## 4. Nose Landing Gear Lower Torsion Link Removal

(Figure 401)

### A. General

(1) This procedure supplies instructions to remove the lower torsion link [11].

### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-45-21-000-801 | Nose Landing Gear Wheel and Tire Assembly Removal (P/B 401) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-6545 | Rope - Nylon |



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**D. Location Zones**

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

**E. Prepare for the Removal**

SUBTASK 32-21-31-480-003

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-21-31-580-001

(2) Lift the nose landing gear with an axle jack (TASK 07-10-03-580-803).

SUBTASK 32-21-31-010-001

(3) Remove the left or right wheel and tire of the nose landing gear (TASK 32-45-21-000-801).

**F. Nose Landing Gear Lower Torsion Link Removal**

SUBTASK 32-21-31-480-004

(1) Use a nylon rope, STD-6545, to hold the aft end of the upper torsion link [15] to the outer cylinder.

NOTE: This step will hold the upper torsion link [15] in its position when you remove and install the lower torsion link [11] in the subsequent steps.

SUBTASK 32-21-31-020-009

(2) Remove the lower torsion link [11] from the nose landing gear:

(a) Remove the pin [14], nut [13] and washer [12] from the apex pin [6].

(b) Remove the apex pin [6] to disconnect the lower torsion link [11] from the upper torsion link [15].

(c) Remove the pin [10], nut [9], and washer [8] from the torsion link pin [7].

(d) Remove the torsion link pin [7] to disconnect the lower torsion link [11] from the inner cylinder.

(e) Remove the lower torsion link [11] from the airplane.

**——— END OF TASK ———**

**TASK 32-21-31-400-802**

## 5. Nose Landing Gear Lower Torsion Link Installation

(Figure 401)

**A. General**

(1) This procedure supplies instructions to install the lower torsion link [11].

**B. References**

| Reference | Title |
|---|---|
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-21-21-640-802 | Nose Landing Gear Lower End Components Servicing (P/B 301) |



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(Continued)

| Reference | Title |
|---|---|
| 32-45-21-400-801 | Nose Landing Gear Wheel and Tire Assembly Installation (P/B 401) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 11 | Lower torsion link | 32-21-31-01-100 | SIA ALL |
| 15 | Upper torsion link | 32-21-31-01-070 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

**F. Nose Landing Gear Lower Torsion Link Installation**

SUBTASK 32-21-31-420-004

(1) Connect the lower torsion link [11] to the inner cylinder:

(a) Lubricate the chrome plated surfaces of the torsion link pin [7], lower torsion link [11], and the mating surfaces of the inner cylinder with grease, D00633.

(b) Remove all unwanted grease, D00633.

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(c) Apply a thin layer of the corrosion inhibiting material, G50136, to the threads of the nut [9] and the faces of the washer [8].

(d) Remove all unwanted corrosion inhibiting material, G50136.

(e) Put the lower torsion link [11] in its position on the inner cylinder.

(f) Put the torsion link pin [7] through the lower torsion link [11] and the inner cylinder.

(g) Install the washer [8] and nut [9] on the torsion link pin [7].

(h) Tighten the nut [9] to 250 in-lb (28.2 N·m) - 300 in-lb (33.9 N·m) more than the run-on torque.

(i) If it is necessary, loosen the nut [9] to the nearest castellation to align the holes for the pin [10].

(j) Install the pin [10] in the torsion link pin [7].

SUBTASK 32-21-31-420-005

(2) Connect the lower torsion link [11] to the upper torsion link [15]:



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:
   1) The threads and thread reliefs of the apex pin [6]
   2) The threads of the nut [13]
   3) The faces of the washer [12]
   4) The mating surfaces of the lower torsion link [11] and the upper torsion link [15].

(b) Remove all unwanted corrosion inhibiting material, G50136.

(c) Align the apex holes in the lower torsion link [11] and the upper torsion link [15].

(d) Put the apex pin [6] through the lower torsion link [11] and the upper torsion link [15].

(e) Install the washer [12] and nut [13] on the apex pin [6].

(f) Tighten the nut [13] to 21 ft-lb (28.5 N·m) - 25 ft-lb (33.9 N·m) more than the run-on torque.

(g) Install the cotter pin [14] in the apex pin [6]. If it is necessary, loosen the nut [13] to the nearest castellation to align the holes for the cotter pin [14].

### G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-21-31-420-006**

(1) Do this task: Nose Landing Gear Wheel and Tire Assembly Installation, TASK 32-45-21-400-801.

**SUBTASK 32-21-31-080-002**

(2) Lower the axle jack for the nose landing gear and remove the jack (TASK 07-10-21-580-802).

**SUBTASK 32-21-31-640-002**

(3) Lubricate the lube fittings on the lower torsion link [11] (TASK 12-21-21-640-802).

**——— END OF TASK ———**

**TASK 32-21-31-000-803**

## 6. Nose Landing Gear Torsion Link Disconnection

(Figure 401)

### A. General

(1) This procedure supplies instructions to disconnect the torsion links.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |



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**D. Prepare for the Disconnection**

SUBTASK 32-21-31-480-005

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**E. Nose Landing Gear Torsion Link Disconnection**

SUBTASK 32-21-31-020-010

(1) Disconnect the apex joint of the upper torsion link [15] and the lower torsion link [11]:

(a) Remove the pin [14], nut [13] and washer [12] from the apex pin [6].

(b) Remove the apex pin [6] to disconnect the lower torsion link [11] from the upper torsion link [15].

——— END OF TASK ———

**TASK 32-21-31-400-803**

## 7. Nose Landing Gear Torsion Link Connection

(Figure 401)

**A. General**

(1) This task gives the instructions to connect the torsion links.

**B. References**

| Reference | Title |
|---|---|
| 12-21-21-640-802 | Nose Landing Gear Lower End Components Servicing (P/B 301) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 11 | Lower torsion link | 32-21-31-01-100 | SIA ALL |
| 15 | Upper torsion link | 32-21-31-01-070 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

**F. Nose Landing Gear Torsion Link Connection**

SUBTASK 32-21-31-420-007

(1) Connect the apex joint of the upper torsion link [15], and the lower torsion link [11]:



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:
   1) The threads and thread reliefs of the apex pin [6]
   2) The threads of the nut [13]
   3) The faces of the washer [12]
   4) The mating surfaces of the upper torsion link [15] and the lower torsion link [11].

(b) Remove all unwanted corrosion inhibiting material, G50136.

(c) Align the apex holes in the upper torsion link [15] and the lower torsion link [11].

(d) Put the apex pin [6] through the lower torsion link [11] and the upper torsion link [15].

(e) Install the washer [12] and the nut [13] on the apex pin [6].

(f) Tighten the nut [13] to 160 in-lb (18.1 N·m) - 190 in-lb (21.5 N·m) more than the run-on torque.

(g) Install the pin [14] in the apex pin [6].
   1) If it is necessary, loosen the nut [13] to the nearest castellation to align the holes for the pin [14].

## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-21-31-640-003**

(1) Lubricate the lube fittings on the apex joint of the lower torsion link [11] and the upper torsion link [15] (TASK 12-21-21-640-802).

**——— END OF TASK ———**



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# NOSE LANDING GEAR TORSION LINK - REPAIRS

## 1. General

A. This procedure has this task:

(1) Nose Landing Gear Lower Torsion Link Repair

**TASK 32-21-31-350-801**

## 2. Nose Landing Gear Lower Torsion Link Repair

(Figure 801)

### A. General

(1) This repair permits blends on the outer surfaces only. One blend per flange is permitted.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 51-00-58 | STANDARD TREATMENT METHODS |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| C00033 | Coating - Protective Enamel, Flexibility Use | BMS10-60 Type II |
| C00175 | Primer - Urethane Compatible, Corrosion Resistant | BMS10-79 Type III |
| C50005 | Coating - Chemical Conversion - Bonderite M-CR 1200S Aero (Formerly Alodine 1200S) | BAC5719 Class A, C or D, MIL-DTL-81706 Type I Class 1A or 3 |

### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

### E. Prepare for the Repair

**SUBTASK 32-21-31-420-008**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

### F. Nose Landing Gear Lower Torsion Link Repair

**SUBTASK 32-21-31-350-001**

(1) Blend out the defects within the limits and areas shown.

(a) Blends can be on the left flange or the right flange, or both, but only one blend is permitted on each flange.

(b) Blend out the defects 20:1 with the adjacent surfaces.

(c) If blends are necessary outside the limits or areas shown, ask Boeing for advice.

(d) See the figure for permitted blends (Figure 801).



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SUBTASK 32-21-31-350-002

(2) Do a penetrant inspection (NDI) of the blended areas.

SUBTASK 32-21-31-350-003

(3) Apply Bonderite M-CR 1200S Aero coating, C50005, to all blended areas (SUBJECT 51-00-58).

SUBTASK 32-21-31-350-004

(4) Shot peen or flapper/roto-peen the blended areas. Intensity 0.008-0.013A2. Coverage 2.0.

SUBTASK 32-21-31-350-005

(5) Apply one coat of BMS 10-79, Type III primer, C00175, to the reworked areas.

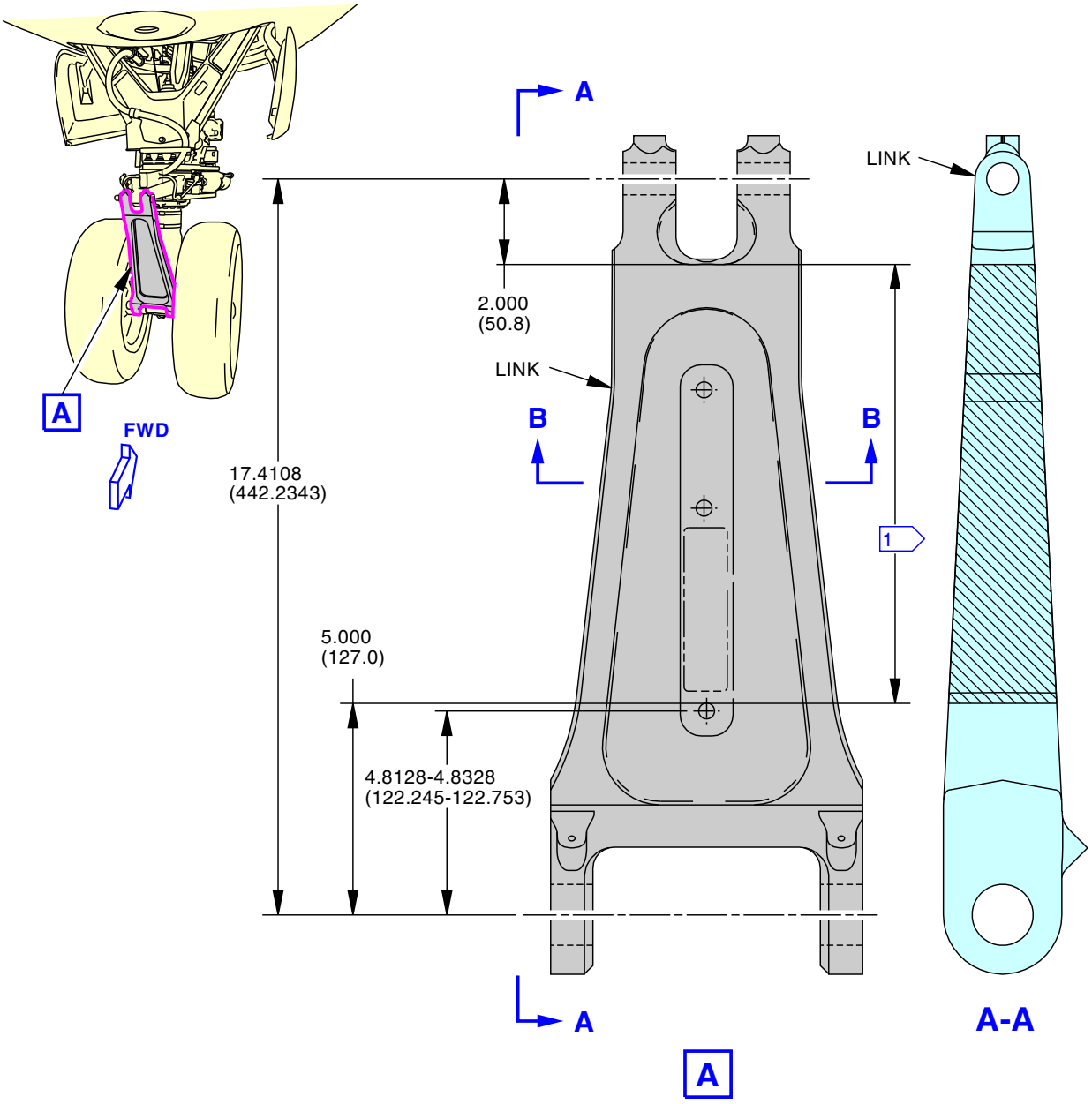
SUBTASK 32-21-31-350-006

(6) Apply BMS 10-60 Type II gloss enamel coating, C00033, with a dry film thickness of 10.0.-12.0 mils (0.010-0.012 inch) to the reworked areas

——— END OF TASK ———



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**NOTE:**

ALL DIMENSIONS ARE IN INCHES (mm).

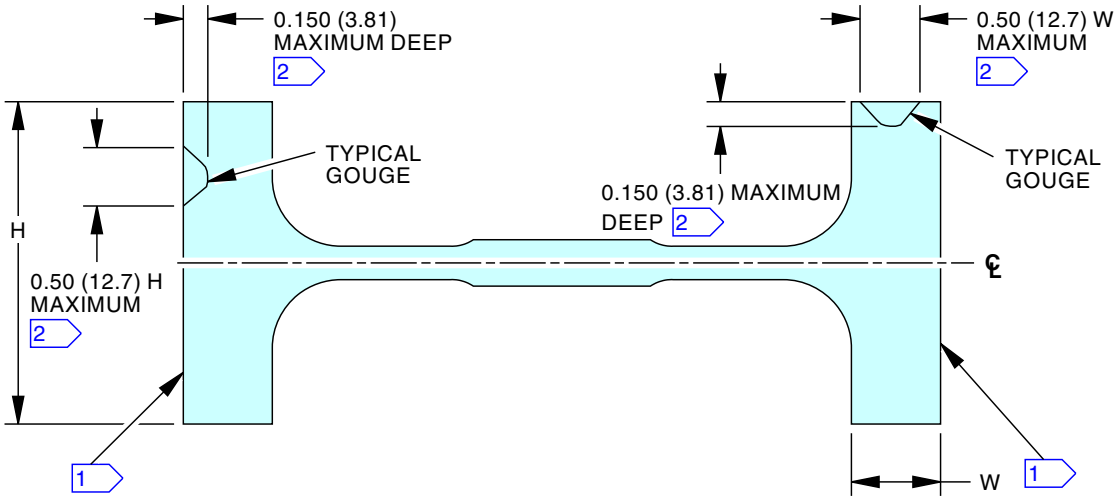
1 BLENDS PERMITTED ONLY ON THESE OUTER SURFACES. ONLY ONE BLEND PERMITTED ON EACH FLANGE, ON ONLY ONE OF THE TOP, SIDE, OR BOTTOM SURFACES

2414200 S00061534591_V1

**Nose Landing Gear Lower Torsion Link Repair**
**Figure 801/32-21-31-990-803 (Sheet 1 of 2)**



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**B-B**

**NOTE:**

ALL DIMENSIONS ARE IN INCHES (mm).

1 BLENDS PERMITTED ONLY ON THESE OUTER SURFACES. ONLY ONE BLEND PERMITTED ON EACH FLANGE, ON ONLY ONE OF THE TOP, SIDE, OR BOTTOM SURFACES

2 LIMIT FOR DEFECT REMOVAL

2414201 S00061534592_V1

**Nose Landing Gear Lower Torsion Link Repair**
**Figure 801/32-21-31-990-803 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## NOSE LANDING GEAR CORROSION PREVENTION - MAINTENANCE PRACTICES

### 1. General

A. This pageblock contains this task:

(1) Corrosion prevention of the nose landing gear.

**TASK 32-21-37-600-801**

### 2. Nose Landing Gear Corrosion Prevention

#### A. General

(1) The basic corrosion prevention philosophy is to make periodic inspections to preclude or detect the early stages of corrosion. Missing fasteners, white powdery or discolored deposits are evidence of the existence of corrosion which should alert operators that some corrective action is necessary. A corrosion prevention program should be initiated to prevent the accumulation of corrosive products in order to minimize the occurrence of corrosion.

(2) After the suspect areas are cleaned, a full inspection helps to make sure that protective finishes applied during manufacture remain intact.

(3) Where corrosion exists (noticeable bulges of the skin or white deposits of corrosion products at fastener heads of joint edges), refer to Structural Repair Manual for details of corrosion removal.

(4) For minor corrosion, to minimize the downtime of the airplane, the corrosion products should be cleaned off, followed by the application of a corrosion inhibiting compound into the affected area to slow the corrosion process. The finish system should be restored at the next maintenance opportunity.

#### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G00009 | Compound - Organic Corrosion Inhibiting | BMS3-23 |
| G01314 | Tape - 3M Polyester Film Tape 8412 | |

#### C. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |

#### D. Corrosion Prevention Treatment

**SUBTASK 32-21-37-610-001**

(1) At the next maintenance opportunity, do this corrosion prevention treatment to the nose landing gear.

**SUBTASK 32-21-37-610-002**

**CAUTION**

DO NOT APPLY CORROSION INHIBITING COMPOUND ON GREASED JOINTS OR SEALED BEARINGS. THESE COMPOUNDS DISSOLVE GREASE AND OTHER LUBRICANTS. THEY ARE PENETRATING COMPOUNDS AND CAN GET AROUND THE SEALS AND INTO THE BEARINGS.

(2) Do these corrosion preventive measures to these components (Figure 201).

(a) Shock struts (Oleo).

1) Apply corrosion inhibiting compound, G00009, to the exterior areas of the inner and outer cylinder with broken finish systems.



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2) Spray all lugs, lug faces, connecting pins and fasteners should be sprayed with corrosion inhibiting compound, G00009.

(b) Upper Drag Brace Only.

1) Apply corrosion inhibiting compound, G00009, to the exterior surface areas with broken finish systems.

2) Spray all lugs, lug faces, connecting pins, and fasteners with corrosion inhibiting compound, G00009.

(c) Axle.

1) Apply corrosion inhibiting compound, G00009, to outside surface areas of the axle.

2) Make suitable nozzle extension and spray the inside surfaces of the axle.

3) At the wheel removal, spray the exterior surfaces of axle cover by the wheel except at the bearing or journal surfaces.

(d) Torsion Links.

1) Apply corrosion inhibiting compound, G00009, to the surface areas with broken finish systems.

2) Spray the lugs, lug faces, and connecting pins with corrosion inhibiting compound.

(e) Trunnion.

1) Apply corrosion inhibiting compound, G00009, to the exterior surface areas with broken finish systems.

2) Spray the lugs, lug faces, connecting pins, fasteners, and trunnion bearing caps with corrosion inhibiting compound, G00009.

(f) Lock Brace Assembly.

1) Apply corrosion inhibiting compound, G00009, to the surface areas of all components of the locking linkages with broken finish systems.

2) Also spray the lugs, lug faces, and connecting pins.

**SUBTASK 32-21-37-610-003**

(3) Install 3M 8412 tape, G01314, under the corrosion resistant steel clamps at overhaul (recommended) to minimize the risk of galvanic corrosion if the finish is damaged .

## E. Frequency of Application

**SUBTASK 32-21-37-610-004**

(1) Periodically inspect the areas identified as susceptible to corrosion.

NOTE: Operators must be aware of reported problems and areas of occurrences.

(a) Do this consistent to the schedules specified in the Maintenance Planning Document.

**SUBTASK 32-21-37-610-005**

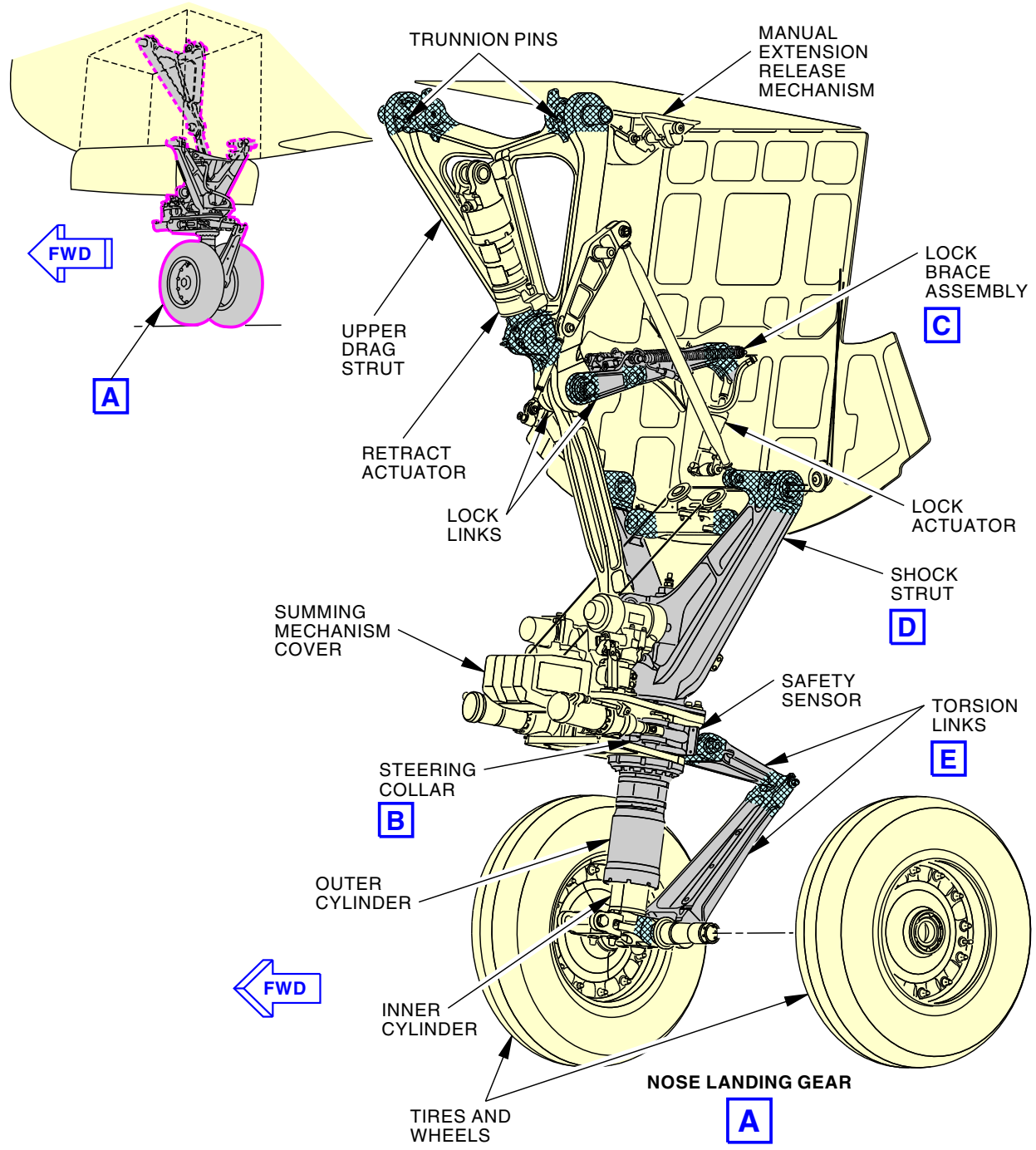
(2) Periodically apply the corrosion inhibiting compound, G00009, to the areas identified.

(a) Do this consistent to the schedules specified in the Maintenance Planning Document.

**END OF TASK**



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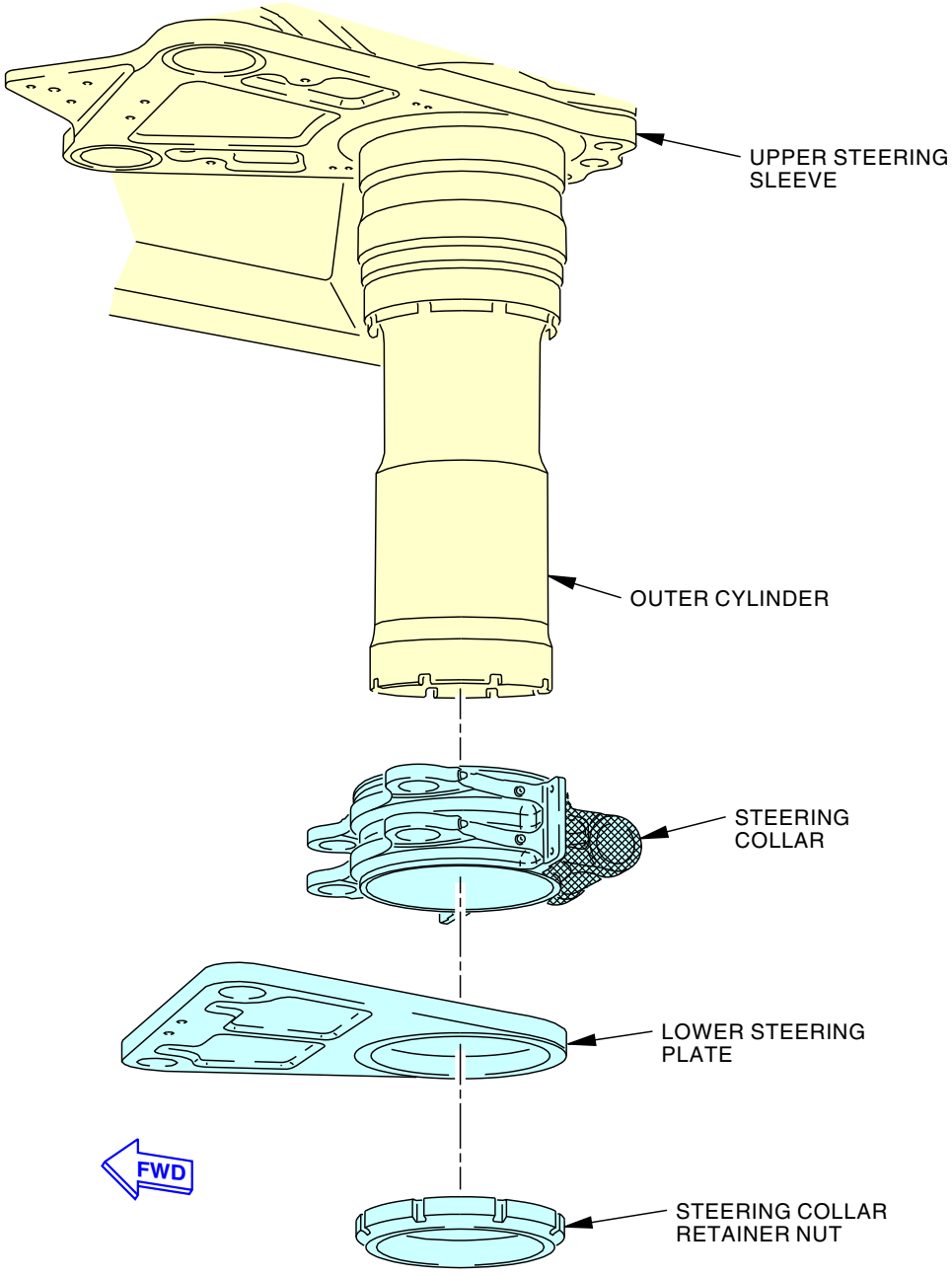

APPLY CORROSION INHIBITING COMPOUND (CIC) BMS3-23, TO EXPOSED OUTER SURFACES ONLY. DO NOT DISASSEMBLE PARTS TO APPLY CIC. DO NOT SPRAY INTO JOINTS, LINKAGES, PULLEYS, CABLES OR BEARINGS.

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**Nose Landing Gear Corrosion Prevention**
**Figure 201/32-21-37-990-801 (Sheet 1 of 5)**



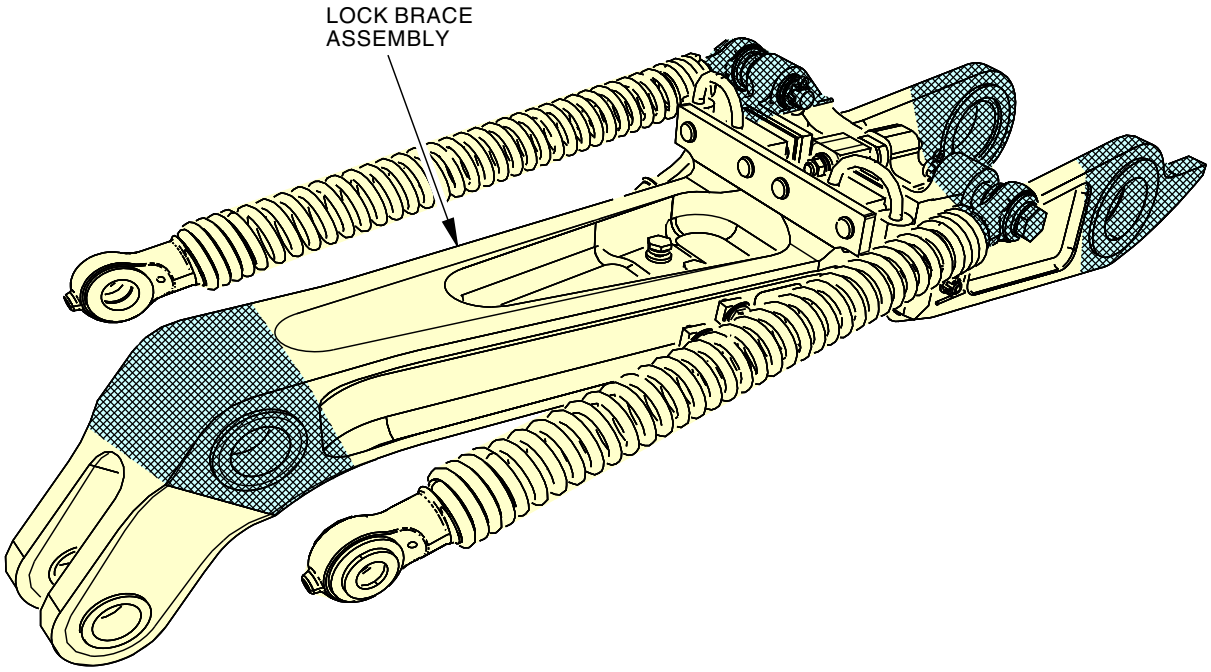
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**Nose Landing Gear Corrosion Prevention**
**Figure 201/32-21-37-990-801 (Sheet 2 of 5)**



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**LOCK BRACE ASSEMBLY**

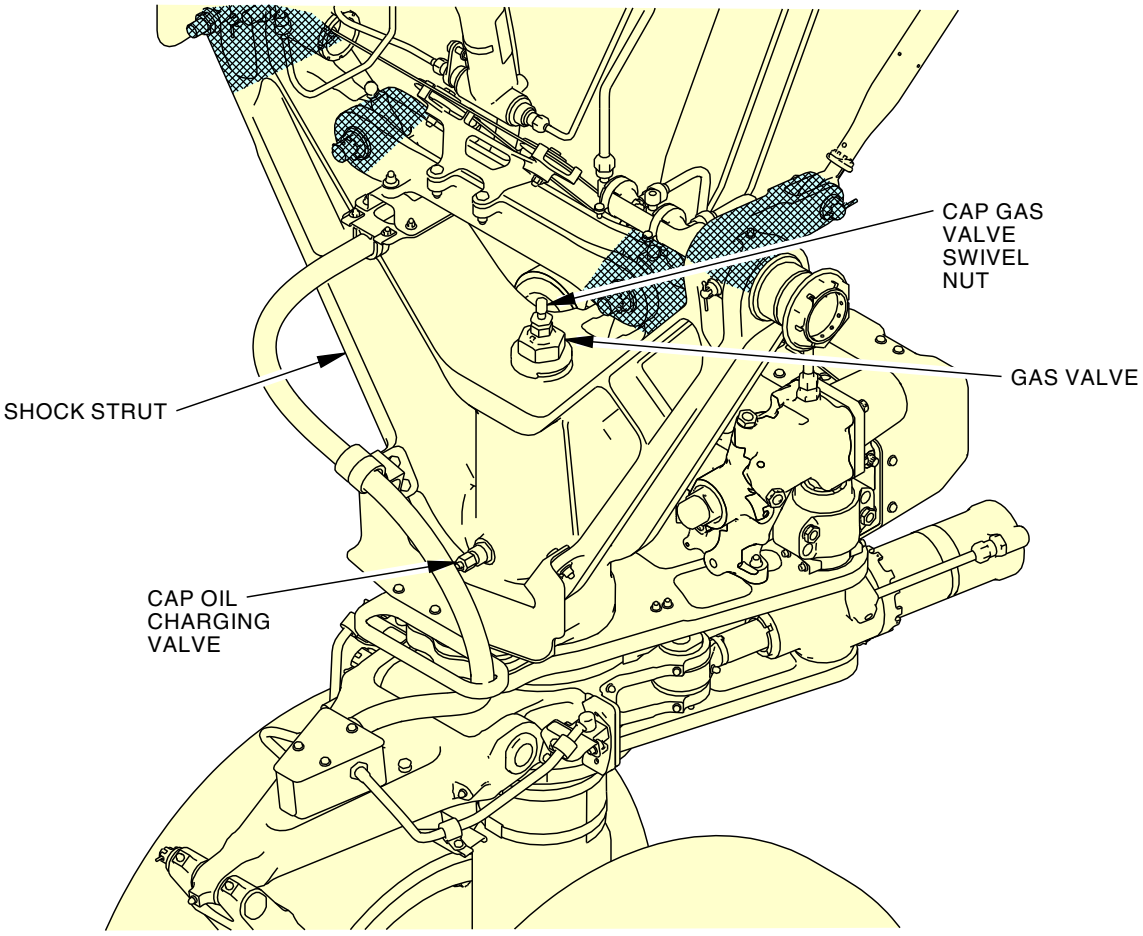
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**Nose Landing Gear Corrosion Prevention**
**Figure 201/32-21-37-990-801 (Sheet 3 of 5)**



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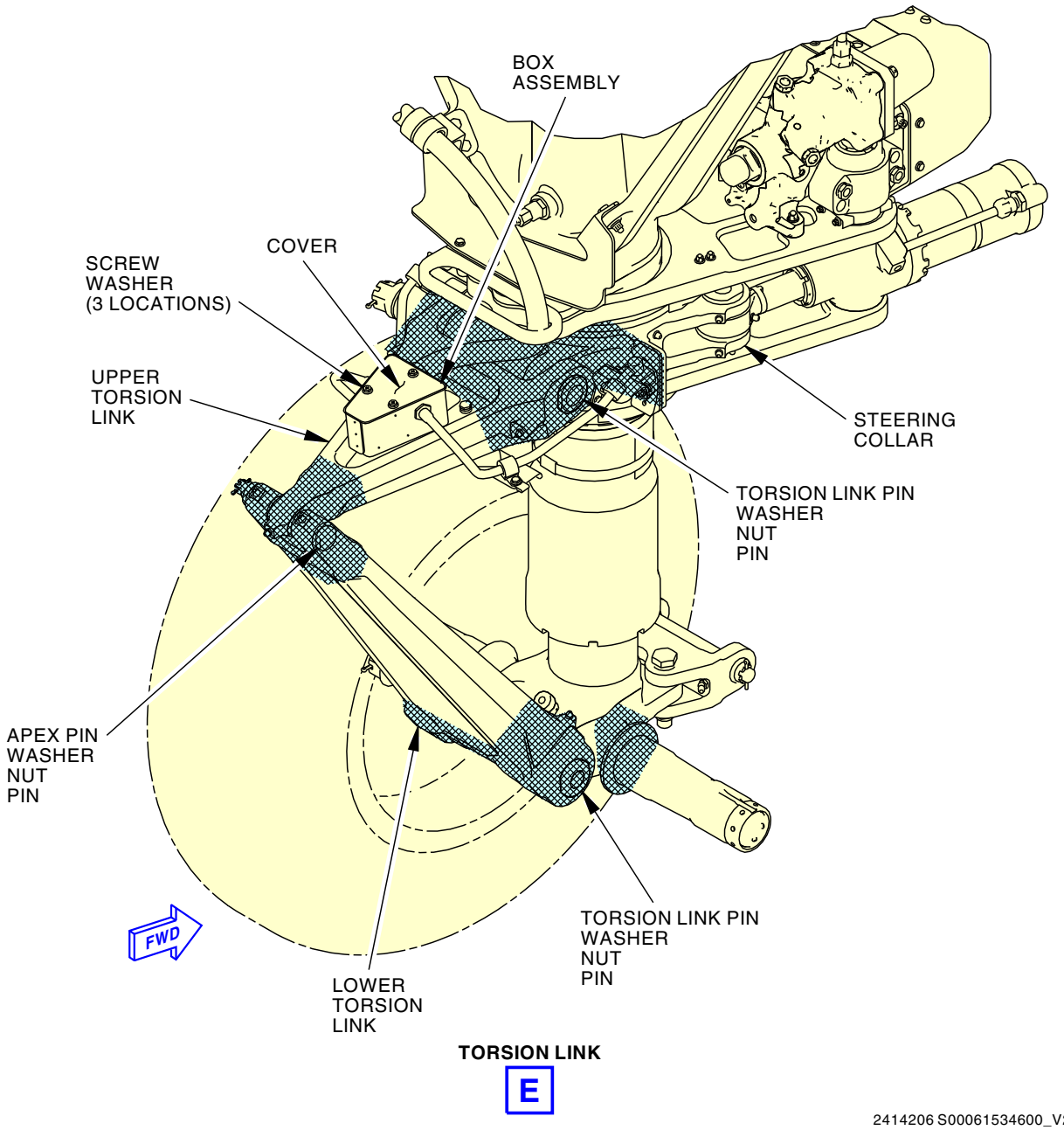



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**Nose Landing Gear Corrosion Prevention**
**Figure 201/32-21-37-990-801 (Sheet 4 of 5)**



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**Nose Landing Gear Corrosion Prevention**
**Figure 201/32-21-37-990-801 (Sheet 5 of 5)**



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## NOSE LANDING GEAR AXLE - INSPECTION/CHECK

### 1. General

A. This task supplies the inspection of the nose landing gear axles for corrosion.

**TASK 32-21-71-200-801**

### 2. Nose Gear Axle Detailed Inspection for Corrosion

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

#### A. General

(1) This task gives the instructions to do the detailed inspection of the nose gear axles for corrosion.

#### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-45-21-000-801 | Nose Landing Gear Wheel and Tire Assembly Removal (P/B 401) |
| 32-45-21-400-801 | Nose Landing Gear Wheel and Tire Assembly Installation (P/B 401) |

#### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G00440 | Lockwire - MS20995C41, Corrosion Resistant Steel - 0.041 Inch (1.0414 mm) Diameter | NASM20995 |
| G01043 | Cloth - Lint-free | |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

#### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

#### E. Nose Gear Axle Detailed Inspection

**SUBTASK 32-21-71-490-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-21-71-000-001**

(2) To remove the nose landing gear wheel and tire assembly, do this task: Nose Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-21-000-801.

**SUBTASK 32-21-71-000-002**

(3) For airplanes that use cotter pins, remove the cotter pins in the axle spacer and remove the spacer from the axle.



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SUBTASK 32-21-71-010-001

(4) For airplanes that use lockwire, remove the MS20995C41 lockwire, G00440, in the axle spacer and remove the spacer from the axle.

SUBTASK 32-21-71-200-001

(5) Examine the nose gear axles.

NOTE: Corrosion can cause the nose gear axle to fracture and the wheel to depart the airplane.

(a) Make sure that the spacer is removed when you inspect for corrosion on the nose landing gear axle.

(b) Use a clean lint-free cloth, G01043, to remove grease and debris from the nose gear axle.

1) Do not use solvents or detergents to clean the nose gear axle.

(c) Do a Detailed Visual Inspection aided with a magnifying glass in the Nose Landing Gear (NLG) axles for corrosion or cracks caused by corrosion.

1) Pay special attention to the area that was under the axle spacer, and most importantly, at the 6 o'clock position on the axle.

2) If corrosion is detected on a nose landing gear axle, contact Boeing for disposition.

NOTE: No corrosion is permitted on the axle. Corrosion can cause the axle to fracture and the wheel to depart the airplane.

SUBTASK 32-21-71-600-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(6) Apply a light layer of corrosion inhibiting material, G50136, to the area underneath the axle spacer.

SUBTASK 32-21-71-420-001

(7) For airplanes that use cotter pins, make sure that the three cotter pins are installed to hold the spacer on the nose gear axle.

(a) Make sure that the three cotter pins installed on the spacer do not touch the lower torsion link lug during wheel installation.

SUBTASK 32-21-71-420-002

(8) For airplanes that use lockwire, make sure that MS20995C41 lockwire, G00440, is installed.

(a) Make sure to bend the lockwire end pigtails away from the inboard edge of the spacer (Figure 601).

(b) Examine the completed installation to make sure that the lockwire ends do not touch the nose gear axle or the torsion link lugs.

(c) Adjust the installed lockwire to make sure that the lockwire does not hit the landing gear parts during landing gear operations.

NOTE: Spacers have six lockwire holes.



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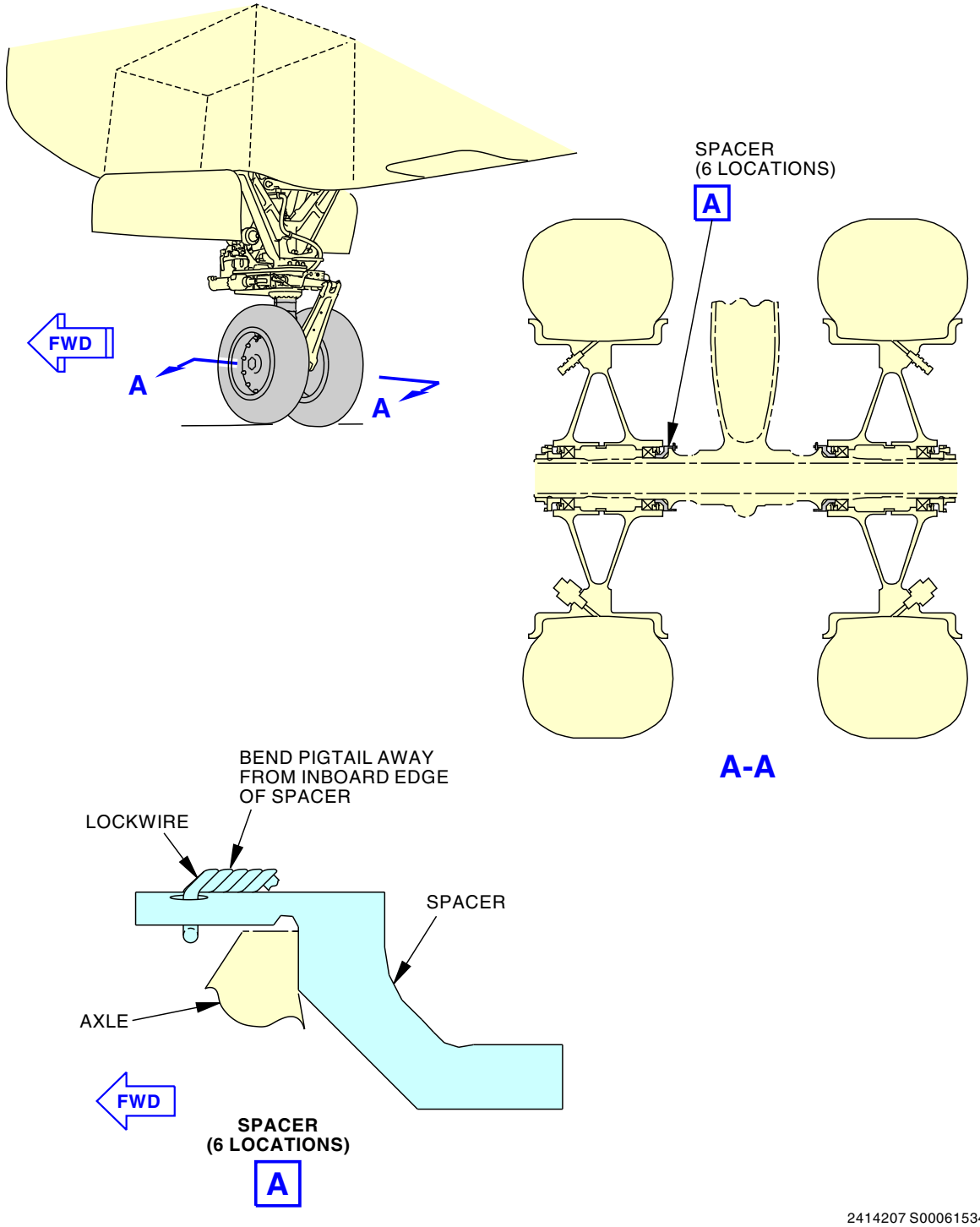
SUBTASK 32-21-71-400-001

(9) To install the nose landing gear wheel and tire assembly, do this task: Nose Landing Gear Wheel and Tire Assembly Installation, TASK 32-45-21-400-801.

——— END OF TASK ———



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**Nose Gear Axle and Spacer Lockwire Installation**
**Figure 601/32-21-71-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## NOSE LANDING GEAR WHEEL WELL DOORS - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the wheel well doors, referred to as door assembly [3], for the nose landing gear

(2) An installation of the wheel well doors for the nose landing gear.

**TASK 32-22-11-000-801**

### 2. Nose Landing Gear Wheel Well Doors Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |

#### C. Prepare for the Removal

**SUBTASK 32-22-11-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-22-11-480-002**

(2) Install chocks around the tires of the nose landing gear (PAGEBLOCK 10-11-05/201).

#### D. Nose Landing Gear Wheel Well Doors Removal

**SUBTASK 32-22-11-020-001**

(1) Disconnect the bonding jumper [14] from the door hinge [1]:

(a) Remove the nut [13] from the bolt [10].

(b) Remove the washers [12] and bonding jumper [14] from the bolt [10].

(c) Remove the bolt [10], and washer [11] from the door hinge [1].

(d) Remove the washer [11] from the bolt [10].

**SUBTASK 32-22-11-020-002**

(2) Disconnect the center hinge [2] from the lower push rod [18]:

(a) Remove the pin [19], nut [20], and the washer [21] from the bolt [22].

(b) Remove the bolt [22] to disconnect the center hinge [2] from the lower push rod [18].

**SUBTASK 32-22-11-480-003**

(3) Use a rope and attach the lower push rod [18] to the upper rod assembly.


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SUBTASK 32-22-11-020-003

(4) Disconnect the door assembly [3] from the hinge bracket [26]:

(a) Remove the pin [17], nut [16], and washer [15] from the bolt [23].

(b) Remove the bolt [23], washer [24], and bushing [25] to disconnect the center hinge [2] from the hinge bracket [26].

SUBTASK 32-22-11-020-004

(5) Disconnect the door assembly [3] from the forward and aft hinge brackets [9]:

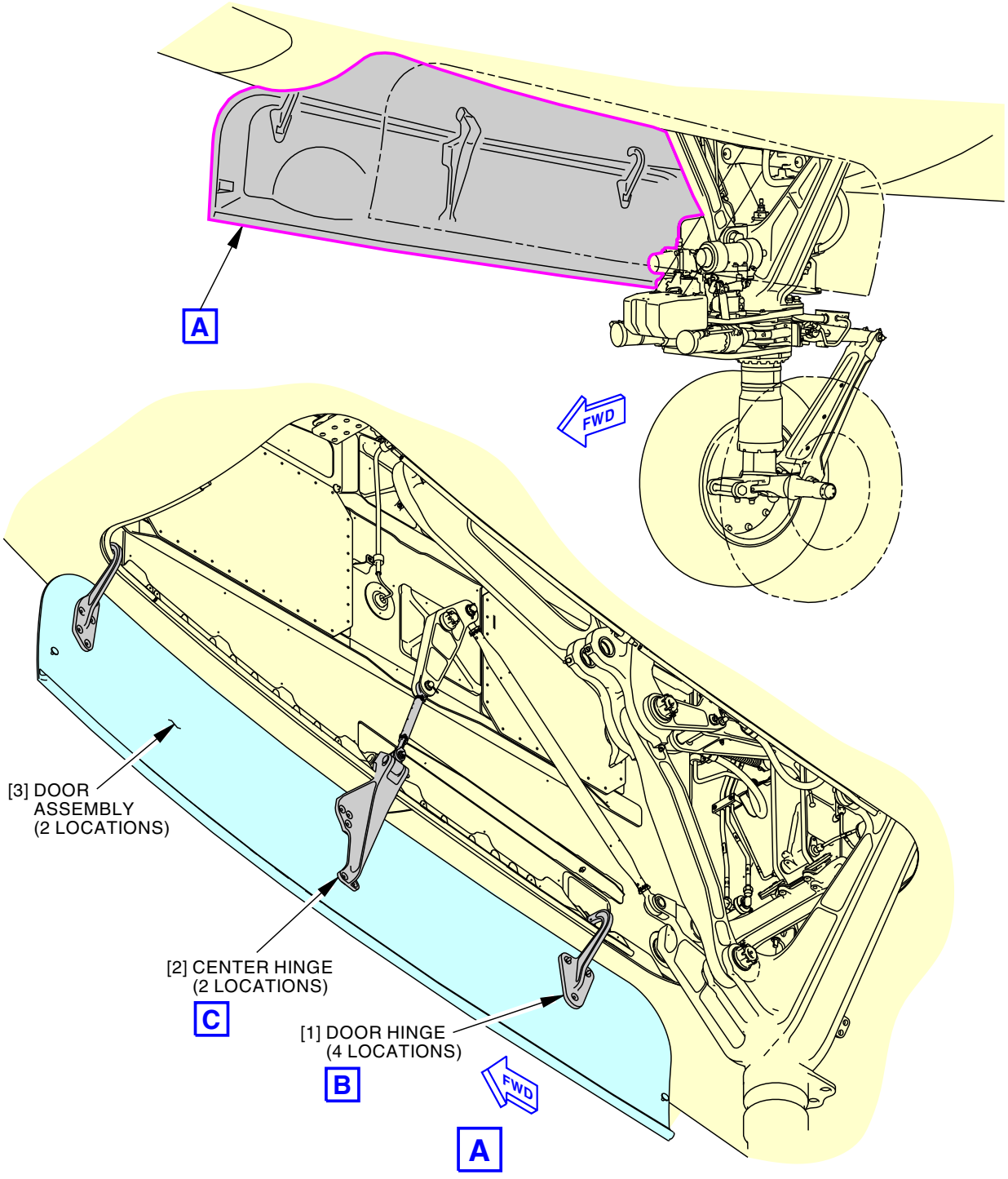
(a) Remove the pin [7], nut [8], and washer [6] from the bolt [4].

(b) Remove the bolt [4] and washer [5] to disconnect the door hinge [1] from the hinge bracket [9].

——— END OF TASK ———



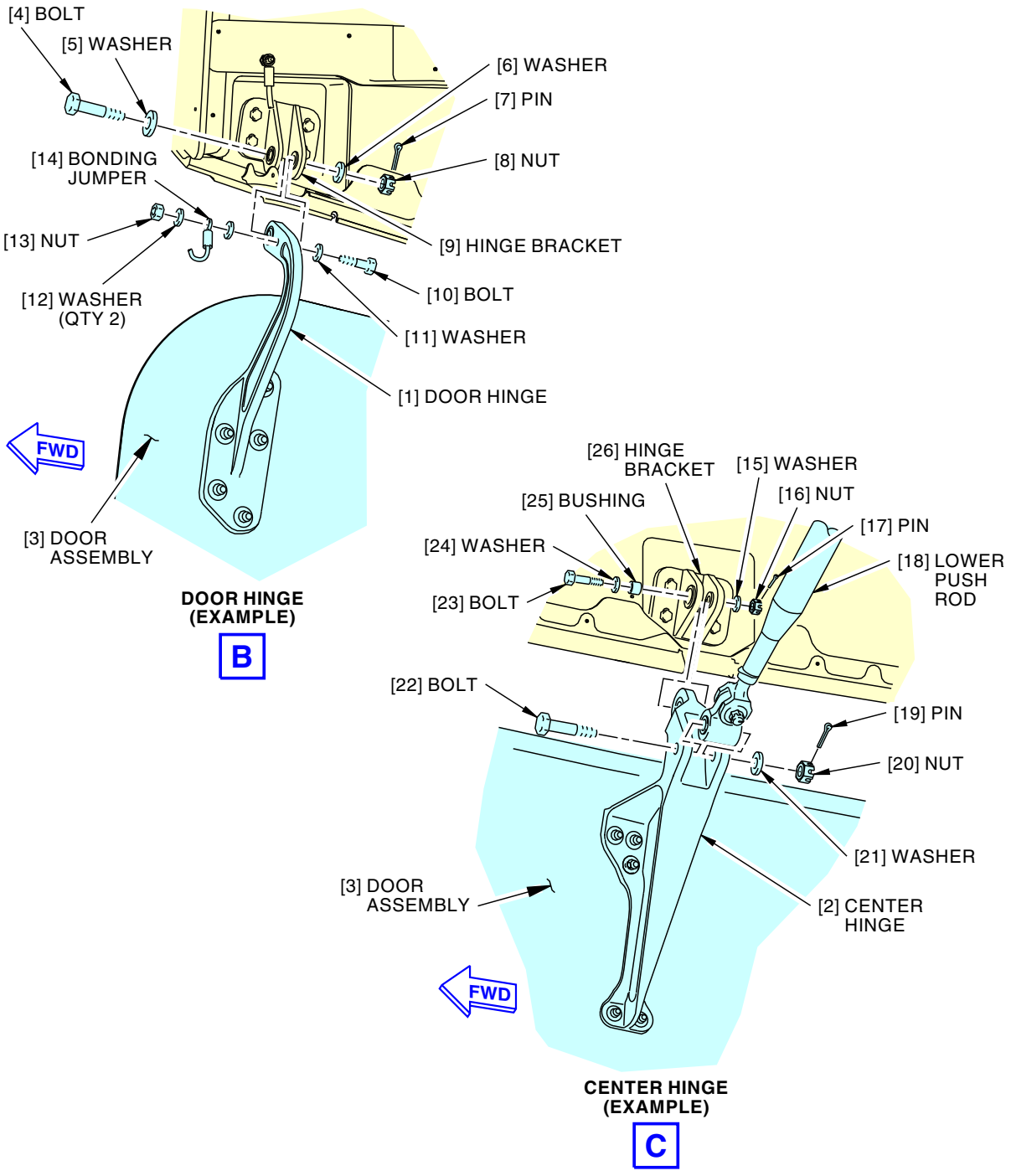
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**Nose Landing Gear Wheel Well Doors Installation**
**Figure 401/32-22-11-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




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**Nose Landing Gear Wheel Well Doors Installation**
**Figure 401/32-22-11-990-801 (Sheet 2 of 2)**



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**TASK 32-22-11-400-801**

## 3. Nose Landing Gear Wheel Well Doors Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 20-10-34-120-801 | Hand Clean Metal Surfaces with Abrasives (P/B 701) |
| 32-22-11-000-802 | Nose Landing Gear Wheel Well Doors Adjustment (P/B 501) |
| 32-33-61-820-801 | Nose Gear Wheel Well Door Linkage Adjustment and Check (P/B 501) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Door assembly | 32-22-11-01-370 | SIA ALL |
| 7 | Pin | 32-22-11-01-045 | SIA ALL |
| 17 | Pin | 32-22-11-01-050 | SIA ALL |
| 19 | Pin | 32-22-11-03-065 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### E. Nose Wheel Well Doors Installation

NOTE: A NLG door rigging check is not necessary if reinstalling the same NLG door that was removed and no changes to the adjustments to the door stops, door seals, door hinges, or door pushrods were made.

**SUBTASK 32-22-11-420-001**

(1) Connect the door assembly [3] to the forward and aft hinge brackets [9]:

(a) Hold the door assembly [3] in its position in the hinge bracket [9].

(b) Align the hole in the door hinge [1] to the hole in the hinge bracket [9].

(c) Put the bolt [4], with the washer [5] installed, through the hinge bracket [9] and the door hinge [1].

(d) Install the washer [6] and nut [8] on the bolt [4].

NOTE: The new pin [7] is installed after final adjustments to the door assembly [3] are made in the subsequent step.

(e) Hand tighten the nut [8] until after final adjustments to the door assembly [3] are made in the subsequent step.

**SUBTASK 32-22-11-420-002**

(2) Connect the door assembly [3] to the center hinge bracket [26]:

(a) Put the center hinge [2] in its position in the center hinge bracket [26].



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(b) Align the hole in the center hinge [2] to the hole in the center hinge bracket [26].

(c) Put the bolt [23] through the center hinge bracket [26] and the center hinge [2].

(d) Install the washer [24], bushing [25], washer [15], and nut [16] on the bolt [23].

NOTE: The new pin [17] is installed after final adjustments to the door assembly [3] are made in the subsequent step.

(e) Hand tighten the nut [16] until after final adjustments to the door assembly [3] are made in the subsequent step.

SUBTASK 32-22-11-420-003

(3) Connect the center hinge [2] to the lower push rod [18]:

(a) Put the end of the lower push rod [18] in its position on the center hinge [2].

(b) Align the end of the lower new pin [17] to the hole in the center hinge [2].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(c) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the bolt [22] and the nut [20] and the faces of the washer [21].

(d) Put the bolt [22] through the center hinge [2] and the lower push rod [18].

(e) Install the washer [21]and nut [20] on the bolt [22].

NOTE: The new pin [19] is installed after final adjustments to the door assembly [3] are made in the subsequent step.

(f) Hand tighten the nut [20] until after final adjustments to the door assembly [3] are made in the subsequent step.

SUBTASK 32-22-11-120-001

(4) Prepare the mating surface of the bonding jumper [14], and the door hinge [1]:

(a) To fully clean the mating surface of the bonding jumper [14] and the door hinge [1], do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.

SUBTASK 32-22-11-020-005

(5) Connect the bonding jumper [14] to the door hinge [1]:

(a) Put the bonding jumper [14] in its position on the door hinge [1].

(b) Install the washers [12] on the bolt [10].

(c) Put the bolt [10] through the door hinge [1], washers [12], bonding jumper [14], and washer [11].

(d) Install the nut [13] on the bolt [10], and tighten the nut [13].

(e) Apply sealant, A00247, to the bolt [10], washers [12], washer [11], and nut [13] to seal them.

SUBTASK 32-22-11-420-004

(6) Adjust the wheel well doors for the nose landing gear (TASK 32-22-11-000-802).



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SUBTASK 32-22-11-420-005

(7) Adjust the lower push rod [18] (TASK 32-33-61-820-801).

SUBTASK 32-22-11-420-006

(8) Tighten the nut [8] and install the new pin [7] in the hole in the bolt [4].

(a) If it is necessary, loosen the nut [8] to the nearest castellation to align the hole in the bolt [4].

SUBTASK 32-22-11-420-007

(9) Tighten the nut [16] and install the new pin [17] in the hole in the bolt [23].

(a) If it is necessary, loosen the nut [16] to the nearest castellation to align the hole in the bolt [23].

SUBTASK 32-22-11-420-008

(10) Tighten the nut [20] to 75 ±15 in-lb (8.5 ±1.7 N·m).

(a) Install the new pin [19] in the hole in the bolt [22].

(b) If it is necessary, loosen the nut [20] to the nearest castellation to align the hole in the bolt [22].

## F. Put the Airplane Back to its Usual Condition

SUBTASK 32-22-11-080-001

(1) Remove chocks around the tires of the nose landing gear.

**END OF TASK**



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## NOSE LANDING GEAR WHEEL WELL DOORS - ADJUSTMENT/TEST

### 1. General

A. This procedure has this task:

(1) An adjustment of the wheel well doors for the nose landing gear.

**TASK 32-22-11-000-802**

### 2. Nose Landing Gear Wheel Well Doors Adjustment

(Figure 501)

#### A. General

(1) No adjustments will be made to the hinge fittings mounted on the doors during the procedure.

NOTE: The door seal installed incorrectly could prevent the wheel well retract to the normal close position.

#### B. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-33-00-710-802 | Nose Landing Gear Operational Test (P/B 501) |
| 32-33-61-820-801 | Nose Gear Wheel Well Door Linkage Adjustment and Check (P/B 501) |

#### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

#### D. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |

#### E. Prepare for the Adjustment

**SUBTASK 32-22-11-480-004**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-22-11-580-001**

(2) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

NOTE: Lower the jack that supports the tail of the airplane while you lift the nose landing gear.



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SUBTASK 32-22-11-480-005

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

SUBTASK 32-22-11-020-006

(4) Disconnect the pushrod [12] from the center door hinge [24].

(a) Remove the pin [19], nut [18], and washer [17] from the bolt [16].

(b) Remove the bolt [16] to disconnect the pushrod [12] from the center door hinge [24].

SUBTASK 32-22-11-080-002

(5) Remove the downlock pin for the nose landing gear (TASK 32-00-01-080-801).

SUBTASK 32-22-11-860-001

(6) Retract the nose landing gear (TASK 32-33-00-710-802).

## F. Nose Landing Gear Wheel Well Doors Adjustment

SUBTASK 32-22-11-210-001

(1) Make sure that you can turn the bolt [20] by hand.

(a) If not, adjust the center hinge bracket [25] as follows:

1) Loosen the bolts [10] in the center hinge bracket [25].

2) Move the center hinge bracket [25] up or down until you can move the bolt [20] by hand.

3) Tighten the bolts [10] in the center hinge bracket [25].

NOTE: The bolt [20] must be free to move with hand pressure after you tighten the bolts [10].

SUBTASK 32-22-11-210-002

(2) Make sure that you can turn the bolt [20] by hand.

(a) If not, adjust the center hinge bracket [25] as follows:

1) Remove the pin [22], nut [21], bushing [37], washer [38], and washer [23] from the bolt [20].

2) Remove the bolt [20] that connects the center door hinge [24] to the center hinge bracket [25].

3) Remove the bolts [10] and washers [11] to disconnect the center hinge bracket [25] from the bulkhead.

NOTE: The nutplates [7] for the bolts [10] are on the opposite side of the bulkhead.

4) Remove the plate [9] and shim [8] from the bulkhead.

a) If the shim [8] was not installed, install a shim [8] to get the correct adjustment.

b) If the shim [8] was installed, remove the shim [8] to get the correct adjustment.

5) Install the plate [9] and the center hinge bracket [25] on the bulkhead.

6) Install the bolts [10] and washers [11].

a) Make sure that the bolts [10] are only hand tight.

NOTE: The bolts [10] will be tightened after the center hinge bracket [25] is adjusted.

7) Install the bolt [20], washer [23],bushing [37], washer [38], and nut [21] that connect the center door hinge [24] to the center hinge bracket [25].

8) Tighten the nut [21] and install the pin [22].



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a) If it is necessary, loosen the nut [21] to the nearest castellation to align the hole in the bolt [20].

9) If it is necessary, move the center hinge bracket [25] up or down until you can turn the bolt [20] by hand.

10) Tighten the bolts [10] in the center hinge bracket [25].

a) Make sure that the bolt [20] is free to move with hand pressure after you tighten the bolts [10].

SUBTASK 32-22-11-820-001

(3) Manually close the door assembly [4] that you will adjust.

SUBTASK 32-22-11-820-002

(4) Make sure that the fit on the forward edge and aft edge of the door assembly [4], and the surrounding structure is in the tolerance as follows:

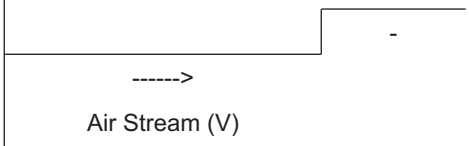
(a) Record the fit values that are not in tolerance.

(b) Use the "ALL" tolerances for all airplane forward door flushness checks (Table 501).

**Table 501/32-22-11-993-801 Nose Landing Gear Wheel Well Door Flushness Values**

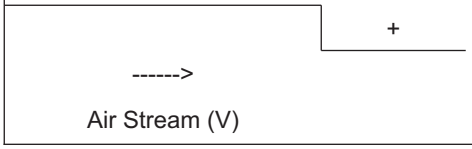
| AIRPLANE EFFECTIVITY | EDGE ZONE | FLUSHNESS (MISMATCH) IN INCHES (mm) |
|---|---|---|
| ALL | A-A | 0.00 ±0.06 in. (0.00 ±1.52 mm) (In Streamwise Direction) |
| ALL | B | 0.0019 ±0.0600 in. (0.04826 ±1.52400 mm) (In Streamwise Direction) |
| ALL | C | 0.0031 in. (0.079 mm) + 0.03 in. (0.76 mm) (Door outside wheel well) - -0.06 in. (1.524 mm) (Door inside wheel well) |
| ALL | D | 0.0015 in. (0.0381 mm) +0.03 in. (0.76 mm) (Door inside wheel well) - -0.06 in. (1.52 mm) (Door outside wheel well) |

WHEEL WELL DOOR FLUSHNESS DIAGRAM




(NEGATIVE MISFAIR)

A negative tolerance (-) indicates the face of the mismatch faces aft.




(POSITIVE MISFAIR)

A positive tolerance (+) indicates the face of the mismatch is into the air stream.

SUBTASK 32-22-11-020-007

(5) If the mismatch along the forward and aft edge is not in tolerance, do the steps that follow:


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(a) Remove the pin retainer spring [2] from the stop pin [1].

NOTE: The stop pin [1] is on the wheel well bulkhead.

(b) Retract the stop pin [1] for the door assembly [4].

(c) Adjust the stop pin [1] on the forward wheel well bulkhead until it just touches the forward/inboard door stop pad [3] on the forward edge of the door assembly [4].

SUBTASK 32-22-11-420-009

(6) Install the pin retainer spring [2] on the stop pin [1].

SUBTASK 32-22-11-210-003

(7) Make sure that the fit along the outboard edges of the door assembly [4] and surrounding structure is in the tolerance as follows:

(a) Record the fit values that are not in tolerance.

SUBTASK 32-22-11-820-003

(8) Make sure that the fit around the door assembly [4] is in the tolerance (Figure 501).

NOTE: This should only be necessary for a new door assembly [4].

(a) Use the "ALL" tolerances for the airplane door clearance checks (Table 502).

**Table 502/32-22-11-993-802 Nose Landing Gear Wheel Well Door Clearance Values**

| AIRPLANE EFFECTIVITY | EDGE ZONE | CLEARANCE |
|---|---|---|
| ALL | A-A | 0.10 +0.10 / -0.05 in. (2.54 +2.54 / -1.27 mm) |
| ALL | B | 0.1995 +0.0500 / -0.0200 in. (5.067 +1.270 / -0.508 mm) |
| ALL | C | 0.1 +0.1 / -0.0 in. (2.540 +1.524 / -1.016 mm) |
| ALL | D | 0.15 +0.06 / -0.09 in. (3.81 +1.52 / -2.29 mm) |
| ALL | E | 0.31 +0.04 / -0.25 in. (7.87 +1.02 / -6.35 mm) |

SUBTASK 32-22-11-820-004

(9) If the mismatch along the outboard edge is not in tolerance, do the steps that follow:

(a) Remove the bolts [29] and washers [30] for the forward hinge bracket [36].

(b) Remove the shims [27] or add the correct thickness of the shims [27] below the plate [28] of the forward hinge bracket [36].

(c) Put the bolt [31] through the forward hinge bracket [36] and the door hinge [35].

(d) Install the washer [32], washer [39], and nut [33] on the bolt [31].

(e) Tighten the nut [33] and install the pin [34].

(f) Close the door assembly [4] with your hand.

SUBTASK 32-22-11-820-005

(10) Do the same steps for the aft hinge bracket.

SUBTASK 32-22-11-820-006

(11) Align the external outboard surface of the door with the fuselage skin surface.

SUBTASK 32-22-11-020-008

(12) Loosen the four bolts [29] in each of the aft and forward hinge brackets [36] of the aft door.


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(a) Move each hinge bracket until the serrations of the hinge bracket align with the serrations in the plate [28].

NOTE: The outboard external edge of the door must align with the adjacent fuselage skin.

SUBTASK 32-22-11-420-010

(13) Tighten the four bolts [29] in each of the aft and forward hinge brackets [36].

SUBTASK 32-22-11-420-011

(14) If it is not connected, connect the center door hinge [24] to the pushrod [12] as follows:

(a) Put the end of the pushrod [12] in its position on the center door hinge [24].

(b) Align the end of the pushrod [12] to the hole in the center door hinge [24].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(c) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the bolt [16], nut [18], and the faces of the washer [17].

(d) Put the bolt [16] through the center door hinge [24] and pushrod [12].

(e) Install the washer [17] and nut [18] on the bolt [16].

(f) Hand tighten the nut [18] until after final adjustments to the pushrod [12] are made in the subsequent step.

(g) Make sure that the upper pushrod [12] dimension of 30.77 ±0.01 in. (781.56 ±0.25 mm) is maintained and threads are visible through the witness holes to reach adjustment values.

NOTE: Threads of the rods ends do not need to cover the witness holes.

SUBTASK 32-22-11-420-012

(15) Do this task: Nose Gear Wheel Well Door Linkage Adjustment and Check, TASK 32-33-61-820-801.

SUBTASK 32-22-11-420-013

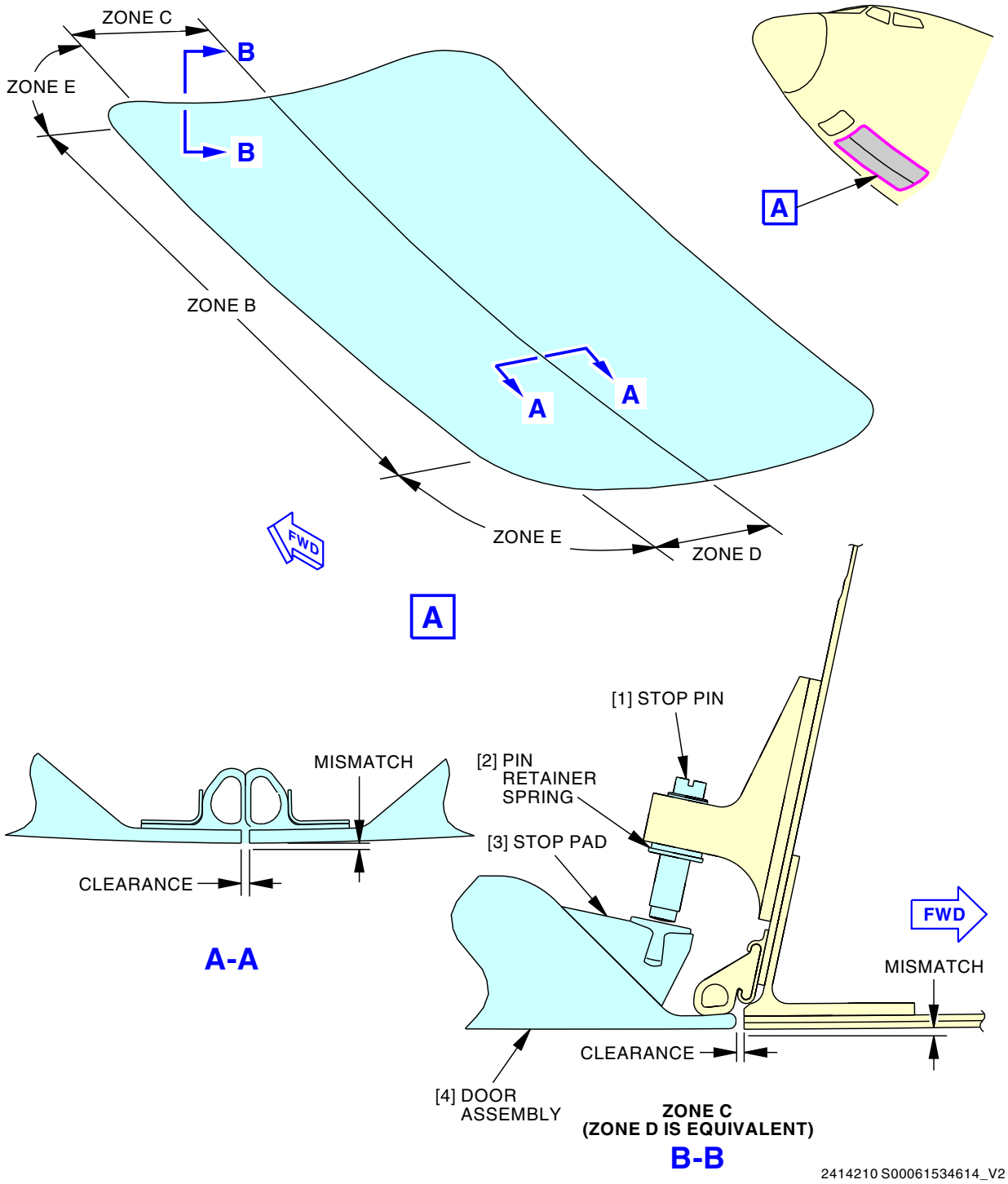
(16) Tighten the nut [18] and install the pin [19] in the hole in the bolt [16].

(a) If it is necessary, loosen the nut [18] to the nearest castellation to align the hole in the bolt [16].

**END OF TASK**



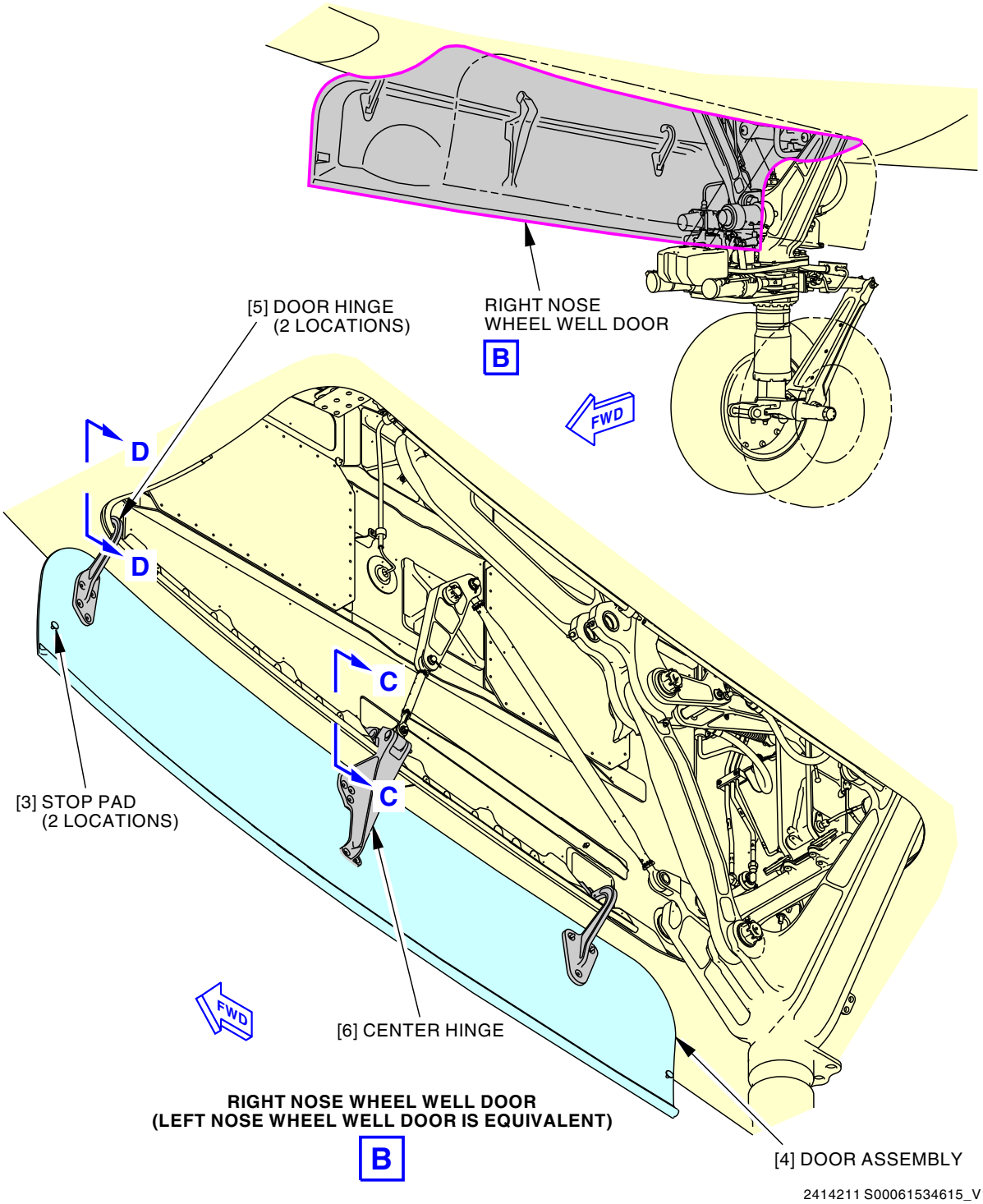
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Wheel Well Doors Adjustment**
**Figure 501/32-22-11-990-802 (Sheet 1 of 3)**



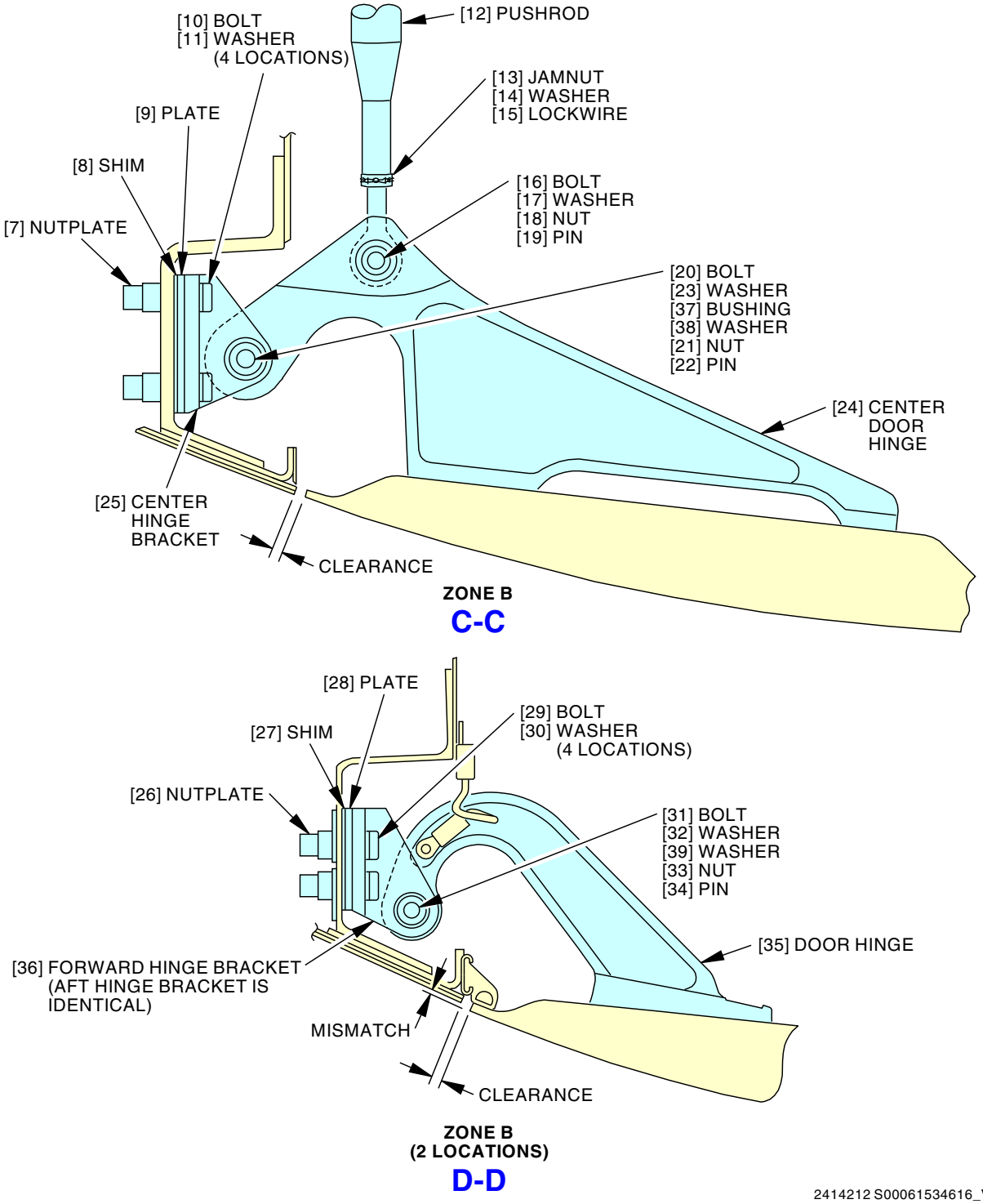
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**Nose Landing Gear Wheel Well Doors Adjustment**
**Figure 501/32-22-11-990-802 (Sheet 2 of 3)**



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**Nose Landing Gear Wheel Well Doors Adjustment**
**Figure 501/32-22-11-990-802 (Sheet 3 of 3)**



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## LANDING GEAR CONTROL SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure contains this task:

(1) A test of the Landing Gear Control System. The airplane is not jacked for this test. This test checks the electrical connection of the landing control module and verifies the landing gear control lever operation.

**TASK 32-31-00-730-801**

### 2. System Test - Landing Gear Control System

#### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1690 | Actuators/Deactuators Set - Proximity Sensor<br>Part #: 8-758-01 Supplier: 08748<br>Part #: A27092-139 Supplier: 81205<br>Opt Part #: A27092-106 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

#### D. Prepare for the System Test

**SUBTASK 32-31-00-480-001**

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear.

(a) If it is necessary, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-31-00-860-002**

(2) Supply pressure to hydraulic system A (TASK 29-11-00-860-801).



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SUBTASK 32-31-00-860-004

(3) Open this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-31-00-700-001

(4) Make sure that these busses are powered:

- 28 V DC Bus 1
- 28 V DC Bat Bus
- 28 V AC Transfer Bus 1

## E. Landing Gear Control Lever Module Test

SUBTASK 32-31-00-860-006

(1) Move the landing gear lever to the UP position.

(a) Do not operate the LOCK OVRD button for the landing gear lever.

SUBTASK 32-31-00-700-008

(2) Make sure that the landing gear lever will not go to the UP position.

SUBTASK 32-31-00-480-002

(3) Push the LOCK OVRD button for the landing gear control lever and move the control lever to the UP position.

SUBTASK 32-31-00-700-009

(4) Make sure that the landing gear control lever moves freely to the UP position.

SUBTASK 32-31-00-860-062

(5) Move the landing gear lever to the DN position.

SUBTASK 32-31-00-720-001

(6) Install deactuators on the Air/Ground proximity sensors on the landing gear that follow (TASK 32-09-00-860-801):

NOTE: You will need A27092-139 deactuators to put the airplane in the air mode. You can find deactuators in the proximity sensor test set, SPL-1690.

NOTE: As an option, deactuators can be constructed as follows: Material: 5052, 6061, 7075, or 2024 aluminum or sheet copper. For rectangular sensors - 1.5 in. (38 mm) x 0.75 in. (19 mm) x 0.05 in. (1.27 mm). For round sensors - 1.0 in. (25 mm) x 1.0 in. (25 mm) x 0.05 in. (1.27 mm).

- Proximity switch S1010, RIGHT GEAR ON GND
- Proximity switch S1012, LEFT GEAR ON GND
- Proximity switch S1011, RIGHT GEAR ON GND
- Proximity switch S1013, LEFT GEAR ON GND.

SUBTASK 32-31-00-860-063

(7) Push the SYS button on the Multi Function Panel (MFP).

SUBTASK 32-31-00-860-064

(8) To show the PSEU Maintenance page on the Multi Function Display (MFD), do these steps:

(a) Select MAINT.

(b) Select MAINT DATA PGS.



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(c) Select 32 PSEU - DISPLAY.

SUBTASK 32-31-00-720-002

(9) Move the control lever for the landing gear to the UP position.

(a) Do not operate the LOCK OVRD button for the landing gear control lever.

SUBTASK 32-31-00-700-010

(10) Make sure that the landing gear control lever goes to the UP position.

SUBTASK 32-31-00-700-028

(11) Make sure that the LG LEVER UP status shows UP for PSEU SYS 1 and PSEU SYS 2.

SUBTASK 32-31-00-700-029

(12) Make sure that the LG LEVER DN PWR status shows NOT DOWN for PSEU SYS 1 and PSEU SYS 2.

SUBTASK 32-31-00-700-030

(13) Make sure that the LEFT GEAR, RIGHT GEAR and NOSE GEAR indications come on in RED.

SUBTASK 32-31-00-730-001

(14) Move the landing gear control lever to the DN position.

SUBTASK 32-31-00-700-031

(15) Make sure that the LG LEVER UP status shows NOT UP for PSEU SYS 1 and PSEU SYS 2.

SUBTASK 32-31-00-700-032

(16) Make sure that the LG LEVER DN PWR status shows DOWN for PSEU SYS 1 and PSEU SYS 2.

SUBTASK 32-31-00-700-033

(17) Make sure that the LEFT GEAR, RIGHT GEAR and NOSE GEAR indications go off.

SUBTASK 32-31-00-730-002

(18) Remove the deactuators from the Air/Ground proximity sensors on the landing gear (TASK 32-09-00-860-802).

SUBTASK 32-31-00-860-008

(19) Supply pressure to hydraulic system B (TASK 29-11-00-860-805).

## F. Electrical Connection Test

SUBTASK 32-31-00-700-003

(1) Select NEXT PAGE on the MFD.

(a) Make sure that the IO MATRIX is shown.

SUBTASK 32-31-00-860-065

(2) Set the NOSE WHEEL STEER switch to the ALT position.

SUBTASK 32-31-00-700-013

(3) Make sure that D10982 Pin 39 shows 1.

SUBTASK 32-31-00-700-014

(4) Make sure that LG HYDRAULIC TRANSFER status shows ALT NOSE STEER.

SUBTASK 32-31-00-860-066

(5) Set the NOSE WHEEL STEER switch to the NORM position.

SUBTASK 32-31-00-700-004

(6) Make sure that D10982 Pin 39 shows 0.



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SUBTASK 32-31-00-700-005

(7) Make sure that LG HYDRAULIC TRANSFER status shows ---.

SUBTASK 32-31-00-700-006

(8) Make sure that the rotary switch on the Antiskid/Autobrake Control Unit (AACU) is in the NORM position.

SUBTASK 32-31-00-860-067

(9) Set the autobrake selector switch, on the P9 panel, to the 1 position.

SUBTASK 32-31-00-700-018

(10) Push and release the RESET button on the AACU.

SUBTASK 32-31-00-700-019

(11) Make sure that the AACU display shows MEM CLR and then clears.

SUBTASK 32-31-00-700-020

(12) Push and hold the ENABLE/VERIFY button on the AACU.

SUBTASK 32-31-00-700-021

(13) Push and hold the VERIFY button on the AACU.

SUBTASK 32-31-00-700-022

(14) Release both ENABLE/VERIFY and VERIFY buttons.

NOTE: The AACU display will flash WAIT during the test.

SUBTASK 32-31-00-210-001

(15) Make sure that the AACU display does not show GEARSW1 or GEARSW2.

(a) Push the VERIFY button to toggle through all the status messages until the display shows TEST END.

SUBTASK 32-31-00-860-058

(16) Move the landing gear control lever to the UP position.

SUBTASK 32-31-00-860-059

(17) Push and hold the ENABLE/VERIFY button on the AACU.

SUBTASK 32-31-00-860-060

(18) Push and hold the VERIFY button on the AACU.

SUBTASK 32-31-00-860-061

(19) Release both ENABLE/VERIFY and VERIFY buttons.

NOTE: The AACU display will flash WAIT during the test.

SUBTASK 32-31-00-700-023

(20) Make sure that the AACU display shows GEARSW1 or GEARSW2.

SUBTASK 32-31-00-700-024

(21) Push the VERIFY button until the AACU display shows TEST END.

SUBTASK 32-31-00-700-007

(22) Set the FASTEN BELTS switch, on the P5 panel, to the AUTO position.

SUBTASK 32-31-00-700-025

(23) Make sure that the fasten seat belt signs are off.

SUBTASK 32-31-00-700-026

(24) Move the landing gear control lever to the DN position.



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SUBTASK 32-31-00-700-027

(25) Make sure that the fasten seat belt signs come on.

## G. Landing Gear Control Lever Discrete Test

SUBTASK 32-31-00-860-068

(1) Push the MENU button on the Control Display Unit (CDU).

SUBTASK 32-31-00-700-034

(2) Do a check of the Digital Flight Data Acquisition Unit (DFDAU) discretes on the CDU as follows:

(a) Select ACMS.

(b) Select MAINTENANCE.

(c) Select INTERFACE TESTS.

(d) Select RECORDER.

(e) Select CONFIGURE DAR OUTPUT.

1) Make sure that DAR OUTPUT shows ON.

a) If DAR OUTPUT shows OFF, select ON.

2) Make sure that the SUBFRAME value increases

(f) Select RETURN until the DFDAU MAIN MENU shows.

(g) Select DISPLAY DATA.

(h) Select ANALOG DISPLAY.

(i) Enter B111/B into the CDU scratchpad.

(j) Push the L1 Line Select Key (LSK).

1) Make sure that the DATA value adjacent to B111 is 1.

(k) Enter B112/B into the CDU scratchpad.

(l) Push the L2 LSK.

1) Make sure that the DATA value adjacent to B112 is 0.

(m) Move the landing gear control lever to the UP position.

1) Make sure that the DATA value adjacent to B111 is 0.

2) Make sure that the DATA value adjacent to B112 is 1.

(n) Move the landing gear control lever to the DN position.

(o) Select RETURN until the DFDAU MAIN MENU shows.

(p) Select MAINTENANCE.

(q) Select INTERFACE TESTS.

(r) Select RECORDER.

(s) Select CONFIGURE DAR OUTPUT.

(t) Select OFF.

1) Make sure that DAR OUTPUT shows OFF.

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-31-00-860-070

(1) Set the autobrake selector switch, on the P9 panel, to the OFF position.



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SUBTASK 32-31-00-860-071

(2) Remove pressure from hydraulic systems A and B (TASK 29-11-00-860-805).

SUBTASK 32-31-00-860-009

(3) Close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

**——— END OF TASK ———**

**TASK 32-31-00-710-801**

**3. Landing Gear Control Electrical Circuits - Operational Test**

NOTE: This procedure is a scheduled maintenance task.

**A. General**

(1) There are two procedures to do this operational test. Each procedure is optional to the other. Do only one of the procedures that follow:

(a) Operational test with the airplane on jacks.

(b) Operational test with the airplane on the ground.

**B. References**

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1690 | Actuators/Deactuators Set - Proximity Sensor<br>Part #: 8-758-01 Supplier: 08748<br>Part #: A27092-139 Supplier: 81205<br>Opt Part #: A27092-106 Supplier: 81205 |

**D. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 118 | Electrical and Electronics Compartment - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |



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## E. Operational Test with the Airplane on Jacks

SUBTASK 32-31-00-860-018

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**WARNING** MAKE SURE THAT THE AREA AROUND THE MAIN LANDING GEAR IS CLEAR OF PERSONNEL, AND EQUIPMENT. THE DOORS CLOSE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

NOTE: This test is for the landing gear control circuits. It is not specific to the NLG or MLG.

SUBTASK 32-31-00-860-015

(2) Pressurize the hydraulic system A (TASK 29-11-00-860-801).

SUBTASK 32-31-00-860-010

(3) Open this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

SUBTASK 32-31-00-860-016

(4) Put the landing gear lever in the UP position.

SUBTASK 32-31-00-860-017

(5) Make sure that the landing gear retract.

SUBTASK 32-31-00-860-011

(6) Open this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-31-00-860-019

(7) Put the landing gear lever in the DN position.

SUBTASK 32-31-00-860-020

(8) Make sure that the Main Landing Gear (MLG) do not extend.

SUBTASK 32-31-00-860-021

(9) Put the landing gear lever in the UP position.



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SUBTASK 32-31-00-860-012

(10) Close this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-31-00-860-022

(11) Put the landing gear lever in the DN position.

SUBTASK 32-31-00-860-023

(12) Make sure that the landing gear extend.

SUBTASK 32-31-00-860-013

(13) Open this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-31-00-860-014

(14) Close this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

SUBTASK 32-31-00-860-024

(15) Put the landing gear lever in the UP position.

SUBTASK 32-31-00-860-025

(16) Make sure that the landing gear retract.

SUBTASK 32-31-00-860-026

(17) Put the landing gear lever in the DN position.

SUBTASK 32-31-00-860-027

(18) Make sure that the landing gear extend.

SUBTASK 32-31-00-860-030

(19) For hydraulic systems A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-31-00-860-054

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(20) Lower the airplane off the jacks (TASK 07-10-01-580-802).



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SUBTASK 32-31-00-860-055

(21) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

## F. Operational Test with the Airplane on Ground

SUBTASK 32-31-00-860-031

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-31-00-860-032

NOTE: This test is for the landing gear control circuits. It is not specific to the Nose Landing Gear (NLG) or MLG.

(2) Pressurize the hydraulic system A (TASK 29-11-00-860-801).

SUBTASK 32-31-00-860-056

(3) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

(a) Install deactuators on the Air/Ground proximity sensors on the landing gear that follow:

NOTE: You will need A27092-139 deactuators to put the airplane in the air mode. You can find deactuators in the proximity sensor test set, SPL-1690.

NOTE: As an option, deactuators can be constructed as follows: Material: 5052, 6061, 7075, or 2024 aluminum or sheet copper. For rectangular sensors - 1.5 in. (38 mm) x 0.75 in. (19 mm) x 0.05 in. (1.27 mm). For round sensors - 1.0 in. (25 mm) x 1.0 in. (25 mm) x 0.05 in. (1.27 mm).

1) SYS 1 has the following proximity sensors:

- proximity switch S1010, RIGHT GEAR ON GND.
- proximity switch S1012, LEFT GEAR ON GND.

2) SYS 2 has the following proximity sensors:

- proximity switch S1011, RIGHT GEAR ON GND.
- proximity switch S1013, LEFT GEAR ON GND.

NOTE: AIR/GND override cannot be used to simulate air mode.

SUBTASK 32-31-00-860-033

(4) Open this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

SUBTASK 32-31-00-860-034

(5) Put the landing gear lever in the UP position.



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SUBTASK 32-31-00-860-035

(6) Make sure that the rod end of one of the two MLG retract actuator tries to extend.

SUBTASK 32-31-00-860-036

(7) Open this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-31-00-860-037

(8) Make sure that the MLG retract actuator rod end retracts a small quantity.

SUBTASK 32-31-00-860-038

(9) Put the landing gear lever in the DN position.

SUBTASK 32-31-00-860-039

(10) Make sure that the MLG retract actuator rod end does not move.

SUBTASK 32-31-00-860-040

(11) Close this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-31-00-860-041

(12) Make sure that the MLG retract actuator rod end tries to retract.

SUBTASK 32-31-00-860-042

(13) Open this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-31-00-860-043

(14) Close this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

SUBTASK 32-31-00-860-044

(15) Put the landing gear lever in the UP position.

SUBTASK 32-31-00-860-045

(16) Make sure that the rod end of a MLG retract actuator tries to extend.

SUBTASK 32-31-00-860-046

(17) Open this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

SUBTASK 32-31-00-860-047

(18) Make sure that the MLG retract actuator rod end extends a small quantity.



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SUBTASK 32-31-00-860-048

(19) Put the landing gear lever in the DN position.

SUBTASK 32-31-00-860-049

(20) Make sure that the MLG retract actuator rod end does not move.

SUBTASK 32-31-00-860-050

(21) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

SUBTASK 32-31-00-860-051

(22) Make sure that the MLG retract actuator rod end tries to retract.

SUBTASK 32-31-00-860-052

(23) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 32-31-00-860-053

(24) For hydraulic systems A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-31-00-860-057

(25) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

**——— END OF TASK ———**



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## LANDING GEAR CONTROL LEVER MODULE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these two tasks:

(1) Removal of the landing gear control lever module (referred to as landing gear module [1]).

(2) Installation of the landing gear module [1].

**TASK 32-31-11-020-801**

### 2. Landing Gear Control Lever Module Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 34-24-01-000-802 | Integrated Standby Flight Display (ISFD) Removal (P/B 401) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

#### C. Prepare for the Removal

**SUBTASK 32-31-11-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-31-11-040-002**

(2) Do this task: Integrated Standby Flight Display (ISFD) Removal, TASK 34-24-01-000-802.

**SUBTASK 32-31-11-860-001**

(3) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 8 | C01551 | ISFD |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |



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(Continued)

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-31-11-860-002

(4) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-31-11-020-005

(5) Disconnect the control lever module [10] from the landing gear module [1] before you remove the landing gear module [1].

NOTE: There is an interference between the landing gear module [1] and the floodlight on the glare shield [2] if you do not disconnect the control lever module [10] from the landing gear module [1] before you remove it.

(a) Loosen the captive screws [13] on the lightplate [12] on the lower front of the landing gear module [1] panel to remove the lightplate [12].

(b) Remove the screws [9] that connect the control lever module [10] to the landing gear module [1].

## D. Landing Gear Control Lever Module Removal

SUBTASK 32-31-11-010-001

(1) Loosen the captive fasteners [8] which hold the landing gear module [1] to the forward panel structure [7].

SUBTASK 32-31-11-020-001

(2) Move the landing gear module [1] out of the forward panel structure [7] to get access to the electrical connectors [14].

SUBTASK 32-31-11-020-002

(3) Disconnect the electrical connectors [14] from the landing gear module [1].

SUBTASK 32-31-11-020-003

(4) Remove the landing gear module [1] from the airplane.

SUBTASK 32-31-11-020-007

(5) Move the control lever module [10] out of the forward panel structure [7] to get access to the electrical connectors [11].

SUBTASK 32-31-11-020-008

(6) Disconnect the electrical connectors [11] from the control lever module [10].

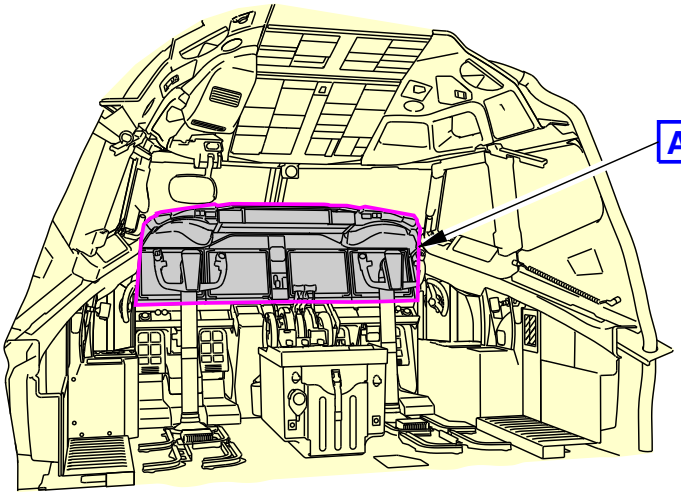
SUBTASK 32-31-11-020-009

(7) Remove the control lever module [10] from the airplane.

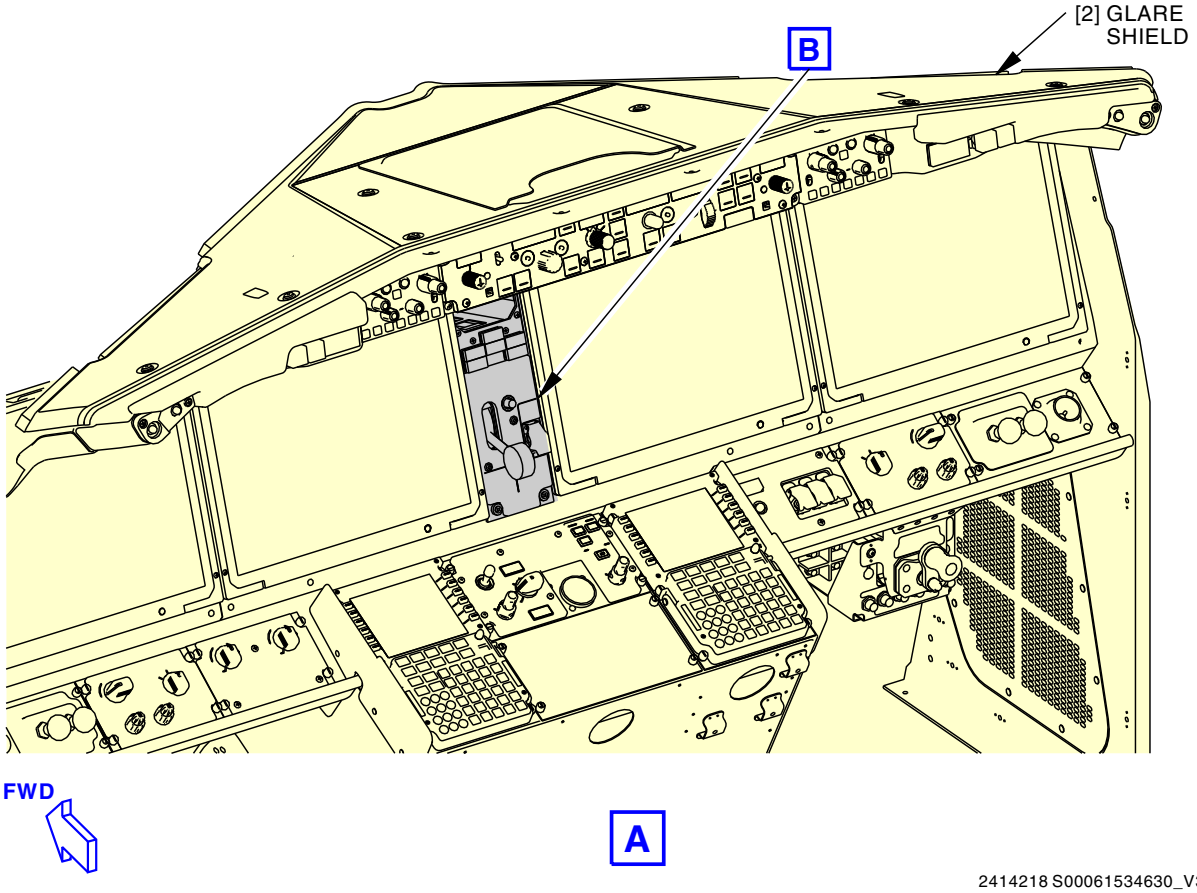
**END OF TASK**



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FLIGHT COMPARTMENT

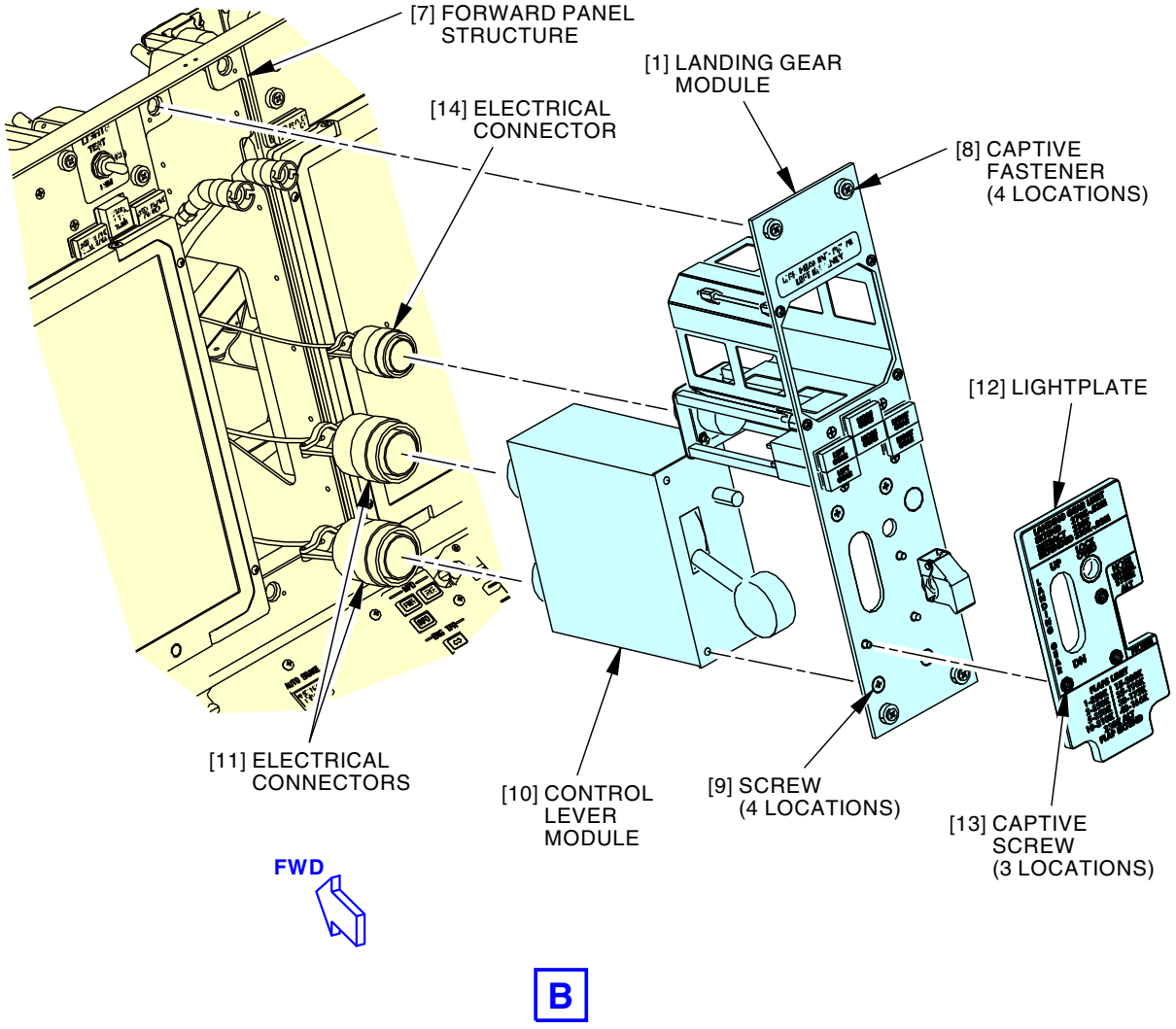



2414218 S00061534630_V3

**Landing Gear Control Lever Module Installation**
**Figure 401/32-31-11-990-801 (Sheet 1 of 2)**



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2414220 S00061534632_V4

**Landing Gear Control Lever Module Installation**
**Figure 401/32-31-11-990-801 (Sheet 2 of 2)**



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**TASK 32-31-11-400-801**

## 3. Landing Gear Control Lever Module Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 20-60-07-910-802 | Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201) |
| 32-31-11-710-801 | Landing Gear Control Lever Module - Operational Test (P/B 501) |
| 34-24-01-400-802 | Integrated Standby Flight Display (ISFD) Installation (P/B 401) |

### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### C. Landing Gear Control Lever Module Installation

**SUBTASK 32-31-11-420-001**

(1) Before you connect the electrical connectors [11] to the landing gear module [1], examine the electrical connectors [11] for corrosion (TASK 20-60-07-910-802).

**SUBTASK 32-31-11-020-006**

(2) If the control lever module [10] connected to the landing gear module [1], do these steps:

NOTE: There is an interference between the landing gear module [1] and the floodlight on the glare shield [2] if you do not disconnect the control lever module [10] from the landing gear module [1] before you install it.

(a) Loosen the captive screws [13] on the lightplate [12] on the lower front of the landing gear module [1] panel to remove the lightplate [12].

(b) Remove the screws [9] that connect the control lever module [10] to the landing gear module [1].

(c) Disconnect the control lever module [10] from the landing gear module [1].

**SUBTASK 32-31-11-430-001**

(3) Connect the electrical connectors [11] to the control lever module [10].

**SUBTASK 32-31-11-420-005**

(4) Put the control lever module [10] into position in the forward panel structure [7].

**SUBTASK 32-31-11-420-007**

(5) Connect the electrical connectors [14] to the landing gear module [1].

**SUBTASK 32-31-11-420-002**

(6) Move the landing gear module [1] into position in the forward panel structure [7].

**SUBTASK 32-31-11-420-008**

(7) Install the screws [9] that connect the control lever module [10] to the landing gear module [1].

**SUBTASK 32-31-11-420-010**

(8) Tighten the captive screws [13] to install the lightplate [12] on the lower front of the landing gear module [1].



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SUBTASK 32-31-11-420-009

(9) Tighten the captive fasteners [8] that attach the landing gear module [1] to the forward panel structure [7].

SUBTASK 32-31-11-400-001

(10) Do this task: Integrated Standby Flight Display (ISFD) Installation, TASK 34-24-01-400-802.

**D. Landing Gear Control Lever Module Installation Test**

SUBTASK 32-31-11-860-004

(1) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 8 | C01551 | ISFD |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-31-11-710-001

(2) Do this Task: (Landing Gear Control Lever Module - Operational Test, TASK 32-31-11-710-801).

**——— END OF TASK ———**



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## LANDING GEAR CONTROL LEVER MODULE - ADJUSTMENT/TEST

### 1. General

A. This procedure tests the landing gear control lever module.

**TASK 32-31-11-710-801**

### 2. Landing Gear Control Lever Module - Operational Test

#### A. General

(1) This procedure tests the landing gear control lever module.

(2) The landing gear control lever module is installed in the P2 panel.

#### B. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |
| 32-42-00-740-801 | Antiskid/Autobrake Control Unit BITE Procedure (P/B 501) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

#### D. Prepare for the Operational Test

**SUBTASK 32-31-11-860-005**

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear. If it is necessary, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-31-11-840-001**

(2) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |



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SUBTASK 32-31-11-860-006

(3) Set the MAX Display System (MDS) to the MAINT -> MAINT DATA PGS -> 32 PSEU, DISPLAY

### E. Landing Gear Control Lever Module Test

SUBTASK 32-31-11-860-007

(1) On the PSEU maint page on the MDS, make sure that the SYS 1 and SYS 2 are in the GND mode for all three gear (Return the Airplane to the Ground Mode, TASK 32-09-00-860-802).

(a) Make sure that the three green landing gear indication lights are illuminated.

SUBTASK 32-31-11-860-008

(2) Move the landing gear lever into the UP position. Do not operate the lock override trigger for the landing gear lever.

(a) Verify that the landing gear lever will not go to the UP position.

SUBTASK 32-31-11-860-009

(3) Press and hold the lock override trigger for the landing gear control lever and move the control lever to the UP position.

(a) Make sure that the landing gear control lever moves freely into the UP position.

(b) On the PSEU maint page on the MDS, make sure that the lever position has changed.

(c) Make sure that the RED landing gear indication lights are illuminated.

SUBTASK 32-31-11-860-010

(4) Move the lever to the DOWN position.

(a) On the PSEU maint page on the MDS, make sure that the lever position has changed.

(b) Make sure that the GREEN landing gear indication lights are illuminated.

SUBTASK 32-31-11-840-002

(5) Set SYS 1 and SYS 2 in the AIR mode for all three gear (Put the Airplane in the Air Mode, TASK 32-09-00-860-801).

(a) Install deactuators on all six Air/Ground proximity sensors on the landing gear that follow:

NOTE: You will need A27092-139 deactuators to put the airplane in the air mode. You can find deactuators in the proximity sensor test set, SPL-1690.

NOTE: As an option, deactuators can be constructed as follows: Material: 5052, 6061, 7075, or 2024 aluminum or sheet copper. For rectangular sensors - 1.5 in. (38 mm) x 0.75 in. (19 mm) x 0.05 in. (1.27 mm). For round sensors - 1.0 in. (25 mm) x 1.0 in. (25 mm) x 0.05 in. (1.27 mm).

1) Sys 1 has the following proximity sensors:

- proximity switch S1010, RIGHT GEAR ON GND.
- proximity switch S1012, LEFT GEAR ON GND.
- proximity switch S1014, NOSE GEAR ON GND.

2) SYS 2 has the following proximity sensors:

- proximity switch S1011, RIGHT GEAR ON GND.
- proximity switch S1013, LEFT GEAR ON GND.
- proximity switch S1015, NOSE GEAR ON GND.

NOTE: AIR/GND override cannot be used to simulate air mode.



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SUBTASK 32-31-11-860-011

(6) Move the control lever for the landing gear to the UP position. Do not operate the lock override for the landing gear control lever.

(a) Make sure that the landing gear control lever moves freely into the UP position.

(b) On the PSEU maint page on the MDS, make sure that the lever position has changed.

(c) Make sure that the RED landing gear indication lights are illuminated.

SUBTASK 32-31-11-860-012

(7) Move the landing gear control lever to the DN position.

(a) On the PSEU maint page on the MDS, make sure that the lever position has changed.

(b) Make sure that the GREEN landing gear indication lights are illuminated.

SUBTASK 32-31-11-840-005

(8) Return the AIR/GND SYSTEM to the ground mode (TASK 32-09-00-860-802).

SUBTASK 32-31-11-840-003

(9) Pressurize the hydraulic system B (TASK 29-11-00-860-801).

SUBTASK 32-31-11-860-013

(10) Put the NOSE WHEEL STEER switch to the ALT position.

(a) From the Multi Function Display (MFD), select MAINT DATA PGS -> SELECT PSEU.

(b) SELECT NEXT PAGE until D10982 is displayed.

(c) Make sure that the display for CONNECTOR D10982 PIN 39 reads 1.

SUBTASK 32-31-11-840-004

(11) Put the NOSE WHEEL STEER switch to the Norm position.

(a) Make sure that the display for connector D10982 PIN 39 shows 0.

SUBTASK 32-31-11-840-007

(12) Remove hydraulic power from hydraulic system B. Do this task: TASK 29-11-00-860-805.

SUBTASK 32-31-11-740-002

(13) Do the BITE test of the Antiskid/Autobrake Control Unit (AACU) (TASK 32-42-00-740-801).

## F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-31-11-840-006

(1) Make sure that these circuit breakers are closed:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

**END OF TASK**



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# LANDING GEAR SELECTOR VALVE - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the selector valve for the landing gear (referred to as the selector valve [8])

(2) An installation of the selector valve for the landing gear.

(3) Operational test of the Selector/Bypass Valve. (airplane jacked).

**TASK 32-31-51-020-801**

## 2. Landing Gear Selector Valve Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### D. Prepare for the Removal

**SUBTASK 32-31-51-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-31-51-860-001**

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-31-51-580-001**

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).



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SUBTASK 32-31-51-040-001

(4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

## E. Landing Gear Selector Valve Removal

SUBTASK 32-31-51-480-002

(1) Disconnect the hydraulic lines from the selector valve [8].

SUBTASK 32-31-51-480-003

(2) Install caps/plugs, STD-14686, on the hydraulic lines and the ports on the selector valve [8].

SUBTASK 32-31-51-480-004

(3) Disconnect the electrical connectors from the selector valve [8].

SUBTASK 32-31-51-020-001

(4) Remove the washers [6] and bolts [7] which attach the selector valve [8] to the structure.

SUBTASK 32-31-51-020-002

(5) Remove the selector valve [8] from the airplane.

SUBTASK 32-31-51-080-001

(6) Remove the caps/plugs, STD-14686, from the ports on the selector valve [8] and drain the hydraulic fluid.

SUBTASK 32-31-51-020-003

(7) Do these steps if the replacement selector valve [8] does not have the unions [1] installed:

(a) Remove the unions [1] from the selector valve [8].

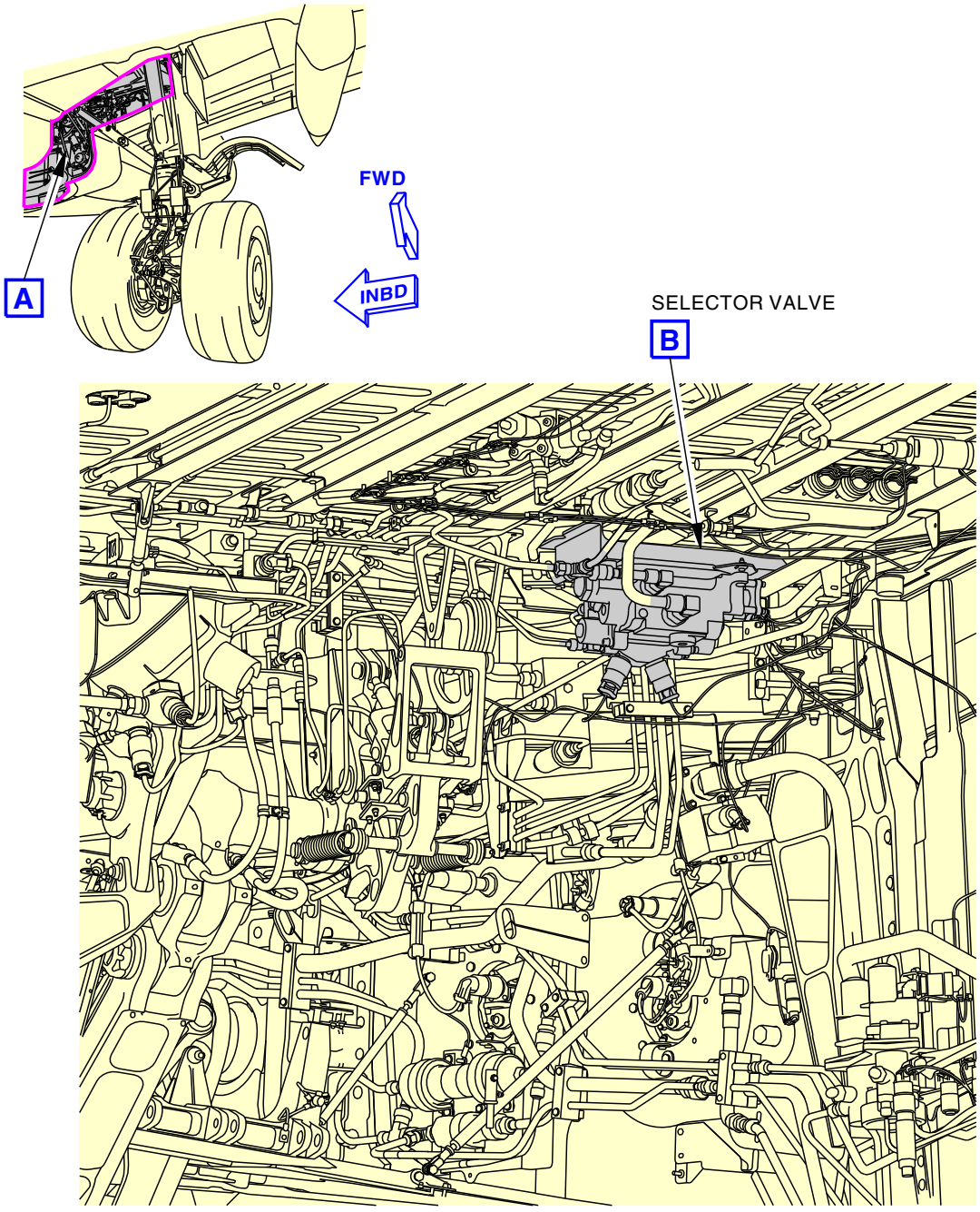
(b) Remove and discard the packings [2].

(c) Install plugs in the ports on the selector valve [8].

**——— END OF TASK ———**



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**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

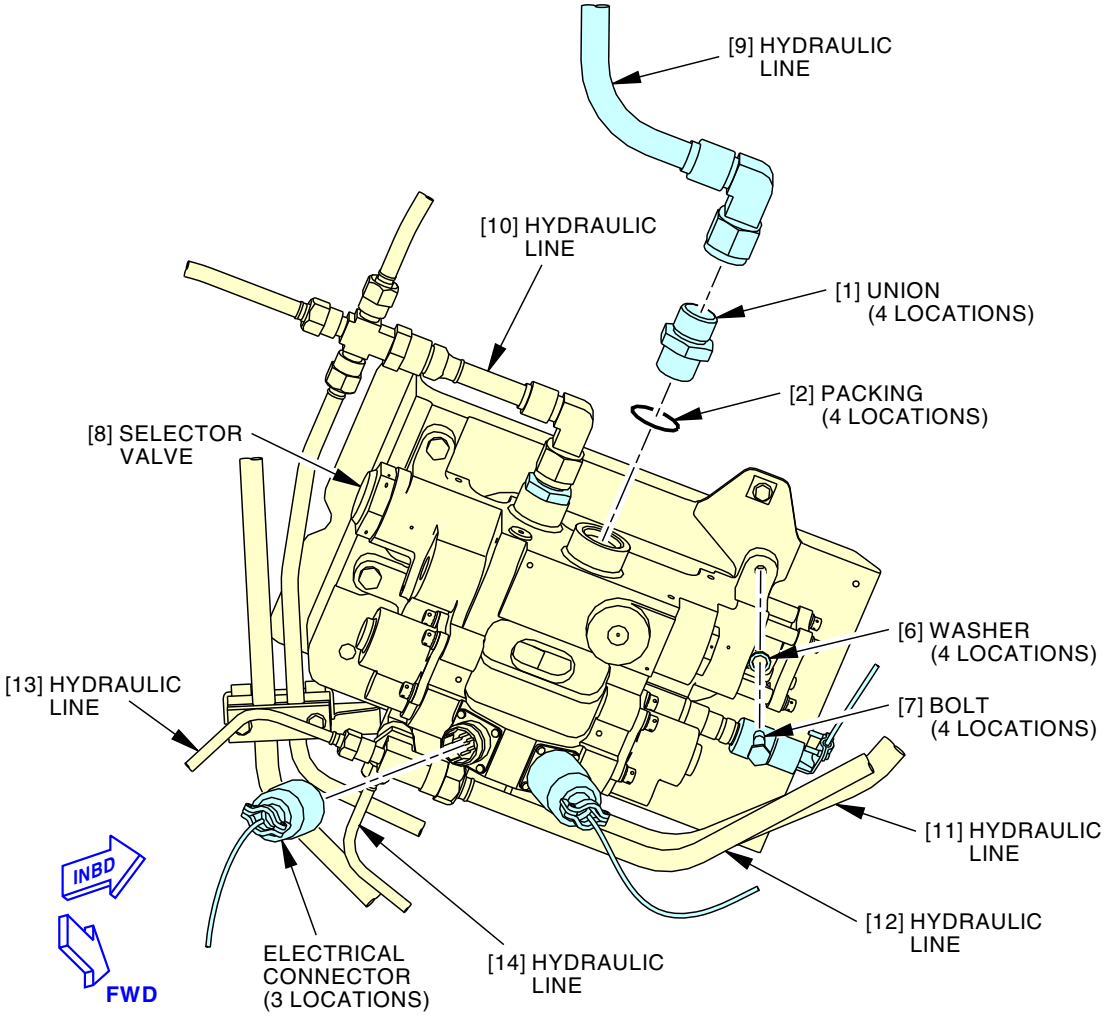
**A**

2414232 S00061534669_V1

**Landing Gear Selector Valve Installation**
**Figure 401/32-31-51-990-801 (Sheet 1 of 2)**



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**SELECTOR VALVE**

**B**

2414233 S00061534670_V2

**Landing Gear Selector Valve Installation**
**Figure 401/32-31-51-990-801 (Sheet 2 of 2)**



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**TASK 32-31-51-400-801**

**3. Landing Gear Selector Valve Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 20-10-34-120-801 | Hand Clean Metal Surfaces with Abrasives (P/B 701) |
| 32-31-00-730-801 | System Test - Landing Gear Control System (P/B 501) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A02315 | Sealant - Low Density, Synthetic Rubber. 2 Part | BMS5-142 Type II |
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 8 | Selector valve | 32-31-51-01-040 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |



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## F. Landing Gear Selector Valve Installation

SUBTASK 32-31-51-420-001

(1) Do these steps if the replacement selector valve [8] does not have the unions [1] installed:

(a) Lubricate these items with hydraulic fluid, D00153:

1) The packings [2].

2) The unions [1].

(b) Remove the plugs from the ports on the selector valve [8].

(c) Install the packings [2] and unions [1] in the selector valve [8].

SUBTASK 32-31-51-610-001

(2) Fill the selector valve [8] with hydraulic fluid, D00153.

(a) Put caps/plugs, STD-14686, on the unions [1].

SUBTASK 32-31-51-100-001

(3) Clean the surface of the bracket where the selector valve [8] will attach (TASK 20-10-34-120-801).

SUBTASK 32-31-51-100-002

(4) Clean the surface of the selector valve [8] that will attach to the bracket (TASK 20-10-34-120-801).

SUBTASK 32-31-51-110-001

(5) Apply coating, C00064, to all of the areas that you cleaned on the bracket and the selector valve [8].

SUBTASK 32-31-51-420-002

(6) Put the selector valve [8] in its position on the bracket.

SUBTASK 32-31-51-420-003

(7) Install the bolts [7] and washers [6].

SUBTASK 32-31-51-760-001

(8) Use an intrinsically safe approved bonding meter, COM-1550, to measure the electrical resistance between the selector valve [8] and the bracket (SWPM 20-20-00).

(a) Make sure the electrical bonding resistance is less than 0.0025 ohm (2.5 milliohms).

1) If the electrical bonding resistance is 0.0025 ohm (2.5 milliohms) or more, clean the mating surfaces of the bracket and the selector valve [8], and apply the coating, C00064, again.

SUBTASK 32-31-51-110-002

(9) If necessary, repair the damaged finish on the selector valve [8] with a manual application of coating, C00064.

SUBTASK 32-31-51-390-001

(10) Apply a fillet seal of sealant, A02315, to the joints between the selector valve [8] and bracket, the heads and exposed threads of the bolts [7].

SUBTASK 32-31-51-080-002

(11) Remove the caps/plugs, STD-14686, from the unions [1] and connect the hydraulic lines to the selector valve [8].

SUBTASK 32-31-51-420-004

(12) Torque the B-nuts of the hydraulic line [9] and hydraulic line [11] to 700 ±35 in-lb (79 ±4 N·m).



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SUBTASK 32-31-51-420-008

(13) Torque the B-nuts of the hydraulic line [10] and hydraulic line [12] to 500 ±25 in-lb (56 ±3 N·m).

SUBTASK 32-31-51-420-009

(14) Torque the B-nuts of the hydraulic line [13] and hydraulic line [14] to 140 ±7 in-lb (16 ±1 N·m).

SUBTASK 32-31-51-420-005

(15) Before you connect the electrical connectors to the selector valve [8], examine the electrical connectors for corrosion.

**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there is corrosion, refer to SWPM 20-60-03 to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171, to the electrical connectors (SWPM 20-60-03).

(16) Connect the electrical connectors to the selector valve [8].

SUBTASK 32-31-51-010-001

(17) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

### G. Landing Gear Selector Valve Installation Test

SUBTASK 32-31-51-700-001

(1) Do the test of the control system for the landing gear (TASK 32-31-00-730-801).

**——— END OF TASK ———**

**TASK 32-31-51-700-801**

## 4. Selector/Bypass Valve Operational Test

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |



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## B. Prepare for Test

SUBTASK 32-31-51-820-001

(1) Move the LANDING GEAR control lever to the DOWN position.

SUBTASK 32-31-51-480-007

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-31-51-910-001

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(3) Jack the aircraft Lift the Airplane on Jacks, TASK 07-10-01-580-801

SUBTASK 32-31-51-000-001

(4) Close these circuit breakers:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 3 | C01312 | ENGINE 1 RUN/PWR |
| D | 1 | C04030 | DSP CAPT EFIS CONT PNL |
| D | 2 | C04003 | MULTI FUNCTION PANEL |
| D | 3 | C04026 | DISPLAY LEFT INBOARD |
| D | 4 | C04027 | DISPLAY LEFT OUTBOARD |
| D | 5 | C04023 | DISPLAY DPC 1 PRI |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 9 | C04024 | DISPLAY DPC 2 HOLDUP |
| D | 10 | C04022 | DISPLAY DPC 1 HOLDUP |
| D | 11 | C04025 | DISPLAY DPC 2 PRI |
| E | 10 | C04029 | DISPLAY RIGHT OUTBOARD |
| E | 11 | C04028 | DISPLAY RIGHT INBOARD |
| E | 12 | C04002 | MAINT/BITE PANEL |
| E | 13 | C04031 | DSP F/O EFIS CONT PNL |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |



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(Continued)

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 12 | C00314 | INDICATOR MASTER DIM SECT 2 |
| F | 11 | C00317 | INDICATOR MASTER DIM SECT 5 |
| F | 13 | C01179 | INDICATOR MASTER DIM SECT 7 |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

SUBTASK 32-31-51-040-002

(5) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

## C. Test procedure

SUBTASK 32-31-51-910-002

(1) Remove the downlock pins from the landing gear (Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801).

SUBTASK 32-31-51-710-001

(2) Move the engine No. 1 and No. 2 throttles completely forward.

NOTE: Throttles in the advanced position prevent the landing gear warning (red) lights from remaining on after gear is up and locked.

SUBTASK 32-31-51-710-002

(3) Put the Master Dim and Test switch in the bright position.

SUBTASK 32-31-51-710-003

(4) Ensure the manual extension door is fully closed.

SUBTASK 32-31-51-710-004

(5) Move the landing gear control lever UP and DOWN 2 times, allowing the gear to fully extend and retract each cycle.



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(a) Make sure that there is no rubbing or binding of the main gear retract actuator hoses during gear swing.

(6) Make sure that all cycles complete and that lights are OFF when gear is UP, GREEN lights are illuminated when gear is DOWN.

(7) Make sure that the nose gear completes cycle before main gear, and that left and right gear complete less than one second apart.

(8) Make sure that there is no rubbing of hoses or doors, no unusual grinding, popping, or scraping sounds.

SUBTASK 32-31-51-710-005

(9) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

SUBTASK 32-31-51-710-006

(10) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-31-51-710-007

(11) Move the landing gear control lever UP and DOWN (2) times, allowing the gear to fully extend and retract each time.

(12) Make sure that all cycles complete and that all lights are OFF when gear is UP, and GREEN lights are illuminated when gear is DOWN.

(13) Make sure that the nose gear completes cycle before main gear and that left and right gear complete less than 1 second apart.

SUBTASK 32-31-51-710-008

(14) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

SUBTASK 32-31-51-710-009

(15) Move the landing gear control lever UP and Down 2 times, allowing the gear to fully extend and retract each time.

SUBTASK 32-31-51-710-010

(16) Make sure that the landing gear retraction and extension is smooth.

(17) Make sure that all cycles complete and that all lights are OFF when gear is UP, and GREEN lights are illuminated when gear is DOWN.

(18) Make sure that the nose gear completes cycle before main gear, and that left and right gear complete less than 1 second apart.

SUBTASK 32-31-51-710-011

(19) Move the landing gear control lever to the UP position, then:

(a) When the landing gear is 75% up, Move the landing gear control lever to the DOWN position.



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(b) When the landing gear is 75% down, Move the landing gear control lever to the UP position.

(c) When the landing gear is 75% up, Move the landing gear control lever to the DOWN position.

SUBTASK 32-31-51-710-012

(20) Move the landing gear lever to the UP position.

(a) Wait for the gear to fully retract and all lights to extinguish.

SUBTASK 32-31-51-710-013

(21) Verify that the landing gear changed direction with no hydraulic leaks or mechanical damage. Repair any leaks.

SUBTASK 32-31-51-710-014

(22) Open the door for the landing gear manual extension handles in the flight deck floor.

SUBTASK 32-31-51-710-015

(23) Pull the NOSE gear manual extension handle at an angle as if sitting in the first officer's seat.

NOTE: Do not pull handle straight up.

SUBTASK 32-31-51-710-016

(24) Verify the NOSE GEAR light on the P2-3 panel is illuminated when the gear is fully extended.

SUBTASK 32-31-51-710-017

(25) Pull the LEFT main gear manual Extension handle at an angle as if sitting in the first officer's seat.

NOTE: Do not pull handle straight up.

SUBTASK 32-31-51-710-018

(26) Verify the LEFT GEAR green light on the P2-3 panel is illuminated when the gear is fully extended.

SUBTASK 32-31-51-710-019

(27) Pull the RIGHT GEAR manual extension handle at an angle as if sitting in the first officer's seat.

NOTE: Do not pull the handle straight up.

SUBTASK 32-31-51-710-020

(28) Verify the RIGHT GEAR green light on the P2-3 panel is illuminated when the gear is fully extended.

SUBTASK 32-31-51-710-021

(29) Close the door for the LANDING GEAR manual extension handles in the flight deck floor.

SUBTASK 32-31-51-710-022

(30) Move the landing gear control lever to the DOWN position.

SUBTASK 32-31-51-420-007

(31) Install the downlock pins in the landing gear (Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801).

SUBTASK 32-31-51-040-003

(32) Remove pressure to the 'A' hydraulic system (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).



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SUBTASK 32-31-51-040-004

(33) Return airplane to the pretest configuration.

END OF TASK



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## LANDING GEAR SELECTOR VALVE - INSPECTION/CHECK

### 1. General

A. This procedure has these tasks:

(1) An inspection of the landing gear selector valve.

(2) An inspection of the landing gear selector valve secondary end cap.

**TASK 32-31-51-200-801**

### 2. Landing Gear Selector Valve - Inspection

(Figure 601)

#### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### C. Landing Gear Selector Valve Inspection

**SUBTASK 32-31-51-480-005**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-31-51-860-002**

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-31-51-200-001**

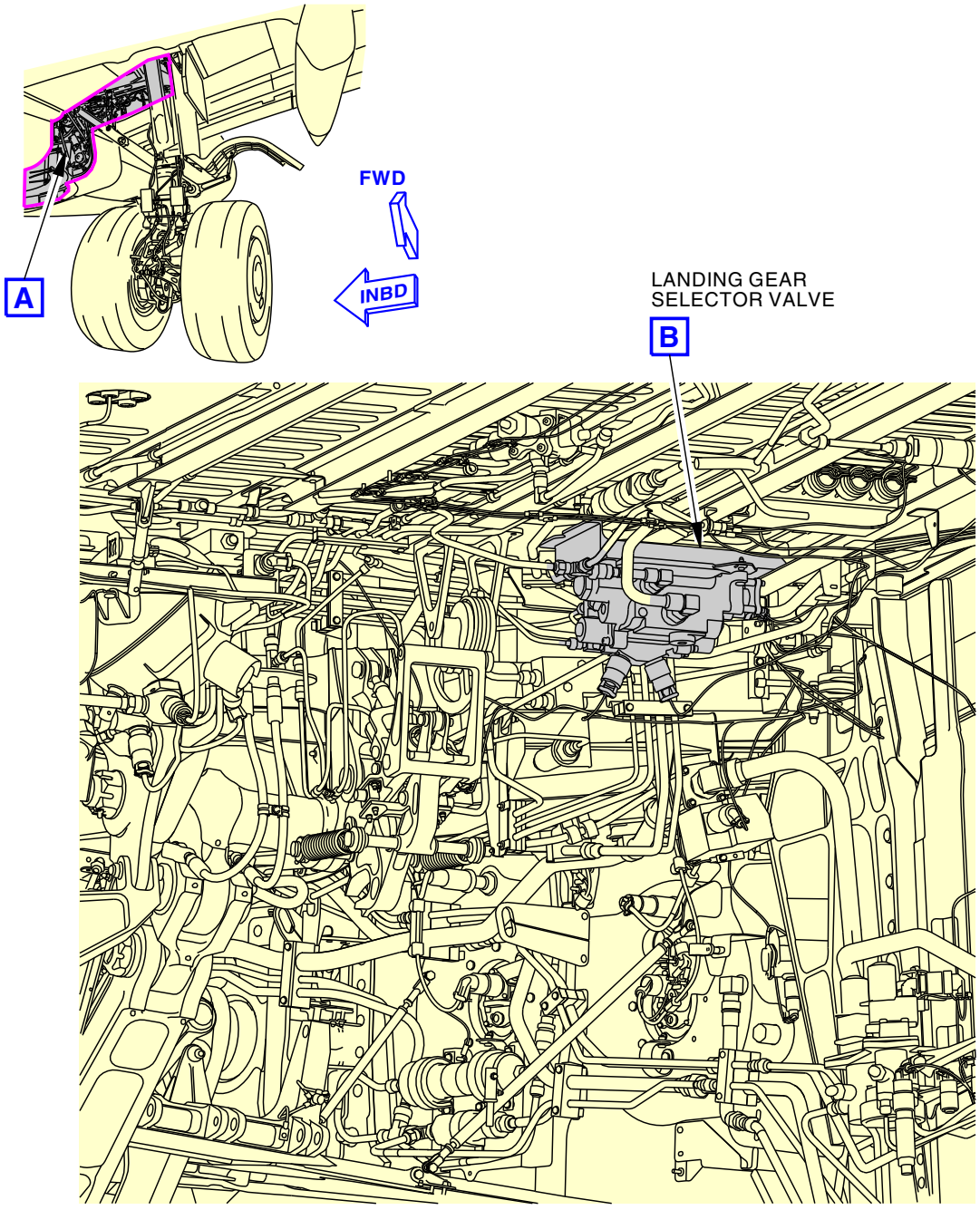
(3) Do a detailed visual examination of the landing gear selector valve:

(a) Look at the visible part of the valve piston to make sure there are no leaks or damage.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

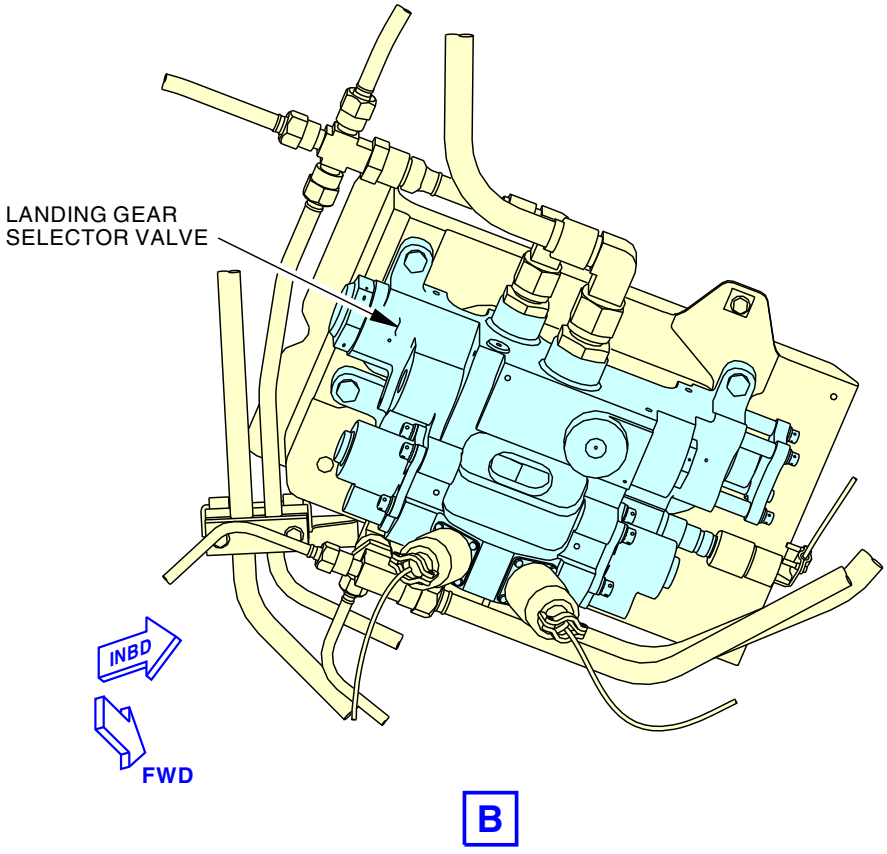
**A**

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**Landing Gear Selector Valve Inspection**
**Figure 601/32-31-51-990-802 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




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**Landing Gear Selector Valve Inspection**
**Figure 601/32-31-51-990-802 (Sheet 2 of 2)**



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**TASK 32-31-51-200-802**

## 3. Landing Gear Selector Valve Secondary End Cap - Inspection

(Figure 602)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### C. Landing Gear Selector Valve Secondary End Cap Inspection

**SUBTASK 32-31-51-480-006**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-31-51-860-003**

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-31-51-200-002**

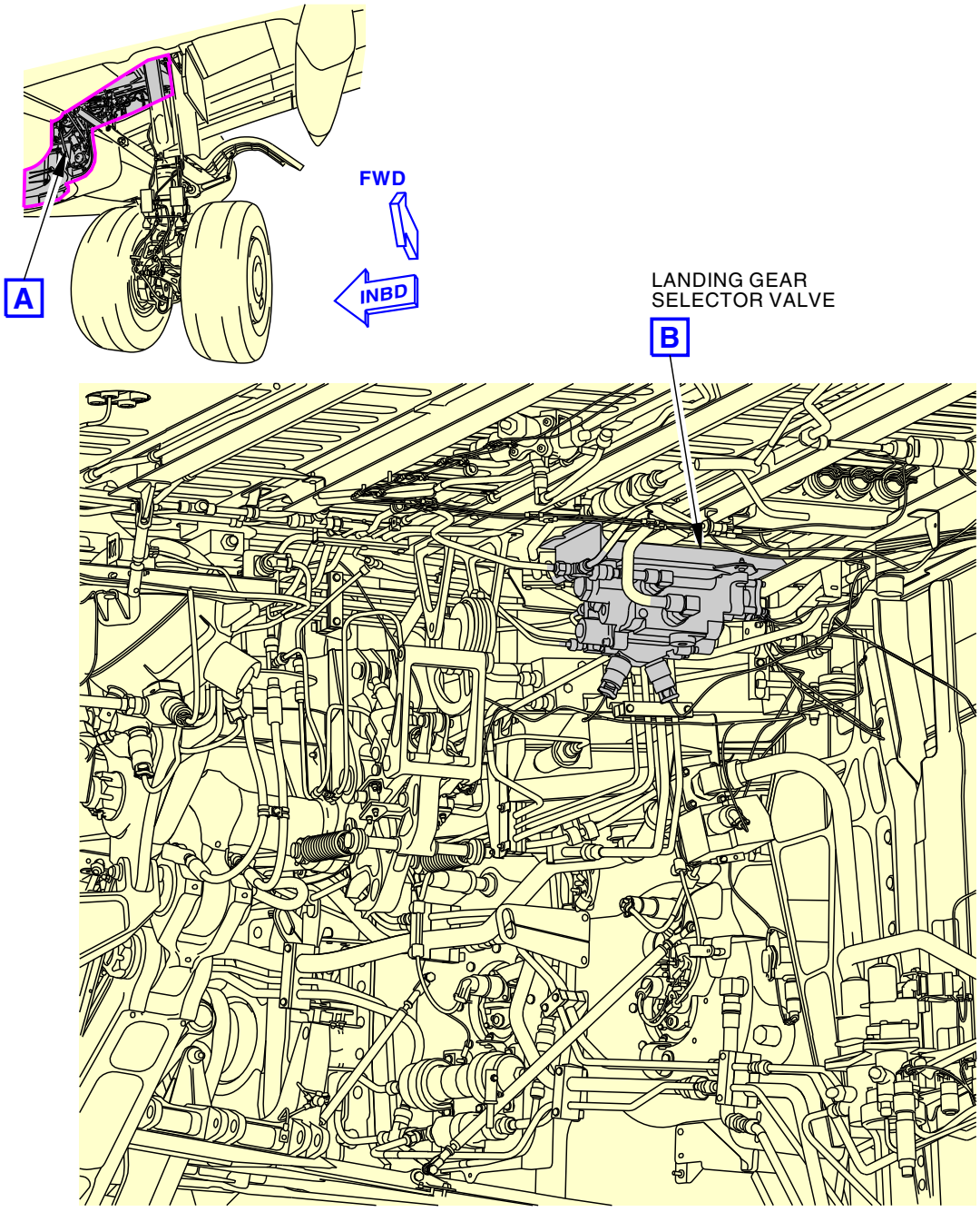
(3) Do a detailed visual examination of the landing gear selector valve secondary end cap.

(a) Look at the visible part of the end cap to make sure there are no leaks or damage.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

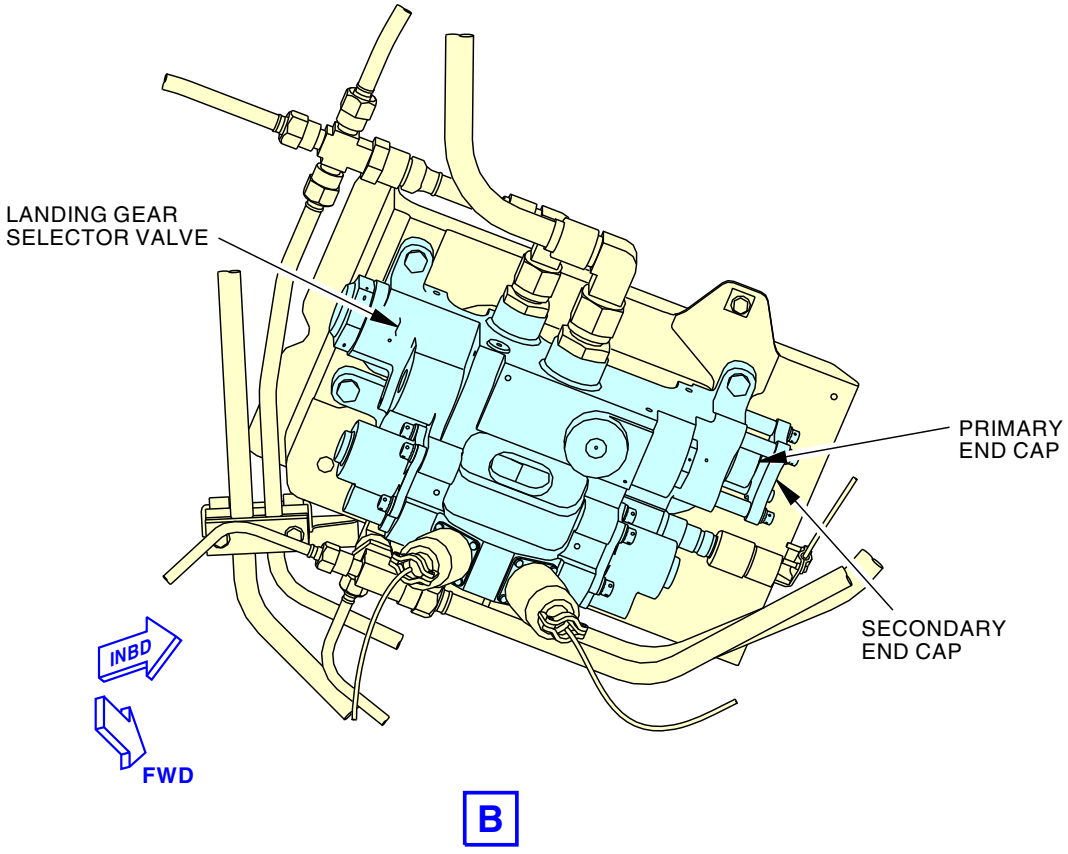
**A**

2536511 S0000602082_V1

**Landing Gear Selector Valve Secondary End Cap Inspection**
**Figure 602/32-31-51-990-803 (Sheet 1 of 2)**



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2546003 S0000605161_V1

**Landing Gear Selector Valve Secondary End Cap Inspection**
**Figure 602/32-31-51-990-803 (Sheet 2 of 2)**



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## LANDING GEAR TRANSFER VALVE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the transfer valve for the landing gear

(2) An installation of the transfer valve for the landing gear

(3) A system test of the transfer valve for the landing gear

(4) An operational test of the transfer valve for the landing gear.

**TASK 32-31-71-020-801**

### 2. Landing Gear Transfer Valve Removal

(Figure 401)

**A. General**

(1) The landing gear transfer valve is referred to as the valve assembly in this task.

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**D. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**E. Prepare for the Removal**

**SUBTASK 32-31-71-480-005**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-31-71-860-001**

(2) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |


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SUBTASK 32-31-71-860-002

(3) Remove the pressure from hydraulic system A and B (TASK 29-09-00-860-802).

SUBTASK 32-31-71-580-001

(4) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

## F. Landing Gear Transfer Valve Removal

SUBTASK 32-31-71-020-001

(1) Disconnect the electrical connector [11] from the valve assembly [1].

SUBTASK 32-31-71-930-001

(2) Put tags on the hydraulic lines [2] to identify the correct locations of the lines.

SUBTASK 32-31-71-020-002

(3) Disconnect the hydraulic lines [2] from the valve assembly [1].

SUBTASK 32-31-71-480-002

(4) Install caps/plugs, STD-14686, on the hydraulic lines [2] and ports on the valve assembly [1].

SUBTASK 32-31-71-020-003

(5) Remove the bolt [5], washer [6], and washer [8] to disconnect the jumper assembly [7] from the valve assembly [1].

SUBTASK 32-31-71-020-004

(6) Remove the washers [12] and bolts [13] that attach the valve assembly [1] to the support bracket [9].

SUBTASK 32-31-71-020-005

(7) Remove the valve assembly [1] from the airplane.

SUBTASK 32-31-71-080-001

(8) Remove the caps/plugs, STD-14686, from the ports on the valve assembly [1] and drain the hydraulic fluid.

SUBTASK 32-31-71-020-006

(9) Do these steps if the replacement valve assembly [1] does not have unions [10] or reducer [3] installed:

(a) Remove the unions [10] and reducer [3].

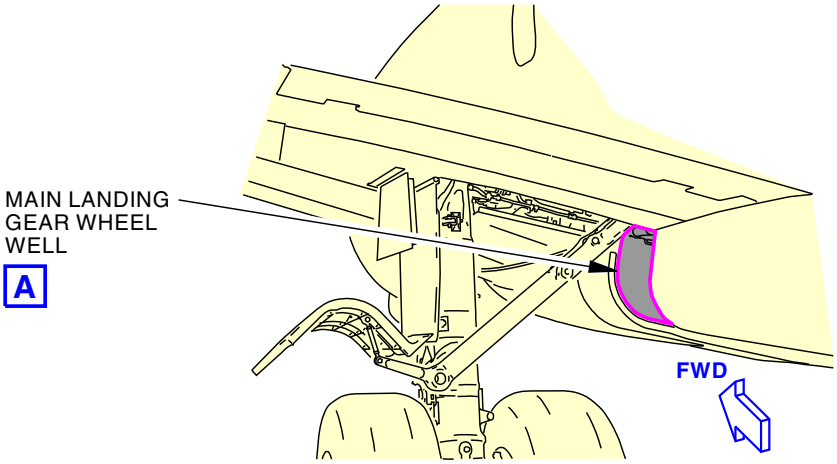
(b) Remove and discard the packings [4].

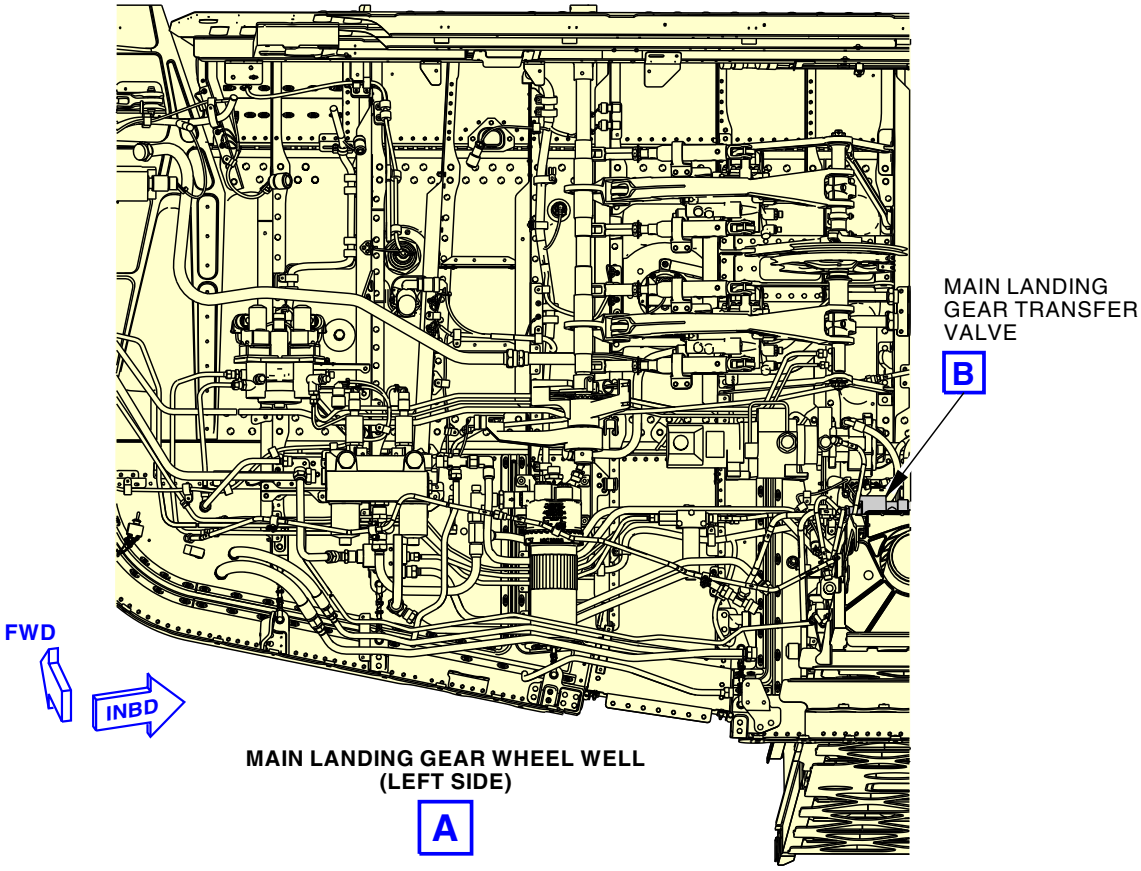
(c) Install caps/plugs, STD-14686, in the ports on the valve assembly [1].

——— END OF TASK ———



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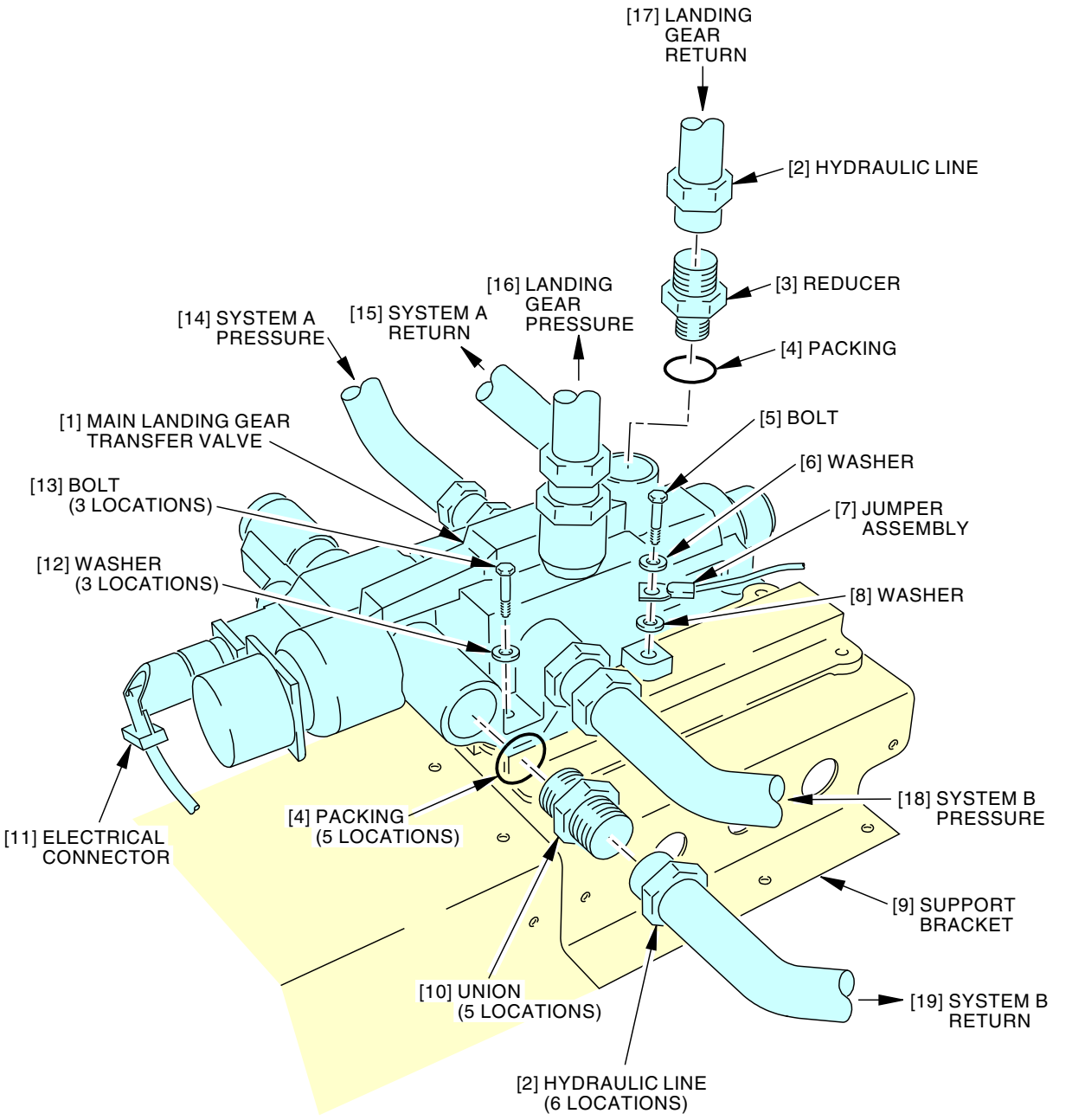




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**Main Landing Gear Transfer Valve Installation**
**Figure 401/32-31-71-990-801 (Sheet 1 of 2)**



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**MAIN LANDING GEAR TRANSFER VALVE**

**B**

2414243 S00061534693_V3

**Main Landing Gear Transfer Valve Installation**
**Figure 401/32-31-71-990-801 (Sheet 2 of 2)**



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**TASK 32-31-71-400-801**

## 3. Landing Gear Transfer Valve Installation

(Figure 401)

### A. General

(1) After the installation task for the landing gear transfer valve assembly, perform the operational test.

### B. References

| Reference | Title |
|---|---|
| 20-10-34-120-801 | Hand Clean Metal Surfaces with Abrasives (P/B 701) |
| 20-10-37-120-801 | Electrical Bonding Inspection (P/B 601) |
| 29-00-00-870-801 | Bleed the Hydraulic Systems (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 51-22-00-390-806 | Fillet Seal Application (P/B 201) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A02315 | Sealant - Low Density, Synthetic Rubber. 2 Part | BMS5-142 Type II |
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |


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**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Valve assembly | 32-31-71-01-045 | SIA ALL |
| 4 | Packing | 32-31-71-01-060 | SIA ALL |

**F. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**G. Landing Gear Transfer Valve Installation**

SUBTASK 32-31-71-420-001

(1) Do these steps if the replacement valve assembly [1] does not have the unions [10] or reducer [3] installed:

(a) Lubricate these items with hydraulic fluid, D00153:

1) The new packings [4]

2) The reducer [3]

3) The unions [10].

(b) Remove the caps/plugs, STD-14686, from the ports on the valve assembly [1].

(c) Install the packings [4], reducer [3], and unions [10] on the valve assembly [1].

(d) Tighten the reducer [3] and unions [10] to 360 ±18 in-lb (40.7 ±2.0 N·m).

SUBTASK 32-31-71-100-001

(2) Clean the surface of the support bracket [9], where the valve assembly [1] will be attached (TASK 20-10-34-120-801).

SUBTASK 32-31-71-100-002

(3) Clean the surface of the valve assembly [1] that will attach to the support bracket [9] (TASK 20-10-34-120-801).

SUBTASK 32-31-71-110-001

(4) Apply coating, C00064, to all of the areas that you cleaned on the support bracket [9] and valve assembly [1].

SUBTASK 32-31-71-600-001



**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Apply corrosion inhibiting material, G50136, to the shank and threads of the bolt [5] and bolts [13].

SUBTASK 32-31-71-420-002

(6) Install the bolts [13] and washers [12] that attach the valve assembly [1] to the support bracket [9].



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SUBTASK 32-31-71-100-003

(7) Clean the surface of the valve assembly [1] where the jumper assembly [7] connects (TASK 20-10-34-120-801).

SUBTASK 32-31-71-100-004

(8) Clean the surface of the jumper assembly [7], washer [6], and washer [8] that will attach to the valve assembly [1] (SWPM 20-20-00):

(a) Use Cleaning Procedure 5 to clean the jumper assembly [7], washer [6], and washer [8].

SUBTASK 32-31-71-110-002

(9) Apply coating, C00064, to all of the cleaned areas on the jumper assembly [7] and valve assembly [1].

SUBTASK 32-31-71-420-003

(10) Install the washer [6], washer [8], and bolt [5] to attach the jumper assembly [7] to the valve assembly [1].

SUBTASK 32-31-71-760-001

(11) Measure the electrical bonding resistance between the valve assembly [1] and support bracket [9] (TASK 20-10-37-120-801).

(a) Use an intrinsically safe approved bonding meter, COM-1550.

(b) Make sure that the electrical bonding resistance is 0.001 ohm (1 milliohm) or less.

SUBTASK 32-31-71-420-004

(12) Apply a fillet seal along the edges of the joint between the valve assembly [1] and support bracket [9] (TASK 51-22-00-390-806).

SUBTASK 32-31-71-390-001

(13) Apply a fillet seal of sealant, A02315, to the terminal connections of the jumper assembly [7] (TASK 51-22-00-390-806).

SUBTASK 32-31-71-080-002

(14) Remove the caps/plugs, STD-14686, from the unions [10] and reducer [3] on the valve assembly [1].

SUBTASK 32-31-71-420-005

(15) Connect the hydraulic lines to the valve assembly [1].

(a) Tighten the B-nut on System A Pressure hydraulic line [14] to 700 ±35 in-lb (79 ±4 N·m).

(b) Tighten the B-nut on System A Return hydraulic line [15] to 700 ±35 in-lb (79 ±4 N·m).

(c) Tighten the B-nut on Landing Gear Pressure hydraulic line [16] to 700 ±35 in-lb (79 ±4 N·m).

(d) Tighten the B-nut on Landing Gear Return hydraulic line [17] to 500 ±25 in-lb (56 ±3 N·m).

(e) Tighten the B-nut on System B Pressure hydraulic line [18]to 700 ±35 in-lb (79 ±4 N·m).

(f) Tighten the B-nut on System B Return hydraulic line [19]to 700 ±35 in-lb (79 ±4 N·m).

SUBTASK 32-31-71-840-001

(16) Remove the tags on the hydraulic lines [2] to identify the correct location.

SUBTASK 32-31-71-420-007

(17) Before the electrical connector [11] connections to the valve assembly [1], examine the electrical connector [11] for corrosion.



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**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there is corrosion, correct the problem (SWPM 20-60-03).

(b) Apply D5026NS or ZC-026 compound, G50171, to the connector (SWPM 20-60-03).

(c) Connect the electrical connector [11] to the valve assembly [1].

SUBTASK 32-31-71-860-003

(18) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

SUBTASK 32-31-71-860-023

(19) Do this task: Bleed the Hydraulic Systems, TASK 29-00-00-870-801.

SUBTASK 32-31-71-860-004

(20) For hydraulic systems A and B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-31-71-210-001

(21) Make sure that there are no leaks at the hydraulic line connections.

SUBTASK 32-31-71-710-002

(22) Do the operational test of the valve assembly [1] (TASK 32-31-71-700-801).

**END OF TASK**

**TASK 32-31-71-730-801**

## 4. Landing Gear Transfer Valve System Test

### A. General

(1) This task does an operational test of the transfer valve solenoid, logic check, and transfer valve gear retraction test.

### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-802 | Hydraulic System A or B Pressurization with a Portable Hydraulic Cart (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |



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**C. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**D. Prepare for the Operational Test**

SUBTASK 32-31-71-480-003

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-31-71-860-005

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Lift the airplane on jacks (TASK 07-10-01-580-801).

SUBTASK 32-31-71-860-006

(3) Make sure that these circuit breakers are closed:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 1 | C01316 | ENGINE 1 START LEVER CHAN A |
| B | 3 | C01312 | ENGINE 1 RUN/PWR |
| D | 1 | C04030 | DSP CAPT EFIS CONT PNL |
| D | 2 | C04003 | MULTI FUNCTION PANEL |
| D | 3 | C04026 | DISPLAY LEFT INBOARD |
| D | 4 | C04027 | DISPLAY LEFT OUTBOARD |
| D | 5 | C04023 | DISPLAY DPC 1 PRI |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 9 | C04024 | DISPLAY DPC 2 HOLDUP |
| D | 10 | C04022 | DISPLAY DPC 1 HOLDUP |
| D | 11 | C04025 | DISPLAY DPC 2 PRI |
| E | 10 | C04029 | DISPLAY RIGHT OUTBOARD |


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(Continued)

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 11 | C04028 | DISPLAY RIGHT INBOARD |
| E | 12 | C04002 | MAINT/BITE PANEL |
| E | 13 | C04031 | DSP F/O EFIS CONT PNL |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 6 | C01318 | ENGINE 2 START LEVER CHAN A |
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| E | 12 | C00314 | INDICATOR MASTER DIM SECT 2 |
| F | 11 | C00317 | INDICATOR MASTER DIM SECT 5 |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

**E. Transfer Valve Operational Test**

**SUBTASK 32-31-71-860-010**

(1) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 4 | C04008 | ENGINE 1 ALTN PWR CHAN B |
| A | 5 | C04007 | ENGINE 1 ALTN PWR CHAN A |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 7 | C04010 | ENGINE 2 ALTN PWR CHAN B |
| D | 8 | C04009 | ENGINE 2 ALTN PWR CHAN A |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

**SUBTASK 32-31-71-860-007**

(2) Make sure that the control lever for the landing gear is in the DN position.



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SUBTASK 32-31-71-860-008

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. AILERONS, RUDDER, ELEVATORS, FLAPS, SPOILERS, SLATS, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Remove the landing gear downlock pins (TASK 32-00-01-080-801).

SUBTASK 32-31-71-860-009

(4) Move both Engine No. 1 and No. 2 throttles completely forward.

NOTE: Throttles in the advanced position prevent the landing gear warning (red) lights from remaining on after gear is up and locked.

SUBTASK 32-31-71-710-003

(5) Put the Master Dim and Test switch in the bright position.

SUBTASK 32-31-71-710-004

(6) Set the GND TESTS switch to ENABLE.

NOTE: The switch is located on the P61-4 panel.

SUBTASK 32-31-71-710-005

(7) Supply 3000 ±150 psi (20,684 ±1034 kPa) pressure to the hydraulic systems A and B (TASK 29-11-00-860-802).

SUBTASK 32-31-71-710-006

(8) Start the PSEU LG Transfer Valve test.

(a) Select SYS on the Multi-Function Display Panel.

(b) Select MAINT -> ONBD MAINT -> LINE MAINT -> GROUND TESTS -> ATA SYSTEM 32: PSEU -> OPERATIONAL TEST.

(c) Select LGTV TEST and then select CONTINUE.

(d) Select START TEST from the PSEU LGTV test screen.

(e) Make sure that the display shows TEST CONDITION: PASS.

SUBTASK 32-31-71-710-007

(9) Select STOP FUNCTION from the on-screen display.

SUBTASK 32-31-71-710-042

(10) Move Fuel switches to the ON position.

SUBTASK 32-31-71-710-009

(11) Wait five (5) minutes.

NOTE: This simulates engine running and energizes relay R564 to the PSEU.

SUBTASK 32-31-71-710-043

(12) Select the MAINT DATA PGS tab from the Multi-Function Display.

SUBTASK 32-31-71-710-011

(13) Select PSEU from the Multi-Function Display.

SUBTASK 32-31-71-710-012

(14) Select NEXT PAGE until IO MATRIX is visible.



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SUBTASK 32-31-71-710-013

(15) Make sure that the display shows 1 for D10986 pin 39 (left engine running).

SUBTASK 32-31-71-710-015

(16) Make sure that the display shows 0 for D10984 pin 57 (VALVE OFF).

SUBTASK 32-31-71-710-044

(17) Select MAINT -> ONBD MAINT -> OTHER FUNCTIONS -> SPECIAL FUNCTIONS -> ATA 32: PSEU from the on-screen display.

SUBTASK 32-31-71-710-017

(18) Select AIR/GND OVERRIDE and then select CONTINUE from the on-screen menu.

SUBTASK 32-31-71-710-047

(19) Select CONTINUE after reading through the precautions screen.

SUBTASK 32-31-71-710-018

(20) Select START FUNCTION on the display.

SUBTASK 32-31-71-710-019

(21) Select Set SYS 1 and 2 ON GND from the on-screen menu and then select CONTINUE.

SUBTASK 32-31-71-710-020

(22) Move the NOSE WHEEL STEER switch to the ALT position.

SUBTASK 32-31-71-710-021

(23) Make sure that the display shows 1 for D10984 for pin 57 (VALVE ON).

SUBTASK 32-31-71-710-022

(24) Make sure that the landing gear control lever is in the DN position and 'A' and 'B' hydraulic system are pressurized.

SUBTASK 32-31-71-710-023

(25) Remove pressure from the hydraulic system A through the ground service disconnect.

(a) Keep the hydraulic system B pressurized at 3000 ±150 psi (20,684 ±1034 kPa).

SUBTASK 32-31-71-710-024

(26) Push the LOCK OVRD button.

SUBTASK 32-31-71-710-025

(27) Prepare to measure the landing gear retract/extension times.

NOTE: The landing gear retraction time is measured from the time the landing gear control lever is in the 'UP' position until the gear red lights go off.

SUBTASK 32-31-71-710-027

(28) Move the landing gear control lever to the UP position.

(a) Make sure that the elapsed time from the landing gear control lever UP until all red lights go off is less than 9.0 seconds.

NOTE: The nose landing gear light should go off at least 1 second before the main landing gear lights. The main landing gear lights should go off within 1 second of each other. If these conditions are not true, the timing test should be considered to have FAILED.

SUBTASK 32-31-71-710-028

(29) Make sure that the GEAR does not extend.

SUBTASK 32-31-71-710-030

(30) Make sure that all landing gear green and red lights are off.



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SUBTASK 32-31-71-710-031

(31) Wait 15 seconds.

NOTE: This lets the auto-off trigger and end the gear up command.

SUBTASK 32-31-71-710-032

(32) Supply 3000 ±150 psi (20,684 ±1034 kPa) pressure to the hydraulic system A through the ground service disconnect (TASK 29-11-00-860-802).

(a) Keep the hydraulic system B pressurized at 3000 ±150 psi (20,684 ±1034 kPa).

SUBTASK 32-31-71-710-033

(33) Set the NOSE WHEEL STEER switch to NORM.

SUBTASK 32-31-71-710-034

(34) Select MAINT ->ONBD MAINT -> OTHER FUNCTIONS -> SPECIAL FUNCTIONS -> ATA System 32: PSEU from the on-screen display.

SUBTASK 32-31-71-710-035

(35) Select AIR/GND OVERRIDE and then select CONTINUE from the on-screen menu.

SUBTASK 32-31-71-710-048

(36) Select CONTINUE after reading through the precautions screen.

SUBTASK 32-31-71-710-036

(37) Select START FUNCTION on the display.

SUBTASK 32-31-71-710-045

(38) Select RESET OVERRIDE on the display.

SUBTASK 32-31-71-710-037

(39) Select STOP FUNCTION from the MFD Test Screen.

SUBTASK 32-31-71-710-038

(40) Make sure that the display shows 0 for D10984 pin 57 (VALVE OFF).

## F. Put the Airplane to Its Usual Condition

SUBTASK 32-31-71-710-040

(1) Move the landing gear control lever to the DN position.

(a) Make sure that the elapsed time from the landing gear control lever DN until all green lights come on is less than 13.0 seconds.

SUBTASK 32-31-71-710-041

(2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-31-71-940-001

**WARNING** MAKE SURE THAT THE GROUND LOCKS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE GROUND LOCKS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(3) Install the landing gear ground locks (TASK 32-00-01-480-801).

SUBTASK 32-31-71-940-002

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



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**(CAUTION PRECEDES)**

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(4) Lower the airplane off the jacks (TASK 07-10-01-580-802).

**SUBTASK 32-31-71-860-015**

(5) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 4 | C04008 | ENGINE 1 ALTN PWR CHAN B |
| A | 5 | C04007 | ENGINE 1 ALTN PWR CHAN A |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 7 | C04010 | ENGINE 2 ALTN PWR CHAN B |
| D | 8 | C04009 | ENGINE 2 ALTN PWR CHAN A |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

**——— END OF TASK ———**

**TASK 32-31-71-700-801**

## 5. Landing Gear Transfer Valve Operational Test

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) This task has the steps to use the Proximity Switch Electronic Unit (PSEU) to do the operational test of the landing gear transfer valve.

### B. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-09-10-740-801 | Proximity Switch Electronics Unit - Operational Test (P/B 501) |
| IFIM and do the applicable procedure(s) | Interactive Fault Isolation Manual |

### C. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### D. Operational Test

**SUBTASK 32-31-71-860-011**

(1) Set the GND TEST switch on the aft overhead maintenance panel, P61, to ENABLE.



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SUBTASK 32-31-71-860-013

(2) Supply Hydraulic System A and System B power. (TASK 29-11-00-860-801)

SUBTASK 32-31-71-710-046

(3) On the MAX Display System (MDS) Multi Function Display (MFD), use the PSEU ground test function to do the LGTV Test (TASK 32-09-10-740-801).

(a) Make these selections on the MFD main function menu:

1) ONBOARD MAINTENANCE
2) LINE MAINTENANCE
3) GROUND TESTS
4) 32 PROXIMITY SWITCH ELECTRONIC UNIT
5) OPERATIONAL TEST
6) LGTV TEST
7) CONTINUE.

(b) Do the instructions that show on the MFD PRECONDITIONS and then make these selections:

NOTE: Make sure that you verify and follow the inhibited conditions instructions closely. If one of the inhibited conditions is not met, the test will be failed.

1) CONTINUE
2) START TEST.

(c) When the test is completed, make sure that the screen displays TEST CONDITION: PASS.

(d) If FAILED shows, go to the IFIM and do the applicable procedure(s).

SUBTASK 32-31-71-860-014

**WARNING** MAKE SURE THAT EQUIPMENT AND PERSONNEL ARE CLEAR OF THE FLIGHT CONTROLS SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For Hydraulic System A and System B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-31-71-860-012

(5) Set the GND TEST switch on the aft overhead maintenance panel, P61, to NORM.

**END OF TASK**



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## LANDING GEAR TRANSFER VALVE - ADJUSTMENT/TEST

### 1. General

A. This procedure has this task:

(1) Alternate landing gear transfer valve operational test.

**TASK 32-31-71-700-802**

### 2. Alternate Landing Gear Transfer Valve Operational Test

#### A. General

(1) This procedure provides the alternate method to do the landing gear transfer valve operational test.

(2) The landing gear control lever module is installed in the P2 panel.

#### B. References

| Reference | Title |
|---|---|
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

#### D. Prepare for the Operational Test

**SUBTASK 32-31-71-480-004**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gears (TASK 32-00-01-480-801).

**SUBTASK 32-31-71-840-002**

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Put the airplane in the Air Mode using the alternate method (TASK 32-09-00-860-801).



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## E. Alternate Landing Gear Transfer Valve Operational Test

SUBTASK 32-31-71-860-016

(1) Pressurize Hydraulic System B (TASK 29-11-00-860-801).

SUBTASK 32-31-71-410-001

(2) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |

SUBTASK 32-31-71-860-019

(3) Move the landing gear control lever to the UP position.

(a) Make sure that the landing gear tries to retract.

NOTE: You will hear the “whoosh” sound and the actuators will strain. This verifies that one of the coil windings is getting power.

SUBTASK 32-31-71-860-020

(4) Move the landing gear control lever to the DN position.

SUBTASK 32-31-71-410-002

(5) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |

SUBTASK 32-31-71-410-003

(6) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

SUBTASK 32-31-71-860-021

(7) Move the landing gear control lever to the UP position.

(a) Make sure that the landing gear tries to retract.

NOTE: You will hear the “whoosh” sound and the actuators will strain. This verifies that one of the coil windings is getting power.

SUBTASK 32-31-71-860-022

(8) Move the landing gear control lever to the DN position.

SUBTASK 32-31-71-410-004

(9) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

## F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-31-71-860-018

(1) Remove pressure from the Hydraulic System B (TASK 29-11-00-860-805).



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SUBTASK 32-31-71-860-017

(2) Return the airplane to the Ground Mode (TASK 32-09-00-860-802).

SUBTASK 32-31-71-840-003

(3) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

(a) Do the servicing if it is necessary.

**END OF TASK**



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## MAIN GEAR EXTENSION AND RETRACTION - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

(1) The first task does an extension/retraction test of the main landing gear after you replaced or adjusted a landing gear component.

(2) The second task does an operational test of the main landing gear.

(3) The third task does an operational test of the transfer valve.

B. The times for gear retraction in the operational test depend on the hydraulic flow rate. The retraction times given in this procedure are based on a minimum flow rate of 19 gpm (72 l/min) at a hydraulic system pressure of 3000 ±150 psi (20,684 ±1034 kPa). Hydraulic pressure can be supplied by a hydraulic test bench to give this minimum flow rate.

NOTE: System losses due to pressure drops and overall hydraulic system internal leakage may require a higher flow rate to achieve optimum retraction times. A hydraulic cart with a higher flow rate capacity is necessary to achieve the stated retraction times.

C. The Electric Motor-Driven Pump (EMDP) can be used for the component replacement test. When you use the EMDP operate only one landing gear at a time. The EMDP gives a hydraulic flow rate of approximately 6 gpm (23 l/min). This lower rate causes slower landing gear operation, especially if you operate more than one gear at the same time. Do not use the EMDP to measure extension/retraction times.

D. The component replacement test is satisfactory in most cases after replacing a landing gear structural or system component. If you are troubleshooting slow landing gear extension, it is recommended to do the operational test.

**TASK 32-32-00-710-801**

### 2. Main Landing Gear Test - Component Replacement

(Figure 501)

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-802 | Hydraulic System A or B Pressurization with a Portable Hydraulic Cart (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-10-740-801 | Proximity Switch Electronics Unit - Operational Test (P/B 501) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 117 | Electrical and Electronics Compartment - Left |
| 118 | Electrical and Electronics Compartment - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |



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## C. Prepare for the Test

SUBTASK 32-32-00-480-001

> **WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-32-00-580-001

> **CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

> **CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-32-00-860-003

(3) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-32-00-860-004

(4) Make sure that the control lever for the landing gear is in the DN position.

SUBTASK 32-32-00-080-001

(5) Remove the downlock pin from the main landing gear that you will test (TASK 32-00-01-080-801).

SUBTASK 32-32-00-860-005

(6) Make sure that all the gear red lights on the P2-3 panel are off.



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SUBTASK 32-32-00-860-006

(7) Make sure that all the gear green lights on the P2-3 panel are on.

SUBTASK 32-32-00-860-007

(8) For hydraulic system A, do this task: Hydraulic System A or B Pressurization with a Portable Hydraulic Cart, TASK 29-11-00-860-802.

SUBTASK 32-32-00-860-008

**WARNING**

MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(9) Move the two thrust levers to the full forward position.

NOTE: Throttles in the advanced position prevent the landing gear warning (red) lights from remaining on after gear is up and locked.

## D. Main Landing Gear Test - Component Replacement (Normal Extension and Retraction)

SUBTASK 32-32-00-860-024

(1) If component replacements for the landing gear selector valve, the gear lever or PSEU are necessary, then do these steps:

Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

(a) Cycle the gear on Landing Gear Control 1:

**WARNING**

MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE MAIN LANDING GEAR. FAST MOVEMENT OF THE MAIN LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Move the control lever for the landing gear to UP and make sure that the landing gear retracts.

NOTE: Do not use the lever lock override trigger.

2) Make sure that the green and red lights for the landing gear you retracted are off.

3) Move the control lever to the DN position and make sure that the landing gear extends.

4) Make sure that the landing gear is down and locked.

5) Make sure that the three green lights are on and the three red lights are off for the landing gear.

(b) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

(c) Cycle the gear on Landing Gear Control 2:



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1) Make sure that this circuit breaker is open and has safety tag:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

**WARNING** MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE MAIN LANDING GEAR. FAST MOVEMENT OF THE MAIN LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

2) Move the control lever for the landing gear to UP and make sure that the landing gear retracts.

NOTE: Do not use the lever lock override trigger.

3) Make sure that the green and red lights for the landing gear you retracted are off.

4) Move the control lever to the DN position and make sure that the landing gear extends.

5) Make sure that the landing gear is down and locked.

6) Make sure that the three green lights are on and the three red lights are off for the landing gear.

7) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |

**SUBTASK 32-32-00-860-025**

(2) If component replacements for an actuator or hydraulic component are necessary, then do these steps:

(a) Cycle the gear a minimum of 6 times to try to get the air out. To cycle the gear, do these steps:

**WARNING** MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE MAIN LANDING GEAR. FAST MOVEMENT OF THE MAIN LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Move the control lever for the landing gear to UP and make sure that the landing gear retracts.

NOTE: Do not use the lever lock override trigger.

2) Make sure that the green and red lights for the landing gear you retracted are off.

3) Move the control lever to the DN position and make sure that the landing gear extends.

4) Make sure that the landing gear is down and locked.

5) Make sure that the three green lights are on and the three red lights are off for the landing gear.

**SUBTASK 32-32-00-480-002**

(3) Install the down lock pin in the main landing gear that you tested (TASK 32-00-01-480-801).



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SUBTASK 32-32-00-580-002

CAUTION

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

CAUTION

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(4) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

SUBTASK 32-32-00-860-010

(5) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-32-00-860-011

(6) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-32-00-070-001

(7) To do a check of the PSEU for stored faults with the SELF-TEST, do this task: Proximity Switch Electronics Unit - Operational Test, TASK 32-09-10-740-801.

**——— END OF TASK ———**

**TASK 32-32-00-710-802**

## 3. Main Landing Gear - Operational Test

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 12-15-31-610-802 | Main Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |


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(Continued)

| Reference | Title |
|---|---|
| 29-11-00-860-802 | Hydraulic System A or B Pressurization with a Portable Hydraulic Cart (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 117 | Electrical and Electronics Compartment - Left |
| 118 | Electrical and Electronics Compartment - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**C. Prepare for the Test**

**SUBTASK 32-32-00-860-026**

**WARNING** MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE MAIN LANDING GEAR. FAST MOVEMENT OF THE MAIN LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Move the control lever to the DN position.

**SUBTASK 32-32-00-480-003**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-32-00-710-034**

(3) Make sure that the shock struts' pressure of the main landing gear is correct (TASK 12-15-31-610-802).

**SUBTASK 32-32-00-580-003**

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(4) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.


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SUBTASK 32-32-00-860-013

(5) Make sure that these circuit breakers are closed:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 3 | C01312 | ENGINE 1 RUN/PWR |
| D | 1 | C04030 | DSP CAPT EFIS CONT PNL |
| D | 2 | C04003 | MULTI FUNCTION PANEL |
| D | 3 | C04026 | DISPLAY LEFT INBOARD |
| D | 4 | C04027 | DISPLAY LEFT OUTBOARD |
| D | 5 | C04023 | DISPLAY DPC 1 PRI |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 9 | C04024 | DISPLAY DPC 2 HOLDUP |
| D | 10 | C04022 | DISPLAY DPC 1 HOLDUP |
| D | 11 | C04025 | DISPLAY DPC 2 PRI |
| E | 10 | C04029 | DISPLAY RIGHT OUTBOARD |
| E | 11 | C04028 | DISPLAY RIGHT INBOARD |
| E | 12 | C04002 | MAINT/BITE PANEL |
| E | 13 | C04031 | DSP F/O EFIS CONT PNL |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 12 | C00314 | INDICATOR MASTER DIM SECT 2 |
| F | 11 | C00317 | INDICATOR MASTER DIM SECT 5 |
| F | 13 | C01179 | INDICATOR MASTER DIM SECT 7 |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 1 | C01958 | NETWORK FILE SERVER |
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

SUBTASK 32-32-00-860-014

(6) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |



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**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-32-00-860-017

(7) Make sure that the control lever for the landing gear is in the DN position.

SUBTASK 32-32-00-860-015

(8) Move the two thrust levers to the full forward position.

SUBTASK 32-32-00-860-016

(9) Put the master dim and test switch in the bright position.

SUBTASK 32-32-00-080-002

(10) Remove the downlock pins from the nose and main landing gear (TASK 32-00-01-080-801).

SUBTASK 32-32-00-860-018

(11) Make sure that all the gear red lights on the P2-3 panel are off.

SUBTASK 32-32-00-860-019

(12) Make sure that all the gear green lights on the P2-3 and P5 aft overhead panel are on.

SUBTASK 32-32-00-860-020

(13) For hydraulic system A, do this task: Hydraulic System A or B Pressurization with a Portable Hydraulic Cart, TASK 29-11-00-860-802.

## D. Main Landing Gear (Normal Extension and Retraction) Operational Test

SUBTASK 32-32-00-710-003

**WARNING** MAKE SURE THAT THE AREA AROUND THE MAIN LANDING GEAR IS CLEAR OF PERSONNEL, AND EQUIPMENT. THE DOORS CLOSE QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) Move the control lever for the landing gear to UP and measure the time for the retraction.

NOTE: Measure the landing gear retraction time from the time the control lever is put in the UP position until all the landing gear red "disagree" lights go off.

NOTE: Do not use the lever lock override trigger during the operational test.

NOTE: Do not use the Electric Motor-Driven Pump (EMDP) to measure extension / retraction times.

(a) Make sure that the landing gear is up-and-locked in 9.0 seconds or less.

SUBTASK 32-32-00-860-021

(2) Make sure that the three green lights and three red lights for the landing gear are off.



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SUBTASK 32-32-00-710-004

(3) Move the control lever to the DN position and measure the time for extension.

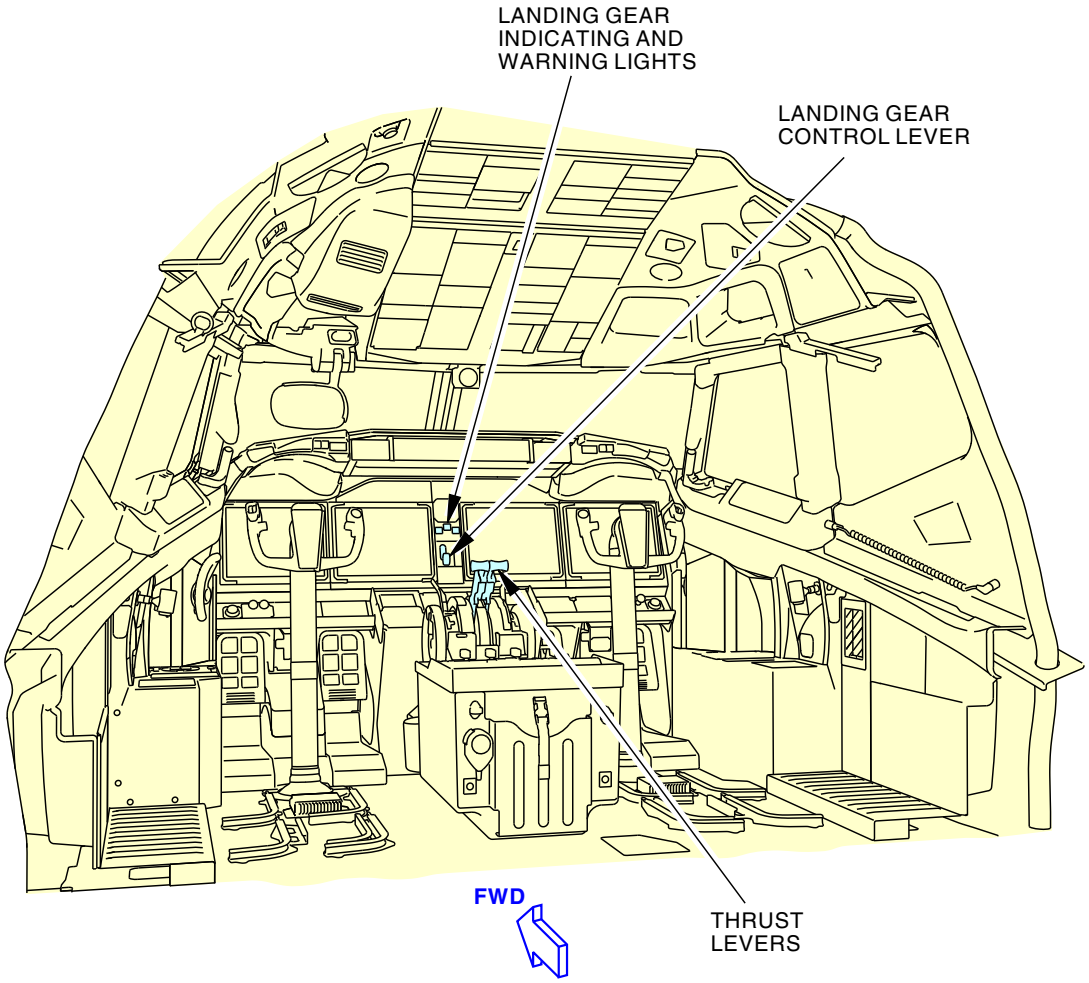
NOTE: Measure the landing gear extension time from the time the control lever is put in the DN position until all the landing gear green lights come on.

(a) Make sure that the landing gear is down and locked in 13.0 seconds or less.

——— END OF TASK ———



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**FLIGHT COMPARTMENT**

2414020 S00061534175_V1

**Main Gear Extension and Retraction Test**
**Figure 501/32-32-00-990-801**



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TASK 32-32-00-710-803

## 4. Transfer Valve - Operational Test

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 29-11-00-860-802 | Hydraulic System A or B Pressurization with a Portable Hydraulic Cart (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### C. Prepare for the Test

SUBTASK 32-32-00-710-005

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-32-00-710-006

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-32-00-710-007

(3) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 1 | C01316 | ENGINE 1 START LEVER CHAN A |
| B | 3 | C01312 | ENGINE 1 RUN/PWR |
| D | 1 | C04030 | DSP CAPT EFIS CONT PNL |
| D | 2 | C04003 | MULTI FUNCTION PANEL |
| D | 3 | C04026 | DISPLAY LEFT INBOARD |
| D | 4 | C04027 | DISPLAY LEFT OUTBOARD |
| D | 5 | C04023 | DISPLAY DPC 1 PRI |


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**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 9 | C04024 | DISPLAY DPC 2 HOLDUP |
| D | 10 | C04022 | DISPLAY DPC 1 HOLDUP |
| D | 11 | C04025 | DISPLAY DPC 2 PRI |
| E | 10 | C04029 | DISPLAY RIGHT OUTBOARD |
| E | 11 | C04028 | DISPLAY RIGHT INBOARD |
| E | 12 | C04002 | MAINT/BITE PANEL |
| E | 13 | C04031 | DSP F/O EFIS CONT PNL |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 6 | C01318 | ENGINE 2 START LEVER CHAN A |
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 15 | C01401 | LANDING GEAR AIR/GND RELAY |
| E | 12 | C00314 | INDICATOR MASTER DIM SECT 2 |
| F | 11 | C00317 | INDICATOR MASTER DIM SECT 5 |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 1 | C01958 | NETWORK FILE SERVER |
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |

**SUBTASK 32-32-00-710-008**

(4) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 4 | C04008 | ENGINE 1 ALTN PWR CHAN B |
| A | 5 | C04007 | ENGINE 1 ALTN PWR CHAN A |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 7 | C04010 | ENGINE 2 ALTN PWR CHAN B |
| D | 8 | C04009 | ENGINE 2 ALTN PWR CHAN A |



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**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

**D. Transfer Valve - Operational Test**

SUBTASK 32-32-00-710-009

(1) Do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

SUBTASK 32-32-00-710-010

(2) Move the two engine throttles fully forward.

NOTE: Throttles in the advanced position prevent the landing gear warning (red) lights from remaining on after gear is up and locked.

SUBTASK 32-32-00-710-011

(3) Put the Master Dim and Test switch in the bright position.

SUBTASK 32-32-00-710-012

(4) Supply hydraulic power to the hydraulic systems A and B (TASK 29-11-00-860-802).

SUBTASK 32-32-00-710-013

(5) Set the GND TESTS switch to ENABLE.

NOTE: The switch is on the P61-4 panel.

SUBTASK 32-32-00-710-014

(6) Start the PSEU LG Transfer Valve Test:

(a) Select SYS on the MFD (Multi Function Display) Panel.

(b) Select MAINT-> ONBD MAINT -> LINE MAINT ->GROUND TESTS -> ATA SYSTEM 32: PSEU -> OPERATIONAL TEST.

(c) Select LGTV TEST -> CONTINUE.

(d) Select START TEST from the PSEU LGTV test screen.

(e) Make sure that the screen displays 'TEST CONDITION: PASS'.

(f) Select RETURN AIRPLANE TO NORMAL from the on-screen display.

SUBTASK 32-32-00-710-015

(7) Set the Fuel Switches to the ON position.

NOTE: This applies if there is a replacement of an engine, the PSEU or the DPC. This does not apply to the selector valve, hydraulics or the landing gear lever.

(a) Wait 5 minutes.

NOTE: This simulates Engine Running and energizes relay R564 to the PSEU.

SUBTASK 32-32-00-710-016

(8) Select the MAINT DATA PGS tab from the MFD.

(a) Select PSEU.

(b) Select NEXT PAGE until I/O MATRIX shows.

(c) Make sure the display shows 1 for D10986 pin 39 (left engine running).

(d) Make sure the display shows 0 for D10984 pin 57 (valve off).



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SUBTASK 32-32-00-710-018

(9) Set the Fuel Switches to the OFF position.

NOTE: With the airplane IN AIR and no engine running signal, the Landing Gear Transfer Valve will set and the system will retract on B pressure alone.

SUBTASK 32-32-00-710-019

(10) Make sure the display shows 1 for D10984 pin 57 (valve on).

SUBTASK 32-32-00-710-020

(11) Make sure that the landing control lever is in the DN position.

(a) Make sure that the hydraulic systems A and B are pressurized.

SUBTASK 32-32-00-710-021

(12) Remove the pressure from the hydraulic system A.

(a) Keep the hydraulic system B pressure (TASK 29-11-00-860-805).

SUBTASK 32-32-00-710-023

(13) Prepare to measure landing gear retraction/extension times.

NOTE: Landing gear retraction time is measured from the time that the gear control lever is in the 'UP' position until all red lights are off.

SUBTASK 32-32-00-710-024

(14) Move the landing gear control lever to the UP position.

(a) Make sure that the elapsed time from gear lever UP until all red lights are off is less than 9.0 seconds.

SUBTASK 32-32-00-710-025

(15) Move the landing gear control lever to the DN position.

(a) Make sure that the gear does not extend.

SUBTASK 32-32-00-710-026

(16) Move the landing gear control lever to the UP position.

(a) Make sure that all landing gear green and red lights are off.

SUBTASK 32-32-00-710-028

(17) Supply pressure to the hydraulic system A (TASK 29-11-00-860-802).

(a) Keep the hydraulic system B pressurized at 3000 psi (20,684 kPa).

SUBTASK 32-32-00-710-030

(18) Make sure the display shows 0 for D10984 pin 57 (valve off).

SUBTASK 32-32-00-710-031

(19) Move the landing gear control lever to the DN position.

(a) Make sure that the elapsed time from gear lever DN until all green lights come on is less than 13.0 seconds.

## E. Put the Airplane Back to Its Usual Condition

SUBTASK 32-32-00-710-032

(1) Remove pressure from the hydraulic systems A and B (TASK 29-11-00-860-805).

(a) Install the downlock pins in all landing gear (TASK 32-00-01-480-801).

**——— END OF TASK ———**



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## MAIN GEAR ACTUATOR ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A removal of the actuator assembly for the main landing gear (referred to as the retract actuator [2])

(2) An installation of the actuator assembly for the main landing gear.

**TASK 32-32-11-000-801**

### 2. Main Gear Actuator Assembly Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1870 | Hoist - Main Landing Gear Retract Actuator<br>Part #: C32028-109 Supplier: 81205<br>Part #: C32028-110 Supplier: 81205<br>Part #: C32028-111 Supplier: 81205<br>Opt Part #: C32028-1 Supplier: 81205<br>Opt Part #: C32028-3 Supplier: 81205<br>Opt Part #: C32028-56 Supplier: 81205<br>Opt Part #: C32028-58 Supplier: 81205<br>Opt Part #: C32028-59 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 551 | Left Wing - Rear Spar To Landing Gear Support Beam |
| 651 | Right Wing - Rear Spar to Landing Gear Support Beam |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

**D. Access Panels**

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |



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(Continued)

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

## E. Prepare for the Removal

SUBTASK 32-32-11-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-32-11-860-001

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-32-11-580-001

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

SUBTASK 32-32-11-010-001

(4) Open the applicable access panels:

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

## F. Main Gear Actuator Assembly Removal

SUBTASK 32-32-11-020-001

(1) Disconnect the hydraulic UP and DN hoses from the retract actuator [2].

SUBTASK 32-32-11-480-002

(2) Install caps/plugs, STD-14686, in the hydraulic hoses.

SUBTASK 32-32-11-480-003

(3) Install the hoist, SPL-1870.

SUBTASK 32-32-11-980-001

(4) Hold the head end of the retract actuator [2] in position with the hoist, SPL-1870.

SUBTASK 32-32-11-020-002

(5) Remove these parts to disconnect the beam hanger [3] from the structure:

(a) pin [5]

(b) nut [6]

(c) washer [7]



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(d) pin [4].

SUBTASK 32-32-11-020-003

(6) Hold the walking beam [1] and retract actuator [2] and remove these parts to disconnect the walking beam [1] from the main gear trunnion:

(a) cotter pin [12], nut [11], washer [10], and bolt [17]

(b) nut [18] and washer [19]

(c) walking beam attach pin [16].

SUBTASK 32-32-11-020-004

(7) Hold the walking beam [1] and retract actuator [2], and remove these parts to disconnect the retract actuator [2] from the main gear trunnion:

(a) cotter pin [12], nut [11], washer [10], and bolt [8]

(b) nut [9] and washer [13]

(c) spacers [14]

(d) actuator attach pin [15].

SUBTASK 32-32-11-020-005

(8) Remove the walking beam [1] and retract actuator [2] with the hoist, SPL-1870.

SUBTASK 32-32-11-080-001

(9) Remove the hoist, SPL-1870, from the walking beam [1] and retract actuator [2].

SUBTASK 32-32-11-020-006

(10) Do these steps to remove the retract actuator [2] from the walking beam [1] and the beam hanger [3]:

(a) Remove the cotter pin [12], nut [11], washer [10], and bolt [17].

(b) Remove the nut [21] and washer [22].

(c) Remove the pin [20].

(d) Remove the retract actuator [2].

SUBTASK 32-32-11-020-007

(11) Do these steps if the replacement retract actuator [2] does not have a restrictor [23] and union [26] installed:

(a) Remove the restrictor [23] and the union [26] from the retract actuator [2].

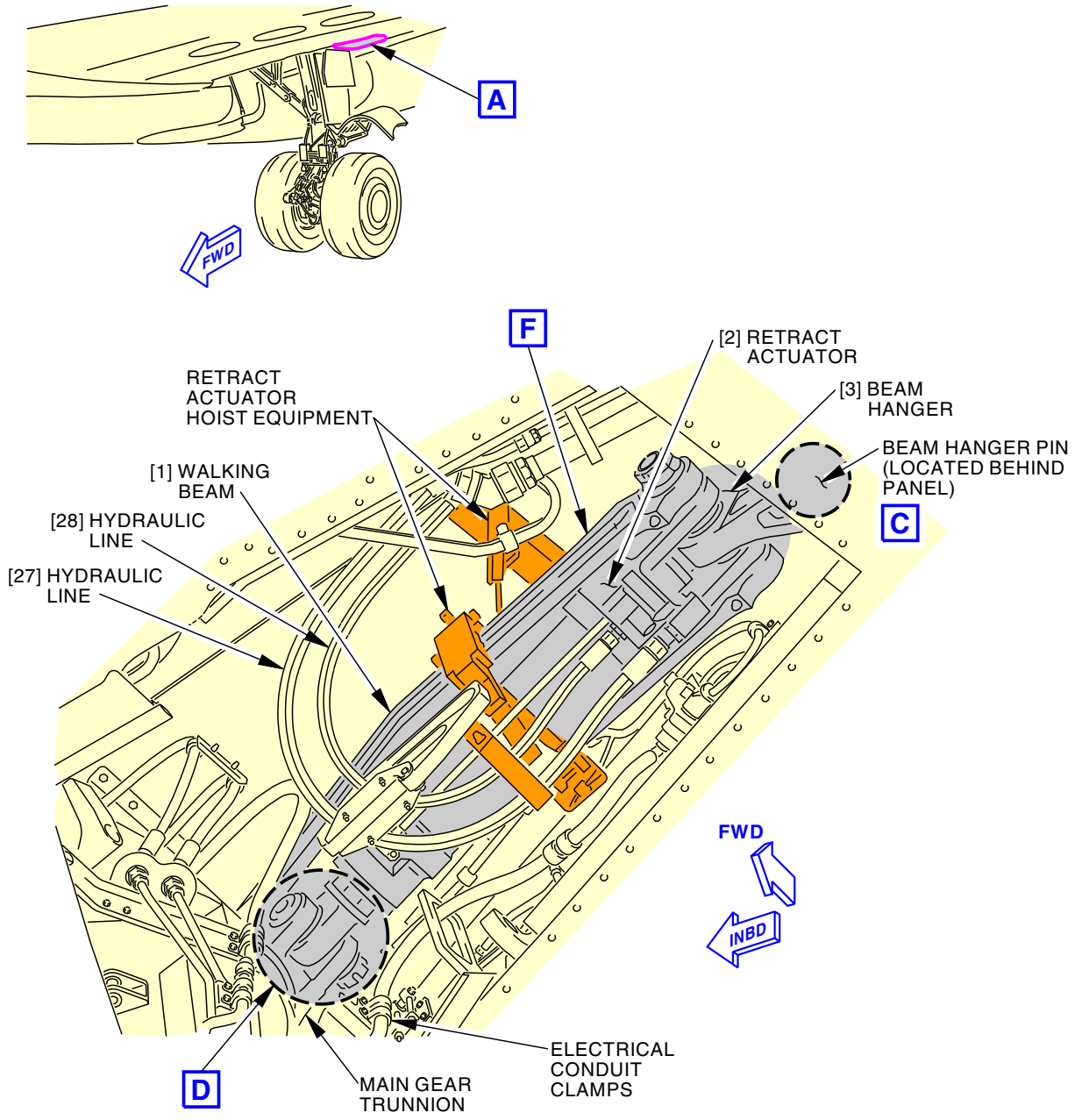
(b) Remove and discard the packing [24] and packing [25].

(c) Install caps/plugs, STD-14686, in the ports on the retract actuator [2].

——— END OF TASK ———



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**MAIN LANDING GEAR ACTUATOR (ACCESS PANEL, OUTER WING DOOR, AND SHOCK STRUT DOOR REMOVED)**

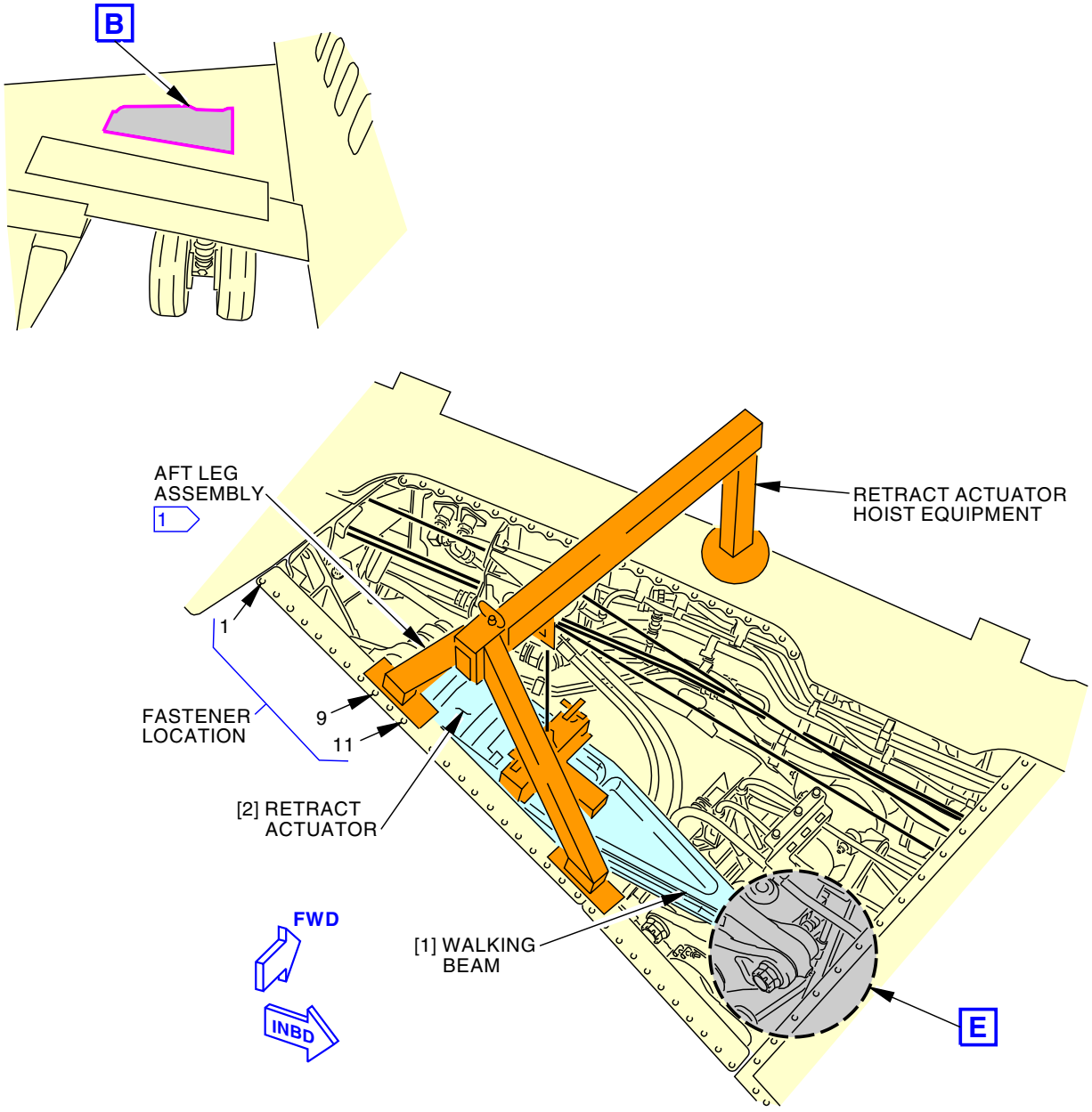
**A**

2414245 S00061534705_V2

**Main Gear Actuator Assembly Installation**
**Figure 401/32-32-11-990-801 (Sheet 1 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**MAIN LANDING GEAR ACTUATOR (ACCESS PANEL REMOVED AND RETRACT ACTUATOR HOIST TOOL INSTALLED)**

1 USE FASTENER LOCATIONS NUMBERS 9 AND 11 FOR THE AFT OUTBOARD LEG OF THE HOIST EQUIPMENT.

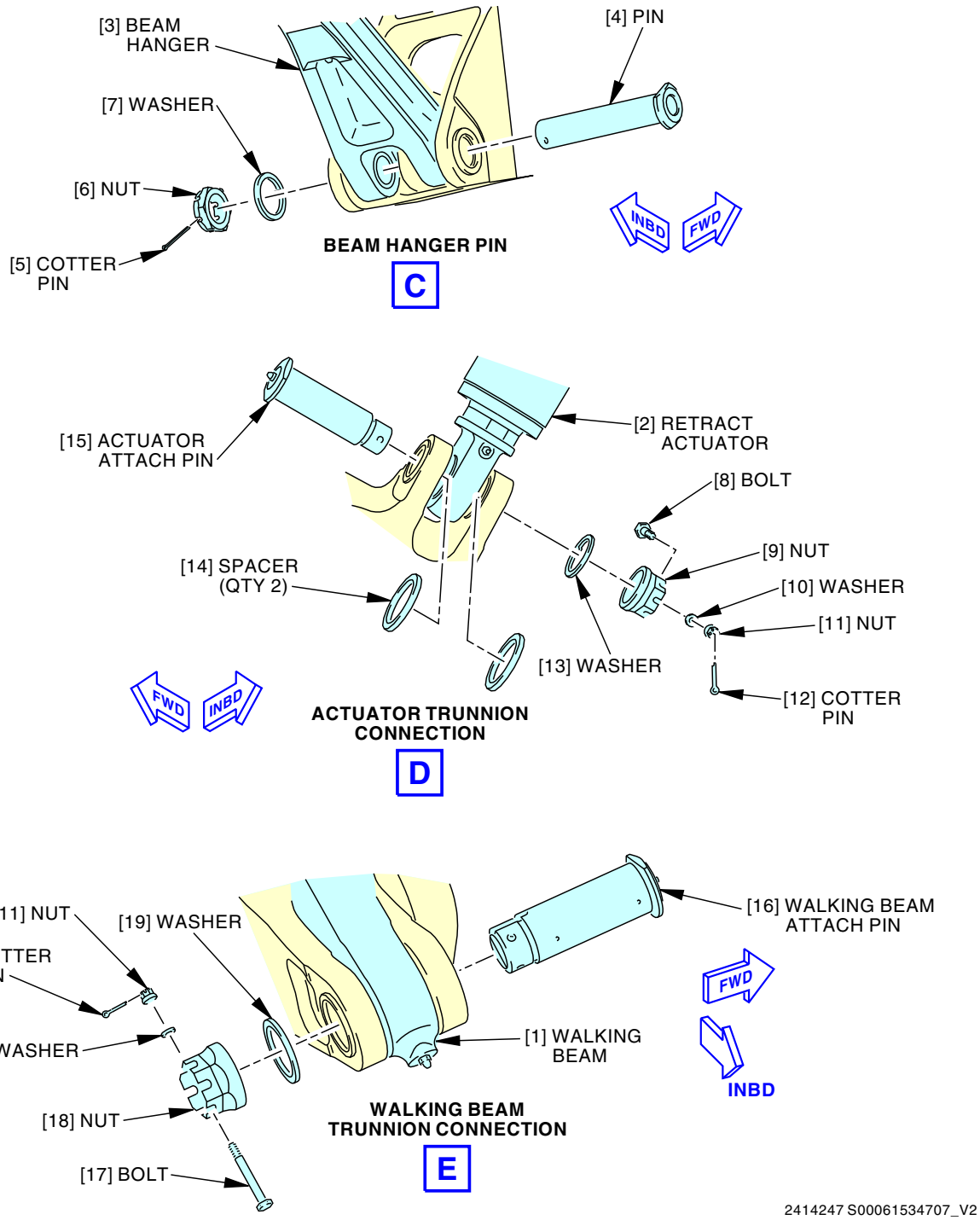
B

2414246 S00061534706_V1

**Main Gear Actuator Assembly Installation**
**Figure 401/32-32-11-990-801 (Sheet 2 of 5)**



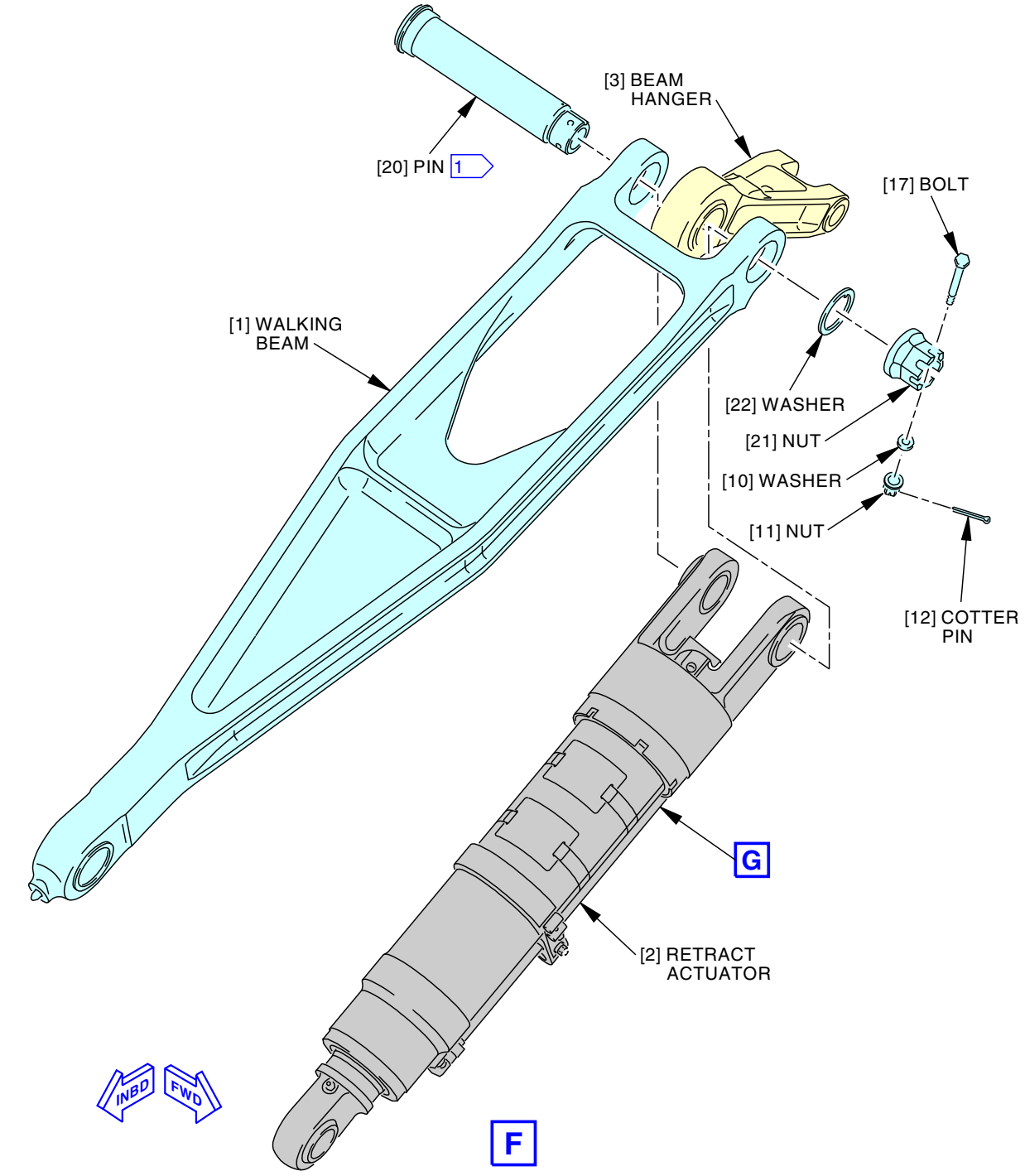
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Gear Actuator Assembly Installation**
**Figure 401/32-32-11-990-801 (Sheet 3 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



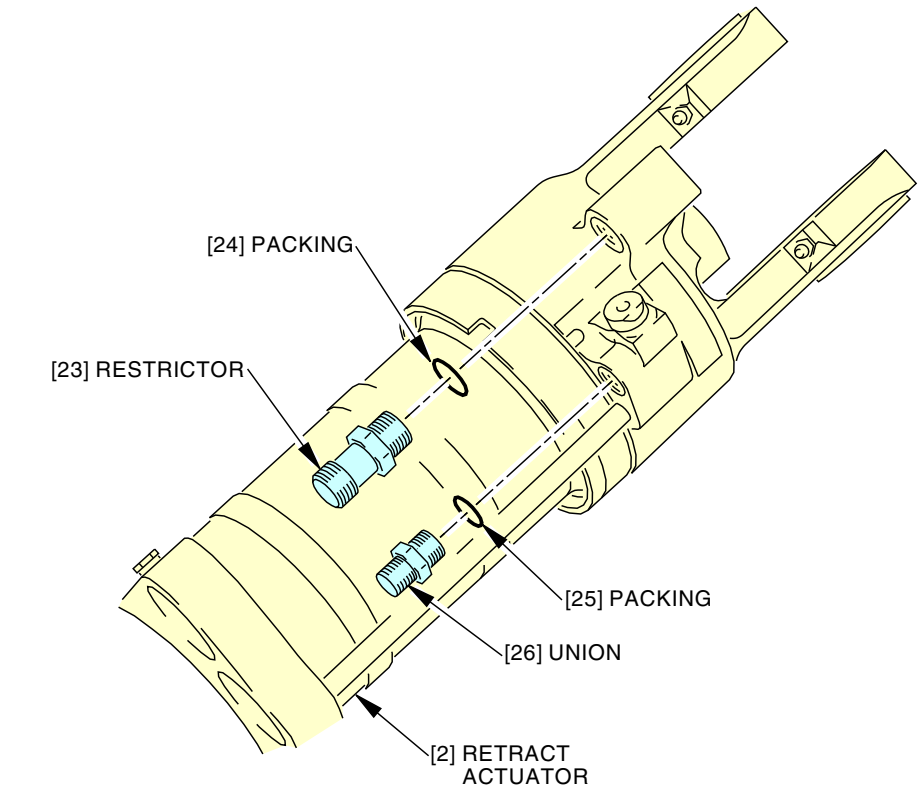

1 MAKE SURE THE HEAD OF THE PIN IS POINTED AFT.

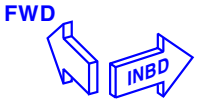
2876729 S0000680290_V2

**Main Gear Actuator Assembly Installation**
**Figure 401/32-32-11-990-801 (Sheet 4 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**RETRACT ACTUATOR**

**G**

2414249 S00061534709_V1

**Main Gear Actuator Assembly Installation**
**Figure 401/32-32-11-990-801 (Sheet 5 of 5)**



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**TASK 32-32-11-400-801**

**3. Main Gear Actuator Assembly Installation**

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-21-11-620-801 | Main Landing Gear Bushings Servicing (P/B 301) |
| 12-21-11-640-801 | Main Landing Gear Upper End Components Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-00-710-801 | Main Landing Gear Test - Component Replacement (P/B 501) |
| 32-32-00-710-802 | Main Landing Gear - Operational Test (P/B 501) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1870 | Hoist - Main Landing Gear Retract Actuator<br>Part #: C32028-109 Supplier: 81205<br>Part #: C32028-110 Supplier: 81205<br>Part #: C32028-111 Supplier: 81205<br>Opt Part #: C32028-1 Supplier: 81205<br>Opt Part #: C32028-3 Supplier: 81205<br>Opt Part #: C32028-56 Supplier: 81205<br>Opt Part #: C32028-58 Supplier: 81205<br>Opt Part #: C32028-59 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 2 | Retract actuator | 32-32-11-01-135 | SIA ALL |
| 5 | Cotter pin | 32-32-93-01-010 | SIA ALL |
| 12 | Cotter pin | 32-32-11-01-010 | SIA ALL |
| | | 32-32-11-01-095 | SIA ALL |



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(Continued)

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 12 (cont.) | | 32-32-93-01-030 | SIA ALL |
| 23 | Restrictor | 32-32-11-01-195 | SIA ALL |
| 24 | Packing | 32-32-11-01-205 | SIA ALL |
| 25 | Packing | 32-32-11-01-200 | SIA ALL |
| 26 | Union | 32-32-11-01-190 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 551 | Left Wing - Rear Spar To Landing Gear Support Beam |
| 651 | Right Wing - Rear Spar to Landing Gear Support Beam |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

**F. Access Panels**

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

**G. Prepare for the Installation**

SUBTASK 32-32-11-100-001

(1) Clean the surfaces of these items that will attach the beam hanger [3] to the structure:
   (a) attachment fitting on the beam hanger [3]
   (b) cotter pin [5], pin [4], washer [7], and nut [6].

SUBTASK 32-32-11-100-002

(2) Clean these items that will attach the retract actuator [2] to the main gear trunnion:
   (a) attachment fitting on the main gear trunnion
   (b) actuator attach pin [15]
   (c) spacers [14], washer [13], and nut [9]
   (d) cotter pin [12], nut [11], washer [10], and bolt [8].

SUBTASK 32-32-11-100-003

(3) Clean the surfaces of these items that will attach the walking beam [1] and retract actuator [2] to the main gear trunnion:
   (a) attachment fitting on the main gear trunnion
   (b) walking beam attach pin [16]
   (c) washer [19] and nut [18]
   (d) cotter pin [12], nut [11], washer [10], and bolt [17].



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SUBTASK 32-32-11-600-001

(4) Apply grease, D00633, to the chrome-plated surfaces of the pin [4], pin [20], actuator attach pin [15], and walking beam attach pin [16].

SUBTASK 32-32-11-600-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Apply a thin layer of corrosion inhibiting material, G50136, to the thread reliefs and threads of the pin [4] and nut [6], faces of the washer [7].

SUBTASK 32-32-11-600-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(6) Apply a thin layer of corrosion inhibiting material, G50136, to these parts:

(a) the faces of the washer [13] and washer [19]

(b) the threads and thread reliefs on the actuator attach pin [15] and walking beam attach pin [16]

(c) the threads and thread reliefs of the bolt [8] and bolt [17], faces of the washers [10], threads and thread reliefs of the nuts [11] and cotter pin [12].

SUBTASK 32-32-11-420-001

(7) Do these steps if the replacement retract actuator [2] does not have the restrictor [23] and union [26] installed:

(a) Lubricate these items with hydraulic fluid, D00153:

1) packing [24]

2) packing [25]

3) restrictor [23]

4) union [26].

(b) Remove the caps/plugs, STD-14686, from the ports on the retract actuator [2].

(c) Install the packing [24], packing [25], restrictor [23], and union [26] in the retract actuator [2].

## H. Main Gear Actuator Assembly Installation

SUBTASK 32-32-11-420-002

(1) Do these steps to connect the retract actuator [2] to the walking beam [1]:

(a) Install the retract actuator [2] between the beam hanger [3] and walking beam [1] with the hydraulic ports down.



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**CAUTION**

MAKE SURE THAT THE HEAD OF THE PIN IS POINTED AFT. THE INCORRECT ORIENTATION OF THE PIN CAN CAUSE DAMAGE TO THE MAIN-LANDING-GEAR (MLG) SUPPORT BEAM.

(b) Install the pin [20].

(c) Install the washer [22] and nut [21].

(d) Tighten the nut [21] to 42.5 ±7.5 ft-lb (57.6 ±10.2 N·m).

(e) If it is necessary, loosen the nut [21] to align the nearest castellation.

(f) Install the bolt [17], washer [10], and nut [11].

(g) Tighten the nut [11] to 62.5 ±12.5 in-lb (7.1 ±1.5 N·m).

(h) If it is necessary, loosen the nut [11] to align the nearest castellation.

(i) Install the cotter pin [12].

**SUBTASK 32-32-11-480-004**

(2) Connect the walking beam [1] and retract actuator [2] to the hoist, SPL-1870.

**SUBTASK 32-32-11-420-003**

(3) Put the beam hanger [3] in its position in the bracket on the structure.

**SUBTASK 32-32-11-420-004**

(4) Install these parts to connect the beam hanger [3] to the bracket on the wing structure:

(a) pin [4], washer [7], and nut [6]

1) Tighten the nut [6] to 600 ±50 in-lb (68 ±6 N·m).

a) If it is necessary, you may tighten by the pin head if access to the nut [6] is restricted.

2) If it is necessary, loosen the nut [6] to align the nearest castellation.

(b) cotter pin [5].

**SUBTASK 32-32-11-420-005**

(5) Install these parts to connect the retract actuator [2] to the main gear trunnion:

(a) actuator attach pin [15], spacers [14], washer [13], and nut [9]

1) Remove the clamps for the electrical conduit on the inboard side of the nut [9] and move the conduit to get clearance to tighten the nut [9].

2) Tighten the nut [9] to 62.5 ±12.5 ft-lb (85 ±17 N·m).

3) If it is necessary, loosen the nut [9] to align the nearest castellation.

(b) bolt [8], washer [10], and nut [11]

1) Tighten the nut [11] to 50 ±5 in-lb (5.6 ±0.6 N·m).

2) If it is necessary, loosen the nut [11] to align the nearest castellation.

(c) cotter pin [12].

**SUBTASK 32-32-11-410-001**

(6) Put the electrical conduit back in its position and install the clamps.

**SUBTASK 32-32-11-420-006**

(7) Hold the walking beam [1], retract actuator [2], and install these parts to connect the walking beam [1] to the main gear trunnion:

(a) walking beam attach pin [16] with the pin head forward



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(b) washer [19], nut [18]

1) Tighten the nut [18] to 62.5 ±12.5 ft-lb (84.7 ±16.9 N·m).

2) If it is necessary, loosen the nut [18] to align the nearest castellation.

(c) bolt [17], washer [10], and nut [11]

1) Tighten the nut [11] to 50 ±5 in-lb (5.6 ±0.6 N·m).

2) If it is necessary, loosen the nut [11] to align the nearest castellation.

(d) cotter pin [12].

SUBTASK 32-32-11-080-002

(8) Remove the hoist, SPL-1870.

SUBTASK 32-32-11-080-003

(9) Remove the caps/plugs, STD-14686, from the hydraulic hoses.

SUBTASK 32-32-11-420-007

(10) Connect the hydraulic UP and DN hoses to the retract actuator [2].

(a) Tighten the B-nut on hydraulic line [27] to 500 ±25 in-lb (56 ±3 N·m).

(b) Tighten the B-nut on hydraulic line [28] to 270 ±14 in-lb (31 ±2 N·m).

## I. Main Gear Actuator Assembly Bleeding (Airplane on Jacks)

SUBTASK 32-32-11-580-002

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**WARNING**

MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROLS SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Lift the airplane for landing gear retraction (TASK 07-10-01-580-801).

SUBTASK 32-32-11-640-005

(2) Lubricate the attach points (TASK 12-21-11-620-801 or TASK 12-21-11-640-801).

SUBTASK 32-32-11-080-004

(3) Remove the downlock pins from the main landing gear (TASK 32-00-01-080-801).

SUBTASK 32-32-11-860-002

(4) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.



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SUBTASK 32-32-11-700-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN THE NOSE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE NOSE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Do a retraction test of the main landing gear, do this task: Main Landing Gear - Operational Test, TASK 32-32-00-710-802 or Main Landing Gear Test - Component Replacement, TASK 32-32-00-710-801.

SUBTASK 32-32-11-480-005

(6) Extend the main landing gear and install the downlock pins (TASK 32-00-01-480-801).

SUBTASK 32-32-11-210-001

(7) Examine the hydraulic connections for leaks.

SUBTASK 32-32-11-210-002

(8) Make sure that there is no interference of the hoses and retract actuator [2] during gear operation.

SUBTASK 32-32-11-860-003

(9) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-32-11-580-003

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(10) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

## J. Main Gear Actuator Assembly Bleeding (Airplane on Ground Without Jacks) Alternate Method

SUBTASK 32-32-11-210-003

(1) Make sure that the hydraulic lines are installed correctly and they are not twisted.

SUBTASK 32-32-11-480-007

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

SUBTASK 32-32-11-600-004

(3) Lubricate the attach points (TASK 12-21-11-620-801 or TASK 12-21-11-640-801).



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SUBTASK 32-32-11-860-004

(4) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-32-11-860-005

(5) Push the override button, and move the control lever for the landing gear from the DN position to the UP position and to the DN position three times.

(a) Hold the control lever in each position for three seconds before you move the control lever to the subsequent position.

SUBTASK 32-32-11-860-006

(6) Move the control lever to the DN position.

SUBTASK 32-32-11-200-001

(7) Make sure that there are no leaks at the hydraulic connections.

SUBTASK 32-32-11-860-009

(8) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-32-11-410-002

(9) Install the hydraulic access panel.

## K. Put the Airplane Back to Its Usual Condition

SUBTASK 32-32-11-410-003

(1) Close the applicable access panel:

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

**END OF TASK**



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# MAIN GEAR RETRACT PRESSURE FUSES - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the retract pressure fuses for the main landing gear

(2) An installation of the retract pressure fuses for the main landing gear

**TASK 32-32-21-000-801**

## 2. Main Gear Retract Pressure Fuses Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### D. Prepare for the Removal

**SUBTASK 32-32-21-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-32-21-860-001**

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-32-21-580-001**

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

### E. Main Gear Retract Pressure Fuse Removal

**SUBTASK 32-32-21-020-001**

(1) Remove the screws [1], washers [2], and clipnuts [3] that hold the hydraulic lines to the structure on the two ends of the retract pressure fuse [4].



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SUBTASK 32-32-21-020-002

(2) Disconnect the hydraulic lines from the retract pressure fuse [4].

SUBTASK 32-32-21-480-002

(3) Install caps/plugs, STD-14686, on the hydraulic lines.

SUBTASK 32-32-21-020-003

(4) Remove the retract pressure fuse [4] from the airplane.

## F. Main Gear Retract Pressure Hydraulic Fuse Functional Test

SUBTASK 32-32-21-720-001

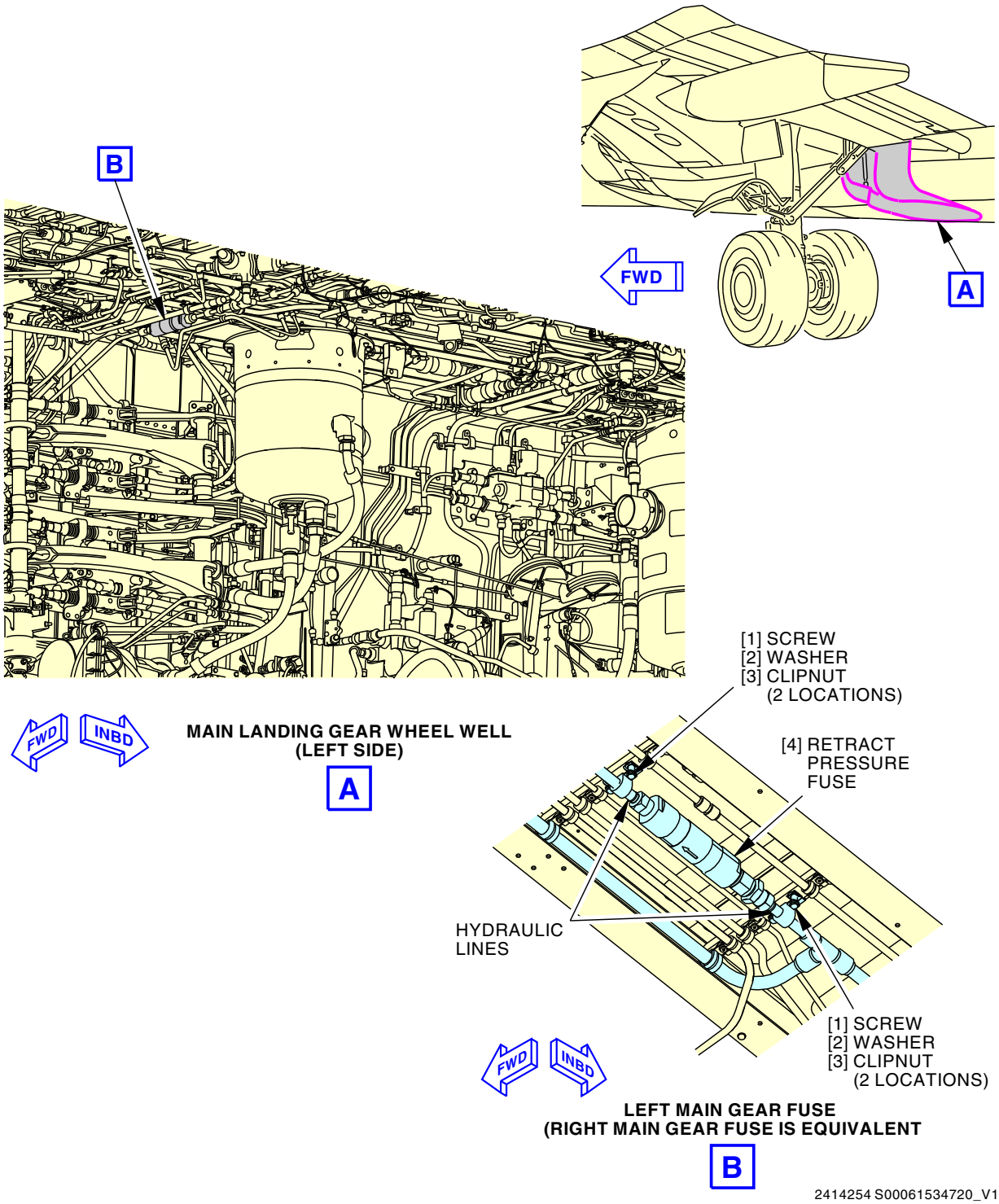
(1) Do the functional test of the retract pressure fuse [4] with the supplier's recommended component maintenance test instructions and test equipment.

NOTE: The supplier's instructions give a reverse flow test, internal leakage test, pressure drop test, volumetric capacity test and reset test for the fuse. This is an off-airplane bench test.

——— END OF TASK ———



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**Main Gear Retract Pressure Fuse Installation**
**Figure 401/32-32-21-990-801**



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**TASK 32-32-21-400-801**

## 3. Main Gear Retract Pressure Fuses - Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Retract pressure fuse | 32-32-21-01-015 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### E. Main Gear Retract Pressure Fuse Installation

**SUBTASK 32-32-21-080-001**

(1) Remove the caps/plugs, STD-14686, from the unions and the hydraulic lines that will connect to the retract pressure fuse [4].

**SUBTASK 32-32-21-420-001**

(2) Put the retract pressure fuse [4] in position to align it with the hydraulic lines.

**SUBTASK 32-32-21-420-002**

(3) Connect the hydraulic lines to the retract pressure fuse [4].

(a) Tighten the B-nuts on the hydraulic lines to 270 ±14 in-lb (31 ±2 N·m).

**SUBTASK 32-32-21-420-003**

(4) Tighten the hydraulic lines.

**SUBTASK 32-32-21-420-004**

(5) Install the screws [1], washers [2], and clipnuts [3] for the clamps that hold the hydraulic lines to the structure on the two ends of the retract pressure fuse [4].



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## F. Main Gear Retract Pressure Fuse Installation Test

SUBTASK 32-32-21-480-003

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-32-21-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-32-21-700-001

(3) Use the override trigger to move the control lever for the landing gear from the DN position to the UP position.

SUBTASK 32-32-21-710-001

(4) Make sure the UP hose of the main gear retract actuator moves to show that hydraulic pressure is applied when the control lever is moved to the UP position.

SUBTASK 32-32-21-700-002

(5) Move the control lever to the DN position.

SUBTASK 32-32-21-700-003

(6) Make sure the DOWN hose on the main gear retract actuator moves when you move the control lever from the UP position to the DN position.

SUBTASK 32-32-21-210-001

(7) Do a check for leakage with the hydraulic pressure applied.

SUBTASK 32-32-21-210-002

(8) Make sure there are no leaks in the hydraulic connections.

SUBTASK 32-32-21-860-003

(9) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-32-21-840-001

(10) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

(a) Do the servicing if it is necessary.

**END OF TASK**



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## MAIN GEAR UPLOCK ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these two tasks:

(1) A removal of the uplock assembly for the main landing gear

(2) An installation of the uplock assembly for the main landing gear.

**TASK 32-32-31-000-801**

### 2. Main Gear Uplock Assembly Removal

(Figure 401, Figure 402)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 10-11-05-500-801 | Chock Installation Winds/Gusts Maximum 40 mph (35 Knots) (P/B 201) |
| 10-11-05-500-802 | Chock Installation in Winds More Than 35 Knots - Handling (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-34-21-000-801 | Main Gear Manual Extension Mechanism Removal (P/B 401) |
| 32-61-21-020-801 | Main Landing Gear Uplock Sensor Removal (P/B 401) |

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

**D. Prepare for the Removal**

SUBTASK 32-32-31-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed in the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-32-31-860-001

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.


ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-32-31-580-001

(3) Install chocks around the tires of the main landing gear (TASK 10-11-05-500-801 or TASK 10-11-05-500-802).

SUBTASK 32-32-31-020-001

(4) Remove the uplock sensors from the uplock assembly [9] (TASK 32-61-21-020-801).

**E. Main Gear Uplock Assembly Removal**

SUBTASK 32-32-31-020-002

(1) Put tags on the two hydraulic lines to show their connection locations.

SUBTASK 32-32-31-020-003

(2) Disconnect the two hydraulic lines from the uplock actuator.

SUBTASK 32-32-31-480-002

(3) Install caps/plugs, STD-14686, in the two hydraulic lines.

SUBTASK 32-32-31-020-021

(4) Disconnect the control rod of the manual extension for the uplock assembly [9] (TASK 32-34-21-000-801).

SUBTASK 32-32-31-020-004

(5) If it is necessary to remove the hanger assembly [19], remove the pins [13], nuts [12], uplock washers [11], and uplock hanger pins [10] to disconnect the hanger assembly [19].

SUBTASK 32-32-31-020-005

(6) Remove the pin [8], nut [7], uplock washer [6], and uplock attach pin [14] to disconnect the uplock assembly [9] from the structure.

SUBTASK 32-32-31-020-006

(7) Remove the uplock assembly [9].

SUBTASK 32-32-31-020-007

(8) Remove the pin [5], nut [4], washer [3], bushing [2], and bolt [1] to disconnect the hanger assembly [19] from the structure.

SUBTASK 32-32-31-020-008

(9) Remove the hanger assembly [19].

SUBTASK 32-32-31-020-009

(10) If the uplock actuator on the replacement uplock assembly does not have hydraulic fittings installed, do these steps:

(a) Remove the union [18] and the restrictor [16] from the uplock actuator.

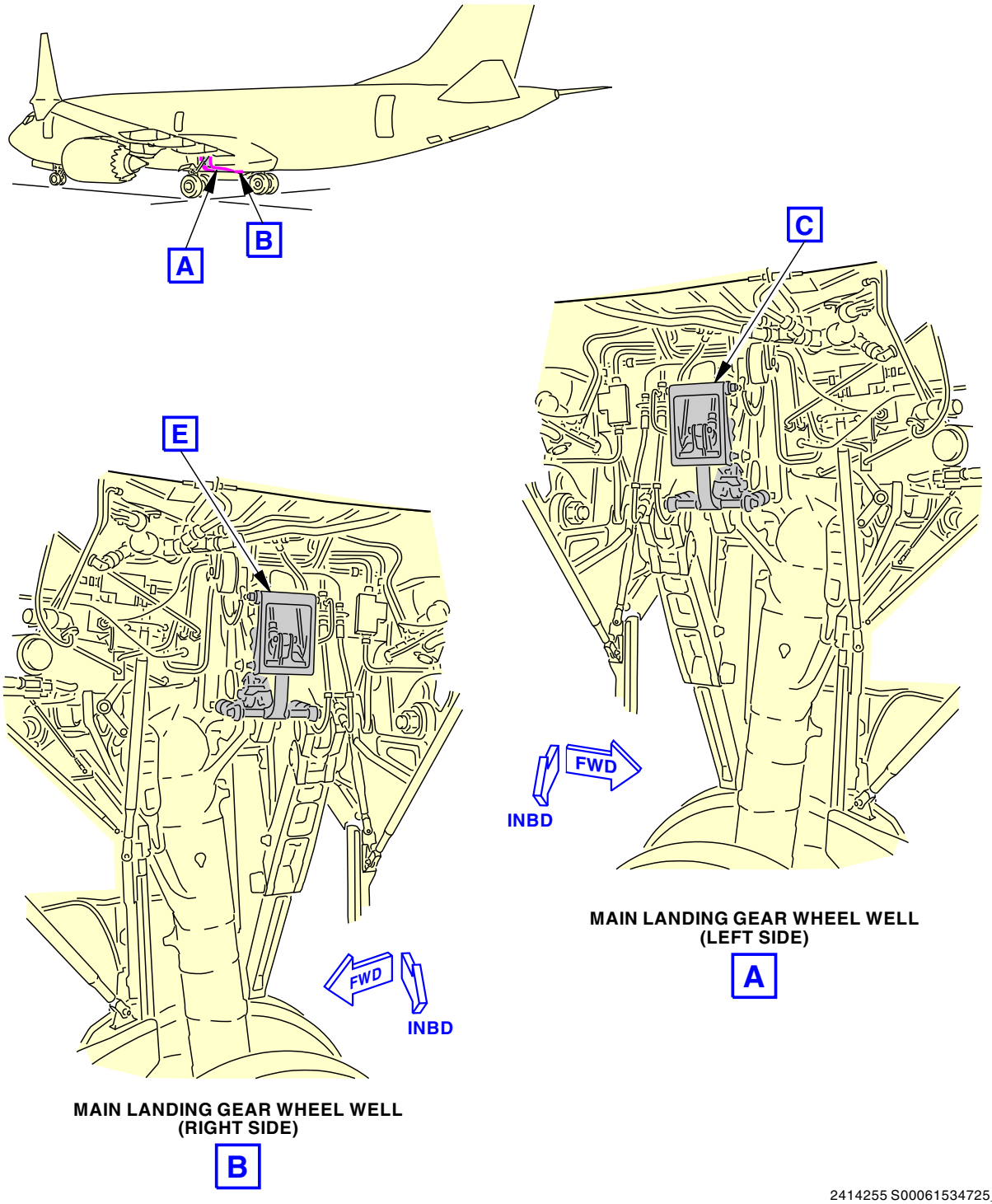
(b) Remove and discard the packing [15], and packing [17].

(c) Install caps/plugs, STD-14686, in the ports on the uplock actuator.

**——— END OF TASK ———**



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MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)

B

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE)

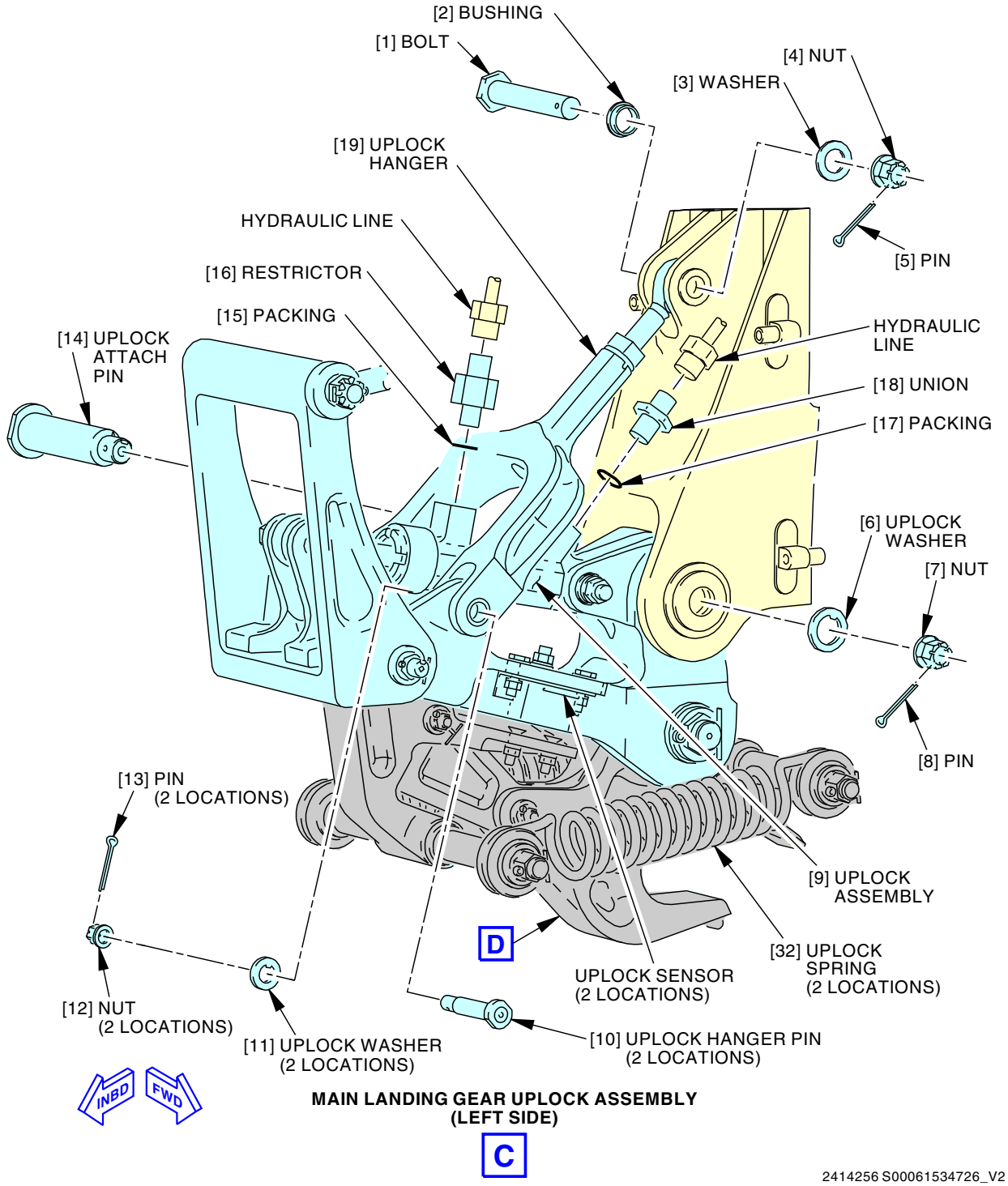
A

2414255 S00061534725_V2

**Main Landing Gear Uplock Assembly Installation**
**Figure 401/32-32-31-990-801 (Sheet 1 of 5)**



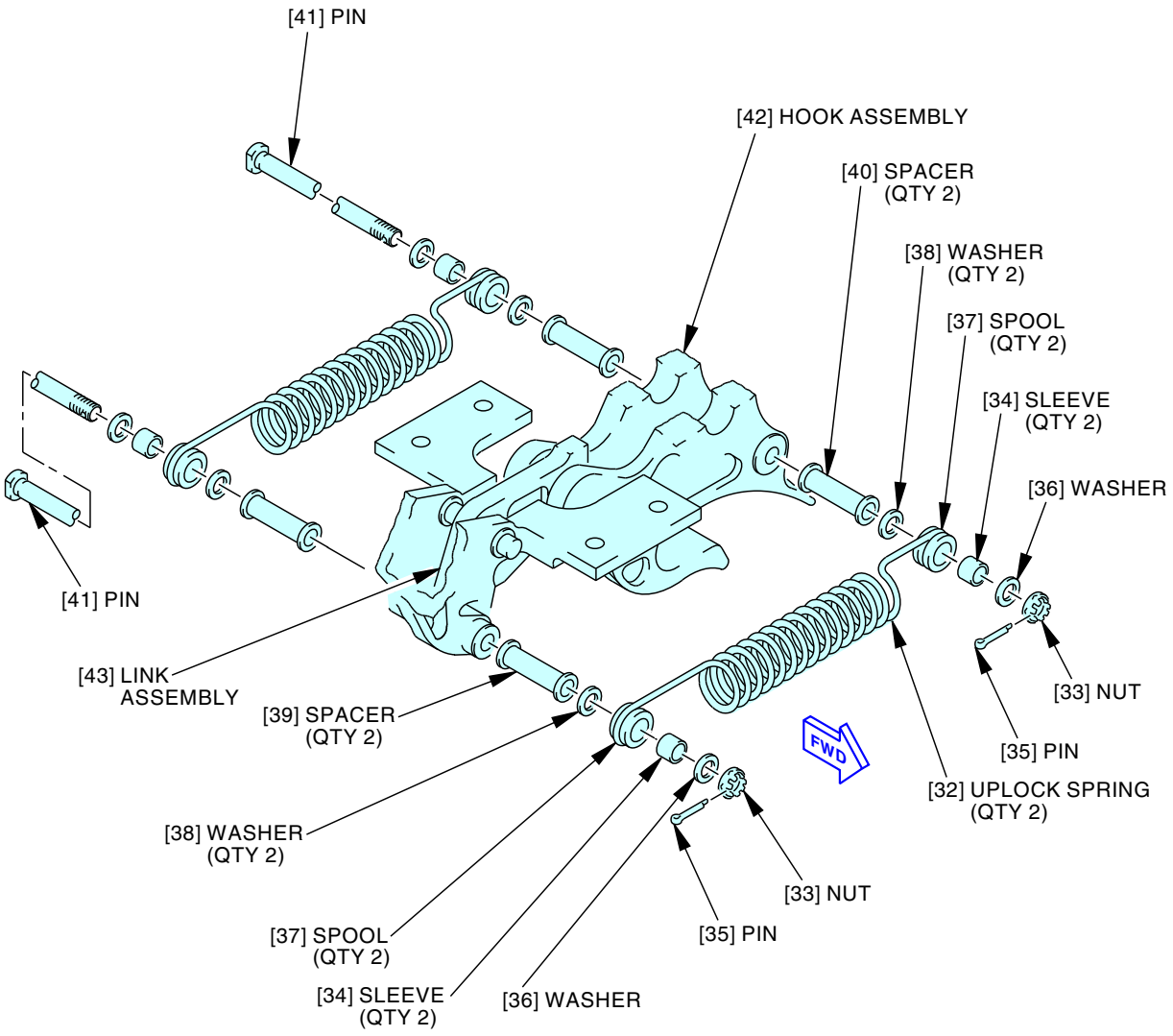
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Uplock Assembly Installation**
**Figure 401/32-32-31-990-801 (Sheet 2 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

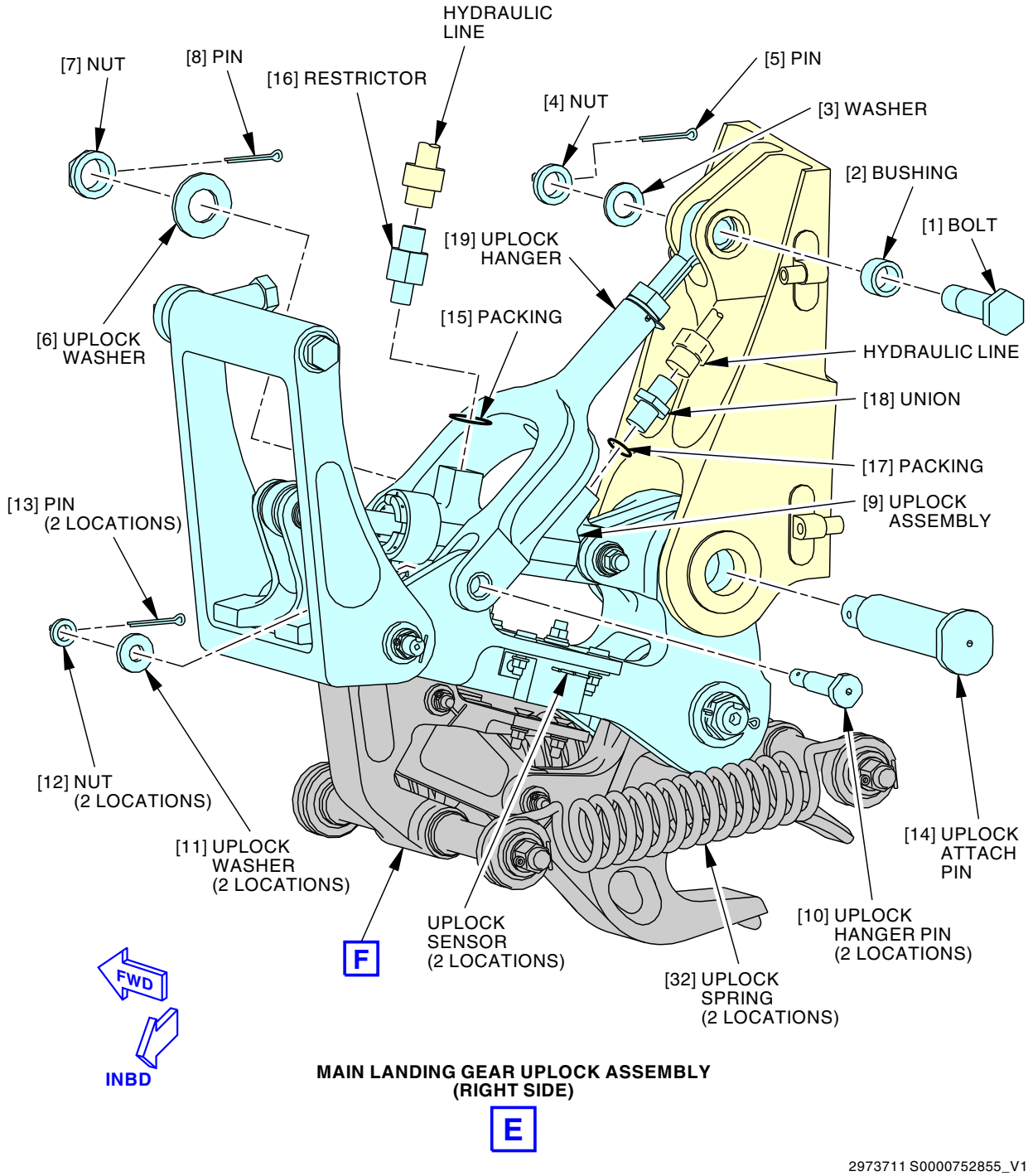



2414257 S00061534727_V2

**Main Landing Gear Uplock Assembly Installation**
**Figure 401/32-32-31-990-801 (Sheet 3 of 5)**



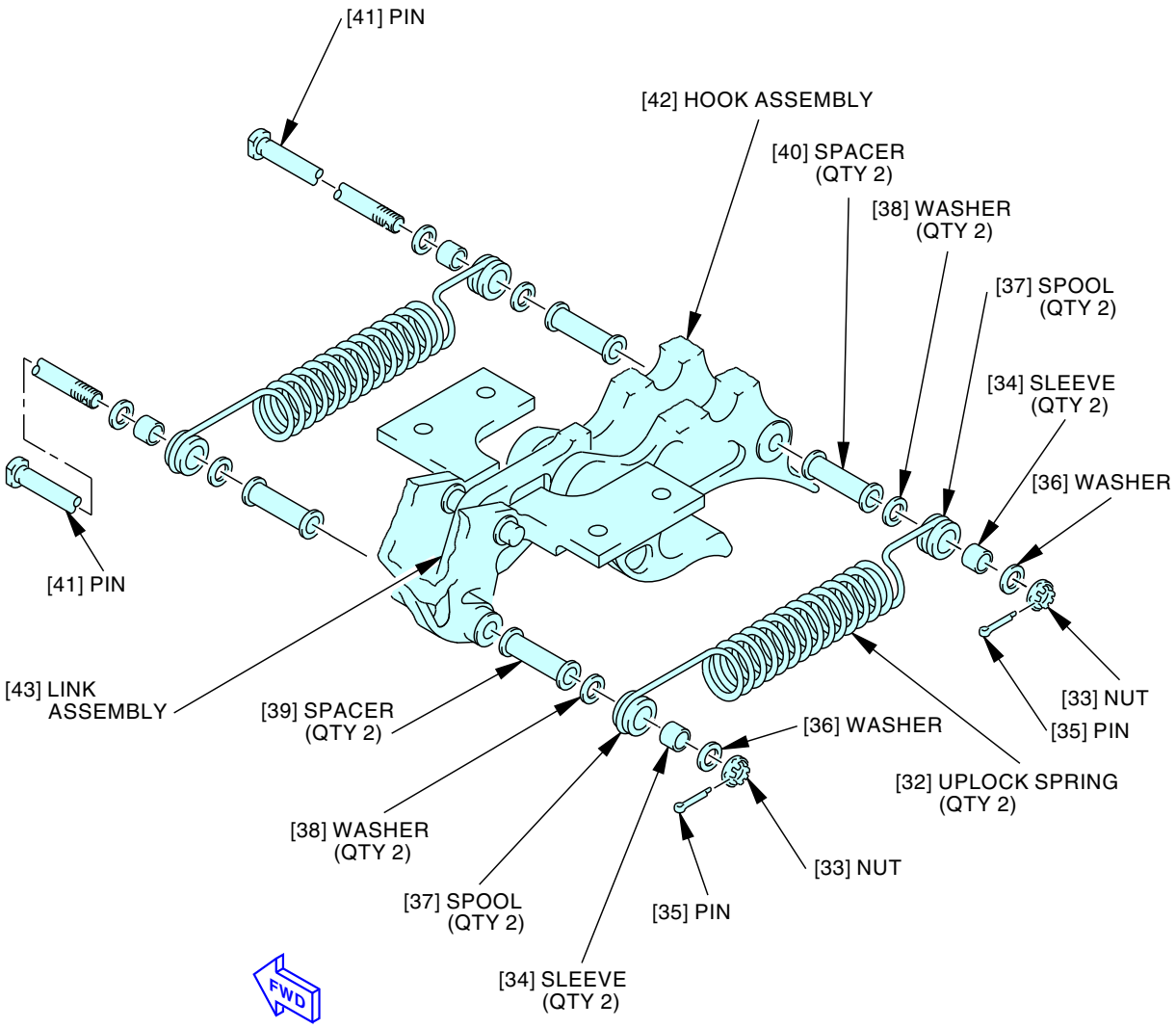
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Uplock Assembly Installation**
**Figure 401/32-32-31-990-801 (Sheet 4 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

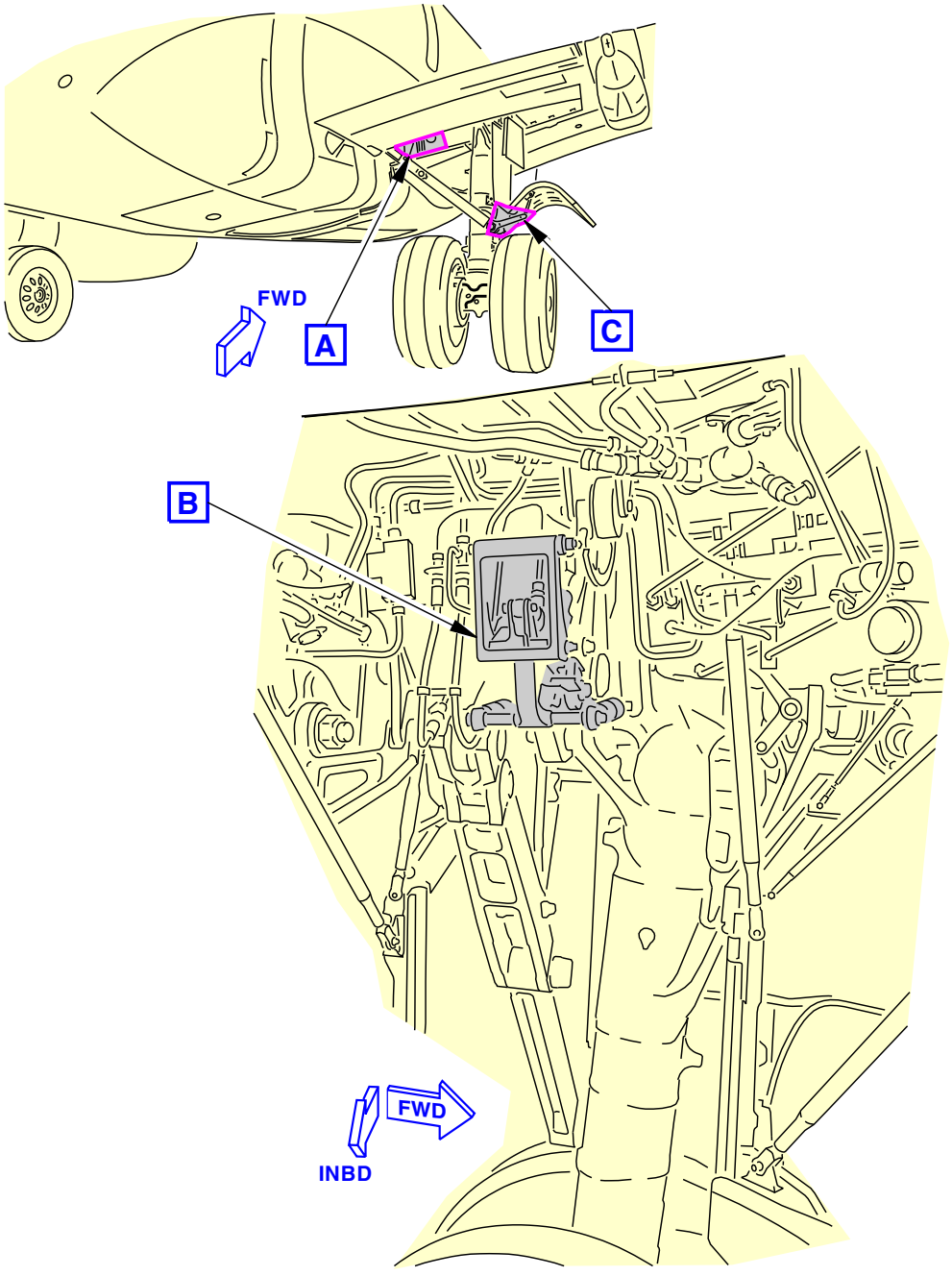



2973714 S0000752856_V1

**Main Landing Gear Uplock Assembly Installation**
**Figure 401/32-32-31-990-801 (Sheet 5 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



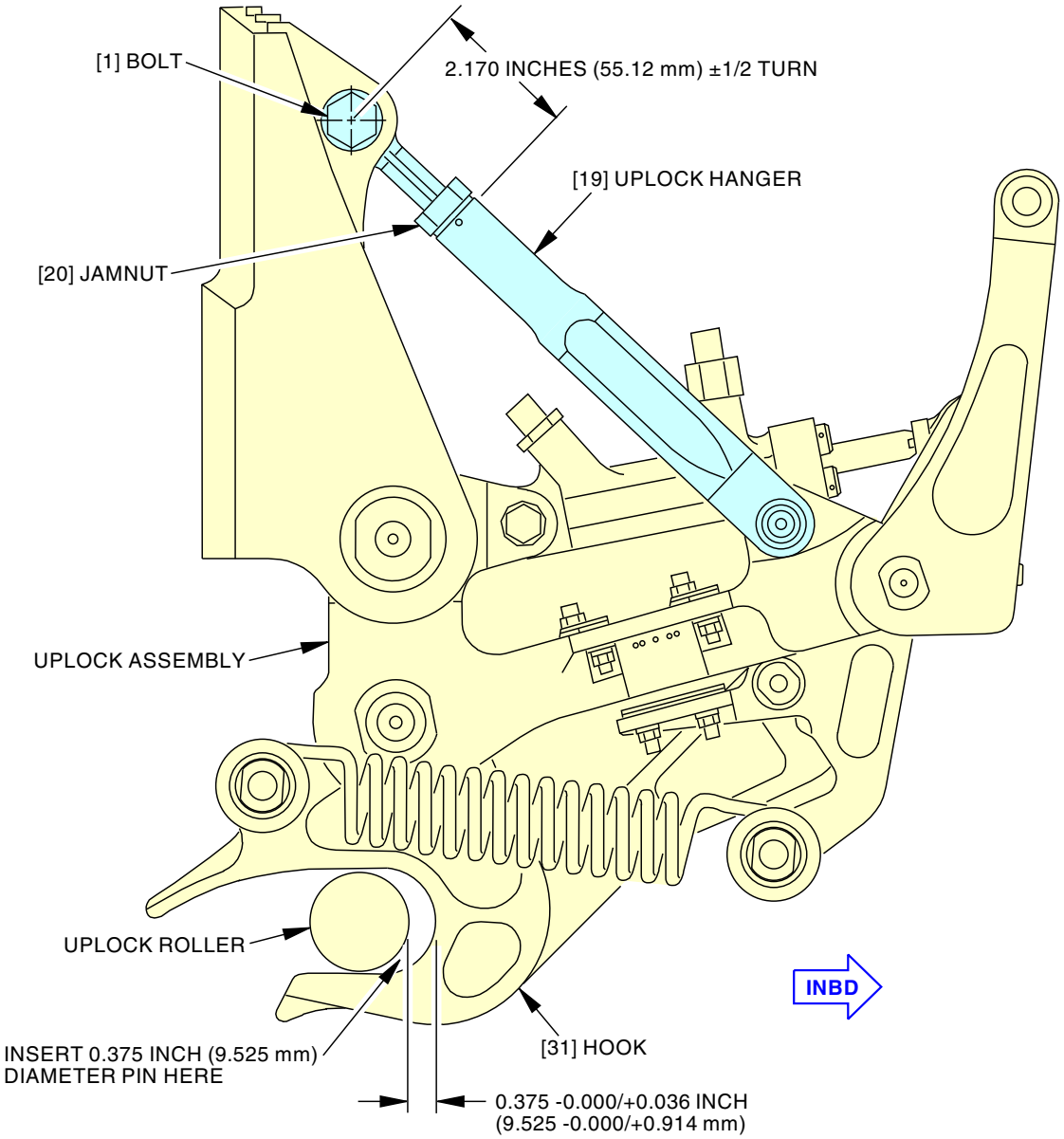

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

2414258 S00061534728_V1

**Main Landing Gear Uplock Assembly Adjustment**
**Figure 402/32-32-31-990-802 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

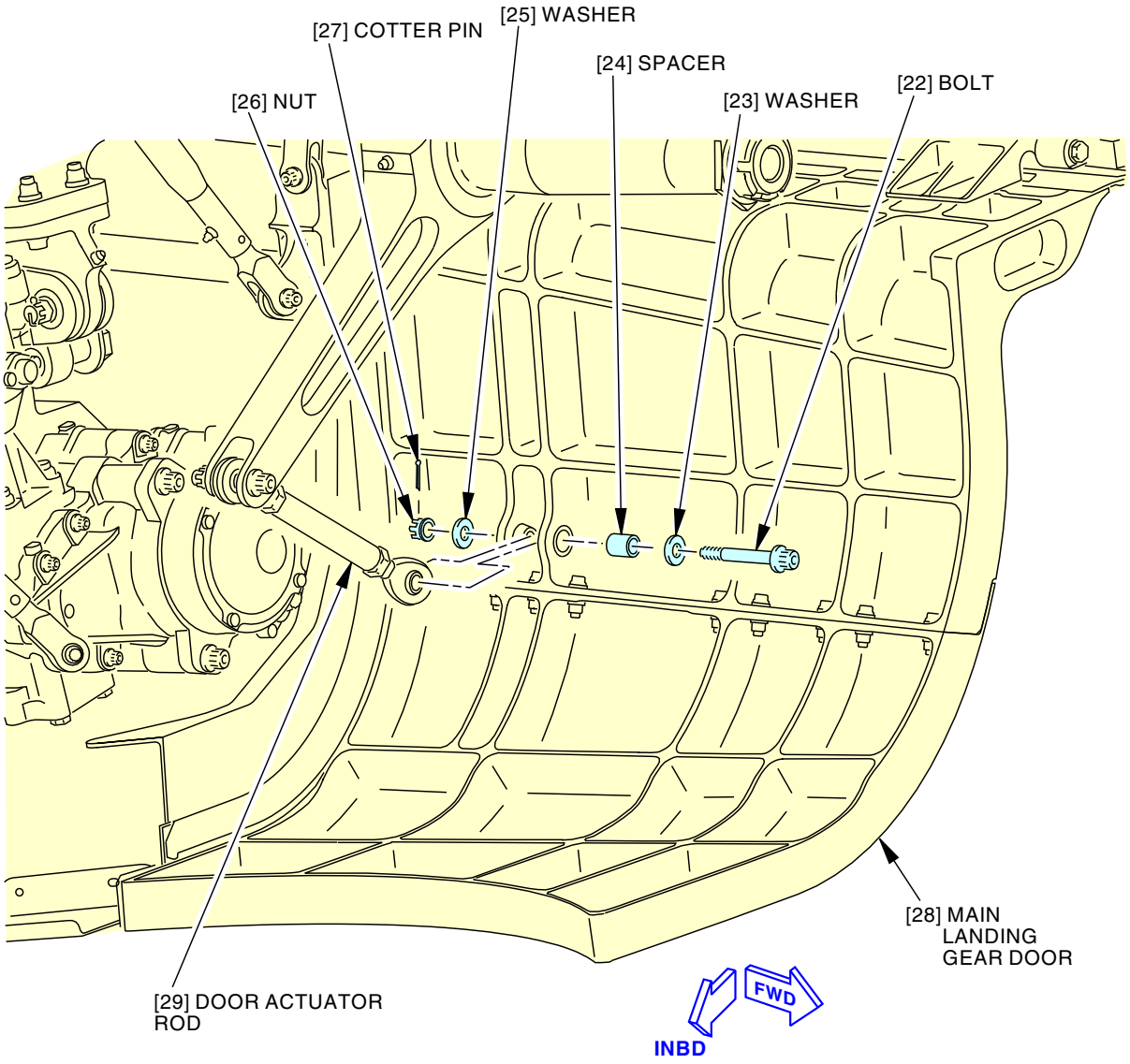



2414259 S00061534729_V1

**Main Landing Gear Uplock Assembly Adjustment**
**Figure 402/32-32-31-990-802 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2414260 S00061534730_V1

**Main Landing Gear Uplock Assembly Adjustment**
**Figure 402/32-32-31-990-802 (Sheet 3 of 3)**



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**TASK 32-32-31-400-801**

**3. Main Gear Uplock Assembly Installation**

(Figure 401, Figure 402)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-13-21-000-802 | Main Landing Gear Wing Door Adjustment (P/B 501) |
| 32-34-21-400-801 | Main Gear Manual Extension Mechanism Installation (P/B 401) |
| 32-61-21-400-801 | Main Landing Gear Uplock Sensor Installation (P/B 401) |
| 32-61-21-820-801 | Main Landing Gear Uplock Sensor Clearance Adjustment (P/B 501) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-12460 | Equipment - Removal/Installation, MLG and NLG springs<br>Part #: J32037-106 Supplier: 81205 |
| STD-858 | Tag - DO NOT OPERATE |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00013 | Grease - Aircraft And Instrument Grease | MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827) |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G51180 | 3M EC1252 or Equivalent, Torque Seal, Pink or Yellow. | |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Pin | 32-32-31-01-030 | SIA ALL |
| 8 | Pin | 32-32-31-01-010 | SIA ALL |


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(Continued)

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 9 | Uplock assembly | 32-32-31-01-060 | SIA ALL |
| 13 | Pin | 32-32-31-01-125 | SIA ALL |
| 15 | Packing | 32-32-41-01-035 | SIA ALL |
| 17 | Packing | 32-32-41-01-030 | SIA ALL |
| 19 | Hanger assembly | 32-32-31-01-155 | SIA ALL |
| 35 | Pin | 32-32-31-01-185 | SIA ALL |

## E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

## F. Main Gear Uplock Assembly Installation

SUBTASK 32-32-31-420-001

(1) Do these steps if the replacement uplock actuator on the uplock assembly [9] does not have the union [18] or restrictor [16] installed:

(a) Lubricate the new packing [15], new packing [17], union [18], and restrictor [16] with hydraulic fluid, D00153.

(b) Remove the caps/plugs, STD-14686, from the ports on the uplock actuator.

(c) Install the packing [15], packing [17], union [18], and restrictor [16] in the uplock actuator.

SUBTASK 32-32-31-600-001



**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(2) Apply a thin layer of corrosion inhibiting material, G50136, on the parts that follow:

(a) The threads and thread reliefs of the uplock attach pin [14] and nut [7].

(b) The faces of the uplock washer [6].

(c) The new pin [8].

SUBTASK 32-32-31-640-001

(3) Lubricate the shank of the uplock attach pin [14] with grease, D00633.

SUBTASK 32-32-31-420-002

(4) Put the uplock assembly [9] in position on the structure.

SUBTASK 32-32-31-420-003

(5) Install the uplock attach pin [14], uplock washer [6], and nut [7] to attach the uplock assembly [9] to the structure.



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SUBTASK 32-32-31-420-004

(6) Tighten the nut [7] to 75 ±25 in-lb (8.5 ±2.9 N·m) above the run-on torque.

(a) Loosen to the nearest castellation, if it is necessary, and install the new pin [8].

SUBTASK 32-32-31-600-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(7) Apply a thin layer of corrosion inhibiting material, G50136, to the parts that follow:

(a) The threads and thread reliefs of the uplock hanger pins [10] and nuts [12].

(b) The faces of the uplock washers [11].

(c) The new pins [13].

SUBTASK 32-32-31-640-002

(8) Lubricate the shank of the uplock hanger pin [10] with grease, D00633.

SUBTASK 32-32-31-420-005

(9) Install the uplock hanger pin [10], uplock washers [11], and nuts [12] to connect the hanger assembly [19] to the uplock assembly [9].

SUBTASK 32-32-31-420-006

(10) Tighten the nuts [12] to 22.0 ±2.0 in-lb (2.5 ±0.2 N·m) above the run-on torque.

(a) Loosen to the nearest castellation, if it is necessary, and install the new pins [13].

SUBTASK 32-32-31-820-001

(11) Loosen the jamnut [20] on the rod end of the hanger assembly [19].

(a) Adjust the rod end until the distance from the center of the bolt [1] to the top of the threaded end of the hanger assembly [19] is 2.17 in. (55.1 mm).

SUBTASK 32-32-31-600-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(12) Apply a thin layer of or corrosion inhibiting material, G50136, on the parts that follow:

(a) The threads and thread reliefs of the bolt [1] and nut [4].

(b) The faces of the washer [3].

(c) The new pin [5].

SUBTASK 32-32-31-640-003

(13) Lubricate the shank of the bolt [1] with a light film of grease, D00633.

(a) Wipe off excess grease, D00633.



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SUBTASK 32-32-31-420-007

(14) Install the bolt [1], bushing [2], washer [3], nut [4], and new pin [5] to attach the hanger assembly [19] to the structure.

NOTE: The installation of the hanger assembly rod end does not require the pin to engage to the self locking nut castellations.

SUBTASK 32-32-31-420-008

(15) Make sure that the 2.17 in. (55.12 mm) dimension from the center of bolt [1], to the top of the threaded end of the hanger under the jamnut [20] is 2.17 in. (55.12 mm).

SUBTASK 32-32-31-420-009

(16) Tighten the jamnut [20] on the rod end of the hanger assembly [19] to 225 ±25 in-lb (25 ±3 N·m).

SUBTASK 32-32-31-420-010

(17) Install lockwire on the jamnut [20].

SUBTASK 32-32-31-420-021

(18) Connect the control rod of the manual extension mechanism to the uplock assembly [9] (TASK 32-34-21-400-801).

SUBTASK 32-32-31-420-011

(19) Do these steps to connect the two hydraulic lines to the uplock actuator:

(a) Remove the caps/plugs, STD-14686, from the two hydraulic lines.

(b) Connect the two hydraulic lines to the uplock actuator.

(c) Tighten the B-nuts on the hydraulic lines to 140 ±7 in-lb (16 ±1 N·m).

(d) Tighten the fitting to 140 in-lb (15.8 N·m), back off fitting and then tighten the fitting again to 140 ±7 in-lb (15.8 ±0.8 N·m).

(e) Apply a strip of torque seal, G51180, to the fitting.

(f) Remove the tags from the two hydraulic lines.

SUBTASK 32-32-31-420-012

(20) Install uplock sensors on the uplock assembly [9], do this task: Main Landing Gear Uplock Sensor Installation, TASK 32-61-21-400-801.

SUBTASK 32-32-31-420-013

(21) Do the adjustment for the uplock sensors on the uplock assembly [9], do this task: Main Landing Gear Uplock Sensor Clearance Adjustment, TASK 32-61-21-820-801.

## G. Main Landing Gear Uplock Spring and Spool Replacement with Spring Removal Tool

SUBTASK 32-32-31-020-010

(1) Remove the uplock spring [32] and spools [37].

NOTE: This procedure uses two spring removal tools. If only one spring removal tool is used, it is necessary to remove the uplock spring [32] on the nut side of the pin [41] first before you remove the uplock spring [32] on the head side of the pin [41].

(a) Install the spring removal tools from the spring removal and installation tool, SPL-12460, on the spools [37].

(b) Extend the spools [37] and uplock springs [32] a small amount to remove spring pressure from the pins [41].

(c) Remove the pin [35], nut [33], and washer [36] from the pin [41].



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(d) Remove the pin [41] to disconnect the uplock springs [32] and spools [37] from the uplock assembly.

1) Make sure that you catch the spacers [39], spacers [40], washers [36], washers [38], and sleeves [34] that come loose when the pins [41] are removed.

(e) Remove the tension from the uplock springs [32] and remove the spools [37] and uplock springs [32] from the spring removal tools.

(f) Remove each spool [37] from uplock spring [32].

SUBTASK 32-32-31-420-014

(2) Install the uplock spring [32] and spools [37].

NOTE: This procedure uses two spring removal tools. If only one spring removal tool is used, it is necessary to install the uplock spring [32] on the head side of the pin [41] first before you install the uplock spring [32] on the nut side of the pin [41].

(a) Install one end of the uplock spring [32] over one spool [37] and install the other end of the uplock spring [32] over the other spool [37].

(b) Put the uplock springs [32] and spools [37] in the spring removal tools from the spring removal and installation tool, SPL-12460.

(c) Lubricate the chrome surfaces of the pins [41] with grease, D00013, or grease, D00633.

(d) Put one washer [36] and one sleeve [34] on each pin [41].

(e) Put the pins [41] through the spools [37] on the uplock springs [32].

(f) Install one of the washers [38] and one spacer [39] or spacer [40] on each pin [41].

(g) Use the spring removal tools to align the spools [37] in the ends of the uplock springs [32] with the holes in the uplock hook assembly [42] and link assembly [43].

(h) Push the pins [41] through the uplock hook assembly [42] and link assembly [43] such that you can install the second spacer [39] or spacer [40] and washers [38].

(i) Push the pins [41] completely through the spools [37] on the other uplock spring [32].

(j) Install the sleeves [34], washers [36], and nuts [33] on the pins [41].

(k) Remove the spring removal tools.

(l) Tighten the nuts [33] to 25 in-lb (2.8 N·m) - 50 in-lb (5.6 N·m) above run-on torque.

(m) Back off the nuts [33] to the nearest castellation and install the pins [35].

SUBTASK 32-32-31-420-015

(3) If only the uplock spring [32] and/or spool [37] is replaced, it is not necessary to do a landing gear retraction test if the spring and/or spool [37] are replaced per this procedure.

## H. Main Landing Gear Uplock Spring and Spool Replacement without Spring Removal Tool

SUBTASK 32-32-31-020-011

(1) Remove the broken or fractured uplock spring [32].

SUBTASK 32-32-31-020-012

(2) Remove the uplock springs [32] if they are not broken.

(a) Do not use metallic objects which could nick or damage the uplock spring [32] surface.

(b) Wrap a rope or cloth (rag) around one end of the uplock spring [32].

(c) Pull the uplock spring [32] end over the spool [37] assembly.

NOTE: Approximately 30 lbf (133 N) of force per 1.0 in. (25.4 mm) of spring extension is necessary.



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(d) Slowly release tension after uplock spring [32] end is out of the spool [37].

(e) Remove uplock spring [32] from the other end of spool [37].

SUBTASK 32-32-31-020-013

(3) Install the uplock spring [32].

(a) Do not use metallic objects which could nick or damage the uplock spring [32] surface.

(b) With one end of the uplock spring [32] on one spool [37], put a rope or cloth (rag) around the other end of the uplock spring [32].

(c) Pull the free uplock spring [32] end over the other spool [37] assembly.

NOTE: Approximately 30 lbf (133 N) of force per 1.0 in. (25.4 mm) of spring extension is necessary.

(d) Remove the rope or cloth (rag) from the end of the uplock spring [32].

(e) It is not necessary to do a landing gear retraction test if the uplock spring [32] is replaced per the above procedure.

SUBTASK 32-32-31-020-014

(4) Remove the spools [37].

(a) Remove the pin [35], nut [33], and washers [36] from the pin [41].

(b) Remove the pins [41].

1) Make sure that you catch the spacers [39], spacers [40], washers [36], washers [38], sleeves [34], and spools [37] that come loose when the pins [41] are removed.

SUBTASK 32-32-31-420-016

(5) Replace the uplock springs [32] and spools [37].

(a) Lubricate the chrome surfaces of the pin [41] with grease, D00013, or grease, D00633.

(b) Put one of the washers [36], one sleeve [34], and one spool [37] on each pin [41].

(c) Install one of the washers [38] and one spacer [39] or spacer [40] on each pin [41].

(d) Push the pins [41] completely through the uplock hook assembly [42] and link assembly [43] such that you can install the second spacer [39] or spacer [40] and washer [38].

(e) Install the spools [37], sleeves [34], washers [36], and nuts [33] on the pins [41].

(f) Tighten the nuts [33] to 25 in-lb (2.8 N·m) - 50 in-lb (5.6 N·m) above run-on torque.

(g) Back off the nuts [33] to the nearest castellation and install the pins [35].

**CAUTION**

DO NOT USE METAL TOOLS. METAL TOOLS CAN CAUSE DAMAGE TO THE PART YOU WILL DO WORK ON OR ADJACENT PARTS.

(h) With one end of the uplock spring [32] on one spool [37], put a rope or cloth (rag) around the other end of the uplock spring [32].

(i) Pull the free uplock spring [32] end over the other spool [37].

NOTE: Approximately 30 lbf (133 N) per 1.0 in. (25.4 mm) of spring extension is necessary.

(j) Remove the rope or cloth (rag) from the end of the uplock spring [32].



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SUBTASK 32-32-31-420-017

(6) If only the uplock spring [32] or spool [37] is replaced, it is not necessary to do a landing gear retraction test if the spring is replaced per this procedure.

## I. Main Gear Uplock Assembly Installation Test

SUBTASK 32-32-31-580-002

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE APPLICABLE LANDING GEAR. THE LANDING GEAR EXTENDS AND RETRACTS QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-32-31-020-015

(2) Remove the pin [27], nut [26], washer [25], washer [23], spacer [24], and bolt [22] to disconnect the main gear door rod actuator [29] from the main gear door [28].

NOTE: The main gear doors [28] will remain hanging during the installation test.

SUBTASK 32-32-31-080-001

(3) Remove the downlock pin only from the main gear you are working on (TASK 32-00-01-080-801) and leave the pin in the other main gear and the nose gear.

SUBTASK 32-32-31-860-002

(4) Pressurize the hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-32-31-870-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR BEFORE YOU MOVE THE CONTROL LEVER. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Extend and retract the main landing gear you are working on several times.

NOTE: It will bleed the air from the uplock actuator and the lines.

(a) Examine for the correct gear operation.

SUBTASK 32-32-31-040-001

(6) Retract the main landing gear you are working on:

NOTE: The main gear doors will remain hanging during the installation test.

(a) Install a DO NOT OPERATE tag, STD-858, on the landing gear handle.



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SUBTASK 32-32-31-200-001

**WARNING** MAKE SURE THAT THE MAIN LANDING GEAR IS RETRACTED AND THAT YOU INSTALL A “DO NOT OPERATE” TAG ON THE LANDING GEAR LEVER. ACCIDENTAL MOVEMENT OF THE LANDING GEAR CAN CAUSE INJURIES TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(7) Make sure that the gap is 0.375 +0.036 / -0.000 in. (9.52 +0.92 / -0.00 mm) (Figure 402).

(a) Use a 0.375 in. (9.525 mm) diameter pin, or equivalent, inserted between the uplock roller and the back of the uplock assembly hook.

(b) If an adjustment is necessary, extend the landing gear.

**WARNING** MAKE SURE THAT YOU INSTALL THE DOWNLOCK PINS ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Make sure that the downlock pins are installed in the main landing gear (TASK 32-00-01-480-801).

2) Adjust the length of the hanger assembly [19], plus or minus one half turn, until the gap requirement is met.

a) Loosen the jamnut [20].

b) Adjust the hanger assembly [19] length one half turn longer or shorter.

c) Tighten the jamnut [20] to 250 in-lb (28 N·m) - 200 in-lb (23 N·m).

d) Remove the downlock pin from the gear being worked on only and repeat this step until the gap requirement is met.

e) Install lockwire between the jamnut [20] and hanger assembly [19].

SUBTASK 32-32-31-800-001

(8) Extend the landing gear:

(a) Remove the DO NOT OPERATE tag, STD-858, from the landing gear handle.

(b) Move the landing gear lever to the DN position.

(c) Install the downlock pins in the main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-32-31-420-018

(9) Install the spacer [24], washer [23], washer [25], bolt [22], nut [26], and pin [27] to reconnect the main gear door rod actuator [29] to the main gear door [28].

SUBTASK 32-32-31-420-019

(10) Do a check of the main gear door adjustment.

(a) To adjust the door, do this task: Main Landing Gear Wing Door Adjustment, TASK 32-13-21-000-802.

SUBTASK 32-32-31-210-001

(11) Examine the hydraulic connections for leaks.

SUBTASK 32-32-31-860-003

(12) Remove power to hydraulic system A (TASK 29-11-00-860-805).



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SUBTASK 32-32-31-580-003

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(13) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

SUBTASK 32-32-31-840-001

(14) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

(a) Do a servicing if it is necessary.

**END OF TASK**



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## MAIN GEAR UPLOCK ACTUATOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these two tasks:

(1) A removal of the uplock actuator for the main landing gear (referred to as the uplock actuator assembly [13])

(2) An installation of the uplock actuator for the main landing gear.

**TASK 32-32-41-000-801**

### 2. Main Gear Uplock Actuator Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-32-41-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-32-41-860-001**

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-32-41-580-001**

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

#### E. Main Gear Uplock Actuator Removal

**SUBTASK 32-32-41-480-002**

(1) Put tags on the hydraulic lines to show their connection locations.


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SUBTASK 32-32-41-020-001

(2) Disconnect the hydraulic lines from the uplock actuator assembly [13].

SUBTASK 32-32-41-480-003

(3) Install caps/plugs, STD-14686, in the hydraulic lines.

SUBTASK 32-32-41-020-002

(4) Remove these items to disconnect the rod end of the uplock actuator assembly [13]:

(a) nut [10], washer [6] and washer [9]

(b) bolt [8], washer [2] and washer [9]

(c) sleeve [3].

SUBTASK 32-32-41-020-003

(5) Remove these items to disconnect the head end of the uplock actuator assembly [13]:

(a) nut [10], washer [4] and washer [6]

(b) bolt [1], washer [2] and washer [4]

(c) sleeve [3].

SUBTASK 32-32-41-020-004

(6) Remove the uplock actuator assembly [13] from the airplane.

SUBTASK 32-32-41-020-005

(7) Do these steps if the replacement uplock actuator assembly [13]a does not have the union [7] or restrictor [12]:

(a) Remove the union [7] and restrictor [12] from the uplock actuator assembly [13].

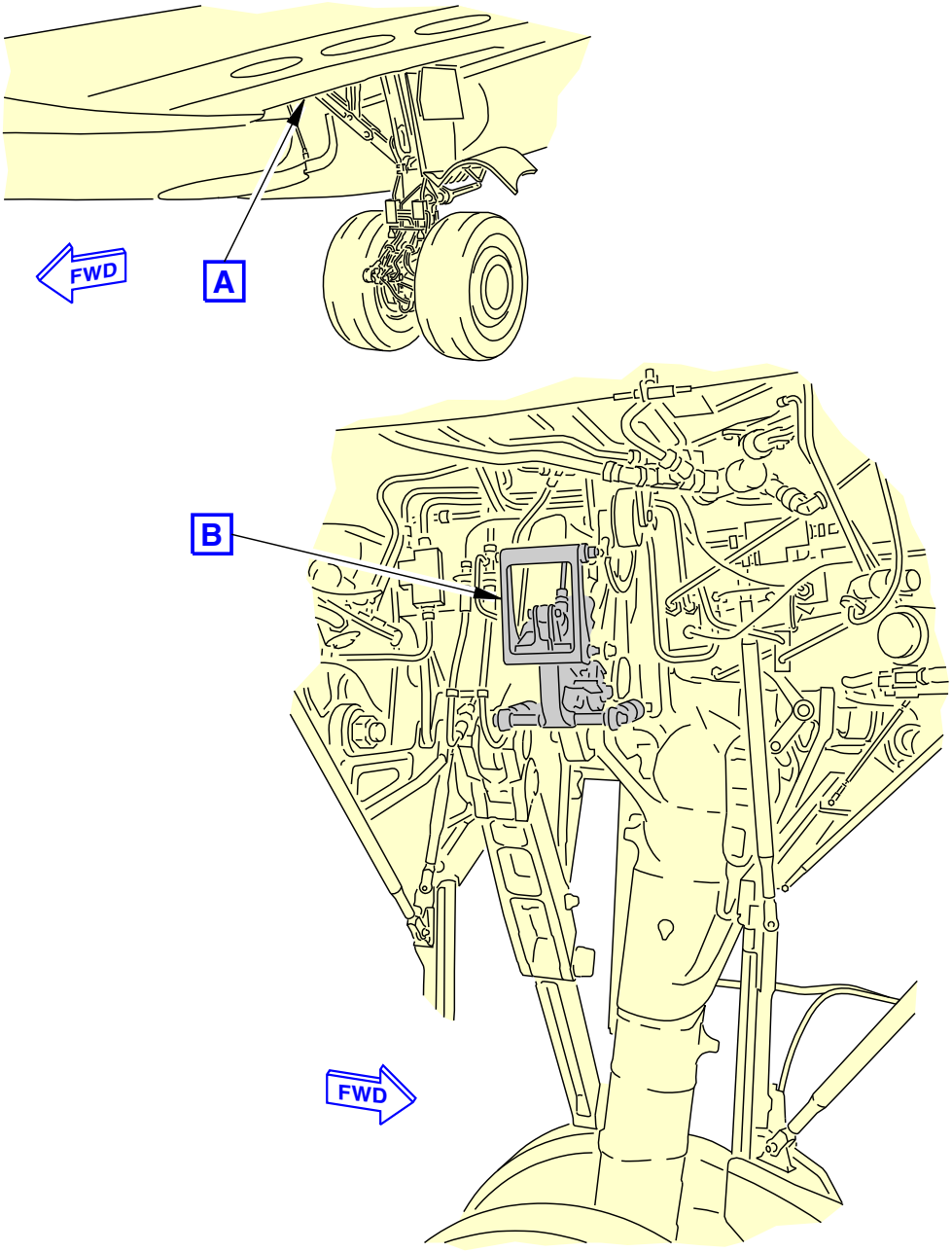
(b) Remove and discard the packing [5] and packing [11].

(c) Install caps/plugs, STD-14686, in the ports on the uplock actuator assembly [13].

——— END OF TASK ———



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**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

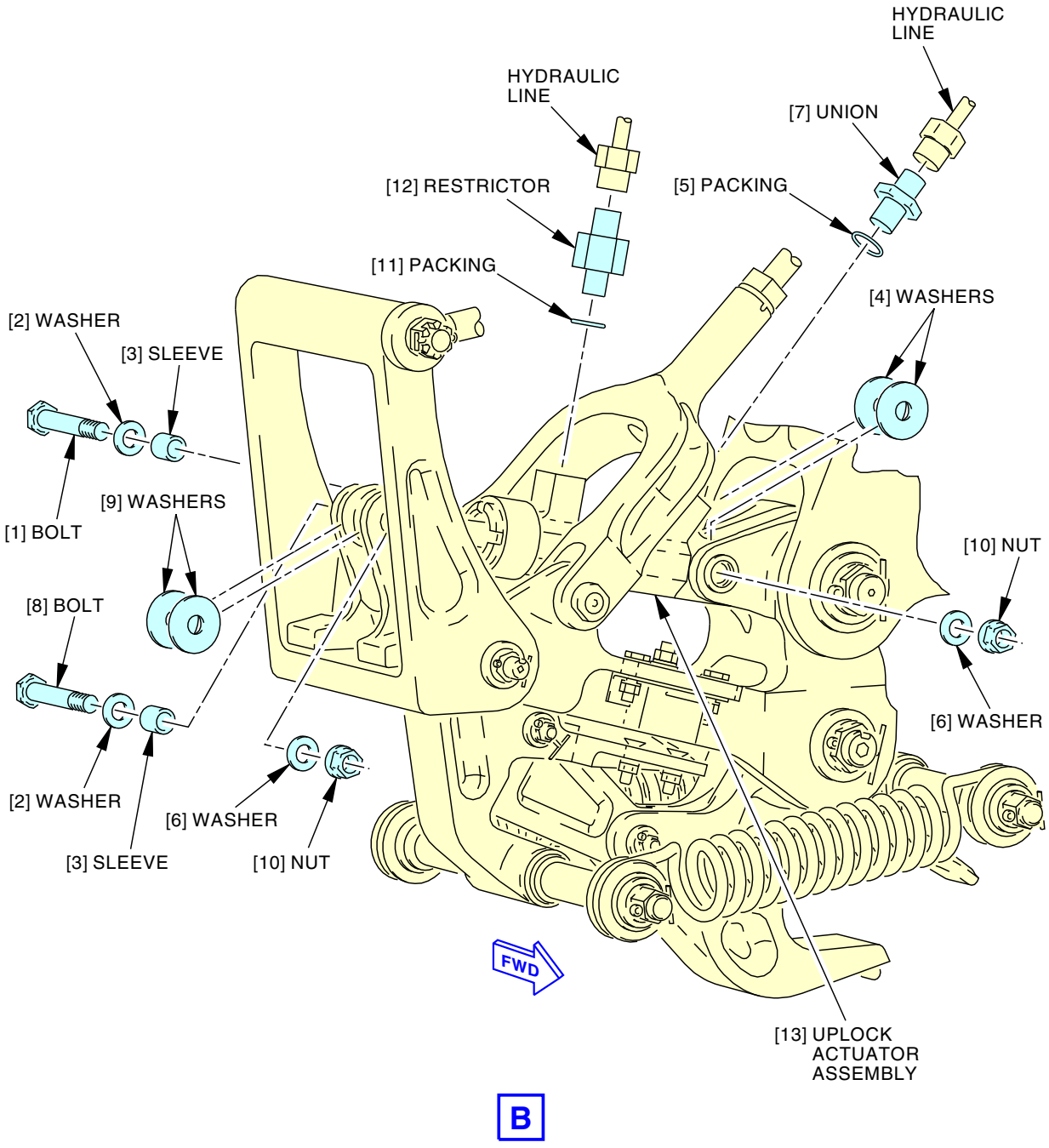
**A**

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**Main Landing Gear Uplock Actuator Installation**
**Figure 401/32-32-41-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




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**Main Landing Gear Uplock Actuator Installation**
**Figure 401/32-32-41-990-801 (Sheet 2 of 2)**



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**TASK 32-32-41-400-801**

## 3. Main Gear Uplock Actuator Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-4896 | Adapter Assembly - Uplock, MLG<br>Part #: C32048-1 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G51180 | 3M EC1252 or Equivalent, Torque Seal, Pink or Yellow. | |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Packing | 32-32-41-01-030 | SIA ALL |
| 11 | Packing | 32-32-41-01-035 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### F. Main Gear Uplock Actuator Installation

**SUBTASK 32-32-41-420-001**

(1) Do these steps if the replacement uplock actuator assembly [13] does not have the union [7] or restrictor [12] installed:

(a) Lubricate these items with hydraulic fluid, D00153:



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1) packing [5],
2) union [7], restrictor [12]

(b) Remove the caps/plugs, STD-14686, from the ports on the uplock actuator assembly [13].

(c) Install the packing [5], packing [11], union [7], and restrictor [12] in the uplock actuator assembly [13].

SUBTASK 32-32-41-610-001

(2) Extend the uplock actuator assembly [13].

(a) Fill the uplock actuator assembly [13] from the two ends with hydraulic fluid, D00153.

(b) Put cap/plug, STD-14686, on the union [7] and restrictor [12].

SUBTASK 32-32-41-420-002

(3) Put the uplock actuator assembly [13] in its position with the rod end inboard.

SUBTASK 32-32-41-640-001

(4) Lubricate the chrome plated surfaces of the sleeves [3] with grease, D00633.

SUBTASK 32-32-41-420-003

(5) Install these items to connect the head end of the uplock actuator assembly [13] to the uplock actuator assembly [13]:

(a) sleeve [3]

(b) bolt [1], washer [2] and washer [4]

(c) washer [4], washer [6] and nut [10]

(d) Tighten the nut [10].

SUBTASK 32-32-41-420-004

(6) Install these items to connect the rod end of the uplock actuator assembly [13]to the uplock actuator assembly [13]:

(a) sleeve [3]

(b) bolt [8], washer [2] and washer [9]

(c) washer [9], washer [6] and nut [10]

(d) Tighten the nut [10].

SUBTASK 32-32-41-420-005

(7) Remove the caps/plugs, STD-14686, from the union [7] and the restrictor [12] and connect the hydraulic lines to the uplock actuator assembly [13].

(a) Connect the two hydraulic lines to the uplock actuator assembly [13].

(b) Tighten the B-nuts on the hydraulic lines to 140 ±7 in-lb (16 ±1 N·m).

(c) Apply a strip of torque seal, G51180, to the fitting.

(d) Remove the tags from the two hydraulic lines.

## G. Main Gear Uplock Actuator Installation Test (Airplane on Jacks)

SUBTASK 32-32-41-580-002

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



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**(CAUTION PRECEDES)**

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**WARNING**

MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES, CABLES, AND LANDING GEAR AREAS. PRESSURIZATION OF A HYDRAULIC SYSTEM CAN MOVE CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS. MOVEMENT OF CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

**SUBTASK 32-32-41-860-002**

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-32-41-860-003**

(3) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**SUBTASK 32-32-41-080-001**

(4) For the main landing gear, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801

**SUBTASK 32-32-41-870-001**

**WARNING**

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN THE NOSE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE NOSE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Extend and retract the main landing gear several times.

NOTE: It will bleed the air from the uplock actuator and the lines. Examine for the correct gear operation.

**SUBTASK 32-32-41-210-001**

(6) Examine the hydraulic connections for leaks.

**SUBTASK 32-32-41-480-004**

(7) Extend the main landing gear and install the down lock pins (TASK 32-00-01-480-801).

**SUBTASK 32-32-41-840-001**

(8) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |



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(Continued)

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

SUBTASK 32-32-41-860-004

(9) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-32-41-580-003

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(10) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**H. Main Gear Uplock Actuator Installation Test (Airplane not on Jacks)**

NOTE: This test gives does a check of the uplock actuator assembly [13] with the airplane on the ground, if jacks are not available.

SUBTASK 32-32-41-210-002

(1) Make sure that you installed the hydraulic hoses correctly.

SUBTASK 32-32-41-480-006

**WARNING**

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-32-41-860-005

(3) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-32-41-700-001

(4) Use the override trigger to move the landing gear lever from the DN position to the UP position for three times.

(a) Hold the landing gear lever in each position for three seconds before you move the landing gear lever to the subsequent position.

SUBTASK 32-32-41-700-002

(5) Move the landing gear lever to the UP position.

SUBTASK 32-32-41-860-006

(6) Turn the uplock hook to the closed position with the MLG uplock adapter assembly, SPL-4896.

SUBTASK 32-32-41-700-003

(7) Move the landing gear lever to the DN position.



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(a) Make sure that the uplock hook turns to the open position.

**SUBTASK 32-32-41-210-003**

(8) Do a check for leakage with the hydraulic pressure applied.

**SUBTASK 32-32-41-860-007**

(9) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-32-41-210-004**

(10) Make sure that there are no leaks in the hydraulic connections.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-32-41-200-001**

(1) Service the reservoirs if it is necessary (TASK 12-12-00-610-801).

**——— END OF TASK ———**



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# MAIN GEAR DOWNLOCK ACTUATOR - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these two tasks:

(1) A removal of the downlock actuator [1] for the main landing gear

(2) An installation of the downlock actuator [1] for the main landing gear.

**TASK 32-32-51-000-801**

## 2. Main Gear Downlock Actuator Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-91-000-801 | Main Gear Downlock Springs Removal (P/B 401) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### D. Prepare for the Removal

**SUBTASK 32-32-51-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-32-51-860-001**

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-32-51-580-001**

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

### E. Main Gear Downlock Actuator Removal

**SUBTASK 32-32-51-480-002**

(1) Put tags on the lines to show their connection locations.



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SUBTASK 32-32-51-020-001

(2) Disconnect the hydraulic lines from the downlock actuator [1].

SUBTASK 32-32-51-480-003

(3) Install caps/plugs, STD-14686, in the hydraulic lines.

SUBTASK 32-32-51-020-002

(4) Remove the springs [6] (TASK 32-32-91-000-801).

SUBTASK 32-32-51-020-003

(5) Remove the rod end pin [5], spacer [4], spacers [10], and washers [11] that attach the rod end of the downlock actuator [1] to the side strut assembly.

SUBTASK 32-32-51-020-004

(6) Remove the pin [7], nut [13], special washer [14], washers [15], washers [16], and head end pin [12] that attach the head end of the downlock actuator [1] to the side strut assembly.

SUBTASK 32-32-51-020-005

(7) Remove the downlock actuator [1] from the airplane.

SUBTASK 32-32-51-020-006

(8) Do these steps if the replacement downlock actuator [1] does not have union [2] installed:

(a) Remove the union [2] from the downlock actuator [1].

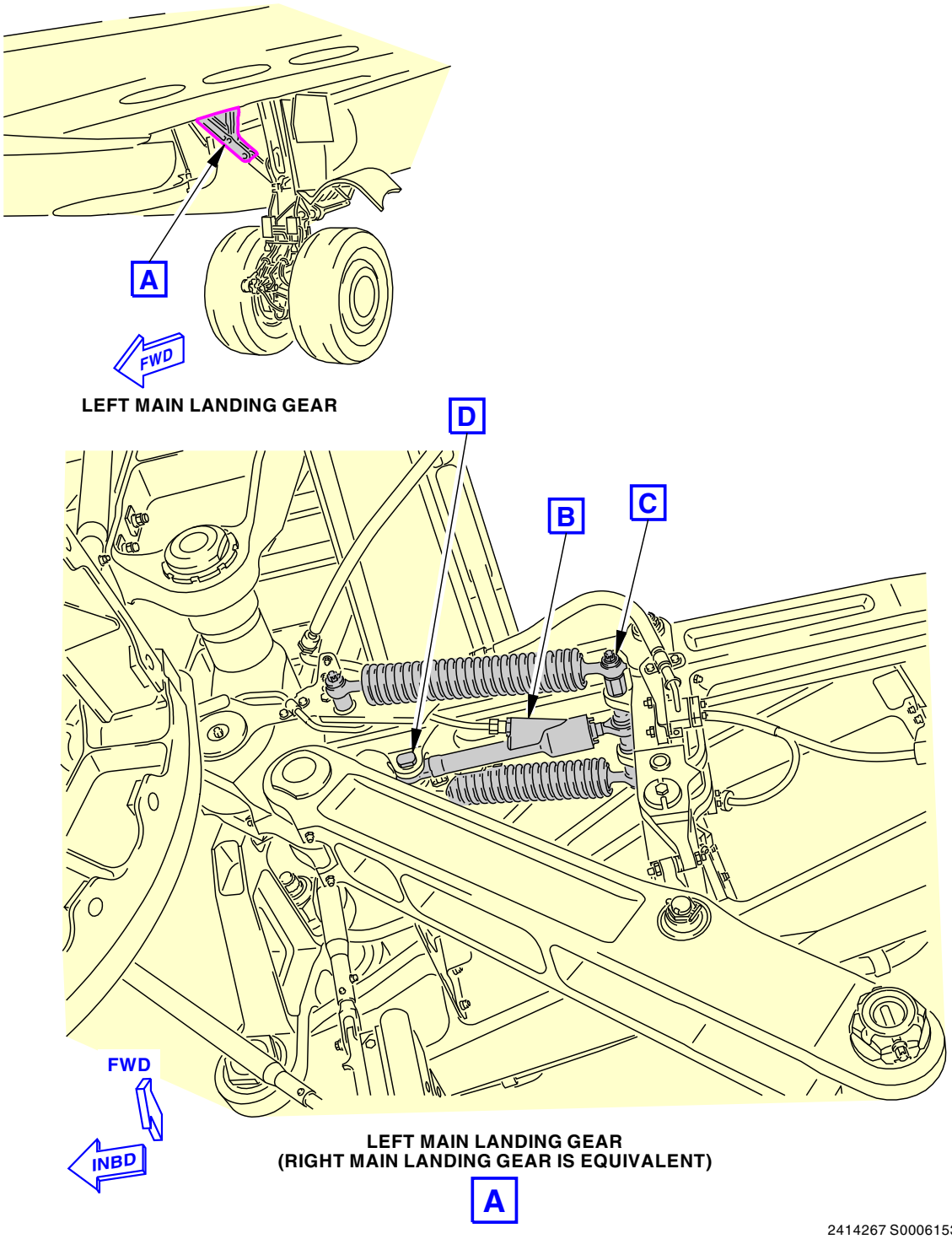
(b) Remove and discard the packing [3].

(c) Install caps/plugs, STD-14686, in the ports on the downlock actuator [1].

**——— END OF TASK ———**



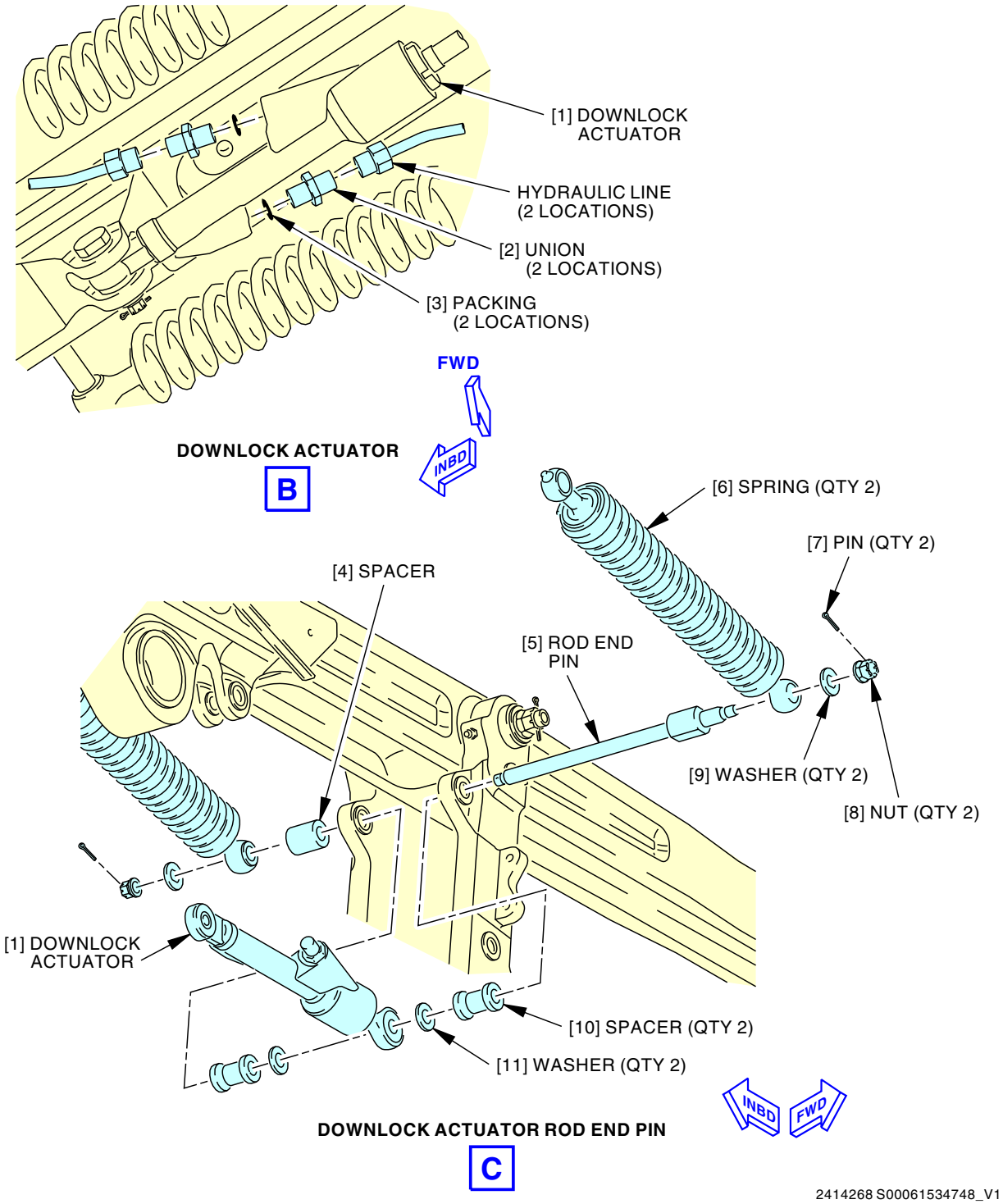
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Downlock Actuator Installation**
**Figure 401/32-32-51-990-801 (Sheet 1 of 3)**



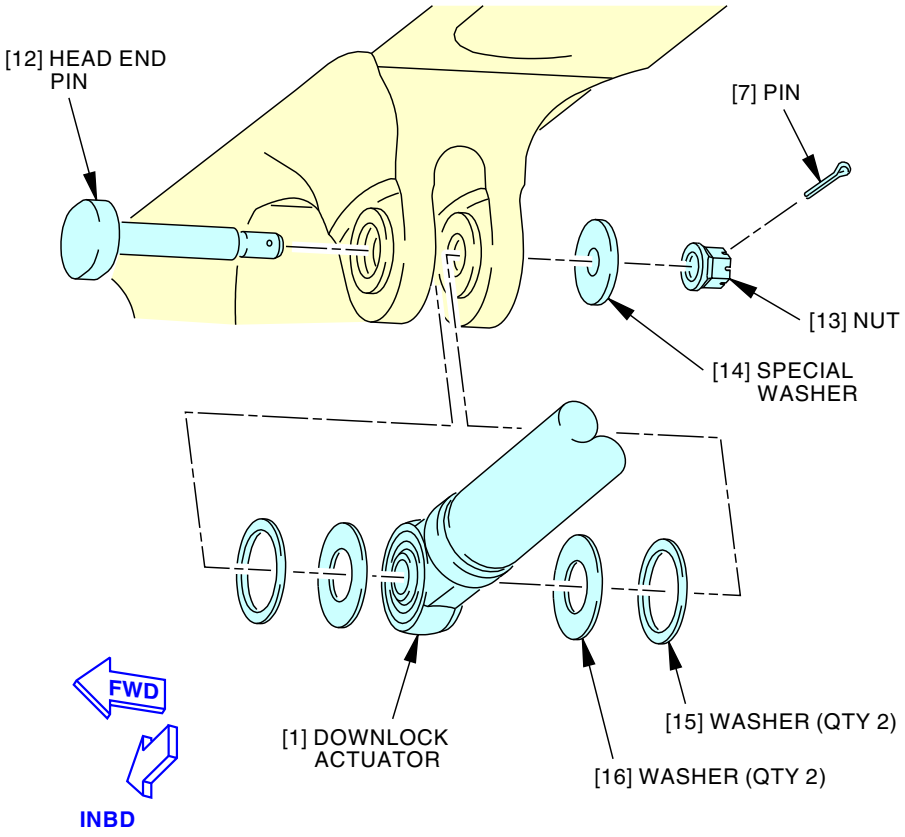
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**Main Landing Gear Downlock Actuator Installation**
**Figure 401/32-32-51-990-801 (Sheet 2 of 3)**



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**DOWNLOCK ACTUATOR HEAD END PIN**

**D**

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**Main Landing Gear Downlock Actuator Installation**
**Figure 401/32-32-51-990-801 (Sheet 3 of 3)**



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**TASK 32-32-51-400-801**

## 3. Main Gear Downlock Actuator Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-91-400-801 | Main Gear Downlock Spring Installation (P/B 401) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 2 | Union | 32-32-51-01-022 | SIA ALL |
| 3 | Packing | 32-32-51-01-024 | SIA ALL |
| | | 32-32-51-01A-055 | SIA ALL |
| 7 | Pin | 32-32-51-01-003 | SIA ALL |
| | | 32-32-51-01A-005 | SIA ALL |
| | | 32-32-91-01-010 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### F. Main Gear Downlock Actuator Installation

**SUBTASK 32-32-51-420-001**

(1) Do these steps if the replacement downlock actuator [1] does not have the unions [2] installed:

(a) Lubricate these items with hydraulic fluid, D00153:

1) new packings [3]

2) unions [2].



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(b) Remove the caps/plugs, STD-14686, from the ports on the downlock actuator [1].

(c) Install the packings [3] and the unions [2] in the downlock actuator [1].

SUBTASK 32-32-51-610-001

(2) Retract the downlock actuator [1] and fill it with hydraulic fluid, D00153.

(a) Put caps/plugs, STD-14686, on the unions [2].

SUBTASK 32-32-51-420-010

(3) Do these steps to connect the head end of the downlock actuator [1] to the side strut assembly:

(a) Apply grease, D00633 to the head end pin [12] diameter, and to the inside surface of the lug on the side strut assembly.

1) Do not lubricate the downlock actuator [1] head end bearing inside diameter.

(b) Put the downlock actuator [1] in position with the head end inboard and the ports on the top part of the downlock actuator [1].

(c) Install the head end pin [12], washers [15], washers [16], special washer [14], and nut [13].

(d) Tighten the nut [13] to 20 ±5 in-lb (2.3 ±0.6 N·m) above run-on torque.

1) If it is necessary, loosen the nut [13] to the nearest castellation, and install the new pin [7] on the head end pin [12].

SUBTASK 32-32-51-420-011

(4) Do these steps to connect the rod end of the downlock actuator [1] to the side strut assembly:

(a) Apply grease, D00633 to the rod end pin [5] diameter, and to the inside surface of the lug on the side strut assembly.

1) Do not lubricate the downlock actuator [1] rod end bearing inside diameter.

(b) Put the rod end of the downlock actuator [1] in its position for attachment to the side strut assembly.

1) If it is necessary, retract or extend the downlock actuator [1] to align the rod end of the downlock actuator [1] to the lug on the side strut assembly.

(c) Install the rod end pin [5], spacer [4], spacers [10], and washers [11].

SUBTASK 32-32-51-420-009

(5) Install the springs [6] (TASK 32-32-91-400-801).

SUBTASK 32-32-51-080-002

(6) Remove the caps/plugs, STD-14686, from the unions [2] and connect the hydraulic lines to the downlock actuator [1].

(a) Tighten the B-nuts on the hydraulic lines to 140 ±7 in-lb (16 ±1 N·m).

## G. Main Gear Downlock Actuator Installation Test (Airplane on Jacks)

NOTE: This test does a check of the downlock actuator [1] with the airplane lifted on jacks.

SUBTASK 32-32-51-580-002

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



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**(CAUTION PRECEDES)**

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**WARNING**

MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES, CABLES, AND LANDING GEAR AREAS. PRESSURIZATION OF A HYDRAULIC SYSTEM CAN MOVE CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS. MOVEMENT OF CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

**SUBTASK 32-32-51-860-002**

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-32-51-080-003**

(3) Remove the downlock pins for the main landing gear (TASK 32-00-01-080-801).

**SUBTASK 32-32-51-870-001**

**WARNING**

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN THE NOSE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE NOSE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Extend and retract the main landing gear several times.

NOTE: It will bleed the air from the downlock actuator [1] and the lines. Examine for the correct gear operation.

**SUBTASK 32-32-51-210-001**

(5) Examine the hydraulic connections for leaks.

**SUBTASK 32-32-51-480-004**

(6) Extend the main landing gear and install the downlock pins, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-32-51-860-003**

(7) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-32-51-580-003**

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



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**(CAUTION PRECEDES)**

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(8) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**H. Installation Test for the Main Gear Downlock Actuator (Airplane not on Jacks)**

NOTE: This test gives does a check of the downlock actuator with the airplane on the ground, if jacks are not available.

**SUBTASK 32-32-51-210-002**

(1) Make sure that you installed the hydraulic hoses correctly.

**SUBTASK 32-32-51-480-006**

**WARNING**

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-32-51-860-004**

(3) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-32-51-700-001**

(4) Use the override trigger to move the landing gear lever from the DN position to the UP position for three times.

(a) Hold the landing gear lever in each position for three seconds before you move the landing gear lever to the subsequent position.

**SUBTASK 32-32-51-700-002**

(5) Make sure that the rod end of the downlock actuator [1] tries to extend when you move the landing gear lever from the DOWN position to the UP position.

**SUBTASK 32-32-51-700-003**

(6) Move the landing gear lever to the DN position.

**SUBTASK 32-32-51-210-003**

(7) Do a check for leakage with the hydraulic pressure applied.

**SUBTASK 32-32-51-860-005**

(8) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-32-51-210-004**

(9) Make sure that there are no leaks in the hydraulic connections.

**I. Put the Airplane Back to Its Usual Condition**

**SUBTASK 32-32-51-200-001**

(1) Service the reservoirs if it is necessary (TASK 12-12-00-610-801).

**END OF TASK**



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## MAIN GEAR FRANGIBLE FITTING ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these four tasks:

NOTE: Replacement of the entire frangible fitting assembly is required if the entire assembly is damaged. If only the frangible fitting is damaged, you only need to replace that component.

(1) Main gear frangible fitting assembly removal

(2) Main gear frangible fitting assembly installation

(3) Main gear frangible fitting removal

(4) Main gear frangible fitting installation.

**TASK 32-32-52-000-801**

### 2. Main Gear Frangible Fitting Assembly Removal

(Figure 401)

#### A. General

(1) This task is for the removal of main gear frangible fitting assembly.

#### B. References

| Reference | Title |
|---|---|
| 10-11-05-500-801 | Chock Installation Winds/Gusts Maximum 40 mph (35 Knots) (P/B 201) |
| 10-11-05-500-802 | Chock Installation in Winds More Than 35 Knots - Handling (P/B 201) |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### E. Prepare for the Removal

**SUBTASK 32-32-52-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-32-52-860-001**

(2) Depressurize hydraulic system A (TASK 29-09-00-860-802).


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SUBTASK 32-32-52-580-001

(3) Install wheel chocks for the main landing gear (TASK 10-11-05-500-801 or TASK 10-11-05-500-802).

## F. Removal of the Frangible Fitting Assembly

SUBTASK 32-32-52-020-001

(1) Disconnect the hydraulic line [6] from the frangible fitting assembly [1].

SUBTASK 32-32-52-480-002

(2) Install a cap/plug, STD-14686, on the hydraulic line [6].

SUBTASK 32-32-52-020-002

(3) Remove the union [5] from the frangible fitting assembly [1].

SUBTASK 32-32-52-910-001

(4) Discard the packing [4].

SUBTASK 32-32-52-480-003

(5) Install a cap/plug, STD-14686, in the port on the frangible fitting assembly [1].

SUBTASK 32-32-52-020-003

(6) Remove the bolts [3] and washers [2] that attach the frangible fitting assembly [1] to the structure.

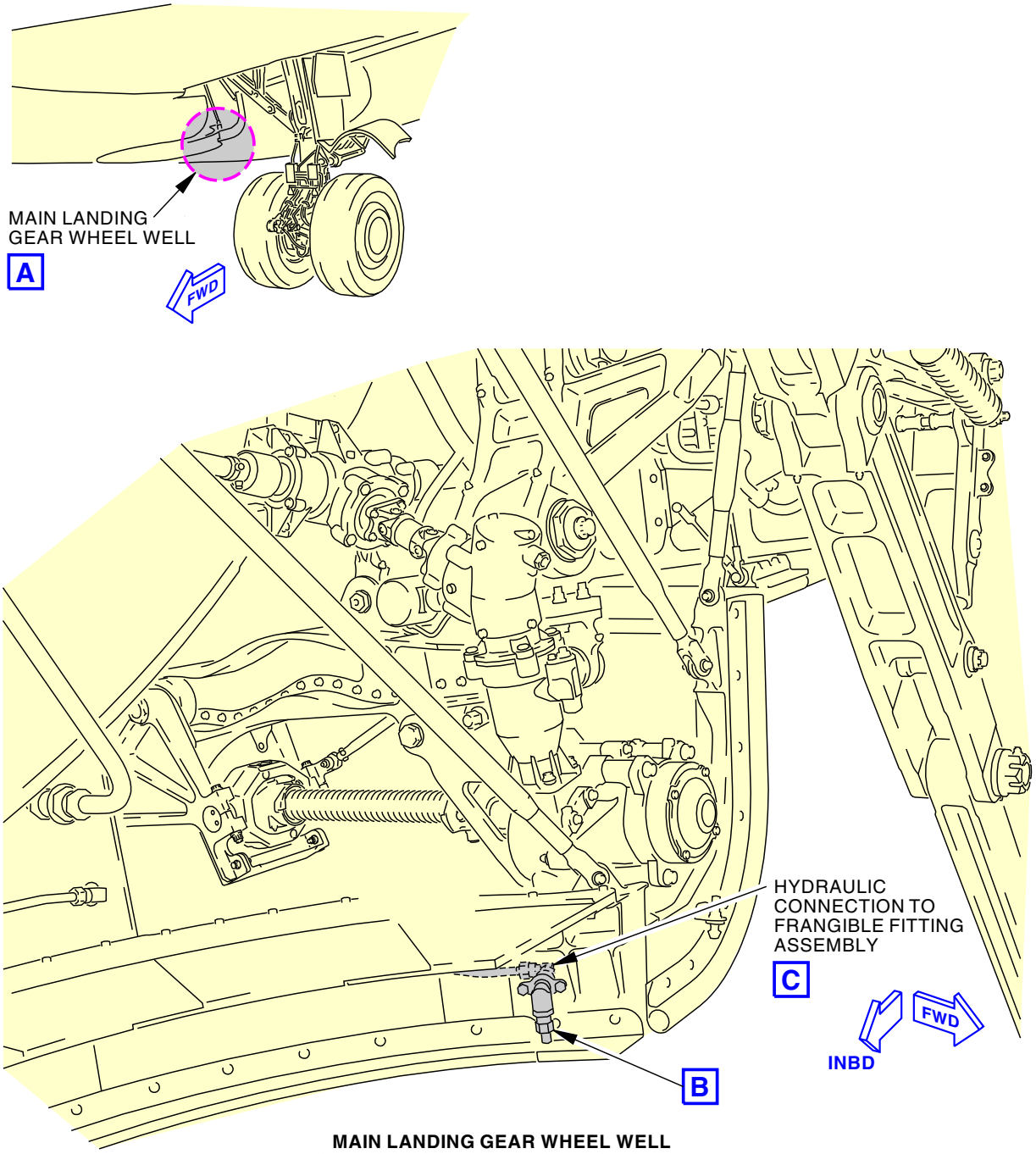
SUBTASK 32-32-52-020-004

(7) Remove the frangible fitting assembly [1] from the airplane.

——— END OF TASK ———



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**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

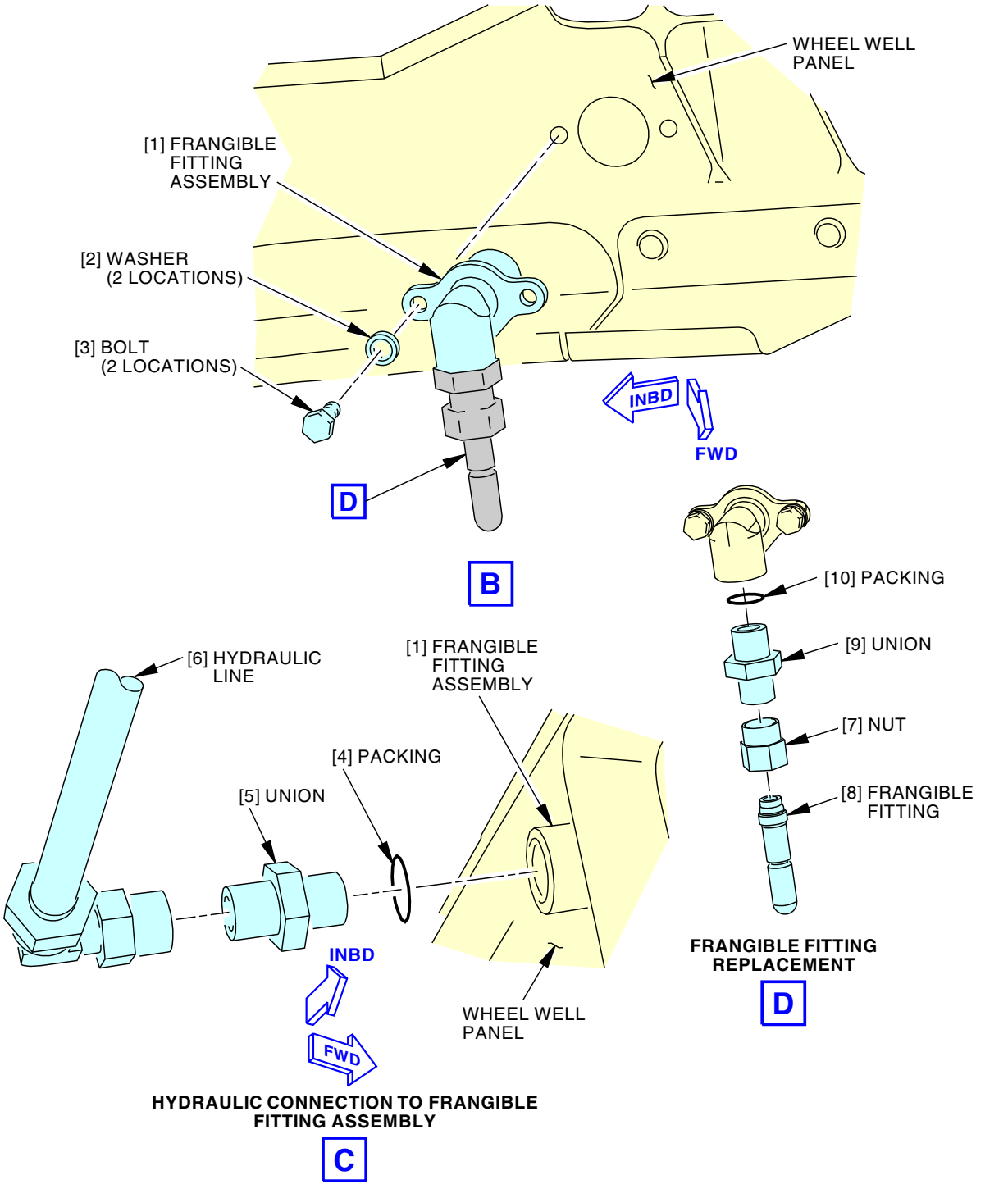
**A**

2414270 S00061534754_V1

**Main Gear Frangible Fitting Assembly**
**Figure 401/32-32-52-990-801 (Sheet 1 of 2)**



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2414271 S00061534755_V2

**Main Gear Frangible Fitting Assembly**
**Figure 401/32-32-52-990-801 (Sheet 2 of 2)**



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**TASK 32-32-52-400-801**

**3. Main Gear Frangible Fitting Assembly Installation**

(Figure 401)

**A. General**

(1) This task is for the installation of the main gear frangible fitting assembly.

**B. References**

| Reference | Title |
|---|---|
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

**C. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |

**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Packing | 32-32-52-02-070 | SIA ALL |

**F. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

**G. Frangible Fitting Assembly Installation**

**SUBTASK 32-32-52-420-001**

(1) Lubricate the packing [4], packing [10], union [5] and union [9] with hydraulic fluid, D00153.

**SUBTASK 32-32-52-420-002**

(2) Put the frangible fitting assembly [1] in its position in the structure.

**SUBTASK 32-32-52-420-003**

(3) Install the bolt [3] and washer [2].

**SUBTASK 32-32-52-390-001**

(4) Fay surface seal the frangible fitting assembly [1] with sealant, A00247.

**SUBTASK 32-32-52-080-001**

(5) Remove the cap/plug, STD-14686, from the ports of the frangible fitting assembly [1].

**SUBTASK 32-32-52-420-004**

(6) Install the packing [4], packing [10], union [5] and union [9] on the frangible fitting assembly [1].



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SUBTASK 32-32-52-420-009

(7) Tighten the union [5] to 215 ±11 in-lb (24.3 ±1.2 N·m).

SUBTASK 32-32-52-080-002

(8) Remove the cap/plug, STD-14686, from the hydraulic line [6].

SUBTASK 32-32-52-420-010

(9) Connect the hydraulic line [6] to the union [5].

SUBTASK 32-32-52-420-011

(10) Tighten the B-nut on the hydraulic line [6] to 270 ±14 in-lb (31 ±2 N·m).

**H. Frangible Fitting Assembly Installation Test**

SUBTASK 32-32-52-860-002

(1) Pressurize hydraulic system A (TASK 29-11-00-860-801).

SUBTASK 32-32-52-700-001

(2) Use the override trigger to move the landing gear lever from the DN position to the UP position three times as follows:

(a) Hold the landing gear lever in each position for three seconds before you move the landing gear lever to the subsequent position.

SUBTASK 32-32-52-700-002

(3) Move the landing gear lever to the DN position.

SUBTASK 32-32-52-210-001

(4) Do a check for leakage with the hydraulic pressure applied.

SUBTASK 32-32-52-860-003

(5) Depressurize hydraulic system A (TASK 29-11-00-860-805).

SUBTASK 32-32-52-210-002

(6) Make sure that there are no leaks in the hydraulic connections.

**I. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-32-52-200-001

(1) Service the reservoirs if it is necessary (TASK 12-12-00-610-801).

**——— END OF TASK ———**

**TASK 32-32-52-000-802**

**4. Main Gear Frangible Fitting Removal**

(Figure 401)

**A. General**

(1) This task is for the removal of the main gear frangible fitting

**B. References**

| Reference | Title |
|---|---|
| 10-11-05-500-801 | Chock Installation Winds/Gusts Maximum 40 mph (35 Knots) (P/B 201) |
| 10-11-05-500-802 | Chock Installation in Winds More Than 35 Knots - Handling (P/B 201) |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |



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## C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

## D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

## E. Prepare for the Removal

SUBTASK 32-32-52-480-005

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-32-52-860-004

(2) Depressurize hydraulic system A (TASK 29-09-00-860-802).

SUBTASK 32-32-52-580-002

(3) Install wheel chocks for the main landing gear (TASK 10-11-05-500-801 or TASK 10-11-05-500-802).

## F. Main Gear Frangible Fitting Removal

SUBTASK 32-32-52-020-005

(1) Disconnect the nut [7] from the frangible fitting assembly [1].

SUBTASK 32-32-52-020-006

(2) Remove the frangible fitting [8] from the frangible fitting assembly [1].

SUBTASK 32-32-52-211-001

(3) Examine the frangible fitting assembly [1] for damage.

SUBTASK 32-32-52-960-001

(4) If there is damage to the frangible fitting assembly [1], replace it.

NOTE: You must replace the entire frangible fitting assembly [1], not just the frangible fitting [8].

SUBTASK 32-32-52-020-008

(5) If it is necessary, remove the union [9] and packing [10] from the frangible fitting assembly [1].

SUBTASK 32-32-52-910-002

(6) Discard the packing [10].

SUBTASK 32-32-52-480-006

(7) Install a cap/plug, STD-14686, in the ports on the frangible fitting assembly [1]].

END OF TASK



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**TASK 32-32-52-400-802**

## 5. Main Gear Frangible Fitting Installation

(Figure 401)

### A. General

(1) This task is for the installation of the main gear frangible fitting.

### B. References

| Reference | Title |
|---|---|
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |

### E. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 8 | Frangible fitting | 32-32-52-02-050 | SIA ALL |

### F. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### G. Main Gear Frangible Fitting Installation

**SUBTASK 32-32-52-080-003**

(1) Remove the cap/plug, STD-14686, from the port(s) on the frangible fitting assembly [1].

**SUBTASK 32-32-52-420-008**

(2) If it is necessary to install the union [9], do these steps:

(a) Lubricate the packing [10] and union [9] with hydraulic fluid, D00153.

(b) Install the union [9] with the packing [10] on the frangible fitting assembly [1]

(c) Tighten the union [9] to 215 ±11 in-lb (24.3 ±1.2 N·m).

**SUBTASK 32-32-52-420-005**

(3) Put the frangible fitting [8] into the frangible fitting assembly [1].

**SUBTASK 32-32-52-420-006**

(4) Install the nut [7].

**SUBTASK 32-32-52-420-007**

(5) Tighten the nut [7] on the frangible fitting [8] to 270 ±14 in-lb (30.5 ±1.5 N·m).



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## H. Main Gear Frangible Fitting Installation Test

**SUBTASK 32-32-52-860-005**

(1) Pressurize hydraulic system A (TASK 29-11-00-860-801).

**SUBTASK 32-32-52-700-003**

(2) Use the override trigger to move the landing gear lever from the DN position to the UP position three times as follows:

(a) Hold the landing gear lever in each position for three seconds before you move the landing gear lever to the subsequent position.

**SUBTASK 32-32-52-700-004**

(3) Move the landing gear lever to the DN position.

**SUBTASK 32-32-52-210-003**

(4) Do a check for leakage with the hydraulic pressure applied.

**SUBTASK 32-32-52-860-006**

(5) Remove the pressure from hydraulic system A (TASK 29-11-00-860-805).

**SUBTASK 32-32-52-210-004**

(6) Make sure that there are no leaks in the hydraulic connections.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-32-52-200-002**

(1) Service the reservoirs if it is necessary (TASK 12-12-00-610-801).

**——— END OF TASK ———**



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# MAIN GEAR TRANSFER CYLINDER - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these two tasks:

(1) A removal of the transfer cylinder assembly [1] for the main landing gear

(2) An installation of the transfer cylinder assembly [1] for the main landing gear.

**TASK 32-32-71-000-801**

## 2. Main Gear Transfer Cylinder Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### D. Prepare for the Removal

**SUBTASK 32-32-71-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-32-71-860-001**

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-32-71-580-001**

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

### E. Main Gear Transfer Cylinder Removal

**SUBTASK 32-32-71-020-001**

(1) Disconnect the hydraulic lines from the transfer cylinder assembly [1].

**SUBTASK 32-32-71-480-002**

(2) Install caps/plugs, STD-14686, on the hydraulic lines and in the transfer cylinder assembly [1].



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SUBTASK 32-32-71-020-002

(3) Remove the screws [3] and washers [4] from the clamps [2].

SUBTASK 32-32-71-020-003

(4) Remove the clamps [2].

SUBTASK 32-32-71-020-004

(5) Remove the transfer cylinder assembly [1] from the airplane.

SUBTASK 32-32-71-020-005

(6) Do these steps if the replacement transfer cylinder assembly [1] does not have the unions [6] installed:

(a) Remove the unions [6] from the transfer cylinder assembly [1].

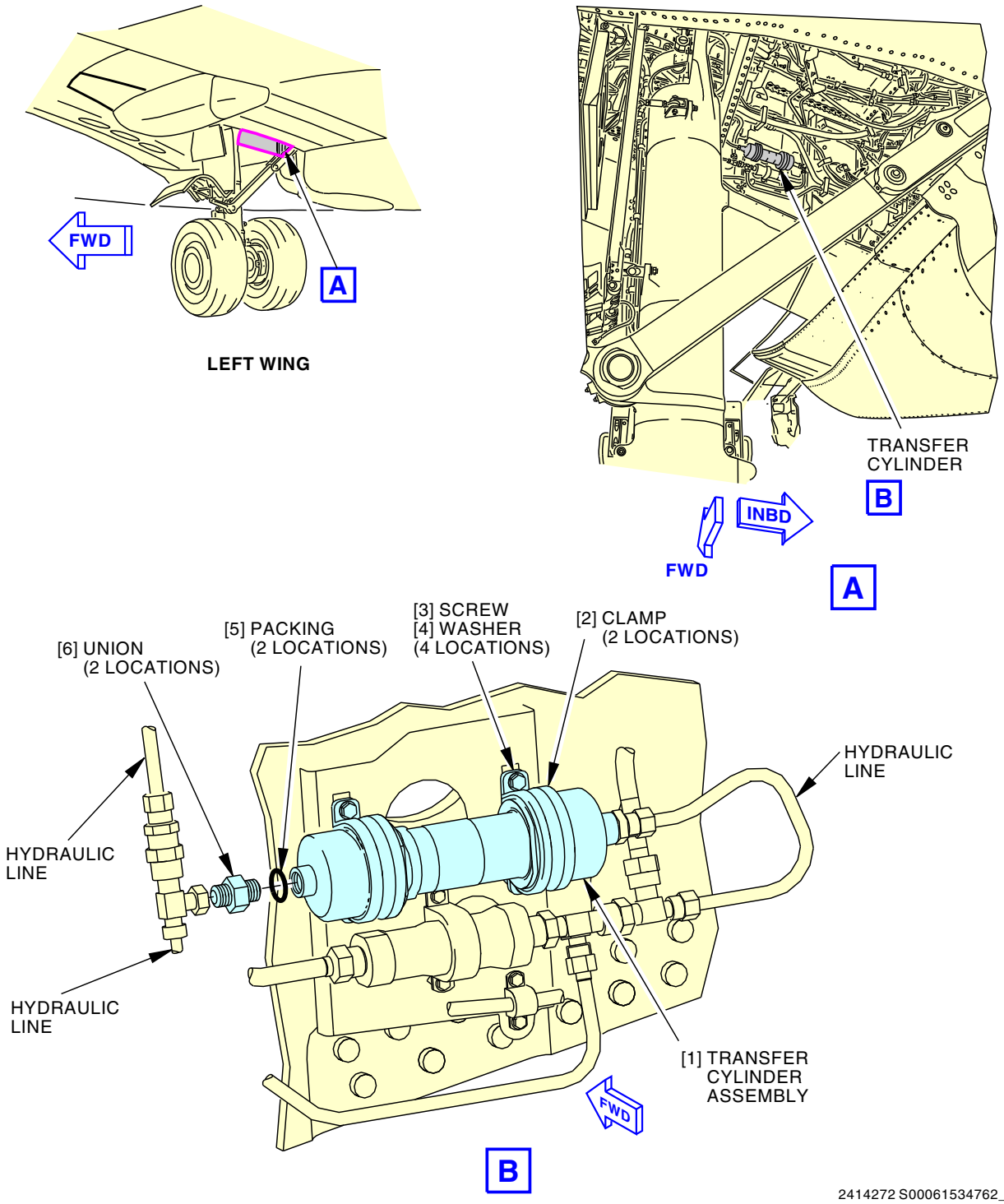
(b) Remove and discard the packing [5].

(c) Install caps/plugs, STD-14686, in the ports on the transfer cylinder assembly [1].

——— END OF TASK ———



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**Main Landing Gear Transfer Cylinder Installation**
**Figure 401/32-32-71-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-32-71-400-801**

## 3. Main Gear Transfer Cylinder Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Transfer cylinder assembly | 32-32-71-02-040 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### F. Main Gear Transfer Cylinder Installation

**SUBTASK 32-32-71-420-001**

(1) Do these steps if the replacement transfer cylinder assembly [1] does not have the unions [6] installed:

(a) Lubricate these items with hydraulic fluid, D00153:

1) packings [5]

2) unions [6].

(b) Remove the caps/plugs, STD-14686, from the ports on the transfer cylinder assembly [1].

(c) Install the packings [5] and unions [6] in the transfer cylinder assembly [1].

**SUBTASK 32-32-71-610-001**

(2) Fill the transfer cylinder assembly [1] from the two ends with hydraulic fluid, D00153, and then put caps/plugs, STD-14686, on the unions [6].



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SUBTASK 32-32-71-420-002

(3) Put the transfer cylinder assembly [1] in the clamps [2].

SUBTASK 32-32-71-420-003

(4) Adjust the position of the transfer cylinder assembly [1] to align it with the hydraulic lines.

SUBTASK 32-32-71-080-001

(5) Remove the caps/plugs, STD-14686, from the unions [6] and connect the hydraulic lines to the transfer cylinder assembly [1].

(a) Tighten the B-nuts on the hydraulic lines to 270 ±14 in-lb (31 ±2 N·m).

SUBTASK 32-32-71-420-004

(6) Install the screws [3] and washer [4] in the clamps [2].

SUBTASK 32-32-71-420-005

(7) Tighten the hydraulic lines.

## G. Main Gear Transfer Cylinder Installation Test (Airplane on Jacks)

NOTE: This test does a check of the transfer cylinder assembly [1] with the airplane lifted on jacks.

SUBTASK 32-32-71-580-002

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**WARNING** MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES, CABLES, AND LANDING GEAR AREAS. PRESSURIZATION OF A HYDRAULIC SYSTEM CAN MOVE CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS. MOVEMENT OF CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-32-71-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-32-71-480-003

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN THE NOSE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE NOSE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Keep the downlock pin installed in the nose landing gear if maintenance work is necessary in the nose wheel well area or on the nose landing gear (TASK 32-00-01-480-801).



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SUBTASK 32-32-71-080-002

(4) Remove the downlock pin for the nose landing gear if no maintenance work is necessary in the nose wheel well area or on the nose landing gear (TASK 32-00-01-080-801).

SUBTASK 32-32-71-080-003

(5) Remove the downlock pins for the main landing gear (TASK 32-00-01-080-801).

SUBTASK 32-32-71-870-001

(6) Extend and retract the main landing gear several times.

NOTE: It will bleed the air from the transfer cylinder and the lines. Examine for the correct gear operation.

SUBTASK 32-32-71-210-001

(7) Examine the hydraulic connections for leaks.

SUBTASK 32-32-71-480-004

(8) Extend the main landing gear and install the downlock pins (TASK 32-00-01-480-801).

SUBTASK 32-32-71-860-003

(9) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-32-71-580-003

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(10) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

## H. Main Gear Transfer Cylinder Installation Test (Airplane not on Jacks)

NOTE: This test does a check of the transfer cylinder assembly [1] with the airplane on the ground, if jacks are not available.

SUBTASK 32-32-71-480-006

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-32-71-860-004

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-32-71-700-001

(3) Use the override trigger to move the landing gear lever from the DN position to the UP position for three times.



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(a) Hold the landing gear lever in each position for three seconds before you move the landing gear lever to the subsequent position.

**SUBTASK 32-32-71-700-002**

(4) Move the landing gear lever to the DN position.

**SUBTASK 32-32-71-210-002**

(5) Do a check for leakage with the hydraulic pressure applied.

**SUBTASK 32-32-71-860-005**

(6) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-32-71-210-003**

(7) Make sure there is no leaks in the hydraulic connections.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-32-71-200-001**

(1) Service the reservoirs if it is necessary (TASK 12-12-00-610-801).

**——— END OF TASK ———**



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## MAIN LANDING GEAR HYDRAULIC FLOW REGULATOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the hydraulic flow regulator for the main landing gear

(2) An installation of the hydraulic flow regulator for the main landing gear

(a) The installation of the hydraulic flow regulator for the main landing gear includes an installation test of the hydraulic flow regulator.

**TASK 32-32-72-000-801**

### 2. Main Gear Hydraulic Flow Regulator Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-32-72-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-32-72-860-001**

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

#### E. Main Gear Hydraulic Flow Regulator Removal

**SUBTASK 32-32-72-020-001**

(1) Loosen the hydraulic lines to the hydraulic flow regulator [3].

**SUBTASK 32-32-72-020-002**

(2) Remove the screw [1] and washer [2] that hold the hydraulic lines to the structure on both ends of the hydraulic flow regulator [3].



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**SUBTASK 32-32-72-020-003**

(3) Disconnect the hydraulic lines from the hydraulic flow regulator [3].

**SUBTASK 32-32-72-480-002**

(4) Install caps/plugs, STD-14686, on the hydraulic lines.

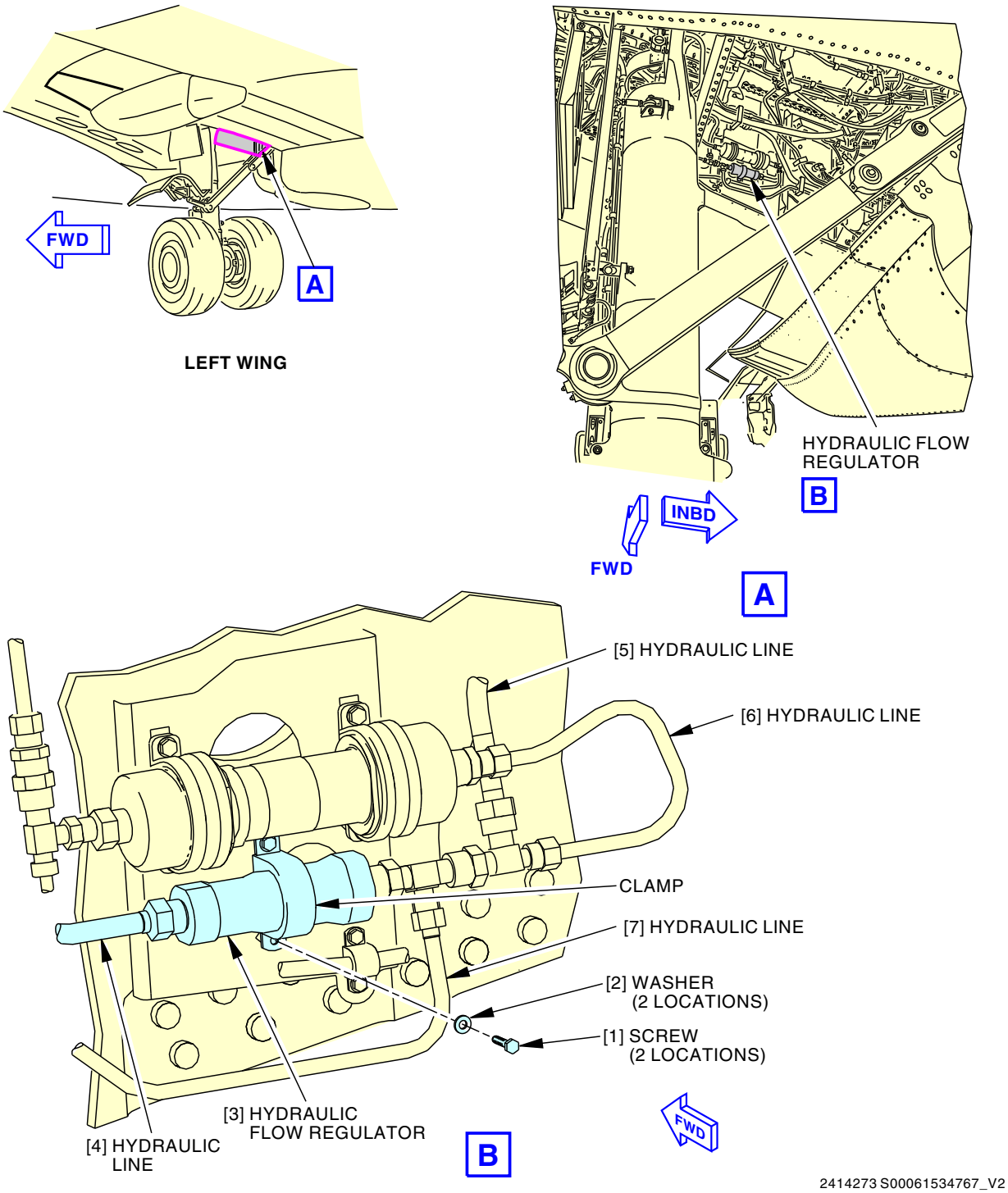
**SUBTASK 32-32-72-020-004**

(5) Remove the hydraulic flow regulator [3] from the airplane.

**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Gear Flow Regulator Installation**
**Figure 401/32-32-72-990-801**



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**TASK 32-32-72-400-801**

## 3. Main Gear Hydraulic Flow Regulator Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Hydraulic flow regulator | 32-32-72-01-040 | SIA ALL |
| | | 32-32-72-02-010 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### E. Main Gear Hydraulic Flow Regulator Installation

**SUBTASK 32-32-72-420-001**

(1) Put the hydraulic flow regulator [3] in position to align it with the hydraulic lines.

**SUBTASK 32-32-72-080-001**

(2) Remove the caps/plugs, STD-14686, from the hydraulic lines and connect the hydraulic lines to the hydraulic flow regulator [3].

(a) Tighten the B-nut on hydraulic line [4] to 500 ±25 in-lb (56 ±3 N·m).

(b) Tighten the B-nut on hydraulic line [5] to 500 ±25 in-lb (56 ±3 N·m).

(c) Tighten the B-nut on hydraulic line [6] to 270 ±14 in-lb (31 ±2 N·m).

(d) Tighten the B-nut on hydraulic line [7] to 270 ±14 in-lb (31 ±2 N·m).

**SUBTASK 32-32-72-420-002**

(3) Install the screws [1] and washers [2] in the clamps for the hydraulic lines.

**SUBTASK 32-32-72-420-003**

(4) Tighten the hydraulic lines.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## F. Main Gear Hydraulic Flow Regulator Installation Test

SUBTASK 32-32-72-480-003

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-32-72-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-32-72-700-001

(3) Move the landing gear lever to the UP position, then to the DN position three times to cycle the hydraulic pressure.

NOTE: This will bleed the air from the regulator and the lines.

NOTE: Use the override for the landing gear lever lock to move the control lever for the landing gear from the DN position to the UP position.

(a) Hold the landing gear lever in each position for three seconds before the landing gear lever is moved to the next position.

(b) Make sure that the UP hose of the retract actuator moves to show that hydraulic pressure is applied when the control lever is moved to the UP position.

(c) Move the control lever to the DN position.

(d) Make sure that the DOWN hose on the retract actuator moves when the control lever is moved from the UP position to the DN position.

SUBTASK 32-32-72-210-001

(4) Do a check for leakage with the hydraulic pressure applied.

SUBTASK 32-32-72-860-003

(5) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-32-72-210-002

(6) Make sure that there are no leaks in the hydraulic connections.

SUBTASK 32-32-72-840-001

(7) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

(a) Do the servicing if it is necessary.

**END OF TASK**



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## MAIN GEAR DOWNLOCK SPRINGS - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these two tasks:

(1) A removal of the downlock spring assy [1] for the main landing gear

(2) An installation of the downlock spring assy [1] for the main landing gear.

**TASK 32-32-91-000-801**

### 2. Main Gear Downlock Springs Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1866 | Expander Set - Spring, Main Landing Gear and Nose Landing Gear<br>Part #: C32014-29 Supplier: 81205<br>Opt Part #: C32014-1 Supplier: 81205<br>Opt Part #: C32014-20 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-32-91-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed in the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-32-91-860-001**

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-32-91-580-001**

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).



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## E. Main Gear Downlock Springs Removal

**SUBTASK 32-32-91-020-001**

(1) Do these steps to remove the downlock spring assembly [1]:

(a) Remove the pins [3], nuts [4], and washers [2] from the outboard attachment end of the downlock spring assembly [1].

(b) Install the expander set, SPL-1866, on the forward downlock spring assembly [1] to release the tension.

(c) Remove the pin [3], nut [4], and washer [2] from the inboard attachment end of the forward downlock spring assembly [1].

(d) Install a plastic cap or tape on the threads on the inboard and outboard pins.

NOTE: This will protect the threads when you remove the forward downlock spring assembly [1].

(2) Disconnect the inboard and outboard ends of the forward downlock spring assembly [1].

(3) Install the expander set, SPL-1866, on the aft downlock spring assembly [1] to release the tension.

(4) Remove the pin [3], nut [4], and washer [2] from the inboard attachment end of the aft downlock spring assembly [1].

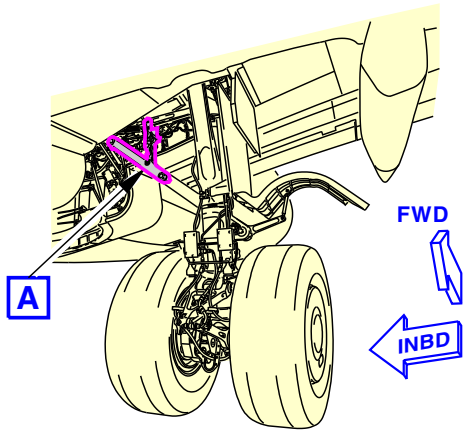
(5) Slide the two pins forward to disconnect the inboard and outboard ends of the aft downlock spring assembly [1].

(6) Remove the aft downlock spring assembly [1].

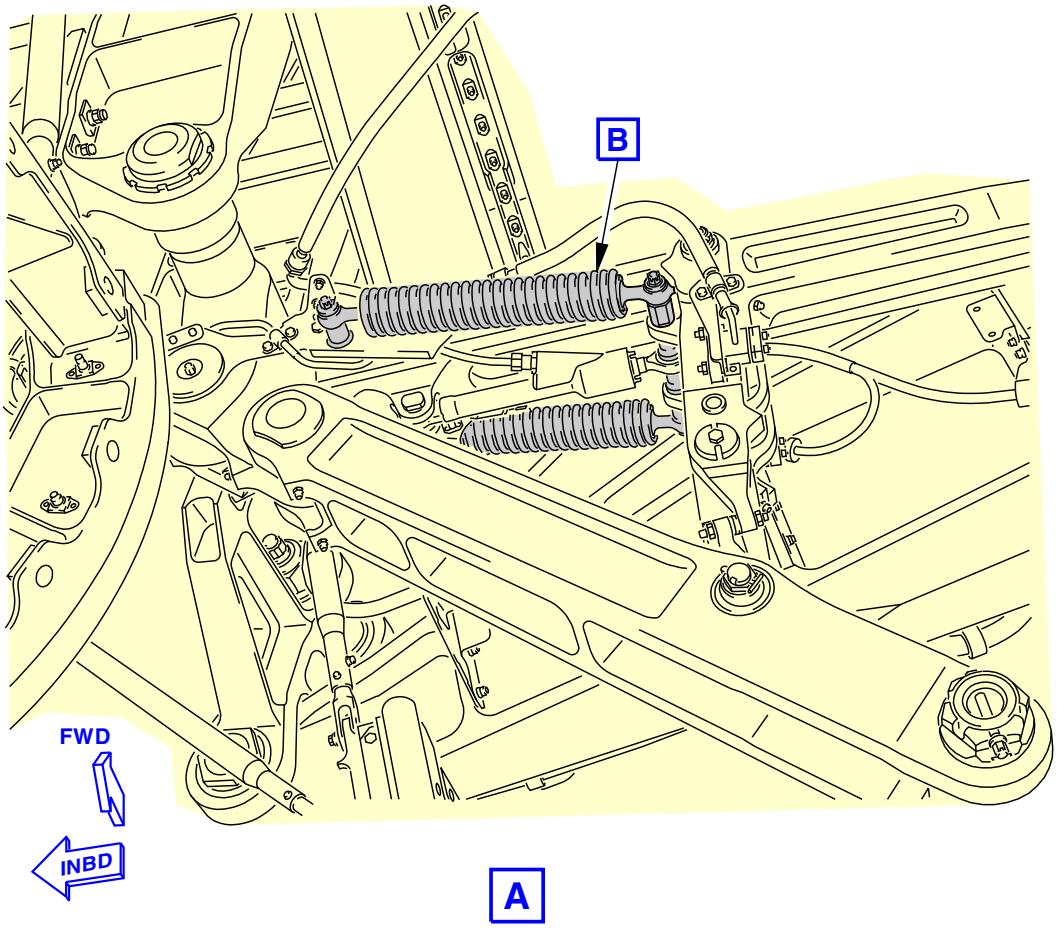
**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




LEFT MAIN LANDING GEAR
(RIGHT MAIN LANDING GEAR IS EQUIVALENT)

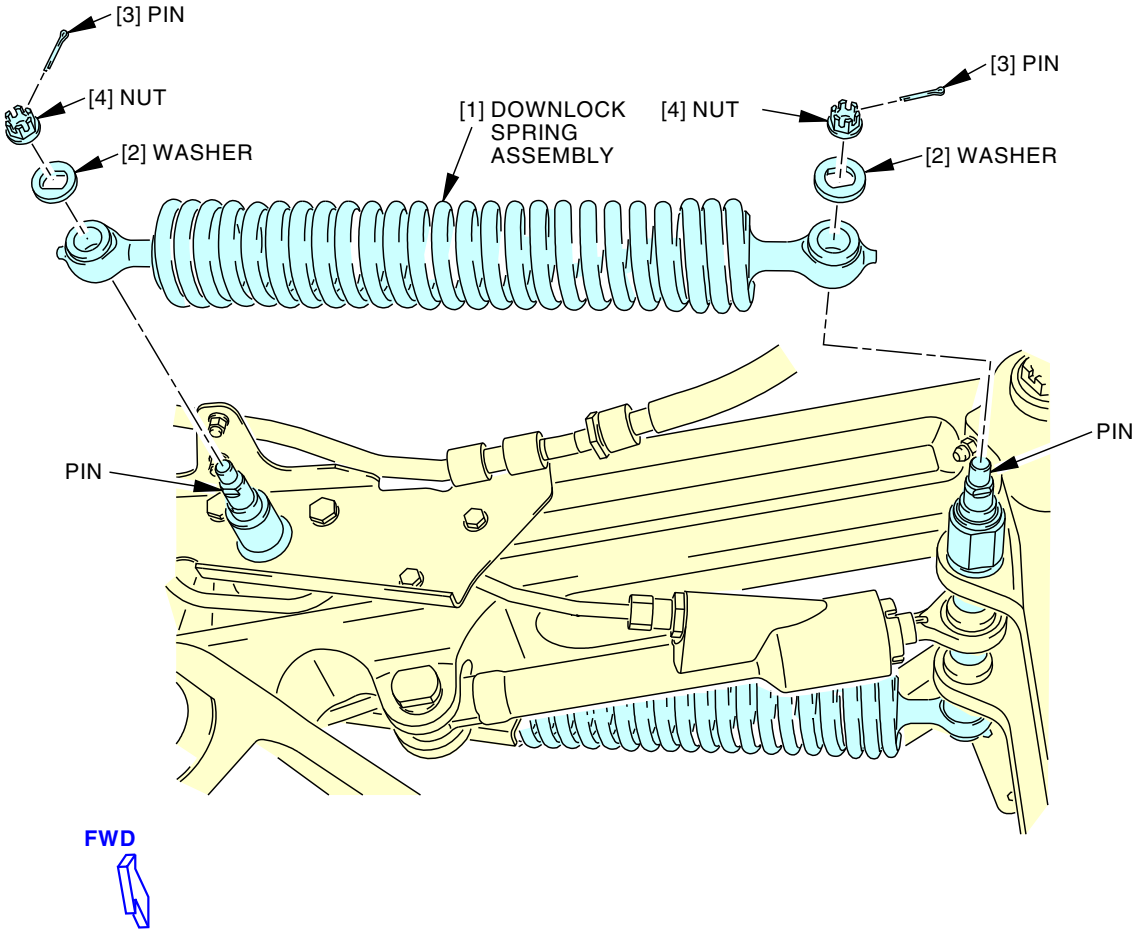



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**Main Landing Gear Downlock Springs Installation**
**Figure 401/32-32-91-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




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**Main Landing Gear Downlock Springs Installation**
**Figure 401/32-32-91-990-801 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-32-91-400-801**

**3. Main Gear Downlock Spring Installation**

(Figure 401)

**A. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1866 | Expander Set - Spring, Main Landing Gear and Nose Landing Gear<br>Part #: C32014-29 Supplier: 81205<br>Opt Part #: C32014-1 Supplier: 81205<br>Opt Part #: C32014-20 Supplier: 81205 |

**B. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**C. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Downlock spring assembly | 32-32-91-01-045 | SIA ALL |
| 3 | Pin | 32-32-91-01-010 | SIA ALL |

**D. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

**E. Access Panels**

| Number | Name/Location |
|---|---|
| 193CL | Wheel Well Panel - Aft Outboard |
| 193CR | Wheel Well Panel - Aft Outboard |

**F. Main Gear Downlock Spring Installation**

**SUBTASK 32-32-91-020-008**

(1) Remove the plastic cap or tape on the threads on the inboard and outboard pins.

**SUBTASK 32-32-91-420-001**

(2) Do these steps to install the downlock spring assembly [1]:



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of corrosion inhibiting material, G50136, on the parts for the downlock spring assembly [1] that follow:

1) the threads and thread reliefs of the inboard and outboard attach points
2) washers [2]
3) nuts [4].

(b) Install the expander set, SPL-1866, on the forward downlock spring assembly [1].

(c) Put the forward downlock spring assembly [1] in position at the inboard and outboard attach points.

(d) Install the washers [2] and nuts [4] on the inboard and outboard attach points for the forward downlock spring assembly [1].

(e) Tighten the nuts [4] to 20 ±5 in-lb (2.3 ±0.6 N·m).

(f) Loosen to the nearest castellation, if it is necessary, and install the pins [3].

(g) Install the expander set, SPL-1866, on the aft downlock spring assembly [1] and extend it to attach on the outboard end.

(h) Put the aft downlock spring assembly [1] in position at the inboard and outboard attach points.

(i) Install the washers [2] and nuts [4] on the inboard and outboard attach points for the aft downlock spring assembly [1].

(j) Tighten the nuts [4] to 20 ±5 in-lb (2.3 ±0.6 N·m).

(k) Loosen to the nearest castellation, if it is necessary, and install the pins [3].

(l) Wipe off any excess corrosion inhibiting material, G50136.

**SUBTASK 32-32-91-410-002**

(3) If removed, install the applicable access panel:

(a) For the left wing, close this access panel:

| Number | Name/Location |
|---|---|
| 193CL | Wheel Well Panel - Aft Outboard |

(b) For the right wing, close this access panel:

| Number | Name/Location |
|---|---|
| 193CR | Wheel Well Panel - Aft Outboard |

**END OF TASK**



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## MAIN GEAR BEAM HANGER PIN - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these two tasks:

(1) A removal of the beam hanger pin for the main landing gear

(2) An installation of the beam hanger pin for the main landing gear.

**TASK 32-32-93-000-801**

### 2. Main Gear Beam Hanger Pin Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1870 | Hoist - Main Landing Gear Retract Actuator<br>Part #: C32028-109 Supplier: 81205<br>Part #: C32028-110 Supplier: 81205<br>Part #: C32028-111 Supplier: 81205<br>Opt Part #: C32028-1 Supplier: 81205<br>Opt Part #: C32028-3 Supplier: 81205<br>Opt Part #: C32028-56 Supplier: 81205<br>Opt Part #: C32028-58 Supplier: 81205<br>Opt Part #: C32028-59 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 551 | Left Wing - Rear Spar To Landing Gear Support Beam |
| 651 | Right Wing - Rear Spar to Landing Gear Support Beam |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Access Panels

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |



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## E. Prepare for the Removal

SUBTASK 32-32-93-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-32-93-860-001

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-32-93-580-001

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

SUBTASK 32-32-93-010-001

(4) Open the applicable access panel:

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

## F. Main Gear Beam Hanger Pin Removal

SUBTASK 32-32-93-980-001

(1) Use the hoist, SPL-1870, to hold the head end of the retract actuator in position.

SUBTASK 32-32-93-020-001

(2) Remove these parts to disconnect the pin [1] from the structure:

(a) cotter pin [4]

(b) nut [3]

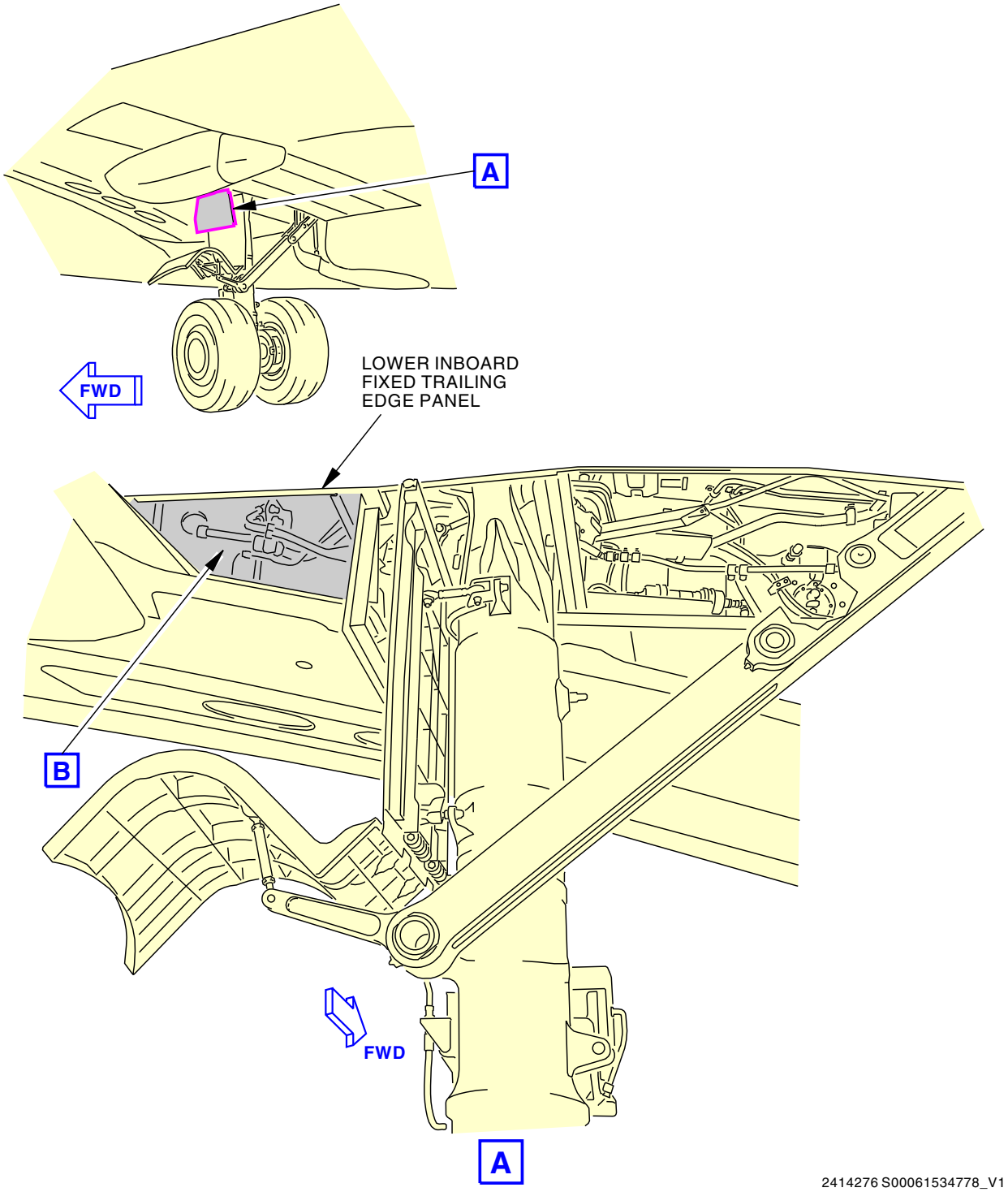
(c) washer [2]

(d) pin [1].

**END OF TASK**



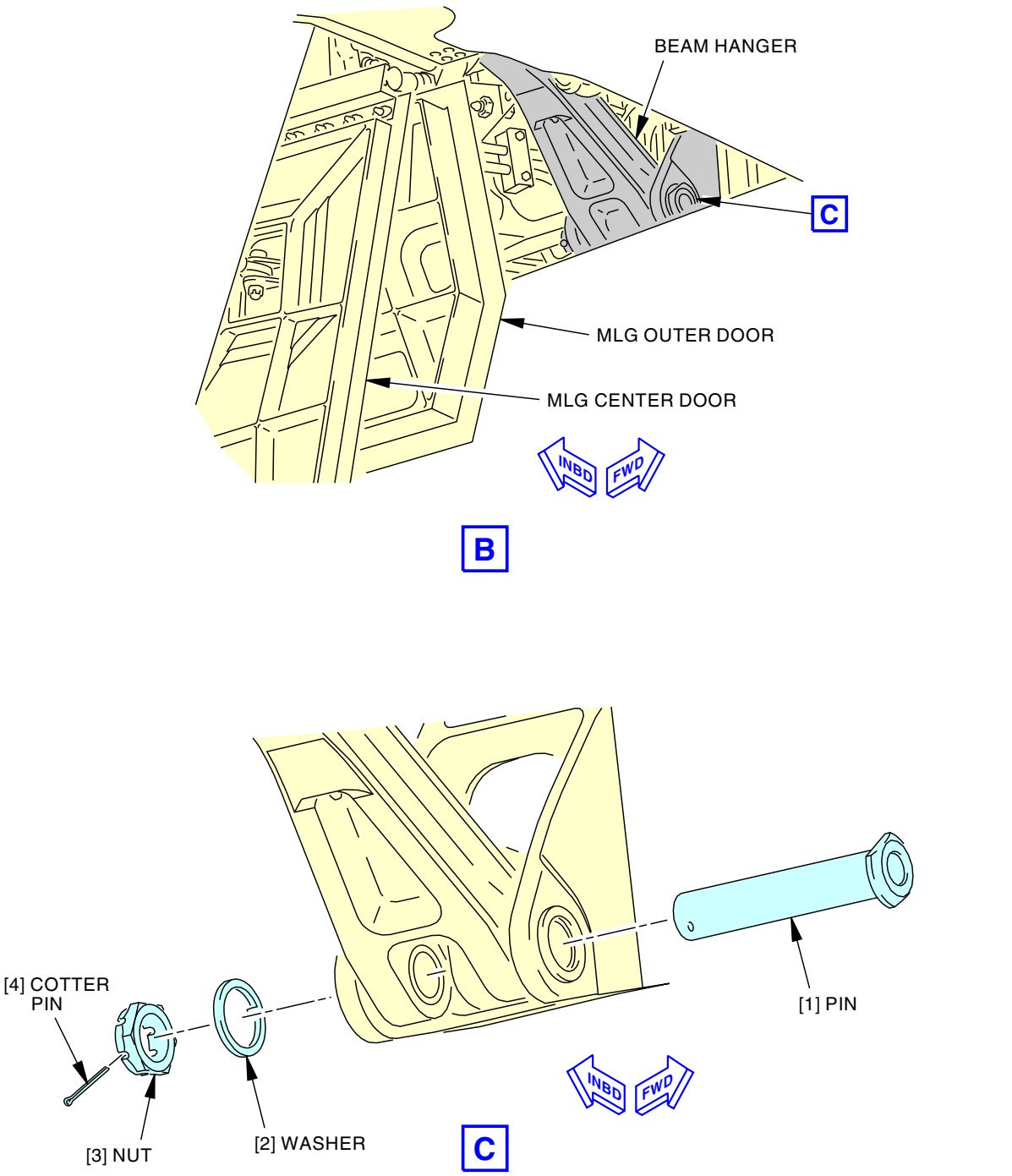
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Beam Hanger Pin Installation**
**Figure 401/32-32-93-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Beam Hanger Pin Installation**
**Figure 401/32-32-93-990-801 (Sheet 2 of 2)**



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**TASK 32-32-93-400-801**

## 3. Main Gear Beam Hanger Pin Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-32-00-710-802 | Main Landing Gear - Operational Test (P/B 501) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1870 | Hoist - Main Landing Gear Retract Actuator<br>Part #: C32028-109 Supplier: 81205<br>Part #: C32028-110 Supplier: 81205<br>Part #: C32028-111 Supplier: 81205<br>Opt Part #: C32028-1 Supplier: 81205<br>Opt Part #: C32028-3 Supplier: 81205<br>Opt Part #: C32028-56 Supplier: 81205<br>Opt Part #: C32028-58 Supplier: 81205<br>Opt Part #: C32028-59 Supplier: 81205 |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Pin | 32-32-93-01-015 | SIA ALL |
| 4 | Cotter pin | 32-32-93-01-010 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 551 | Left Wing - Rear Spar To Landing Gear Support Beam |
| 651 | Right Wing - Rear Spar to Landing Gear Support Beam |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |



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## F. Access Panels

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

## G. Main Gear Beam Hanger Pin Installation

SUBTASK 32-32-93-100-001

(1) Clean the surfaces of these items:

(a) Attachment fitting on the beam hanger

(b) pin [1]

(c) washer [2]

(d) nut [3].

SUBTASK 32-32-93-600-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(2) Apply a thin layer of corrosion inhibiting material, G50136, to the thread reliefs and threads on the pin [1], nut [3], and face of the washer [2].

SUBTASK 32-32-93-640-001

(3) Apply grease, D00633, to the chrome surface on the pin [1].

SUBTASK 32-32-93-420-001

(4) Put the beam hanger in its position in the bracket on the structure.

SUBTASK 32-32-93-420-002

(5) Install these parts that connect the beam hanger to the bracket on the wing structure:

(a) pin [1]

(b) washer [2]

(c) nut [3].

1) Tighten the nut [3] to 600 ±50 in-lb (68 ±6 N·m).

NOTE: If you do not have access to the nut, you can apply the torque on the bolt head.

2) If it is necessary, loosen the nut [3] to align the nearest castellation.

(d) Install the new cotter pin [4].

SUBTASK 32-32-93-080-001

(6) Remove the hoist, SPL-1870.



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SUBTASK 32-32-93-410-001

(7) Close the applicable access panel:

| Number | Name/Location |
|---|---|
| 551BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |
| 651BT | Upper Inboard Fixed Trailing Edge, MLG Actuator Access Panel |

## H. Main Gear Beam Hanger Pin Installation Test

SUBTASK 32-32-93-580-002

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**WARNING** MAKE SURE THAT ALL PERSONNEL AND EQUIPMENT ARE AWAY FROM THE AREA AROUND THE LANDING GEAR. IF THE LANDING GEAR MOVES, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-32-93-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-32-93-080-002

(3) For the main landing gear, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

SUBTASK 32-32-93-870-001

(4) For the main landing gear, do this task: Main Landing Gear - Operational Test, TASK 32-32-00-710-802.

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-32-93-480-002

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) For the main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-32-93-860-003

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-32-93-580-003

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(3) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

SUBTASK 32-32-93-410-002

(4) Close the applicable access panel:

| Number | Name/Location |
|---|---|
| 551DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |
| 651DB | Lower Inboard Fixed Trailing Edge, Lube Actuator & MLG Beam Outboard Attach Pin Access Panel |

**END OF TASK**



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## NOSE GEAR EXTENSION AND RETRACTION - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

(1) Extension/retraction test of the nose landing gear after you replaced a component in the extension/retraction system.

(2) Operational test of the nose landing gear.

B. The times for gear retraction in the operational test depend on the hydraulic flow rate. The retraction times given in this procedure are based on a minimum flow rate of 3 gpm (11 l/min) at a hydraulic system pressure of 3000 ±150 psi (20,684 ±1034 kPa). Hydraulic power can be supplied by a hydraulic test bench or the engine driven pumps to give this minimum flow rate.

NOTE: System losses due to pressure drops and overall hydraulic system internal leakage may require a higher flow rate to achieve optimum retraction times. A hydraulic cart with a higher flow rate capacity is necessary to achieve the stated retraction times.

C. For the nose gear, the electric motor driven pump (EMDP) can be used for the component replacement or operational tests since the EMDP provides a hydraulic flow rate of approximately 6 gpm (23 l/min). When you use the EMDP, operate only one landing gear at a time because the lower flow rate of the EMDP causes slower landing gear operation if you operate more than one gear at the same time. Do not use the EMDP to measure extension/retraction times for the nose gear and main gears operated together or the main gears, operated individually or together.

D. The component replacement test is satisfactory in most cases after replacing a landing gear structural or system component. If you are troubleshooting slow landing gear extension, it is recommended to do the operational test.

**TASK 32-33-00-710-801**

### 2. Nose Landing Gear Test - Component Replacement

(Figure 501)

#### A. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 20-40-11-910-801 | Static Grounding (P/B 201) |
| 29-00-00-993-801 | Table: Hydraulic Fluid Leakage Limits (P/B 601) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 117 | Electrical and Electronics Compartment - Left |
| 118 | Electrical and Electronics Compartment - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |



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## C. Prepare for the Test

SUBTASK 32-33-00-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-33-00-760-001

(2) Do this task: Static Grounding, TASK 20-40-11-910-801.

SUBTASK 32-33-00-580-001

(3) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

SUBTASK 32-33-00-860-003

(4) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-33-00-080-001

(5) For the nose landing gear, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

SUBTASK 32-33-00-860-004

(6) Put the master dim & test switch in the bright position.

SUBTASK 32-33-00-860-006

(7) Make sure the control lever for the landing gear is in the DN position.

SUBTASK 32-33-00-860-007

(8) Make sure that all the gear red lights on the P2-3 panel are off.

SUBTASK 32-33-00-860-008

(9) Make sure that all the gear green lights on the P2-3 panel are on.



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SUBTASK 32-33-00-710-001

**WARNING**

MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF CONTROL SURFACES, CABLES, AND LANDING GEAR AREAS. PRESSURIZATION OF A HYDRAULIC SYSTEM CAN MOVE CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS. MOVEMENT OF CONTROL SURFACES, CABLES, LANDING GEAR, AND LANDING GEAR DOORS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(10) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-33-00-860-009

**WARNING**

MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(11) Move the two thrust levers to the full forward position.

## D. Nose Landing Gear Test (Normal Extension and Retraction)

SUBTASK 32-33-00-710-002

**WARNING**

MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE NOSE LANDING GEAR. FAST MOVEMENT OF THE NOSE LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Move the control lever for the landing gear to UP.

(a) Make sure the nose landing gear retracts.

SUBTASK 32-33-00-860-010

(2) Make sure the green light and the red light for the nose landing gear are off.

SUBTASK 32-33-00-710-003

(3) Move the control lever to the DN position.

(a) Make sure the nose landing gear extends.

SUBTASK 32-33-00-710-004

(4) Move the landing gear control handle UP and DOWN 5 times, to let the nose landing gear fully extend and retract.

(a) Make sure the nose landing gear retraction and extension is smooth.

(b) Make sure there are no hydraulic leaks.

NOTE: The presence of a fluid film on the actuator rod is normal. This film is different from the actual continuous drips that are the indication of actuator seal leakage. (Table 29-00-00-993-801)



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**E. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-33-00-840-001

(1) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-33-00-860-011

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-33-00-480-002

(3) For the nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-33-00-580-002

(4) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

**——— END OF TASK ———**

**TASK 32-33-00-710-802**

## 3. Nose Landing Gear Operational Test

(Figure 501)

**A. References**

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 20-40-11-910-801 | Static Grounding (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |



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**B. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 117 | Electrical and Electronics Compartment - Left |
| 118 | Electrical and Electronics Compartment - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**C. Prepare for the Test**

SUBTASK 32-33-00-480-003

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-33-00-760-002

(2) Do this task: Static Grounding, TASK 20-40-11-910-801.

SUBTASK 32-33-00-710-008

(3) Make sure that the shock strut's pressure of the nose landing gear is correct (TASK 12-15-41-610-802).

SUBTASK 32-33-00-580-003

(4) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

SUBTASK 32-33-00-860-015

(5) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-33-00-080-002

(6) For the nose landing gear, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.



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SUBTASK 32-33-00-860-016

(7) Make sure that the control lever for the landing gear is in the DN position.

SUBTASK 32-33-00-860-017

(8) Make sure that all the gear red lights on the P2-3 panel are off.

SUBTASK 32-33-00-860-018

(9) Make sure that all the gear green lights on the P2-3 panel are on.

SUBTASK 32-33-00-710-005

(10) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-33-00-860-019

**WARNING**

MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(11) Move the two thrust levers to the full forward position.

SUBTASK 32-33-00-860-020

(12) Put the master dim and test switch in the bright position.

## D. Nose Landing Gear Operational Test

SUBTASK 32-33-00-710-006

**WARNING**

MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE NOSE LANDING GEAR. FAST MOVEMENT OF THE NOSE LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Operate the override trigger and move the control lever for the landing gear to UP.

(a) Measure the time for retraction of the nose gear.

NOTE: Measure the nose gear retraction time from the time the control lever is put in the UP position until the red "disagree" light for the nose gear goes off. Use the nose gear red "disagree" light to measure the retraction time.

(b) Make sure that the nose landing gear is up and locked in 9.0 seconds or less.

SUBTASK 32-33-00-860-022

(2) Make sure that the green light and the red light for the nose landing gear are off.

SUBTASK 32-33-00-710-007

(3) Move the control lever to the DN position and measure the time for extension of the nose gear.

NOTE: Measure the nose gear extension time from the time the control lever is put in the DN position until the landing gear green light for the nose gear comes on. Use the nose gear green light to measure the extension time.

(a) Make sure that the nose landing gear is down and locked in 13.0 seconds or less.

## E. Put the Airplane Back to Its Usual Condition

SUBTASK 32-33-00-860-023

(1) For hydraulic systems A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-33-00-480-004

(2) For the nose landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-33-00-580-004

(3) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-33-00-860-024

(4) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

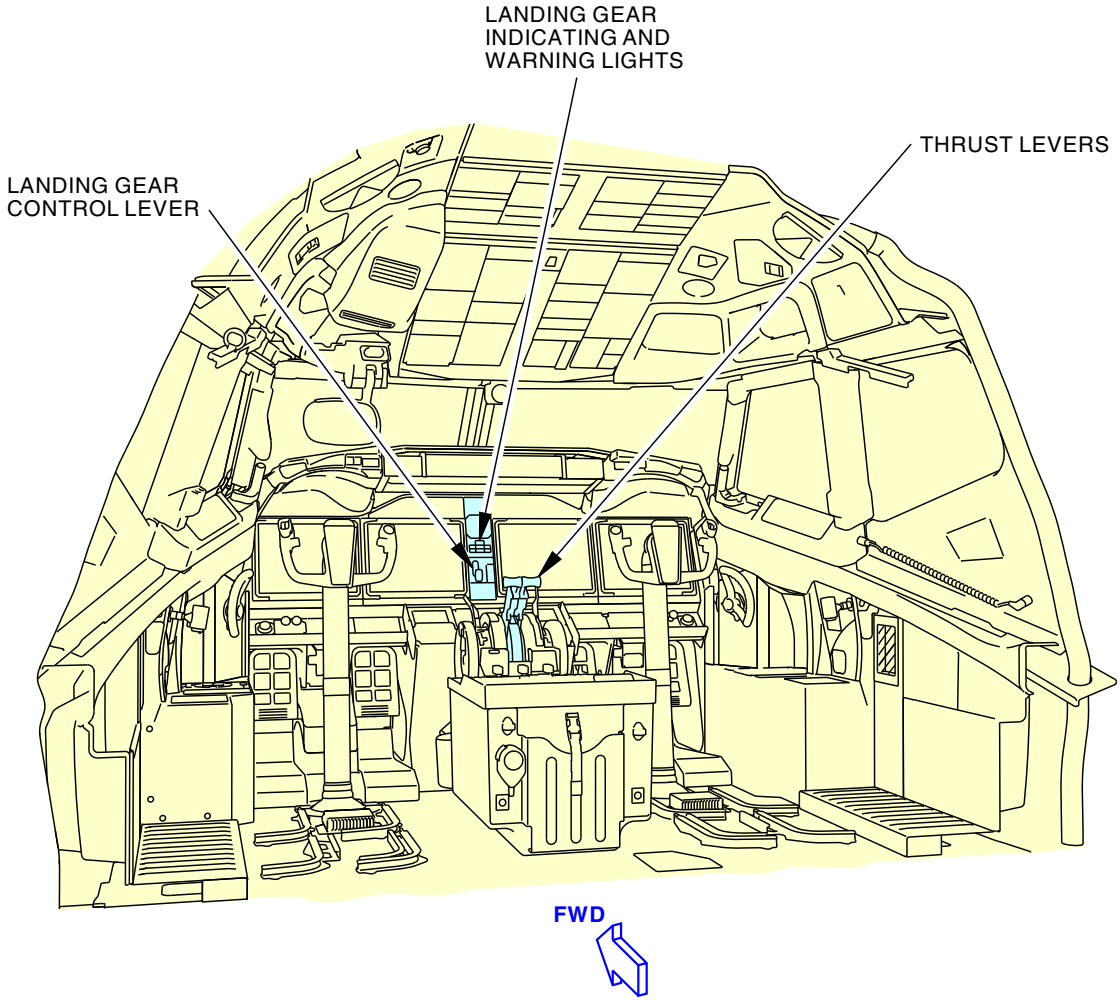
**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

**END OF TASK**



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**FLIGHT COMPARTMENT**

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**Nose Gear Extension and Retraction Test**
**Figure 501/32-33-00-990-801**



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# NOSE GEAR RETRACT ACTUATOR - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) Nose Gear Retract Actuator Removal

(2) Nose Gear Retract Actuator Installation.

(a) The installation of the retract actuator for the nose gear includes two installation tests. An installation test with the airplane on jacks or an installation test with the airplane off jacks. You can choose to use either of the installation test methods.

**TASK 32-33-11-000-801**

## 2. Nose Gear Retract Actuator Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### D. Prepare for the Removal

**SUBTASK 32-33-11-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-33-11-860-001**

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-33-11-580-001**

(3) Install chocks around the tires of the nose landing gear (PAGEBLOCK 10-11-05/201).



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## E. Nose Gear Retract Actuator Removal

SUBTASK 32-33-11-020-001

(1) Disconnect the hydraulic UP-hose at the bracket on the retract actuator [1].

SUBTASK 32-33-11-020-002

(2) Disconnect the hydraulic DOWN-hose at the fitting on the retract actuator [1].

SUBTASK 32-33-11-480-002

(3) Install caps/plugs, STD-14686, on the hydraulic hoses and the fittings on the retract actuator [1].

SUBTASK 32-33-11-020-003

(4) Hold the retract actuator [1] in its position and disconnect the rod end of the retract actuator [1] from the drag brace (View B):

(a) Remove the bolts [18], washers [19], washers [20], nuts [21], and retainer [22] from the pin [23].

(b) Remove the washers [15] and pin [23] from the airplane.

SUBTASK 32-33-11-020-004

(5) Hold the retract actuator [1] in its position and disconnect the head end of the retract actuator [1] from the top fitting (View C):

(a) Remove the bolts [18], washers [19], washers [20], nuts [21], and retainer [22] from the pin [23].

(b) Remove the washers [17] and pin [24] from the airplane.

SUBTASK 32-33-11-020-005

(6) Remove the retract actuator [1] from the airplane.

SUBTASK 32-33-11-020-006

(7) If the replacement retract actuator [1] does not have the tube assembly installed, remove these parts from the retract actuator [1] you removed:

(a) The reducer [2].

(b) The screws [4], washers [5], and clamp [3].

(c) The tube assembly [6].

(d) The elbow fitting [7].

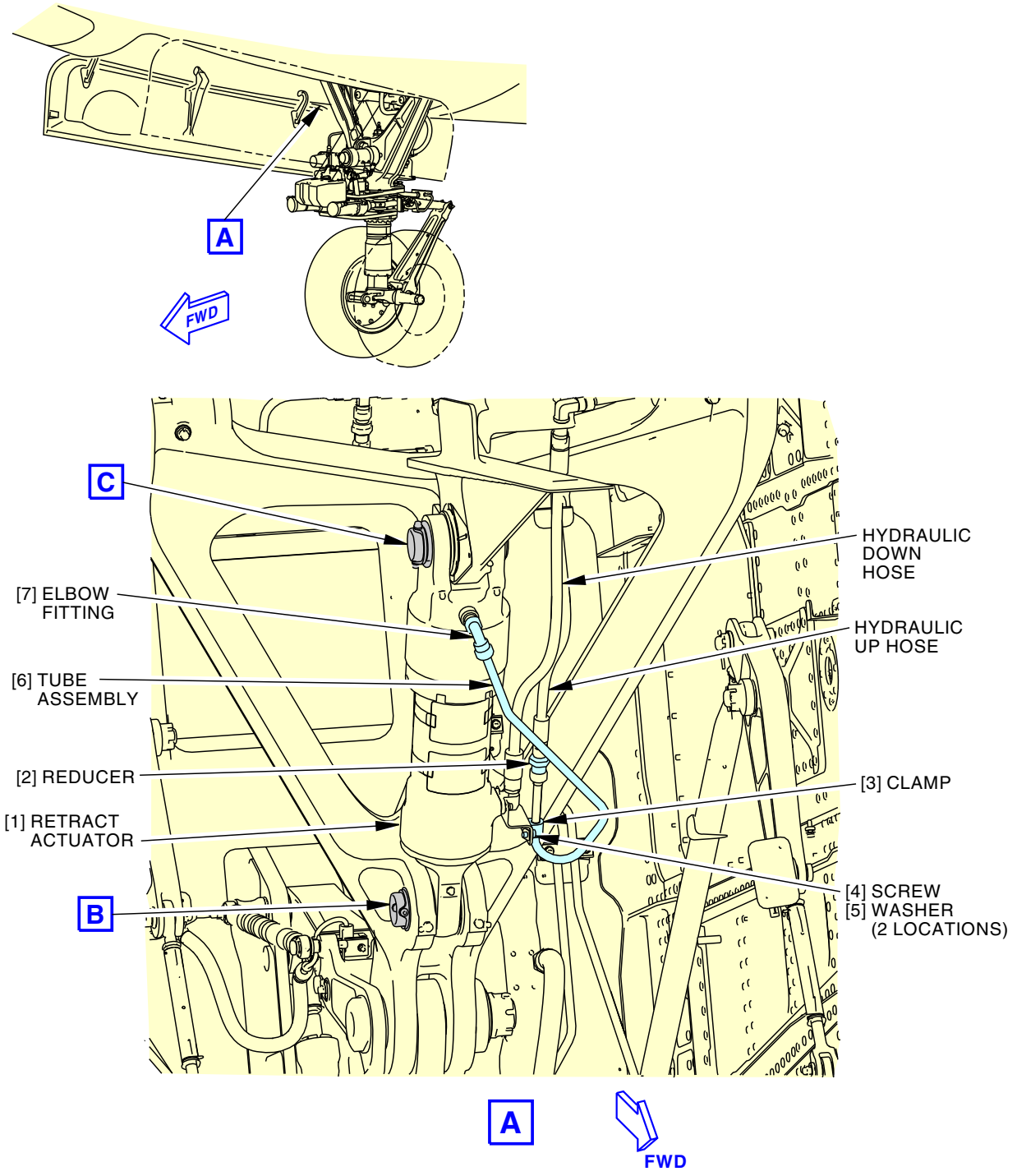
SUBTASK 32-33-11-480-003

(8) Install a cap/plug, STD-14686, in the extend port of the retract actuator [1].

——— END OF TASK ———



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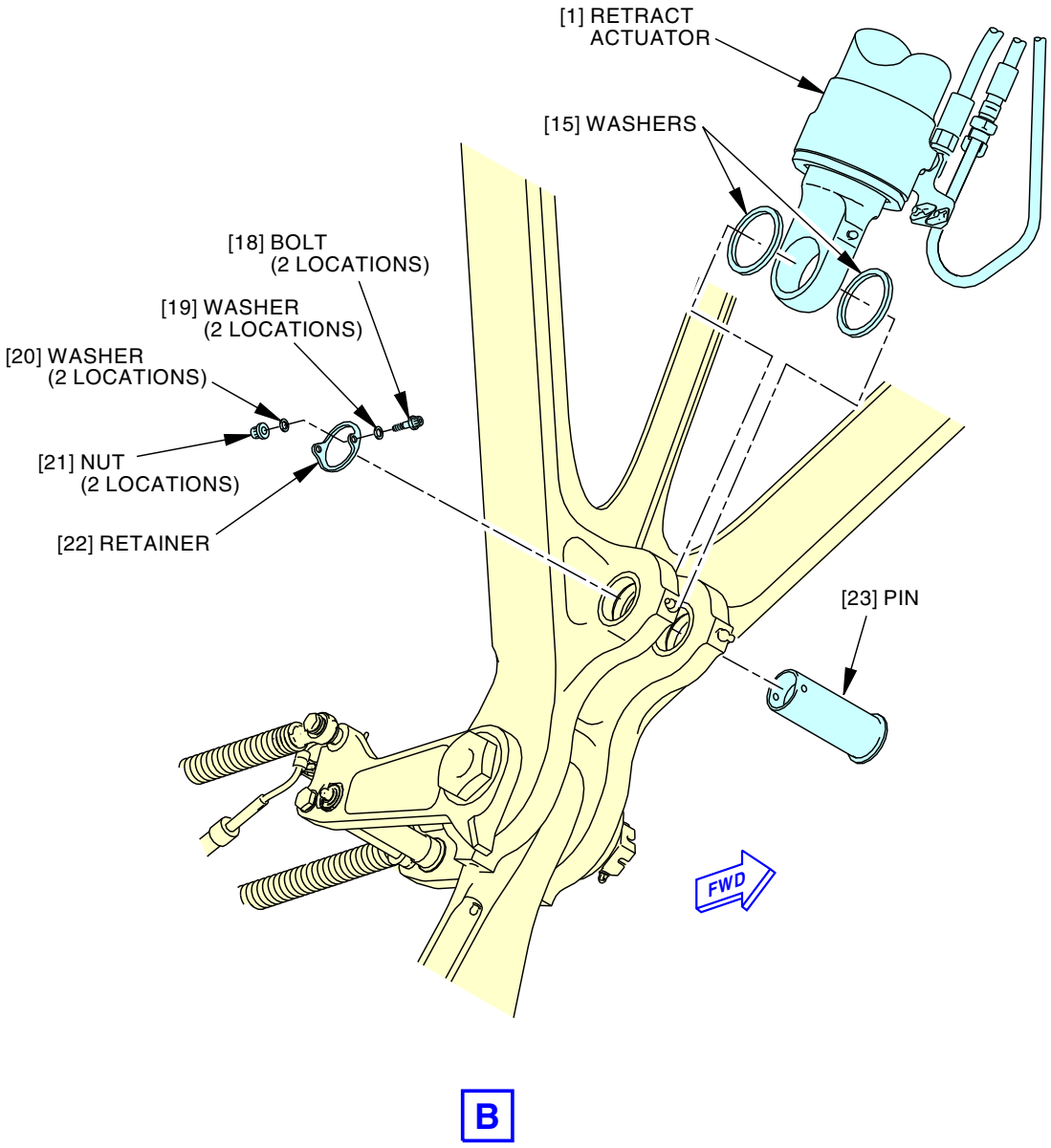



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**Nose Gear Retract Actuator Installation**
**Figure 401/32-33-11-990-801 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

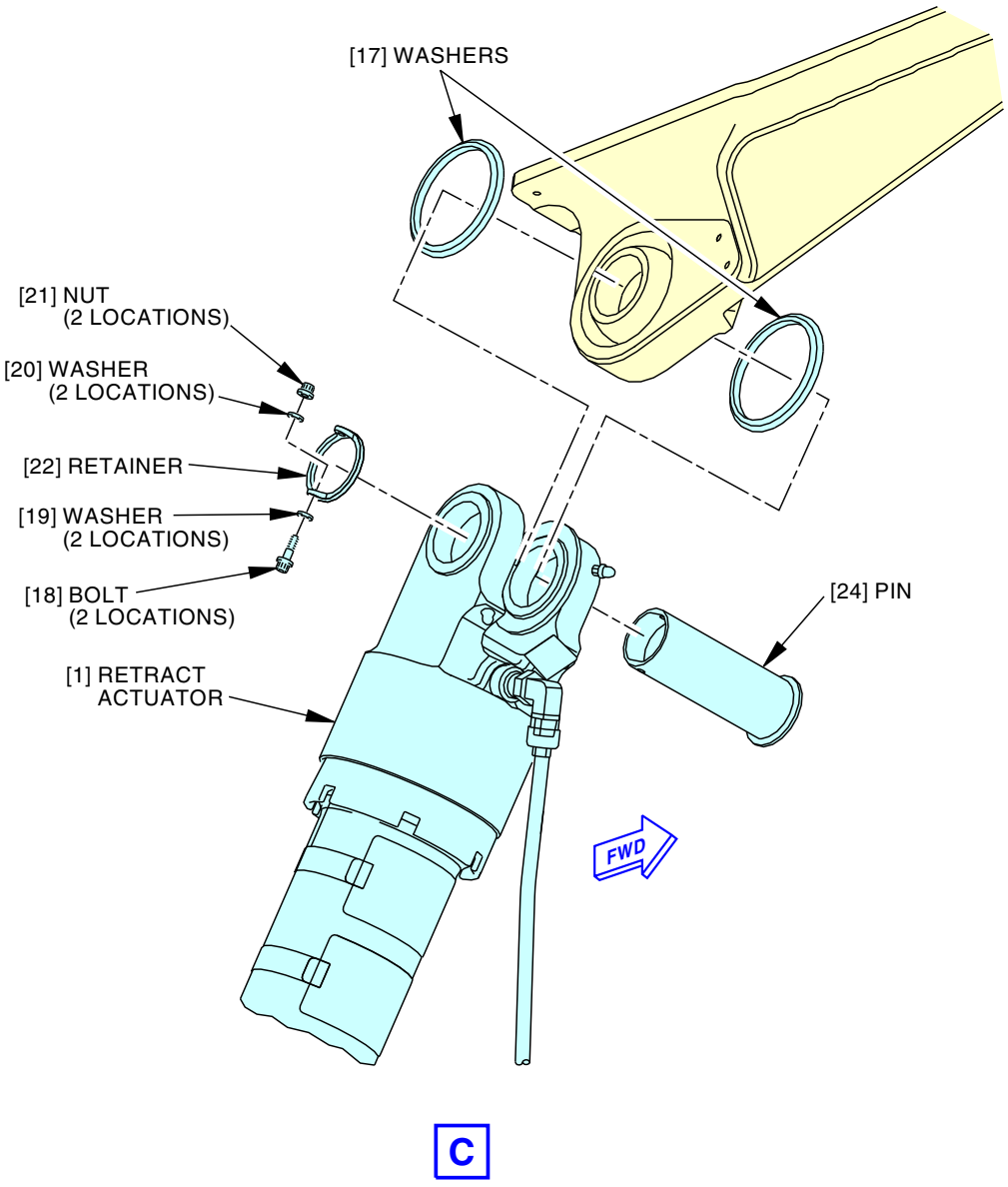



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**Nose Gear Retract Actuator Installation**
**Figure 401/32-33-11-990-801 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2414281 S00061534792_V1

**Nose Gear Retract Actuator Installation**
**Figure 401/32-33-11-990-801 (Sheet 3 of 3)**



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**TASK 32-33-11-400-801**

## 3. Nose Gear Retract Actuator Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-00-00-993-801 | Table: Hydraulic Fluid Leakage Limits (P/B 601) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Retract actuator | 32-33-11-01-036 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### F. Nose Gear Retract Actuator Installation

**SUBTASK 32-33-11-080-001**

(1) Remove the caps/plugs, STD-14686, from the port and the fitting on the retract actuator [1].

**SUBTASK 32-33-11-020-007**

(2) If the replacement retract actuator [1] does not have the tube assembly installed, install these parts from the retract actuator [1] you removed:

(a) The elbow fitting [7].

(b) The tube assembly [6].

(c) The screws [4], washers [5], and clamp [3].



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(d) The reducer [2].

SUBTASK 32-33-11-980-001

(3) Make sure that the retract actuator [1] is in the retracted position.

SUBTASK 32-33-11-610-001

(4) Make sure that the retract actuator [1] is full of hydraulic fluid, D00153.

(a) Put a cap/plug, STD-14686, on the hydraulic fitting on the retract actuator [1] where the DOWN-hose will attach.

(b) Put a cap/plug, STD-14686, on the fitting on the retract actuator [1] where the UP-hose will attach.

SUBTASK 32-33-11-600-001

(5) Prepare the retract actuator [1] for installation on the top fitting:

(a) Apply grease, D00633, to the bushings of the retract actuator [1] and the shaft of the pin [24].

SUBTASK 32-33-11-420-001

(6) Hold the retract actuator [1] in its position and do these steps to connect the head end of the retract actuator [1] to the top fitting (View C):

(a) Install the pin [24] and the washers [17].

NOTE: The head end of pin [24] must be on the same side as the hydraulic hoses to prevent physical interference.

(b) Install the retainer [22] with the flat surface touching the retract actuator [1] on the pin [24].

(c) Install the bolts [18], washers [19], washers [20], and nuts [21] on the retainer [22] and the pin [24].

SUBTASK 32-33-11-420-002

(7) Prepare the retract actuator [1] for installation on the drag brace:

(a) Apply grease, D00633, to the bushings of the retract actuator [1] and the shaft of the pin [23].

SUBTASK 32-33-11-420-003

(8) Hold the retract actuator [1] in its position and do these steps to connect the rod end of the retract actuator [1] to the drag brace (View B):

(a) Install the pin [23] and washers [15].

(b) Install the retainer [22] with the flat surface touching the retract actuator [1] on the pin [23].

(c) Install the bolts [18], washers [19], washers [20], and nuts [21] on the retainer [22] and the pin [23].

SUBTASK 32-33-11-080-002

(9) Remove the caps/plugs, STD-14686, from the hydraulic hoses.

SUBTASK 32-33-11-420-004

(10) Connect the hydraulic UP-hose at the bracket on the retract actuator [1].

(a) Tighten the B-nut on the hydraulic UP-hose to 110 ±6 in-lb (12 ±1 N·m).

SUBTASK 32-33-11-420-005

(11) Connect the hydraulic DOWN-hose at the fitting on the retract actuator [1].

(a) Tighten the B-nut on the hydraulic DOWN-hose to 110 ±6 in-lb (12 ±1 N·m).



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SUBTASK 32-33-11-600-002

(12) Apply grease, D00633, to the lubrication fittings to lubricate these items:

(a) The head end bushings of the retract actuator [1].

(b) The bearing of the attach fitting for the head end.

(c) The rod end bearing of the retract actuator [1].

(d) The bushings of the attach fitting for the rod end.

## G. Nose Gear Retract Actuator Installation Test

NOTE: This test gives two methods to do a check of the nose gear retract actuator [1]. Method one is with the airplane lifted on jacks and method two is with the airplane on the ground if jacks are not available.

SUBTASK 32-33-11-700-001

(1) Installation test with the airplane on jacks (method one).

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE APPLICABLE LANDING GEAR. THE LANDING GEAR EXTENDS AND RETRACTS QUICKLY. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(a) Lift the airplane for nose gear retraction (TASK 07-10-21-580-801).

(b) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(c) Remove the downlock pin for the nose landing gear (TASK 32-00-01-080-801).

**WARNING** MAKE SURE THAT YOU INSTALL THE DOWNLOCK PINS IN THE MAIN LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE MAIN LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(d) Use the override trigger and move the control lever for the landing gear from the DN position to the UP position and back to DN seven times.

NOTE: It will bleed the air from the retract actuator [1] and the lines. Examine for the correct gear operation.

(e) Examine the hydraulic connections for leaks.

NOTE: The presence of a fluid film on the actuator rod is normal. This film is different from the actual continuous drips that are the indication of actuator seal leakage. (Table 29-00-00-993-801)

(f) Extend the nose landing gear and install the downlock pin (TASK 32-00-01-480-801).

(g) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(h) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

(i) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

1) Do a servicing if it is necessary.

SUBTASK 32-33-11-700-002

(2) Installation test with the airplane off jacks (method two).

(a) Make sure that you installed the hydraulic hoses correctly.



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**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(b) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(c) Use the override trigger to move the control lever for the landing gear from the DN position to the UP position for three times.

1) Hold the lever in each position for three seconds before you move the landing gear lever to the subsequent position.

(d) Make sure that the retract actuator [1] tries to extend when you select the UP position.

(e) Move the control lever for the landing gear to the DN position.

(f) Do a check for leakage with the hydraulic pressure applied.

NOTE: The presence of a fluid film on the actuator rod is normal. This film is different from the actual continuous drips that are the indication of actuator seal leakage. (Table 29-00-00-993-801)

(g) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(h) Make sure that there are no leaks in the hydraulic connections.

(i) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

1) Do a servicing if it is necessary.

**END OF TASK**



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## NOSE GEAR LOCK ACTUATOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Nose Landing Gear Lock Actuator Removal

(2) Nose Landing Gear Lock Actuator Installation.

(a) The installation of the lock actuator for the nose landing gear includes an installation test of the lock actuator for the nose landing gear with the airplane off the jacks.

**TASK 32-33-21-000-801**

### 2. Nose Landing Gear Lock Actuator Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-33-21-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-33-21-860-001**

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-33-21-580-001**

(3) Install chocks around the tires of the nose landing gear (PAGEBLOCK 10-11-05/201).

#### E. Nose Landing Gear Lock Actuator Removal

**SUBTASK 32-33-21-020-001**

(1) Disconnect hydraulic line [12] and hydraulic line [13] from the lock actuator [2].



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**SUBTASK 32-33-21-480-002**

(2) Install caps/plugs, STD-14686, on the hydraulic lines.

**SUBTASK 32-33-21-020-002**

(3) Remove the bolt [8], washer [9], and nut [10] from the bottom pin [7].

**SUBTASK 32-33-21-020-003**

(4) Remove the bottom pin [7].

**SUBTASK 32-33-21-020-004**

(5) Remove the pin [4], nut [3], washer [5], and washer [6] for the top pin [1].

**SUBTASK 32-33-21-020-005**

(6) Remove the top pin [1].

**SUBTASK 32-33-21-020-006**

(7) Remove the two washers [11].

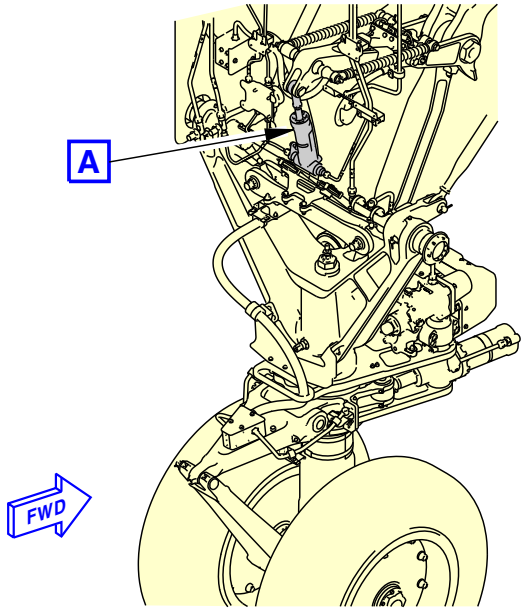
**SUBTASK 32-33-21-020-007**

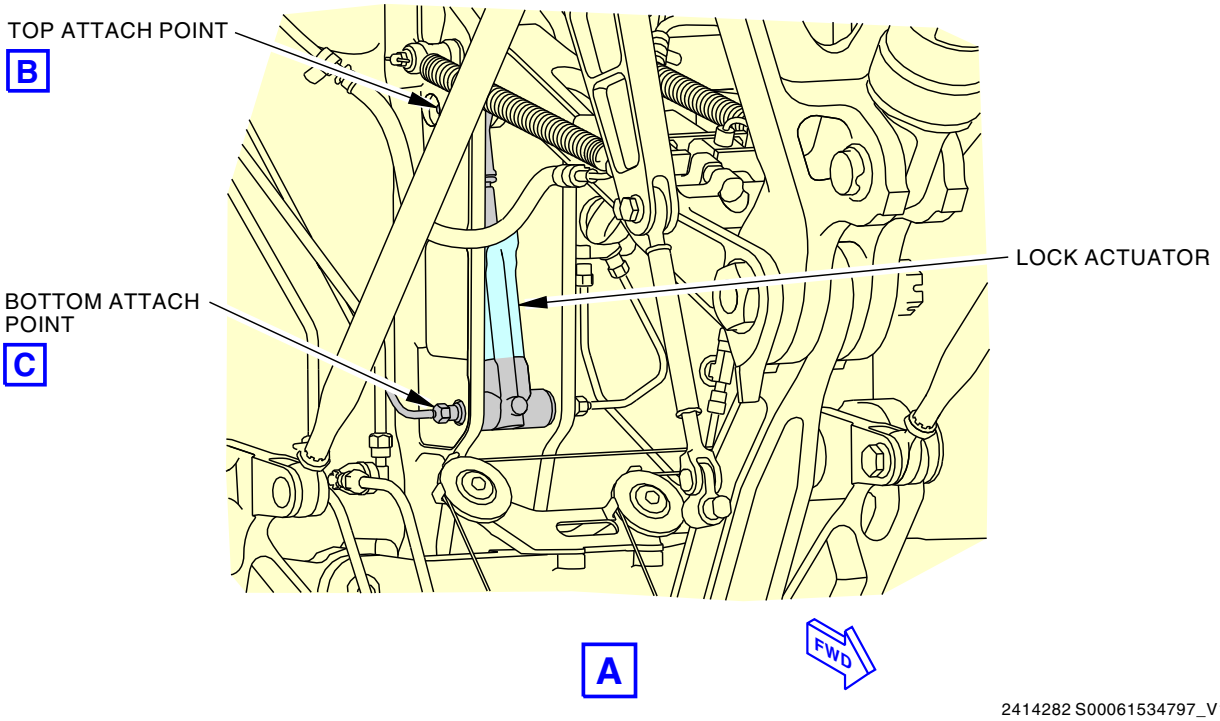
(8) Remove the lock actuator [2].

**——— END OF TASK ———**



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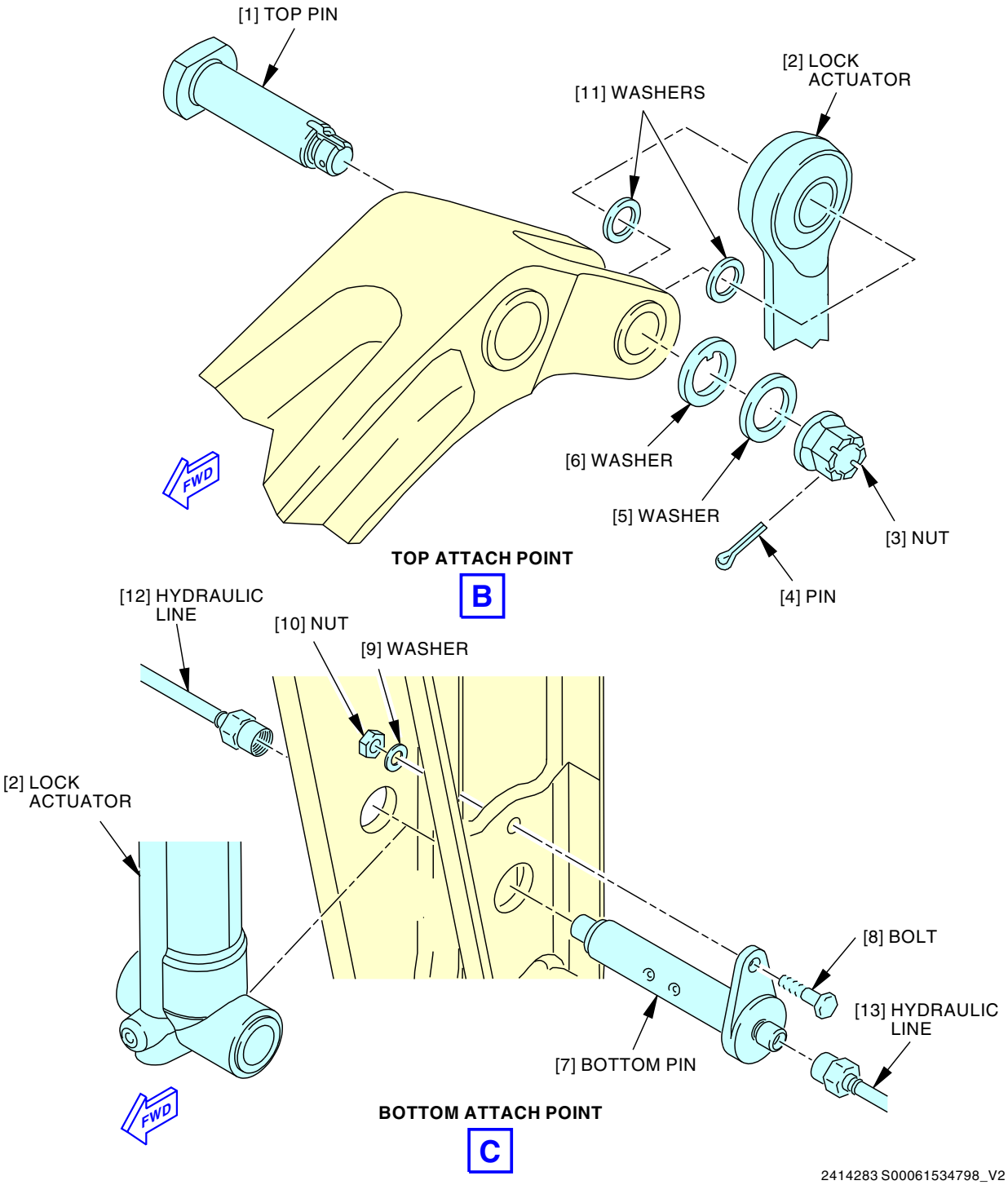




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**Nose Landing Gear Lock Actuator Installation**
**Figure 401/32-33-21-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Lock Actuator Installation**
**Figure 401/32-33-21-990-801 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-33-21-400-801**

## 3. Nose Landing Gear Lock Actuator Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A02315 | Sealant - Low Density, Synthetic Rubber. 2 Part | BMS5-142 Type II |
| D00054 | Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B) | |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 2 | Lock actuator | 32-33-21-01-055 | SIA ALL |
| 4 | Pin | 32-33-21-01-050 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### F. Nose Landing Gear Lock Actuator Installation

**SUBTASK 32-33-21-620-001**

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Put a thin layer of corrosion inhibiting material, G50136, on these items:



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(a) The thread relief and threads of the top pin [1].

(b) The face of the washer [5].

(c) The new pin [4].

**SUBTASK 32-33-21-640-001**

(2) Apply a layer of grease, D00633, to the top pin [1] and mating surfaces.

(a) Do not apply it to the threads or thread relief.

**SUBTASK 32-33-21-420-001**

(3) Put the two washers [11] in their positions.

**SUBTASK 32-33-21-420-002**

(4) Put the lock actuator [2] in its position with the hydraulic boss in the forward direction (Figure 401).

**SUBTASK 32-33-21-420-003**

(5) Install the top pin [1].

**SUBTASK 32-33-21-420-004**

(6) Install the nut [3], washer [5], and washer [6].

**SUBTASK 32-33-21-210-001**

(7) Make sure that the bottom pin [7] and holes in the bottom pin [7] are clean.

**SUBTASK 32-33-21-640-002**

(8) Apply a thin layer of assembly lubricant MCS 352B fluid, D00054, to these parts:

(a) The bottom pin [7].

(b) Inside the bore of the trunnion on the lock actuator [2].

1) Make sure that the seals in the trunnion of the lock actuator [2] are lubricated and in the correct position.

**SUBTASK 32-33-21-420-005**

(9) Install the bottom pin [7].

**SUBTASK 32-33-21-420-006**

(10) Install the bolt [8], washer [9], and nut [10].

**SUBTASK 32-33-21-640-003**

(11) Use sealant, A02315, to apply a fillet seal around the area where the bottom pin [7] touches the aft bulkhead nose wheel well.

**SUBTASK 32-33-21-080-001**

(12) Remove the caps/plugs, STD-14686, from the hydraulic lines.

**SUBTASK 32-33-21-420-007**

(13) Connect hydraulic line [12] and hydraulic line [13] to the lock actuator [2].

(a) Tighten the B-nuts on hydraulic line [12] an hydraulic line [13] to 140 ±7 in-lb (16 ±1 N·m).

**SUBTASK 32-33-21-420-008**

(14) Tighten the nut [3] to 21 ±3 ft-lb (28 ±5 N·m).

**SUBTASK 32-33-21-420-009**

(15) Install the pin [4].

(a) Loosen the nut [3] if it is necessary to align the nut [3] with the hole for the pin [4].



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## G. Nose Landing Gear Lock Actuator Installation Test

SUBTASK 32-33-21-700-001

(1) Do these steps to do an installation test of the lock actuator [2] with the airplane off jacks:

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) If the downlock pins are not installed, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

(b) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(c) Use the override trigger to move the landing gear lever from the DN position to the UP position for three times.

1) Hold the landing gear lever in each position for three seconds before you move the landing gear lever to the subsequent position.

2) Watch for leaks each time the landing gear lever is moved.

(d) Move the landing gear lever to the DN position.

(e) Make sure that the nose lock actuator tries to extend.

NOTE: The hydraulic line to the actuator should pulse.

(f) Move the landing gear lever to the UP position.

(g) Make sure that the nose lock actuator tries to retract.

NOTE: The hydraulic line to the actuator should pulse.

(h) Move the landing gear control lever to the DOWN position.

(i) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(j) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

1) Do the servicing if it is necessary.

**END OF TASK**



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## NOSE GEAR LOCK VALVE MANIFOLD - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these two tasks:

(1) Nose Gear Lock Valve Manifold Removal

(2) Nose Gear Lock Valve Manifold Installation.

**TASK 32-33-31-000-801**

### 2. Nose Gear Lock Valve Manifold Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

SUBTASK 32-33-31-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-33-31-860-001

(2) Remove the pressure from hydraulic system A (TASK 29-09-00-860-802).

SUBTASK 32-33-31-580-001

(3) Install chocks around the tires of the nose landing gear PAGEBLOCK 10-11-05/201).

#### E. Nose Gear Lock Valve Manifold Removal

SUBTASK 32-33-31-020-001

(1) Disconnect the hydraulic lines from the manifold assembly [1].

SUBTASK 32-33-31-480-002

(2) Install caps/plugs, STD-14686, on the hydraulic lines.



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SUBTASK 32-33-31-020-002

(3) Remove the bolts [2] and washers [3] that hold the manifold assembly [1] on the structure.

SUBTASK 32-33-31-020-003

(4) Remove the manifold assembly [1] from the airplane.

SUBTASK 32-33-31-020-004

(5) Do these steps if the replacement manifold assembly [1] does not have hydraulic unions [5] installed:

(a) Remove the hydraulic unions [5] from the manifold assembly [1].

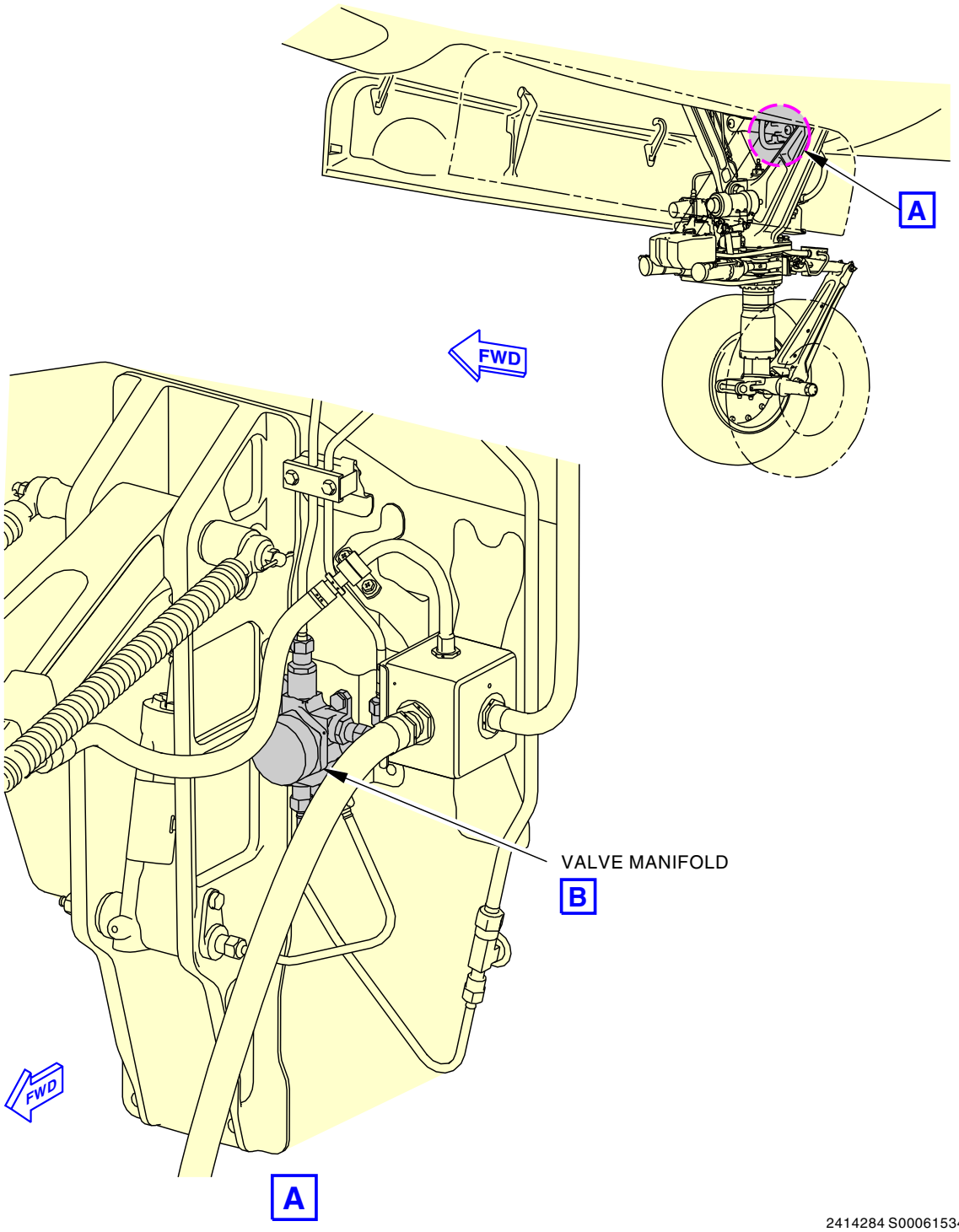
(b) Remove and discard the packings [4].

(c) Install plugs in the ports of the manifold assembly [1].

——— END OF TASK ———



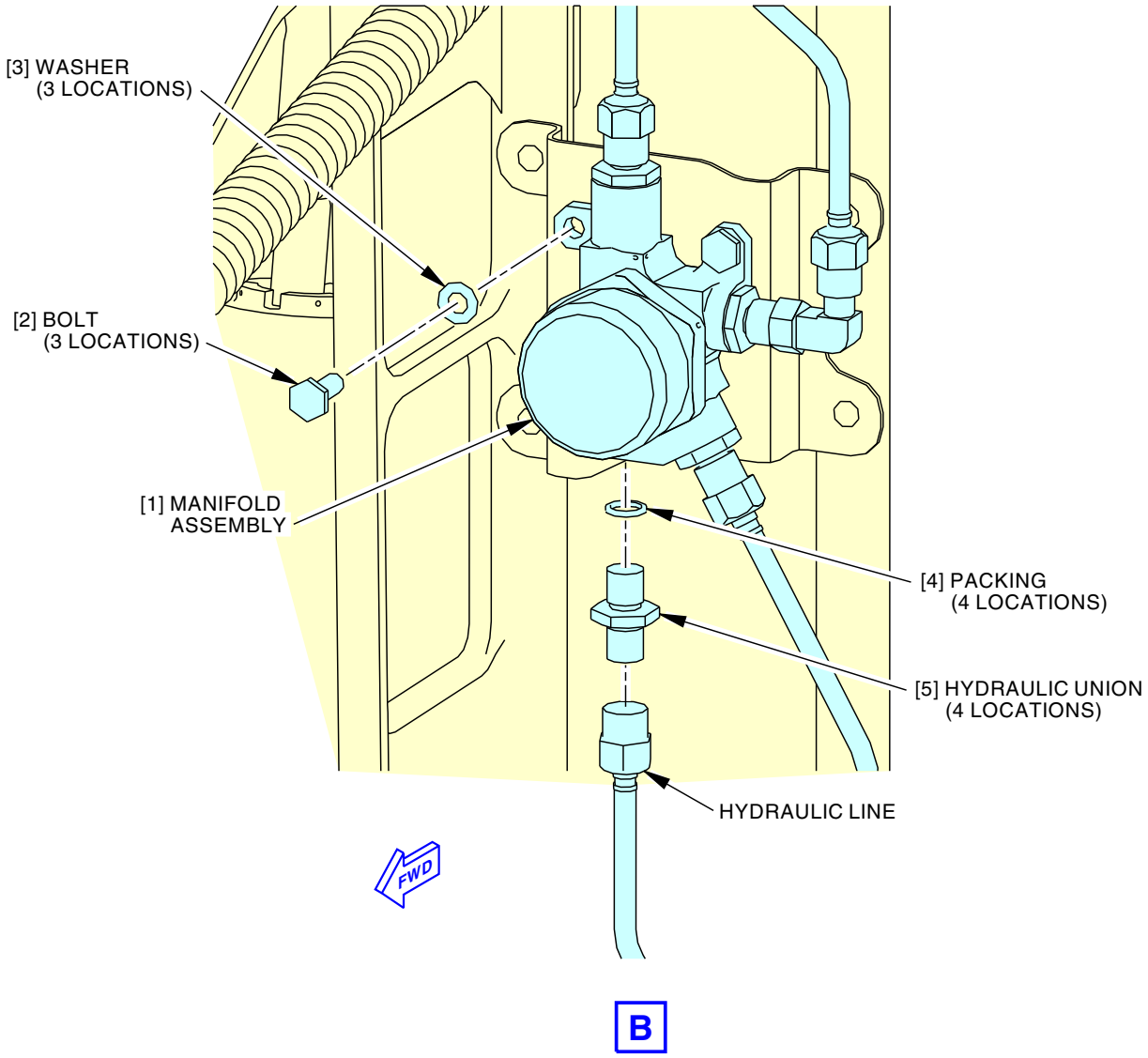
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**Nose Landing Gear Valve Manifold Installation**
**Figure 401/32-33-31-990-801 (Sheet 1 of 2)**



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**Nose Landing Gear Valve Manifold Installation**
**Figure 401/32-33-31-990-801 (Sheet 2 of 2)**



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**TASK 32-33-31-400-801**

## 3. Nose Gear Lock Valve Manifold Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Manifold assembly | 32-33-31-01-005 | SIA 001-014 |
| | | 32-33-31-02-030 | SIA 015-999 |
| 4 | Packing | 32-33-31-01-040 | SIA 001-014 |
| | | 32-33-31-02-025 | SIA 015-999 |

### E. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### F. Nose Gear Lock Valve Manifold Installation

**SUBTASK 32-33-31-420-001**

(1) Do these steps if the manifold assembly [1] does not have the hydraulic unions [5] installed:

(a) Lubricate these items with hydraulic fluid, D00153:

1) The packings [4].

2) The hydraulic unions [5].

(b) Remove the plugs from the ports on the manifold assembly [1].

(c) Install the packings [4] and the hydraulic unions [5] in the manifold assembly [1].



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SUBTASK 32-33-31-610-001

(2) Fill the manifold assembly [1] with hydraulic fluid, D00153.

NOTE: Put a cap on the hydraulic unions [5].

SUBTASK 32-33-31-420-002

(3) Put the manifold assembly [1] in its position.

SUBTASK 32-33-31-420-003

(4) Adjust the position of the manifold assembly [1] to align it with the hydraulic lines.

SUBTASK 32-33-31-080-001

(5) Remove the caps/plugs, STD-14686, from the hydraulic unions [5] and connect the hydraulic lines to the manifold assembly [1].

(a) Tighten the B-nuts on the hydraulic lines to 140 ±7 in-lb (16 ±1 N·m).

SUBTASK 32-33-31-420-004

(6) Install a washer [3] on each bolt [2].

SUBTASK 32-33-31-420-005

(7) Install the bolts [2] and washers [3] that attach the manifold assembly [1] to the structure.

## G. Nose Gear Lock Valve Manifold Installation Test (Airplane on Jacks)

NOTE: This test does a check of the manifold assembly [1] with the airplane lifted on jacks.

SUBTASK 32-33-31-580-002

| | |
|---|---|
| **CAUTION** | MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR. |

| | |
|---|---|
| **CAUTION** | MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR. |

| | |
|---|---|
| **WARNING** | MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE NOSE LANDING GEAR. FAST MOVEMENT OF THE NOSE LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT. |

(1) Lift the airplane for nose gear retraction (TASK 07-10-01-580-801).

SUBTASK 32-33-31-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-33-31-080-002

(3) Remove the downlock pin for the nose landing gear (TASK 32-00-01-080-801).



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SUBTASK 32-33-31-870-001

**WARNING** MAKE SURE THAT YOU INSTALL THE DOWNLOCK PINS IN THE MAIN LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE MAIN LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Extend and retract the nose landing gear several times.

NOTE: This will bleed the air from the manifold assembly [1] and the lines. Look for the correct gear operation.

SUBTASK 32-33-31-210-001

(5) Examine the hydraulic connections for leaks.

SUBTASK 32-33-31-480-003

(6) Extend the nose landing gear and install the downlock pin (TASK 32-00-01-480-801).

SUBTASK 32-33-31-860-003

(7) Remove the power from hydraulic system A (TASK 29-11-00-860-805).

SUBTASK 32-33-31-580-003

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(8) Lower the airplane and remove the jacks (TASK 07-10-01-580-802).

## H. Nose Gear Lock Valve Manifold Installation Test (Airplane not on Jacks)

NOTE: This test gives does a check of the manifold assembly [1] with the airplane on the ground, if jacks are not available.

SUBTASK 32-33-31-860-004

**WARNING** MAKE SURE THAT YOU INSTALL THE DOWNLOCK PINS ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-33-31-700-001

(2) Use the override trigger to move the landing gear lever from the DN position to the UP position for three times.

NOTE: Hold the lever in each position for three seconds before you move the landing gear lever to the subsequent position.

SUBTASK 32-33-31-700-002

(3) Move the landing gear lever to the DN position.



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(a) Make sure that the nose lock actuator tries to extend.

NOTE: The hydraulic line to the actuator should pulse.

**SUBTASK 32-33-31-700-003**

(4) Move the landing gear lever to the UP position.

(a) Make sure that the nose lock actuator tries to retract.

NOTE: The hydraulic line to the actuator should pulse.

**SUBTASK 32-33-31-700-004**

(5) Move the landing gear lever to the DN position.

**SUBTASK 32-33-31-210-002**

(6) Do a check for leakage with the hydraulic pressure applied.

**SUBTASK 32-33-31-860-005**

(7) Remove the power from hydraulic system A (TASK 29-11-00-860-805).

**SUBTASK 32-33-31-210-003**

(8) Make sure that there are no leaks in the hydraulic connections.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-33-31-200-001**

(1) Service the reservoirs if it is necessary (TASK 12-12-00-610-801).

**——— END OF TASK ———**



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## NOSE GEAR TRANSFER CYLINDER - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Nose Gear Transfer Cylinder Removal

(2) Nose Gear Transfer Cylinder Installation.

**TASK 32-33-41-000-801**

### 2. Nose Gear Transfer Cylinder Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-33-41-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-33-41-860-001**

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-33-41-580-001**

(3) Install chocks around the tires of the nose landing gear (PAGEBLOCK 10-11-05/201).

#### E. Nose Gear Transfer Cylinder Removal

**SUBTASK 32-33-41-020-001**

(1) Disconnect the hydraulic lines from the transfer cylinder [1].



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SUBTASK 32-33-41-480-002

(2) Install caps/plugs, STD-14686, on the hydraulic lines and in the ports on the transfer cylinder [1].

SUBTASK 32-33-41-020-002

(3) Remove the screws [3] and washers [4] from the clamps [2].

SUBTASK 32-33-41-020-003

(4) Remove the clamps [2].

SUBTASK 32-33-41-020-004

(5) Remove the transfer cylinder [1] from the airplane.

SUBTASK 32-33-41-020-005

(6) Do these steps if the transfer cylinder [1] does not have unions [6] installed:

(a) Remove the unions [6] from the transfer cylinder [1].

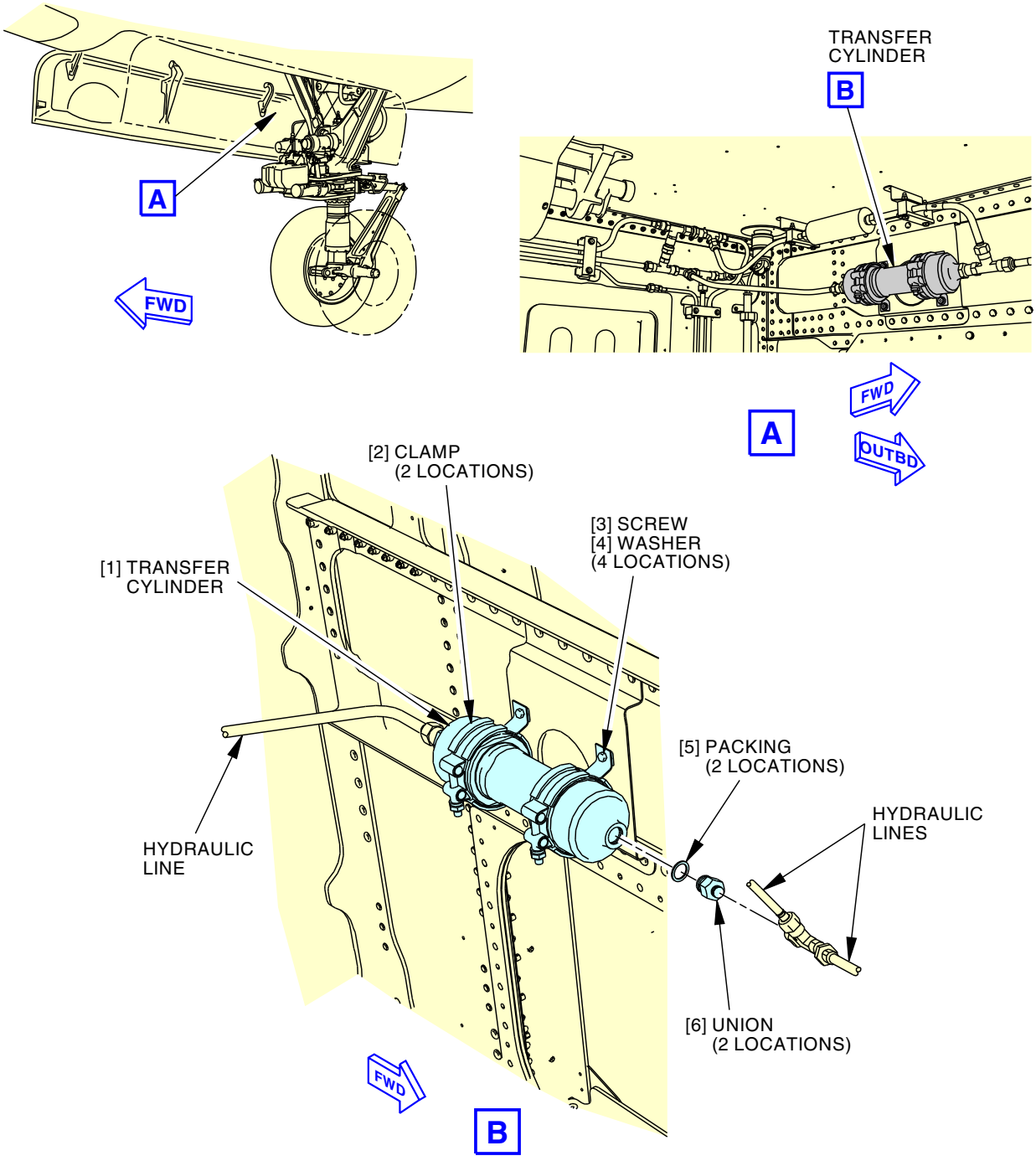
(b) Remove and discard the packings [5].

(c) Install caps/plugs, STD-14686, in the ports of the transfer cylinder [1].

——— END OF TASK ———



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**Nose Landing Gear Transfer Cylinder Installation**
**Figure 401/32-33-41-990-801**



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**TASK 32-33-41-400-801**

## 3. Nose Gear Transfer Cylinder Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Transfer cylinder | 32-33-41-01-015 | SIA ALL |
| 5 | Packing | 32-33-41-01-010 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### F. Nose Gear Transfer Cylinder Installation

**SUBTASK 32-33-41-420-001**

(1) Do these steps if the transfer cylinder [1] does not have the unions [6] installed:

(a) Lubricate these items with hydraulic fluid, D00153:

1) The packings [5].

2) The union [6].

(b) Remove the caps/plugs, STD-14686, from the ports of the transfer cylinder [1].

(c) Install the packings [5] and the unions [6] in the transfer cylinder [1].



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SUBTASK 32-33-41-610-001

(2) Fill the transfer cylinder [1] from the two ends with hydraulic fluid, D00153.

(a) Put a cap on the union [6].

SUBTASK 32-33-41-420-002

(3) Put the transfer cylinder [1] in the clamps [2].

SUBTASK 32-33-41-420-003

(4) Adjust the position of the transfer cylinder [1] to align it with the hydraulic lines.

SUBTASK 32-33-41-080-001

(5) Remove the caps from the unions [6] and caps/plugs, STD-14686, from the hydraulic lines.

SUBTASK 32-33-41-410-001

(6) Connect the hydraulic lines to the transfer cylinder [1].

(a) Tighten the B-nuts on the hydraulic lines to 170 ±9 in-lb (19 ±1 N·m).

SUBTASK 32-33-41-420-004

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(7) Apply a thin layer of corrosion inhibiting material, G50136, to the threads and shank of the screws [3] prior to installation.

SUBTASK 32-33-41-420-005

(8) Install the screws [3] and washers [4] in the clamps [2].

SUBTASK 32-33-41-420-006

(9) Tighten the hydraulic lines.

## G. Nose Gear Transfer Cylinder Installation Test

SUBTASK 32-33-41-580-002

**WARNING**

MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE NOSE LANDING GEAR. FAST MOVEMENT OF THE NOSE LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

SUBTASK 32-33-41-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-33-41-080-002

(3) Remove the downlock pin for the nose landing gear (TASK 32-00-01-080-801).



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-33-41-870-001

**WARNING** MAKE SURE THAT YOU INSTALL THE GROUND LOCK ASSEMBLIES IN THE LANDING GEAR TO PREVENT THE ACCIDENTAL OPERATION. IF THE LANDING GEARS RETRACT, IT CAN CAUSE INJURY TO PERSONS OR DAMAGE TO THE STRUCTURE.

(4) Extend and retract the nose landing gear several times.

NOTE: This will bleed the air from the transfer cylinder [1] and the hydraulic lines.

(a) Make sure that the nose landing gear operates correctly.

SUBTASK 32-33-41-210-001

(5) Examine the hydraulic connections for leaks.

SUBTASK 32-33-41-480-003

(6) Extend the nose landing gear and install the downlock pin (TASK 32-00-01-480-801).

SUBTASK 32-33-41-860-003

(7) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-33-41-580-003

(8) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-33-41-840-001

(9) Examine the hydraulic reservoirs for the correct servicing.

(a) Do a servicing if it is necessary (TASK 12-12-00-610-801).

——— END OF TASK ———



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## NOSE GEAR LOCK MECHANISM - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Nose Gear Lock Mechanism Removal

(2) Nose Gear Lock Mechanism Installation.

B. The Nose Gear Lock Mechanism has these parts:

(1) Forward Lock Link Assembly

(2) Spring Assembly

(3) Aft Lock Link Assembly.

**TASK 32-33-51-000-801**

### 2. Nose Gear Lock Mechanism Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1866 | Expander Set - Spring, Main Landing Gear and Nose Landing Gear<br>Part #: C32014-29 Supplier: 81205<br>Opt Part #: C32014-1 Supplier: 81205<br>Opt Part #: C32014-20 Supplier: 81205 |

**C. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**D. Prepare for the Removal**

**SUBTASK 32-33-51-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-33-51-580-001

**WARNING** KEEP ALL PERSONNEL AND EQUIPMENT CLEAR OF THE AREA AROUND THE NOSE GEAR. THE MOVEMENT OF THE NOSE GEAR CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

SUBTASK 32-33-51-860-001

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

## E. Nose Landing Gear Lock Mechanism Removal

SUBTASK 32-33-51-020-001

(1) Do these steps to disconnect the spring assembly [2] from the aft lock link assembly [3] and the wheel well fitting:

(a) Remove the pins [8], nuts [4], and washers [5] from the shaft [6] where the spring assembly [2] is attached to the aft lock link assembly [3] and the wheel well fitting (View B).

(b) Use the expander set, SPL-1866, to extend the spring assembly [2].

(c) Remove the pins [8], nuts [9] and washers [5] from the bolts [10] that hold the spring assembly [2] to the forward lock link assembly [1] (View D).

(d) Remove the spring assembly [2], bolts [10], washers [11], and sleeves [12] from the forward lock link assembly [1].

(e) Remove the spring assembly [2] from the aft lock link assembly [3].

(f) Install the bolts [10], washers [11], spring assembly [2], and sleeves [12] to attach the spring assembly [2] to the forward lock link assembly [1].

(g) Install the washers [5] and nuts [9], but do not tighten the nuts [9].

SUBTASK 32-33-51-020-002

(2) Remove the pin [18], nut [19], washer [20], washer [21], washers [23], and pin [22] to disconnect the rod end of the lock actuator from the aft lock link assembly [3] (View C).

SUBTASK 32-33-51-020-003

(3) Remove the pin [30], nut [29], and bolt [27] from the nut [28], on the pin [25] that connects the forward lock link assembly [1] to the drag strut (View F).

SUBTASK 32-33-51-020-004

(4) Remove the nut [28], washer [26], and pin [25] to disconnect the forward lock link assembly [1] from the drag strut.

SUBTASK 32-33-51-020-005

(5) Do the steps that follow to remove the lock sensor [14] from the aft lock link assembly [3] (View E):

(a) Remove the screws [17] and washers [24] from the clamps that attach the wire bundle to the aft lock link assembly [3].

(b) Remove the nuts [13], washers [15], and screws [16] from the lock sensor [14].

(c) Remove the lock sensor [14] from the aft lock link assembly [3].



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SUBTASK 32-33-51-020-006

(6) Remove the bushing [7] and shaft [6] to disconnect the aft lock link assembly [3] from the wheel well fitting (View C).

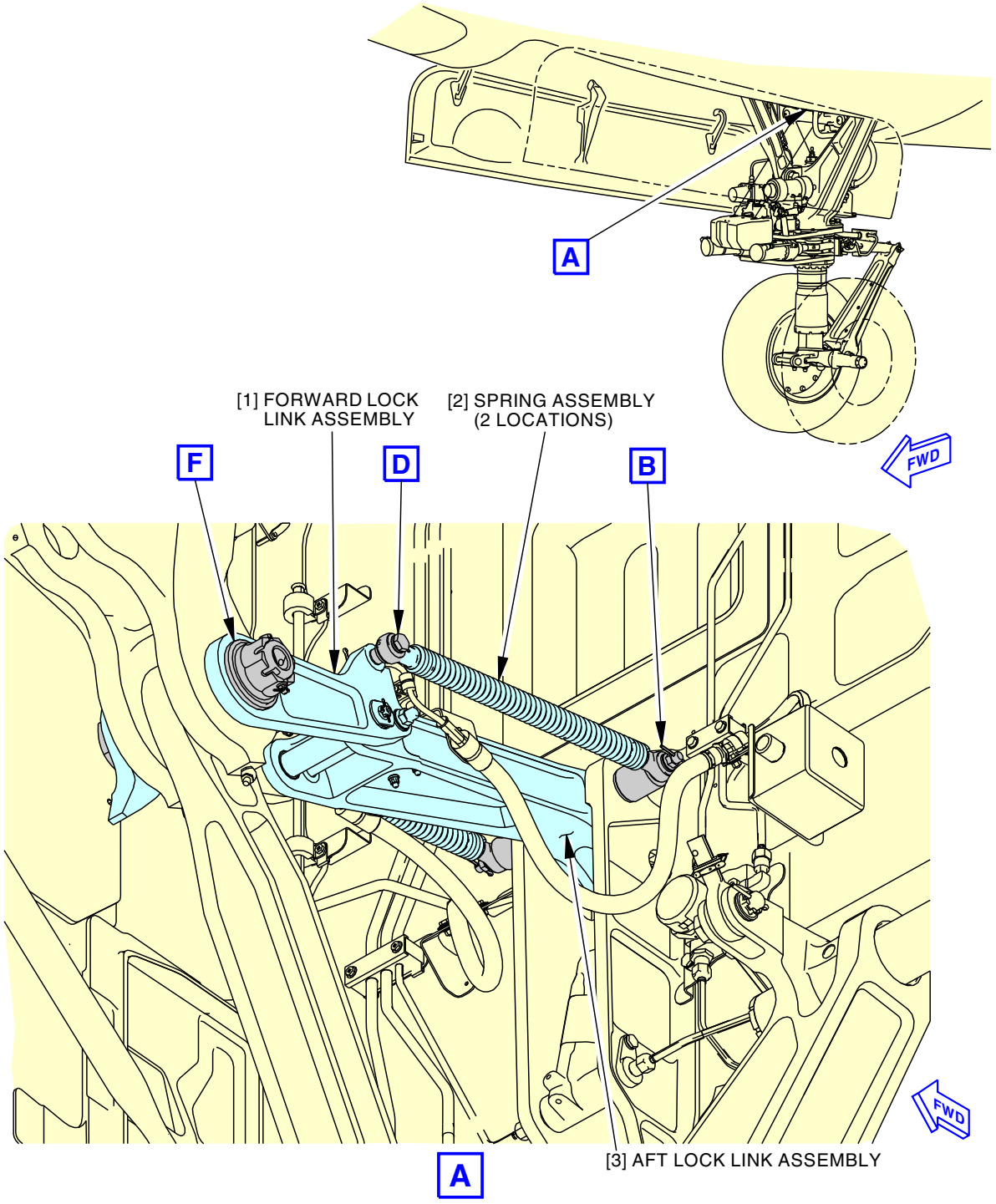
SUBTASK 32-33-51-020-007

(7) Remove the lock mechanism as a complete assembly.

END OF TASK



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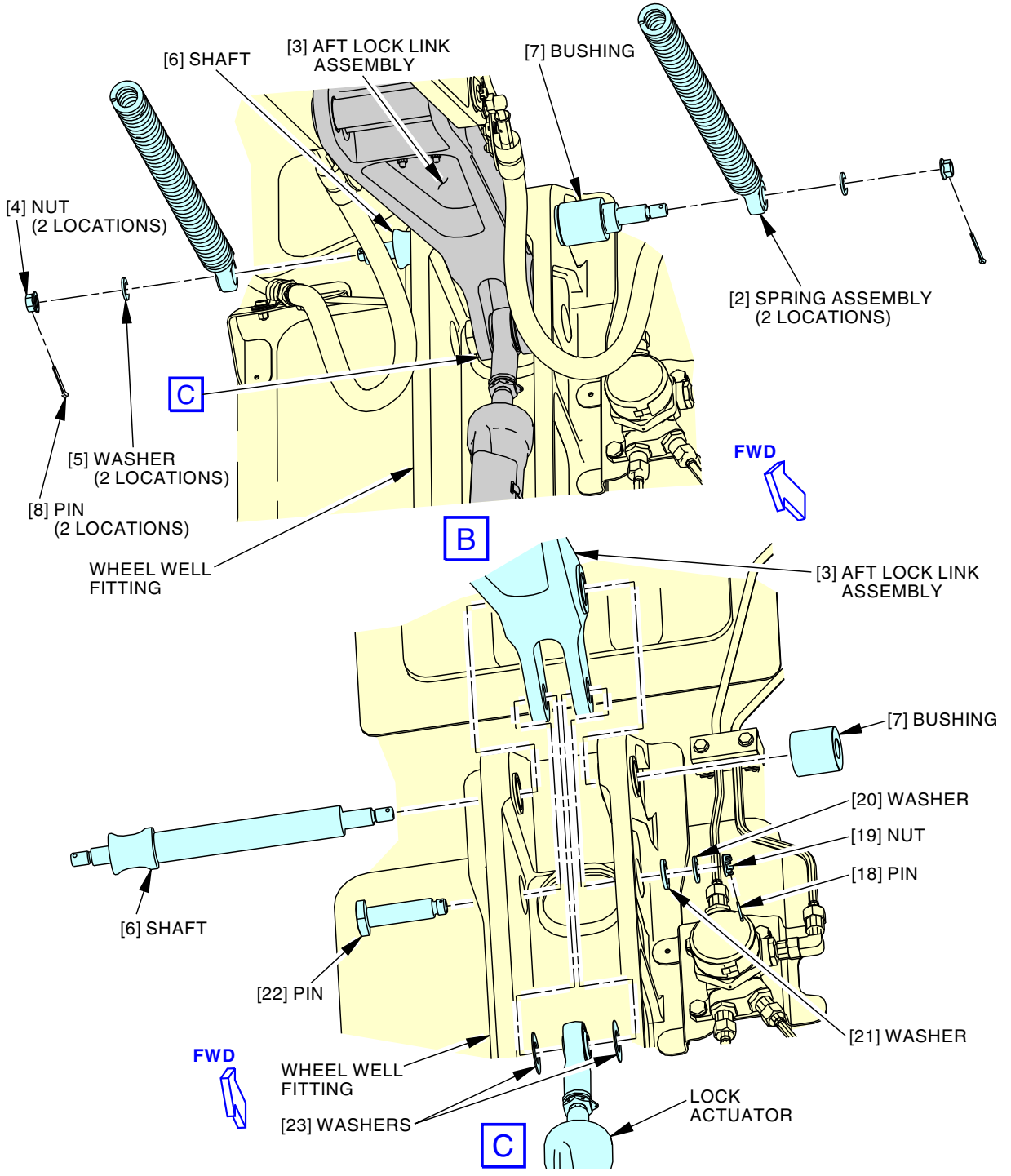



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**Nose Gear Lock Mechanism Installation**
**Figure 401/32-33-51-990-801 (Sheet 1 of 4)**



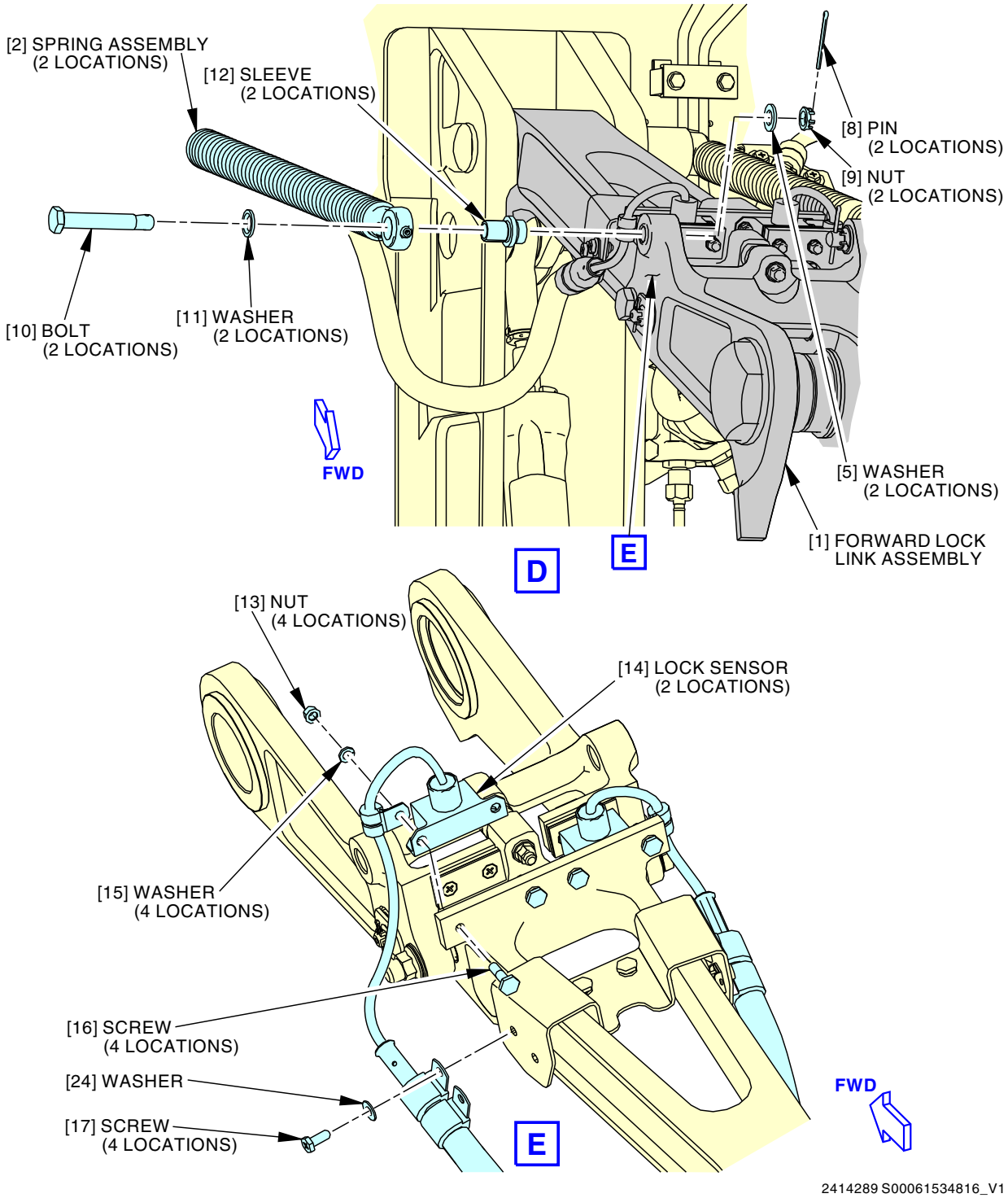
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**Nose Gear Lock Mechanism Installation**
**Figure 401/32-33-51-990-801 (Sheet 2 of 4)**



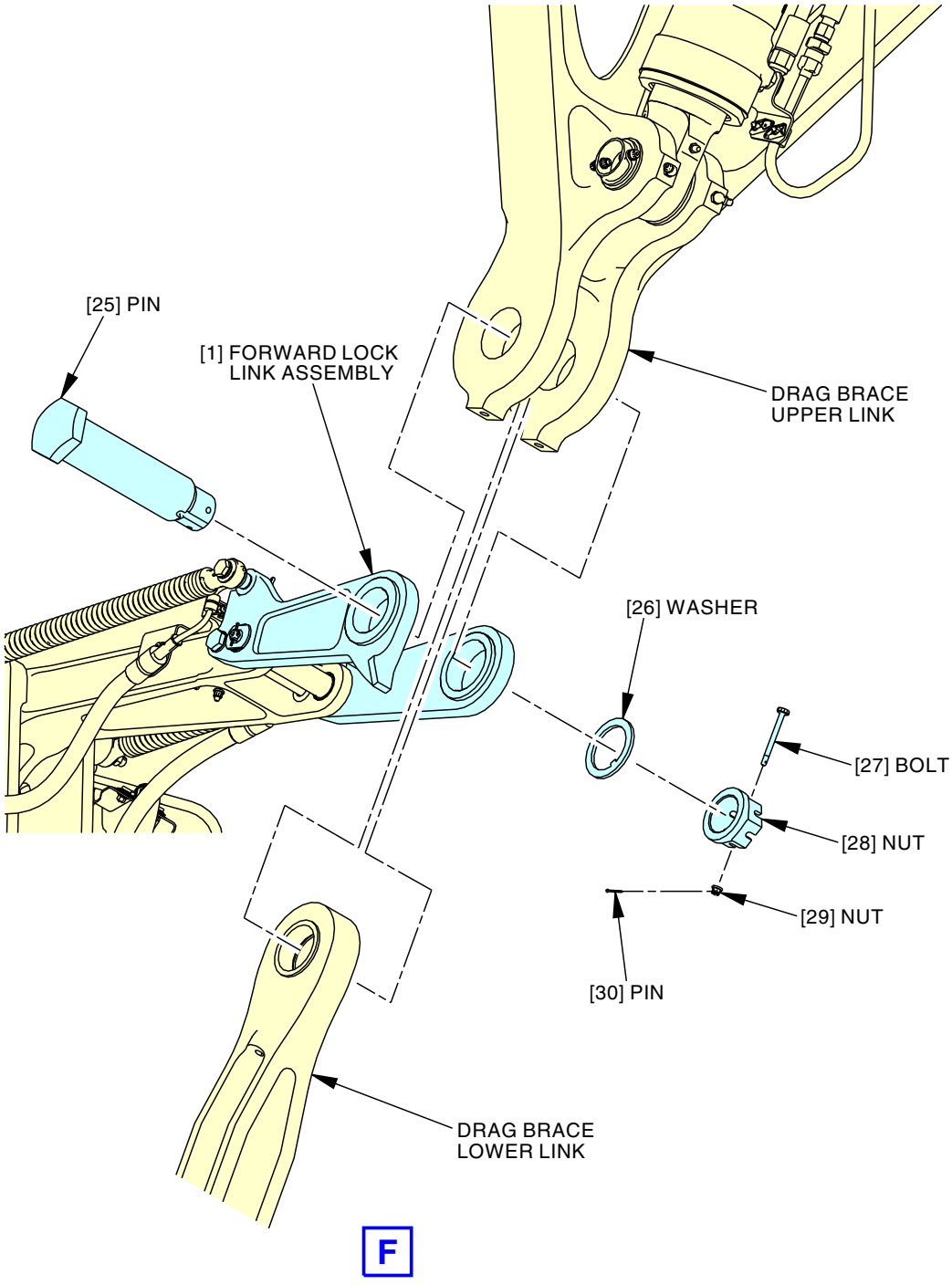
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Lock Mechanism Installation**
**Figure 401/32-33-51-990-801 (Sheet 3 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Lock Mechanism Installation**
**Figure 401/32-33-51-990-801 (Sheet 4 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-33-51-400-801**

## 3. Nose Gear Lock Mechanism Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-61-41-400-801 | Nose Landing Gear Lock Sensor Installation (P/B 401) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1866 | Expander Set - Spring, Main Landing Gear and Nose Landing Gear<br>Part #: C32014-29 Supplier: 81205<br>Opt Part #: C32014-1 Supplier: 81205<br>Opt Part #: C32014-20 Supplier: 81205 |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Forward lock link assembly | 32-33-51-01-120 | SIA ALL |
| 2 | Spring assembly | 32-33-51-01-030 | SIA ALL |
| 3 | Aft lock link assembly | 32-33-51-01-190 | SIA ALL |
| 8 | Pin | 32-33-51-01-005 | SIA ALL |
| 18 | Pin | 32-33-51-01-045 | SIA ALL |
| 30 | Pin | 32-33-51-01-045 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### F. Nose Gear Lock Mechanism Installation

**SUBTASK 32-33-51-420-006**

(1) If you replace one of the lock links, you must install or remove the shims on the completed lock mechanism assembly to adjust the overcenter dimension.

NOTE: The overcenter dimension is set on the assembly.



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SUBTASK 32-33-51-420-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(2) Do the steps that follow to connect the aft lock link assembly [3] to the fitting on the aft wheel well wall (Figure 401, Views B, C):

(a) Apply a thin layer of corrosion inhibiting material, G50136, to the threads and thread reliefs of the shaft [6] and the nuts [4].

(b) Apply a thin layer of corrosion inhibiting material, G50136, to the faces of the washers [5].

(c) Apply a thin layer of corrosion inhibiting material, G50136, to the new pins [8].

(d) Move the aft lock link assembly [3] into the fitting.

(e) Install the shaft [6] and bushing [7] to connect the aft lock link assembly [3] to the fitting.

SUBTASK 32-33-51-420-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(3) Do the steps that follow to connect the forward lock link assembly [1] to the drag strut (Figure 401, View F):

(a) Apply a thin layer of corrosion inhibiting material, G50136, to the threads and thread reliefs of the pin [25] and nut [28], and to the faces of the washer [26].

(b) Apply grease, D00633, to the chrome plate on the pin [25].

(c) Install the pin [25], washer [26], and nut [28].

(d) Torque the nut [28] to 95 in-lb (10.7 N·m) - 115 in-lb (13.0 N·m) above the run-on torque.

1) If it is necessary, loosen the nut [28] to align the nearest castellation with the hole in the pin [25].

(e) Apply a thick layer of corrosion inhibiting material, G50136, to the shank and threads of the bolt [27].

(f) Apply a thin layer of corrosion inhibiting material, G50136, to the threads of the nut [29], and the new pin [30].

(g) Install thebolt [27] and nut [29].

(h) Torque the nut [29] to 18 in-lb (2.0 N·m) - 25 in-lb (2.8 N·m) above the run-on torque.

1) If it is necessary, loosen the nut [29] to align the nearest castellation with the hole in the bolt [27].

(i) Install the new pin [30].



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SUBTASK 32-33-51-420-003

(4) Do the steps that follow to connect the aft lock link assembly [3] of the lock mechanism to the rod end of the lock actuator (Figure 401, View C):

(a) Apply grease, D00633, to the bore of the rod end and aft lock link assembly [3], and the pin [22].

(b) Install the pin [22], washer [20], washer [21], washers [23], and nut [19].

(c) Torque the nut [19] to 18 ft-lb (24.4 N·m) - 24 ft-lb (32.5 N·m).

1) If it is necessary, loosen the nut [19] to align the nearest castellation with the hole on the pin [22].

(d) Install the new pin [18].

SUBTASK 32-33-51-420-004

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Do these steps to connect the spring assembly [2] to the forward lock link assembly [1] and the wheel well fitting (Figure 401, Views B, D):

(a) Remove the washers [5] and nuts [9] that attach the spring assembly [2] to the forward lock link assembly [1].

(b) Remove the spring assembly [2], bolts [10], washers [11], and sleeves [12] from the forward lock link assembly [1].

(c) Apply a thick layer of corrosion inhibiting material, G50136, to the shank and threads of the bolts [10].

(d) Apply a thin layer of corrosion inhibiting material, G50136, to the threads of the nuts [9], the faces of the washers [5] and sleeves [12], and the new pins [8].

(e) Apply grease, D00633, to the chrome plated surfaces of the sleeves [12] and the bolts [10].

(f) Apply a thin layer of corrosion inhibiting material, G50136, to the threads and thread reliefs of the nuts [4], the faces of the washers [5], and the pins [8].

(g) Apply grease, D00633, to the chrome plated surfaces of the shaft [6].

(h) Use the expander set, SPL-1866, to extend the spring assembly [2].

(i) Connect the spring assembly [2] to the forward lock link assembly [1] (Figure 401, View D):

1) Put the spring assembly [2] in its location at the forward lock link assembly [1].

2) Install the bolts [10], sleeves [12], and the washers [11] to connect the spring assembly [2] to the forward lock link assembly [1].

3) Install the washers [5] and nuts [9] on the bolts [10].

4) Torque the nuts [9] to 20 in-lb (2.3 N·m) - 24 in-lb (2.7 N·m) above the run-on torque.

a) Install the new pins [8].



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(j) Connect the spring assembly [2] to the shaft [6] in the wheel well fitting (Figure 401, View B):

1) Install the shaft [6] in the wheel well fitting.
2) Put the spring assembly [2] in its location on the shaft [6].
3) Install the washers [5] and nuts [4] on the shaft [6].
4) Torque the nuts [4] to 20 in-lb (2.3 N·m) - 24 in-lb (2.7 N·m) above the run-on torque
   a) Install the new pins [8].

(k) Remove the expander set, SPL-1866, from spring assembly [2].

SUBTASK 32-33-51-420-005

(6) Do the steps that follow to install the lock sensors [14] on the aft lock link assembly [3] (Figure 401, View E):

(a) Put the lock sensors [14] on the aft lock link assembly [3].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(b) Apply a thin layer of corrosion inhibiting material, G50136, to the threads and thread reliefs of the screws [16], and the faces of the washers [15].

(c) Install the screws [16], washers [15], and nuts [13] on the lock sensor [14].

(d) Install the screws [17] to attach clamps for the wire bundles to the aft lock link assembly [3].

SUBTASK 32-33-51-720-001

(7) Do a post installation check of the nose gear lock sensors [14] (TASK 32-61-41-400-801).

## G. Nose Gear Lock Mechanism Installation Test

SUBTASK 32-33-51-480-005

**WARNING**

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-33-51-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.



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SUBTASK 32-33-51-580-002

**WARNING** KEEP ALL PERSONNEL AND EQUIPMENT CLEAR OF THE AREA AROUND THE NOSE GEAR. THE MOVEMENT OF THE NOSE GEAR CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Extend and retract the nose landing gear several times.

NOTE: Examine the nose gear and lock mechanism for the correct operation.

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-33-51-480-003

(1) Extend the nose landing gear and install the ground lock assembly (TASK 32-00-01-480-801).

SUBTASK 32-33-51-860-003

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-33-51-580-003

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(3) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

# NOSE GEAR LOCK SPRING - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) Nose Gear Lock Spring Removal

(2) Nose Gear Lock Spring Installation.

**TASK 32-33-52-000-801**

## 2. Nose Gear Lock Spring Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1866 | Expander Set - Spring, Main Landing Gear and Nose Landing Gear<br>Part #: C32014-29 Supplier: 81205<br>Opt Part #: C32014-1 Supplier: 81205<br>Opt Part #: C32014-20 Supplier: 81205 |

### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### D. Prepare for the Removal

**SUBTASK 32-33-52-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-33-52-860-001**

(2) For the hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

### E. Nose Gear Lock Spring Removal

**SUBTASK 32-33-52-020-001**

(1) Remove the pin [1], nut [7], and washer [3] from the shaft where the lock spring [6] is attached to the aft lock link and the wheel well fitting.



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**SUBTASK 32-33-52-480-002**

(2) Use the expander set, SPL-1866, to extend the lock spring [6].

**SUBTASK 32-33-52-020-002**

(3) Remove the pin [1], nut [2], and washer [3] from the bolt [4] that holds the lock spring [6] to the forward lock link.

**SUBTASK 32-33-52-020-003**

(4) Remove the lock spring [6], bolt [4], washer [5], and sleeve [8].

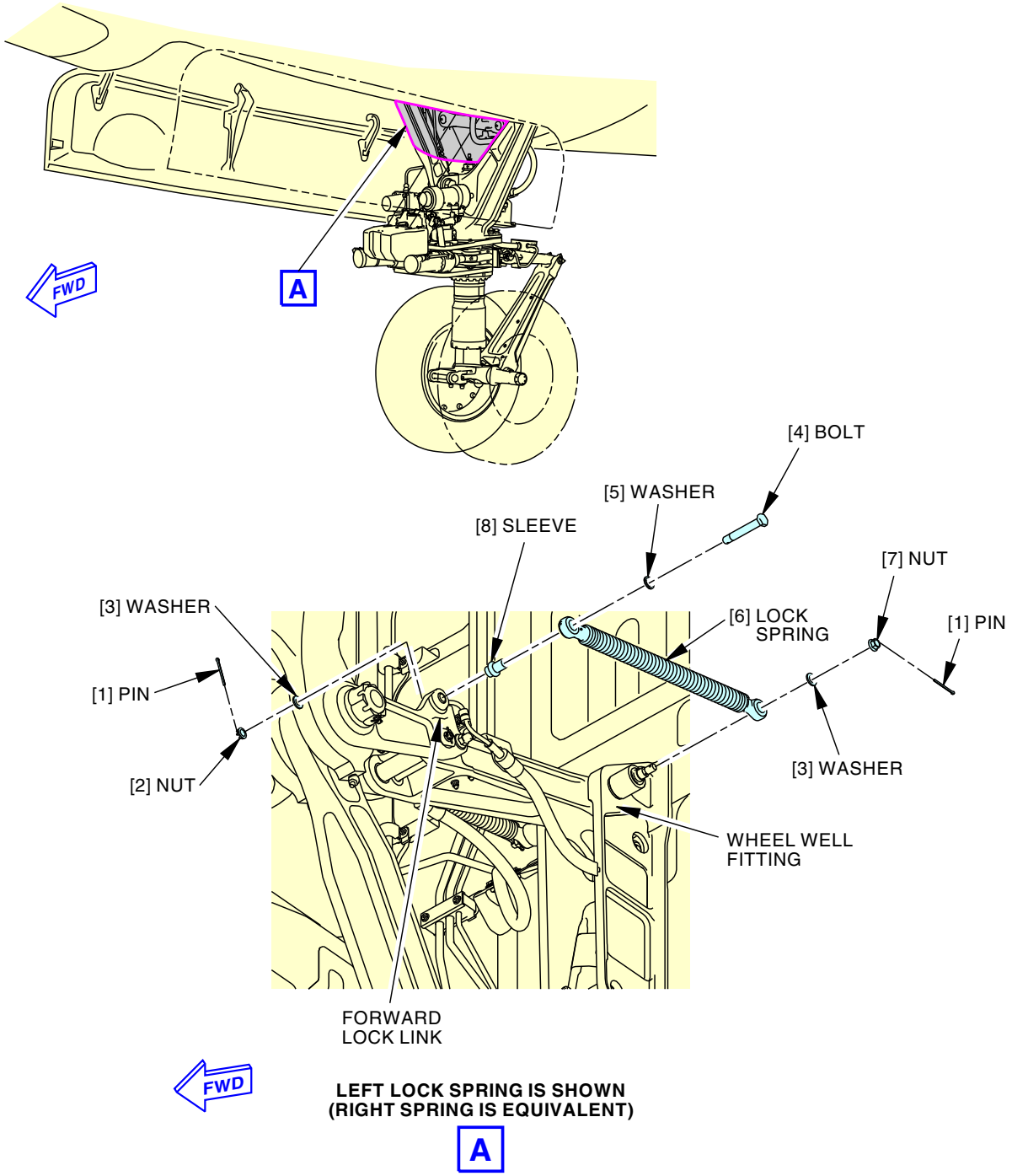
**SUBTASK 32-33-52-020-004**

(5) Remove the lock spring [6].

**——— END OF TASK ———**



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**Nose Gear Lock Spring Installation**
**Figure 401/32-33-52-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-33-52-400-801**

## 3. Nose Gear Lock Spring Installation

### A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1866 | Expander Set - Spring, Main Landing Gear and Nose Landing Gear<br>Part #: C32014-29 Supplier: 81205<br>Opt Part #: C32014-1 Supplier: 81205<br>Opt Part #: C32014-20 Supplier: 81205 |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Pin | 32-33-51-01-005 | SIA ALL |
| 6 | Lock spring | 32-33-51-01-030 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### E. Nose Gear Lock Spring Installation Procedure

**SUBTASK 32-33-52-600-001**

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Apply a thick layer of corrosion inhibiting material, G50136, to the shank and threads of the bolt [4].



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SUBTASK 32-33-52-600-005

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(2) Apply a thin layer of corrosion inhibiting material, G50136, to the threads of the nut [2], faces of the washer [5] and sleeve [8], and the new pin [1].

SUBTASK 32-33-52-600-002

(3) Apply grease, D00633, to the chrome plated surfaces of the sleeve [8] and bolt [4].

SUBTASK 32-33-52-600-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(4) Apply a thin layer of corrosion inhibiting material, G50136, to the threads and thread reliefs of the nut [7], the faces of the washer [3], and the new pin [1].

SUBTASK 32-33-52-600-004

(5) Apply grease, D00633, to the chrome plated surface of the shaft on the wheel well fitting.

SUBTASK 32-33-52-480-003

(6) Use the expander set, SPL-1866, to extend the lock spring [6].

SUBTASK 32-33-52-420-001

(7) Do the steps that follow to connect the lock spring [6] to the shaft on the wheel well fitting.

(a) Put the lock spring [6] in its location on the shaft on the wheel well fitting.

(b) Install the washer [3] and nut [7] to attach the lock spring [6] to the wheel well fitting and aft lock link.

1) Tighten the nut [7] to 22 ±2 in-lb (2.5 ±0.2 N·m) above the run-on torque.

(c) Install the pin [1].

SUBTASK 32-33-52-420-002

(8) Do the steps that follow to connect the lock spring [6] to the forward lock link:

(a) Put the lock spring [6] in its location on the forward lock link.

(b) Install bolt [4], washer [5], and the sleeve [8] to connect the lock spring [6] to the forward lock link.

(c) Install the washer [3] and nut [2] on the bolt [4].

1) Tighten the nut [2] to 22 ±2 in-lb (2.5 ±0.2 N·m) above the run-on torque.

(d) Install the pin [1].



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SUBTASK 32-33-52-080-001

(9) Remove the expander set, SPL-1866, from the lock spring [6].

——— END OF TASK ———



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## NOSE GEAR WHEEL WELL DOOR LINKAGE - REMOVAL/INSTALLATION

### 1. General

A. This procedure contains the following tasks:

(1) A removal Nose Gear Wheel Well Door Linkage

(2) An installation Nose Gear Wheel Well Door Linkage.

B. This linkage, called the door mechanism assembly, has these parts:

(1) Upper Pushrod Assembly

(2) Lower Pushrod Assembly

(3) Bellcrank Assembly.

**TASK 32-33-61-000-801**

### 2. Nose Gear Wheel Well Door Linkage - Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### C. Prepare for the Removal

**SUBTASK 32-33-61-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-33-61-580-001**

(2) Install chocks around the tires of the nose landing gear (PAGEBLOCK 10-11-05/201).

#### D. Nose Gear Wheel Well Door Linkage Removal

**SUBTASK 32-33-61-020-001**

(1) Remove the pin [8], nut [7], washer [9], and bolt [5] to disconnect the universal [10] on the lower pushrod assembly [3] from the door hinge (View B, Figure 401).

**SUBTASK 32-33-61-020-002**

(2) Remove the pin [16], nut [14], washer [15], bolt [11], washer [12], and bushing [13] to disconnect the lower pushrod assembly [3] from the bellcrank assembly [4] (View C, Figure 401).



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SUBTASK 32-33-61-020-003

(3) Remove the pin [16], nut [20], washer [21], bolt [19], washer [18], and bushing [17] to disconnect the upper pushrod assembly [2] from the trunnion clevis (View D, Figure 401).

SUBTASK 32-33-61-020-004

(4) Remove the pin [16], nut [20], washer [21], bolt [19], washer [18], and bushing [17] to disconnect the upper pushrod assembly [2] from the bellcrank assembly [4] (View E, Figure 401).

SUBTASK 32-33-61-020-005

(5) Do these steps to remove the bellcrank assembly [4] (View G, Figure 401):

(a) Remove the lockwire from the pin [24] at the inboard end of the door operator bolt [23] and remove the pin [24].

(b) Remove the nut [25] from the door operator bolt [23].

(c) Remove the bellcrank assembly [4] from the door operator bolt [23].

SUBTASK 32-33-61-020-006

(6) Do these steps to remove the door operator bolt [23]:

(a) Remove the aft access panel in the nose gear wheel well from the side on which you will remove the wheel well door linkage.

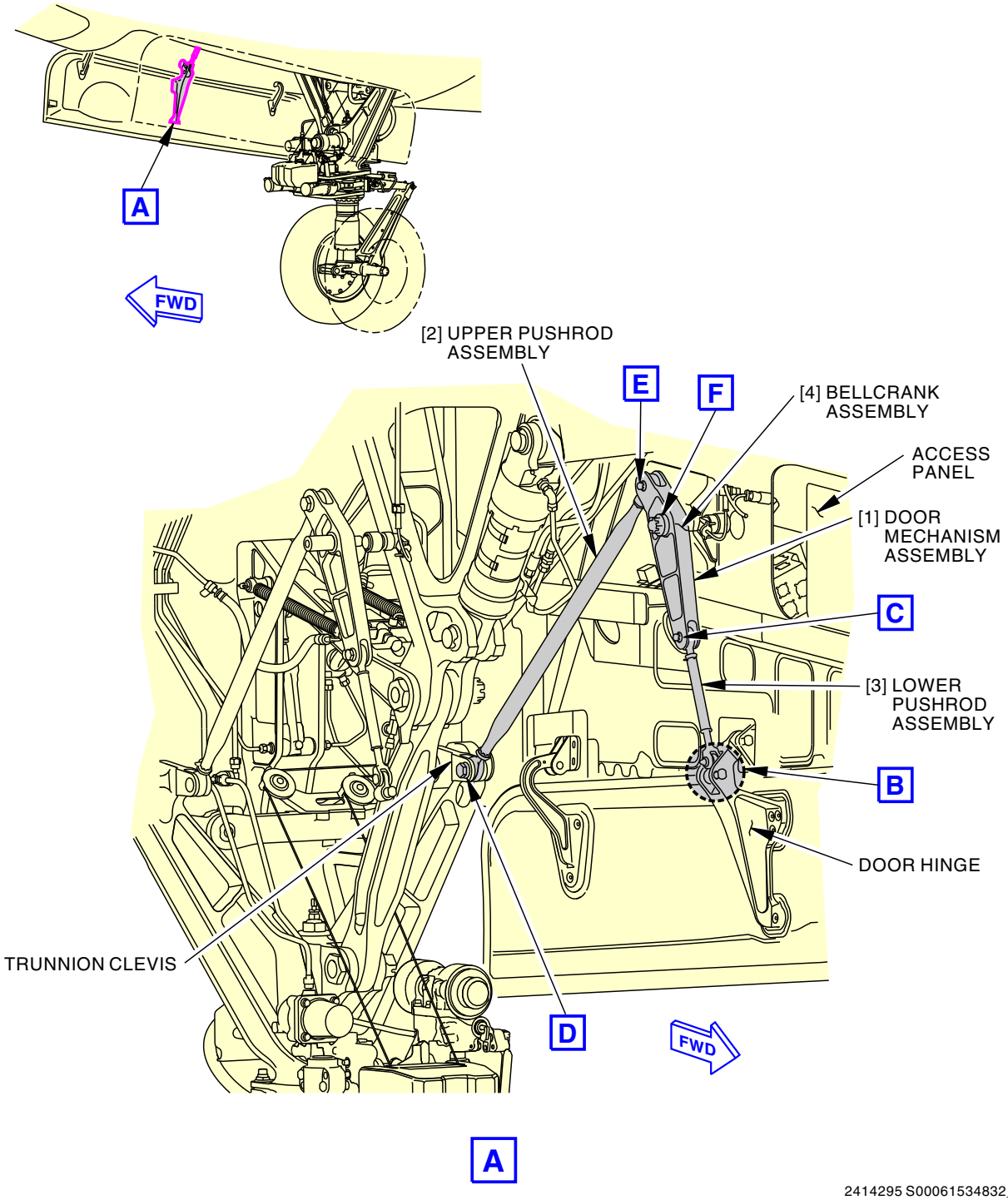
(b) Remove the nut [26], washer [27], and cross bolt [22] at the outboard end of the door operator bolt [23].

(c) Remove the door operator bolt [23] from the bulkhead fitting.

——— END OF TASK ———



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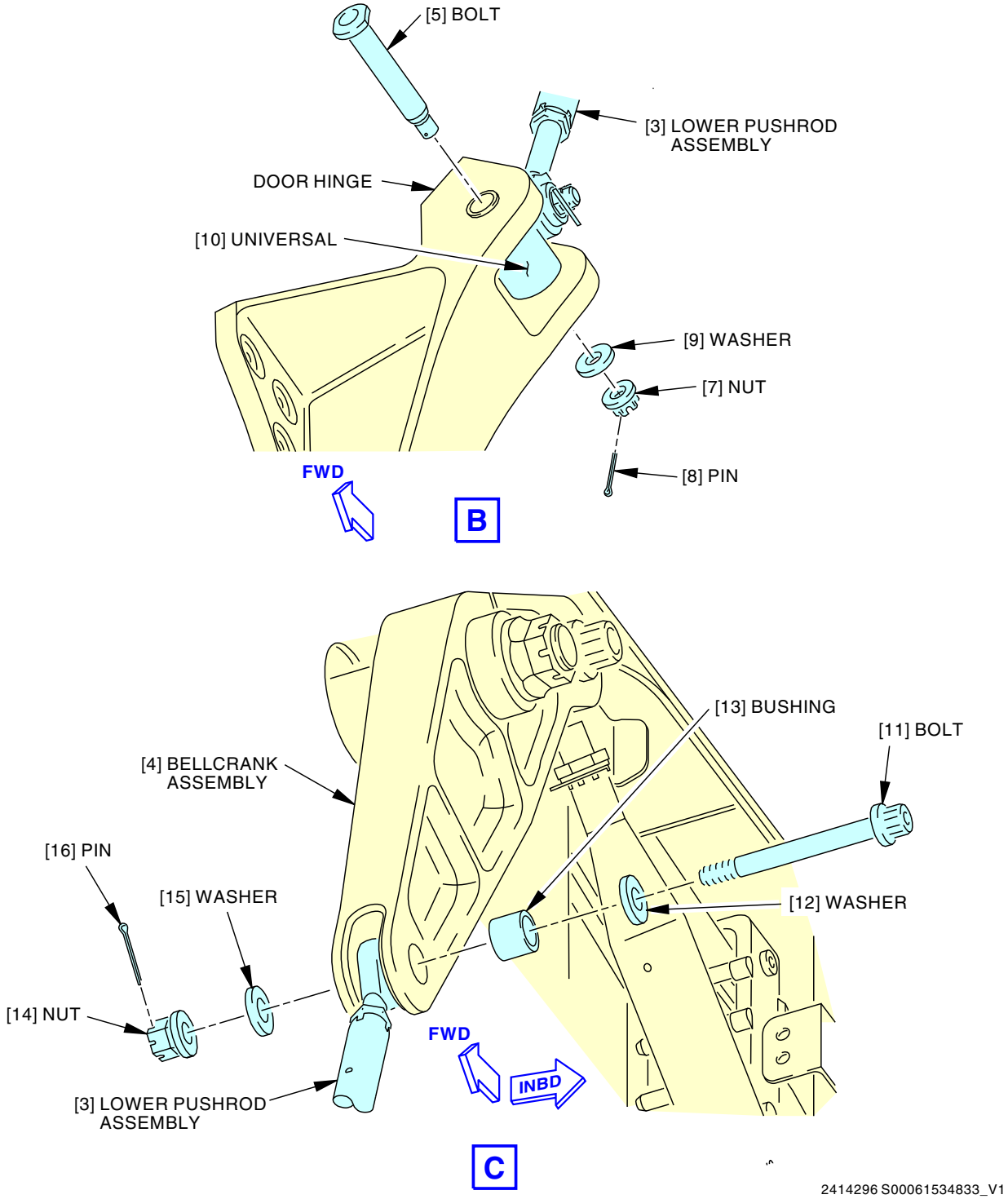



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**Nose Gear Wheel Well Door Linkage Installation**
**Figure 401/32-33-61-990-801 (Sheet 1 of 4)**



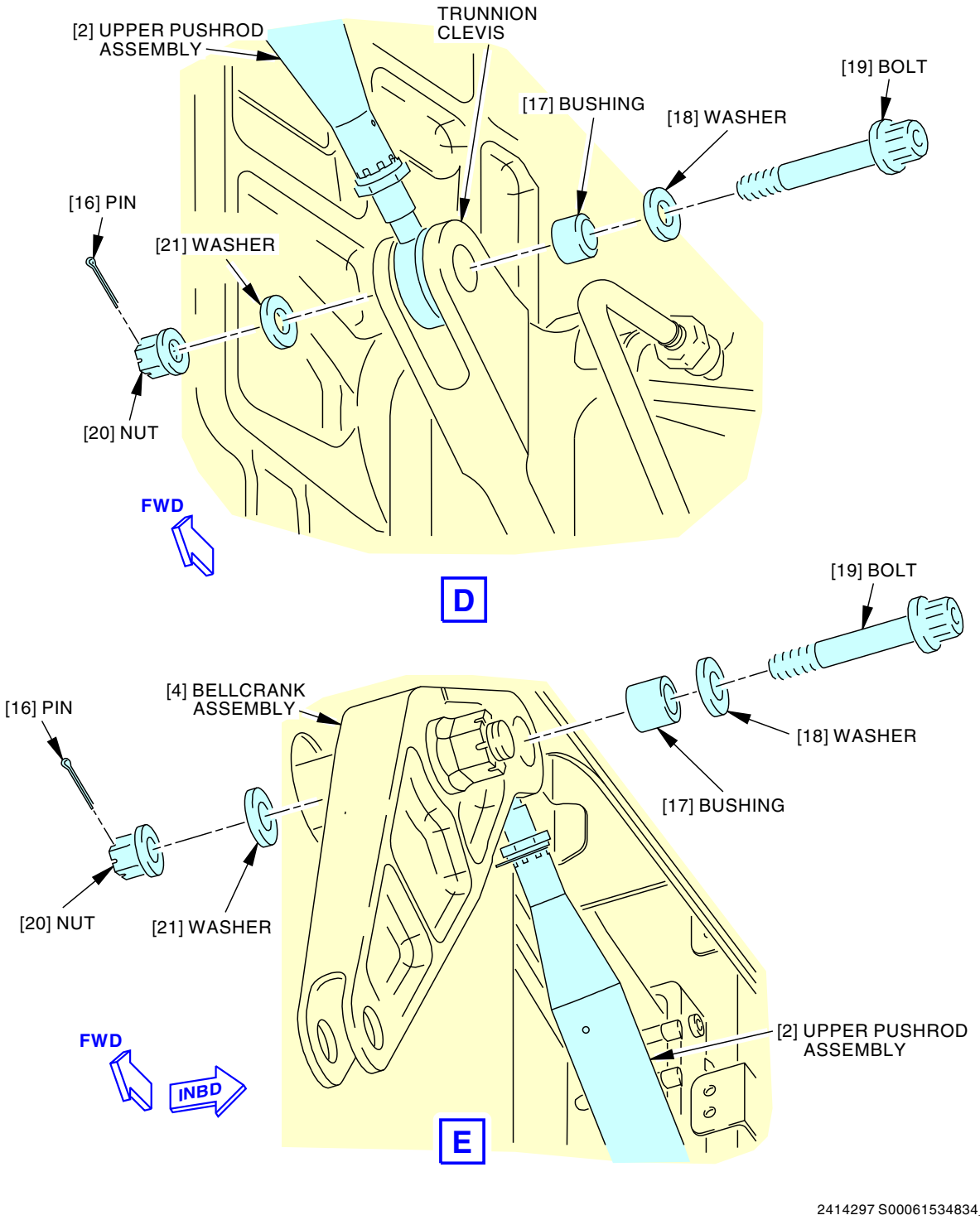
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Wheel Well Door Linkage Installation**
**Figure 401/32-33-61-990-801 (Sheet 2 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

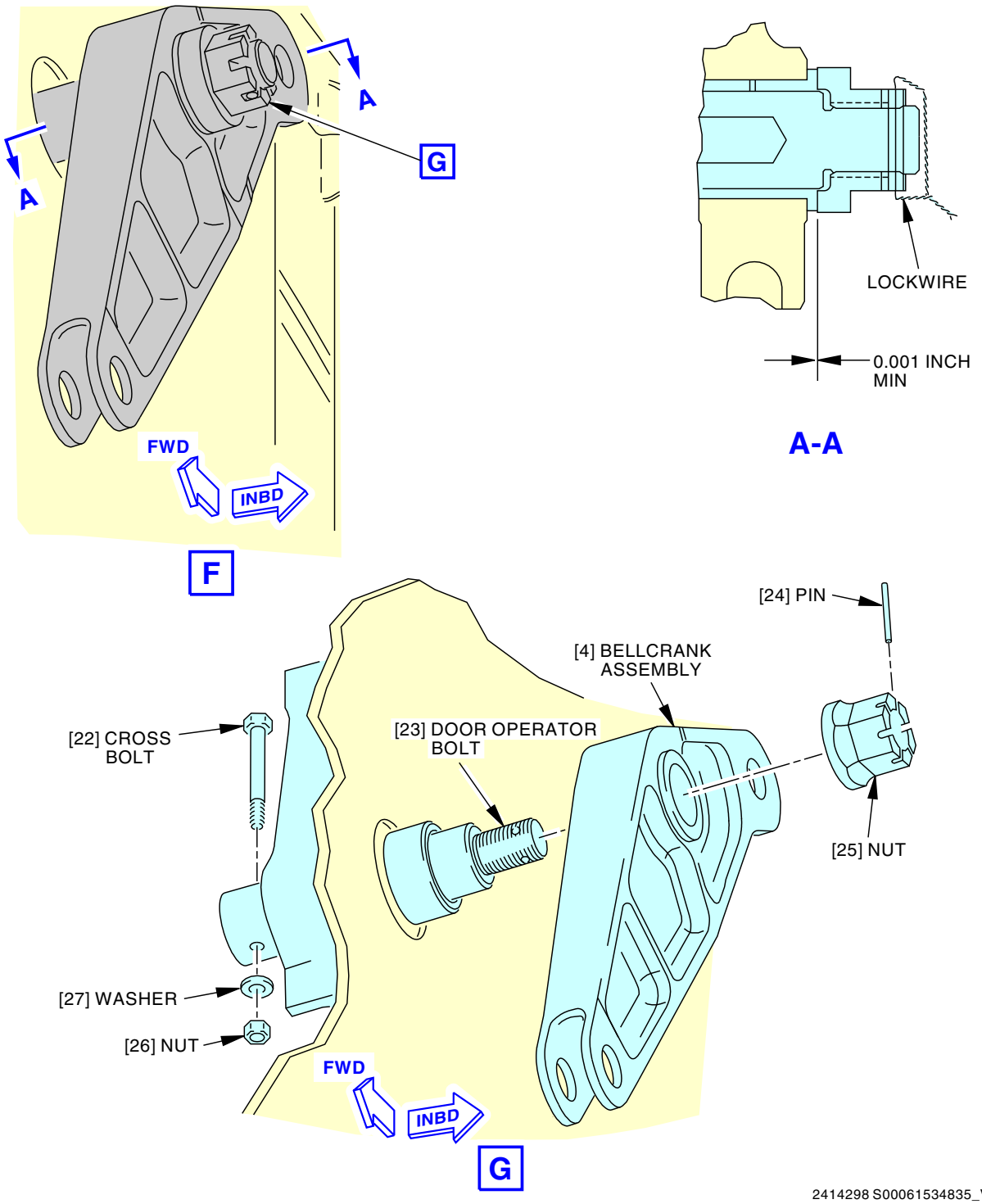



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**Nose Gear Wheel Well Door Linkage Installation**
**Figure 401/32-33-61-990-801 (Sheet 3 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Wheel Well Door Linkage Installation**
**Figure 401/32-33-61-990-801 (Sheet 4 of 4)**



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**TASK 32-33-61-400-801**

## 3. Nose Gear Wheel Well Door Linkage - Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 32-33-61-820-801 | Nose Gear Wheel Well Door Linkage Adjustment and Check (P/B 501) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50347 | Lockwire - MS20995NC32, Monel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 2 | Upper pushrod assembly | 32-33-61-01-040 | SIA ALL |
| 3 | Lower pushrod assembly | 32-33-61-01-180 | SIA ALL |
| 4 | Bellcrank assembly | 32-33-61-01-110 | SIA ALL |
| 8 | Pin | 32-33-61-01-160 | SIA ALL |
| 16 | Pin | 32-22-11-03-005 | SIA ALL |
| | | 32-33-61-01-010 | SIA ALL |
| | | 32-33-61-01-080 | SIA ALL |
| 24 | Pin | 32-22-11-03-050 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### E. Nose Gear Wheel Well Door Linkage Installation

**SUBTASK 32-33-61-620-001**

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(1) Apply a thin layer of corrosion inhibiting material, G50136, to the thread relief and threads of the door operator bolt [23] and the nut [25] (View G, Figure 401).



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SUBTASK 32-33-61-640-001

(2) Apply a layer of grease, D00633, to the chrome plated surfaces of the door operator bolt [23].

SUBTASK 32-33-61-930-001

(3) Put a reference line on the unthreaded end of the door operator bolt [23] to align with the center of the hole for the cross bolt [22].

SUBTASK 32-33-61-420-001

(4) Install the door operator bolt [23] from the inboard side.

NOTE: Make sure that the reference line for the center of the door operator bolt [23] is aligned with the bolt hole in the bulkhead fitting.

SUBTASK 32-33-61-600-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Put a thick layer of corrosion inhibiting material, G50136, to the shank and threads of the cross bolt [22], and on the nut [26] and the face of the washer [27].

SUBTASK 32-33-61-420-002

(6) Align the bolt holes in the door operator bolt [23] and the bulkhead fitting and install the cross bolt [22].

(a) Remove the unwanted corrosion inhibiting material, G50136, from the cross bolt [22] after you install it.

SUBTASK 32-33-61-420-003

(7) Install the washer [27] and nut [26] on the cross bolt [22].

SUBTASK 32-33-61-420-004

(8) Install the bellcrank assembly [4] on the door operator bolt [23].

SUBTASK 32-33-61-420-005

(9) Install the nut [25] and tighten until a gap of 0.001 in. (0.025 mm) or more is measured between the nut [25] and the bushing in the bellcrank assembly [4].

SUBTASK 32-33-61-420-006

(10) Loosen the nut [25] only enough to align the hole in the door operator bolt [23] with the castellations in the nut [25].

SUBTASK 32-33-61-420-007

(11) Install the pin [24] to lock the nut [25].

SUBTASK 32-33-61-410-001

(12) Install the MS20995NC32 lockwire, G50347, on the pin [24].

SUBTASK 32-33-61-100-001

(13) Remove the excess corrosion inhibiting material, G50136, from the bellcrank assembly [4], door operator bolt [23], and nut [25].

SUBTASK 32-33-61-420-008

(14) Do these steps to connect the upper pushrod assembly [2] to the bellcrank assembly [4] (View E, Figure 401):



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(a) Apply grease, D00633, to the chrome plated surfaces of the bolt [19] and bushing [17].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(b) Apply a thin layer of corrosion inhibiting material, G50136, to the threads on the bolt [19] and nut [20], and the faces of the washer [18] and washer [21].

(c) Install the bolt [19], washer [18], bushing [17], washer [21], nut [20], and a new pin [16] to connect the upper pushrod assembly [2] to the bellcrank assembly [4].

SUBTASK 32-33-61-420-009

(15) Do these steps to connect the lower pushrod assembly [3] to the bellcrank assembly [4] (View C, Figure 401):

(a) Apply grease, D00633, to the chrome plated surfaces of the bolt [11] and the bushing [13].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(b) Apply a thin layer of corrosion inhibiting material, G50136, to the threads on the bolt [11] and nut [14], and the faces of the washer [12] and washer [15].

(c) Install the bolt [11], washer [12], bushing [13], washer [15], nut [14], and a new pin [16] to connect the lower pushrod assembly [3] to the bellcrank assembly [4].

SUBTASK 32-33-61-620-002

(16) Do these steps to connect the upper pushrod assembly [2] to the trunnion clevis (View D, Figure 401):

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Put a thin layer of corrosion inhibiting material, G50136, to the threads and thread relief of the bolt [19] and the nut [20] and on the faces of the washer [18] and washer [21].

(b) Apply a layer of grease, D00633, to the wear surfaces of the bolt [19] and the bushing [17].

(c) Install the bolt [19], washer [18], bushing [17], washer [21], and nut [20] to connect the upper pushrod assembly [2] to the trunnion clevis.

(d) Torque the nut [20] to 325 in-lb (37 N·m) - 360 in-lb (41 N·m).



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(e) If necessary, loosen the nut [20] to the nearest castellation to align the holes for the pin [16].

(f) Install the new pin [16] in the nut [20].

SUBTASK 32-33-61-820-001

(17) Do the adjustment of the nose gear wheel well door linkage (TASK 32-33-61-820-801).

SUBTASK 32-33-61-420-010

(18) Do these steps to connect the lower pushrod assembly [3] to the door hinge (View B, Figure 401):

(a) Apply grease, D00633, to the chrome plated surfaces of the bolt [5].

**WARNING**

DO NOT GET THE CORROSION-INHIBITING COMPOUND ON YOUR SKIN, IN YOUR EYES, OR ON YOUR CLOTHES. THE COMPOUND IS POISONOUS AND FLAMMABLE. USE APPROVED GLOVES, AND EYE PROTECTION. MAKE SURE THAT THERE IS GOOD AIRFLOW IN THE WORK AREA. KEEP THE COMPOUND AWAY FROM SPARKS AND FLAMES. THE COMPOUND CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(b) Apply a thin layer of corrosion inhibiting material, G50136, to the threads and thread relief of the bolt [5] and the nut [7] and on the face of the washer [9].

(c) Install the bolt [5], washer [9], nut [7] , and a new pin [8] to connect the lower pushrod assembly [3] to the door hinge.

## F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-33-61-480-005

(1) Remove the chocks from around the landing gear tires.

**——— END OF TASK ———**



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## NOSE GEAR WHEEL WELL DOOR LINKAGE - ADJUSTMENT/TEST

### 1. General

A. This procedure includes the instructions to adjust the linkage for the nose gear wheel well doors.

**TASK 32-33-61-820-801**

### 2. Nose Gear Wheel Well Door Linkage Adjustment and Check

(Figure 501)

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-802 | Hydraulic System A or B Pressurization with a Portable Hydraulic Cart (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-755 | Scale - Spring, Push/Pull Type, 0 - 150lbs (0 - 68kg) Capacity |

#### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

#### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Pin | 32-33-61-01-160 | SIA ALL |

#### E. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### F. Prepare for the Adjustment

NOTE: A NLG door rigging check is not necessary if reinstalling the same NLG door that was removed and no changes to the door stops, door seals, door hinges, or door pushrods were made.

NOTE: The door seal installed incorrectly could prevent the wheel well retract to the normal close position.



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SUBTASK 32-33-61-480-002

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-33-61-580-002

(2) Lift the airplane on jacks (Lift the Airplane on Jacks, TASK 07-10-01-580-801).

SUBTASK 32-33-61-860-001

(3) For hydraulic system A, do this task: Hydraulic System A or B Pressurization with a Portable Hydraulic Cart, TASK 29-11-00-860-802.

SUBTASK 32-33-61-080-003

(4) Remove the downlock pins from the main landing gear (Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801).

SUBTASK 32-33-61-860-008

(5) Retract the main landing gear.

SUBTASK 32-33-61-020-007

(6) Remove the lockwire from the jamnuts [5] on each end of the lower rod assembly.

SUBTASK 32-33-61-020-008

(7) Loosen the jamnut [5] on each end of the lower rod assemblies.

(a) Loosen the jamnut [5] only if you will turn the lower rod assembly, for adjustment.

NOTE: If you loosen the jamnut too much, it will disengage the rod end lock from the rod barrel.

(b) Do not adjust the length of upper rod assembly.

NOTE: Adjustment of the upper rod assembly can cause problems to the gear retraction or extension.

SUBTASK 32-33-61-020-009

(8) If the lower rod assemblies are not disconnected from the door hinges already, remove the pins [4], nuts [3], washers [2], and bolts [1] to disconnect the universal joints [6] on the lower rod assemblies from the hinges.

(a) Discard the pin [4].

SUBTASK 32-33-61-210-001

(9) Make sure that the tamper proof seals are on the upper rod assembly.

## G. Nose Gear Wheel Well Door Linkage Adjustment

SUBTASK 32-33-61-080-001

(1) Remove the downlock pin from the nose landing gear (TASK 32-00-01-080-801).

SUBTASK 32-33-61-870-001

(2) Retract the nose landing gear.



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SUBTASK 32-33-61-040-001

**WARNING** BEFORE YOU DO AN ADJUSTMENT TASK, REMOVE THE HYDRAULIC PRESSURE FROM THE RETRACT ACTUATOR FOR THE NOSE LANDING GEAR. IF THERE IS HYDRAULIC PRESSURE, THE NOSE LANDING GEAR COULD MOVE AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Remove the power from hydraulic system A (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 32-33-61-600-002

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(4) Apply a thin layer of corrosion inhibiting material, G50136, to these items:

(a) The threads and thread reliefs of the bolt [1], nut [3] and the faces of the washer [2].

SUBTASK 32-33-61-420-011

**CAUTION** MAKE SURE THAT THE HEAD OF THE BOLT THAT ATTACHES THE UNIVERSAL JOINT TO THE LOWER ROD ASSEMBLY IS OUTBOARD. IF YOU DO NOT OBEY, THERE WILL NOT BE SUFFICIENT CLEARANCE WITH THE DOOR HINGE AND DAMAGE CAN OCCUR.

(5) Adjust one door at a time, do these steps:

(a) Install the bolt [1], washer [2], and nut [3] to connect the lower rod assembly to the door hinge.

1) Adjust the length of the lower rod assembly to permit a free fit of the bolt [1] with no preload on the door.

NOTE: To get access, make sure that the lower rod assembly on the opposite door is disconnected.

NOTE: If it is necessary to adjust the opposite door, disconnect the first door after its adjustment.

SUBTASK 32-33-61-820-002

(6) Shorten the length of the lower rod assembly until the door touches the forward stop fitting.

SUBTASK 32-33-61-700-001

**WARNING** MAKE SURE THE SPRING SCALE IS SECURELY ATTACHED TO THE DOOR. THE SCALE COULD SLIP OFF THE DOOR AND CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(7) Use the spring scale, STD-755, to apply a 60 lb (27 kg) - 90 lb (41 kg) down load approximately 1.0 in. (25.4 mm) aft and 1.0 in. (25.4 mm) outboard of the forward inboard corner of the door or a 85 lb (39 kg) - 105 lb (48 kg) load at the forward stop fitting on the door with the nose landing gear retracted.

(a) Connect the scale to the inside of the landing gear door at the correct location.


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(b) Pull down on the scale to apply the correct load.

(c) Keep this load applied while you take the door measurements.

SUBTASK 32-33-61-820-003

(8) If the measured dimension of the door below the body contour at the forward inboard corner on the door is not 0.09 in. (2.29 mm) - 0.13 in. (3.30 mm), do these steps to adjust the lower rod assembly to get a 0.09 in. (2.29 mm) - 0.13 in. (3.30 mm) dimension:

NOTE: The lower rod assembly is adjustable as a turnbuckle.

(a) For hydraulic system A, do this task: Hydraulic System A or B Pressurization with a Portable Hydraulic Cart, TASK 29-11-00-860-802.

(b) Extend the nose landing gear slowly.

**WARNING**

BEFORE YOU DO AN ADJUSTMENT TASK, REMOVE THE HYDRAULIC PRESSURE FROM THE RETRACT ACTUATOR FOR THE NOSE LANDING GEAR. IF THERE IS HYDRAULIC PRESSURE, THE NOSE LANDING GEAR COULD MOVE AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(c) Remove the power from hydraulic system A (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

(d) Decrease the length of the lower rod assembly, one thread at a time, and by a maximum dimension of 0.40 in. (10.16 mm).

NOTE: This dimension will be from the initial length where the door touched the forward stop fitting.

NOTE: One half turn of the barrel or one turn of the clevis rod end will give one thread of adjustment.

(e) For hydraulic system A, do this task: Hydraulic System A or B Pressurization with a Portable Hydraulic Cart, TASK 29-11-00-860-802.

(f) Retract the nose landing gear.

(g) Remove the power from hydraulic system A (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

(h) Measure the dimension of the door below the body contour to get a dimension of 0.09 in. (2.29 mm) - 0.13 in. (3.30 mm).

(i) If it is necessary, do these steps again, until you get the correct dimension.

SUBTASK 32-33-61-080-002

(9) Remove the weight and spring scale, STD-755, from the door.

SUBTASK 32-33-61-860-009

(10) For hydraulic system A, do this task: Hydraulic System A or B Pressurization with a Portable Hydraulic Cart, TASK 29-11-00-860-802.

SUBTASK 32-33-61-860-002

(11) Extend the nose landing gear.



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SUBTASK 32-33-61-040-002

**WARNING** BEFORE YOU DO AN ADJUSTMENT TASK, REMOVE THE HYDRAULIC PRESSURE FROM THE RETRACT ACTUATOR FOR THE NOSE LANDING GEAR. IF THERE IS HYDRAULIC PRESSURE, THE NOSE LANDING GEAR COULD MOVE AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(12) Remove the power from hydraulic system A (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

SUBTASK 32-33-61-420-012

(13) Tighten the jamnut [5] on each end of the lower rod assembly.

(a) If the 10.47 in. (266 mm) dimension is met and threads are visible through the witness holes, then the adjustment values are reached.

NOTE: The threads of the rods ends do not need to cover the witness holes.

SUBTASK 32-33-61-420-013

(14) Install the lockwire on the jamnuts [5] on each end of the lower rod assembly.

SUBTASK 32-33-61-020-010

(15) If adjustment for the other door is necessary, do these steps:

(a) Disconnect the door that you adjusted to get access.

1) Remove the nut [3], washer [2], and bolt [1] to disconnect the lower rod assembly from the door hinge.

(b) Do the adjustment for the other door.

SUBTASK 32-33-61-420-014

**CAUTION** MAKE SURE THAT THE HEAD OF THE BOLT THAT ATTACHES THE UNIVERSAL JOINT TO THE LOWER ROD ASSEMBLY IS OUTBOARD. IF YOU DO NOT OBEY, THERE WILL NOT BE SUFFICIENT CLEARANCE WITH THE DOOR HINGE AND DAMAGE CAN OCCUR.

(16) Connect each door as necessary, do these steps:

(a) Install the bolt [1], washer [2], and nut [3] to connect the lower rod assembly to the door hinge, if not done.

(b) Tighten the nut [3] to 60 in-lb (6.8 N·m) - 90 in-lb (10.2 N·m).

(c) Align the nut [3] back to the nearest pin hole.

(d) Install the new pin [4] to the nut [3].

## H. Check of the Door Operation

SUBTASK 32-33-61-860-003

(1) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-33-61-710-001

(2) Retract and extend the nose landing gear and look for correct operation of the nose gear doors.



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SUBTASK 32-33-61-860-004

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Extend the nose and main landing gear.

SUBTASK 32-33-61-480-003

(4) Install the downlock pins to the nose and main landing gear (Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801).

SUBTASK 32-33-61-580-003

(5) Lower the airplane off the jacks (Lower the Airplane off Jacks, TASK 07-10-01-580-802).

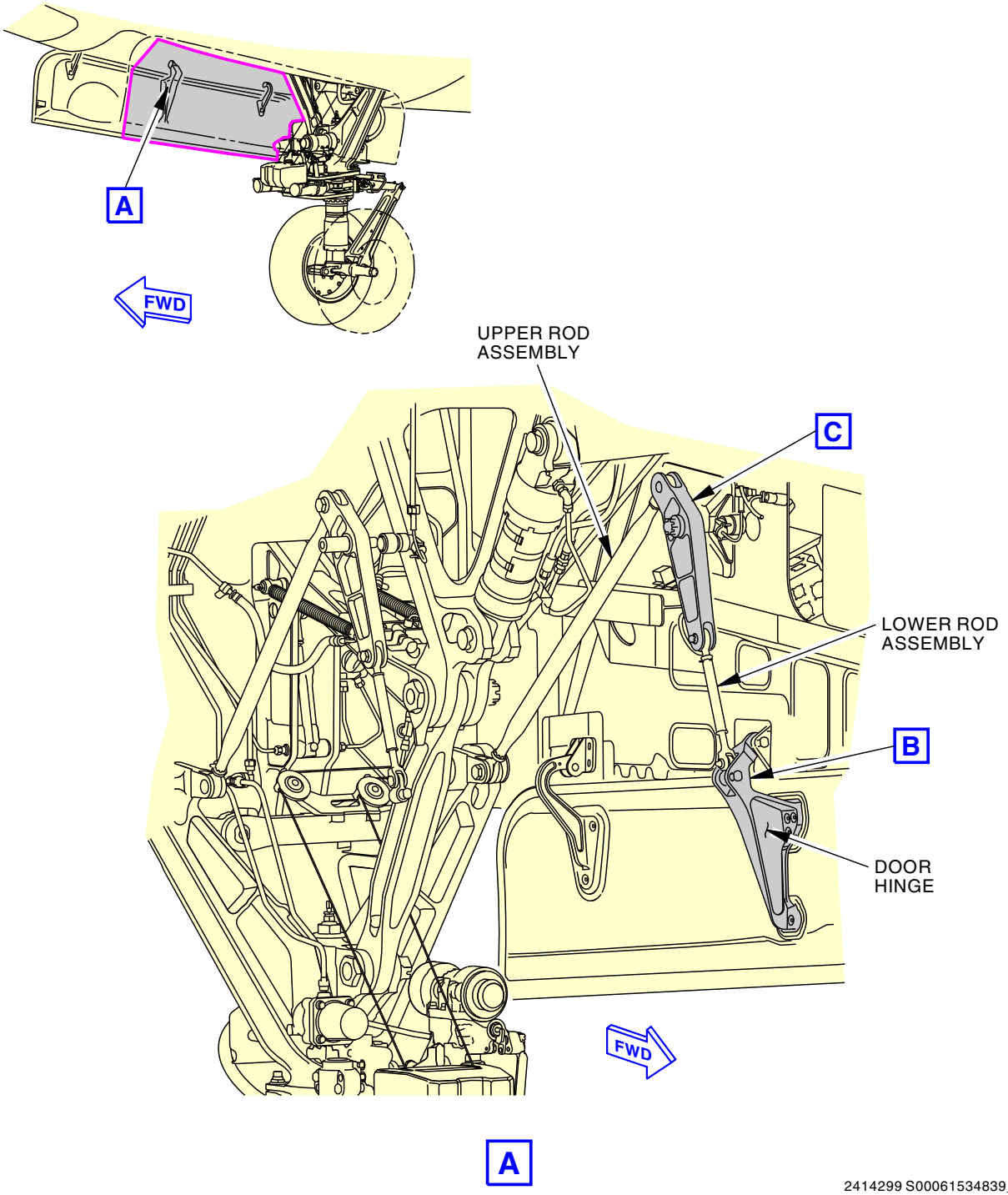
SUBTASK 32-33-61-860-005

(6) If hydraulic power is not necessary at this time, remove the power from hydraulic system A (Hydraulic System A or B Power Removal, TASK 29-11-00-860-805).

——— END OF TASK ———



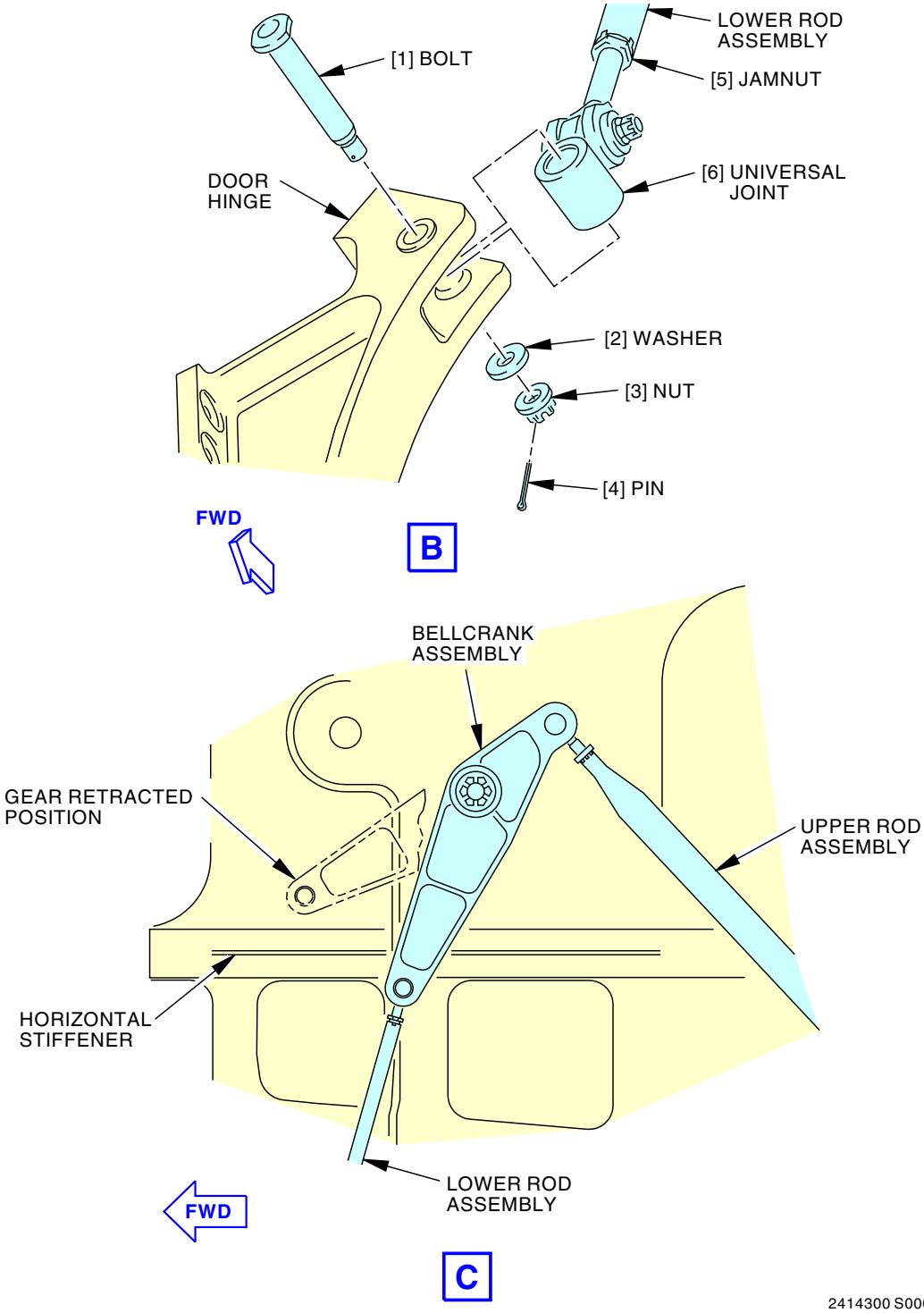
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**Nose Gear Wheel Well Door Linkage Adjustment**
**Figure 501/32-33-61-990-802 (Sheet 1 of 2)**



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**Nose Gear Wheel Well Door Linkage Adjustment**
**Figure 501/32-33-61-990-802 (Sheet 2 of 2)**



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## NOSE GEAR WHEEL WELL DOOR LINKAGE - INSPECTION/CHECK

### 1. General

A. This task has the data for a dimensional inspection of the linkage for the wheel well doors on the nose landing gear. No procedure is given in this section to get access to permit the inspection. The door linkage must be removed to do the inspection.

These are the tasks:

Nose Gear Wheel Well Door Linkage - Removal, TASK 32-33-61-000-801,

Nose Gear Wheel Well Door Linkage - Installation, TASK 32-33-61-400-801.

**TASK 32-33-61-200-801**

### 2. Nose Gear Wheel Well Door Linkage Inspection

(Figure 601)

#### A. General

(1) This task gives wear limits and repair data for the linkage for the wheel well doors on the nose landing gear.

#### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-33-61-000-801 | Nose Gear Wheel Well Door Linkage - Removal (P/B 401) |
| 32-33-61-400-801 | Nose Gear Wheel Well Door Linkage - Installation (P/B 401) |

#### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-1096 | Micrometer - Depth, 0-1 inch, Readable to 1/1000 inch |
| STD-1097 | Caliper - Vernier, 0-6 inch, Readable to 1/1000 inch |

#### D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

#### E. Nose Gear Wheel Well Door Linkage Inspection

**SUBTASK 32-33-61-480-004**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-33-61-020-011**

(2) Remove parts to get access to the linkage for the wheel well doors on the nose landing gear (Figure 601) (TASK 32-33-61-000-801).

**SUBTASK 32-33-61-020-012**

(3) Use these tools to do a check for wear on the parts of the linkage for the wheel well doors on the nose landing gear:


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(a) micrometer (0-1 inch, readable to 1/1000 inch), STD-1096

(b) vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.

SUBTASK 32-33-61-020-013

(4) Examine the parts of the linkage for worn areas:

(a) Remove the parts to be checked.

(b) Measure the parts as necessary with a micrometer (0-1 inch, readable to 1/1000 inch), STD-1096, or a vernier caliper (0 - 6 inch, readable to 1/1000 inch), STD-1097.

(c) Compare the dimensions you measured with the permitted wear dimensions in Table 601, Table 602.

(d) If the parts are not in the tolerance, replace or repair the part as necessary.

**Table 601/32-33-61-993-801**

| NAME OF THE PARTS THAT ARE IN CONTACT | DIM. | DIAMETER DESIGN LIMITS | | WEAR LIMITS | |
|---|---|---|---|---|---|
| | | MINIMUM inches/mm | MAXIMUM inches/mm | PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART | MAXIMUM SERVICE DIAMETRIC CLEARANCE |
| [1] BUSHING | I.D. | 0.5000 in<br>12.7 mm | 0.5007 in<br>112.717 mm | 0.5031 in<br>12.778 mm | 0.0041 in |
| [1] BOLT | O.D. | 0.4980 in<br>12.649 mm | 0.4990 in<br>12.674 mm | 0.4966 in<br>12.613 mm | 0.104 mm |
| | | | | | |
| [2] BUSHING | I.D. | 0.5000 in<br>12.7 mm | 0.5006 in<br>12.715 mm | 0.5030 in<br>12.776 mm | 0.004 in |
| [2] BOLT | O.D. | 0.4980 in<br>12.649 mm | 0.4990 in<br>12.674 mm | 0.4966 in<br>12.613 mm | 0.102 mm |
| | | | | | |
| [3] BEARING BALL | I.D. | in<br>mm | in<br>mm | in<br>mm | in |
| [3] BOLT | O.D. | 0.4935 in<br>12.534mm | 0.4950 in<br>12.573mm | in<br>mm | mm |
| | | | | | |
| [4] BUSHING | I.D. | 0.5000 in<br>12.7mm | 0.5005 in<br>12.712mm | 0.5034 in<br>12.786mm | 0.0084 in |
| [4] BOLT | O.D. | 0.4935 in<br>12.534mm | 0.4950 in<br>12.573mm | 0.4921 in<br>12.499mm | 00.213 mm |
| | | | | | |
| [5] BUSHING | I.D. | 0.5000 in<br>12.7 mm | 0.5005 in<br>12.712mm | 0.5034 in<br>12.786mm | 0.0084 in |
| [5] BOLT | O.D. | 0.4935 in<br>12.534mm | 0.4950 in<br>12.573mm | 0.4921 in<br>12.499mm | 0.213 mm |
| | | | | | |



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**Table 601/32-33-61-993-801 (Continued)**

| NAME OF THE PARTS THAT ARE IN CONTACT | DIM. | DIAMETER DESIGN LIMITS | | WEAR LIMITS | |
|---|---|---|---|---|---|
| | | MINIMUM inches/mm | MAXIMUM inches/mm | PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART | MAXIMUM SERVICE DIAMETRIC CLEARANCE |
| [6] BUSHING | I.D. | 0.6870 in<br>17.499 mm | 0.6875 in<br>17.462 mm | 0.6897 in<br>17.518 mm | 0.0647 in |
| [6] BUSHING | O.D. | 0.5610 in<br>14.249 mm | 0.5615 in<br>14.262 mm | 0.5590 in<br>14.199 mm | 1.643 mm |
| | | | | | |
| [7] BUSHING | I.D. | in<br>mm | in<br>mm | in<br>mm | in |
| [7] BOLT | O.D. | 1.122 in<br>28.50 mm | 1.124 in<br>28.55 mm | in<br>mm | mm |
| | | | | | |
| [8] BEARING BALL | I.D. | in<br>mm | in<br>mm | in<br>mm | in |
| [8] BOLT | O.D. | 0.6180 in<br>15.697 mm | 0.6195 in<br>15.735 mm | in<br>mm | mm |

**Table 602/32-33-61-993-802**

| NAME OF THE PARTS THAT ARE IN CONTACT | DIM. | DIAMETER DESIGN LIMITS | | WEAR LIMITS | |
|---|---|---|---|---|---|
| | | MINIMUM inches/mm | MAXIMUM inches/mm | PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART | MAXIMUM SERVICE DIAMETRIC CLEARANCE |
| [9] BUSHING | I.D. | 0.7502 in<br>19.055 mm | 0.7507 in<br>19.067 mm | 0.7529 in<br>19.123 mm | 0.0029 in |
| [9] BUSHING | O.D. | 0.7495 in<br>19.037 mm | 0.7500 in<br>19.050 mm | 0.7478 in<br>18.994 mm | 0.073 mm |
| | | | | | |
| [10] BUSHING | I.D. | 0.6250 in<br>15.875 mm | 0.6255 in<br>15.887 mm | 0.6286 in<br>15.966 mm | 0.0091 in |
| [10] BOLT | O.D. | 0.6180 in<br>15.697 mm | 0.6195 in<br>15.735 mm | 0.6164 in<br>15.656 mm | 0.231 mm |
| | | | | | |
| [11] BUSHING | I.D. | 0.6250 in<br>15.875 mm | 0.6255 in<br>15.887 mm | 0.6286 in<br>15.966 mm | 0.0091 in |
| [11] BOLT | O.D. | 0.6180 in<br>15.697 mm | 0.6195 in<br>15.735 mm | 0.6164 in<br>15.656 mm | 0.231 mm |
| | | | | | |



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**Table 602/32-33-61-993-802 (Continued)**

| NAME OF THE PARTS THAT ARE IN CONTACT | DIM. | DIAMETER DESIGN LIMITS | | WEAR LIMITS | |
|---|---|---|---|---|---|
| | | MINIMUM inches/mm | MAXIMUM inches/mm | PERMITTED MAXIMUM I.D./ MINIMUM O.D. OF WORN PART | MAXIMUM SERVICE DIAMETRIC CLEARANCE |
| [12] BUSHING | I.D. | 0.7514 in<br>19.085 mm | 0.7519 in<br>19.098 mm | 0.7533 in<br>19.133 mm | 0.0032 in |
| [12] BUSHING | O.D. | 0.7499 in<br>19.047 mm | 0.7501 in<br>19.052 mm | 0.7482 in<br>19.004 mm | 0.081 mm |
| | | | | | |
| [13] BEARING BALL | I.D. | in<br>mm | in<br>mm | in<br>mm | in |
| [13] BOLT | O.D. | 0.6180 in<br>15.697 mm | 0.6195 in<br>15.735 mm | in<br>mm | mm |

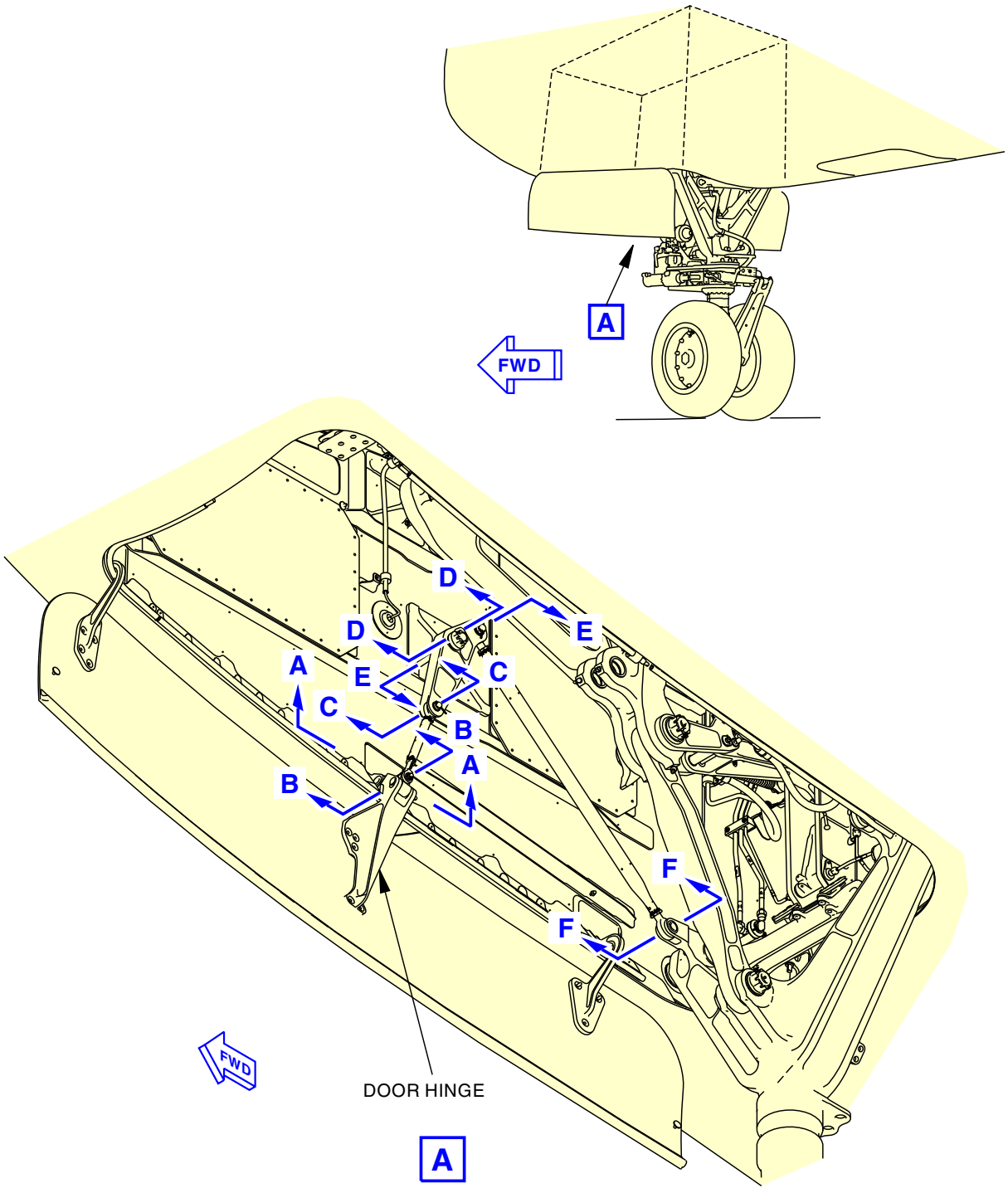
**SUBTASK 32-33-61-020-014**

(5) Install the parts on the linkage for the wheel well doors on the nose landing gear (TASK 32-33-61-400-801).

**——— END OF TASK ———**



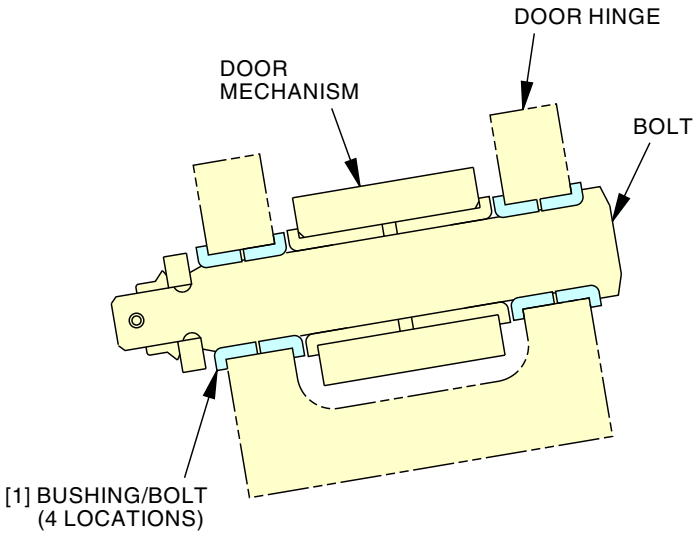
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**Nose Gear Wheel Well Door Linkage Wear Limits**
**Figure 601/32-33-61-990-803 (Sheet 1 of 4)**



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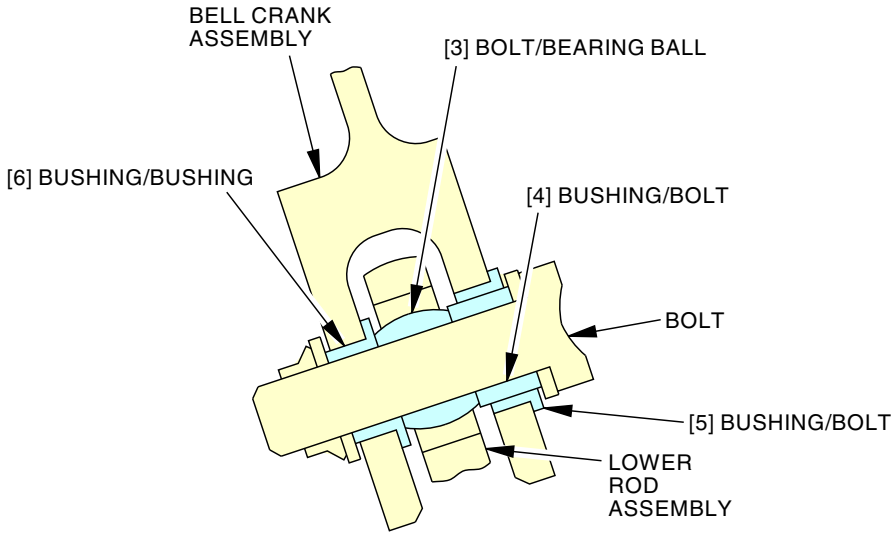



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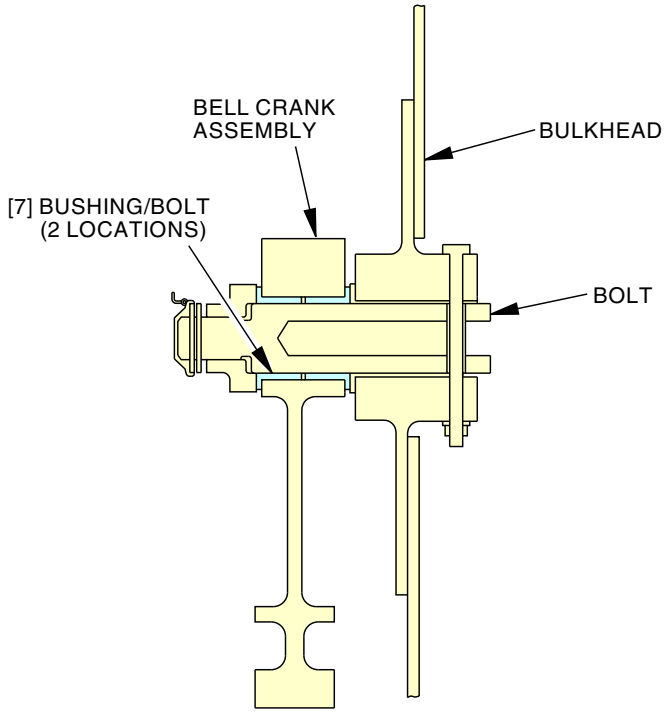
**Nose Gear Wheel Well Door Linkage Wear Limits**
**Figure 601/32-33-61-990-803 (Sheet 2 of 4)**



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C-C



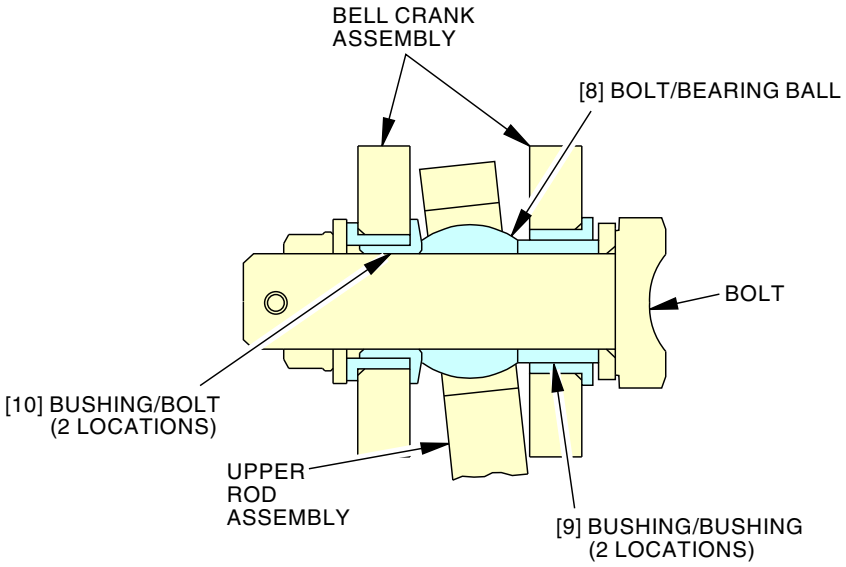

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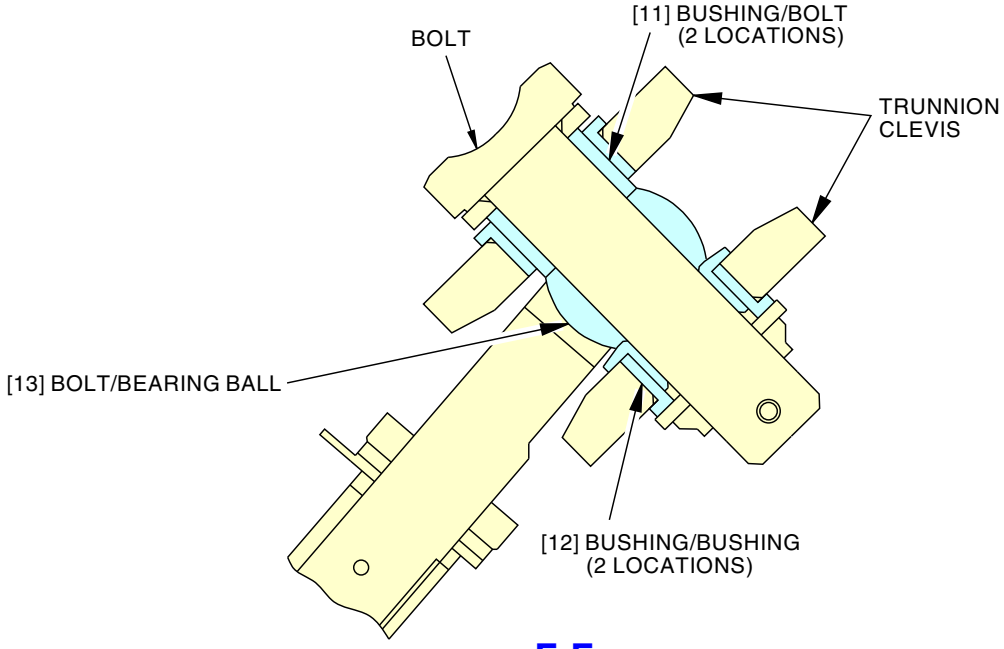
**Nose Gear Wheel Well Door Linkage Wear Limits**
**Figure 601/32-33-61-990-803 (Sheet 3 of 4)**



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**E-E**




**F-F**

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**Nose Gear Wheel Well Door Linkage Wear Limits**
**Figure 601/32-33-61-990-803 (Sheet 4 of 4)**



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## NOSE GEAR PRESSURE FUSE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the retract pressure fuse for the nose landing gear.

(2) Installation of the retract pressure fuse for the nose landing gear.

(a) The installation of the retract pressure fuse for the nose landing gear includes an installation test of the retract pressure fuse.

(3) Removal of the extend pressure fuse for the nose landing gear.

(4) Installation of the extend pressure fuse for the nose landing gear.

(a) The installation of the extend pressure fuse for the nose landing gear includes an installation test for the extend pressure fuse.

**TASK 32-33-71-000-801**

### 2. Nose Gear Retract Pressure Fuse Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-33-71-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-33-71-860-001**

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.



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SUBTASK 32-33-71-580-001

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

## E. Nose Gear Retract Pressure Fuse Removal

SUBTASK 32-33-71-020-001

(1) Loosen the nuts connecting the hydraulic lines to the retract pressure fuse [4].

SUBTASK 32-33-71-020-002

(2) Remove the screws [1], washers [2], and nuts [3] that hold the hydraulic lines to the structure on the two ends of the retract pressure fuse [4].

SUBTASK 32-33-71-020-003

(3) Disconnect the hydraulic lines from the retract pressure fuse [4].

SUBTASK 32-33-71-480-002

(4) Install caps/plugs, STD-14686, on the hydraulic lines.

SUBTASK 32-33-71-020-004

(5) Remove the retract pressure fuse [4] from the airplane.

## F. Nose Gear Retract Pressure Hydraulic Fuse Functional Test

SUBTASK 32-33-71-720-001

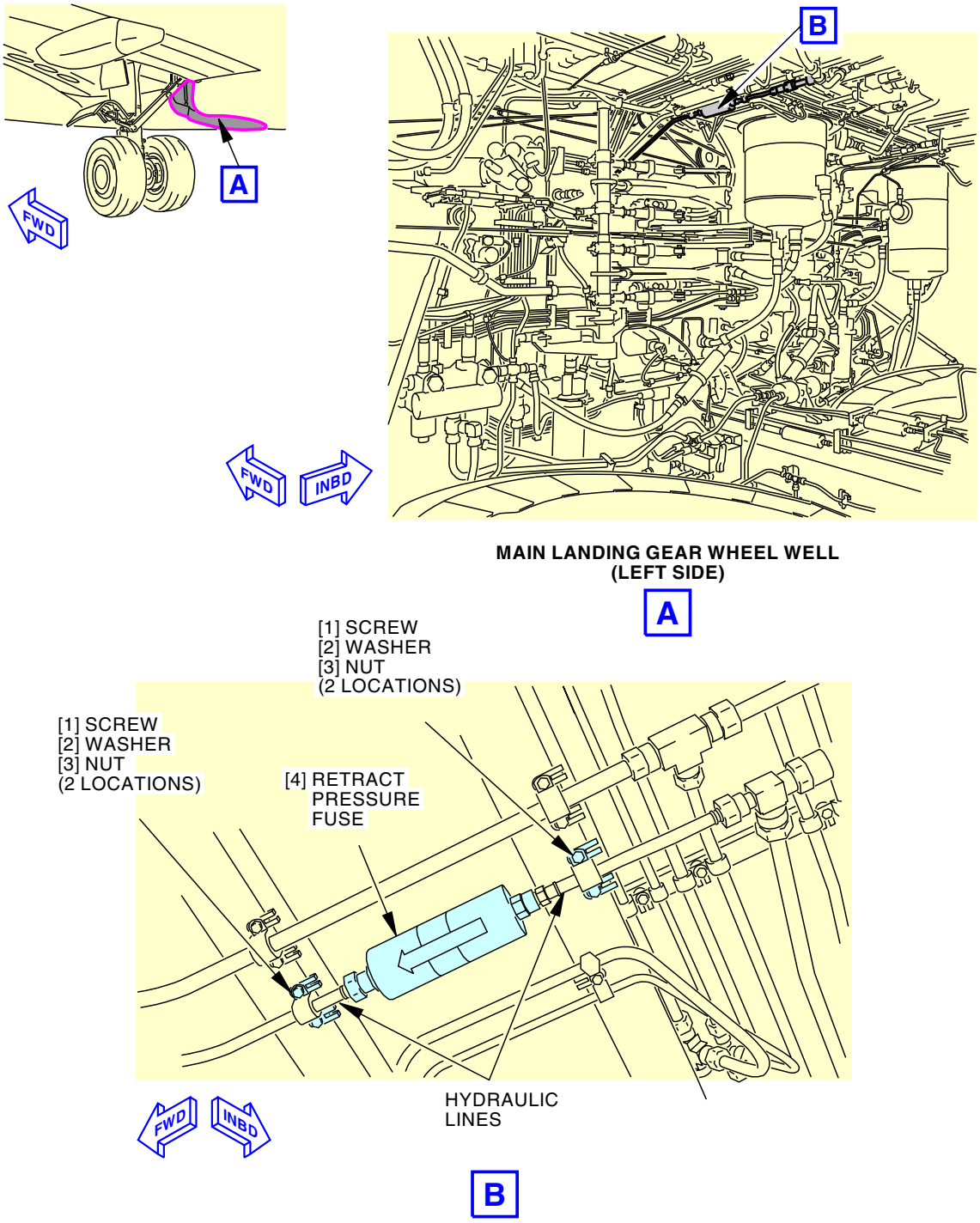
(1) Do the functional test of the retract pressure fuse [4] with the supplier's recommended component maintenance test instructions and test equipment.

NOTE: The supplier's instructions give a reverse flow test, internal leakage test, pressure drop test, volumetric capacity test and reset test for the retract pressure fuse [4]. This is an off-airplane bench test.

**——— END OF TASK ———**



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**Nose Gear Retract Pressure Fuse Installation**
**Figure 401/32-33-71-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-33-71-400-801**

## 3. Nose Gear Retract Pressure Fuse Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Retract pressure fuse | 32-33-71-01-010 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### E. Nose Gear Retract Pressure Fuse Installation

**SUBTASK 32-33-71-420-001**

(1) Put the retract pressure fuse [4] in position to align it with the hydraulic lines.

**SUBTASK 32-33-71-080-001**

(2) Remove the caps/plugs, STD-14686, from the hydraulic lines and connect the hydraulic lines to the retract pressure fuse [4].

**SUBTASK 32-33-71-420-002**

(3) Install the screws [1], washers [2], and nuts [3] for the clamps that hold the hydraulic lines to the structure on the two ends of the retract pressure fuse [4].

**SUBTASK 32-33-71-420-003**

(4) Tighten the B-nuts on the hydraulic lines to 270 ±14 in-lb (31 ±2 N·m).



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**F. Nose Gear Retract Pressure Fuse Installation Test**

SUBTASK 32-33-71-480-003

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-33-71-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-33-71-700-001

(3) Use the override trigger to move the control lever for the landing gear from the DN position to the UP position.

SUBTASK 32-33-71-710-001

(4) Make sure the UP hose of the retract actuator moves to show that hydraulic pressure is applied when the control lever is moved to the UP position.

SUBTASK 32-33-71-700-002

(5) Move the control lever to the DN position.

SUBTASK 32-33-71-700-003

(6) Make sure the DOWN hose on the retract actuator moves when you move the control lever from the UP position to the DN position.

SUBTASK 32-33-71-210-001

(7) Do a check for leakage with the hydraulic pressure applied.

SUBTASK 32-33-71-860-003

(8) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-33-71-210-002

(9) Make sure there are no leaks in the hydraulic connections.

**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-33-71-840-001

(1) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

(a) Service them if it is necessary.

**END OF TASK**

**TASK 32-33-71-000-802**

## 4. Nose Gear Extend Pressure Fuse Removal

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |



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(Continued)

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

**D. Prepare for the Removal**

SUBTASK 32-33-71-480-004

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-33-71-860-004

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-33-71-580-002

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

**E. Extend Pressure Fuse Removal**

SUBTASK 32-33-71-020-005

(1) Disconnect the extend pressure fuse [25] from the elbow.

SUBTASK 32-33-71-020-006

(2) Disconnect the hydraulic line from the extend pressure fuse [25].

SUBTASK 32-33-71-480-005

(3) Install cap/plug, STD-14686, on the hydraulic line.

SUBTASK 32-33-71-020-007

(4) Remove the extend pressure fuse [25] from the airplane.



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### F. Nose Gear Extend Pressure Fuse Functional Test

**SUBTASK 32-33-71-720-002**

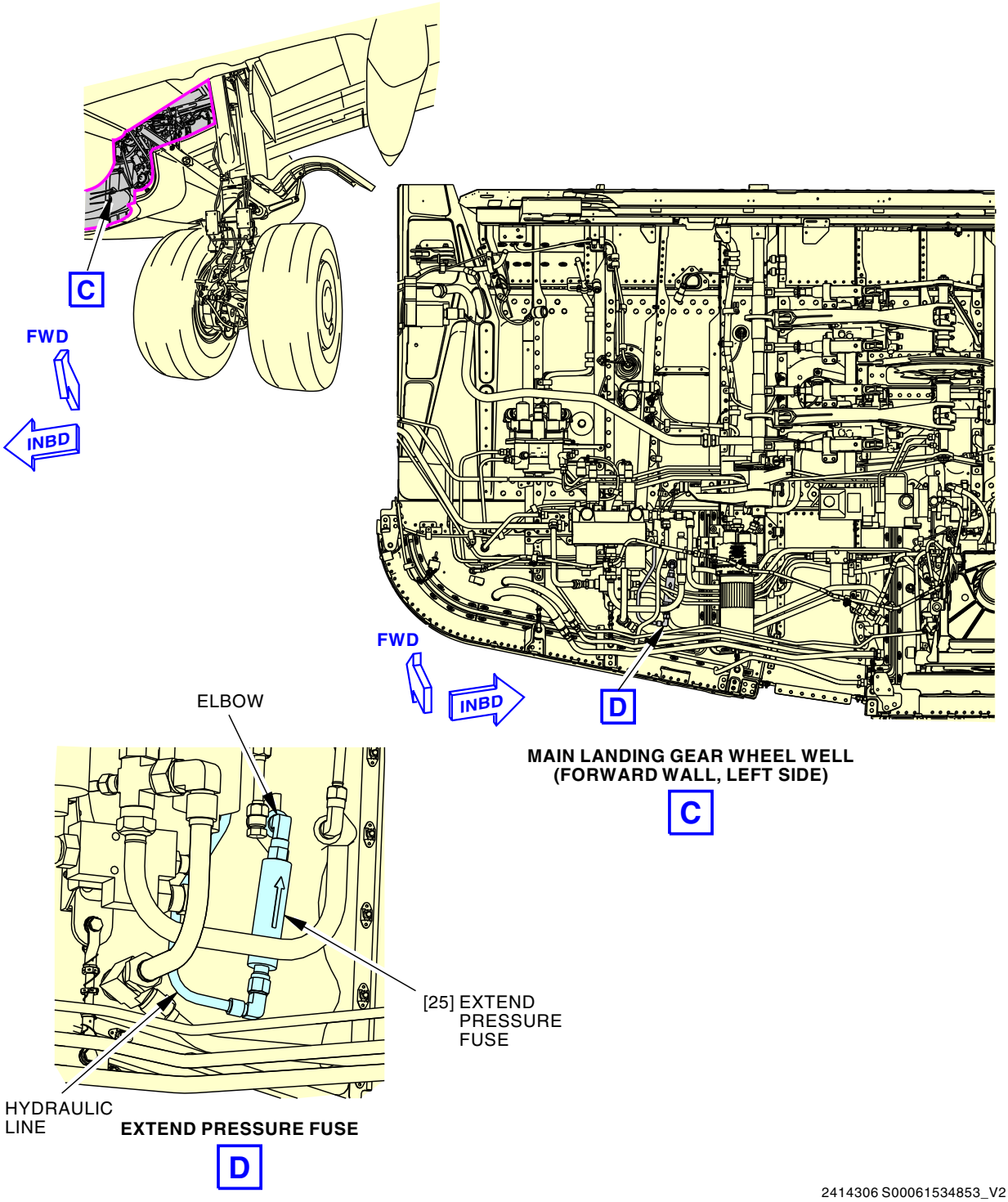
(1) Do the functional test of the extend pressure fuse [25] with the supplier's recommended component maintenance test instructions and test equipment.

NOTE: The supplier's instructions give a reverse flow test, internal leakage test, pressure drop test, volumetric capacity test and reset test for the extend pressure fuse [25]. This is an off-airplane bench test.

**——— END OF TASK ———**



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**Nose Gear Extend Pressure Fuse Installation**
**Figure 402/32-33-71-990-802**



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**TASK 32-33-71-400-802**

## 5. Nose Gear Extend Pressure Fuse Installation

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 25 | Extend pressure fuse | 32-33-71-05-010 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### E. Nose Gear Extend Pressure Fuse Installation

**SUBTASK 32-33-71-420-004**

(1) Put the extend pressure fuse [25] in position to align it with the hydraulic line and the elbow.

**SUBTASK 32-33-71-420-006**

(2) Tighten the extend pressure fuse [25] to the elbow.

**SUBTASK 32-33-71-080-002**

(3) Remove the cap/plug, STD-14686, from the hydraulic line and connect the hydraulic line to the extend pressure fuse [25].

**SUBTASK 32-33-71-420-005**

(4) Tighten the B-nut on the hydraulic line to 270 ±14 in-lb (31 ±2 N·m).



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## F. Nose Gear Extend Pressure Fuse Installation Test

**SUBTASK 32-33-71-480-006**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-33-71-860-005**

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-33-71-700-004**

(3) Use the override trigger to move the control lever for the landing gear from the DN position to the UP position.

**SUBTASK 32-33-71-710-002**

(4) Make sure the UP hose of the retract actuator moves to show that hydraulic pressure is applied when the control lever is moved to the UP position.

**SUBTASK 32-33-71-700-005**

(5) Move the control lever to the DN position.

**SUBTASK 32-33-71-700-006**

(6) Make sure the DOWN hose on the retract actuator moves when you move the control lever from the UP position to the DN position.

**SUBTASK 32-33-71-210-003**

(7) Do a check for leakage with the hydraulic pressure applied.

**SUBTASK 32-33-71-210-004**

(8) Make sure there are no leaks in the hydraulic connections.

**SUBTASK 32-33-71-860-006**

(9) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-33-71-840-002**

(1) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

(a) Service them if it is necessary.

**END OF TASK**



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## NOSE GEAR HYDRAULIC FLOW REGULATOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the hydraulic flow regulator (referred to as the flow regulator) for the nose landing gear

(2) An installation of the hydraulic flow regulator for the nose landing gear.

(a) The installation of the hydraulic flow regulator for the nose landing gear includes an installation test of the hydraulic flow regulator.

**TASK 32-33-72-000-801**

### 2. Nose Gear Hydraulic Flow Regulator Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-7394 | Cap - Dust, Electrical Connector |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-33-72-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-33-72-860-001**

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

#### E. Nose Gear Hydraulic Flow Regulator Removal

**SUBTASK 32-33-72-020-001**

(1) Loosen the hydraulic lines to the flow regulator [5].



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SUBTASK 32-33-72-020-002

(2) Remove the screws [1], washers [2], and nuts [4] that hold the hydraulic lines to the structure on both ends of the flow regulator [5].

SUBTASK 32-33-72-020-005

(3) Remove the clamps [3].

SUBTASK 32-33-72-020-003

(4) Disconnect the hydraulic lines from the flow regulator [5].

SUBTASK 32-33-72-480-002

(5) Install dust caps, STD-7394, on the hydraulic lines.

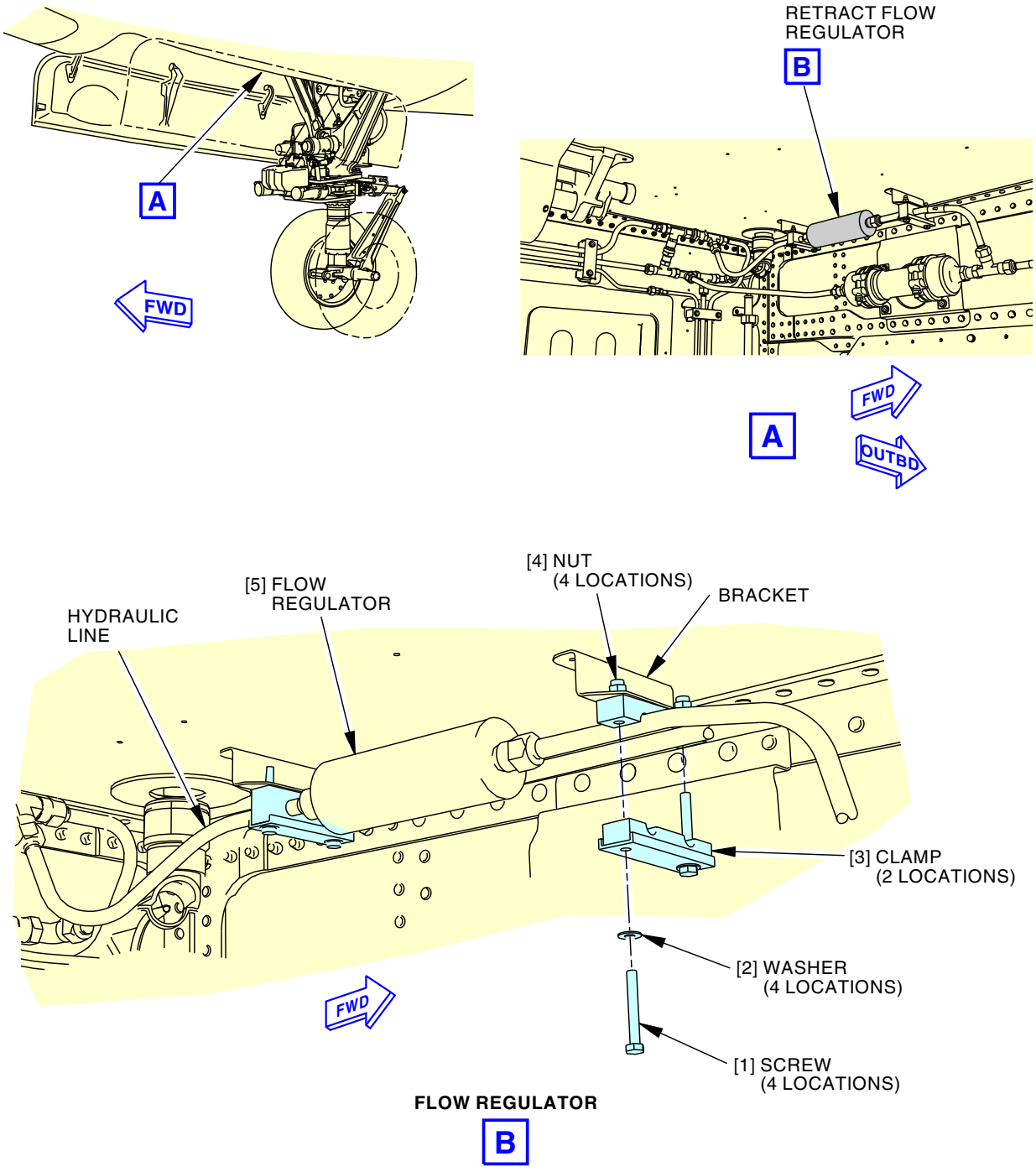
SUBTASK 32-33-72-020-004

(6) Remove the flow regulator [5] from the airplane.

**END OF TASK**



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**Nose Gear Flow Regulator Installation**
**Figure 401/32-33-72-990-801**



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**TASK 32-33-72-400-801**

## 3. Nose Gear Hydraulic Flow Regulator Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-7394 | Cap - Dust, Electrical Connector |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Flow regulator | 32-21-51-05-415 | SIA 001-014 |
| | | 32-21-51-06-475 | SIA 015-999 |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### E. Nose Gear Hydraulic Flow Regulator Installation

**SUBTASK 32-33-72-420-001**

(1) Put the flow regulator [5] in position to align it with the hydraulic lines.

**SUBTASK 32-33-72-080-001**

(2) Remove the dust caps, STD-7394, from the hydraulic lines and connect the hydraulic lines to the flow regulator [5].

**SUBTASK 32-33-72-420-002**

(3) Install the screws [1], washers [2], and nuts [4] in the clamps [3] for the hydraulic lines.

**SUBTASK 32-33-72-420-003**

(4) Connect the hydraulic lines to the flow regulator [5].

(a) Tighten the B-nuts on the hydraulic lines to 270 ±14 in-lb (31 ±2 N·m).



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## F. Nose Gear Hydraulic Flow Regulator Installation Test

SUBTASK 32-33-72-480-003

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-33-72-860-002

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-33-72-700-001

(3) Move the landing gear lever to the UP position, then to the DN position three times to cycle the gear.

NOTE: This will bleed the air from the regulator and the lines.

NOTE: Use the override for the landing gear lever lock to move the landing gear lever from the DN position to the UP position.

(a) Hold the landing gear lever in each position for three seconds before the landing gear lever is moved to the next position.

(b) Make sure that the UP hose of the retract actuator moves to show that hydraulic pressure is applied when the landing gear lever is moved to the UP position.

(c) Move the landing gear lever to the DN position.

(d) Make sure that the DOWN hose on the retract actuator moves when the landing gear lever is moved from the UP position to the DN position.

SUBTASK 32-33-72-210-001

(4) Do a check for leakage with the hydraulic pressure applied.

SUBTASK 32-33-72-860-003

(5) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-33-72-210-002

(6) Make sure that there are no leaks in the hydraulic connections.

SUBTASK 32-33-72-840-001

(7) Examine the hydraulic reservoirs for the correct servicing (TASK 12-12-00-610-801).

(a) Do the servicing if it is necessary.

**END OF TASK**



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## MAIN GEAR MANUAL EXTENSION SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

(1) Main Landing Gear Manual Extension System Adjustment and Test

(2) Main Gear Manual Extension System Test (Airplane on Jacks)

(3) Main Gear Manual Extension System Test (Airplane not on Jacks)

(4) Manual Extension System Access Door Switch Adjustment.

**TASK 32-34-00-820-801**

### 2. Main Landing Gear Manual Extension System Adjustment and Test

(Figure 501, Figure 502)

#### A. General

(1) This task gives the instructions to adjust (rig) the left or right manual extension system for the main landing gears.

(2) In this task the rig pin used for the left side main landing gear is LGEA2 and for the right side is LGEA3.

#### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 20-20-31-200-802 | Inspection of the Control Cable Fittings (P/B 601) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| SPL-4896 | Adapter Assembly - Uplock, MLG<br>Part #: C32048-1 Supplier: 81205 |

#### D. Location Zones

| Zone | Area |
|---|---|
| 121 | Forward Cargo Compartment - Left |
| 122 | Forward Cargo Compartment - Right |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |



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## E. Prepare for the Adjustment and Test

SUBTASK 32-34-00-860-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-34-00-860-002

(2) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-34-00-580-001

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

SUBTASK 32-34-00-480-001

(4) Install the rig pin LGEA2 (L/H) or LGEA3 (R/H) from rigging pin kit, SPL-1585, in the cable guard bracket and quadrant on the manual extension mechanism.

SUBTASK 32-34-00-010-001

(5) Remove the ceiling panels in the forward cargo compartment that are at approximately body station 420.

## F. Main Landing Gear Manual Extension System Adjustment and Test

SUBTASK 32-34-00-020-001

(1) Remove the locking clips from the turnbuckle.

SUBTASK 32-34-00-020-002

(2) Loosen the MLGEA cable at the turnbuckle.

SUBTASK 32-34-00-820-003

(3) Make sure that the upper lock link is in the up and locked position with the MLG uplock adapter assembly, SPL-4896, or a suitable tool.

SUBTASK 32-34-00-020-003

(4) Remove the pin [1] and loosen the nut [2] and bolt [3].

SUBTASK 32-34-00-820-004

(5) Loosen the jamnut on the control rod on the manual extension mechanism.

SUBTASK 32-34-00-820-005

(6) Adjust the control rod to get the 0.0625 in. (1.59 mm) to 0.1500 in. (3.8100 mm) gap between the uplock kicker arm and the upper lock link (Figure 502).

SUBTASK 32-34-00-420-001

(7) Tighten the jamnut to 95 in-lb (10.73 N·m) - 160 in-lb (18.08 N·m).

SUBTASK 32-34-00-080-001

(8) Remove the rig pin LGEA2 or LGEA3 from the manual extension mechanism.

SUBTASK 32-34-00-980-001

(9) Put the uplock hook in the down and locked position before performing a gear retraction.

SUBTASK 32-34-00-700-001

(10) Turn the cable quadrant to make sure that the control rod does not rub against the uplock kicker arm.

(a) Install the rig pin LGEA2 or LGEA3.



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SUBTASK 32-34-00-420-002

(11) Do these steps to tighten the bolt [3] and nut [2] to 80 in-lb (9.04 N·m) plus run on torque to 240 in-lb (27.12 N·m) maximum:

(a) Begin at the lower torque value and increase as necessary to align the castellation in the nut [2] with the hole in the bolt [3].

(b) Do not use more than 240 in-lb (27.12 N·m) applied torque.

(c) Install the pin [1].

SUBTASK 32-34-00-420-003

**CAUTION**

MAKE SURE THAT THE MAIN-GEAR MANUAL EXTENSION-HANDLES ARE IN THEIR V-SLOTS WHEN THE CABLES ARE ADJUSTED. WHEN YOU MOVE THE CONTROL HANDLE TO THE UP POSITION, DAMAGE CAN OCCUR WHEN THE HANDLES ARE NOT IN THEIR V-SLOTS.

(12) Adjust the turnbuckle on cable MLGEA until the rig pin LGEA 2 or LGEA 3 fits freely in the manual extension mechanism and the cable guard.

SUBTASK 32-34-00-080-002

(13) Remove the rig pin LGEA2 or LGEA3 from the manual extension mechanism and cable guard.

(a) Install the locking clips on the turnbuckle.

SUBTASK 32-34-00-710-001

(14) Do a test of the manual extension system for the main gear.

(a) If airplane is on jacks, do this task: Main Gear Manual Extension System Test (Airplane on Jacks), TASK 32-34-00-730-801.

(b) If airplane is not on jacks, do this task: Main Gear Manual Extension System Test (Airplane not on Jacks), TASK 32-34-00-730-802.

SUBTASK 32-34-00-200-003

(15) Control cables may contact fairleads, grommets or rub strips after rigging at operating conditions (TASK 20-20-31-200-802).

## G. Put the Airplane Back to Its Usual Condition

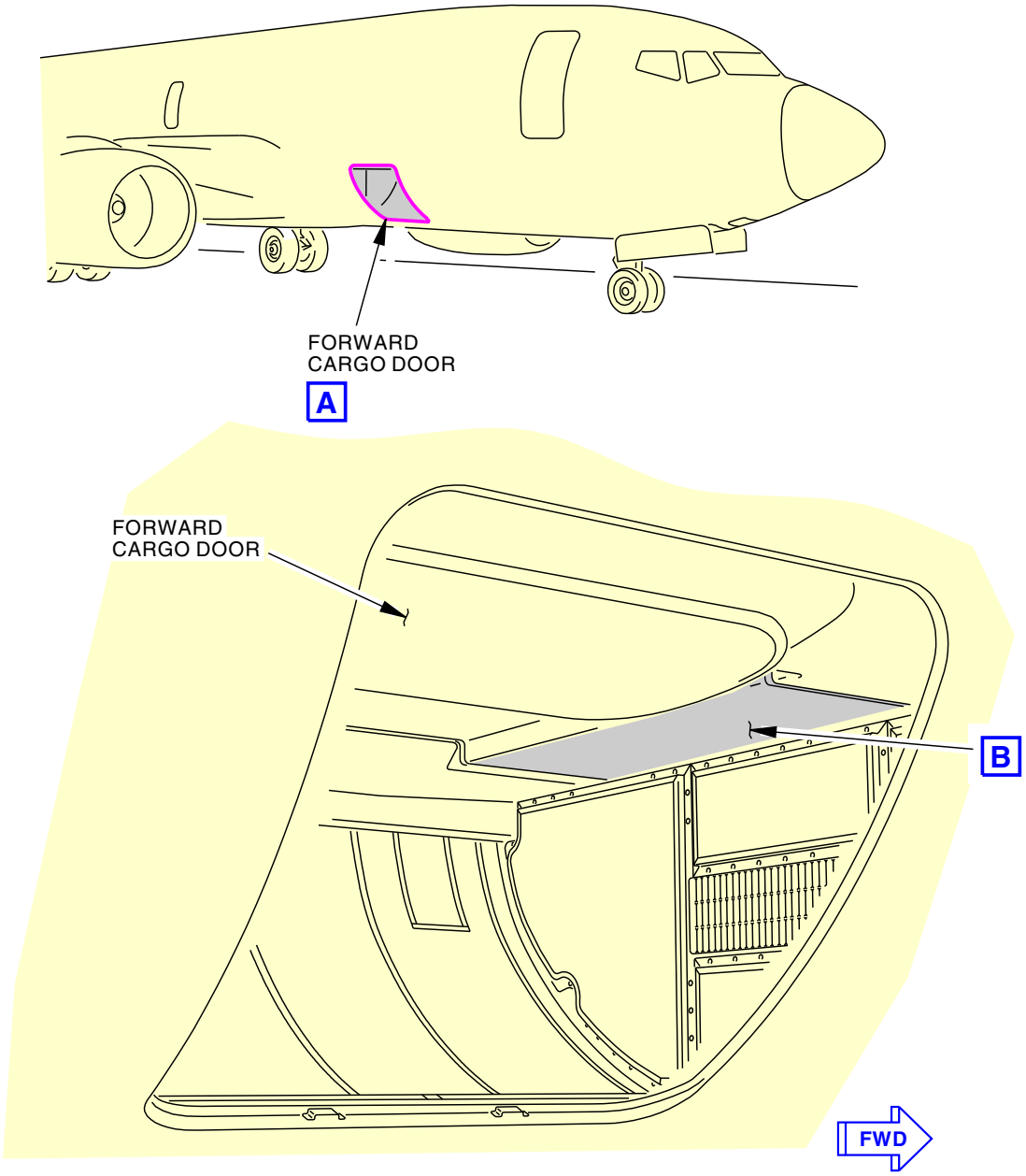
SUBTASK 32-34-00-410-001

(1) Install the ceiling panels that you removed in the forward cargo compartment.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**FORWARD CARGO COMPARTMENT
(CEILING PANEL INSTALLED)**

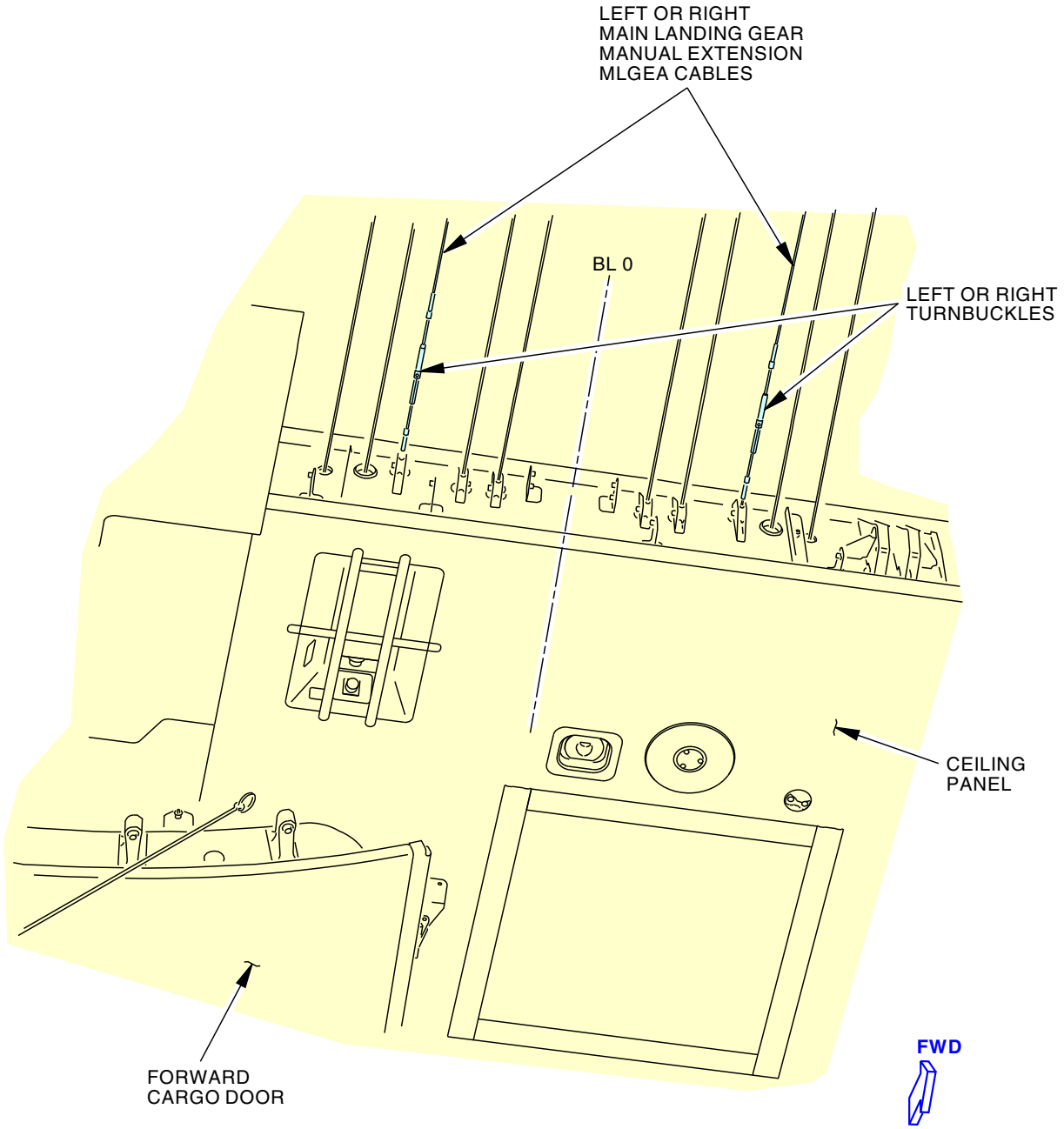
**A**

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**Main Gear Manual Extension System - Turnbuckle Location
Figure 501/32-34-00-990-801 (Sheet 1 of 2)**



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**FORWARD CARGO COMPARTMENT**
**(CEILING PANEL REMOVED)**

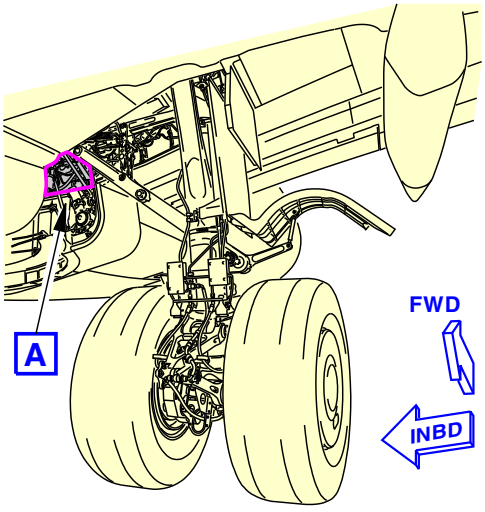
**B**

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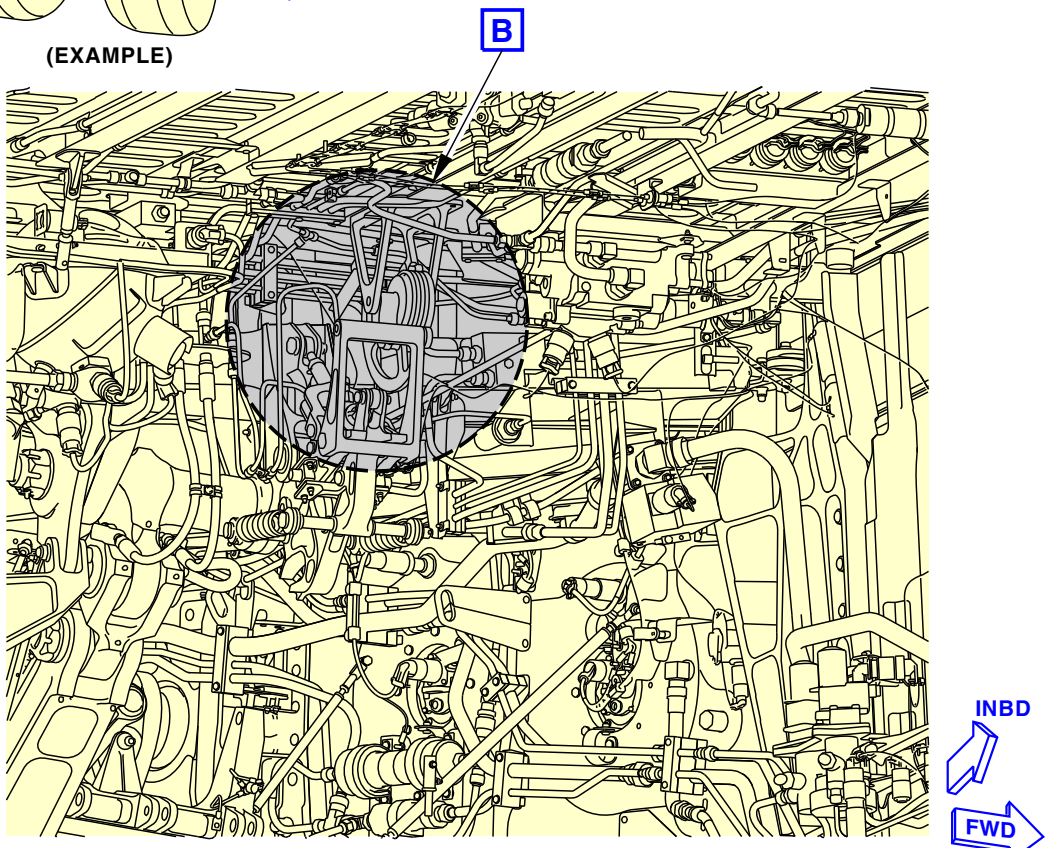
**Main Gear Manual Extension System - Turnbuckle Location**
**Figure 501/32-34-00-990-801 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




(EXAMPLE)




MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)
(EXAMPLE)

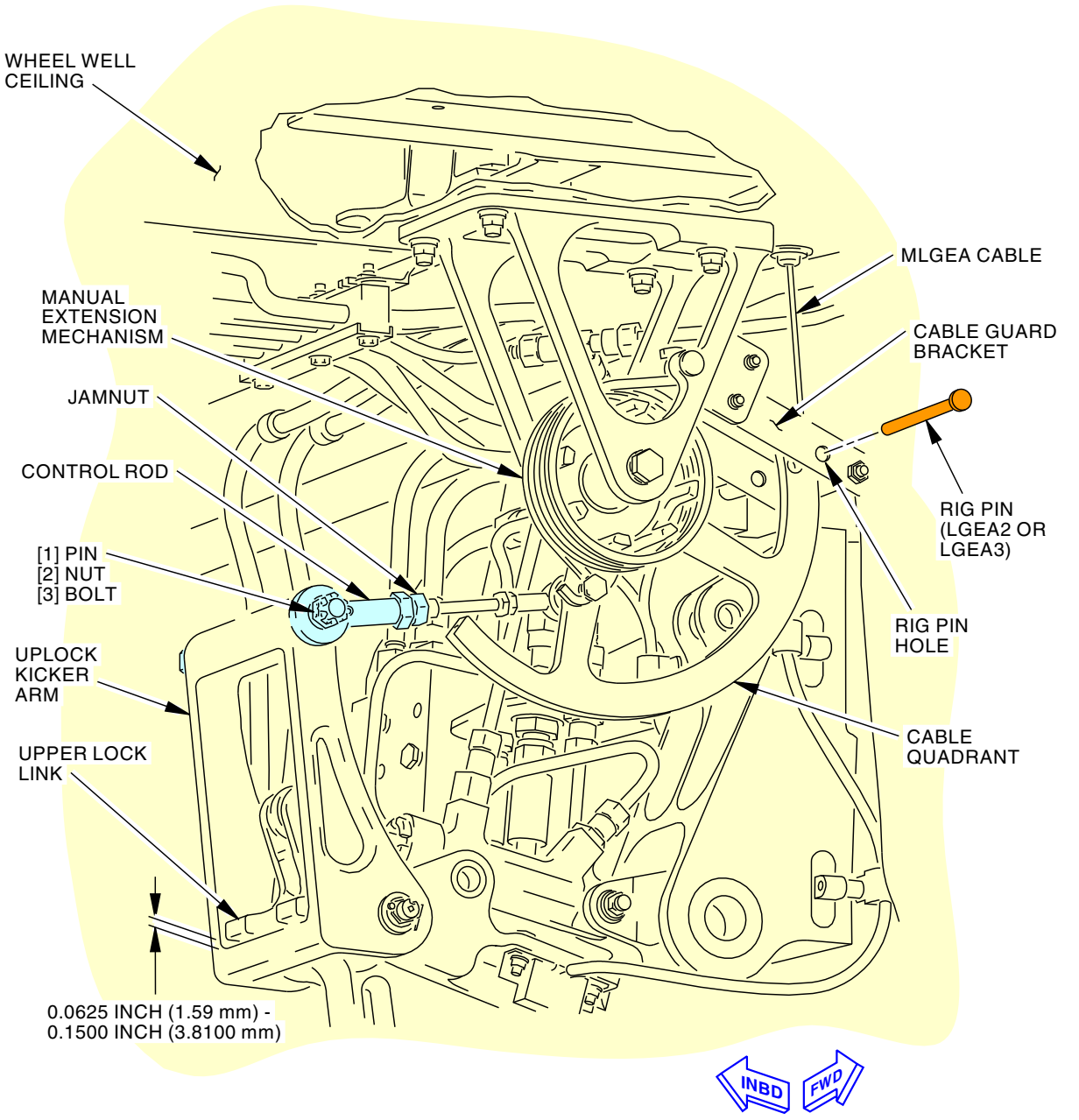
A

2414310 S00061534866_V2

**Main Gear Manual Extension System - Adjustment**
**Figure 502/32-34-00-990-802 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Gear Manual Extension System - Adjustment**
**Figure 502/32-34-00-990-802 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-34-00-730-801**

## 3. Main Gear Manual Extension System Test (Airplane on Jacks)

(Figure 503)

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) The normal extension/retraction system will not operate with the access door for the alternate manual extension handle open; make sure that the manual extension access door is closed when you will extend or retract the landing gear with the landing gear control lever.

### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-10-740-801 | Proximity Switch Electronics Unit - Operational Test (P/B 501) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-1184 | Scale - Spring, 0-100 Lbs, Tension |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### E. Prepare for the Test

**SUBTASK 32-34-00-480-002**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-34-00-580-002**

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**(CAUTION PRECEDES)**

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(2) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

**SUBTASK 32-34-00-860-005**

(3) Make sure that these circuit breakers are closed:

**CAPT Electrical System Panel, P18-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 3 | C01312 | ENGINE 1 RUN/PWR |
| D | 1 | C04030 | DSP CAPT EFIS CONT PNL |
| D | 2 | C04003 | MULTI FUNCTION PANEL |
| D | 3 | C04026 | DISPLAY LEFT INBOARD |
| D | 4 | C04027 | DISPLAY LEFT OUTBOARD |
| D | 5 | C04023 | DISPLAY DPC 1 PRI |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 9 | C04024 | DISPLAY DPC 2 HOLDUP |
| D | 10 | C04022 | DISPLAY DPC 1 HOLDUP |
| E | 10 | C04029 | DISPLAY RIGHT OUTBOARD |
| E | 11 | C04028 | DISPLAY RIGHT INBOARD |
| E | 12 | C04002 | MAINT/BITE PANEL |
| E | 13 | C04031 | DSP F/O EFIS CONT PNL |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 17 | C00129 | LANDING GEAR LATCH & PRESS WARN |
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |
| E | 12 | C00314 | INDICATOR MASTER DIM SECT 2 |
| F | 11 | C00317 | INDICATOR MASTER DIM SECT 5 |
| F | 13 | C01179 | INDICATOR MASTER DIM SECT 7 |

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C04020 | LANDING GEAR CONTROL 1 |
| D | 19 | C04021 | LANDING GEAR CONTROL 2 |



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SUBTASK 32-34-00-860-006

(4) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-34-00-860-007

(5) Make sure that the control lever for the landing gear is in the DN position.

SUBTASK 32-34-00-860-008

(6) Move the No. 1 and No. 2 throttle levers to the full forward position.

NOTE: Throttles in the advanced position prevent the landing gear warning (red) lights from remaining on after gear is up and locked.

SUBTASK 32-34-00-860-009

(7) Put the master dim and test switch in the bright position.

## F. Main Gear Manual Extension System Test (Airplane on Jacks)

SUBTASK 32-34-00-700-002

(1) Open the manual extension access door for the main gear manual extension handles in the flight compartment floor.

(a) Make sure that the switch under the manual extension access door clicks audibly when the manual extension access door opens.

SUBTASK 32-34-00-700-003

(2) Pull the manual extension handle for the left main gear.

(a) Make sure that the full travel of the manual extension handle is 18.5 in. (469.9 mm) or more.

SUBTASK 32-34-00-700-004

(3) Release the manual extension handle for the left main gear.

(a) Make sure that the manual extension handle returns to the stowed position without hesitation or binding.

SUBTASK 32-34-00-480-003

(4) Attach a spring scale (0-100 Lbs), STD-1184, to the manual extension handle for the left main gear.



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SUBTASK 32-34-00-730-001

(5) Pull the manual extension handle for the left main gear.

(a) Make sure that the load to start the movement of the manual extension handle from the seat is 3.0 lbf (13.3 N) or more.

(b) Make sure that the load during the full travel of the manual extension handle is 18.0 lbf (80.1 N) or less.

NOTE: The manual extension handle must be pulled upward and forward when you measure the load. This will simulate a person seated in the First Officer's seat. Do not pull the manual extension handle straight up.

(c) Make sure that the manual extension mechanism operates freely.

SUBTASK 32-34-00-700-005

(6) Pull the manual extension handle for the right main gear.

(a) Make sure that the full travel of the manual extension handle is 18.5 in. (469.9 mm) or more.

SUBTASK 32-34-00-700-006

(7) Release the manual extension handle for the right main gear.

(a) Make sure that the manual extension handle returns to the stowed position without hesitation or binding.

SUBTASK 32-34-00-860-010

(8) Remove the spring scale (0-100 Lbs), STD-1184, from the manual extension handle for the left main gear.

SUBTASK 32-34-00-480-004

(9) Attach the spring scale (0-100 Lbs), STD-1184, to the manual extension handle for the right main gear.

SUBTASK 32-34-00-730-002

(10) Pull the manual extension handle for the right main gear.

(a) Make sure that the load to start the movement of the manual extension handle from the seat is 3.0 lbf (13.3 N) or more.

(b) Make sure that the load during the full travel of the manual extension handle is 18.0 lbf (80.1 N) or less.

NOTE: The manual extension handle must be pulled upward and forward when you measure the load. This will simulate a person seated in the First Officer's seat. Do not pull the manual extension handle straight up.

(c) Make sure that the manual extension mechanism operates freely.

SUBTASK 32-34-00-080-003

(11) Remove the downlock pin from the left and right main gears (TASK 32-00-01-080-801).

NOTE: Do not remove the Nose Landing Gear (NLG) downlock pin.

SUBTASK 32-34-00-860-011

(12) Remove the spring scale (0-100 Lbs), STD-1184, from the manual extension handle for the right main gear.

SUBTASK 32-34-00-860-012

(13) Make sure that the manual extension access door for the manual extension handle is closed.

NOTE: The extension/retraction system will not operate with the manual extension access door for the alternate manual extension handle open.


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SUBTASK 32-34-00-860-013

(14) Make sure that the control lever for the landing gear is still in the DN position.

SUBTASK 32-34-00-860-004

(15) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-34-00-730-003

**WARNING** MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE MAIN LANDING GEAR. FAST MOVEMENT OF THE MAIN LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(16) Move the control lever for the landing gear to UP and wait while the main gear retracts.

SUBTASK 32-34-00-210-001

(17) Make sure that both main gears green lights and red lights are off.

SUBTASK 32-34-00-860-014

(18) Open the manual extension access door to the manual extension handles.

SUBTASK 32-34-00-730-004

(19) Pull the manual extension handle of the left main gear.

NOTE: The manual extension handle must be pulled upward and forward. This will simulate a person seated in the First Officer's seat. Do not pull the manual extension handle straight up.

SUBTASK 32-34-00-700-007

(20) Make sure that the left main gear free falls to the down and locked position.

(a) Make sure that the green light for the left main gear is on

(b) Make sure that the red light for the left main gear is on.

NOTE: The red light for the main gear will stay on to show that the landing gear control lever and landing gear positions disagree.

SUBTASK 32-34-00-700-008

(21) Release the manual extension handle for the left main gear.

SUBTASK 32-34-00-730-005

(22) Pull the manual extension handle of the right main gear.

NOTE: The manual extension handle must be pulled upward and forward. This will simulate a person seated in the First Officer's seat. Do not pull the manual extension handle straight up.

SUBTASK 32-34-00-700-009

(23) Make sure that the right main gear free falls to the down and locked position.

(a) Make sure that the green light for the right main gear is on.

(b) Make sure that the red light for the right main gear is on.

NOTE: The red light for the main gear will stay on to show that the landing gear control lever and landing gear positions disagree.

SUBTASK 32-34-00-700-010

(24) Release the manual extension handle for the right main gear.

SUBTASK 32-34-00-860-015

(25) Move the control lever for the landing gear to the DN position.



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(a) Make sure that the red light for the main gear is off.

SUBTASK 32-34-00-860-016

(26) Close the manual extension access door for the manual extension handle.

SUBTASK 32-34-00-730-006

(27) Move the control lever for the landing gear to UP and wait while the main gear retracts.

SUBTASK 32-34-00-860-019

(28) Open the manual extension access door to the manual extension handles.

SUBTASK 32-34-00-700-011

(29) Attach a spring scale (0-100 Lbs), STD-1184, to the manual extension handle for the left main gear.

SUBTASK 32-34-00-730-007

(30) Pull the manual extension handle for the left main gear.

(a) Make sure that the maximum load when you pull the manual extension handle is 50.0 lbf (222.4 N) or less.

NOTE: The manual extension handle must be pulled upward and forward when you measure the load. This will simulate a person seated in the First Officer's seat. Do not pull the manual extension handle straight up.

SUBTASK 32-34-00-700-012

(31) Make sure that the left main gear free falls to the down and locked position.

(a) Make sure that the green light for the left main gear is on.

(b) Make sure that the red light for the left main gear is on.

NOTE: The red light for the main gear will stay on to show that the landing gear control lever and landing gear positions disagree.

SUBTASK 32-34-00-080-004

(32) Remove the spring scale (0-100 Lbs), STD-1184, from the manual extension handle for the left main gear.

SUBTASK 32-34-00-700-013

(33) Attach a spring scale (0-100 Lbs), STD-1184, to the manual extension handle for the right main gear.

SUBTASK 32-34-00-700-014

(34) Pull the manual extension handle for the right main gear.

(a) Make sure that the maximum load when you pull the manual extension handle is 50.0 lbf (222.4 N) or less.

NOTE: The manual extension handle must be pulled upward and forward when you measure the load. This will simulate a person seated in the First Officer's seat. Do not pull the manual extension handle straight up.

SUBTASK 32-34-00-700-015

(35) Make sure that the right main gear free falls to the down and locked position.

(a) Make sure that the green light for the right main gear is on

(b) Make sure that the red light for the right main gear is on.

NOTE: The red light for the main gear will stay on to show that the landing gear control lever and landing gear positions disagree.



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SUBTASK 32-34-00-860-024

**WARNING** MAKE SURE THAT ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE MAIN LANDING GEAR. FAST MOVEMENT OF THE MAIN LANDING GEAR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(36) Move the control lever for the landing gear to the DN position.

NOTE: The left main gear will extend.

(a) Make sure that the red light for the right and left main gear are off.

SUBTASK 32-34-00-080-005

(37) Remove the spring scale (0-100 Lbs), STD-1184, from the manual extension handle for the right main gear.

SUBTASK 32-34-00-860-025

(38) Close the manual extension access door for the manual extension handles.

SUBTASK 32-34-00-710-002

(39) Perform a full main gear retract and extend cycle to verify normal hydraulic operation.

## G. Put the Airplane Back to Its Usual Condition.

SUBTASK 32-34-00-840-001

(1) Close these circuit breakers:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

SUBTASK 32-34-00-860-026

(2) For Hydraulic System A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-34-00-480-005

(3) Install the downlock pins on the main gear that you tested (TASK 32-00-01-480-801).

SUBTASK 32-34-00-860-027

(4) Move the No. 1 and No. 2 throttle levers back to the idle position (full aft).

SUBTASK 32-34-00-840-002

(5) Close these circuit breakers:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |



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SUBTASK 32-34-00-580-003



**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(6) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

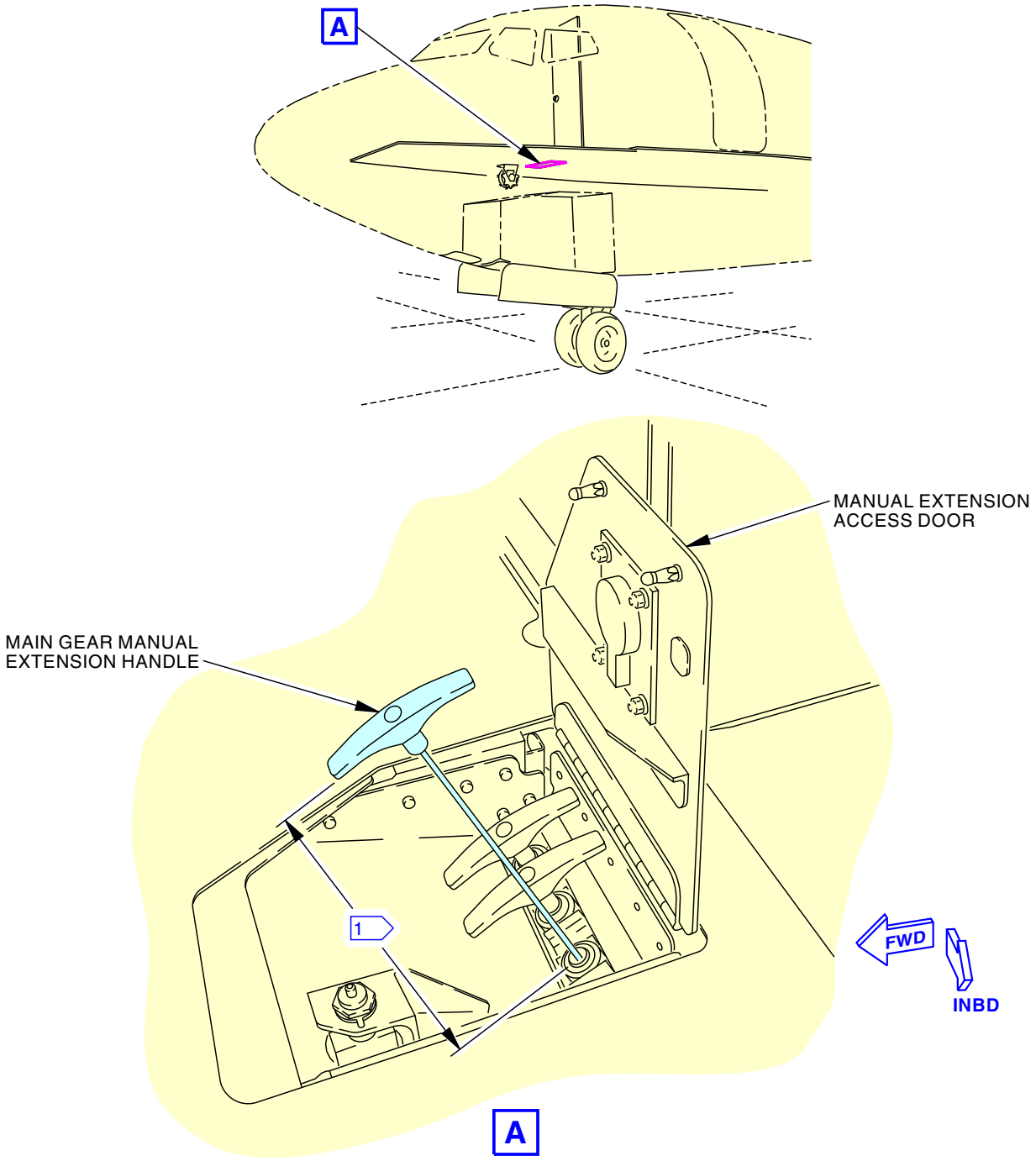
SUBTASK 32-34-00-200-001

(7) Do a check of the PSEU for stored faults using the SELF-TEST (TASK 32-09-10-740-801).

**——— END OF TASK ———**



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1 FULL TRAVEL DISTANCE TO UNLOCK POSITION

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**Main Gear Manual Extension System - System Test**
**Figure 503/32-34-00-990-803**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 32-34-00-730-802

## 4. Main Gear Manual Extension System Test (Airplane not on Jacks)

(Figure 503)

### A. General

(1) The normal extension/retraction system will not operate with the access door for the alternate manual extension handle open. Make sure that the manual extension access door is closed when you will extend or retract the landing gear with the landing gear control lever.

### B. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-5505 | Spring Scale |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### E. Prepare for the Test

SUBTASK 32-34-00-480-006

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-34-00-860-029

(2) Make sure that the control lever for the landing gear is in the DN position.

SUBTASK 32-34-00-840-005

(3) For Hydraulic System A, make sure that the hydraulic power is off TASK 29-11-00-860-805.

### F. Main Gear Manual Extension System Test (Airplane not on Jacks)

SUBTASK 32-34-00-700-016

(1) Pull the manual extension handle for the left main gear.

(a) Make sure that the full travel of the manual extension handle is 17.5 in. (444.5 mm) or more.

SUBTASK 32-34-00-700-017

(2) Release the manual extension handle for the left main gear.

(a) Make sure that the manual extension handle returns to the stowed position without hesitation or binding.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-34-00-480-007

(3) Attach a spring scale, STD-5505, to the manual extension handle for the left main gear.

SUBTASK 32-34-00-730-009

(4) Pull the manual extension handle for the left main gear.

(a) Make sure that the load to start the movement of the manual extension handle from the seat is a minimum of 3.0 lbf (13.3 N).

(b) Make sure that the load during the full travel of the manual extension handle is 18.0 lbf (80.1 N) or less.

NOTE: The manual extension handle must be pulled upward and forward when you measure the load. This will simulate a person seated in the First Officer's seat. Do not pull the manual extension handle straight up.

(c) Make sure that the manual extension mechanism operates freely.

SUBTASK 32-34-00-700-018

(5) Pull the manual extension handle for the right main gear.

(a) Make sure that the full travel of the manual extension handle is 17.5 in. (444.5 mm) or more.

SUBTASK 32-34-00-700-019

(6) Release the manual extension handle for the right main gear.

(a) Make sure that the manual extension handle returns to the stowed position without hesitation or binding.

SUBTASK 32-34-00-480-008

(7) Attach a spring scale, STD-5505, to the manual extension handle for the right main gear.

SUBTASK 32-34-00-730-010

(8) Pull the manual extension handle for the right main gear.

(a) Make sure that the load to start the movement of the manual extension handle from the seat is 3.0 lbf (13.3 N) or more.

(b) Make sure that the load during the full travel of the manual extension handle is 18.0 lbf (80.1 N) or less.

NOTE: The manual extension handle must be pulled upward and forward when you measure the load. This will simulate a person seated in the First Officer's seat. Do not pull the manual extension handle straight up.

(c) Make sure that the manual extension mechanism operates freely.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-34-00-080-006

(1) Remove the spring scale, STD-5505, from the manual extension handles for the main gear.

**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-34-00-820-802**

## 5. Manual Extension System Access Door Switch Adjustment

(Figure 501, Figure 502, Figure 504)

### A. General

(1) This task gives the instructions to adjust (rig) the manual extension system access door switch (access door position switch) for the main landing gears.

(2) Use this task to get the access door position switch into the correct operating range for the access door position switch to operate correctly.

### B. References

| Reference | Title |
|---|---|
| 05-51-91-790-801 | Cabin Pressure Leak Test (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-122 | Brush |

### D. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### E. Access Panels

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

### F. Prepare for the Adjustment

**SUBTASK 32-34-00-860-030**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-34-00-840-003**

(2) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-34-00-010-002

(3) If it is necessary, open this access panel:

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

(a) Do this task: Nose Wheel Well Access Panels Removal, TASK 53-14-01-020-801.

## G. Manual Extension System Access Door Switch Adjustment

SUBTASK 32-34-00-480-009

(1) Open the access door [4] located in the flight compartment.

SUBTASK 32-34-00-160-001

(2) Clean the area around the access door position switch [6] with alcohol and a dry brush, STD-122.

NOTE: The location of the access door makes it for dirt and residue found in the flight compartment to collect around the access door position switch. The location of the manual extension system access door will collect dirt and residue found in the cockpit.

SUBTASK 32-34-00-200-002

(3) Do a check of the access door position switch [6] adjustment:

(a) Make sure that the access door [4] stays fully closed with no external force.

(b) With the access door [4] closed, make sure that there is no continuity between Pins A and B of D15510 Connector.

(c) With the access door [4] open, make sure that there is continuity between Pins A and B of D15510 Connector.

(d) With the access door [4] fully closed, the access door position switch [6] should not be fully be bottomed out since this might hold the access door [4] slightly open.

NOTE: The access door position switch has 0.187 in. (4.750 mm) over-travel from the point of actuation (where there is an audible click) to fully bottomed out.

SUBTASK 32-34-00-820-007

(4) If the access door position switch [6] does not have sufficient over-travel and the access door [4] does not fully close, or if too much force is necessary to close the access door [4], adjust the height of the access door position switch [6]:

NOTE: The access door position switch usually needs three washers below the bracket to correctly rig the access door position switch.

(a) If the access door position switch [6] is bottomed out and is holding the access door [4] open, add one washer [5] at a time below the bracket until the access door position switch [6] does not hold the access door [4] open.

(b) If the access door position switch [6] does not actuate when the access door [4] is closed, remove one washer [5] at a time from below the bracket until the access door position switch [6] actuates.

(c) Do a check of the access door position switch [6] adjustment again if the washers [5] are added or removed below the bracket.

SUBTASK 32-34-00-820-009

(5) Make sure that the access door position switch [6] operates and clicks audibly at a door open clearance of 1.25 in. (31.8 mm) to 2.2 in. (55.9 mm).



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SUBTASK 32-34-00-820-010

(6) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-34-00-780-001

(7) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-34-00-820-011

(8) Use the override trigger to move the landing gear lever from the DN position to the UP position for three times.

(a) Hold the landing gear lever in each position for three seconds before you move the landing gear lever to the subsequent position.

SUBTASK 32-34-00-820-012

(9) Make sure that the rod end of the downlock actuator tries to extend when you move the landing gear lever from the DOWN position to the UP position.

SUBTASK 32-34-00-800-001

(10) Move the landing gear lever to the DN position.

SUBTASK 32-34-00-800-002

(11) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-34-00-410-002

(1) If it is necessary, close this access panel:

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

(a) Do this task: Nose Wheel Well Access Panels Installation, TASK 53-14-01-420-801.

SUBTASK 32-34-00-800-003

(2) Do this task: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

SUBTASK 32-34-00-840-004

(3) Remove the safety tag and close this circuit breaker:

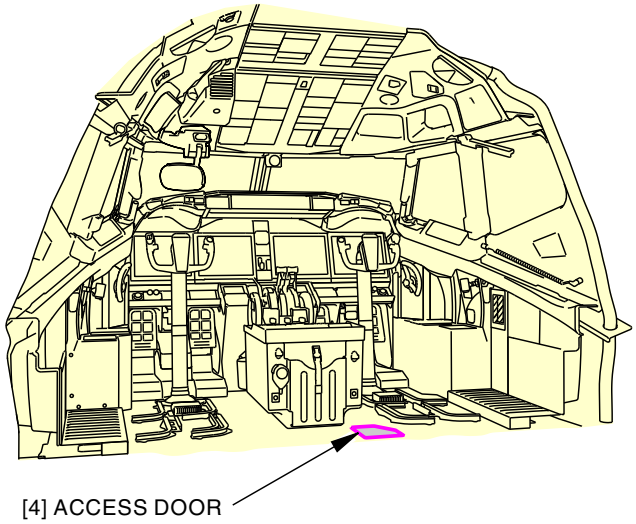
**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |

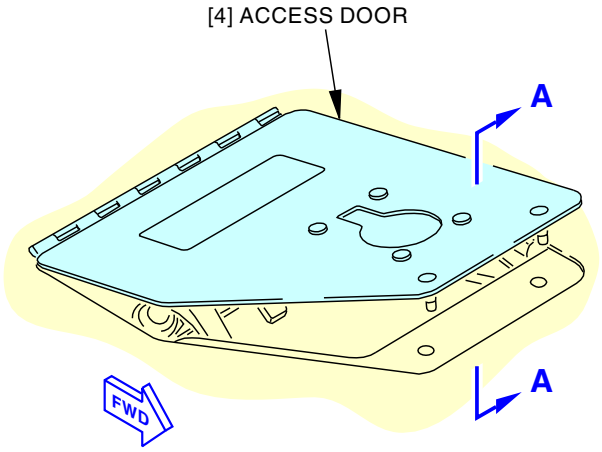
**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

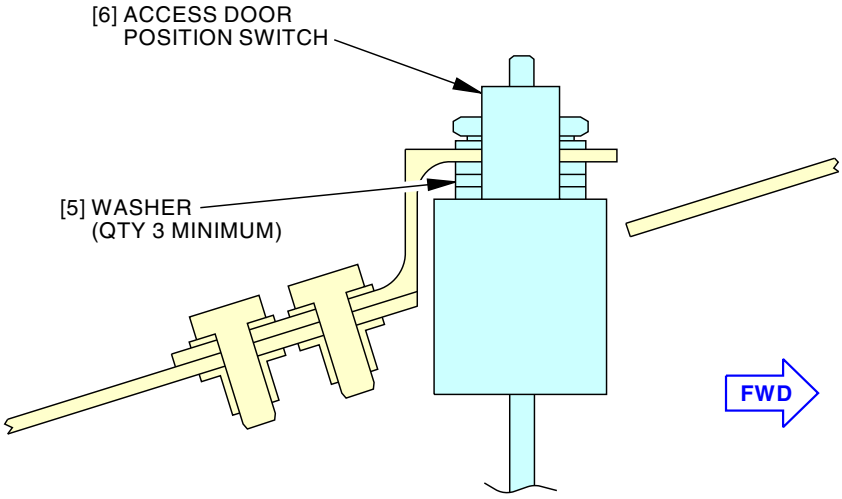



FLIGHT COMPARTMENT




ACCESS DOOR

A




ACCESS DOOR POSITION SWITCH ADJUSTMENT

A-A

2414313 S00061534872_V2

**Landing Gear Manual Extension Access Door Switch Adjustment**
**Figure 504/32-34-00-990-804**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## MAIN GEAR MANUAL EXTENSION CONTROL MECHANISM - REMOVAL/INSTALLATION

### 1. General

A. The manual extension control mechanism provides controls for the nose gear manual extension system and each main gear manual extension system. The complete mechanism must be removed and installed when you do maintenance on a part of the drum assembly for the nose or main gear manual extension systems.

B. This procedure has these tasks:

(1) A removal of the manual extension control mechanism (referred to as the manual extension control mechanism [38]) for the landing gear

(2) An installation of the manual extension control mechanism [38] for the landing gear.

(3) A removal of the manual extension system access door switch.

(4) An installation of the manual extension system access door switch.

**TASK 32-34-11-000-801**

### 2. Main Gear Manual Extension Control Mechanism Removal

(Figure 401, Figure 402)

#### A. General

(1) This task gives instructions to remove the Main Gear Manual Extension Control Mechanism.

#### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 33-18-00-960-805 | Annunciator And Dimming Module - Module Replacement (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-21-00-000-801 | Passenger Cabin Floor Panel Removal (P/B 401) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 116 | Nose Landing Gear Wheel Well - Right |
| 122 | Forward Cargo Compartment - Right |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 220 | Subzone - Passenger Compartment - Body Station 259.50 to 360.00 |

#### D. Access Panels

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |



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## E. Prepare for the Removal

SUBTASK 32-34-11-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-34-11-860-001

(2) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-34-11-580-001

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

SUBTASK 32-34-11-010-001

(4) To get access to the turnbuckle locking clips, do this task: Passenger Cabin Floor Panel Removal, TASK 53-21-00-000-801.

SUBTASK 32-34-11-010-002

(5) Disconnect the MLGEA cable [3] at the turnbuckle (Figure 401).

SUBTASK 32-34-11-010-003

(6) Remove the cargo compartment ceiling panels at approximately body station 420 to remove the turnbuckle locking clips.

(a) Disconnect the MLGEA cable [1] and MLGEA cable [2] at the turnbuckles.

## F. Main Gear Manual Extension Control Mechanism Removal

SUBTASK 32-34-11-010-004

(1) To get access to the manual extension control mechanism [38], do this step (Figure 402):

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

1) Do this task: Nose Wheel Well Access Panels Removal, TASK 53-14-01-020-801.

SUBTASK 32-34-11-020-001

(2) Remove the annunciator and dimming module (TASK 33-18-00-960-805).

NOTE: The annunciator and dimming module is removed to get access to the manual extension control mechanism [38].

SUBTASK 32-34-11-020-002

(3) Remove the cable retainers [34] and disconnect the manual extension handle cables [29] from the control drums [23].

SUBTASK 32-34-11-020-003

(4) Remove the cable retainer bolts [35] and disconnect the MLGEA cable [1], MLGEA cable [2], and MLGEA cable [3] from the control drums [23].

SUBTASK 32-34-11-020-004

(5) Remove the nuts [26], washers [25], bolts [22], and the cable guard standoffs [24] from the outboard cable guard [27] and inboard cable guard [21].



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SUBTASK 32-34-11-020-005

(6) Remove the pin [32], nut [33], and washer [28] from the shaft [30].

SUBTASK 32-34-11-020-006

(7) Remove the shaft [30] from the manual extension control mechanism [38].

(a) When you pull the shaft [30] from the manual extension control mechanism [38], make sure you catch the spacer [31], spacer [36], and spacer [37].

SUBTASK 32-34-11-000-001

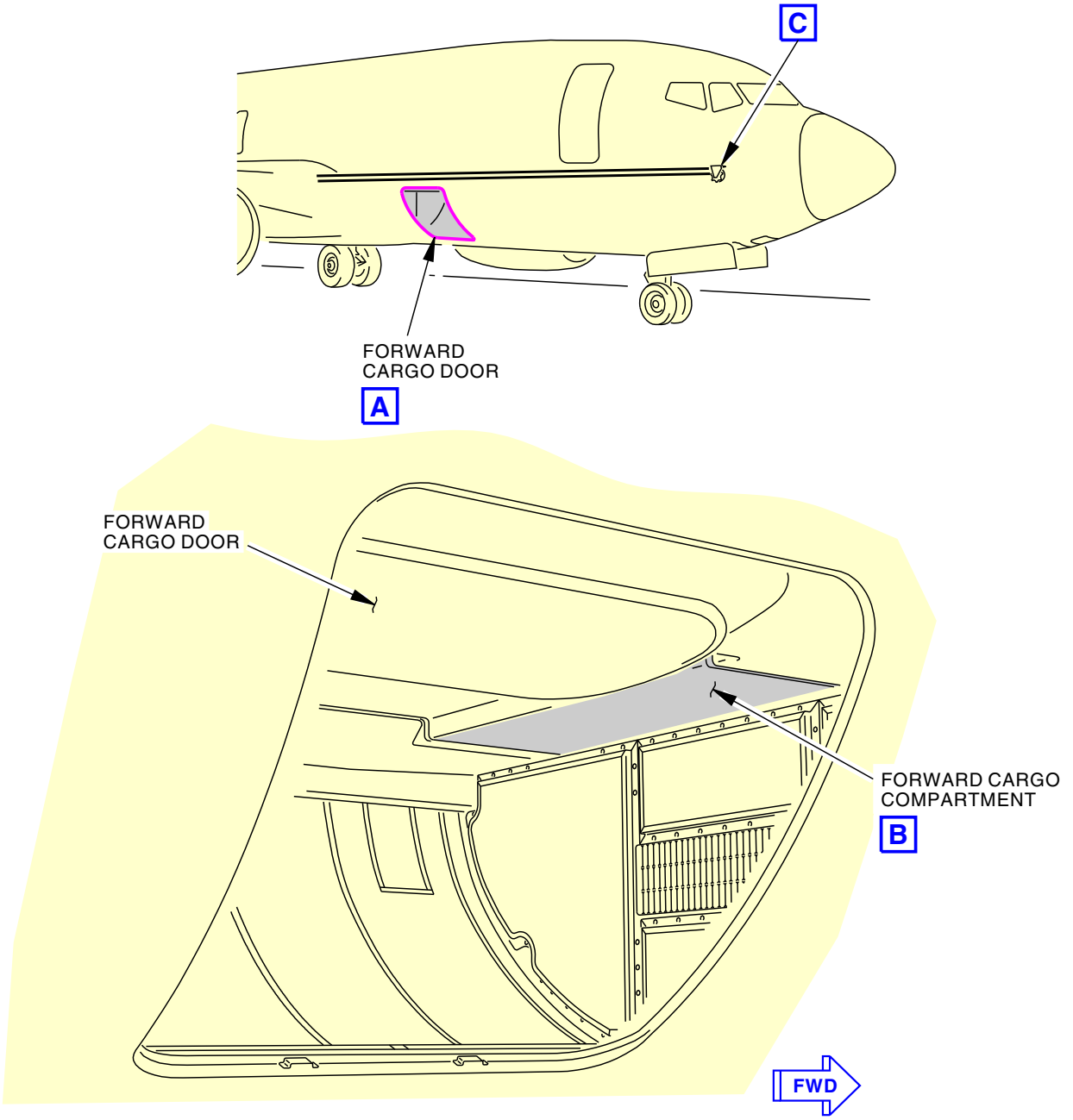
(8) Remove the manual extension control mechanism [38], with the control drums [23], outboard cable guard [27] and inboard cable guard [21], from the airplane structure.

(a) Move the outboard end of the manual extension control mechanism [38] forward to remove it.

**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**FORWARD CARGO COMPARTMENT**
**(CEILING PANEL INSTALLED)**

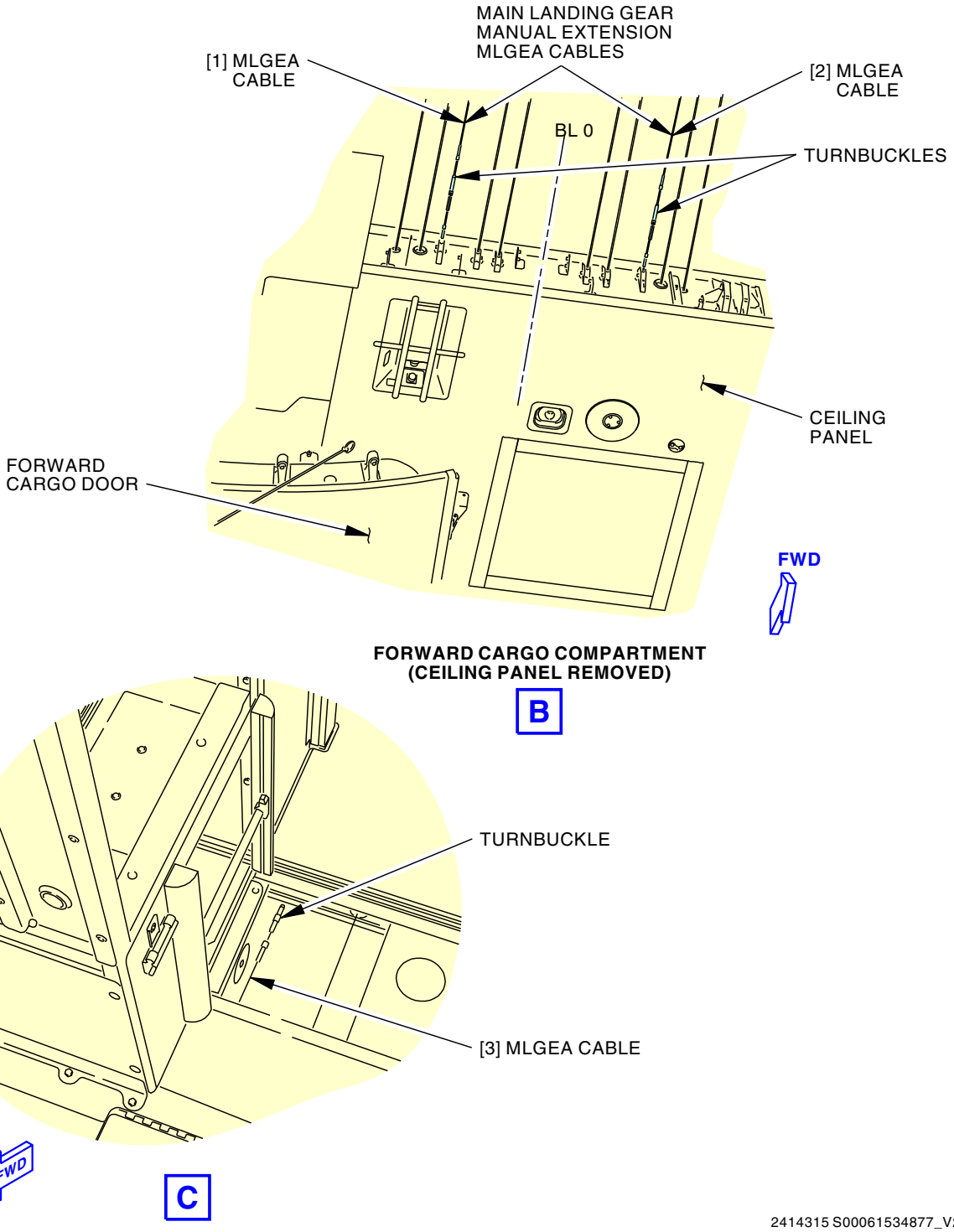
**A**

2414314 S00061534876_V2

**Manual Extension Cable Turnbuckle Locations**
**Figure 401/32-34-11-990-801 (Sheet 1 of 2)**



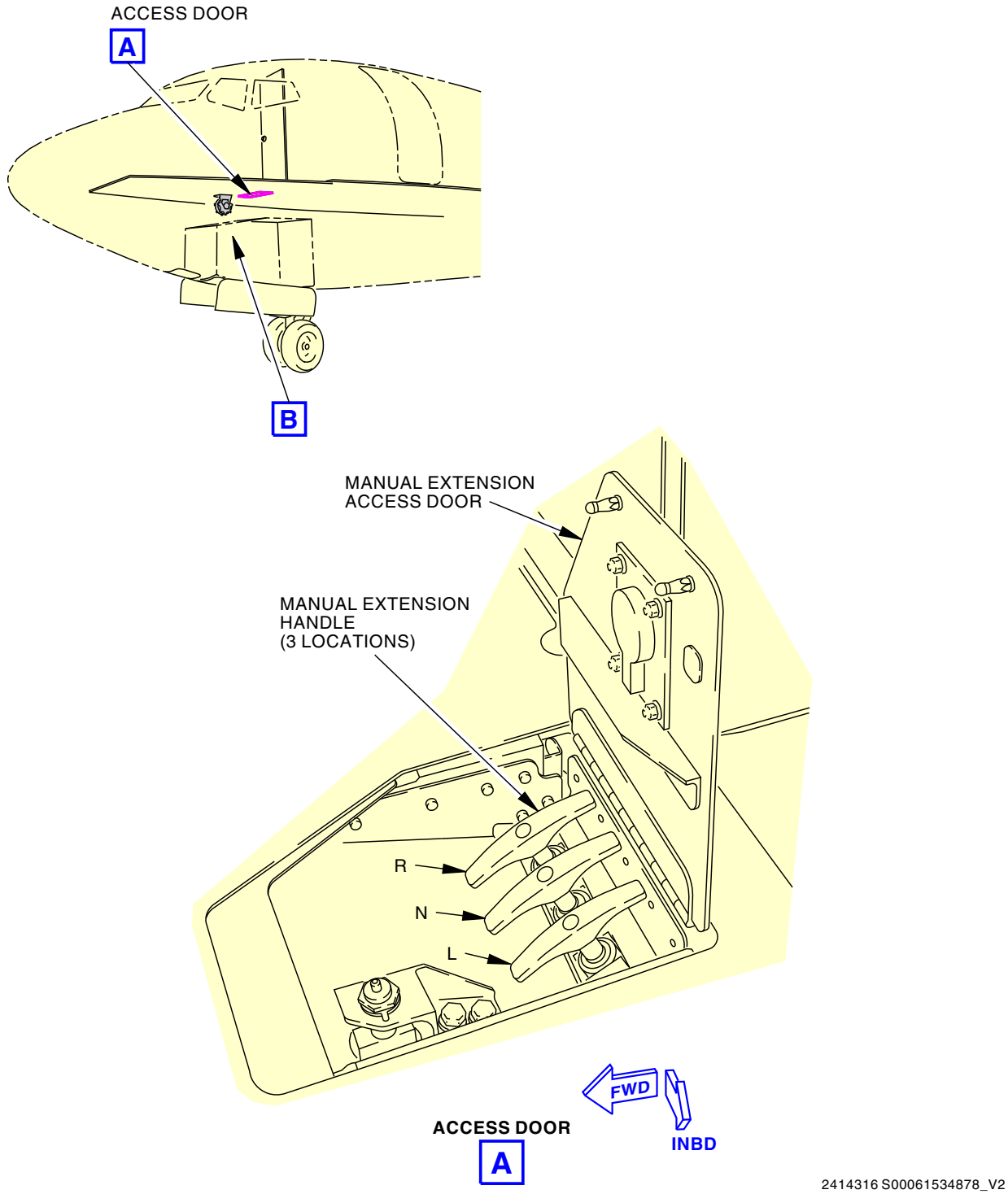
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Manual Extension Cable Turnbuckle Locations**
**Figure 401/32-34-11-990-801 (Sheet 2 of 2)**



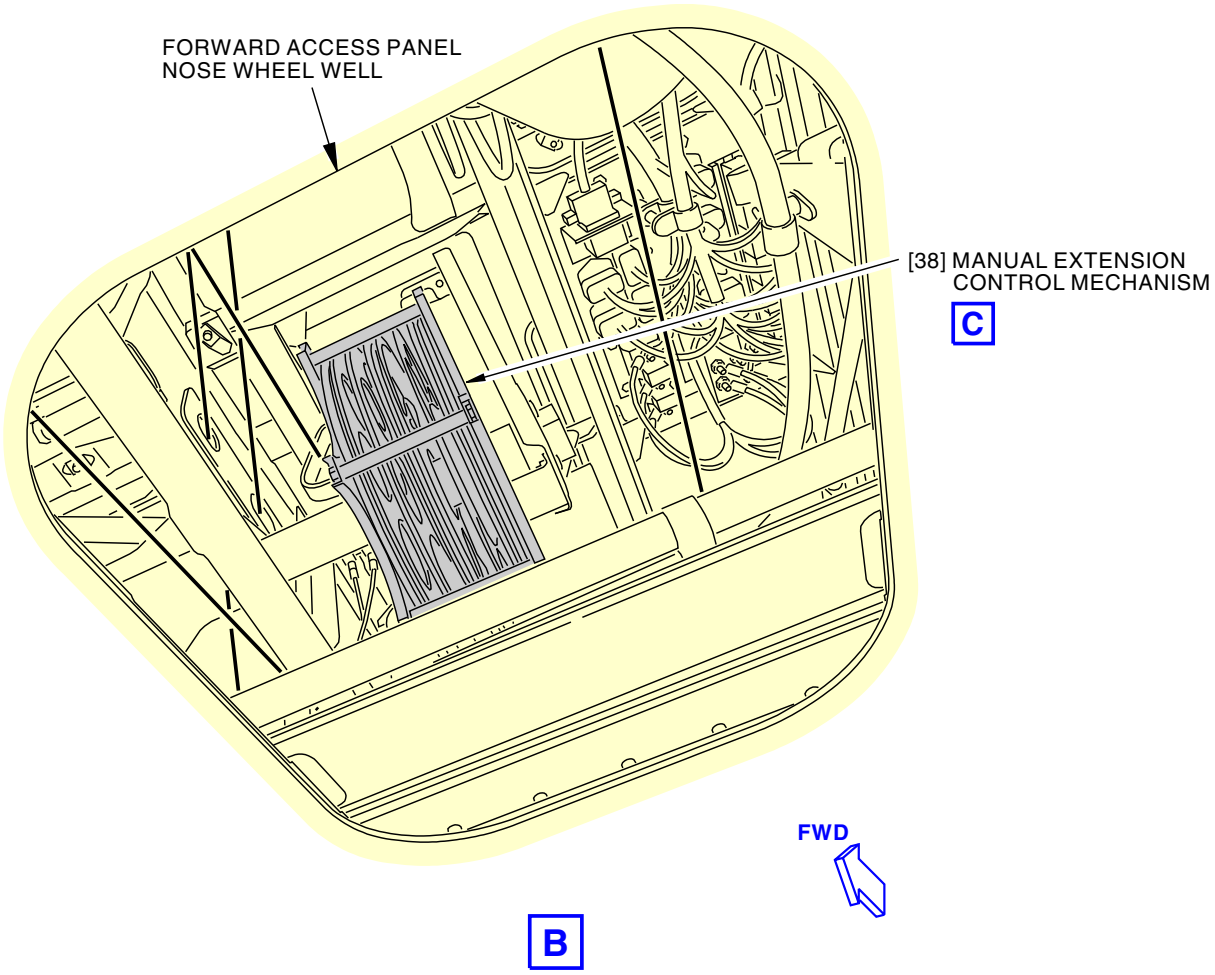
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Manual Extension Control Mechanism Installation**
**Figure 402/32-34-11-990-802 (Sheet 1 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

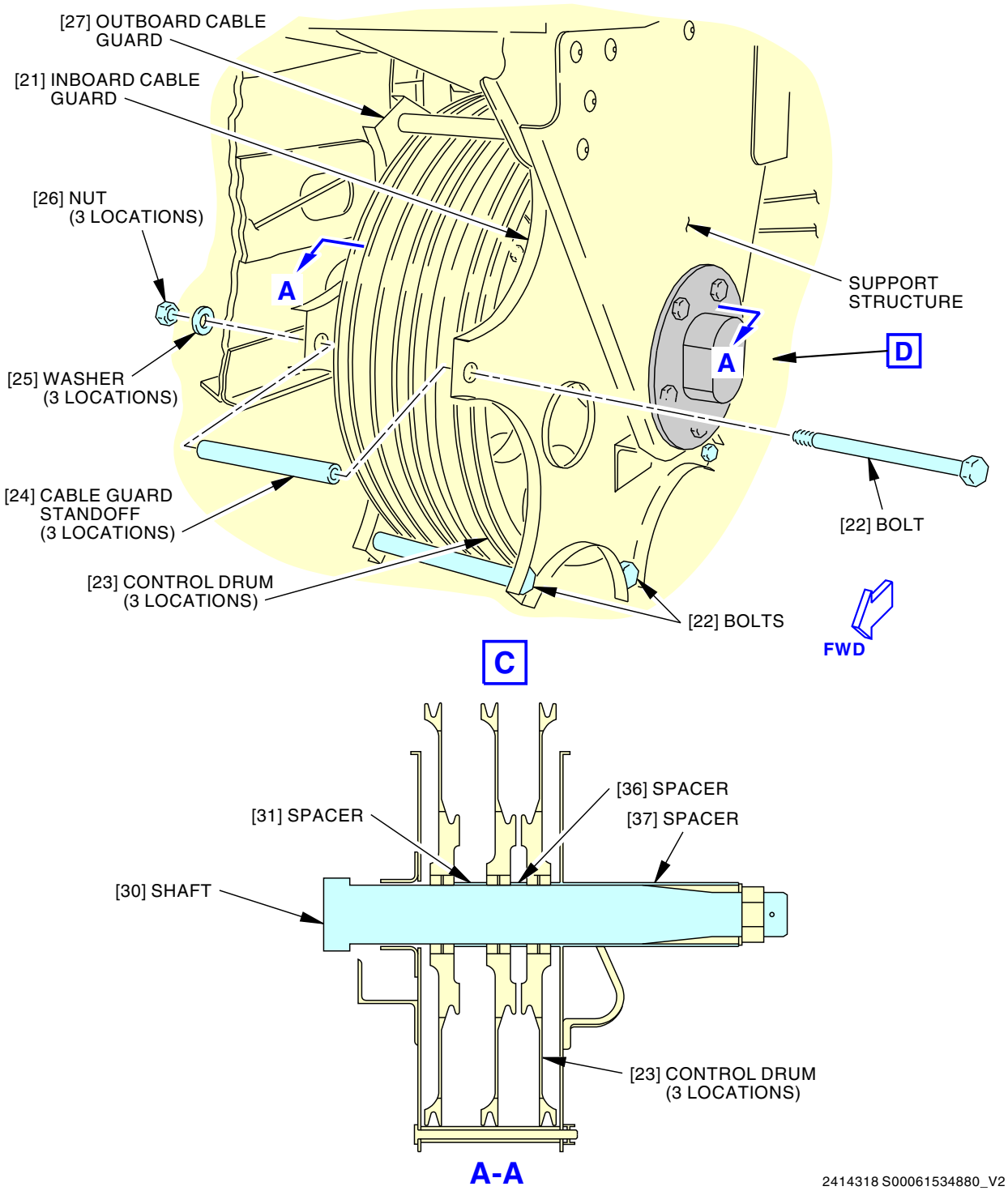



2414317 S00061534879_V1

**Manual Extension Control Mechanism Installation**
**Figure 402/32-34-11-990-802 (Sheet 2 of 4)**



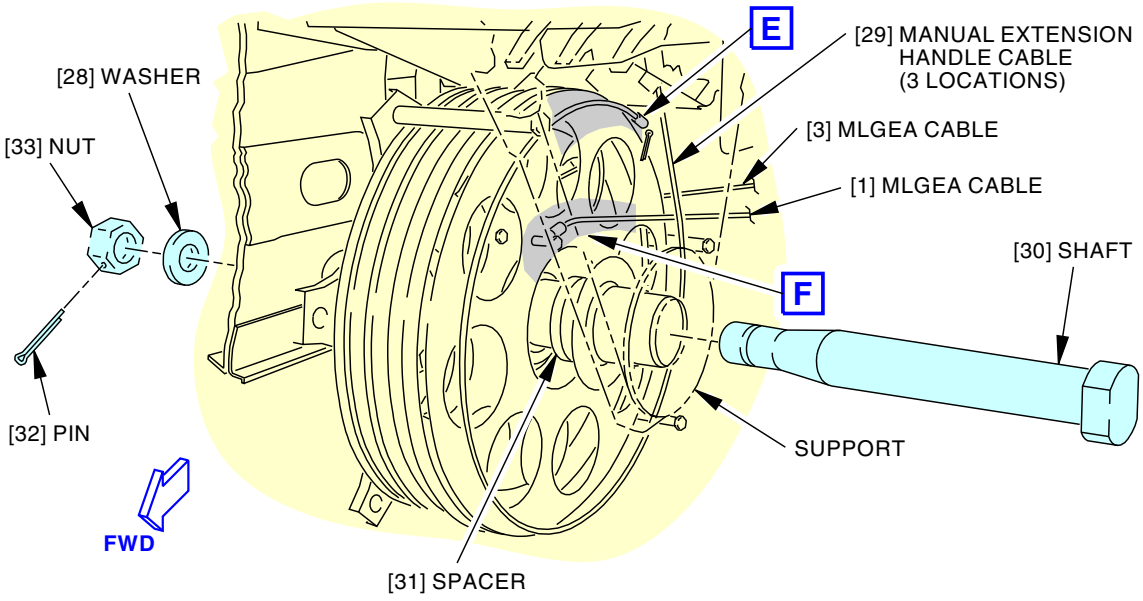
ECCN 9E991 BOEING PROPRIETARY - See title page for details



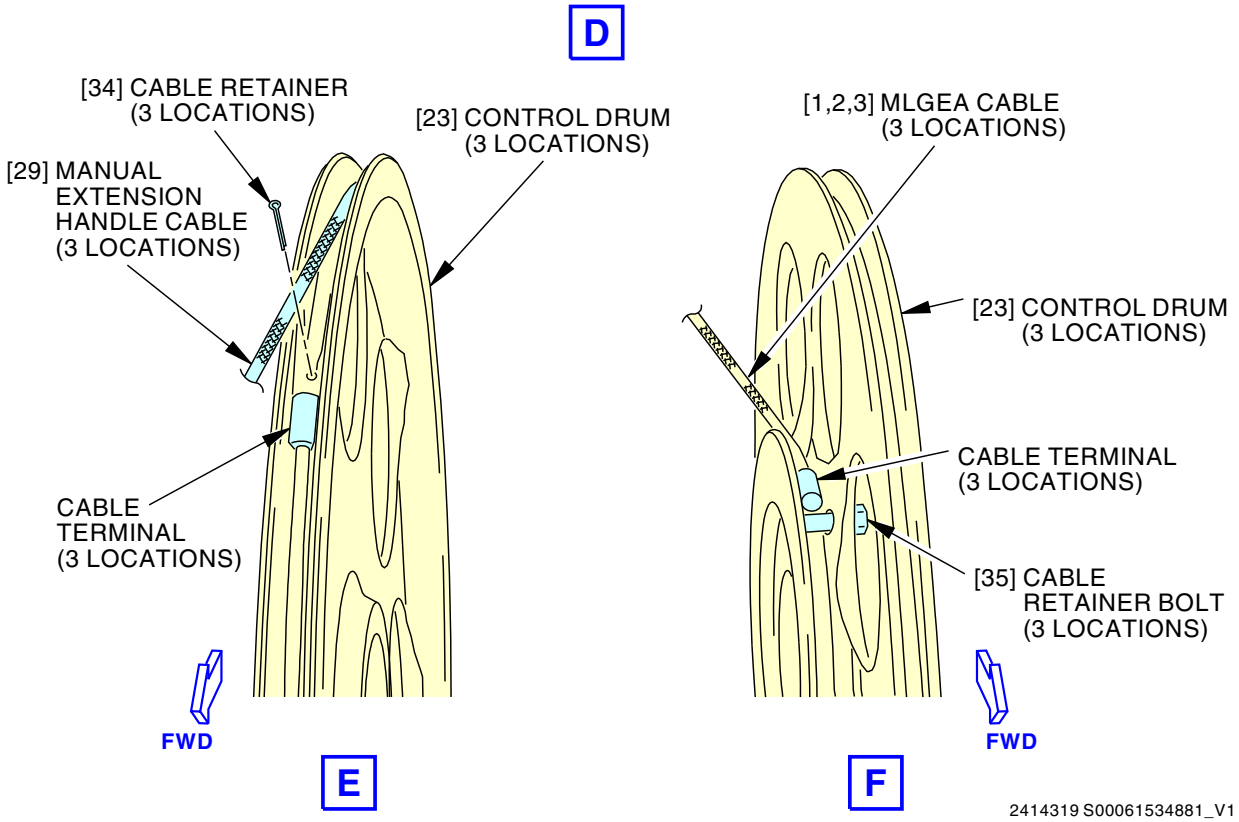

**Manual Extension Control Mechanism Installation**
**Figure 402/32-34-11-990-802 (Sheet 3 of 4)**



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**(INBOARD CABLE GUARD AND INBOARD CONTROL DRUM ARE NOT SHOWN)**




**Manual Extension Control Mechanism Installation**
**Figure 402/32-34-11-990-802 (Sheet 4 of 4)**



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**TASK 32-34-11-400-801**

## 3. Main Gear Manual Extension Control Mechanism Installation

(Figure 401, Figure 402)

### A. General

(1) This task gives instructions to install the Main Gear Manual Extension Control Mechanism.

### B. References

| Reference | Title |
|---|---|
| 05-51-91-790-801 | Cabin Pressure Leak Test (P/B 201) |
| 32-34-00-730-801 | Main Gear Manual Extension System Test (Airplane on Jacks) (P/B 501) |
| 32-34-00-820-801 | Main Landing Gear Manual Extension System Adjustment and Test (P/B 501) |
| 32-35-00-730-801 | Nose Gear Manual Extension System Test - Airplane on Jacks (P/B 501) |
| 32-35-00-820-801 | Nose Landing Gear Manual Extension System Adjustment (P/B 501) |
| 33-18-00-960-805 | Annunciator And Dimming Module - Module Replacement (P/B 201) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |
| 53-21-00-400-801 | Passenger Cabin Floor Panel Installation (P/B 401) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 38 | Manual extension control mechanism | 32-34-11-01-095 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 116 | Nose Landing Gear Wheel Well - Right |
| 122 | Forward Cargo Compartment - Right |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 220 | Subzone - Passenger Compartment - Body Station 259.50 to 360.00 |

### F. Access Panels

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

### G. Main Gear Manual Extension Control Mechanism Installation

**SUBTASK 32-34-11-400-001**

(1) Put the control drums [23], spacer [31], spacer [36] and spacer [37] in position between the inboard cable guard [21] and outboard cable guard [27] (Figure 402).



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SUBTASK 32-34-11-420-001

(2) Put the shaft [30] through the manual extension control mechanism [38], control drum [23], spacer [31], control drum [23], spacer [36], control drum [23], outboard cable guard [27], spacer [37], and support structure.

SUBTASK 32-34-11-420-002

(3) Apply a thin coat of grease, D00633, to the threads of the shaft [30].

SUBTASK 32-34-11-420-010

(4) Install the washer [28] and nut [33] on the shaft [30].

SUBTASK 32-34-11-420-003

(5) Tighten the nut [33] to 50 in-lb (6 N·m) - 180 in-lb (20 N·m).

(a) Tighten to align with the pin [32] hole.

(b) Do not apply more than a maximum of 180 in-lb (20 N·m).

SUBTASK 32-34-11-420-004

(6) Install the pin [32].

SUBTASK 32-34-11-420-005

(7) Install the MLGEA cable [1], MLGEA cable [2], and MLGEA cable [3] on the control drums [23].

(a) Install the cable retainer bolt [35] to attach the MLGEA cable [1], MLGEA cable [2], and MLGEA cable [3] to the control drums [23].

SUBTASK 32-34-11-420-006

(8) Install the manual extension handle cable [29] on the control drums [23].

(a) Install the cable retainers [34] to attach the manual extension handle cables [29] to the control drums [23].

1) Bend the end of the cable retainers [34] into the control drums [23].

SUBTASK 32-34-11-420-007

(9) Connect the MLGEA cable [1] and MLGEA cable [2] at the turnbuckles, located at approximately body station 420.

SUBTASK 32-34-11-420-008

(10) Connect the MLGEA cable [3] at the turnbuckle (Figure 401).

SUBTASK 32-34-11-420-009

(11) Install the annunciator and dimming module (TASK 33-18-00-960-805).

## H. Main Gear Manual Extension Control Mechanism Installation Test

SUBTASK 32-34-11-820-001

(1) Do the adjustment of the manual extension system for the main landing gear (TASK 32-34-00-820-801).

SUBTASK 32-34-11-710-001

(2) Do a test on the manual extension system for the main landing gear (TASK 32-34-00-730-801).

SUBTASK 32-34-11-820-002

(3) Do the adjustment of the manual extension system for the nose landing gear (TASK 32-35-00-820-801).

SUBTASK 32-34-11-710-002

(4) Do a test on the manual extension system for the nose landing gear (TASK 32-35-00-730-801).



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**I. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-34-11-410-001

(1) Install this access panel:

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

(a) Do this task: Nose Wheel Well Access Panels Installation, TASK 53-14-01-420-801.

(b) Do this task: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

SUBTASK 32-34-11-410-002

(2) Install the cargo compartment ceiling panels at approximately body station 420.

SUBTASK 32-34-11-410-003

(3) Install the cabin floor panel (TASK 53-21-00-400-801).

——— END OF TASK ———

**TASK 32-34-11-820-801**

## 4. Manual Extension System Access Door Switch Removal

(Figure 403)

**A. General**

(1) This procedure gives the instructions to remove the manual extension system access door switch (access door position switch [65]) for the main landing gears.

**B. References**

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 116 | Nose Landing Gear Wheel Well - Right |
| 122 | Forward Cargo Compartment - Right |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 220 | Subzone - Passenger Compartment - Body Station 259.50 to 360.00 |

**D. Access Panels**

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

**E. Procedure**

SUBTASK 32-34-11-860-002

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.


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SUBTASK 32-34-11-840-001

(2) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |

SUBTASK 32-34-11-010-005

(3) Open this access panel:

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

(a) Do this task: Nose Wheel Well Access Panels Removal, TASK 53-14-01-020-801.

SUBTASK 32-34-11-010-006

(4) Open the access door [51].

SUBTASK 32-34-11-020-007

(5) Remove the access door position switch [65] from the airplane.

(a) Remove the screws [58] and washers [59] from the switch bracket [63].

(b) Remove the nut [60], lock washer [61], keyway washer [62], switch bracket [63] and the washers [64] from the access door position switch [65].

1) Make a record of the quantity of installed washers [64].

(c) Put the switch end of the access door position switch [65] through the hole in the floor.

(d) Remove the screw [66], washer [67] and clamp [68] from the structure.

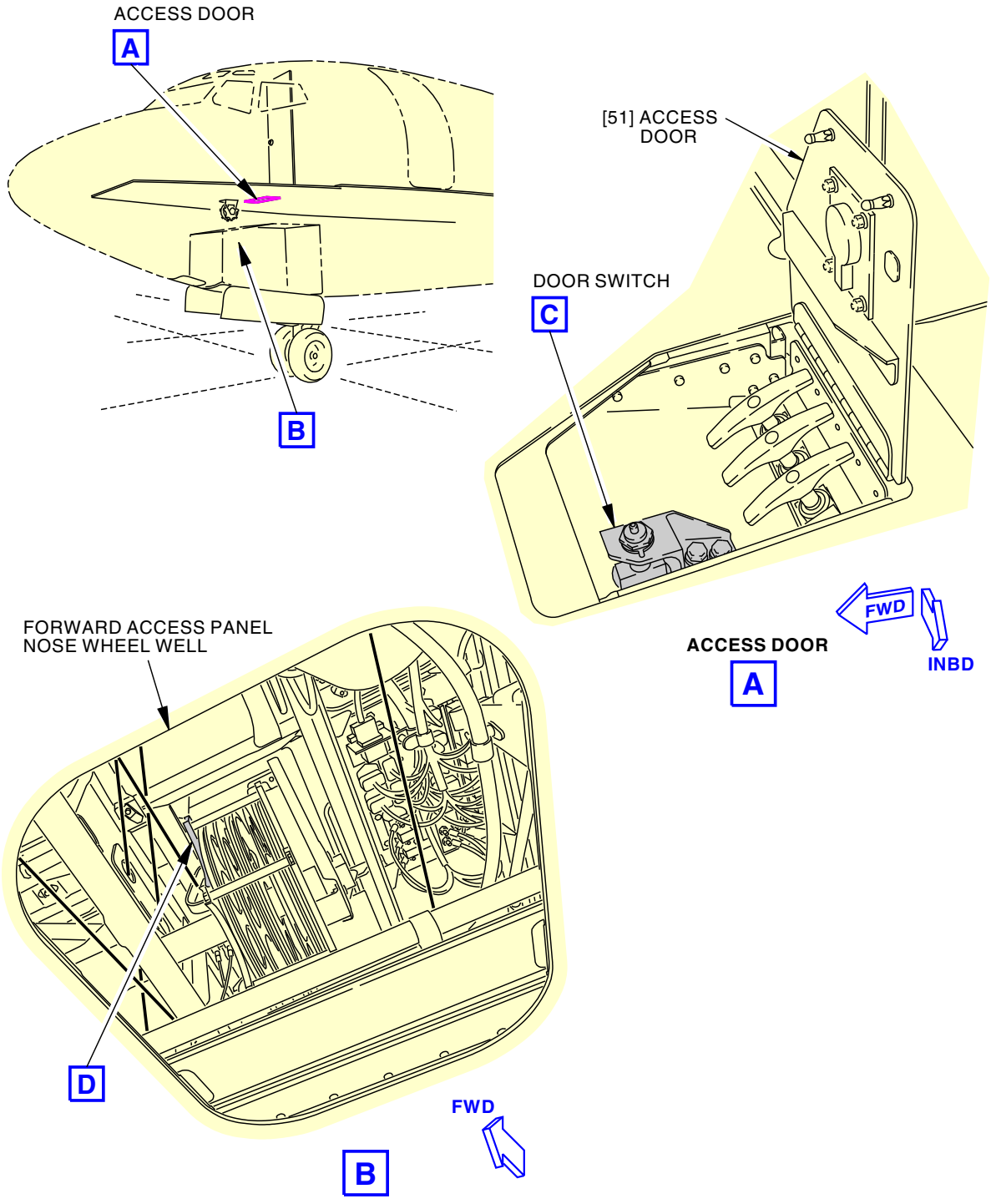
(e) Disconnect the access door position switch [65] from the wire [57] at the location of the clamp [69].

(f) Remove the access door position switch [65] from the airplane.

——— END OF TASK ———



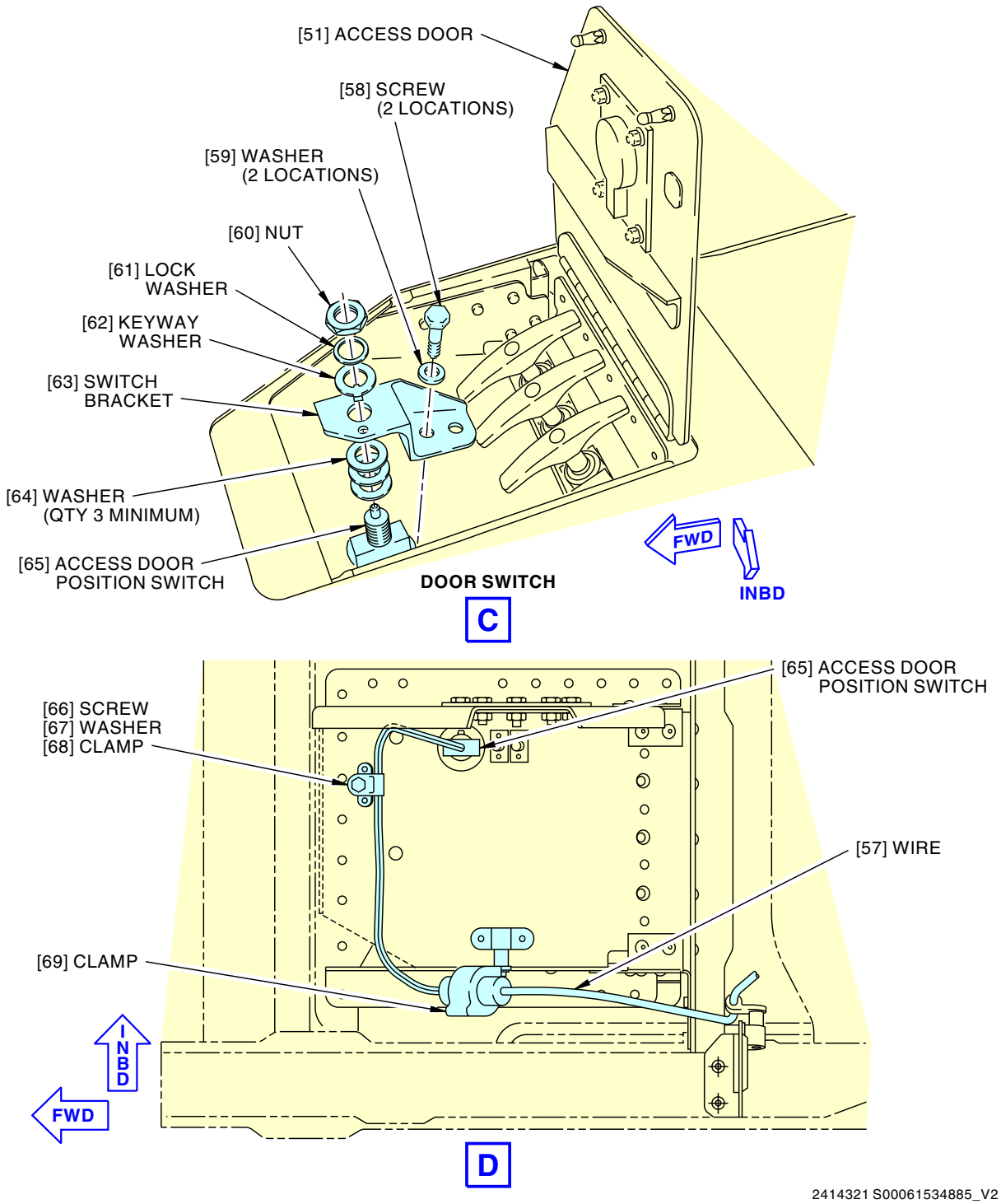
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Landing Gear Manual Extension Access Door Switch Installation**
**Figure 403/32-34-11-990-803 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Landing Gear Manual Extension Access Door Switch Installation**
**Figure 403/32-34-11-990-803 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-34-11-820-802**

## 5. Manual Extension System Access Door Switch Installation

(Figure 403)

### A. General

(1) This procedure gives the instructions to install the manual extension system access door switch (access door position switch [65]) for the main landing gears.

### B. References

| Reference | Title |
|---|---|
| 05-51-91-790-801 | Cabin Pressure Leak Test (P/B 201) |
| 32-34-00-820-802 | Manual Extension System Access Door Switch Adjustment (P/B 501) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

### C. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 116 | Nose Landing Gear Wheel Well - Right |
| 122 | Forward Cargo Compartment - Right |
| 210 | Subzone - Control Compartment - Body Station 178.00 to Body Station 259.50 |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 220 | Subzone - Passenger Compartment - Body Station 259.50 to 360.00 |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

### E. Manual Extension System Access Door Switch Installation Procedure

**SUBTASK 32-34-11-400-002**

(1) Connect the access door position switch [65] to the wire [57] at the clamp [69] location.

(a) Make sure the plug and socket are fully engaged, which is identified with two clicks.

(b) Put the clamp [68] on the wires of the access door position switch [65].

(c) Put the clamp [68] in position on the structure.

(d) Install the washer [67] and screw [66] to attach the clamp [68] to the structure.

(e) Put the switch end of the access door position switch [65] through the hole in the floor.

(f) Install the washers [64], switch bracket [63], keyway washer [62], lock washer [61] and nut [60] on the access door position switch [65].

NOTE: Use a minimum of three washers [64]. If necessary, use more washers [64] for adjustment.

1) Tighten the nut [60] to 13.0 ±2.0 in-lb (1.5 ±0.3 N·m).

(g) Put the switch bracket [63] in position on the structure.

(h) Install the washers [59] and screws [58] on the switch bracket [63].



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SUBTASK 32-34-11-410-004

(2) Close this access panel:

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

(a) Do this task: Nose Wheel Well Access Panels Installation, TASK 53-14-01-420-801.

(b) Do this task: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

SUBTASK 32-34-11-840-002

(3) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 16 | C01432 | LANDING GEAR ALTN EXTEND SOL |

SUBTASK 32-34-11-010-007

(4) Do the adjustment of the access door position switch [65] (TASK 32-34-00-820-802).

SUBTASK 32-34-11-410-006

(5) Close the manual extension access door [51].

## F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-34-11-410-005

(1) Install the nose wheel well access panel (TASK 53-14-01-420-801).

——— END OF TASK ———



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## MAIN GEAR MANUAL EXTENSION MECHANISM - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks that apply to the left or right main landing gear:

(1) A removal of the manual extension mechanism (referred to as the manual extension mechanism [21]), for the main gear

(2) An installation of the manual extension mechanism [21] for the main gear.

**TASK 32-34-21-000-801**

### 2. Main Gear Manual Extension Mechanism Removal

(Figure 401, Figure 402)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 25-22-00-000-801 | Passenger Seat Removal (P/B 401) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 121 | Forward Cargo Compartment - Left |
| 122 | Forward Cargo Compartment - Right |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 241 | Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left |
| 242 | Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right |

#### D. Prepare for the Removal

**SUBTASK 32-34-21-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-34-21-860-001**

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.


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SUBTASK 32-34-21-580-001

(3) Install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

SUBTASK 32-34-21-480-002

**WARNING** MAKE SURE THAT YOU INSTALL THE RIG PIN IN THE MANUAL EXTENSION MECHANISM. IF YOU DO NOT OBEY, THE SPRING IN THE MECHANISM COULD UNWIND AND CAUSE INJURY TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Install the rig pin LGEA2 (L/H), or LGEA3 (R/H) from rigging pin kit, SPL-1585, through the rig pin holes in the manual extension mechanism [21].

SUBTASK 32-34-21-010-001

(5) Remove the ceiling panels in the forward cargo compartment that are at approximately body station 420.

SUBTASK 32-34-21-020-001

(6) Remove the locking clips from the turnbuckle [2].

SUBTASK 32-34-21-020-002

(7) Loosen the MLGEA cable [1] at the turnbuckle [2].

**SIA 001-014**

SUBTASK 32-34-21-010-002

(8) For the passenger seats that are at approximately body station 692 (Passenger Seat Removal, TASK 25-22-00-000-801).

**SIA ALL**

SUBTASK 32-34-21-010-003

(9) Remove the floor panels at approximately body station 692.

## E. Main Gear Manual Extension Mechanism Removal

SUBTASK 32-34-21-020-003

(1) Remove the pin [33], nut [32], washer [31], bolt [29], and washer [30] to disconnect the control rod from the uplock kicker arm.

SUBTASK 32-34-21-020-004

(2) Remove the nut [28], washers [26], bolt [25], and spacer [27] from the cable guard bracket on the manual extension mechanism [21].

SUBTASK 32-34-21-020-005

(3) Remove the washers [23], and bolt [22] to disconnect the manual extension mechanism [21] from the structure.

SUBTASK 32-34-21-020-006

(4) Remove the pin [34].

SUBTASK 32-34-21-020-007

(5) Disconnect the MLGEA cable [1] from the manual extension mechanism [21].

SUBTASK 32-34-21-020-008

(6) Remove the manual extension mechanism [21] from the airplane.



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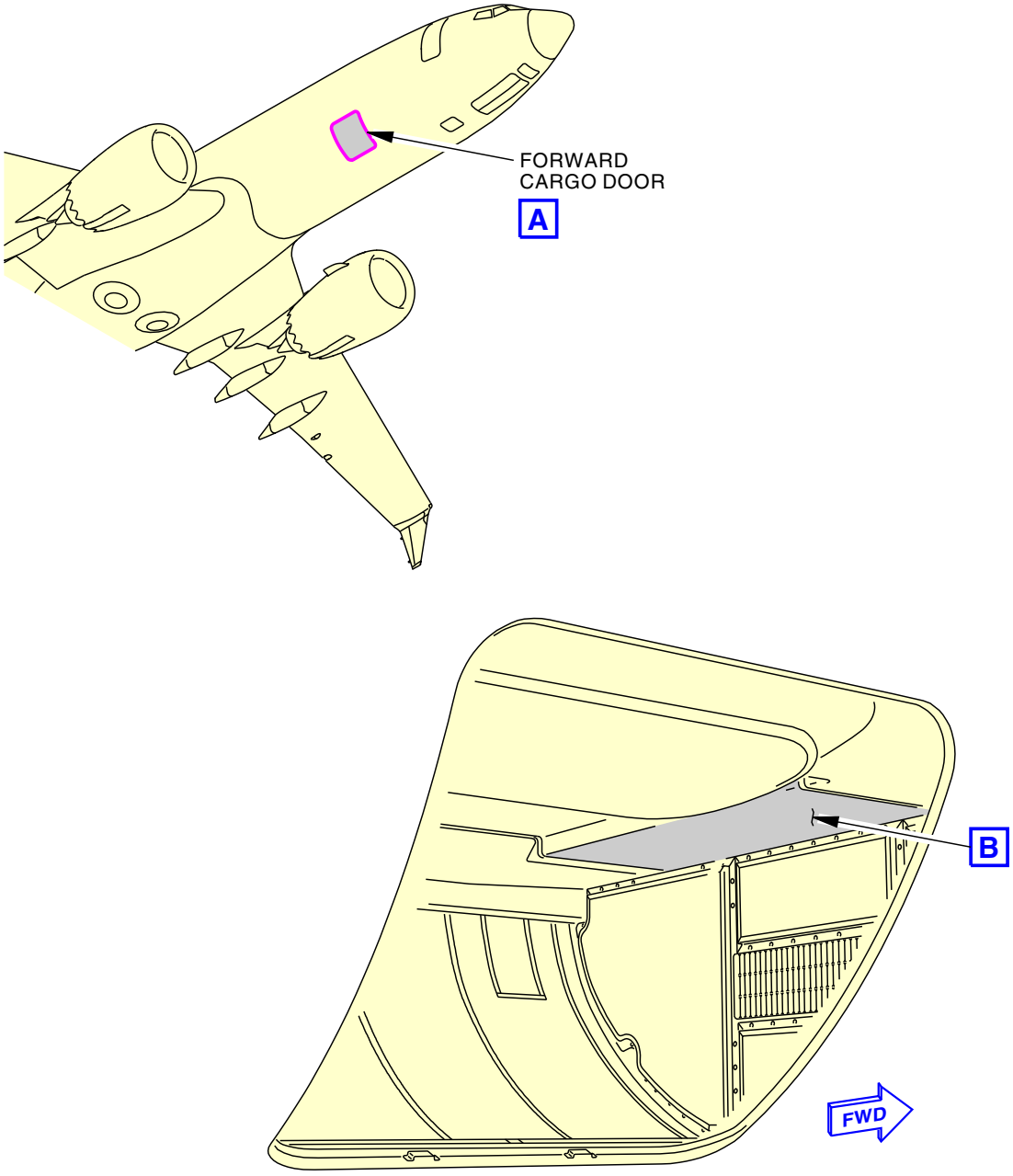
SUBTASK 32-34-21-420-001

(7) Install the bolt [25], spacer [27], washers [26], and nut [28] on the cable guard bracket on the manual extension mechanism [21].

——— END OF TASK ———



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**FORWARD CARGO COMPARTMENT
(CEILING PANEL INSTALLED)**

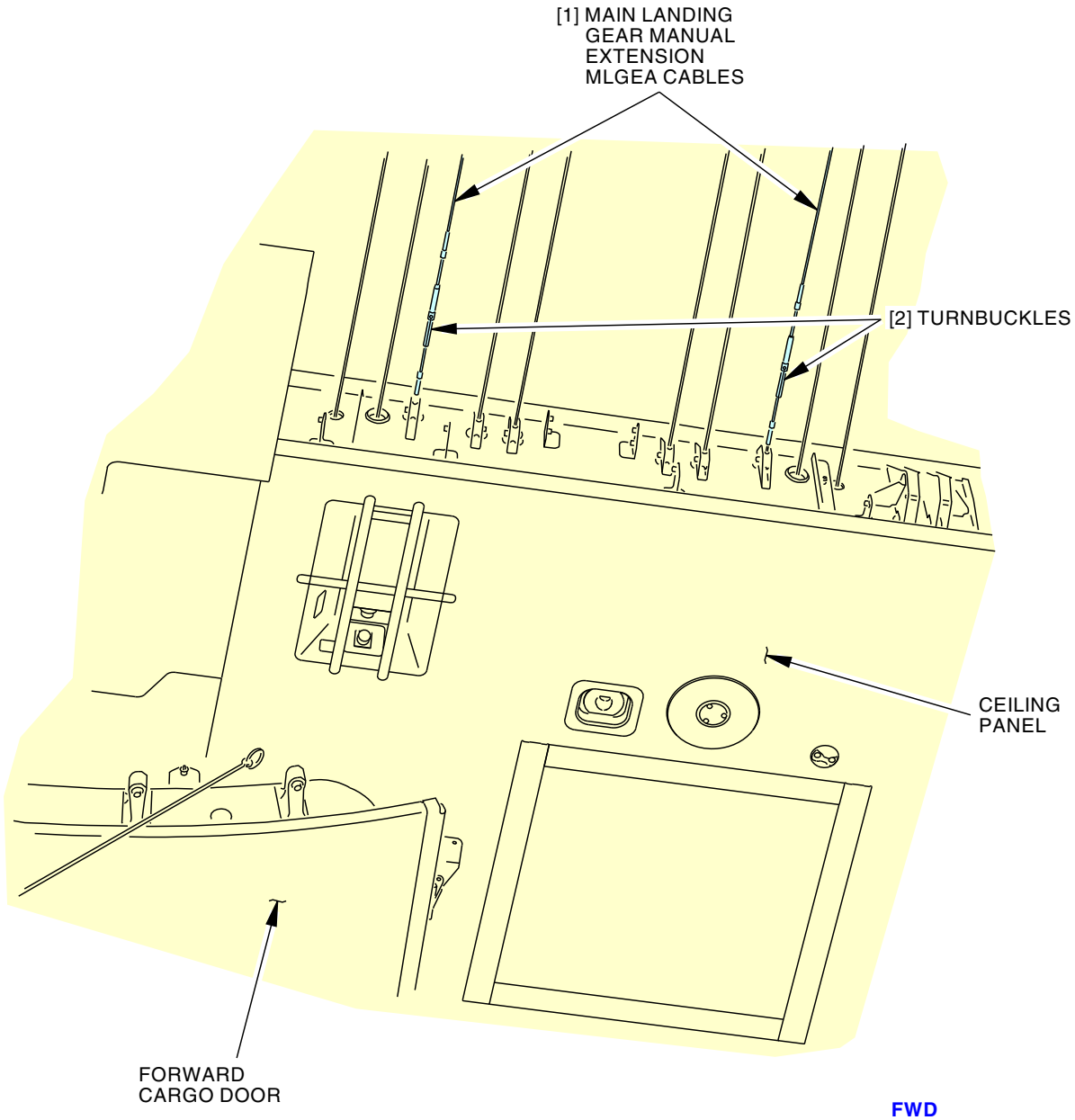
**A**

2414322 S00061534890_V1

**Manual Extension Cable Turnbuckle Locations
Figure 401/32-34-21-990-801 (Sheet 1 of 2)**



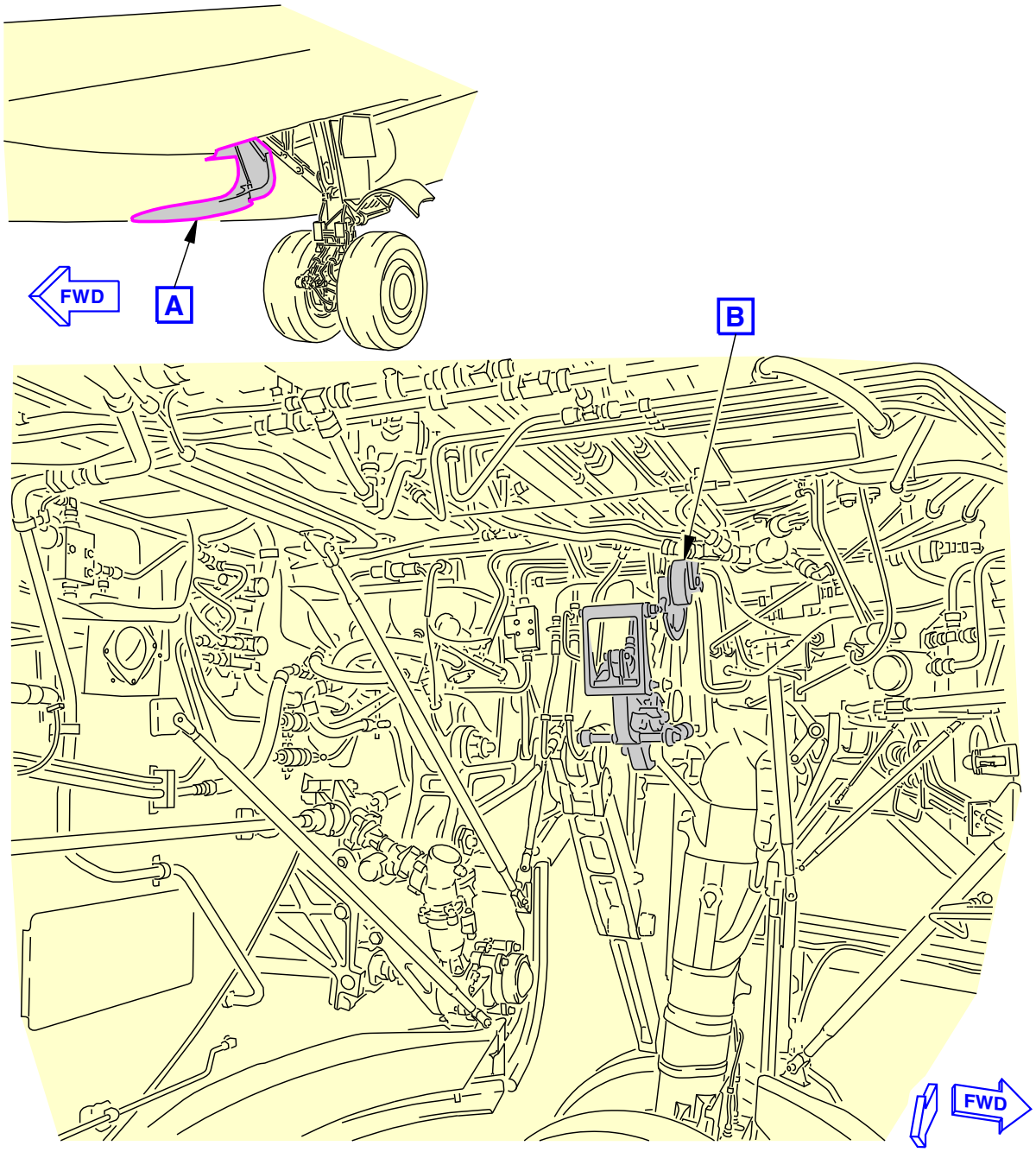
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Manual Extension Cable Turnbuckle Locations**
**Figure 401/32-34-21-990-801 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

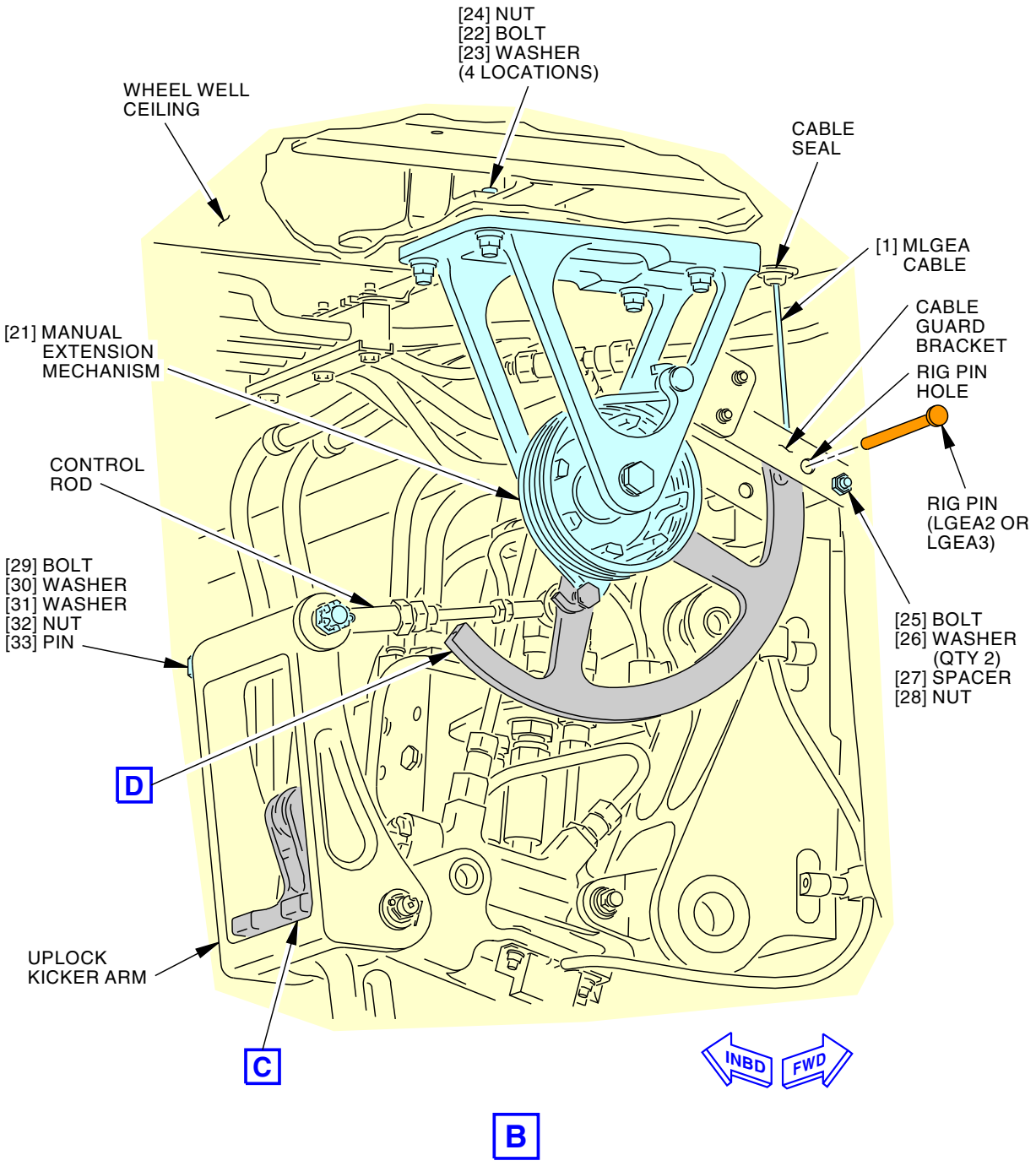
A

2414324 S00061534892_V1

**Main Landing Gear Manual Extension Mechanism Installation**
**Figure 402/32-34-21-990-802 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

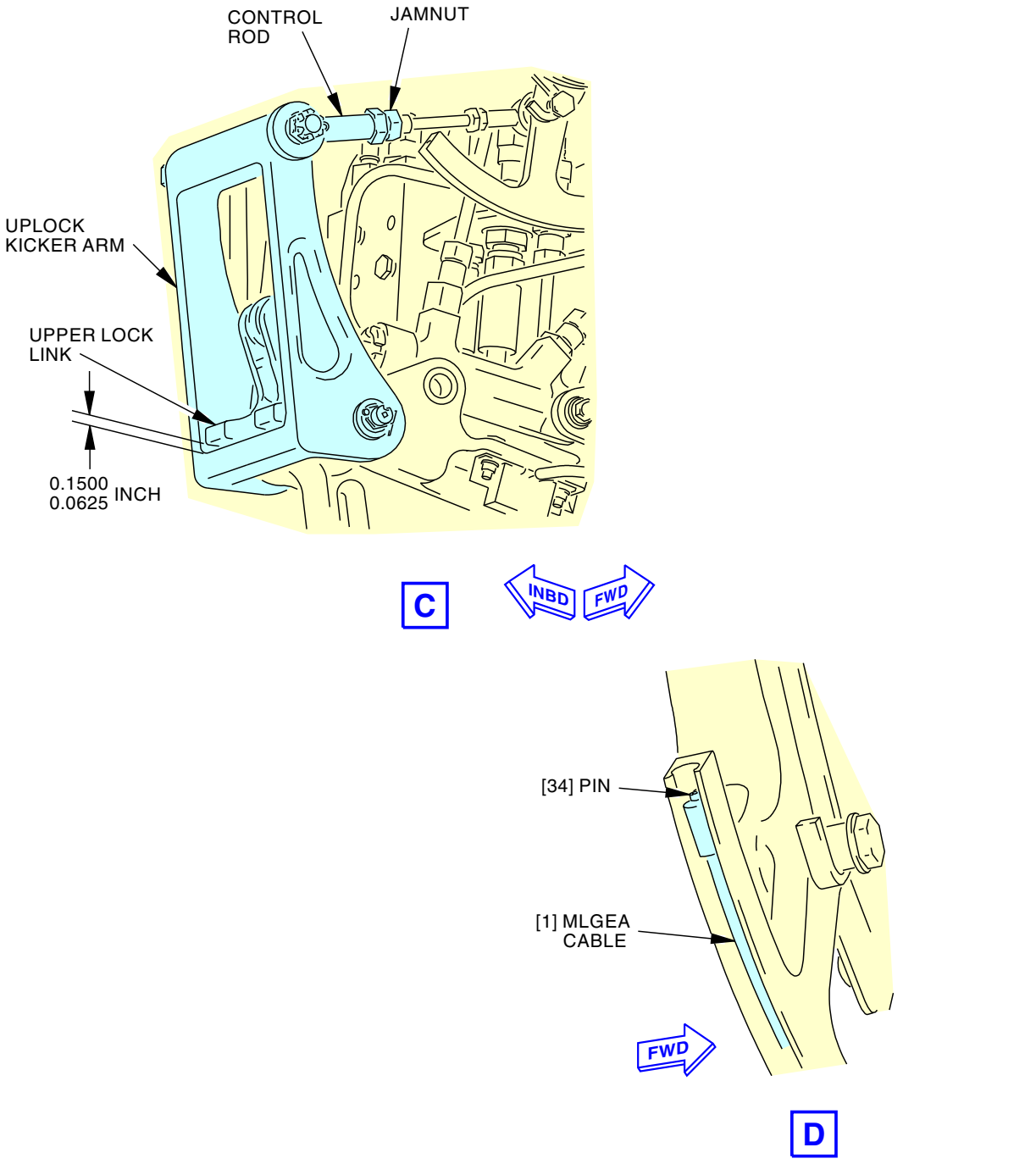



2414325 S00061534893_V3

**Main Landing Gear Manual Extension Mechanism Installation**
**Figure 402/32-34-21-990-802 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2414326 S00061534894_V2

**Main Landing Gear Manual Extension Mechanism Installation**
**Figure 402/32-34-21-990-802 (Sheet 3 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-34-21-400-801**

## 3. Main Gear Manual Extension Mechanism Installation

(Figure 401, Figure 402)

### A. References

| Reference | Title |
|---|---|
| 25-22-00-400-801 | Passenger Seat Installation (P/B 401) |
| 32-32-31-400-801 | Main Gear Uplock Assembly Installation (P/B 401) |
| 32-34-00-730-801 | Main Gear Manual Extension System Test (Airplane on Jacks) (P/B 501) |
| 32-34-00-730-802 | Main Gear Manual Extension System Test (Airplane not on Jacks) (P/B 501) |
| 32-34-00-820-801 | Main Landing Gear Manual Extension System Adjustment and Test (P/B 501) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 21 | Manual extension mechanism | 32-34-21-01-020 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 121 | Forward Cargo Compartment - Left |
| 122 | Forward Cargo Compartment - Right |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 241 | Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Left |
| 242 | Aft Passenger Compartment - Station 663.75 to Aft Pressure Bulkhead - Right |

### F. Main Gear Manual Extension Mechanism Installation

**SUBTASK 32-34-21-600-001**

(1) Apply sealant, A00247, to the entire top surface of the bracket on the manual extension mechanism [21].

**SUBTASK 32-34-21-420-002**

(2) Put the manual extension mechanism [21] in its position on the main wheel well ceiling.

**SUBTASK 32-34-21-600-002**

(3) Apply sealant, A00247, to the threads and below the head of the bolts [22], and washers [23].



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SUBTASK 32-34-21-420-003

(4) Install the bolts [22], and washers [23].

SUBTASK 32-34-21-020-009

(5) Connect the MLGEA cable [1] to the manual extension mechanism [21].

SUBTASK 32-34-21-020-010

(6) Install the pin [34].

SUBTASK 32-34-21-420-004

(7) Install the bolt [29], and washer [30] to connect the control rod of the manual extension mechanism [21] to the uplock kicker arm.

(a) Put the countersink on the washer [30] against the head of the bolt [29].

SUBTASK 32-34-21-420-005

(8) Install the washer [31], and nut [32].

(a) Do not tighten the nut [32] fully.

SUBTASK 32-34-21-820-001

(9) Make sure the uplock assembly is correctly adjusted to engage the uplock roller on the main gear when the gear is retracted (Main Gear Uplock Assembly Installation, TASK 32-32-31-400-801).

SUBTASK 32-34-21-980-001

(10) Put the uplock hook in the up and locked position.

SUBTASK 32-34-21-820-002

(11) Install the rig pin LGEA2 (L/H), or LGEA3 (R/H) from rigging pin kit, SPL-1585, through the rig pin holes in the manual extension mechanism [21].

SUBTASK 32-34-21-820-003

(12) Loosen the jamnut on the control rod on the manual extension mechanism [21].

SUBTASK 32-34-21-820-004

(13) Adjust the control rod to get the 0.0625 in. (1.59 mm) to 0.1500 in. (3.8100 mm) gap between the uplock kicker arm and the upper lock link (Figure 402).

SUBTASK 32-34-21-420-006

(14) Tighten the jamnut on the control rod to 127.5 +32.5 / -32.6 in-lb (14 +4 / -4 N·m).

SUBTASK 32-34-21-420-007

(15) Install a lockwire on the jamnut on the control rod.

SUBTASK 32-34-21-080-001

(16) Remove the rig pin LGEA2, or LGEA3 from the manual extension mechanism [21].

SUBTASK 32-34-21-980-002

(17) Put the uplock hook in the down and locked position before performing a gear retraction.

SUBTASK 32-34-21-700-001

(18) Turn the cable quadrant to make sure the control rod does not rub against the uplock kicker arm.

(a) Install the rig pin LGEA2, or LGEA3 from rigging pin kit, SPL-1585, through the rig pin holes in the manual extension mechanism [21].

SUBTASK 32-34-21-420-008

(19) Do these steps to tighten the bolt [29] and nut [32] to a torque of 80 in-lb (9 N·m) plus run-on torque (minimum) to 240 in-lb (27 N·m) (maximum):



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(a) Begin at the minimum torque value and increase the torque as necessary to align the castellation in the nut [32] with the hole in the bolt [29].

(b) Make sure not to exceed more than 240 in-lb (27 N·m) applied torque.

(c) Install the pin [33].

SUBTASK 32-34-21-420-009

(20) Tighten the MLGEA cable [1] at the turnbuckle [2].

SUBTASK 32-34-21-820-005

(21) Do the adjustment of the manual extension system for the main gear (Main Landing Gear Manual Extension System Adjustment and Test, TASK 32-34-00-820-801).

## G. Main Gear Manual Extension Mechanism Installation Test

SUBTASK 32-34-21-710-001

(1) Do a test on the manual extension system for the main gear.

(a) If the airplane is on jacks, do this task: Main Gear Manual Extension System Test (Airplane on Jacks), TASK 32-34-00-730-801.

(b) If the airplane is not on jacks, do this task: Main Gear Manual Extension System Test (Airplane not on Jacks), TASK 32-34-00-730-802.

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-34-21-410-001

(1) Install the ceiling panels that you removed in the forward cargo compartment.

SUBTASK 32-34-21-410-002

(2) Install the floor panels that you removed at approximately body station 692.

**SIA 001-014**

SUBTASK 32-34-21-410-003

(3) Install the passenger seats that you removed at approximately body station 692 (TASK 25-22-00-400-801).

**——— END OF TASK ———**



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## MAIN GEAR MANUAL EXTENSION SYSTEM CABLES - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the manual extension system cables (referred to as cable D (MLGEA-L) [1], cable C (MLGEA-L) [3], cable A (MLGEA-R) [4], or cable B (MLGEA-R) [5]) for the main landing gear

(2) Installation of the manual extension system cables for the main landing gear.

**TASK 32-34-31-000-801**

### 2. Main Gear Manual Extension System Cables Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 20-10-04-000-802 | Control Cable Half Ball Pressure Seal Removal (P/B 401) |
| 20-10-91-000-801 | Control Cables Removal (P/B 401) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 121 | Forward Cargo Compartment - Left |
| 122 | Forward Cargo Compartment - Right |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 220 | Subzone - Passenger Compartment - Body Station 259.50 to 360.00 |

#### C. Main Gear Manual Extension System Cables Removal

**SUBTASK 32-34-31-010-001**

(1) Remove the cargo compartment ceiling panels [6] at approximately body station 420 to remove the turnbuckle locking clips [7].

(a) Disconnect the cable D (MLGEA-L) [1] from the cable C (MLGEA-L) [3] or the cable A (MLGEA-R) [4] from the cable B (MLGEA-R) [5] at the turnbuckle [2].

**SUBTASK 32-34-31-010-002**

(2) Remove the forward access panel from the ceiling of the nose wheel well.

**SUBTASK 32-34-31-010-003**

(3) Remove the nuts [11], washers [10], cable guard standoffs [9], and bolts [8] from the manual extension control mechanism.

**SUBTASK 32-34-31-020-001**

(4) Remove the cotter pins [12] to disconnect the manual extension handle cable from the MLGEA control drum on the manual extension control mechanism (Detail E).

**SUBTASK 32-34-31-020-002**

(5) Remove the cable retainer bolts [13] (Detail F).



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SUBTASK 32-34-31-020-003

(6) Disconnect the cable C (MLGEA-L) [3] or cable A (MLGEA-R) [4] from the MLGEA control drum on the manual extension control mechanism.

SUBTASK 32-34-31-020-004

(7) Remove the cable seal [14] on the wheel well of the main landing gear (TASK 20-10-04-000-802).

SUBTASK 32-34-31-020-005

(8) Remove the pin [15].

SUBTASK 32-34-31-020-006

(9) Disconnect the cable D (MLGEA-L) [1] or the cable B (MLGEA-R) [5] from the quadrant assembly on the main landing gear manual extension mechanism.

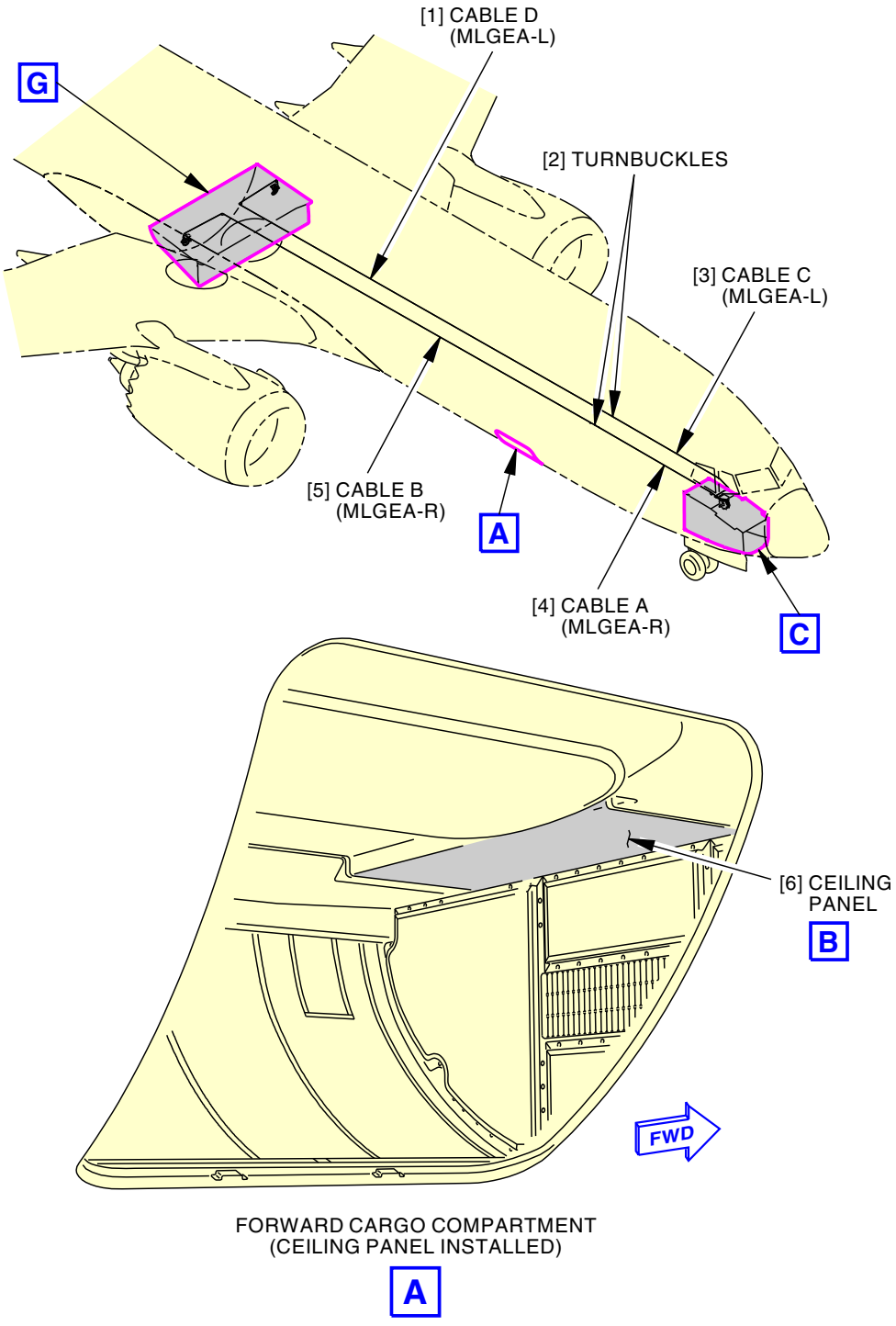
SUBTASK 32-34-31-000-001

(10) Remove the cable D (MLGEA-L) [1] from the cable C (MLGEA-L) [3] or the cable A (MLGEA-R) [4] from the cable B (MLGEA-R) [5] (TASK 20-10-91-000-801).

——— END OF TASK ———



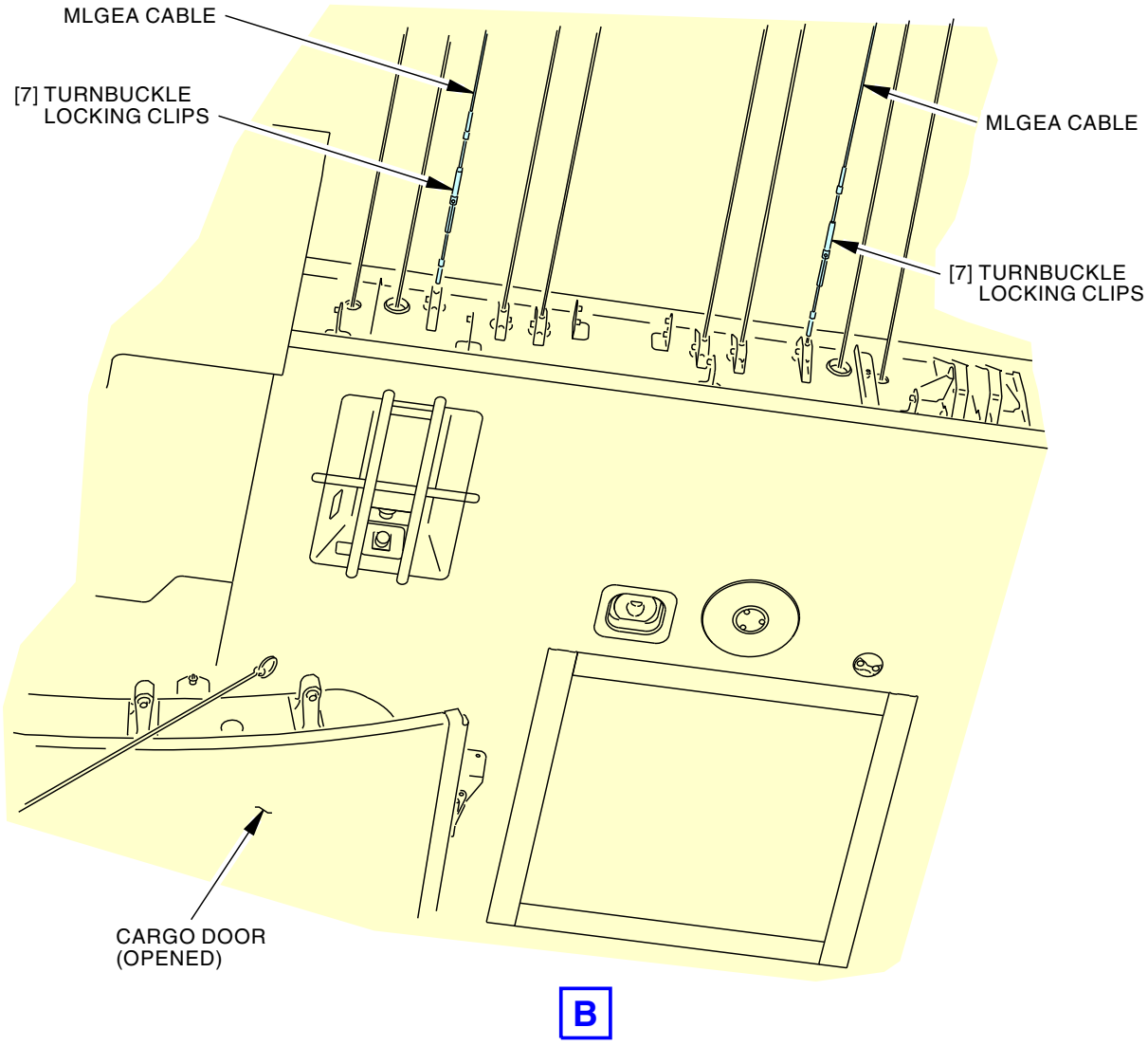
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Gear Manual Extension System Cable Installation**
**Figure 401/32-34-31-990-801 (Sheet 1 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

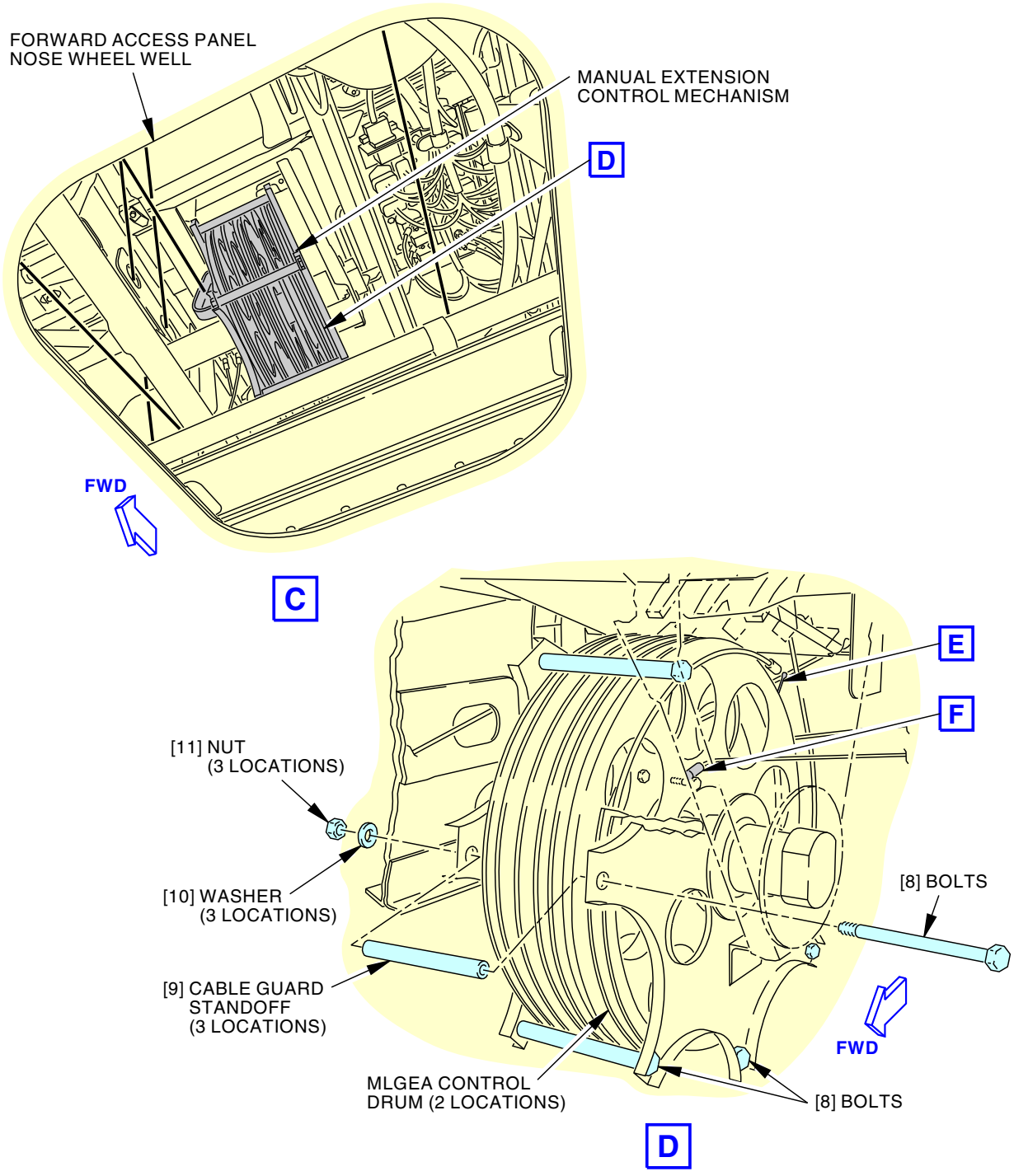



2411023 S00061526762_V1

**Main Gear Manual Extension System Cable Installation**
**Figure 401/32-34-31-990-801 (Sheet 2 of 6)**



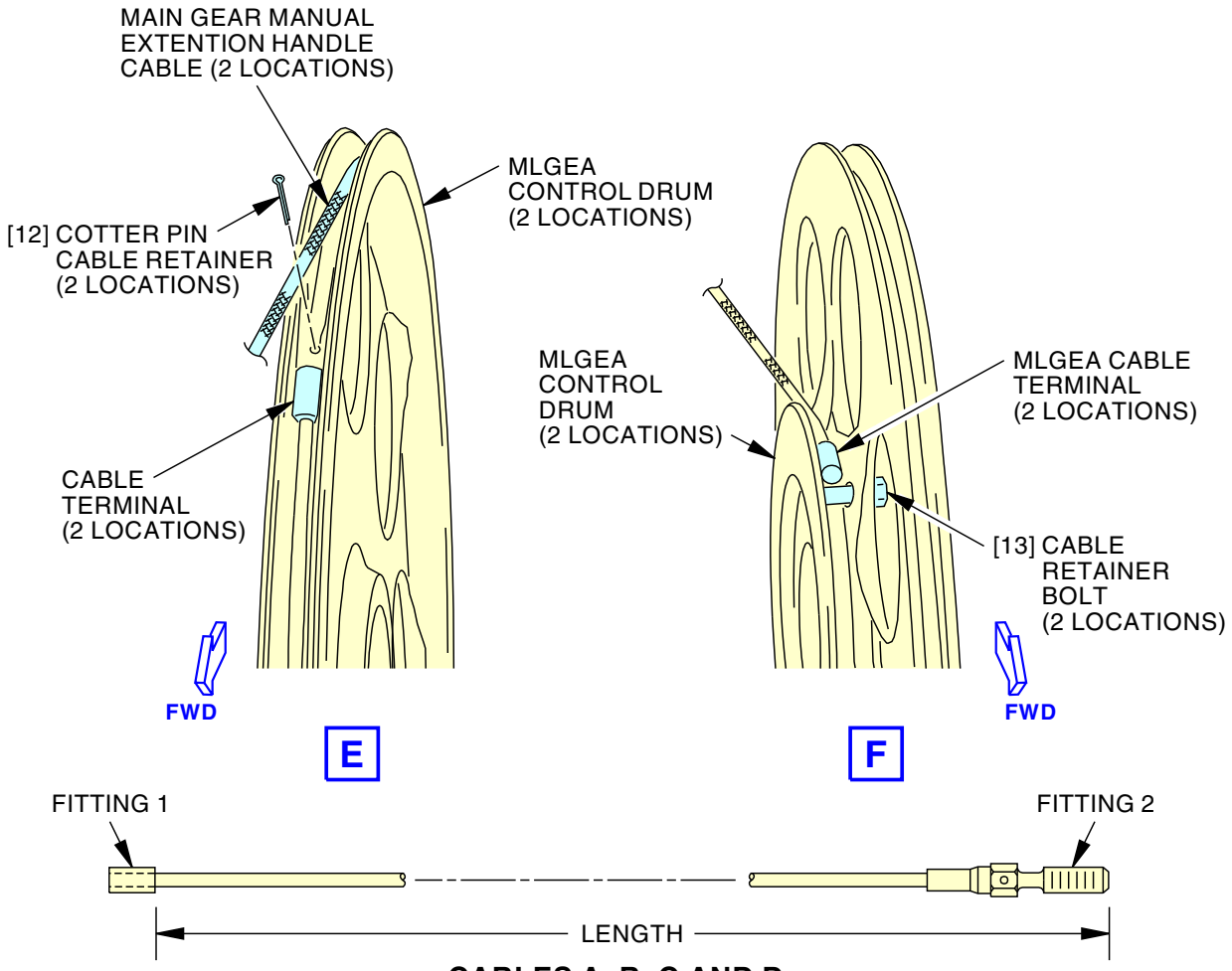
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Gear Manual Extension System Cable Installation**
**Figure 401/32-34-31-990-801 (Sheet 3 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**CABLES A, B, C AND D**

| CABLE REF | FUNCTION | NO. REQ | LENGTH INCHES (METERS) | CABLE SIZE | FITTINGS | |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| A | MLGEA-R | 1 | 163.7 (4.158) | 3/32 7x7 | BACT14A3 | MS21260L3 LH |
| B | MLGEA-R | 1 | 543.9 (13.815) | 3/32 7x7 | BACT14A3 | MS21260L3 RH |
| C | MLGEA-L | 1 | 182.4 (4.633) | 3/32 7x7 | BACT14A3 | MS21260L3 LH |
| D | MLGEA-L | 1 | 543.9 (13.815) | 3/32 7x7 | BACT14A3 | MS21260L3 RH |

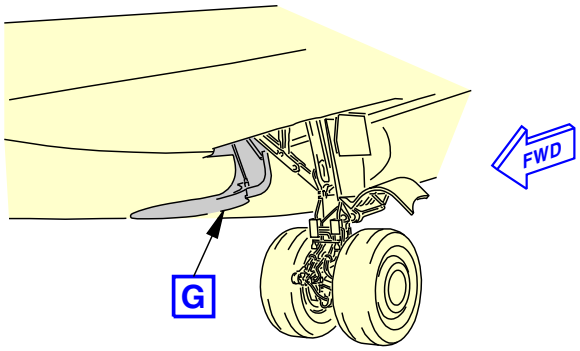
MATERIAL: CABLE - CARBON STEEL PER BMS 7-265, TYPE I, COMPOSITION A, TIN-ZINC (TZ).

2411025 S00061526764_V1

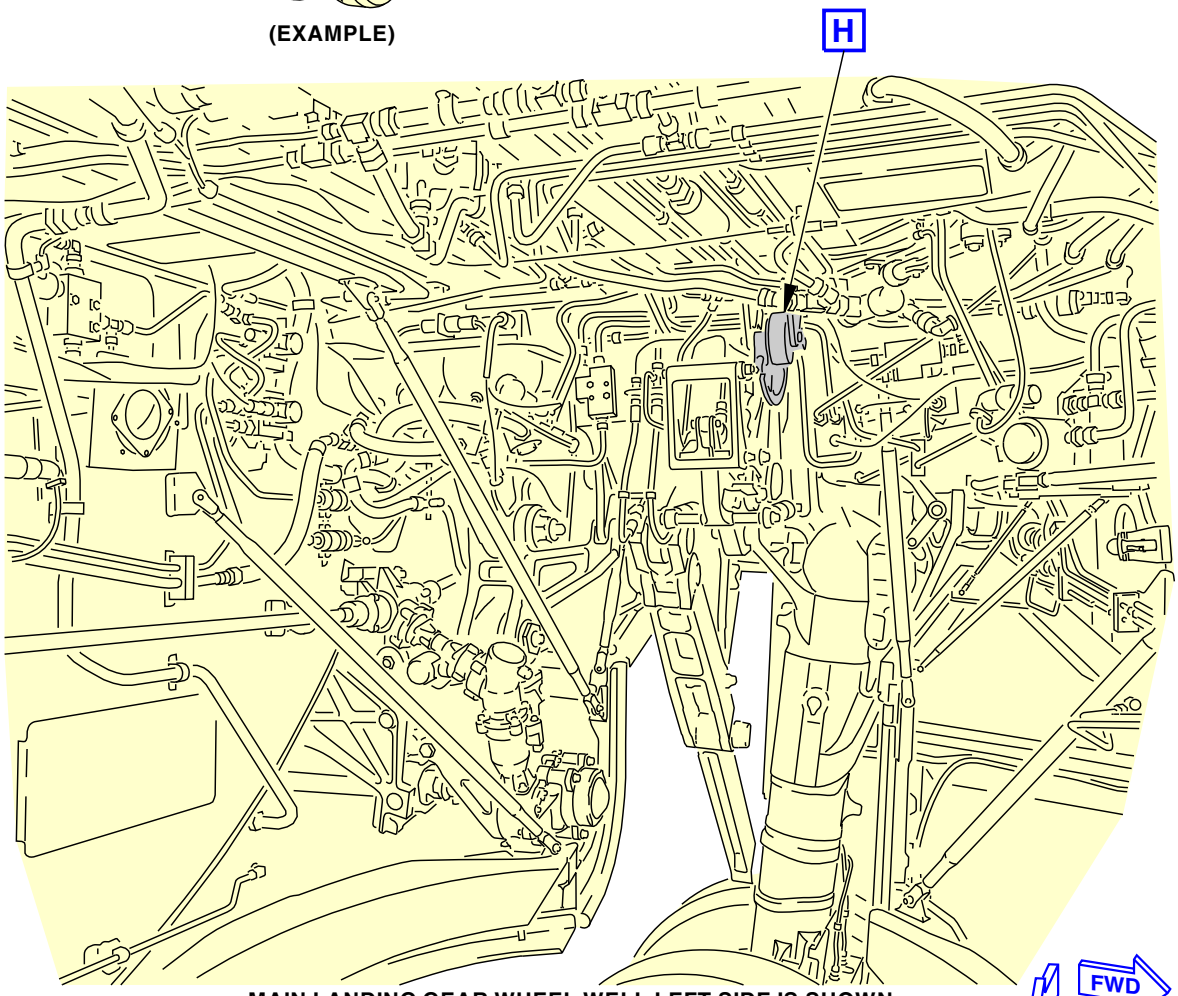
**Main Gear Manual Extension System Cable Installation**
**Figure 401/32-34-31-990-801 (Sheet 4 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




(EXAMPLE)



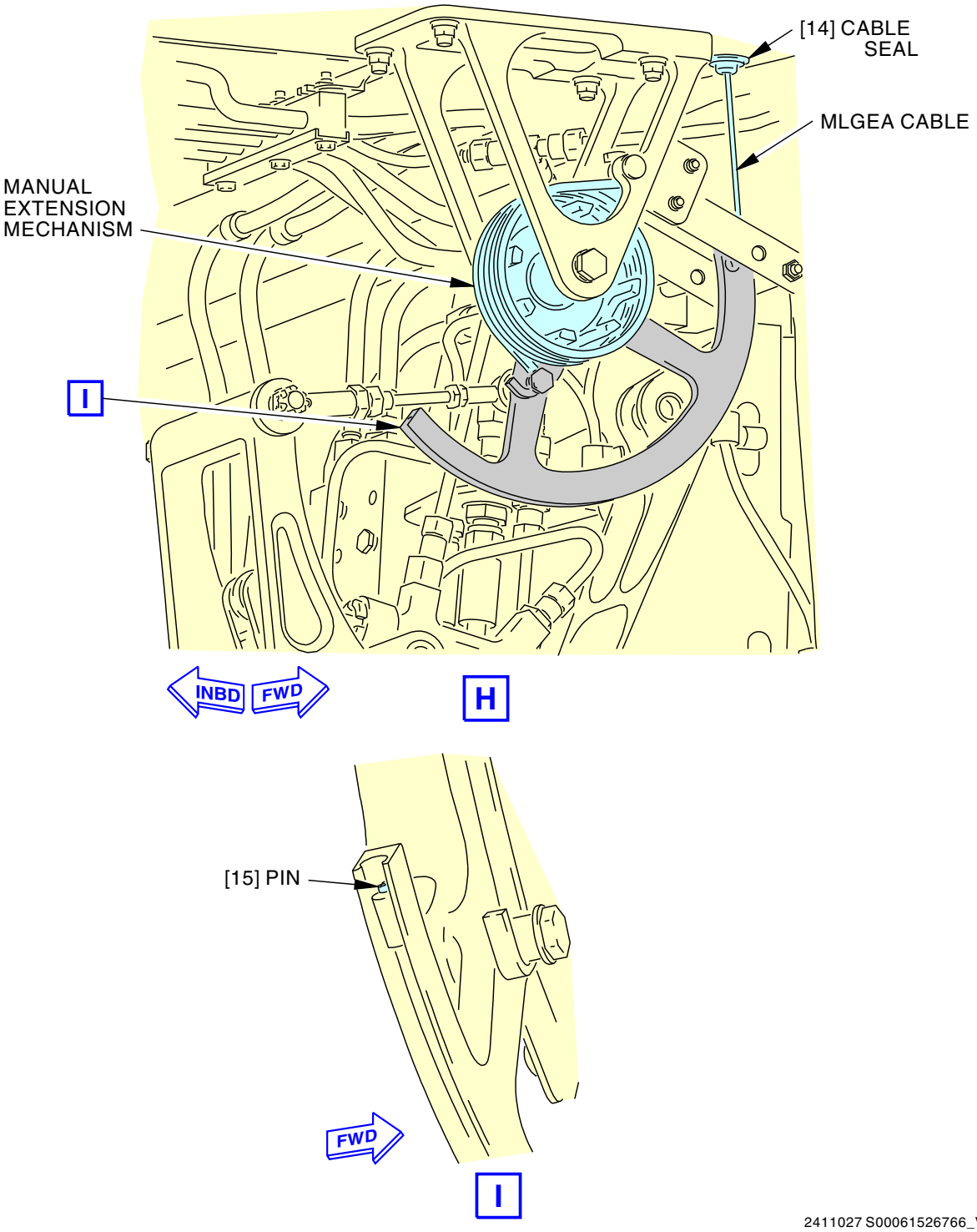

MAIN LANDING GEAR WHEEL WELL LEFT SIDE IS SHOWN,
(RIGHT SIDE IS EQUIVALENT)
(EXAMPLE)

2411026 S00061526765_V2

**Main Gear Manual Extension System Cable Installation**
**Figure 401/32-34-31-990-801 (Sheet 5 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Gear Manual Extension System Cable Installation**
**Figure 401/32-34-31-990-801 (Sheet 6 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-34-31-400-801**

## 3. Main Gear Manual Extension System Cables Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 20-10-04-400-802 | Control Cable Half Ball Pressure Seal Installation (P/B 401) |
| 20-10-91-400-801 | Control Cables Installation (P/B 401) |
| 32-34-00-730-802 | Main Gear Manual Extension System Test (Airplane not on Jacks) (P/B 501) |
| 32-34-00-820-801 | Main Landing Gear Manual Extension System Adjustment and Test (P/B 501) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| C00174 | Compound - Corrosion Preventive, Solvent Cutback, Cold Application | MIL-PRF-16173 (Supersedes MIL-C-16173) |
| C00528 | Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film) | MIL-C-11796 Class III |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Cable D (MLGEA-L) | 32-34-31-01-045 | SIA ALL |
| 3 | Cable C (MLGEA-L) | 32-34-31-01-040 | SIA ALL |
| 4 | Cable A (MLGEA-R) | 32-34-31-01-030 | SIA ALL |
| 5 | Cable B (MLGEA-R) | 32-34-31-01-045 | SIA ALL |
| 12 | Cotter pin | 32-34-11-01-040 | SIA ALL |
| 15 | Pin | 32-34-31-01-005 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 121 | Forward Cargo Compartment - Left |
| 122 | Forward Cargo Compartment - Right |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 220 | Subzone - Passenger Compartment - Body Station 259.50 to 360.00 |

### E. Main Gear Manual Extension System Cables Installation

**SUBTASK 32-34-31-420-001**

(1) Install the cable D (MLGEA-L) [1] and the cable C (MLGEA-L) [3] or the cable A (MLGEA-R) [4] and the cable B (MLGEA-R) [5] (TASK 20-10-91-400-801).

NOTE: The turnbuckles [2] are located at approximately body station 420.



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(a) Apply a thin layer of compound, C00174, or compound, C00528, to the threads on the internal and external surfaces of the mating adjustable parts on the turnbuckles [2].

SUBTASK 32-34-31-420-002

(2) Install the cable D (MLGEA-L) [1] or the cable B (MLGEA-R) [5] on the quadrant assembly of the main landing gear extension mechanism.

(a) Install the pin [15].

SUBTASK 32-34-31-420-003

(3) Connect the cable C (MLGEA-L) [3] or the cable A (MLGEA-R) [4] on the control drum on the control mechanism.

(a) Install the bolts [8] that connect the cable C (MLGEA-L) [3] or the cable A (MLGEA-R) [4] to the control drum on the manual extension control mechanism.

SUBTASK 32-34-31-410-001

(4) Install the cable guard standoffs [9], washers [10], and nuts [11] on the control drum on the manual extension control mechanism.

SUBTASK 32-34-31-420-004

(5) Put the terminal end of the manual extension handle cable in its position on the MLGEA control drum.

(a) Attach the manual extension handle cable on the control drum of the control mechanism and install the new cotter pins [12].

(b) Bend one end of the new cotter pins [12] into the drum.

(c) Connect the cable D (MLGEA-L) [1] to the cable C (MLGEA-L) [3] or the cable A (MLGEA-R) [4] to the cable B (MLGEA-R) [5] at the turnbuckle [2].

## F. Main Gear Manual Extension System Cables Installation Test

SUBTASK 32-34-31-820-001

(1) Do the adjustment of the manual extension system for the main landing gear (TASK 32-34-00-820-801).

SUBTASK 32-34-31-710-001

(2) Do a test on the manual extension system for the main landing gear (TASK 32-34-00-730-802).

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-34-31-420-005

(1) Install the cable seal [14] on the wheel well ceiling of the main landing gear (TASK 20-10-04-400-802).

SUBTASK 32-34-31-410-002

(2) Install the cargo compartment ceiling panels [6].

NOTE: The cargo compartment ceiling panels [6] are located at approximately body station 420.

**END OF TASK**



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## NOSE GEAR MANUAL EXTENSION SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure contains these three tasks:

(1) Nose landing gear manual extension system adjustment.

(2) System test of the manual extension system for the nose gear, with the airplane on jacks.

(3) System test of the manual extension system for the nose gear, with the airplane not on jacks.

**TASK 32-35-00-820-801**

### 2. Nose Landing Gear Manual Extension System Adjustment

(Figure 501)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 20-20-31-200-801 | Inspection of the Control Cable Wire Rope (P/B 601) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-21-00-000-801 | Passenger Cabin Floor Panel Removal (P/B 401) |
| 53-21-00-400-801 | Passenger Cabin Floor Panel Installation (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

#### D. Procedure

**SUBTASK 32-35-00-480-008**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-35-00-860-033**

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-35-00-580-001

(3) Make sure that you install chocks around the tires of the main landing gear (PAGEBLOCK 10-11-05/201).

SUBTASK 32-35-00-010-001

(4) Remove the screws [2] and cover [1] from the nose gear manual release mechanism (Figure 501, View A).

SUBTASK 32-35-00-980-001

(5) Align the rig pin holes on the nose gear manual release mechanism.

SUBTASK 32-35-00-480-001

(6) Install the rig pin LGEA1 from rigging pin kit, SPL-1585, through the quadrant and the side cover on the nose gear manual release mechanism.

(a) Move the spring if necessary.

SUBTASK 32-35-00-010-002

(7) Remove the cabin floor panel at approximately body station 270 (TASK 53-21-00-000-801).

SUBTASK 32-35-00-700-008

(8) Do this task: Inspection of the Control Cable Wire Rope, TASK 20-20-31-200-801.

NOTE: Control cables can touch fairleads, grommets or rub strips after rigging while in operation.

SUBTASK 32-35-00-020-001

(9) Remove the turnbuckle locking clips from the cable MNGEA (Figure 501, View B).

SUBTASK 32-35-00-820-004

(10) Adjust the turnbuckle on cable MNGEA until the rig pin LGEA 1 fits freely in the manual extension mechanism.

NOTE: When you do this, make sure you correctly set the release handle in the V-slot of the manual extension control. When the cable tension is equal, rig pin LGEA1 will fit freely in the manual extension mechanism.

SUBTASK 32-35-00-080-001

(11) Remove the rig pin LGEA1 from the nose gear manual release mechanism.

NOTE: You can let the rig pin touch the spring.

SUBTASK 32-35-00-410-001

(12) Install the screws [2] and the cover [1] on the nose gear manual release mechanism.

SUBTASK 32-35-00-420-001

(13) Install the turnbuckle locking clips on the cable MNGEA.

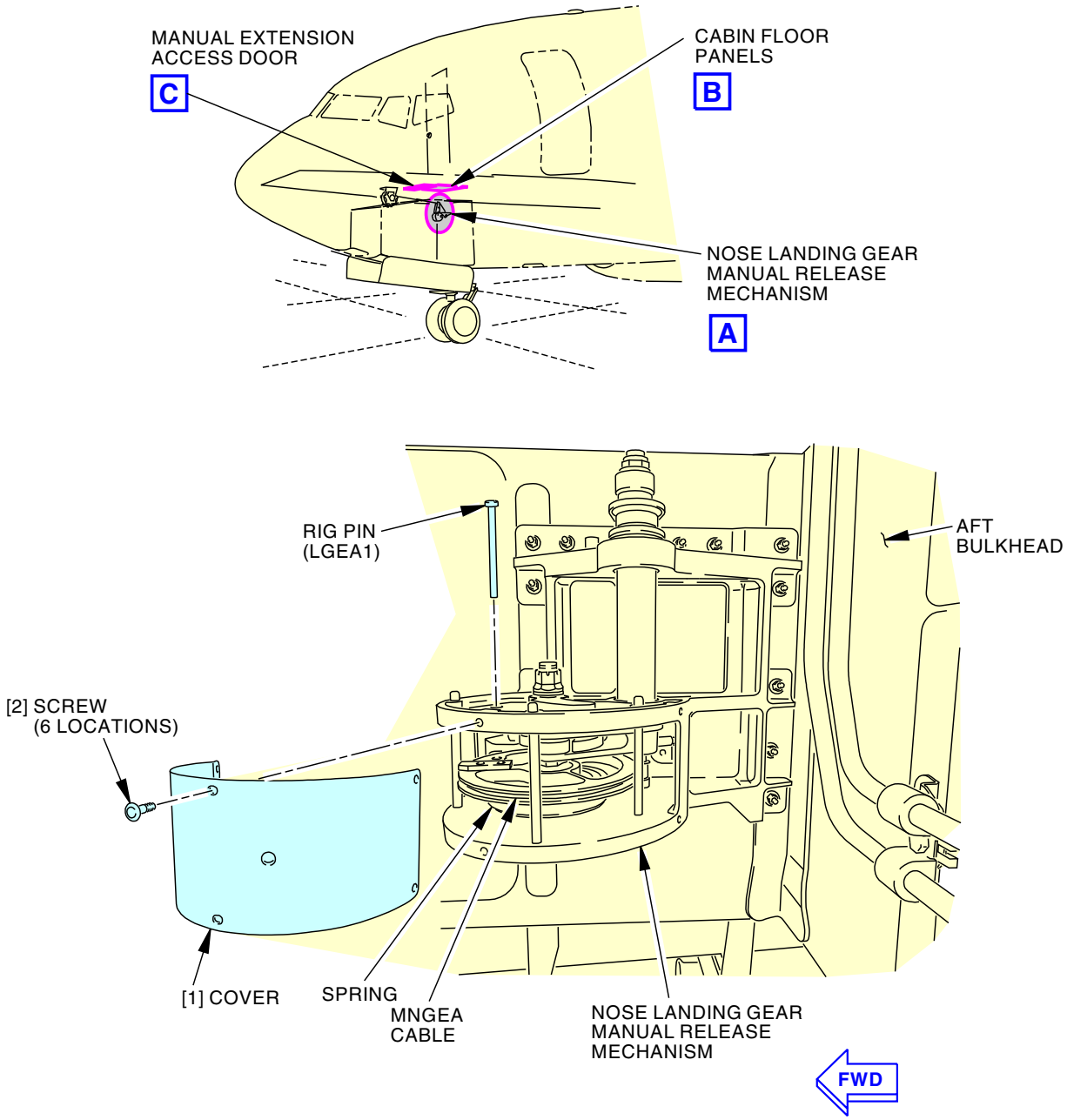
SUBTASK 32-35-00-410-002

(14) Install the cabin floor panel at approximately body station 270 (TASK 53-21-00-400-801).

**——— END OF TASK ———**



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**NOSE LANDING GEAR MANUAL RELEASE MECHANISM (VIEW IN THE UP DIRECTION)**

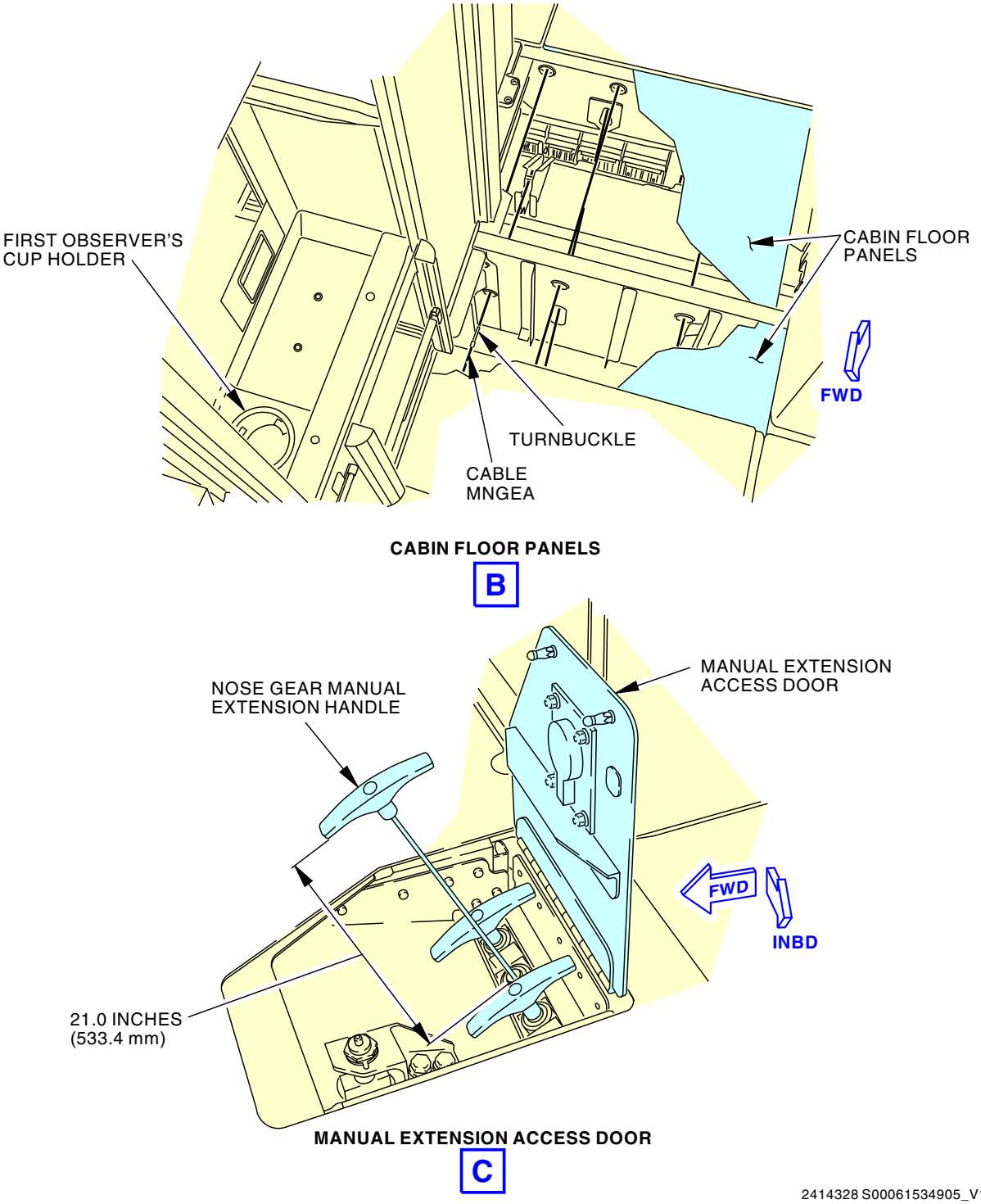
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**Nose Gear Manual Extension System**
**Figure 501/32-35-00-990-801 (Sheet 1 of 2)**



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**Nose Gear Manual Extension System**
**Figure 501/32-35-00-990-801 (Sheet 2 of 2)**



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**TASK 32-35-00-730-801**

**3. Nose Gear Manual Extension System Test - Airplane on Jacks**

(Figure 501)

NOTE: This procedure is a scheduled maintenance task.

**A. General**

(1) The usual extension/retraction system will not operate with the manual extension access door open. Make sure that you close the access door when you extend or retract the landing gear with the landing gear control handle.

**B. References**

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |
| 32-09-10-740-801 | Proximity Switch Electronics Unit - Operational Test (P/B 501) |
| 32-33-00-710-802 | Nose Landing Gear Operational Test (P/B 501) |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1690 | Actuators/Deactuators Set - Proximity Sensor<br>Part #: 8-758-01 Supplier: 08748<br>Part #: A27092-139 Supplier: 81205<br>Opt Part #: A27092-106 Supplier: 81205 |
| STD-5505 | Spring Scale |

**D. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 118 | Electrical and Electronics Compartment - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**E. Access Panels**

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |



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## F. Prepare for the Test

SUBTASK 32-35-00-480-009

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-35-00-580-002

(2) Do one of these tasks to lift the airplane nose:

(a) Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

(b) Lift the Airplane on Jacks, TASK 07-10-01-580-801.

NOTE: If you lift the main gear with the jacks, it is not necessary to put the airplane in the air mode. The airplane will be in the air mode if you lift the main landing gear off the ground.

SUBTASK 32-35-00-860-034

(3) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-35-00-860-006

(4) Open these circuit breakers and install safety tags:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 1 | C00523 | HEATERS CAPT PITOT |
| C | 2 | C00238 | HEATERS TEMP PROBE |
| C | 3 | C01072 | HEATERS ALPHA VANE LEFT |
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |
| D | 3 | C01071 | HEATERS ALPHA VANE RIGHT |
| D | 5 | C00525 | HEATERS F/O PITOT |
| D | 6 | C00524 | HEATERS AUX PITOT |
| E | 4 | C00700 | HEATERS DRAIN MAST AIR |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |



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SUBTASK 32-35-00-010-004

(5) To get access to the P92 panel, open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-35-00-860-039

**WARNING**

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

**WARNING**

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(6) Open this circuit breaker and install safety tag:

**Power Distribution Panel Number 2, P92**

| Row | Col | Number | Name |
|---|---|---|---|
| F | 2 | C01449 | STANDBY HYDRAULIC PUMP |

SUBTASK 32-35-00-860-007

(7) Make sure that the control lever for the landing gear is in the DN position.

SUBTASK 32-35-00-860-008

(8) If you did not lift the main landing gear with the jacks, make sure that the airplane is in the air mode (TASK 32-09-00-860-801).

(a) Install deactuators on a minimum of 5 of the 6 Air/Ground proximity sensors on the landing gear.

NOTE: You will need A27092-139 deactuators to put the airplane in the air mode. You can find deactuators in the proximity sensor test set, SPL-1690.

NOTE: As an option, deactuators can be constructed as follows: Material: 5052, 6061, 7075, or 2024 aluminum or sheet copper. For rectangular sensors - 1.5 in. (38 mm) x 0.75 in. (19 mm) x 0.05 in. (1.27 mm). For round sensors - 1.0 in. (25 mm) x 1.0 in. (25 mm) x 0.05 in. (1.27 mm)

SUBTASK 32-35-00-080-002

(9) For the nose gear, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

SUBTASK 32-35-00-860-009

(10) Move the No. 1 and No. 2 throttle levers to the full forward position.

NOTE: Throttles in the forward position do not let the landing gear warning (red) lights stay on after gear is up-and-locked.

SUBTASK 32-35-00-860-010

(11) Put the master dim and test switch in the bright position.



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## G. Nose Gear Manual Extension System Test

SUBTASK 32-35-00-860-038

(1) Open the manual extension access door for the nose gear manual extension handle in the flight compartment floor.

(a) Make sure that the switch under the manual extension access door clicks audibly when the manual extension access door opens.

SUBTASK 32-35-00-700-001

(2) Pull the nose gear manual extension handle.

(a) Make sure that the full travel of the nose gear manual extension handle is a minimum of 21.0 in. (533.4 mm) (View C, Figure 501).

SUBTASK 32-35-00-700-002

(3) Release the nose gear manual extension handle.

(a) Make sure that the nose gear manual extension handle goes back to the stowed position freely and smoothly.

SUBTASK 32-35-00-480-003

(4) Attach a spring scale, STD-5505, to the nose gear manual extension handle.

SUBTASK 32-35-00-730-001

(5) Pull the nose gear manual extension handle.

(a) Make sure that the load to start the nose gear manual extension handle from the seat is a minimum of 3.0 lbf (13.3 N) and a maximum of 7.0 lbf (31.1 N).

(b) Make sure that the load during the full travel of the nose gear manual extension handle is 15.0 lbf (66.7 N) or less.

1) Pull the nose gear manual extension handle up and forward when you measure the load.

NOTE: This will simulate a person in the First Officer's seat.

2) Do not pull the nose gear manual extension handle directly up.

(c) Make sure that the manual extension mechanism operates freely.

SUBTASK 32-35-00-860-012

(6) Remove the spring scale, STD-5505, from the nose gear manual extension handle.

SUBTASK 32-35-00-860-013

(7) Make sure that you close the manual extension access door.

NOTE: The extension retraction system will not operate with the manual extension access door open.

SUBTASK 32-35-00-860-014

(8) Make sure that the control lever for the landing gear is in the DN position.

SUBTASK 32-35-00-730-002

**WARNING** KEEP ALL PERSONNEL AND EQUIPMENT CLEAR OF THE AREA AROUND THE NOSE GEAR. THE MOVEMENT OF THE NOSE GEAR CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(9) Move the control lever for the landing gear to UP.

(a) Wait while the nose gear retracts.



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SUBTASK 32-35-00-860-015

(10) Open the access door to the nose gear manual extension handle.

SUBTASK 32-35-00-730-003

(11) Make sure that you pull the nose gear manual extension handle up and forward.

NOTE: This will simulate a person in the First Officer's seat.

(a) Do not pull the nose gear manual extension handle directly up.

SUBTASK 32-35-00-700-003

(12) Make sure that the nose gear free falls to the down-and-locked position.

(a) If it is necessary, apply 115 lbf (512 N) of force to the torsion link apex pin.

NOTE: You can push or pull the torsion apex pin or apply 80 lbf (356 N) of force to the axle.

(b) Make sure that the green light for the nose gear is on.

NOTE: The green light for the nose gear will stay on to show that the nose landing gear is in the down-and-locked position.

(c) Make sure that the red light for the nose gear is on.

NOTE: The red light for the nose gear will stay on to show that the landing gear control lever and landing gear positions disagree.

SUBTASK 32-35-00-700-004

(13) Release the nose gear manual extension handle.

SUBTASK 32-35-00-860-016

(14) Move the control lever for the landing gear to the DN position.

(a) Make sure that the red light for the nose gear is off.

SUBTASK 32-35-00-860-017

(15) Make sure that the manual extension access door is closed.

SUBTASK 32-35-00-730-005

**WARNING**

KEEP ALL PERSONNEL AND EQUIPMENT CLEAR OF THE AREA AROUND THE NOSE GEAR. THE MOVEMENT OF THE NOSE GEAR CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(16) Move the control lever for the landing gear to the UP position.

(a) Wait while the nose gear retracts.

SUBTASK 32-35-00-860-018

(17) Open the access door to the nose gear manual extension handle.

SUBTASK 32-35-00-820-003

(18) Attach a spring scale, STD-5505, to the nose gear manual extension handle.

SUBTASK 32-35-00-730-006

(19) Pull the nose gear manual extension handle.

(a) Make sure that the maximum load when you pull the nose gear manual extension handle is 40.0 lbf (177.9 N) or less.

1) Pull the nose gear manual extension handle up and forward when you measure the load.

NOTE: This will simulate a person in the First Officer's seat.



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2) Do not pull the nose gear manual extension handle directly up.

SUBTASK 32-35-00-700-005

(20) Make sure that the nose gear free falls to the down-and-locked position.

(a) While the nose landing gear is in free fall, the red light must be on, and the green light must be off.

NOTE: The red light for the nose gear will stay on to show that the landing gear control lever and the landing gear positions disagree.

(b) When the nose landing gear locks in the down position, the green light must be on, and the red light must stay on.

(c) If it is necessary, apply 115 lbf (512 N) of force to the torsion link apex pin.

NOTE: You can push or pull the torsion apex pin or apply 80 lbf (356 N) of force to the axle.

(d) Move the landing gear control lever to the DN position.

1) Make sure that the red light for the nose gear is off.

SUBTASK 32-35-00-080-003

(21) Remove the spring scale, STD-5505, from the nose gear manual extension handle.

SUBTASK 32-35-00-860-019

(22) Close the access door to nose gear manual extension handles.

SUBTASK 32-35-00-860-020

(23) Do an operational test of the nose landing gear release mechanism (TASK 32-33-00-710-802).

NOTE: The usual operation of the nose landing gear mechanism makes sure that the release roller of the nose gear manual extension system correctly resets to its retracted position.

(24) As an alternative, you can do the steps below to make sure that the release roller of nose landing gear manual extension system has reset to its retracted position:

(a) For the nose gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

(b) Open the access door to the nose gear manual extension handle.

(c) Pull the nose gear manual extension handle.

(d) It is necessary for one person to be in the nose landing gear wheel well.

(e) Release the nose gear manual extension handle.

1) Monitor the manual extension mechanism to make sure that the release roller correctly resets to its retracted position.

(f) Make sure that the nose gear manual extension handle goes back to the stowed position freely and smoothly.

SUBTASK 32-35-00-860-021

(25) Close the access door to the nose gear manual extension handle.

## H. Put the Airplane Back to its Usual Condition.

SUBTASK 32-35-00-480-004

(1) For the nose gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-35-00-860-022

(2) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.



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(a) Remove the deactuators from the Air/Ground proximity sensors.

SUBTASK 32-35-00-860-023

(3) Move the No. 1 and the No. 2 throttle levers to the idle (full aft) position.

SUBTASK 32-35-00-860-040

**WARNING**

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

**WARNING**

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(4) Remove the safety tag and close this circuit breaker:

**Power Distribution Panel Number 2, P92**

| Row | Col | Number | Name |
|---|---|---|---|
| F | 2 | C01449 | STANDBY HYDRAULIC PUMP |

SUBTASK 32-35-00-410-003

(5) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-35-00-860-024

(6) Remove the safety tags and close these circuit breakers:

**CAPT Electrical System Panel, P18-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 1 | C00523 | HEATERS CAPT PITOT |
| C | 2 | C00238 | HEATERS TEMP PROBE |
| C | 3 | C01072 | HEATERS ALPHA VANE LEFT |
| C | 7 | C01678 | WEATHER RADAR RT RIGHT |
| D | 3 | C01071 | HEATERS ALPHA VANE RIGHT |
| D | 5 | C00525 | HEATERS F/O PITOT |
| D | 6 | C00524 | HEATERS AUX PITOT |
| E | 4 | C00700 | HEATERS DRAIN MAST AIR |

**F/O Electrical System Panel, P6-1**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 13 | C00120 | WEATHER RADAR RT |

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |


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(Continued)

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |

**SUBTASK 32-35-00-200-002**

(7) Do this task: Proximity Switch Electronics Unit - Operational Test, TASK 32-09-10-740-801.

**SUBTASK 32-35-00-860-035**

(8) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-35-00-580-003**

(9) Do the applicable task to lower the airplane:

(a) Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802

(b) Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**——— END OF TASK ———**

**TASK 32-35-00-730-802**

## 4. Nose Gear Manual Extension System Test - Airplane Not on Jacks

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-5505 | Spring Scale |

### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |



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## D. Prepare for the Test

SUBTASK 32-35-00-480-010

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-35-00-860-027

(2) Make sure that the hydraulic power is off (TASK 29-11-00-860-805).

SUBTASK 32-35-00-860-028

(3) Make sure that the control lever for the landing gear is in the DN position.

## E. Procedure

SUBTASK 32-35-00-700-006

(1) Pull the nose gear manual extension handle.

(a) Make sure that the full travel of the nose gear manual extension handle is a minimum of 21.0 in. (533.4 mm) (Figure 501, View C).

SUBTASK 32-35-00-700-007

(2) Release the nose gear manual extension handle.

(a) Make sure that the nose gear manual extension handle goes back to the stowed position freely and smoothly.

SUBTASK 32-35-00-480-006

(3) Attach a spring scale, STD-5505, to the nose gear manual extension handle.

SUBTASK 32-35-00-730-007

(4) Pull the nose gear manual extension handle.

(a) Make sure that the load to start the nose gear manual extension handle from the seat is a minimum of 3.0 lbf (13.3 N) and a maximum of 7.0 lbf (31.1 N).

(b) Make sure that the load during the full travel of the nose gear manual extension handle is 15.0 lbf (66.7 N) or less.

1) Pull the nose gear manual extension handle up and forward when you measure the load.

NOTE: This will simulate a person in the First Officer's seat.

2) Do not pull the nose gear manual extension handle directly up.

(c) Make sure that the manual extension mechanism operates freely.

SUBTASK 32-35-00-080-004

(5) Remove the spring scale, STD-5505, from the nose gear manual extension handle.

SUBTASK 32-35-00-860-030

(6) Pull the nose gear manual extension handle.

(a) It is necessary for one person to be in the nose landing gear wheel well.

(7) Release the nose gear manual extension handle.

(a) Monitor the manual extension mechanism to make sure that the release roller correctly resets to its retracted position.


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(b) Make sure that the nose gear manual extension handle goes back to the stowed position freely and smoothly.

**SUBTASK 32-35-00-860-031**

(8) Close the access door to the nose gear manual extension handle.

**——— END OF TASK ———**



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## NOSE GEAR MANUAL EXTENSION RELEASE MECHANISM - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the manual extension release mechanism (referred to as the cable assembly [2]) for the nose landing gear.

(2) An installation of the manual extension release mechanism (referred to as the cable assembly [2]) for the nose landing gear.

**TASK 32-35-11-000-801**

### 2. Nose Gear Manual Extension Release Mechanism Removal

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 20-10-04-000-801 | Control Cable Air Seal Removal (P/B 401) |
| 53-21-00-000-801 | Passenger Cabin Floor Panel Removal (P/B 401) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**C. Manual Extension Release Mechanism Removal**

**SUBTASK 32-35-11-010-001**

(1) Remove the cabin floor panel, near body station 270, to get access to the turnbuckle (TASK 53-21-00-000-801).

**SUBTASK 32-35-11-010-002**

(2) Disconnect the MNGEA cable assembly [2] at the turnbuckle [1].

**SUBTASK 32-35-11-020-001**

(3) Remove the nut [5], washer [4], and bolt [3].

NOTE: This will let you move the pulley when you remove the MNGEA cable assembly [2] that is attached to the release mechanism [7].

**SUBTASK 32-35-11-020-002**

(4) Remove the washers [9] and bolts [8], which attach the release mechanism [7] to the wheel well ceiling.

**SUBTASK 32-35-11-020-003**

(5) Remove the release mechanism [7] from the wheel well ceiling.

**SUBTASK 32-35-11-020-004**

(6) Remove the seal [6] from the ceiling of the nose wheel well (TASK 20-10-04-000-801).

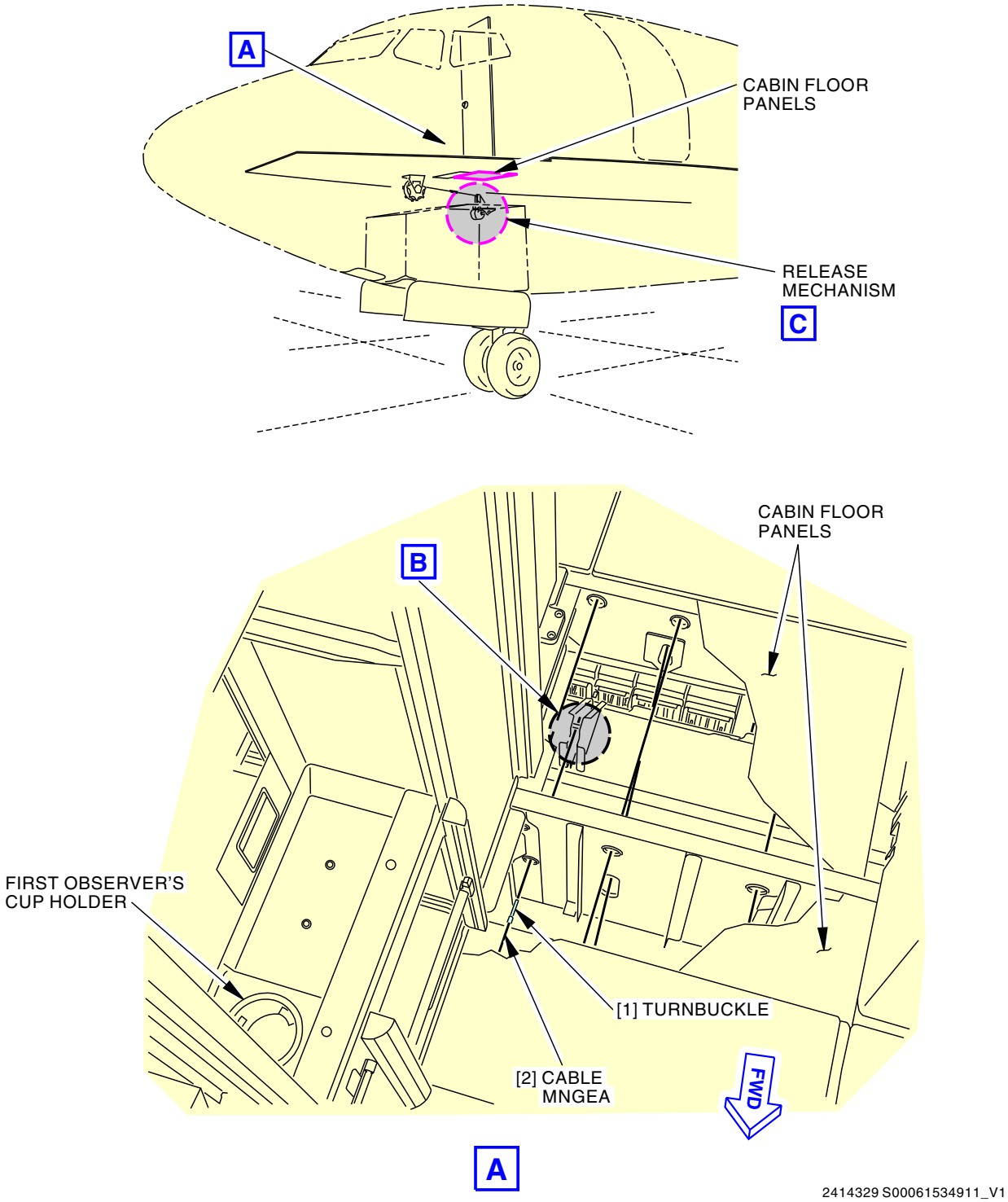
**SUBTASK 32-35-11-020-005**

(7) Remove the release mechanism [7], with the MNGEA cable assembly [2], from the airplane.

**END OF TASK**



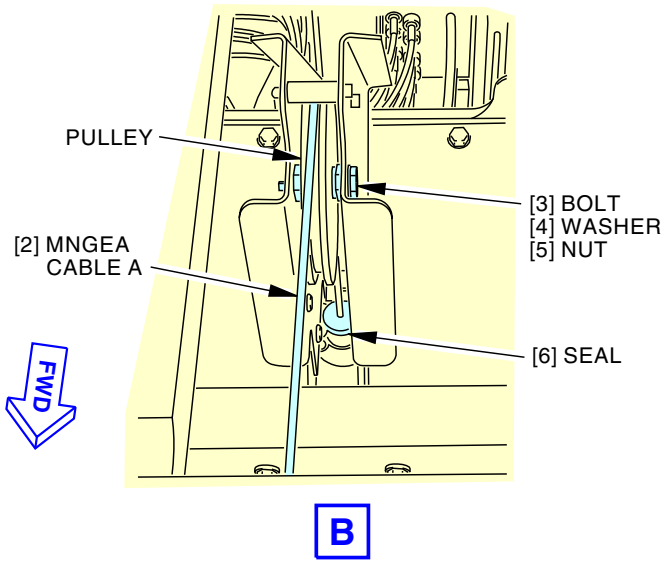
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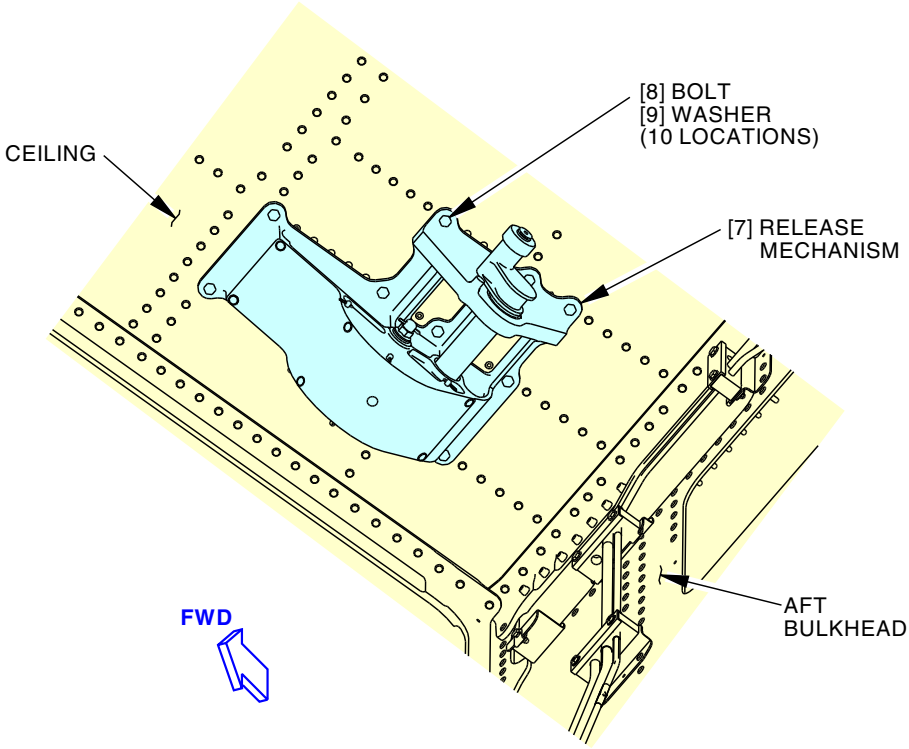

**Nose Landing Gear Manual Extension Release Mechanism Installation**
**Figure 401/32-35-11-990-801 (Sheet 1 of 2)**



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B




**(VIEW FROM NOSE LANDING GEAR WHEEL WHEEL)**

C

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**Nose Landing Gear Manual Extension Release Mechanism Installation**
**Figure 401/32-35-11-990-801 (Sheet 2 of 2)**



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**TASK 32-35-11-400-801**

## 3. Nose Gear Manual Extension Release Mechanism Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 20-10-04-400-801 | Control Cable Air Seal Installation (P/B 401) |
| 20-10-91-400-801 | Control Cables Installation (P/B 401) |
| 32-35-00-730-801 | Nose Gear Manual Extension System Test - Airplane on Jacks (P/B 501) |
| 32-35-00-820-801 | Nose Landing Gear Manual Extension System Adjustment (P/B 501) |
| 53-21-00-400-801 | Passenger Cabin Floor Panel Installation (P/B 401) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| C00174 | Compound - Corrosion Preventive, Solvent Cutback, Cold Application | MIL-PRF-16173 (Supersedes MIL-C-16173) |
| C00528 | Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film) | MIL-C-11796 Class III |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 7 | Release mechanism | 32-35-11-01-290 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### E. Manual Extension Release Mechanism Installation

**SUBTASK 32-35-11-100-001**

(1) Clean the surface where the release mechanism [7] will contact the ceiling of the nose wheel well.

**SUBTASK 32-35-11-600-001**

(2) Apply sealant, A00247, to the entire top surface of the release mechanism [7] to fay seal where it will contact the ceiling of the nose wheel well.

**SUBTASK 32-35-11-420-001**

(3) Install the MNGEA cable assembly [2] (TASK 20-10-91-400-801).

NOTE: The turnbuckle [1] is located at approximately body station 270.

(a) Apply a thin layer of compound, C00174, or compound, C00528, to the threads on the internal and external surfaces of the mating adjustable parts on the turnbuckle [1].

**SUBTASK 32-35-11-420-002**

(4) Install the bolt [3], washer [4], and nut [5] to attach the pulley, with the MNGEA cable assembly [2] installed, to the bracket.



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SUBTASK 32-35-11-420-003

(5) Install the seal [6] on the ceiling of the nose wheel well (TASK 20-10-04-400-801).

SUBTASK 32-35-11-420-004

(6) Put the release mechanism [7] in its position on the wheel well ceiling.

SUBTASK 32-35-11-600-002

(7) Apply sealant, A00247, to the bolts [8] and washers [9].

SUBTASK 32-35-11-420-005

(8) Install the bolts [8] and washers [9] to attach the release mechanism [7] to the wheel well ceiling.

SUBTASK 32-35-11-420-006

(9) Connect the MNGEA cable assembly [2] at the turnbuckle [1].

SUBTASK 32-35-11-410-001

(10) Install the passenger cabin floor panel near body station 270 (TASK 53-21-00-400-801).

SUBTASK 32-35-11-820-001

(11) Do this task: Nose Landing Gear Manual Extension System Adjustment, TASK 32-35-00-820-801.

## F. Manual Extension Release Mechanism Installation Test

SUBTASK 32-35-11-710-001

(1) Do a test on the manual extension system (TASK 32-35-00-730-801).

**——— END OF TASK ———**



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## NOSE GEAR MANUAL EXTENSION SPRING - REMOVAL/INSTALLATION

### 1. General

A. This procedure these tasks:

(1) Removal of the nose landing gear manual extension spring.

(2) Installation of the nose landing gear manual extension spring.

**TASK 32-35-20-000-801**

### 2. Nose Gear Manual Extension Spring Removal

(Figure 401)

#### A. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

#### B. Manual Extension Spring Removal

**SUBTASK 32-35-20-010-001**

(1) Remove screws [3] and cover [2] from the housing assembly [1].

**SUBTASK 32-35-20-000-001**

(2) Remove cotter pins [4], washers [5] and guard pins [6] from the housing assembly [1].

**SUBTASK 32-35-20-000-002**

(3) Pull the arm [9] away from the cam assembly [8] to remove the spring [7] preload.

**SUBTASK 32-35-20-000-003**

(4) Remove the cotter pin [10], pin [11], washer [12], and spacer [13].

**SUBTASK 32-35-20-000-004**

(5) Remove the cotter pin [14], nut [15], washer [16], and bolt [17].

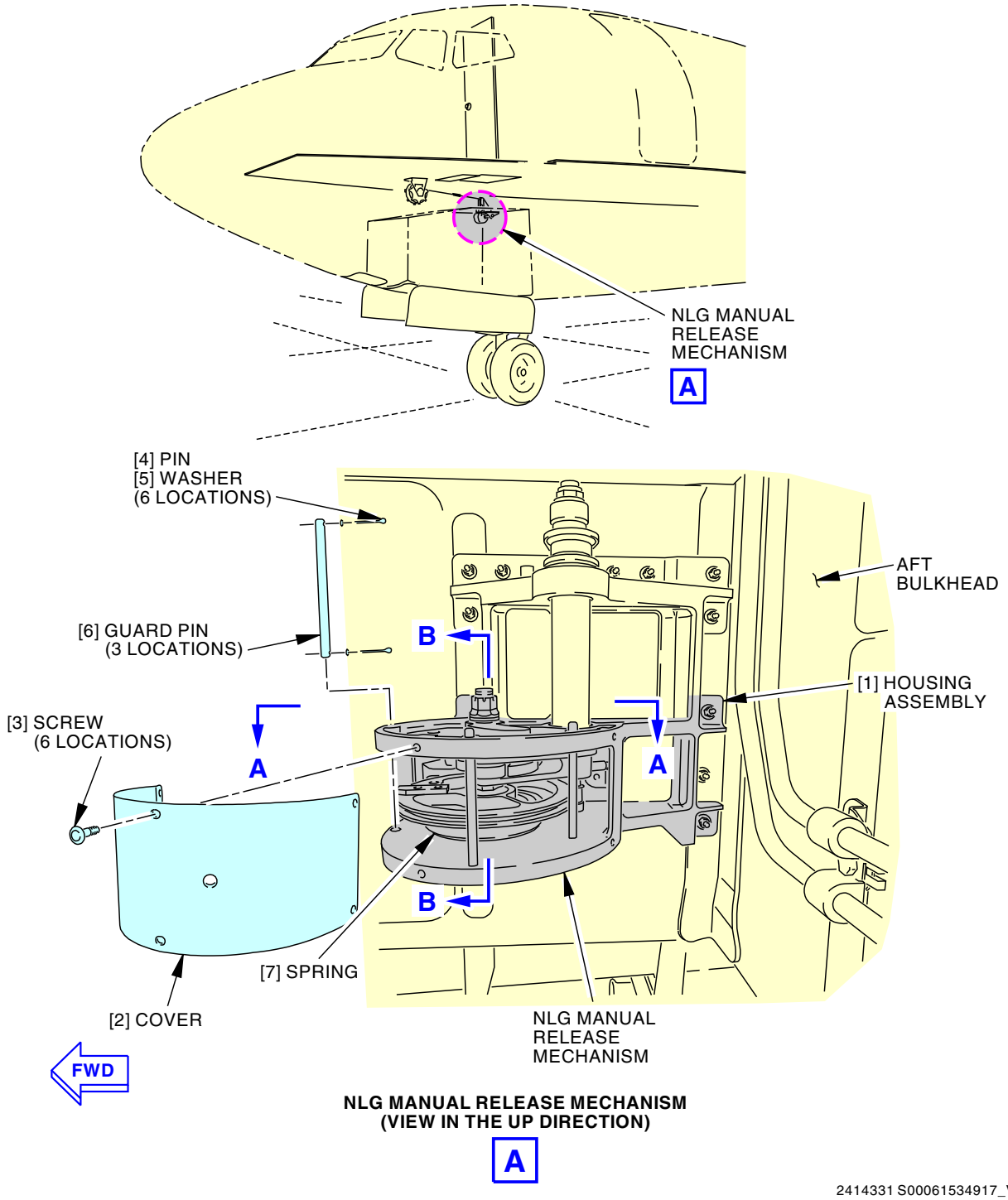
**SUBTASK 32-35-20-020-001**

(6) Remove the cam assembly [8] with the spring [7].

**——— END OF TASK ———**



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**NLG MANUAL RELEASE MECHANISM**
**(VIEW IN THE UP DIRECTION)**

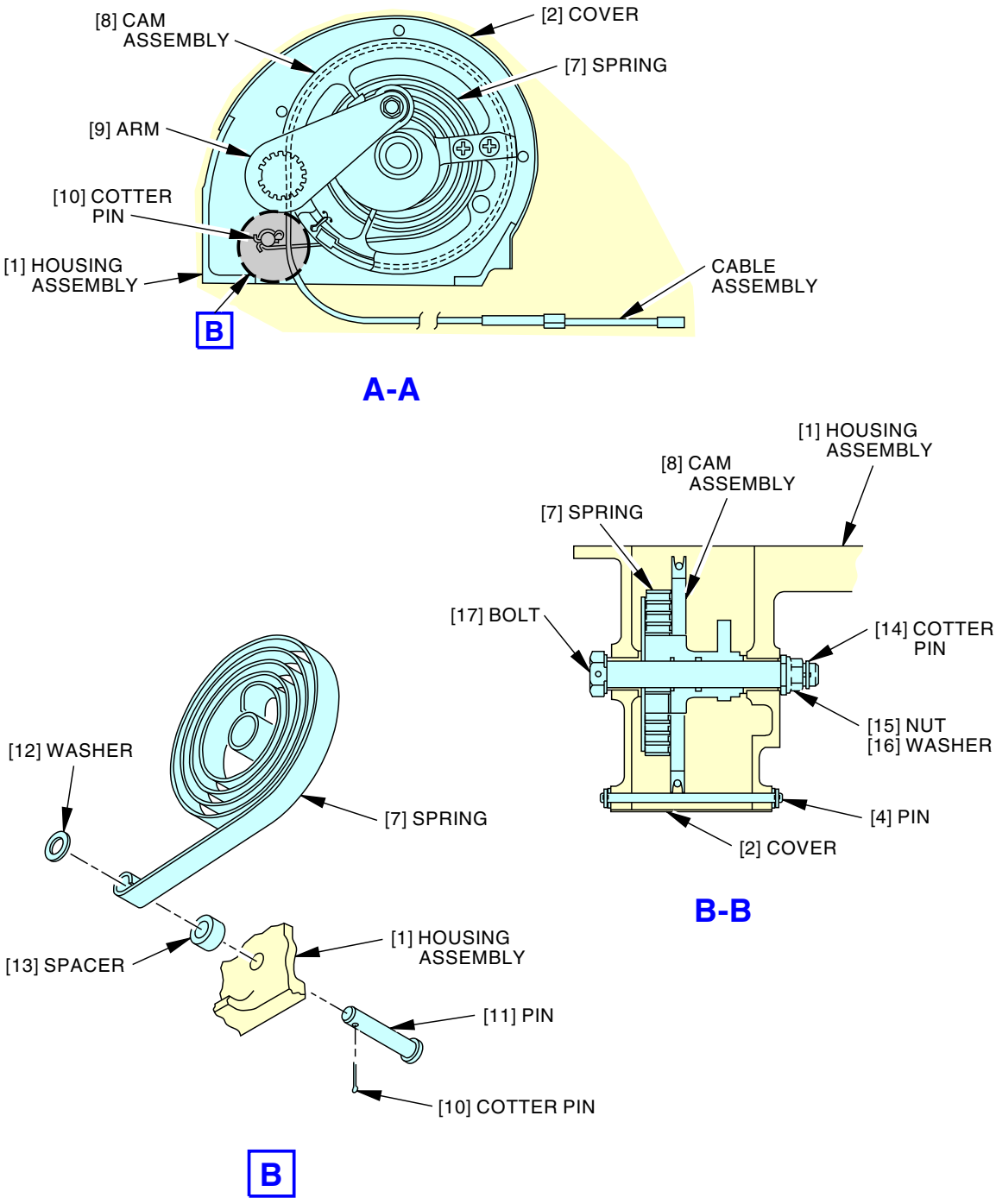
A

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**Nose Gear Manual Extension Spring - Removal/Installation**
**Figure 401/32-35-20-990-801 (Sheet 1 of 2)**



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**Nose Gear Manual Extension Spring - Removal/Installation**
**Figure 401/32-35-20-990-801 (Sheet 2 of 2)**



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**TASK 32-35-20-400-801**

## 3. Nose Gear Manual Extension Spring Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 32-35-00-730-801 | Nose Gear Manual Extension System Test - Airplane on Jacks (P/B 501) |
| 32-35-00-730-802 | Nose Gear Manual Extension System Test - Airplane Not on Jacks (P/B 501) |

### B. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Pin | 32-35-11-01-045 | SIA ALL |
| 7 | Spring | 32-35-11-01-105 | SIA ALL |
| 10 | Cotter pin | 32-35-11-01-080 | SIA ALL |

### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### D. Nose Gear Manual Extension Spring Installation

**SUBTASK 32-35-20-420-001**

(1) Install the cam assembly [8] with the spring [7] into the housing assembly [1].

**SUBTASK 32-35-20-400-001**

(2) Install the bolt [17], washer [16], nut [15], and the cotter pin [14].

**SUBTASK 32-35-20-400-002**

(3) Install one end of the spring [7] onto the housing assembly [1] with the pin [11], spacer [13], washer [12], and the new cotter pin [10].

**SUBTASK 32-35-20-400-003**

(4) Install the guard pins [6], washers [5], and the new cotter pins [4] onto the housing assembly [1].

**SUBTASK 32-35-20-700-001**

(5) Do a check of the spring [7]:

(a) Make sure that the full range of motion is possible when you pull the cable.

(b) Make sure that the spring [7] is not solid when the cable is fully pulled out.

(c) Make sure that the spring [7] fully returns the cam to the initial position when the cable is released.

**SUBTASK 32-35-20-410-001**

(6) Install the cover [2] with the screws [3] onto the housing assembly [1].

### E. Nose Gear Manual Extension Spring Installation Test

**SUBTASK 32-35-20-700-002**

(1) Do one of these tests of the nose landing gear manual release mechanism:

(a) Nose Gear Manual Extension System Test - Airplane on Jacks, TASK 32-35-00-730-801,



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(b) Nose Gear Manual Extension System Test - Airplane Not on Jacks, TASK 32-35-00-730-802.

**——— END OF TASK ———**



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## NOSE GEAR MANUAL EXTENSION SYSTEM CABLES - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the manual extension system cables for the nose landing gear

(2) Installation of the manual extension system cables for the nose landing gear.

**TASK 32-35-21-000-801**

### 2. Nose Gear Manual Extension System Cables Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 20-10-04-000-801 | Control Cable Air Seal Removal (P/B 401) |
| 20-10-91-000-801 | Control Cables Removal (P/B 401) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-21-00-000-801 | Passenger Cabin Floor Panel Removal (P/B 401) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 220 | Subzone - Passenger Compartment - Body Station 259.50 to 360.00 |

#### C. Access Panels

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

#### D. Manual Extension Cable Removal

**SUBTASK 32-35-21-010-001**

(1) Remove the cabin floor panel [1] to get access to the pulley on the Nose Landing Gear (NLG) manual release mechanism (TASK 53-21-00-000-801).

**SUBTASK 32-35-21-010-002**

(2) Remove the flight deck floor panel [18] to get access to the turnbuckle [2].

**SUBTASK 32-35-21-020-001**

(3) Disconnect the MNGEA cable B [16] and the MNGEA cable A [3] at the turnbuckle [2].

**SUBTASK 32-35-21-020-002**

(4) Remove the nut [6], washers [5], and bolt [4] that attach the pulley for the MNGEA cable A [3] to the bracket.

**SUBTASK 32-35-21-010-003**

(5) Remove this access panel from the ceiling of the nose wheel well:

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

(a) Do this task: Nose Wheel Well Access Panels Removal, TASK 53-14-01-020-801.



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SUBTASK 32-35-21-020-003

(6) Remove the pin [15] to disconnect the nose gear manual extension handle cable from the MNGEA control drum on the manual extension control mechanism.

SUBTASK 32-35-21-020-004

(7) Open the manual extension access door and remove the nose gear manual extension handle [14].

NOTE: The nose gear manual extension handle [14] includes the nose gear manual extension handle and cable.

SUBTASK 32-35-21-020-008

(8) Remove six bolts [20], washers [21], spacers [22], washers [23] and nuts [24] to get access to the MNGEA control drum.

SUBTASK 32-35-21-020-005

(9) Remove the cable retainer bolt [17] and disconnect the MNGEA cable B [16] from the MNGEA control drum on the manual extension control mechanism.

SUBTASK 32-35-21-010-004

(10) Remove the screws [10] and the cover [9] from the NLG manual release mechanism.

SUBTASK 32-35-21-010-005

(11) Remove the pins [12], washers [13], and guide pins [11] from the NLG manual release mechanism to give clearance for cable removal.

SUBTASK 32-35-21-020-006

(12) Remove the pressure seal [7] on the ceiling of the nose wheel well (TASK 20-10-04-000-801).

SUBTASK 32-35-21-020-007

(13) Remove the pin [8] and disconnect the MNGEA cable A [3] from the quadrant on the NLG manual release mechanism.

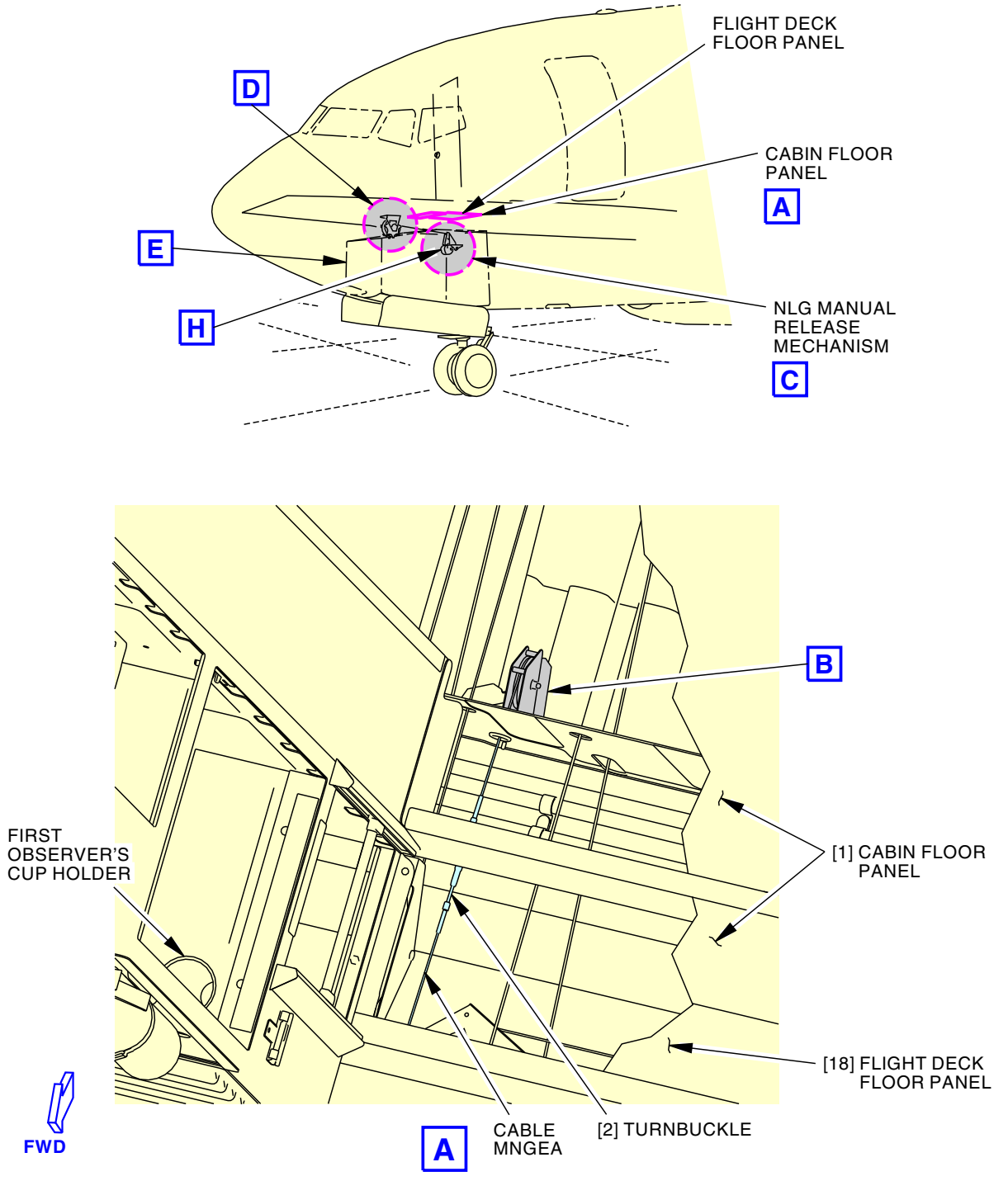
SUBTASK 32-35-21-000-001

(14) Remove the MNGEA cable B [16] (TASK 20-10-91-000-801).

——— END OF TASK ———



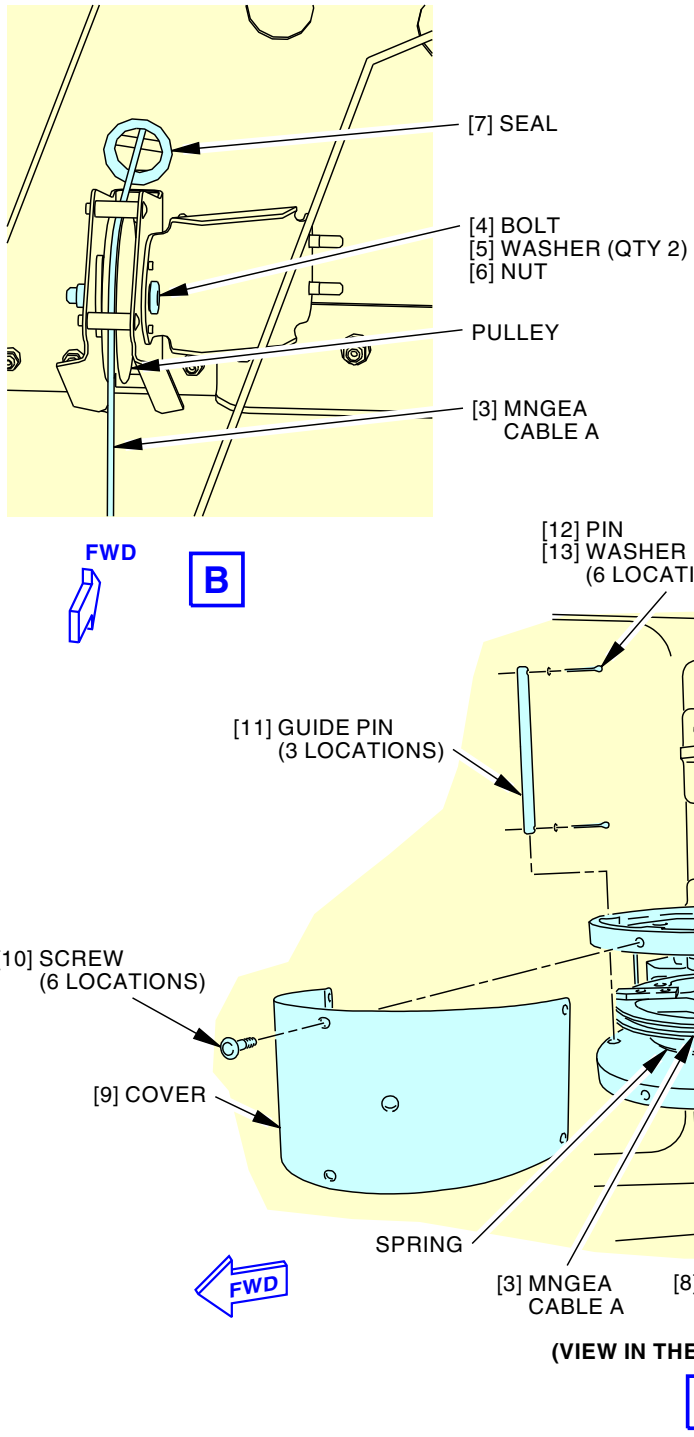
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Manual Extension System Cable Installation**
**Figure 401/32-35-21-990-801 (Sheet 1 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

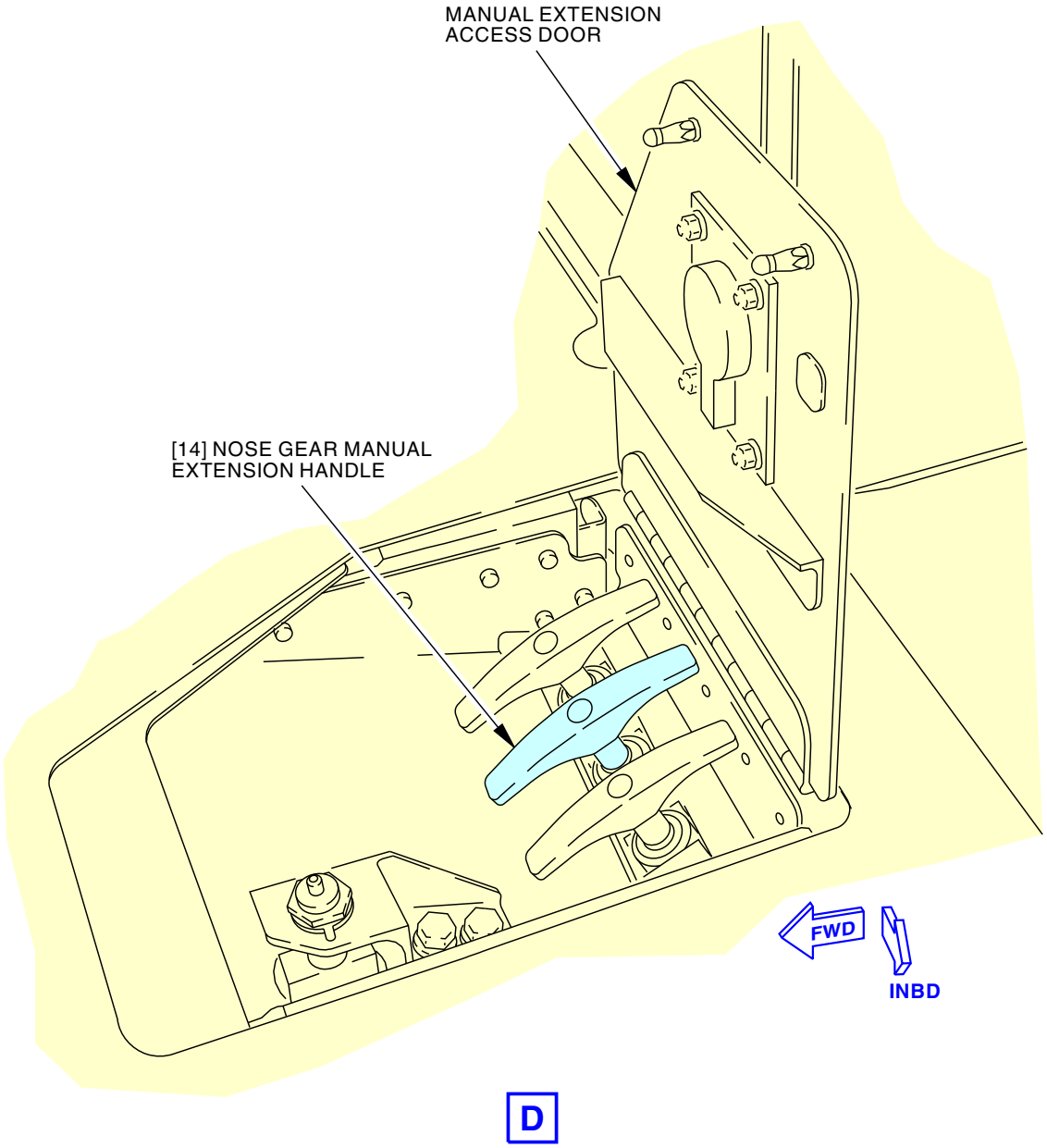



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**Nose Gear Manual Extension System Cable Installation**
**Figure 401/32-35-21-990-801 (Sheet 2 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

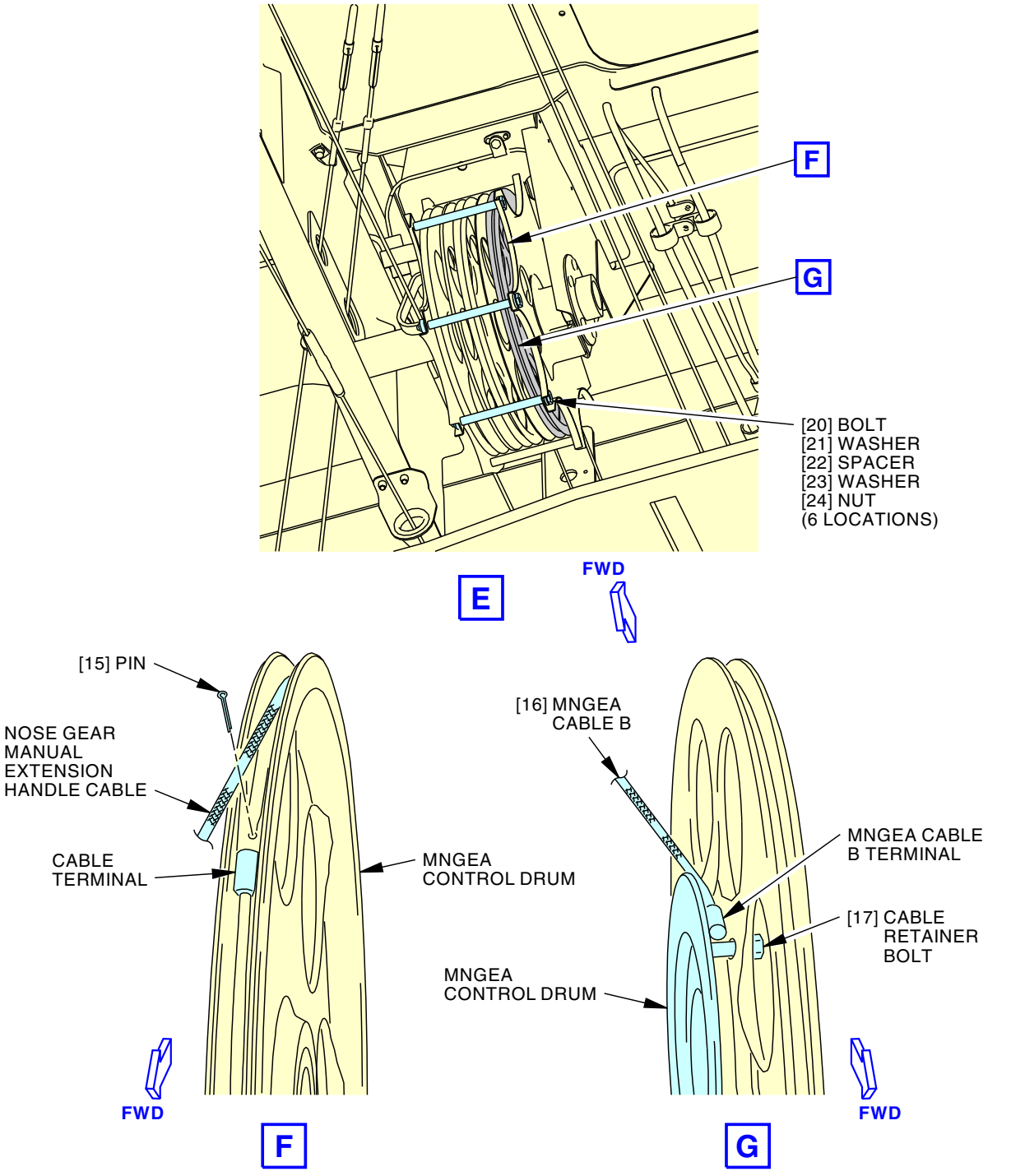



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**Nose Gear Manual Extension System Cable Installation**
**Figure 401/32-35-21-990-801 (Sheet 3 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Manual Extension System Cable Installation**
**Figure 401/32-35-21-990-801 (Sheet 4 of 6)**



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**CABLES A AND B**

| CABLE NAME | FUNCTION | NO. REQ | LENGTH (INCHES) | CABLE SIZE | FITTINGS | |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| A | MNGEA | 1 | 30.2 | 3/32 7x7 | BACT14A3 | MS21260S3(RH) |
| B | MNGEA | 1 | 21.7 | 3/32 7x7 | BACT14A3 | MS21260S3(LH) |

MATERIAL: CABLE A - C0RROSION RESISTANT STEEL PER BMS 7-265, TYPE I, COMPOSITION B

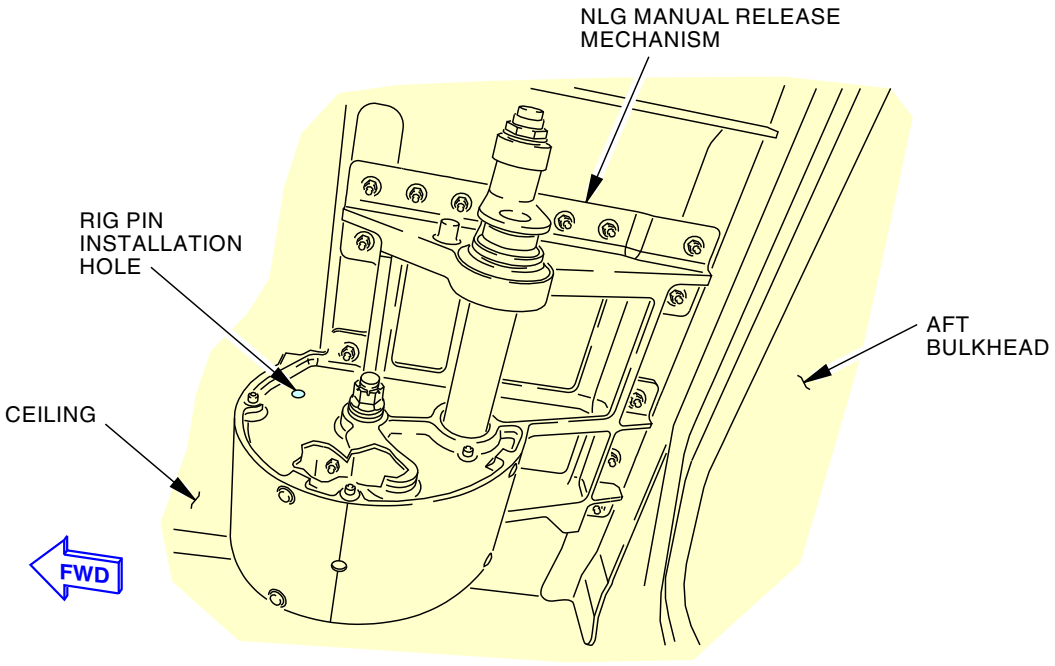
CABLE B - CARBON STEEL PER BMS 7-265, TYPE I, COMPOSITION A (TIN OVER ZINC)

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**Nose Gear Manual Extension System Cable Installation**
**Figure 401/32-35-21-990-801 (Sheet 5 of 6)**



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**(VIEW FROM NOSE LANDING GEAR WHEEL WHEEL)**

H

2411033 S00061526772_V1

**Nose Gear Manual Extension System Cable Installation**
**Figure 401/32-35-21-990-801 (Sheet 6 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-35-21-400-801**

**3. Nose Gear Manual Extension System Cables Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 20-10-04-400-801 | Control Cable Air Seal Installation (P/B 401) |
| 20-10-91-400-801 | Control Cables Installation (P/B 401) |
| 32-35-00-730-801 | Nose Gear Manual Extension System Test - Airplane on Jacks (P/B 501) |
| 32-35-00-820-801 | Nose Landing Gear Manual Extension System Adjustment (P/B 501) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |
| 53-21-00-400-801 | Passenger Cabin Floor Panel Installation (P/B 401) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1553 | Tensiometer - Cable, Low Tension (200 lbs and below)<br>Part #: 102-03108 Supplier: 21844<br>Part #: 102-03120 Supplier: 21844<br>Part #: ACM-200 Supplier: 13331<br>Part #: ACX-250-1 Supplier: 13331<br>Part #: T60-1001-C8-1A Supplier: 0N8U4 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| C00174 | Compound - Corrosion Preventive, Solvent Cutback, Cold Application | MIL-PRF-16173 (Supersedes MIL-C-16173) |
| C00528 | Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film) | MIL-C-11796 Class III |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | MNGEA cable A | 32-35-11-01-040 | SIA ALL |
| 8 | Pin | 32-35-11-01-035 | SIA ALL |
| 12 | Pin | 32-35-11-01-045 | SIA ALL |
| 16 | MNGEA cable B | 32-34-31-01-035 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 220 | Subzone - Passenger Compartment - Body Station 259.50 to 360.00 |

**F. Access Panels**

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

**G. Nose Gear Manual Extension System Cables Installation**

SUBTASK 32-35-21-420-001

(1) Install the MNGEA cable B [16] (TASK 20-10-91-400-801).

NOTE: The turnbuckle [2] is located at approximately body station 270.

SUBTASK 32-35-21-420-002

(2) Apply a thin layer of compound, C00174, or compound, C00528, to the threads on the internal and external surfaces of the mating adjustable parts on the turnbuckle [2].

SUBTASK 32-35-21-420-003

(3) Install the bolt [4], washers [5] and nut [6] to attach the pulley, with the MNGEA cable A [3] installed, to the bracket.

SUBTASK 32-35-21-480-001

(4) Install the rig pin LGEA1 from rigging pin kit, SPL-1585, in the NLG manual release mechanism.

SUBTASK 32-35-21-420-004

(5) Install the MNGEA cable A [3] on the quadrant on the NLG manual release mechanism.

(a) Install the new cotter pin [8] to attach the MNGEA cable A [3] to the quadrant.

SUBTASK 32-35-21-420-005

(6) Install the pressure seal [7] on the ceiling of the nose wheel well (TASK 20-10-04-400-801).

SUBTASK 32-35-21-410-001

(7) Install the guide pins [11], washers [13], and new cotter pins [12] on the NLG manual release mechanism.

SUBTASK 32-35-21-410-002

(8) Install the screws [10] and the cover [9] on the NLG manual release mechanism.

SUBTASK 32-35-21-420-006

(9) Attach the MNGEA cable B [16] on the MNGEA control drum on the manual extension control mechanism.

(a) Install the cable retainer bolt [17] that connects the MNGEA cable B [16] to the MNGEA control drum on the manual extension control mechanism.

SUBTASK 32-35-21-420-009

(10) Install the six bolts [20], washers [21], spacers [22], washers [23], and nuts [24].

SUBTASK 32-35-21-420-007

(11) Put the terminal end of the nose gear manual extension handle [14] through the hole in the V-slot on the MNGEA control drum.

(a) Attach the nose gear manual extension cable on the MNGEA control drum of the manual extension control mechanism and install the pin [15].



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(b) Bend one end of the pin [15] into the MNGEA control drum.

SUBTASK 32-35-21-420-008

(12) Connect the MNGEA cable A [3] and the MNGEA cable B [16] at the turnbuckle [2]t.

SUBTASK 32-35-21-820-001

(13) Use the low tension cable tensiometer, COM-1553, to adjust the tension in the MNGEA cable to 100 lbf (444.8 N).

(a) Make sure there are an equal number of each MNGEA cable threaded ends engaged in the turnbuckle [2].

(b) Hold this tension for a minimum of 3 minutes.

SUBTASK 32-35-21-820-002

(14) Reduce the tension in the MNGEA cable until you can easily remove the rig pin LGEA1 from rigging pin kit, SPL-1585, from the NLG manual release mechanism.

SUBTASK 32-35-21-080-001

(15) Remove the rig pin LGEA1 from rigging pin kit, SPL-1585, from the NLG manual release mechanism.

SUBTASK 32-35-21-820-003

(16) Do this task: Nose Landing Gear Manual Extension System Adjustment, TASK 32-35-00-820-801.

## H. Nose Gear Manual Extension System Cables Installation Test

SUBTASK 32-35-21-710-001

(1) Do a test on the manual extension system for the nose landing gear (TASK 32-35-00-730-801).

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-35-21-410-003

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 114AC | Fwd Nose Wheel Well Upper Access Panel |

(a) Do this task: Nose Wheel Well Access Panels Installation, TASK 53-14-01-420-801.

SUBTASK 32-35-21-410-004

(2) Install the flight deck floor panel [18].

SUBTASK 32-35-21-410-005

(3) Install the cabin floor panel [1] at approximately body station 270 (TASK 53-21-00-400-801).

——— END OF TASK ———



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## HYDRAULIC BRAKE SYSTEM - MAINTENANCE PRACTICES

### 1. General

A. This procedure has these tasks:

(1) Bleed the brake system upstream of the antiskid valves.

NOTE: Use this procedure when a brake system component upstream of the antiskid valves is removed or replaced. This procedure will not remove the air that may be in the system downstream of the antiskid valves.

(2) Bleed the normal (System B) hydraulic brake system.

NOTE: Use this procedure when an antiskid valve, or a component downstream of an antiskid valve in the normal brake system is removed or replaced. This procedure can also be used if there are signs of air in the brake system. This will be shown by slow brake response or chattering.

(3) Bleed the alternate (System A) hydraulic brake system.

NOTE: Use this procedure when an antiskid valve, or a component downstream of an antiskid valve in the alternate brake system is removed or replaced. This procedure can also be used in there are signs of air in the brake system. This will be shown by slow brake response or chattering.

(4) Test of the normal hydraulic system brake fuses (System B).

(5) Test of the alternate hydraulic system brake fuses (System A).

B. It is not usually necessary to bleed the brakes during a routine brake replacement since the hydraulic disconnect fitting at the brake prevents air from getting into the brakes.

C. When you bleed the hydraulic systems, the hydraulic fuses can set. You can reset the fuses one of these two ways:

(1) You can use the fuse bypass lever on each fuse to reset the fuse.

(2) Or, you can release and reset the parking brake to reset the fuse.

**TASK 32-41-00-870-801**

### 2. Hydraulic Brake System Upstream of the Antiskid Valves Bleeding

#### A. General

(1) This task has instructions to bleed the brake system upstream of the antiskid valves. When the system is bled, the air in the brake lines or a component of the brake system is sent through the brake metering valves to the hydraulic reservoir by the return lines.

#### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 24-22-00-860-801 | Supply Electrical Power (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

(Continued)

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## D. Prepare for the Bleeding

SUBTASK 32-41-00-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-41-00-480-002

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 32-41-00-790-001

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) For the normal (System B) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-41-00-480-003

(4) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-00-860-001

(5) Release the parking brake.

## E. Hydraulic Brake System Upstream of the Antiskid Valves Bleeding

SUBTASK 32-41-00-840-001

(1) Do the steps that follow to bleed the normal brake system through the normal brake metering valves to return:

(a) Push the brake pedals slowly through approximately one-half of their total travel and slowly release them.

1) Repeat this step several times.

(b) Push both of the brake pedals fully to the stops and hold them there for 2 to 4 seconds and then release them.

1) Repeat this step five more times.

(c) Make sure the brakes apply when you push on the brakes.

(d) Push the brake pedals fully to the stops and set the parking brake.

SUBTASK 32-41-00-860-002

(2) For the normal (System B) hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-41-00-790-002

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) For the alternate (System A) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-41-00-840-002

(4) Do the steps that follow to bleed the alternate brake system through the alternate brake metering valves to return:

(a) Push the brake pedals slowly through approximately one-half of their total travel and slowly release them.

1) Repeat this step several times.

(b) Push both of the brake pedals fully to the stops and hold them there for 2 to 4 seconds and then release them.

1) Repeat this step five more times.

(c) Make sure the brakes apply when you push on the brakes.

(d) Push the brake pedals fully to the stops and set the parking brake.

## F. Put the Airplane Back to Its Usual Condition

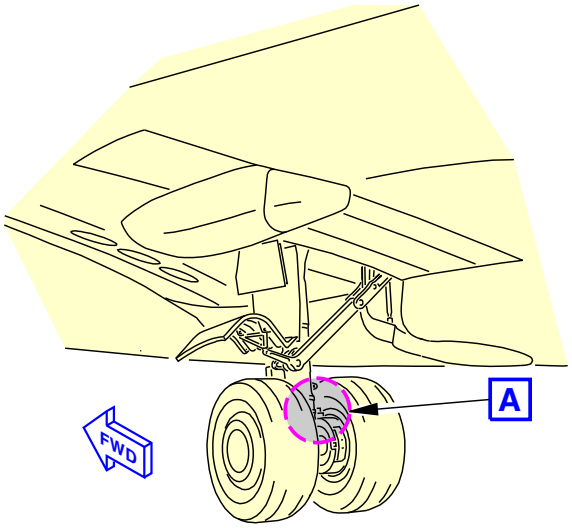
SUBTASK 32-41-00-860-003

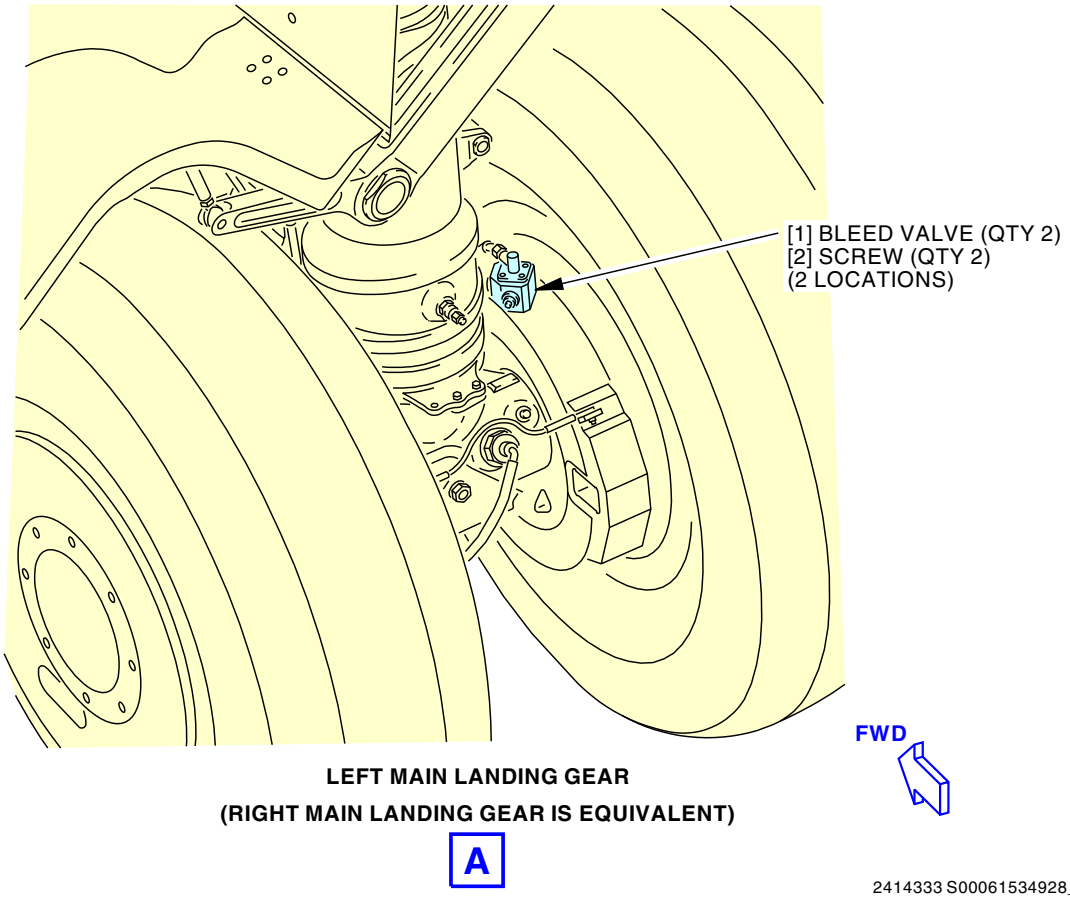
(1) For the alternate (System A) hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——— END OF TASK ———



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**LEFT MAIN LANDING GEAR**

**(RIGHT MAIN LANDING GEAR IS EQUIVALENT)**

**A**

2414333 S00061534928_V1

**Brake Hydro-Mechanical Control System - Bleeding**
**Figure 201/32-41-00-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-41-00-870-802**

## 3. Normal (System B) Hydraulic Brake System Bleeding

(Figure 201, Figure 202)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-15035 | Bleeder Hose, Brake<br>Part #: J29006-1 Supplier: 81205<br>Opt Part #: J32096-1 Supplier: 81205 |
| STD-1055 | Container - Oil Resistant, 5 Gallon (19 Liter) |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Procedure

**SUBTASK 32-41-00-480-004**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-00-480-005**

(2) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-00-860-004**

(3) Release the parking brake.

### E. Normal (System B) Hydraulic Brake System Bleeding

**SUBTASK 32-41-00-710-001**

(1) To prepare to bleed the normal (System B) hydraulic brake system, do these steps:



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**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Use the hydraulic service cart to pressurize the normal (System B) hydraulic system to 800 psig (5516 kPa) (TASK 29-11-00-860-801).

NOTE: It is recommended that you use the hydraulic service cart because of the large volume of hydraulic fluid this procedure removes from the normal hydraulic system.

NOTE: If you use the airplane's hydraulic supply, monitor the quantity of hydraulic fluid in the reservoir when you bleed the system.

(b) Push the brake pedals slowly through approximately one-half of their total travel and slowly release them.

1) Repeat this step several times to remove the air from the brake lines upstream of the antiskid valves.

(c) Push the two brake pedals fully to the stops and hold them there for 2 to 4 seconds and then release them.

1) Repeat this step five more times.

(d) Push the brake pedals fully to the stops and set the parking brake.

**SUBTASK 32-41-00-710-002**

(2) To bleed the air from each brake, do these steps for all four brakes (Figure 201):

NOTE: It is recommended that you do all of the steps below for one brake before you start the steps again for the next brake.

NOTE: There are two bleed valves [1] on each brake, use the bleed valve [1] to which you can get easy access.

(a) Remove the screw [2] and washer from the center of the bleed valve [1].

(b) If it is installed, remove the lockwire from the bleed valve [1].

(c) Install the bleeder hose, SPL-15035, on the end of the bleed valve [1].

(d) Put the free end of the bleeder hose, SPL-15035, into an oil resistant container (5 gal)(19 Liter), STD-1055.

(e) Slowly loosen the bleed valve [1] approximately one half turn.

NOTE: This will let hydraulic fluid flow out of the bleeder hose, SPL-15035.

(f) Let hydraulic fluid flow out of the bleeder hose, SPL-15035, until there are no air bubbles in the flow of hydraulic fluid.

NOTE: The fluid can flow out of the hose very quickly and intermittently.

(g) If the fluid flow stops (the brake fuse has set), do the steps that follow to reset the brake fuse:

1) Close the bleed valve [1].

2) Do one of the steps that follow to reset the brake fuse:

a) On the normal system brake fuse for the brake being bled, pull the fuse bypass lever and hold it in this bypass position for five seconds minimum (Figure 201).



ECCN 9E991 BOEING PROPRIETARY - See title page for details

b) Or, release the parking brake until the brake fuse resets, then reset the parking brake.

(h) Open the bleed valve [1] and continue to bleed the brake until there are no air bubbles in the flow of hydraulic fluid.

(i) If you will not bleed the alternate (System A) hydraulic system, do the steps that follow:

1) Remove the bleeder hose, SPL-15035, from the bleed valve [1].

2) Torque the bleed valve [1] to 54.17 in-lb (6.12 N·m) - 66.21 in-lb (7.48 N·m).

3) Install the washer and the screw [2] in the center of the bleed valve [1].

4) If previously installed, install a lockwire on the bleed valve [1].

**SUBTASK 32-41-00-870-001**

(3) Release the brake pedals or the parking brake if it is set.

**SUBTASK 32-41-00-870-002**

(4) Make sure all of the normal (System B) hydraulic fuses are not set:

(a) Operate the brake pedals several times.

(b) Look for movement of the brake wear indicator pins to make sure all of the brakes operate.

**SUBTASK 32-41-00-860-005**

(5) Remove the external hydraulic pressure for the normal (System B) hydraulic system (TASK 29-11-00-860-805).

**SUBTASK 32-41-00-870-003**

(6) Make sure the fluid in the normal (System B) hydraulic reservoir is at the correct level (TASK 12-12-00-610-801).

(a) If the normal (System B) hydraulic reservoir needs to be filled, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

## F. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-41-00-870-004**

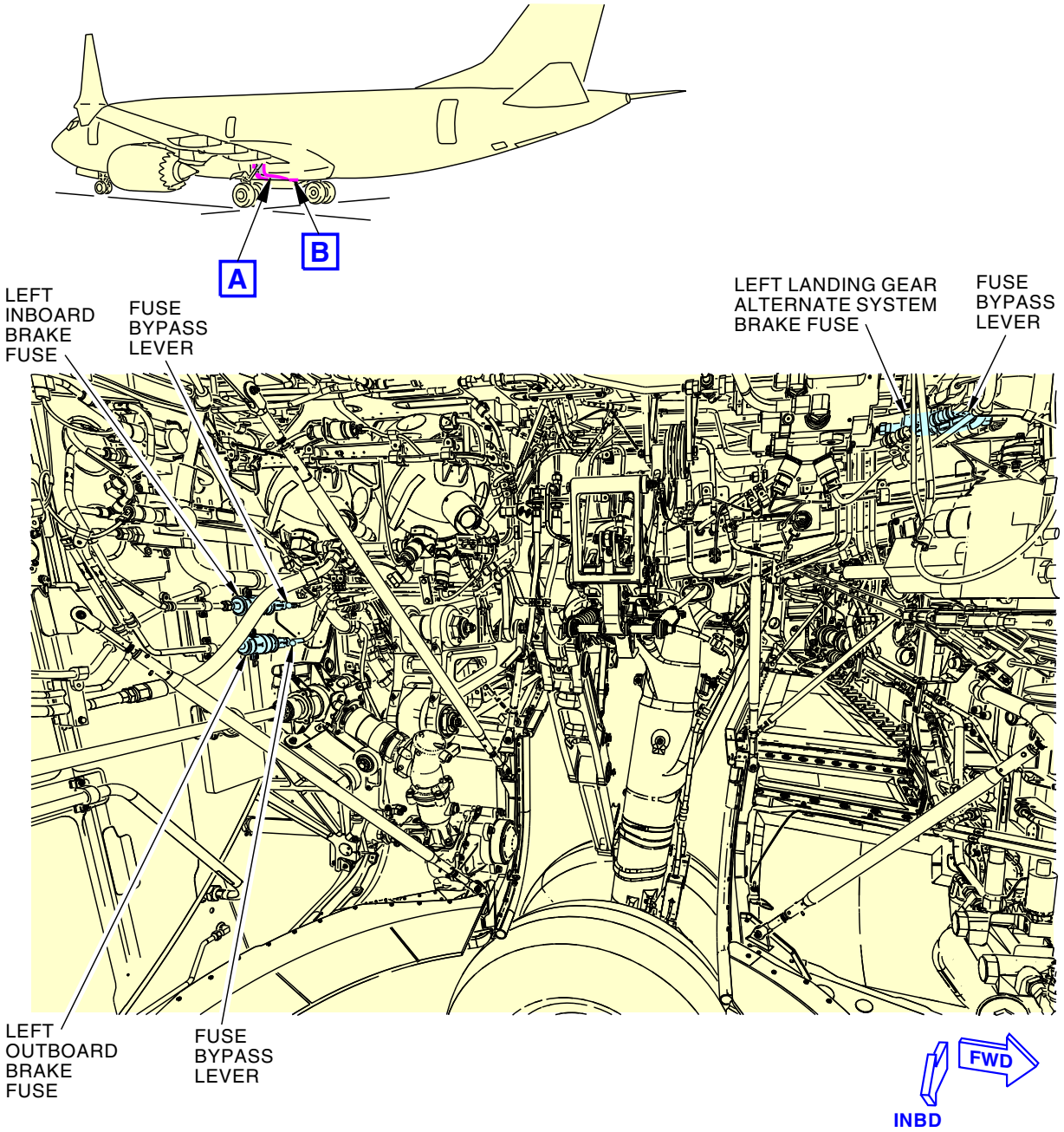
(1) Make sure the fluid in the normal (System B) hydraulic reservoir is at the correct level (TASK 12-12-00-610-801).

(a) If the normal (System B) hydraulic reservoir needs to be filled, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE)**

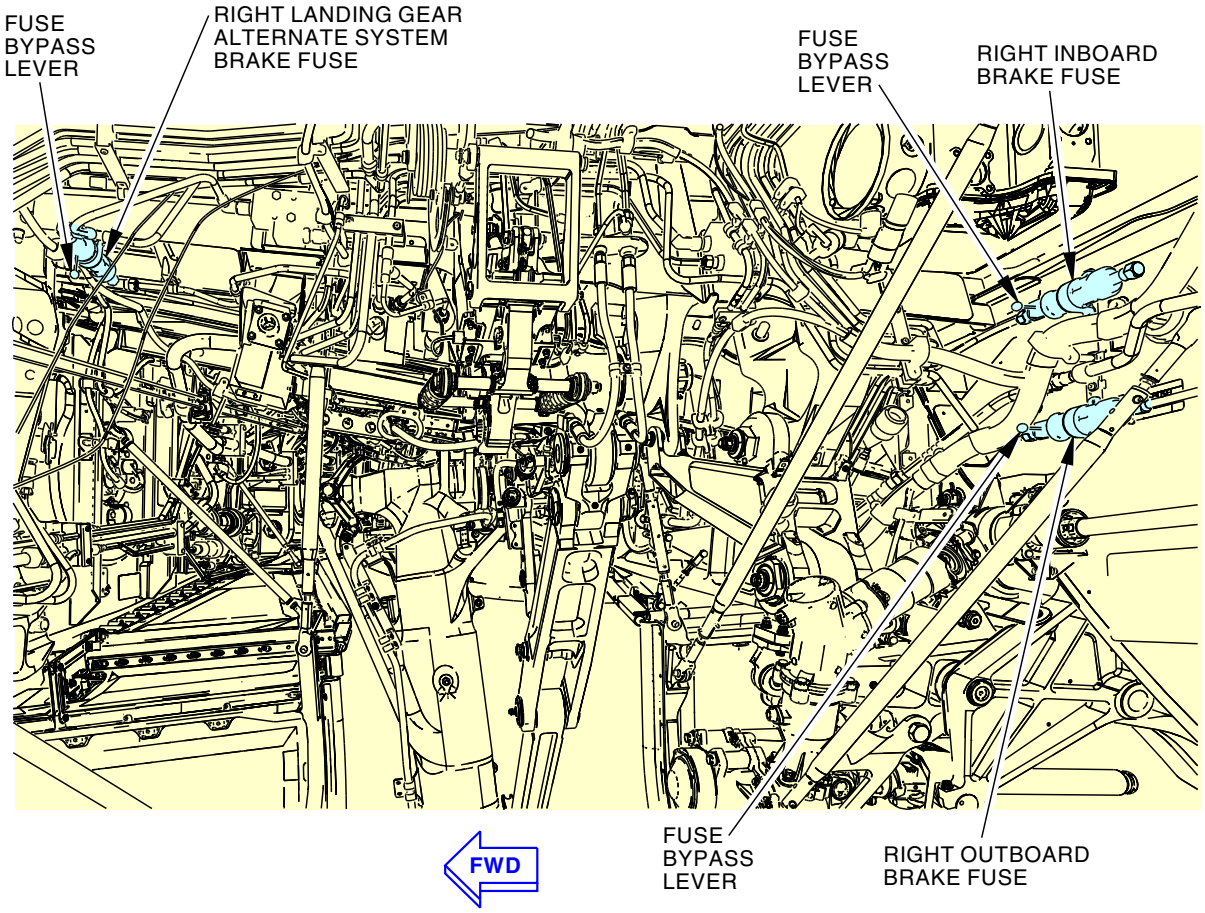
**A**

2414334 S00061534930_V1

**Brake Hydro-Mechanical Control System - Fuse Locations**
**Figure 202/32-41-00-990-802 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**MAIN LANDING GEAR WHEEL WELL**
**(RIGHT SIDE)**

**B**

2414335 S00061534931_V1

**Brake Hydro-Mechanical Control System - Fuse Locations**
**Figure 202/32-41-00-990-802 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-41-00-870-803**

## 4. Alternate (System A) Hydraulic Brake System Bleeding

(Figure 201, Figure 202)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-15035 | Bleeder Hose, Brake<br>Part #: J29006-1 Supplier: 81205<br>Opt Part #: J32096-1 Supplier: 81205 |
| STD-1055 | Container - Oil Resistant, 5 Gallon (19 Liter) |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Bleeding

**SUBTASK 32-41-00-480-006**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-00-480-007**

(2) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-00-860-006**

(3) Release the parking brake.

### E. Alternate (System A) Hydraulic Brake System Bleeding

**SUBTASK 32-41-00-710-003**

(1) To prepare to bleed the alternate (System A) hydraulic brake system, do these steps:



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) Use the hydraulic service cart to pressurize the alternate (System A) hydraulic system to 800 psig (5516 kPa) (TASK 29-11-00-860-801).

NOTE: It is recommended that you use the hydraulic service cart because of the large volume of hydraulic fluid this procedure removes from the alternate hydraulic system.

NOTE: If you use the airplane's hydraulic supply, monitor the quantity of hydraulic fluid in the reservoir when you bleed the system.

(b) Push the brake pedals slowly through approximately one-half of their total travel and slowly release them.

1) Repeat this step several times to remove the air from the brake lines upstream of the antiskid valve.

(c) Push the two brake pedals fully to the stops and hold them there for 2 to 4 seconds and then release them.

1) Repeat this step five more times.

(d) Push the brake pedals fully to the stops and set the parking brake.

**SUBTASK 32-41-00-710-004**

(2) To bleed the air from each brake, do these steps for all four brakes (Figure 201):

NOTE: It is recommended you do all of the steps below for one brake before you start the steps again for the next brake.

NOTE: There are two bleed valves [1] on each brake, use the bleed valve [1] to which you can get easy access.

(a) Remove the screw [2] and washer from the center of the bleed valve [1].

(b) Remove the lockwire, if it is installed, from the bleed valve [1].

(c) Install the bleeder hose, SPL-15035, on the end of the bleed valve [1].

(d) Put the free end of the bleeder hose, SPL-15035, into an oil resistant container (5 gal)(19 Liter), STD-1055.

(e) Slowly loosen the bleed valve [1] about one half turn.

NOTE: This will let hydraulic fluid flow out of the bleeder hose, SPL-15035.

(f) Let hydraulic fluid flow out of the bleeder hose, SPL-15035, until there are no air bubbles in the flow of hydraulic fluid.

NOTE: The fluid can flow out of the hose very quickly and intermittently.

(g) If the fluid flow stops (the brake fuse has set), do the steps that follow to reset the brake fuse:

1) Close the bleed valve [1].

2) Do one of the steps that follow to reset the brake fuse:

a) On the alternate system brake fuse for the landing gear brake pair being bled, pull the fuse bypass lever and hold it in this bypass position for 5 seconds minimum (Figure 201).



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b) Or, release the parking brake until the brake fuse resets, then reset the parking brake.

(h) Open the bleed valve [1] and continue to bleed the brake until there are no air bubbles in the flow of hydraulic fluid.

(i) If you will not bleed the normal (System B) hydraulic system, do the steps that follow:

1) Remove the bleeder hose, SPL-15035, from the bleed valve [1].

2) Tighten the bleed valve [1] to 45 ±10 in-lb (5 ±1 N·m).

3) Install the washer and screw [2] in the center of the bleed valve [1].

4) Install a lockwire, if previously installed, on the bleed valve [1].

SUBTASK 32-41-00-870-005

(3) Release the brake pedals or the parking brake if it is set.

SUBTASK 32-41-00-870-006

(4) Make sure all of the alternate (System A) hydraulic fuses are not set:

(a) Operate the brake pedals several times.

(b) Look for movement of the brake wear indicator pins to make sure all of the brakes operate.

### F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-00-860-007

(1) Remove the external hydraulic pressure for the alternate (System A) hydraulic system (TASK 29-11-00-860-805).

SUBTASK 32-41-00-870-007

(2) Make sure the fluid in the alternate (System A) hydraulic reservoir is at the correct level (TASK 12-12-00-610-801).

——— END OF TASK ———

**TASK 32-41-00-870-804**

## 5. Normal (System B) Hydraulic System Brake Fuse Test

(Figure 201, Figure 202)

### A. General

(1) This task gives instructions to do a test of each hydraulic brake fuse for the normal hydraulic brake system. There is one hydraulic brake fuse for each brake for the normal hydraulic system. Each hydraulic brake fuse must pass a specific quantity of hydraulic fluid before it closes. For this task, each brake for the main landing gear must be bled to do a check the hydraulic brake fuse for that brake.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 24-22-00-860-801 | Supply Electrical Power (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |



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## C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-15035 | Bleeder Hose, Brake<br>Part #: J29006-1 Supplier: 81205<br>Opt Part #: J32096-1 Supplier: 81205 |
| STD-1055 | Container - Oil Resistant, 5 Gallon (19 Liter) |

## D. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## E. Prepare for the Test

SUBTASK 32-41-00-480-008

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-41-00-860-008

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 32-41-00-860-009

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) Use the hydraulic service cart to pressurize the normal (System B) hydraulic system to 800 psig (5516 kPa) (TASK 29-11-00-860-801).

NOTE: It is recommended that you use the hydraulic service cart because of the large volume of hydraulic fluid this procedure removes from the normal hydraulic system.

NOTE: If you use the airplane's hydraulic supply, monitor the quantity of hydraulic fluid in the reservoir when you bleed the system.

SUBTASK 32-41-00-480-009

(4) Set the parking brake.

SUBTASK 32-41-00-480-010

(5) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).


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## F. Normal (System B) Hydraulic Brake System Fuse Test

**SUBTASK 32-41-00-710-005**

(1) To do a check of the fuse for each brake, do these steps for all four brakes:

(a) Remove the screw [2] from the center of the bleed valve [1].

(b) Remove the lockwire, if it is installed, from the bleed valve [1].

(c) Install the bleeder hose, SPL-15035, on the end of the bleed valve [1].

(d) Put the free end of the bleeder hose, SPL-15035, into an oil resistant container (5 gal)(19 Liter), STD-1055.

(e) Slowly loosen the bleed valve [1] about one half turn.

NOTE: This will let hydraulic fluid flow out of the bleeder hose, SPL-15035.

(f) Let the hydraulic fluid flow until the fuse closes and the flow stops.

(g) Make sure that the quantity collected in the oil resistant container (5 gal)(19 Liter), STD-1055, is 60 - 95 cubic inches or approximately 0.26 gal (0.98 l) - 0.41 gal (1.55 l).

(h) Close the bleed valve [1].

(i) Remove the bleeder hose, SPL-15035, from the bleed valve [1].

(j) Tighten the bleed valve [1] to 45 ±10 in-lb (5 ±1 N·m).

(k) Install the screw [2] in the center of the bleed valve [1].

(l) Install a lockwire, if previously installed, on the bleed valve [1].

(m) On the normal system fuse for the brake being bled, pull the fuse bypass lever and hold it in this bypass position for 5 seconds minimum.

## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-41-00-870-008**

(1) Do the steps that follow when you have checked all of the fuses for the normal (System B) hydraulic system:

(a) Make sure all of the normal (System B) hydraulic fuses are not set:

1) Operate the brake pedals several times.

2) Look for movement of the brake wear indicator pins to make sure all of the brakes operate.

(b) Remove the external hydraulic pressure for the normal (System B) hydraulic system. To do this, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(c) Make sure the fluid in the normal (System B) hydraulic reservoir is at the correct level (TASK 12-12-00-610-801).

(d) If the normal (System B) hydraulic reservoir needs to be filled, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

**——— END OF TASK ———**



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**TASK 32-41-00-870-805**

## 6. Alternate (System A) Hydraulic System Brake Fuse Test

(Figure 201, Figure 202)

### A. General

(1) This task provides instructions to do a test of each hydraulic brake fuse for the alternate hydraulic brake system. There is one hydraulic brake fuse for the two brakes on each main landing gear for the alternate hydraulic system. Each hydraulic brake fuse must pass a specific quantity of hydraulic fluid before it closes. For this task, only one brake for the each main landing gear must be bled to do a check of the hydraulic brake fuse for that brake.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 24-22-00-860-801 | Supply Electrical Power (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-15035 | Bleeder Hose, Brake<br>Part #: J29006-1 Supplier: 81205<br>Opt Part #: J32096-1 Supplier: 81205 |
| STD-1055 | Container - Oil Resistant, 5 Gallon (19 Liter) |

### D. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Prepare for the Test

**SUBTASK 32-41-00-480-011**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-00-860-010**

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.



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SUBTASK 32-41-00-860-011

| | |
|---|---|
| **WARNING** | KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT. |

(3) Use the hydraulic service cart to pressurize the alternate (System A) hydraulic system to 800 psig (5516 kPa) (TASK 29-11-00-860-801).

NOTE: It is recommended that you use the hydraulic service cart because of the large volume of hydraulic fluid this procedure removes from the alternate hydraulic system.

NOTE: If you use the airplane's hydraulic supply, monitor the quantity of hydraulic fluid in the reservoir when you bleed the system.

SUBTASK 32-41-00-480-012

(4) Set the parking brake.

SUBTASK 32-41-00-480-013

(5) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

## F. Alternate (System A) Hydraulic System Brake Fuse Test

SUBTASK 32-41-00-710-006

(1) To do a check of the fuse for both brakes on each main landing gear, do these steps for one brake on each main landing gear:

(a) Remove the screw [2] from the center of the bleed valve [1].

(b) Remove the lockwire, if it is installed, from the bleed valve [1].

(c) Install the bleeder hose, SPL-15035, on the end of the bleed valve [1].

(d) Put the free end of the bleeder hose, SPL-15035, into an oil resistant container (5 gal)(19 Liter), STD-1055.

(e) Slowly loosen the bleed valve [1] approximately one half turn.

NOTE: This will let hydraulic fluid flow out of the bleeder hose, SPL-15035.

(f) Let the hydraulic fluid flow until the fuse closes and the flow stops.

(g) Make sure that the quantity collected in the oil resistant container (5 gal)(19 Liter), STD-1055, is 60 - 95 cubic inches or approximately 0.26 gal (0.98 l) - 0.41 gal (1.55 l).

(h) Close the bleed valve [1].

(i) Remove the bleeder hose, SPL-15035, from the bleed valve [1].

(j) Tighten the bleed valve [1] to 45 ±10 in-lb (5 ±1 N·m).

(k) Install the screw [2] in the center of the bleed valve [1].

(l) Install a lockwire, if previously installed, on the bleed valve [1].

(m) On the alternate system fuse for the main landing gear being bled, pull the fuse bypass lever and hold it in this bypass position for 5 seconds minimum.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-00-870-009

(1) Do the steps that follow after you have done a check of the fuses for the alternate (System A) hydraulic system:

(a) Make sure the two alternate (System A) hydraulic fuses are not set:


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1) Operate the brake pedals several times.
2) Look for movement of the brake wear indicator pins to make sure all of the brakes operate.

(b) Remove the external hydraulic pressure for the alternate (System A) hydraulic system (TASK 29-11-00-860-805).

(c) Make sure the fluid in the alternate (System A) hydraulic reservoir is at the correct level (TASK 12-12-00-610-801).

(d) If the alternate (System A) hydraulic reservoir needs to be filled, do this task: Hydraulic Reservoir Servicing, TASK 12-12-00-610-801.

**——— END OF TASK ———**



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## HYDRAULIC BRAKE SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

(1) An adjustment of the hydraulic brake system

NOTE: After repair or replacement of the linkage or cables, the mechanical portion of the brake control system must be adjusted (rigged).

(2) An functional test of the normal and alternate brake application.

(3) An operational test of the hydraulic brake accumulator.

(4) An operational test of the alternate brake system.

B. To do a functional test of the hydraulic brake system, do all of the tasks in this procedure.

**TASK 32-41-00-820-801**

### 2. Hydraulic Brake System Adjustment

(Figure 501)

#### A. General

(1) The landing gear brake system can be adjusted with the airplane on or off jacks.

(2) The hydraulic pressure can be 'On' or 'Off' during adjustment.

(3) The landing gear brake system must be adjusted with the brakes off.

(4) If rig pin tools are not available, then use pins that are 0.309 in. (7.849 mm) - 0.311 in. (7.899 mm) in diameter.

(5) One system cycle is defined as alternately depressing the toe pad portion of the pedals to their stop (full on) and fully releasing (full off).

#### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 20-10-10-000-801 | Turnbuckle Lock Removal (P/B 401) |
| 20-10-10-400-801 | Turnbuckle Lock Installation (P/B 401) |
| 27-11-00-993-802 | Table: Control Cable Grades and Diameters (P/B 501) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1553 | Tensiometer - Cable, Low Tension (200 lbs and below)<br>Part #: 102-03108 Supplier: 21844<br>Part #: 102-03120 Supplier: 21844<br>Part #: ACM-200 Supplier: 13331<br>Part #: ACX-250-1 Supplier: 13331<br>Part #: T60-1001-C8-1A Supplier: 0N8U4 |



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(Continued)

| Reference | Description |
|---|---|
| COM-1554 | Tensiometer - Cable, High Tension (200 lbs and above)<br>Part #: 102-03120 Supplier: 21844<br>Part #: ACM-300 Supplier: 13331<br>Part #: ACM-600 Supplier: 13331<br>Part #: ACX-500-1 Supplier: 13331<br>Part #: T5-8008-106-00 Supplier: 0N8U4<br>Part #: T60-1001-C9-1A Supplier: 0N8U4 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| SPL-17778 | Rig Pin, F70207-129 (included in F70207 Kit)<br>Part #: F70207-151 Supplier: 81205 |

## D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## E. Prepare for the Adjustment

SUBTASK 32-41-00-480-014

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-41-00-480-015

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-00-860-012

(3) Release the parking brake.

SUBTASK 32-41-00-860-014

(4) Make sure that the cable system is rigged so that the rig pin LGB 1 and rig pin LGB 2 can be inserted and removed without binding in the rig pin holes.

(a) If the rig pin LGB 1 and rig pin LGB 2 move freely through the rig pin holes, no further adjustment of the forward pushrod [2] and aft pushrod [2] is necessary.

(b) If the rig pin LGB 1 and rig pin LGB 2 do not move freely through the rig pin holes, do the adjustment of the forward pushrod [2] and aft pushrod [2].

## F. Brake Control System Adjustment

SUBTASK 32-41-00-820-001

(1) Do the steps that follow to adjust the brake pedal bus [1]:

(a) Reduce the cable tension in all four cables to zero:

1) Alternate the adjustment between the cables to make sure that the tension in each cable does not differ by more than 50 lbf (222 N) at any time.



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2) Remove the turnbuckle locking clips [5] from the turnbuckles [6].

3) Turn the turnbuckles [6] to reduce the tension.

(b) Adjust the aft pushrod [2] on the brake pedal bus [1]:

1) Loosen the jamnut [7] on the right end.

2) Remove the nut [13], washer [12], bolt [8], and bushing [9] to disconnect the aft pushrod [2] from the crank arm clevis [11].

(c) Adjust the forward pushrod [2] on the brake pedal bus [1]:

1) Create a cross hair that consists of two lines with a fine tip felt pen at the junction of the two rods.

NOTE: This will be a reference point for future adjustments.

a) Do not remove the screws [28] before the cross hair is created.

b) Put one line horizontally across both tubes, halfway between the screw head and nut.

c) Put the other line around the tube where the smaller tube meets the larger tube to complete the cross hair.

d) Make sure that the pushrod end inspection hole is not open.

2) Loosen the jamnut [7] on the right end of the forward pushrod [2].

3) Remove the screws [28], washers [29], and nuts [30].

a) Retain the hardware screws for reassembly after pushrod [2] adjustment.

(d) Install rig pin LGB1, F70207-14, from the rigging pin kit, SPL-1585, through the left beam structure and brake control bellcranks [4].

NOTE: It is necessary to remain installed the rig pin for the cable adjustment.

(e) Install rig pin LGB2, F70207-14, from the rigging pin kit, SPL-1585, through the right beam structure and brake control bellcranks [4].

NOTE: It is necessary to remain installed the rig pin for the cable adjustment.

(f) Push the aft pushrod [2] to the left to take up the tolerance.

(g) Push the right side crank arm clevis [11] to the left to take up the tolerance.

(h) Align the right rod end [10] fastener with the right side crank arm clevis [11]:

1) Turn the rod end [10].

2) Install the fastener.

a) Do not install the washer or nut at this time.

(i) Turn the pushrod [2] to lengthen or shorten the forward pushrod [2] to get the original cross hair position.

1) Install only one screw [28], washer [29], and nut [30] at this time.

(j) With the left rig pin installed, slowly remove the right rig pin and monitor the forward and aft pushrods [2] for movement.

1) If the pushrods [2] move, do these steps:

a) Lengthen the aft pushrod [2] one turn.

b) Install the right rig pin again.

c) Repeat the right rig pin removal.

<1> If the pushrod [2] movement is more than before, do these steps:



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<a> Shorten the aft pushrod [2] to the previous length, then one turn shorter.

<b> Repeat the rig pin installation and removal.

d) Select the position that has the least pushrod [2] movement.

(k) Do a check of the rig pin fit.

NOTE: The rig pins will be biased in the hole. This means the rig pins will support the weight of the pedals and bus structure and not be not be entirely free.

1) Make sure that the rig pin does not bind or need excessive force to install or remove it.

(l) Install the remaining fasteners to complete the installation of the forward pushrod [2] and aft pushrod [2]:

1) For the aft pushrod [2], install the bolt [8], bushing [9], washer [12], and nut [13] to the crank arm clevis [11].

2) For the aft pushrod [2], tighten the jamnuts [7].

3) For the forward pushrod [2], install the remaining screw [28], washer [29], and nut [30].

a) Tighten the nuts [30] to snug plus 1/4 turn.

4) For the forward pushrod [2], tighten jamnuts [7] to snug plus 1/4 turn.

5) Make sure the threads of the rod ends [10] can be seen for at least half of the inspection holes, or there are no more than 15 exposed threads between the jamnut [7] and bearing.

NOTE: This will make sure that the threads of the rod ends correctly engage the pushrods [2].

6) If no further adjustments are necessary, increase the tension in the cables per the tension value in Table 501.

a) When the tension is increased with the rig pins in position, alternate the adjustment between the cables to make sure that the tension in each cable does not differ by more than 50 lbf (222 N) at any time.

NOTE: This will keep the rig pins from bending.

(m) If the brake cables will not be adjusted, remove the rig pins LGB1 and LGB2 from the brake control bellcrank [4].

**SUBTASK 32-41-00-820-002**

(2) Do the steps that follow to adjust the left brake metering valve [21] and right brake metering valve [27]:

(a) Disconnect the control rod [20] from the crank [25] for the left brake metering valve [21] and right brake metering valve [27].

NOTE: The left brake metering valve and right brake metering valve are spring loaded to the brakes off position. This will position the left brake metering valve and right brake metering valve.

1) Remove the nut [18], washer [26], and bolt [22] to disconnect the control rod [20] from the crank [25] for the left brake metering valve [21] and right brake metering valve [27].

2) Loosen the jamnuts [19] on the two ends of the control rod [20].



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(b) With the brake pedals in the off position, install the rigging pin kit, SPL-1585, between the crank [25] and rig pin structure hole.

1) Install the rig pin LGB3 with rig pin, F70207-129, SPL-17778, from the rigging pin kit, SPL-1585, through the rig pin hole for the left brake metering valve [21].

2) Install the rig pin LGB4 with rig pin, F70207-129, SPL-17778, from the rigging pin kit, SPL-1585, through the rig pin hole for the right brake metering valve [27].

3) Adjust the control rod [20] to get a rig pin slip fit.

(c) Install the bushing [24] in the crank [25].

(d) Install the retainer [23] to hold the bushing [24].

(e) Install the bolt [22], washer [26], and nut [18] to connect the control rod [20] to the crank [25] for the left brake metering valve [21] and right brake metering valve [27].

(f) Make sure the rig pins LGB3 or LGB4 moves freely through the rig pin holes.

(g) Do these steps to position the crank [25]:

NOTE: This will position the rig pin in the neutral position in the crank [25].

1) Install the bushing [24] in the crank [25].

2) Install the retainer [23] to hold the bushing [24].

3) Install the bolt [22], washer [26], and nut [18] to connect the control rod [20] to the crank [25] for the left brake metering valve [21] and right brake metering valve [27].

4) Insert the rig pin.

5) Adjust the control rod [20] by turning the threaded control rod [20] only, all the way in one direction until the rig pin contacts the crank [25].

6) Reverse the adjustment direction and count the turns until the rig pin contacts the other side of the crank [25].

7) Divide the number of turns by 2 and reverse the control rod [20] adjustment direction again.

(h) Tighten the jamnuts [19] on the two ends of the control rod [20].

(i) If the brake cables will not be adjusted, remove rig pin LGB3 or LGB4 from the rig pin holes for the left brake metering valve [21] and right brake metering valve [27].

**SUBTASK 32-41-00-820-003**

(3) Do these steps to adjust the brake cables for the left side and the right side:

NOTE: It is recommended that airplanes supplied with the cables that contain higher zinc coating (Grade D or Grade K) be re-tensioned 3 to 4 months into service. This will bring the tension of the control cables within the desired range. After the cables are re-tensioned, the high zinc cables (Grade D or Grade K) will continue to relax at a rate that is equivalent to the Grade B cables. To identify the grade of the cable, refer to: Control Cable Grades and Diameters/Table 27-11-00-993-802.

(a) Make sure that the rig pins LGB1 and LGB2, are installed in the bellcrank rig pin holes [3], and the rig pins LGB3 and LGB4 with rig pin, F70207-129, SPL-17778, are installed in the brake metering valve rig pin holes.

(b) For the locking clips [5] on the brake cables, do this task: Turnbuckle Lock Removal, TASK 20-10-10-000-801.

(c) Turn the turnbuckle [6] with the low tension cable tensiometer, COM-1553, or high tension cable tensiometer, COM-1554, to adjust the brake cable tension to the value shown in Table 501.



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1) Alternate the adjustment between the LGB1A cable and LGB1B cable for the left side, and the LGB2A cable and the LGB2B cable for the right side.

**Table 501/32-41-00-993-801 Brake Cable Rigging Loads**

| Ambient Temperature | Rigging Load (±10 lbf (44 N)) |
|---|---|
| -20°F (-29°C) | 150 lbf (667 N) |
| -10°F (-23°C) | 155 lbf (689 N) |
| 0°F (-18°C) | 160 lbf (712 N) |
| 10°F (-12°C) | 165 lbf (734 N) |
| 20°F (-7°C) | 170 lbf (756 N) |
| 30°F (-1°C) | 175 lbf (778 N) |
| 40°F (4°C) | 180 lbf (801 N) |
| 50°F (10°C) | 185 lbf (823 N) |
| 60°F (16°C) | 190 lbf (845 N) |
| 70°F (21°C) | 195 lbf (867 N) |
| 80°F (27°C) | 200 lbf (890 N) |
| 90°F (32°C) | 205 lbf (912 N) |
| 100°F (38°C) | 210 lbf (934 N) |
| 110°F (43°C) | 215 lbf (956 N) |
| 120°F (49°C) | 220 lbf (979 N) |

a) Make sure that the tension in each cable does not differ by more than 50 lbf (222 N) at any time.

NOTE: This will keep the rig pins from bending.

(d) Make sure that the rig pins LGB1 and LGB2 move freely in the rig pin holes for the brake pedal bus [1] and the rig pins LGB3 and LGB4 move freely in the rig pin holes for the left brake metering valve [21] and right brake metering valve [27].

(e) Do these steps new brake cables were installed:

1) Increase the tension of the brake cables to 350 ±10 lbf (1557 ±45 N) with the high tension cable tensiometer, COM-1554.

a) Alternate the adjustment between the LGB1A cable and LGB1B cable for the left side, and the LGB2A cable and LGB2B cable for the right side.

<1> Make sure that the tension in each cable does not differ by more than 50 lbf (222 N) at any time.

NOTE: This will keep the rig pins from bending.

2) Make sure that the rig pins LGB1 and LGB2 move freely in the rig pin holes for the brake pedal bus [1] and the rig pins LGB3 and LGB4 move freely in the rig pin holes for the left brake metering valve [21] and right brake metering valve [27].

3) Remove the rig pins LGB1 and LGB2 from the brake pedal bus [1] and the rig pins LGB3 and LGB4 from the left brake metering valve [21] and right brake metering valve [27].

4) Push the left brake pedals to their stops and then fully release them 25 times.



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5) Push the right brake pedals to their stops and then fully release them 25 times.

6) Install the rig pins LGB1 and LGB2, in the rig pin holes for the brake pedal bus [1] and the rig pins LGB3 and LGB4, in the rig pin holes for the left brake metering valve [21] and right brake metering valve [27].

NOTE: LGB1 is for the captain' brake pedal bus and LGB2 is for the first officer's brake pedal bus.

7) Adjust the brake cable tension with the low tension cable tensiometer, COM-1553, or high tension cable tensiometer, COM-1554, to the value shown in the brake cable tension vs temperature chart (Table 501).

8) Make sure that the rig pins LGB1 and LGB2 move freely in the rig pin holes for the brake pedal bus [1] and the rig pins LGB3 and LGB4 move freely in the rig pin holes for the left brake metering valve [21] and right brake metering valve [27].

(f) Remove the rig pins LGB1 and LGB2 from the brake pedal bus [1] and the rig pins LGB3 and LGB4 from the left brake metering valve [21] and right brake metering valve [27].

(g) Push the left brake pedals to their stops and then fully release them 3 times.

(h) Push the right brake pedals to their stops and then fully release them 3 times.

(i) Install the rig pins LGB1 and LGB2, in the rig pin holes for the brake pedal bus [1] and the rig pins LGB3 and LGB4, in the rig pin holes for the left brake metering valve [21] and right brake metering valve [27].

NOTE: LGB1 is for the captain' brake pedal bus and LGB2 is for the first officer's brake pedal bus.

(j) Make sure the rig pins LGB1 and LGB2 move freely in the rig pin holes for the brake pedal bus [1] and the rig pins LGB3 and LGB4 move freely in the rig pin holes for the left brake metering valve [21] and right brake metering valve [27].

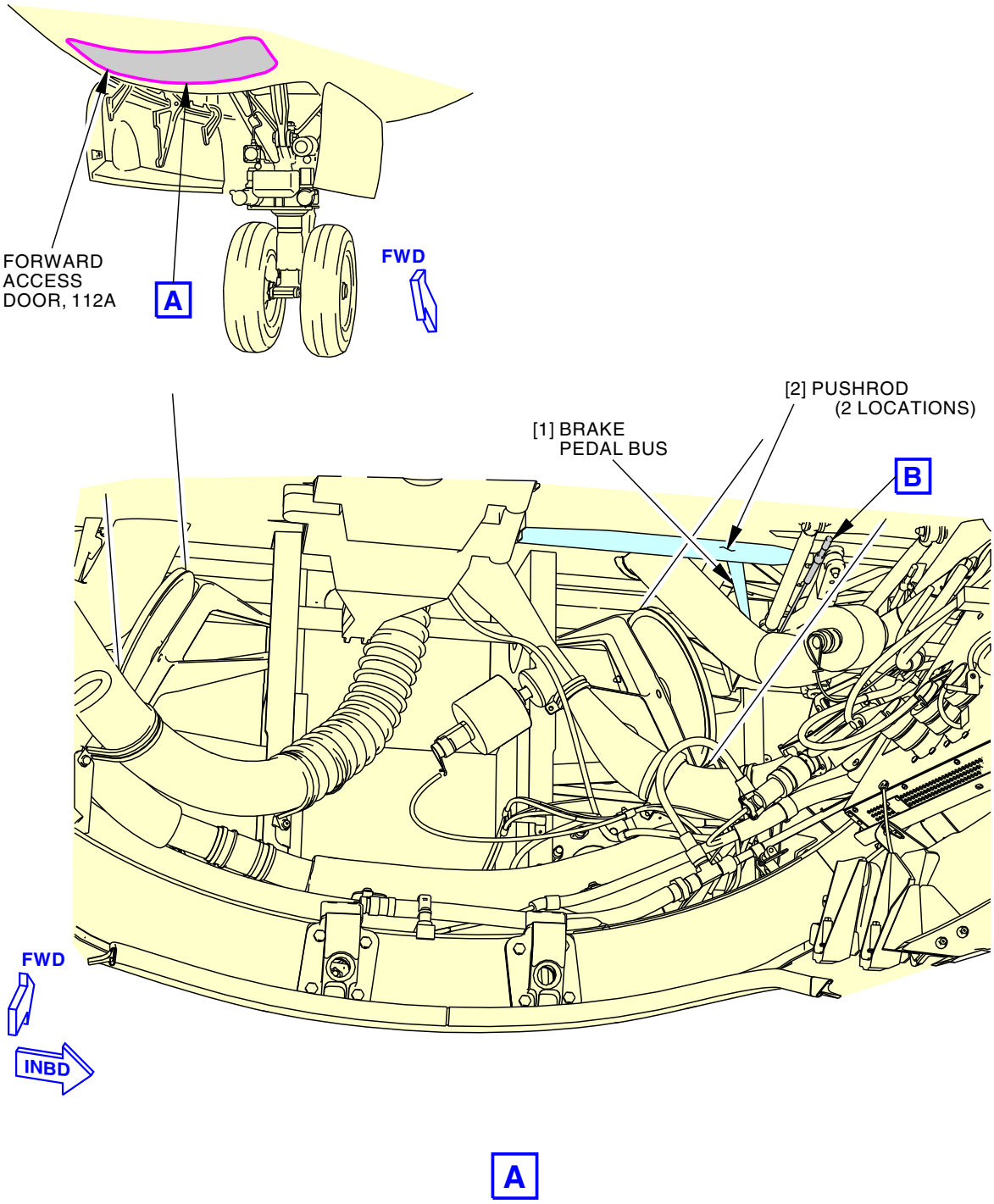
(k) Remove the rig pins LGB1 and LGB2 from the brake pedal bus [1] and the rig pins LGB3 and LGB4 rig pin, F70207-129, SPL-17778 from the left brake metering valve [21] and right brake metering valve [27].

(l) For the lock clips on the brake cables, do this task: Turnbuckle Lock Installation, TASK 20-10-10-400-801.

**END OF TASK**



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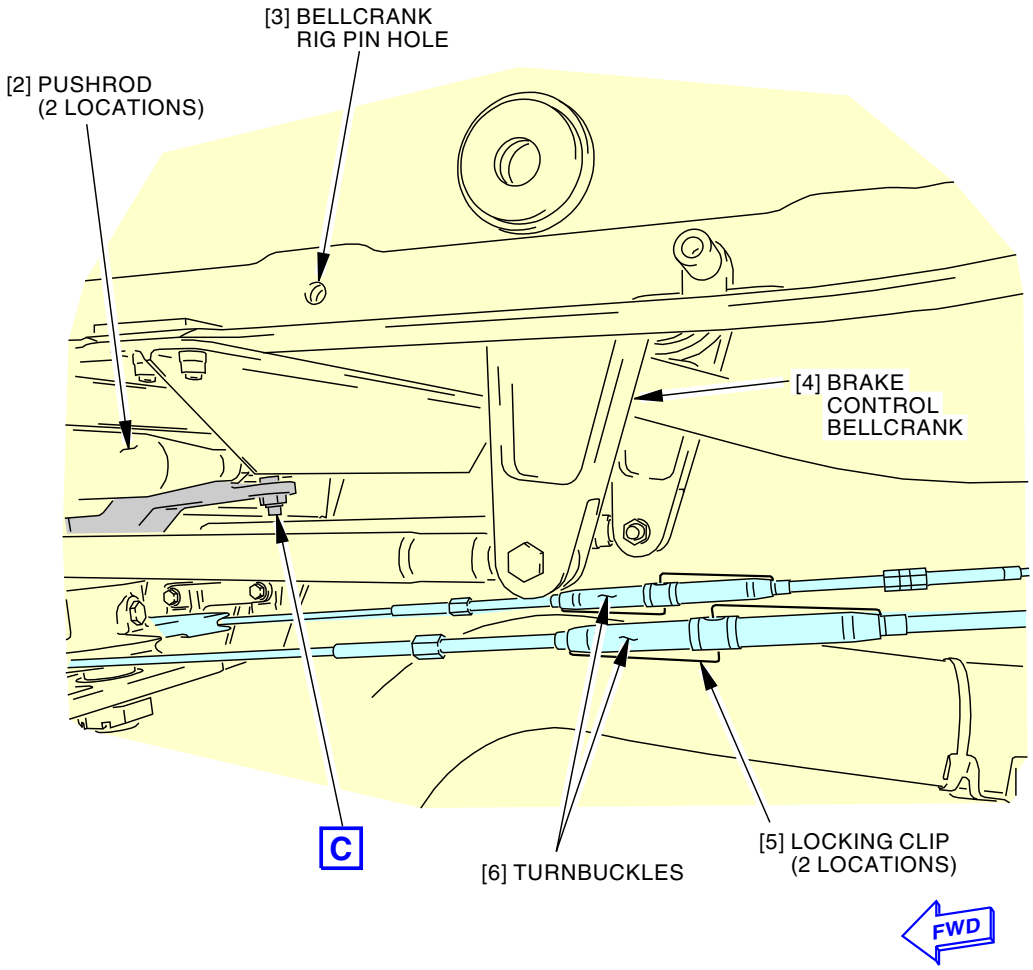



2414336 S00061534937_V1

**Hydraulic Brake System Adjustment**
**Figure 501/32-41-00-990-803 (Sheet 1 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**RIGHT CABLE INSTALLATION**
**(LEFT CABLE INSTALLATION IS EQUIVALENT)**

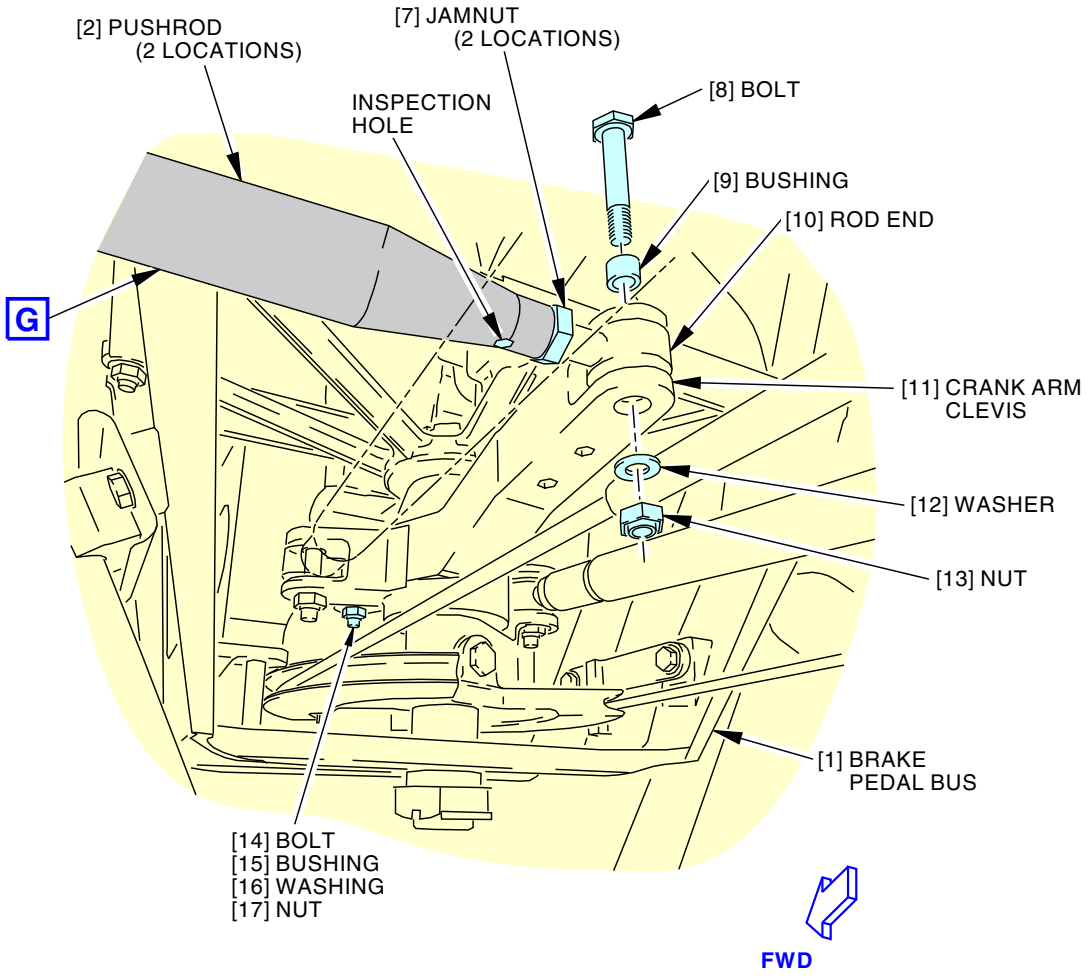
**B**

2414337 S00061534938_V1

**Hydraulic Brake System Adjustment**
**Figure 501/32-41-00-990-803 (Sheet 2 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**RIGHT BRAKE PEDAL BUS**
**(LEFT BRAKE PEDAL BUS IS EQUIVALENT)**

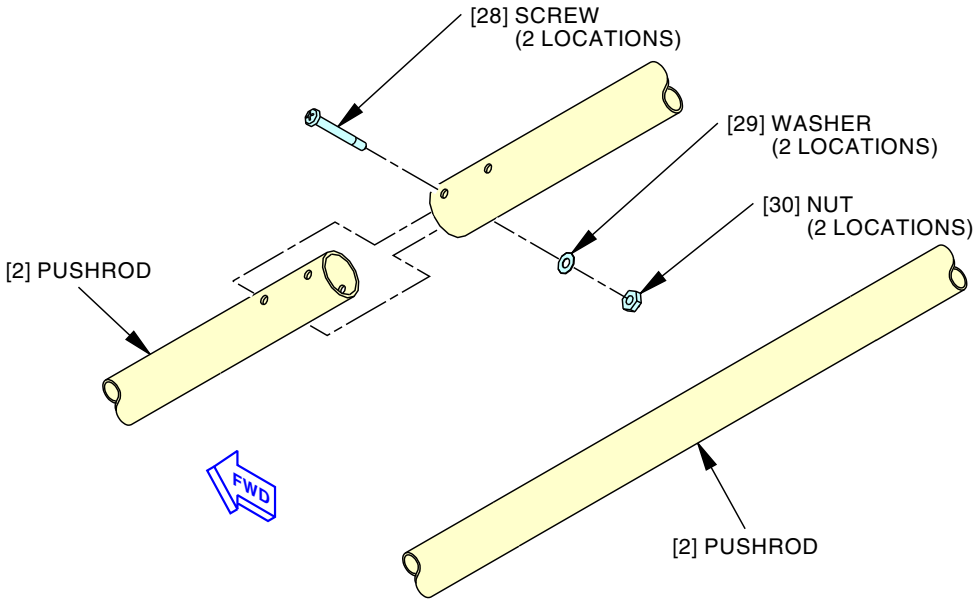
C

2414338 S00061534939_V2

**Hydraulic Brake System Adjustment**
**Figure 501/32-41-00-990-803 (Sheet 3 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**BRAKE PEDAL BUS PUSHRODS**
**(BOTTOM VIEW)**

**G**

**NOTE:**

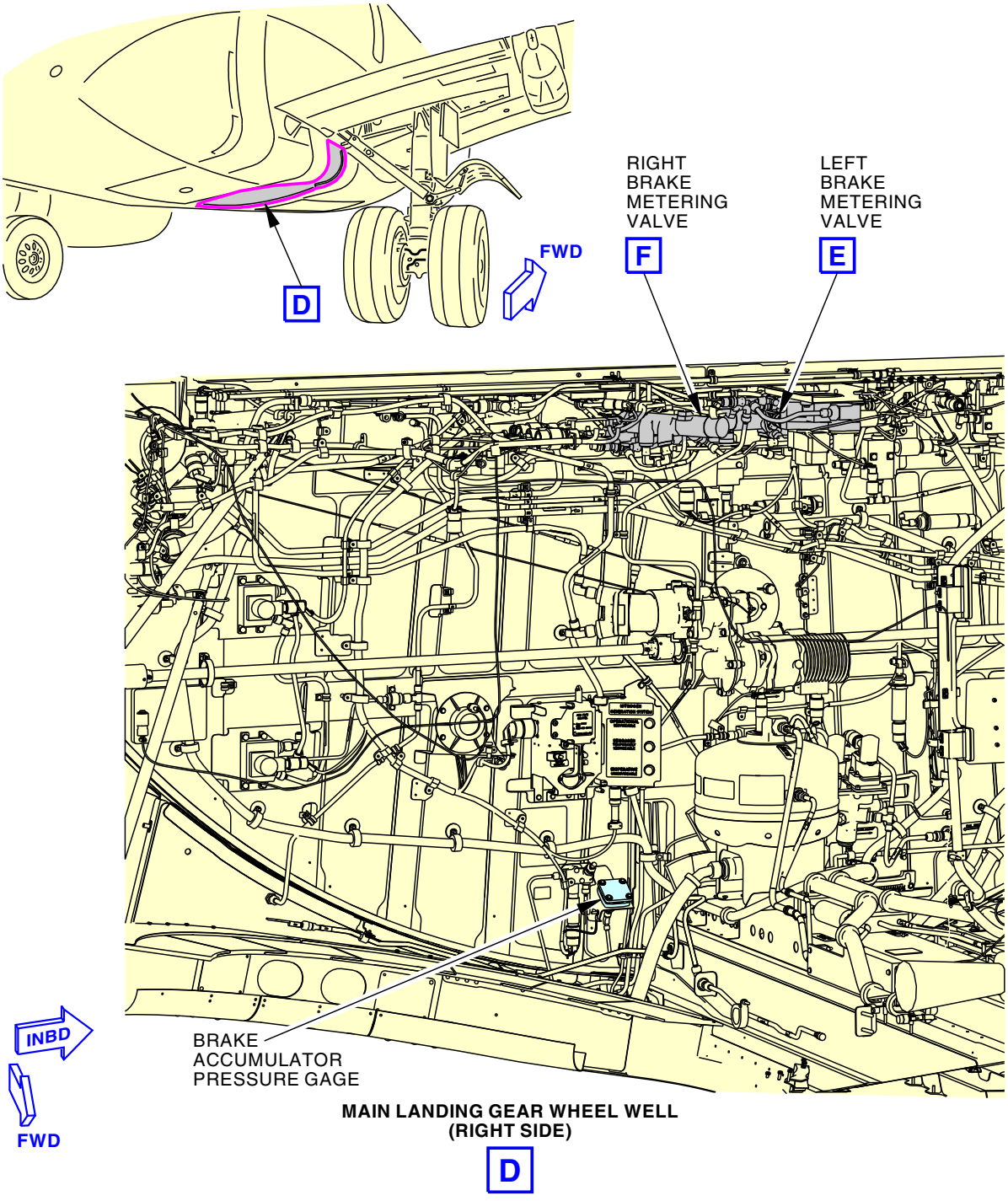
SURROUNDING STRUCTURE AND COMPONENTS
ARE REMOVED FOR CLARITY.

2995979 S0000772600_V1

**Hydraulic Brake System Adjustment**
**Figure 501/32-41-00-990-803 (Sheet 4 of 6)**



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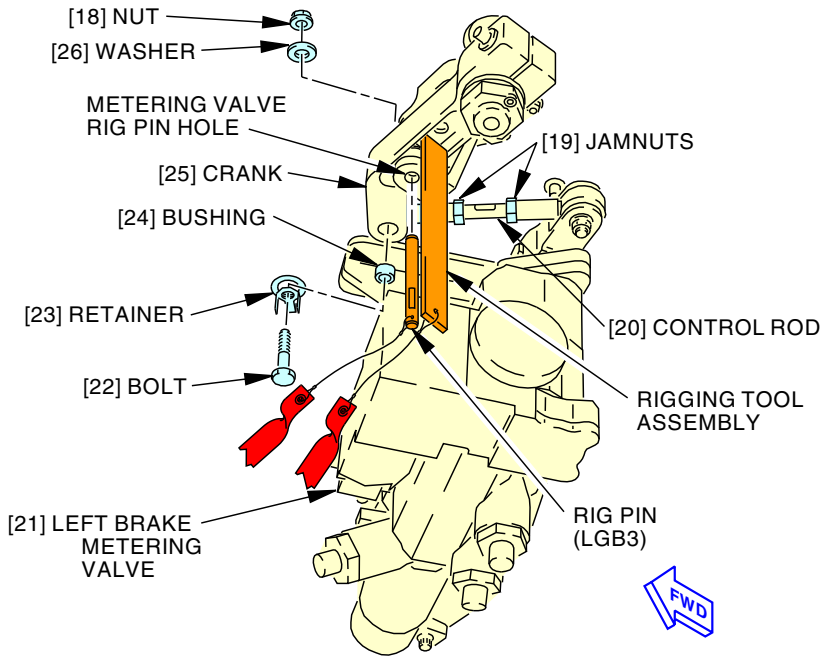

**MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)**

2414339 S00061534940_V1

**Hydraulic Brake System Adjustment
Figure 501/32-41-00-990-803 (Sheet 5 of 6)**

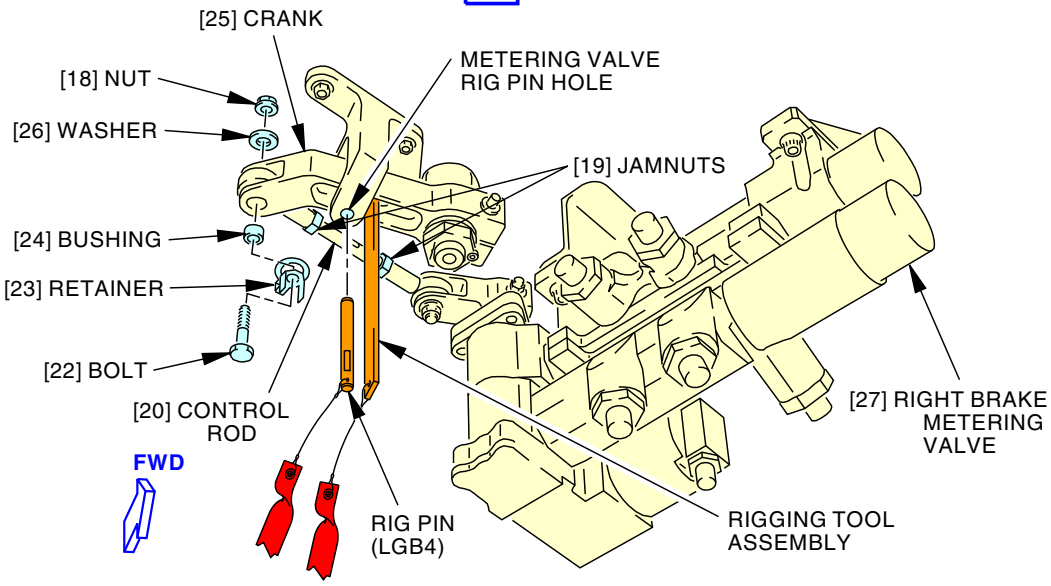


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**LEFT BRAKE METERING VALVE**

**E**




**RIGHT BRAKE METERING VALVE**

**F**

2414340 S00061534941_V2

**Hydraulic Brake System Adjustment**
**Figure 501/32-41-00-990-803 (Sheet 6 of 6)**



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**TASK 32-41-00-710-801**

## 3. Normal and Alternate Brake Application Functional Test

### A. General

(1) This procedure does a functional test of these systems:

(a) The operation of the brakes with hydraulic power supplied by the NORMAL (System B) brake hydraulic system.

(b) The operation of the brakes with hydraulic power supplied by the ALTERNATE (System A) brake hydraulic system.

(2) The brake pedal force and angle will also be checked in this task.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1822 | Gauge - Digital Force, Push-Pull (100 Lb Capacity, 0.125 Lb Resolution or better)<br>Part #: DFS-100 Supplier: 92456<br>Part #: FDIX 100 Supplier: 0BFD9<br>Opt Part #: DFGS100 Supplier: 11710<br>Opt Part #: FDI 100 Supplier: 0BFD9<br>Opt Part #: FDV 100 Supplier: 0BFD9 |
| SPL-2555 | Equipment - Measuring, Brake Pedal Load and Travel (Single Pedal)<br>Part #: J32001-67 Supplier: 81205<br>Opt Part #: J32001-63 Supplier: 81205<br>Opt Part #: J32001-64 Supplier: 81205 |
| SPL-10813 | Gauge Set - Hydraulic Brake System, Pressure Checking<br>Part #: C32051-1 Supplier: 81205<br>Opt Part #: F72977-45 Supplier: 81205<br>Opt Part #: F72977-46 Supplier: 81205<br>Opt Part #: F72977-47 Supplier: 81205<br>Opt Part #: F72977-62 Supplier: 81205 |
| SPL-11464 | Equipment - Measuring, Brake Pedal Load and Travel (Dual Pedal)<br>Part #: J32001-68 Supplier: 81205 |
| SPL-15031 | Test Equipment - Brake Bleed<br>Part #: G32075-16 Supplier: 81205 |
| STD-1232 | Protractor - Digital |

### D. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |



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(Continued)

| Zone | Area |
|---|---|
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## E. Prepare for the Procedure

SUBTASK 32-41-00-480-016

(1) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-00-480-017

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation,(TASK 32-00-01-480-801).

SUBTASK 32-41-00-860-015

(3) Release the parking brake.

SUBTASK 32-41-00-480-019

(4) Install one of these tools, or equivalent, on the captain's and the first officer's brake pedals.

(a) push-pull digital force gauge, COM-1822, or

(b) brake pedal load and travel measuring equipment, SPL-2555, or

(c) brake pedal load and travel measuring equipment, SPL-11464.

SUBTASK 32-41-00-480-020

(5) Install the pressure gauge, SPL-15031, or the gauge set, SPL-10813, on each brake.

SUBTASK 32-41-00-710-007

(6) Use a digital protractor, STD-1232, to measure the angle of the brake pedals.

SUBTASK 32-41-00-790-003

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(7) For the hydraulic systems A or B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(a) To do a test of the normal (System B) brake system, only pressurize the system B hydraulic system.

(b) To do a test of the alternate (System A) brake system, only pressurize the system A hydraulic system.

NOTE: The normal hydraulic system (System B) must not be pressurized for this test.

## F. Normal and Alternate Brake Application Functional Test

NOTE: The steps that follow are applicable for the normal and alternate brake systems. The system that is tested depends on which hydraulic system is pressurized.



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SUBTASK 32-41-00-710-008

(1) Measure the brake pedal force and travel for each brake pedal.

(a) Make sure that each pedal meets the requirements in Table 502.

(b) Attach a digital protractor, STD-1232, to the brake pedal to measure the travel (position).

1) Make sure the digital protractor, STD-1232, is set to zero.

(c) Attach a spring scale or brake pedal load and travel measuring equipment, SPL-2555, to measure pedal forces.

**Table 502/32-41-00-993-802 Brake Pedal**

| | *[1] | *[2] | |
|---|---|---|---|
| Brake Pedal Travel (Deg) | Brake Pedal Force | Brake Pedal Force | Brake Pressure |
| 4.5 +/-1.5 | 28 ±3 lbf (125 ±14 N) | 42 ±3 lbf (187 ±14 N) | 400 ±50 psig (2758 ±345 kPa) |

*[1] The pedal force must be measured by the load that you apply perpendicular to the tip of the pedal, 8.25 in. (209.55 mm) from the brake pedal pivot. The brake pressure is the value shown at each brake gage.

*[2] The pedal force must be measured with the brake pedal load and travel measuring equipment, SPL-2555. The load on the brake pedal load and travel measuring equipment, SPL-2555, is located 5.48 in. (139.19 mm) from the brake pedal pivot. The brake pressure is the value shown at each brake gage.

1) Make sure the force gage is set to zero.

(d) Push the captain’s left and right brake pedals until the brake force gage at each pedal shows the value in Table 502.

(e) Hold the brake pedals in this position.

(f) Make sure the hydraulic pressure at each brake is within the specified pressure.

(g) Make sure the angle of the captain’s left and right brake pedals are 4.5 ± 1.5 degrees.

(h) Release the captain’s brake pedals.

(i) Make sure the brakes fully release by observing that the brake pistons retract away from the heat sink.

(j) Make sure the angle of the captain's left and right brake pedals are 0.0 ± 0.50 degrees.

(k) Push the captain’s brake pedals fully down.

1) Make sure that the hydraulic pressure at each brake is 3000 ±150 psi (20,684 ±1034 kPa).

(l) Release the captain’s brake pedals.

(m) Make sure the brakes fully release by observing that the brake pistons retract away from the brake heat sink.

(n) Repeat the above steps with the first officer’s brake pedals.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-00-840-004

(1) If it is necessary, set the parking brakes.

SUBTASK 32-41-00-040-001

(2) For the B hydraulic systems A or B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-41-00-080-001

(3) Remove the pressure gauge, SPL-15031, or the gauge set, SPL-10813, from each brake.

END OF TASK

TASK 32-41-00-720-801

## 4. Accumulator Operational Test

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) This task has instructions to do an operational test of the brake accumulator system. This will do a test of the operation of the accumulator charging valve, the pressure transmitter, the accumulator isolation valve, and the accumulator pressure gauge.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 12-15-11-610-801 | Check of the Brake Accumulator Pre-charge Pressure (P/B 301) |
| 24-22-00-860-801 | Supply Electrical Power (P/B 201) |
| 24-22-00-860-802 | Remove Electrical Power (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Accumulator Operational Test

SUBTASK 32-41-00-480-025

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-41-00-480-026

(2) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 32-41-00-480-027

(3) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-00-860-019

(4) Release the parking brake.

SUBTASK 32-41-00-860-020

(5) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-41-00-840-003

(6) Fully push the brake pedals 12 times to remove hydraulic pressure from the brake accumulator.

NOTE: You can look at the wear pin indicators on each brake to see that the brakes no longer actuate when the brake pedals are pushed.

SUBTASK 32-41-00-710-012

(7) Wait for approximately 5 minutes to let the accumulator hydraulic pressure stabilize.

SUBTASK 32-41-00-700-001

(8) To make sure the brake accumulator has the correct pressure precharge, do this task: Check of the Brake Accumulator Pre-charge Pressure, TASK 12-15-11-610-801.

SUBTASK 32-41-00-790-005

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(9) For the A and the B hydraulic systems, for at least 2 minutes, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-41-00-710-013

(10) Make sure the pressure shown by the HYD BRAKE PRESS gauge on the First Officer's panel reads within 100 psig (689 kPa) of the hydraulic system 'B' pressure.

(a) Write down the hydraulic system 'B' steady state pressure value.

SUBTASK 32-41-00-710-014

(11) Make sure the HYD BRAKE PRESS gauge on the First Officer's panel reads within 100 psig (689 kPa) of the brake accumulator pressure gauge on the rear bulkhead in the right main gear wheel well.

SUBTASK 32-41-00-860-021

(12) For the B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-41-00-710-015

(13) Wait approximately one minute until the B hydraulic system pressure drops to less than 1000 psi (6895 kPa)i.

SUBTASK 32-41-00-710-016

(14) Push the brake pedals to the stops 7 times while you observe the brake accumulator pressure.

(a) Wait approximately 3 seconds after each time you apply the brakes.

(b) Make sure the brake accumulator pressure does not decrease with each brake application.

SUBTASK 32-41-00-860-022

(15) For the A hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-41-00-710-017

(16) Make sure the HYD BRAKE PRESS gauge on the First Officer's panel reads within 150 psig (1034 kPa) of hydraulic system 'B' steady state pressure previously written down.



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SUBTASK 32-41-00-710-018

(17) Push the brake pedals to the stops 7 times while you observe the brake accumulator pressure.

(a) Wait approximately 3 seconds after each time you apply the brakes.

(b) Make sure the brake accumulator pressure decreases with each brake application.

SUBTASK 32-41-00-700-002

(18) To make sure the brake accumulator has the correct pressure precharge, do this task: Check of the Brake Accumulator Pre-charge Pressure, TASK 12-15-11-610-801.

SUBTASK 32-41-00-860-023

(19) Set the parking brake.

SUBTASK 32-41-00-860-024

(20) If it is not necessary, remove electrical power (TASK 24-22-00-860-802).

END OF TASK

**TASK 32-41-00-710-803**

## 5. Alternate Brake System Operational Test

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### C. Alternate Brake System Operational Test

SUBTASK 32-41-00-790-006

(1) Do these steps that follow to do an operational test of the alternate (System A) brake system:

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) For the system A (alternate), do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Fully push the captain's brake pedals.

(c) Examine the brake wear indicators on the brakes to make sure that the brakes engaged.

(d) Release the brake pedals.

(e) Examine the brake wear indicators on the brakes to make sure that the brakes released.

(f) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

END OF TASK



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## BRAKE DISCONNECT - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the brake disconnect

(2) An installation of the brake disconnect.

B. The brake disconnects are installed on each main landing gear brake.

**TASK 32-41-11-000-801**

### 2. Brake Disconnect Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### D. Prepare for the Removal

**SUBTASK 32-41-11-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-11-860-001**

(2) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-41-11-480-002**

(3) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-11-860-002**

(4) Release the parking brake.

**SUBTASK 32-41-11-860-003**

(5) Fully push the captain's brake pedals twelve times to remove the pressure from the brake accumulator.



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SUBTASK 32-41-11-020-001

(6) Disconnect the hose half [1] of the quick disconnect from the brake half [7] of the quick disconnect:

(a) Push the barrel [2] toward the brake and turn the barrel [2]clockwise to disengage the brake half [7] from the hose half [1].

(b) Pull up on the barrel [2] of the hose half [1] of the quick disconnect until the threads of the hose half [1] and brake half [7] are engaged.

(c) Turn the barrel [2] counterclockwise to disconnect the hose half [1] from the brake half [7] of the quick disconnect.

## E. Brake Disconnect Removal (Hose Half)

SUBTASK 32-41-11-020-002

(1) Disconnect the hydraulic hose from the hose half [1] of the quick disconnect.

SUBTASK 32-41-11-480-003

(2) Install a cap/plug, STD-14686, on the hydraulic hose.

## F. Brake Disconnect Removal (Brake Half)

SUBTASK 32-41-11-020-003

(1) Remove the bolts [3] and washers [4] that hold the brake half [7] of the quick disconnect to the brake.

SUBTASK 32-41-11-020-004

(2) Remove the brake half [7] of the quick disconnect from the brake.

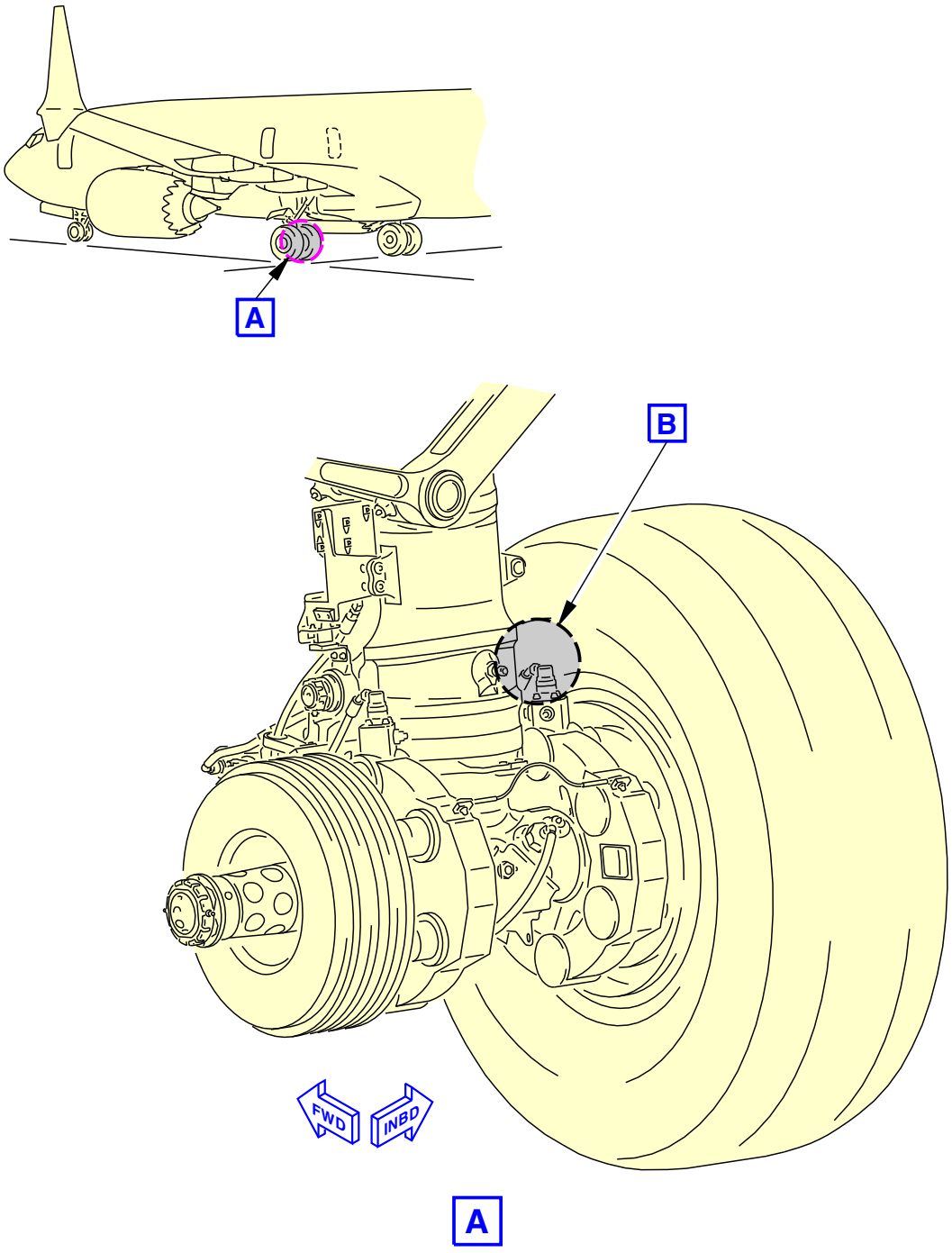
SUBTASK 32-41-11-020-005

(3) Remove and discard the packing [6] and the backup rings [5] from the brake half [7] of the quick disconnect.

**——— END OF TASK ———**



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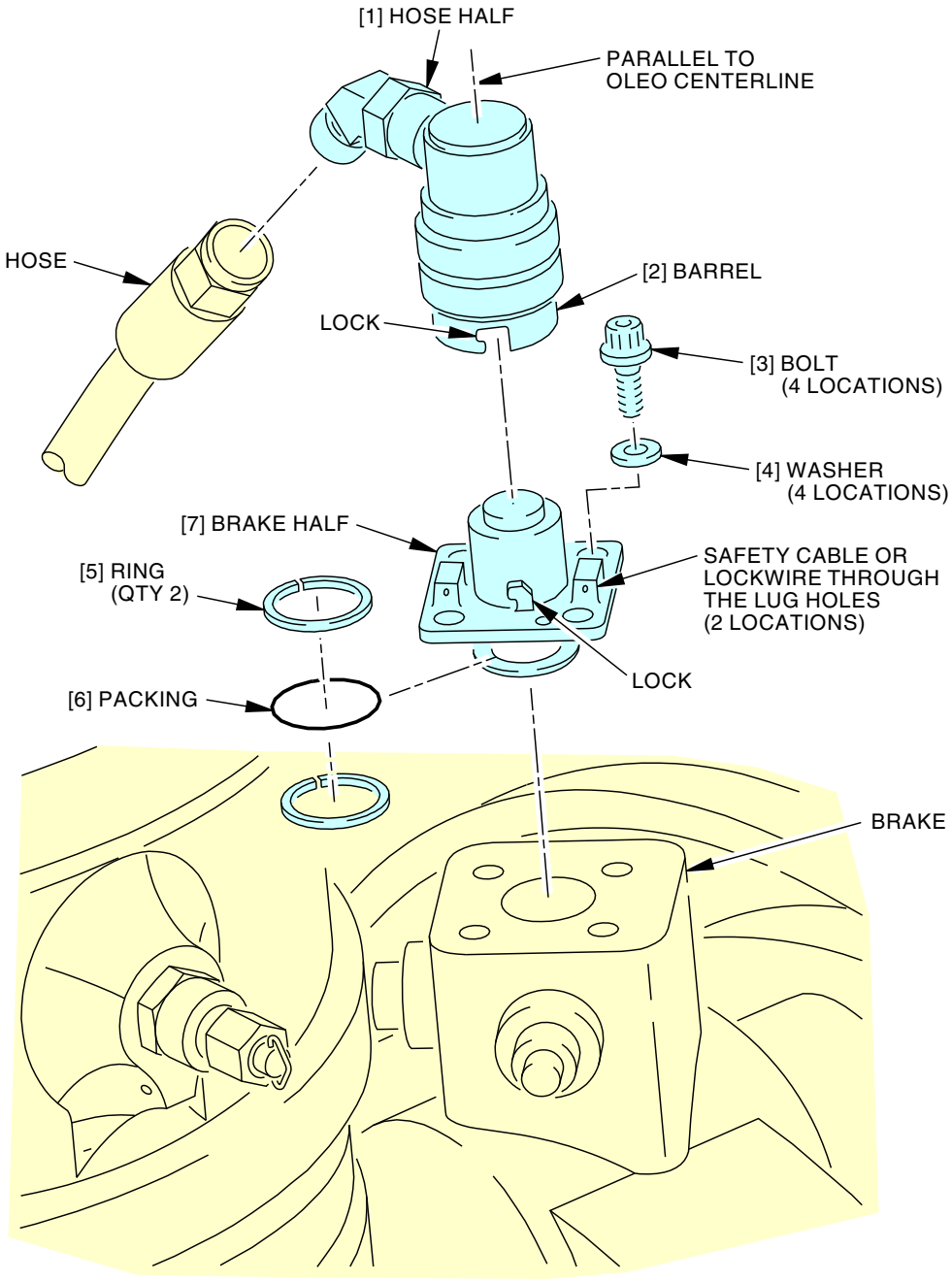



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**Brake Disconnect Installation**
**Figure 401/32-41-11-990-801 (Sheet 1 of 2)**



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**(EXAMPLE)**

**B**

2414342 S00061534950_V1

**Brake Disconnect Installation**
**Figure 401/32-41-11-990-801 (Sheet 2 of 2)**



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**TASK 32-41-11-400-801**

## 3. Brake Disconnect Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00571 | Grease - BATCO X8401-2 | |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Ring | 32-41-41-01-040 | SIA ALL |
| 6 | Packing | 32-41-41-01-045 | SIA ALL |
| 7 | Brake half | 32-41-11-01-015 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### F. Brake Disconnect Installation

**SUBTASK 32-41-11-420-001**

(1) Brake Disconnect Installation (Hose Half):

(a) Remove the cap/plug, STD-14686, from the hydraulic hose.

(b) Connect the hydraulic hose to the hose half [1] of the quick disconnect.

1) Orient the elbow fitting on the brake from parallel to the oleo centerline to ten degrees toward the oleo centerline (away from tire).

2) Torque the nut to 270 ±14 in-lb (31 ±2 N·m).

NOTE: Do not twist or make kinks in the hose while tightening the nut.

**SUBTASK 32-41-11-420-002**

(2) Brake Disconnect Installation (Brake Half):

(a) Lubricate the new packing [6] and the backup new rings [5] with hydraulic fluid, D00153.

(b) Install the new new packing [6] and the backup new rings [5] on the brake half [7] of the quick disconnect.

(c) Apply a thin layer of BATCO X8401-2 grease, D00571, to the brake half [7] of the disconnect.



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(d) Make sure the BATCO X8401-2 grease, D00571, is on the diametral surface above the upper retaining ring and the lower surface of the mounting flange.

(e) Install the brake half [7] of the quick disconnect on the brake.

1) Make sure the alignment pin on the brake goes into the alignment hole in the brake half [7] of the quick disconnect.

(f) Apply BATCO X8401-2 grease, D00571 to the bolts [3].

(g) Install the bolts [3] and washers [4] that hold the brake half [7] of the quick disconnect to the brake.

(h) Tighten the bolts [3] to 77 ±5 in-lb (8.7 ±0.6 N·m).

(i) Install lockwire (or safety cable) on the bolts [3] in pairs.

(j) Make sure the lockwire (or safety cable) passes through the lug hole to the other bolt head on each side of the quick disconnect (Figure 401).

**SUBTASK 32-41-11-420-003**

(3) Install the hose half [1] of the quick disconnect to the brake half [7] of the quick disconnect on the brake:

(a) Install the hose half [1] on the brake half [7]:

1) Turn the hose half [1] until the internal tangs align with the slots inside the brake half [7] and you can push the hose half [1] down.

2) Push down on the barrel [2] and turn the barrel [2] clockwise to engage the threads.

3) Turn the barrel [2] clockwise until the lock in the bottom of the barrel [2] snaps onto the external lock on the brake half [7].

4) Make sure the elbow fitting is parallel to the oleo centerline or up to ten degrees toward the shock strut to avoid hoses rubbing on the brake housing.

(b) Do a visual check to make sure the lock on hose half [1] is fully and correctly engaged with the lock on the brake half [7].

## G. Brake Disconnect Installation Test

**SUBTASK 32-41-11-790-001**

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) For the A and the B hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-41-11-860-004**

(2) Fully push and hold the captain's brake pedals.

NOTE: You can set the parking brake to hold the pedals.

**SUBTASK 32-41-11-790-002**

(3) Do a check of the hose half [1] and brake half [7] for leaks.

**SUBTASK 32-41-11-790-003**

(4) Release the captain's brake pedals (or parking brake).



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## H. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-41-11-860-005**

(1) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**——— END OF TASK ———**



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## BRAKE METERING VALVE CONTROL QUADRANT - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the brake metering valve control quadrant (referred to as the quadrant [22]).

(2) An installation of the brake metering valve control quadrant (referred to as the quadrant [22]).

B. There are two brake metering valve control quadrants on the airplane. One brake metering control quadrant is for the captain's brake system. The other brake metering control quadrant is for the first officer's brake system. This procedure is applicable to the two brake metering control quadrants.

**TASK 32-41-21-000-801**

### 2. Brake Metering Valve Control Quadrant Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 20-10-10-000-801 | Turnbuckle Lock Removal (P/B 401) |
| 25-22-00-000-801 | Passenger Seat Removal (P/B 401) |
| 25-27-15-000-801 | Carpet Removal (P/B 401) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-21-00-000-801 | Passenger Cabin Floor Panel Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1569 | Clamp - Control Cable<br>Part #: A20005-9 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

#### D. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

#### E. Prepare for the Removal

**SUBTASK 32-41-21-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.



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SUBTASK 32-41-21-840-001

(2) To get access to the forward cables [3] and the turnbuckles [2] (forward of the nose wheel well), do this step:

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

**SIA 001-014**

SUBTASK 32-41-21-840-002

(3) Remove the passenger seats from station 706 through station 727 (TASK 25-22-00-000-801).

NOTE: Do this step to get access to the quadrants of the brake metering valves.

**SIA ALL**

SUBTASK 32-41-21-840-003

(4) For the area that is below the seats you removed, do this task: Carpet Removal, TASK 25-27-15-000-801.

SUBTASK 32-41-21-840-004

(5) Remove the center floor panels to get access to the quadrants [22] for the brake metering valve (TASK 53-21-00-000-801).

## F. Brake Metering Valve Control Quadrant Removal

SUBTASK 32-41-21-020-001

(1) Install a control cable clamp, SPL-1569, on the two cables [39] that are connected to the quadrant [22] that you will remove.

NOTE: This will keep light tension on the cables [39]. Light tension on the cables [39] will prevent wind off on the cable drums and also make sure they do not move out from the pulley guides.

SUBTASK 32-41-21-020-002

(2) Go to the access opening that is forward of the nose wheel well and do these steps:

(a) Remove the locking clip [1] from the turnbuckle [2] on the brake forward cables [3] for the quadrant [22] you will remove (TASK 20-10-10-000-801).

(b) Loosen the turnbuckle [2] for the forward cable [3] to release the tension in the forward cable [3].

SUBTASK 32-41-21-020-003

(3) Go to the access opening in the passenger floor and do the steps that follow:

(a) Disconnect the cable [39] from the quadrant [22]:

1) Remove the pins [38], that hold the ends of the cables [39], from the quadrant [22].

2) Pull the fittings on the end of the cables [39] from the quadrant [22].

SUBTASK 32-41-21-020-004

(4) Go to the wheel well and remove components from the quadrant shaft as follows:

(a) Do the steps that follow to disconnect the control rod [6] from the crank [5].

1) Remove the nut [4], bolt [9], washer [12], retainer [10], and bushing [11].

2) Remove the control rod [6] end from its position in the crank [5].

(b) Do the steps that follow to remove the crank [5] from the quadrant shaft:



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1) Remove the cotter pin [30], nut [29], washer [27], washer [28], and the spacer [26] from the quadrant shaft.

2) Remove the bolt [20], washer [21] and nut [23] from the crank [5] on the quadrant shaft.

3) Remove the crank [5] and the spacer [25] from the quadrant shaft.

4) Install the spacer [25], spacer [26], washer [27], washer [28], and the nut [29] back on to the quadrant shaft.

NOTE: These parts are reinstalled to help keep the quadrant assembly in the support when you remove it.

(c) Remove the two bolts [14] and washers [15], and the two bolts [17] and washers [18] that hold the quadrant [22] to the pressure deck.

**SUBTASK 32-41-21-020-005**

(5) Go to the access opening in the passenger floor and do the steps that follow:

NOTE: It is necessary to have a person in the wheel well to turn the nuts [31] and nuts [33] while you hold the bolts [36] and bolts [37].

(a) Remove the two bolts [36], washers [34] and nuts [33], and two bolts [36], washers [32] and nuts [31] that hold the quadrant [22] to the pressure deck.

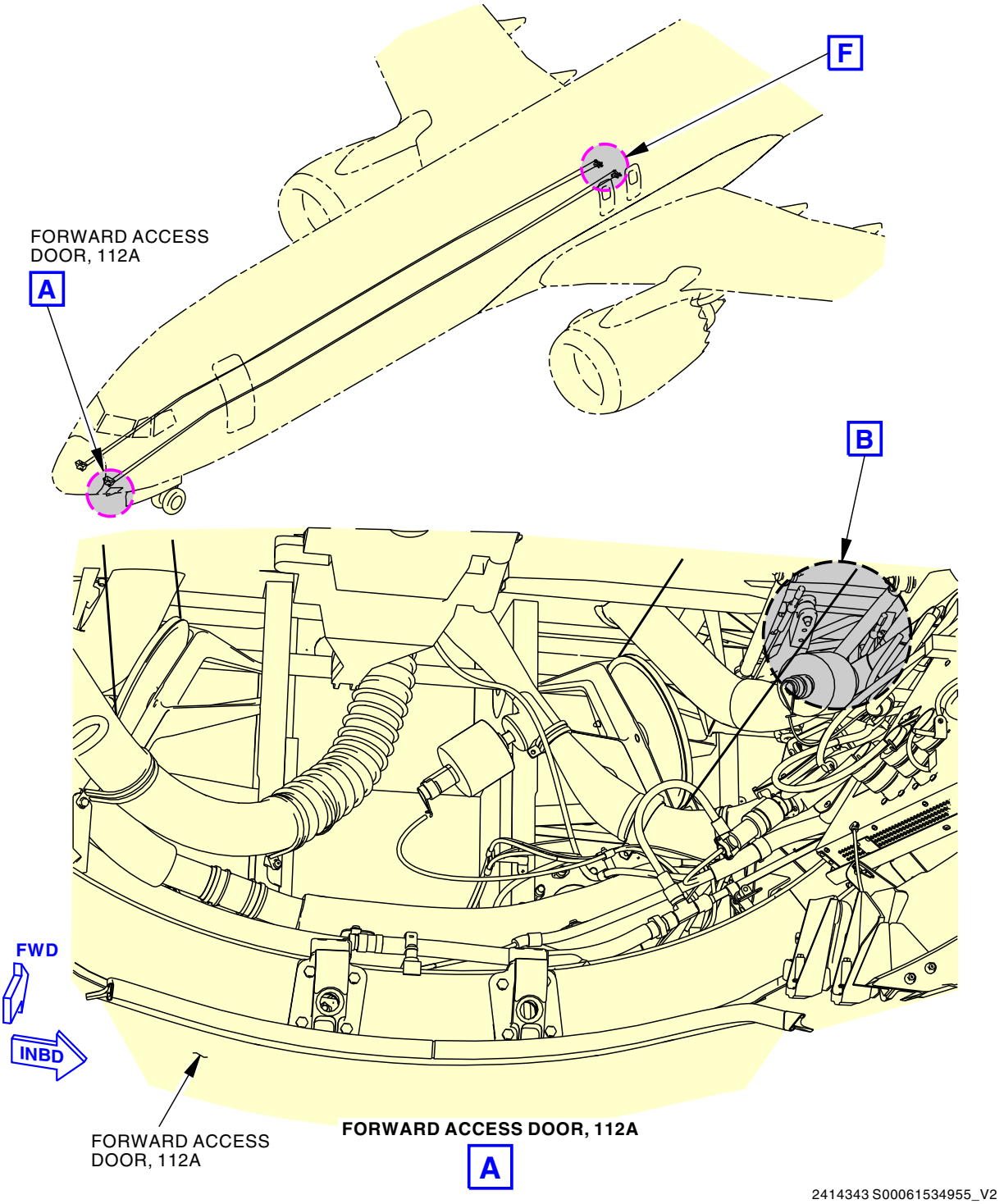
1) Make sure the person in the wheel well holds the rig pin bracket [13] and removes it when the bolts [36] and bolts [37] are removed.

(b) Remove the quadrant [22] from the pressure deck.

**——— END OF TASK ———**



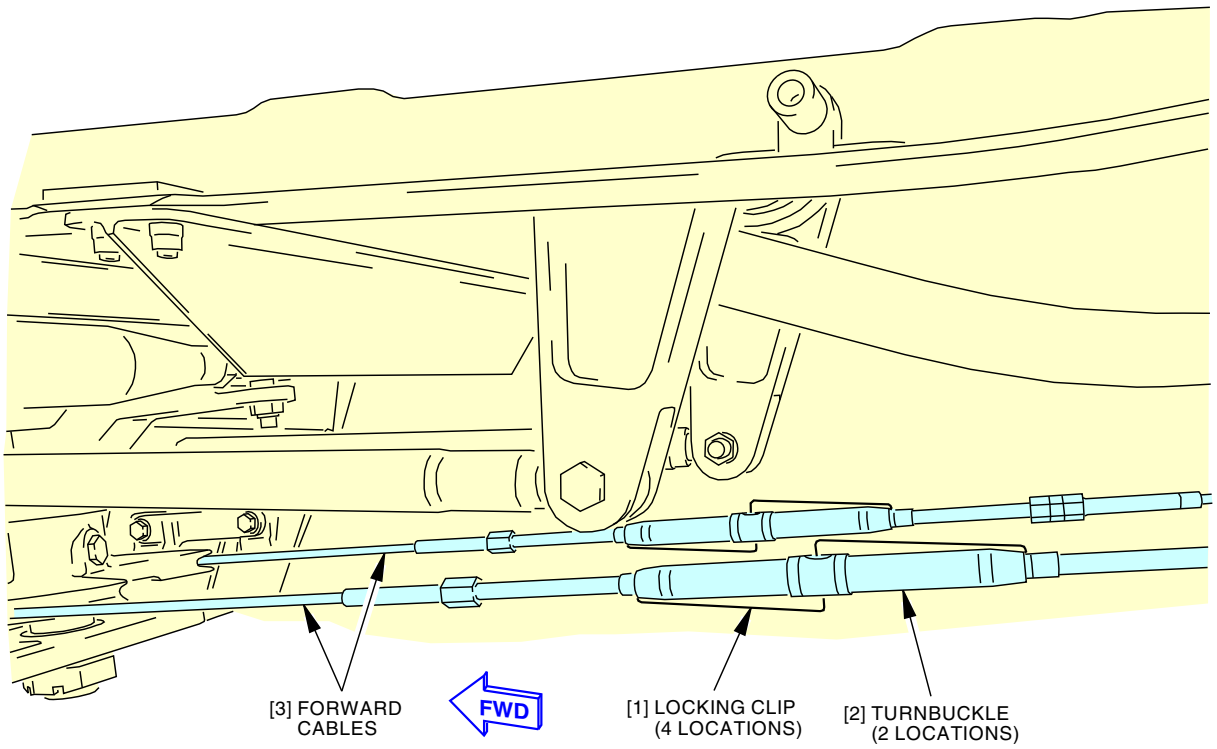
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**Brake Metering Valve Control Quadrant Installation**
**Figure 401/32-41-21-990-801 (Sheet 1 of 6)**



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**RIGHT BRAKE CABLES**
**(LEFT BRAKE CABLES ARE EQUIVALENT)**

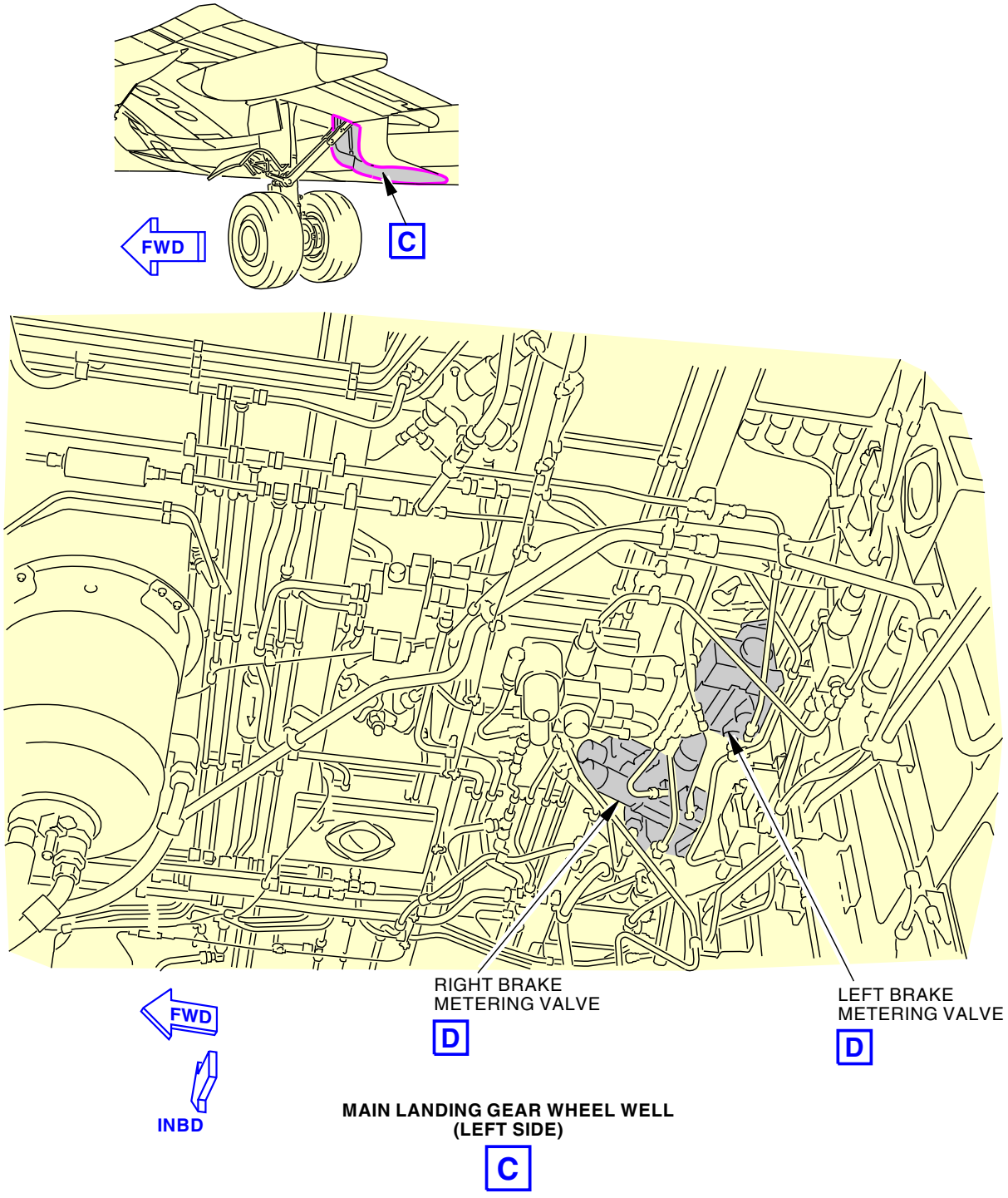
**B**

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**Brake Metering Valve Control Quadrant Installation**
**Figure 401/32-41-21-990-801 (Sheet 2 of 6)**



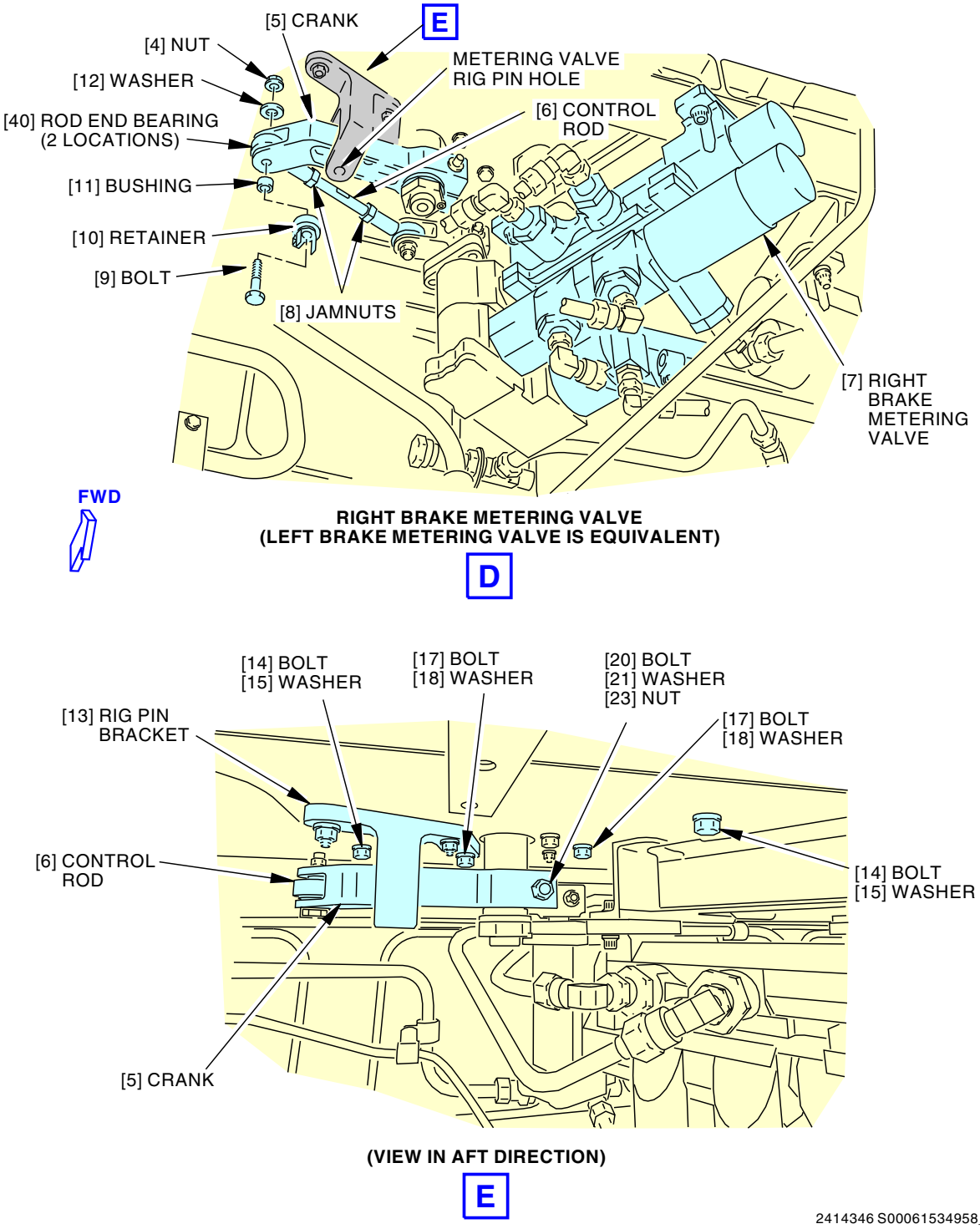
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**Brake Metering Valve Control Quadrant Installation**
**Figure 401/32-41-21-990-801 (Sheet 3 of 6)**



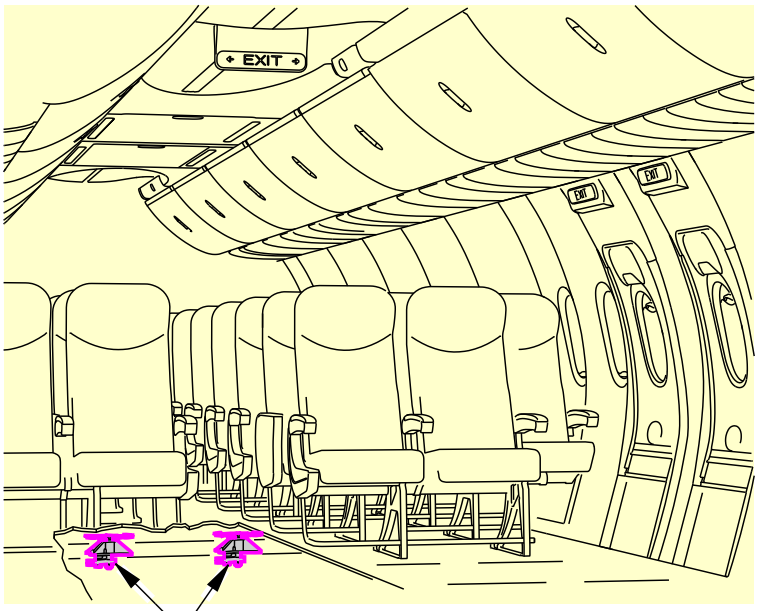
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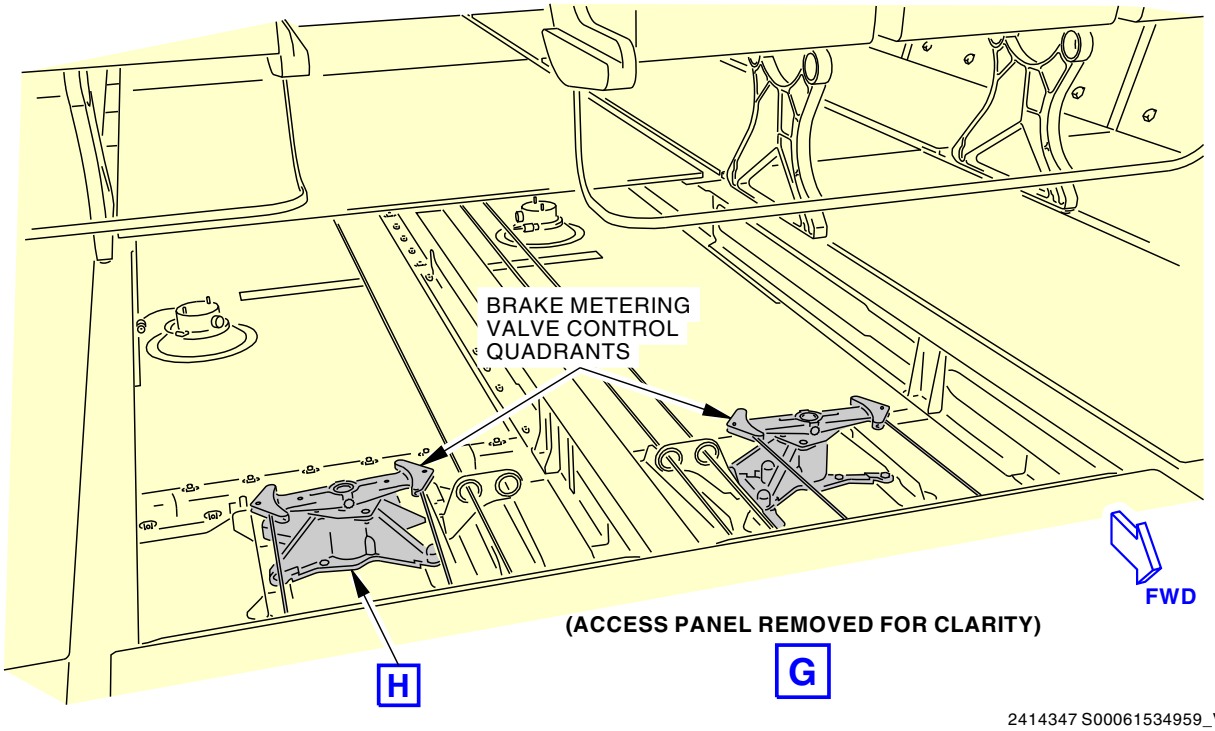



**Brake Metering Valve Control Quadrant Installation**
**Figure 401/32-41-21-990-801 (Sheet 4 of 6)**



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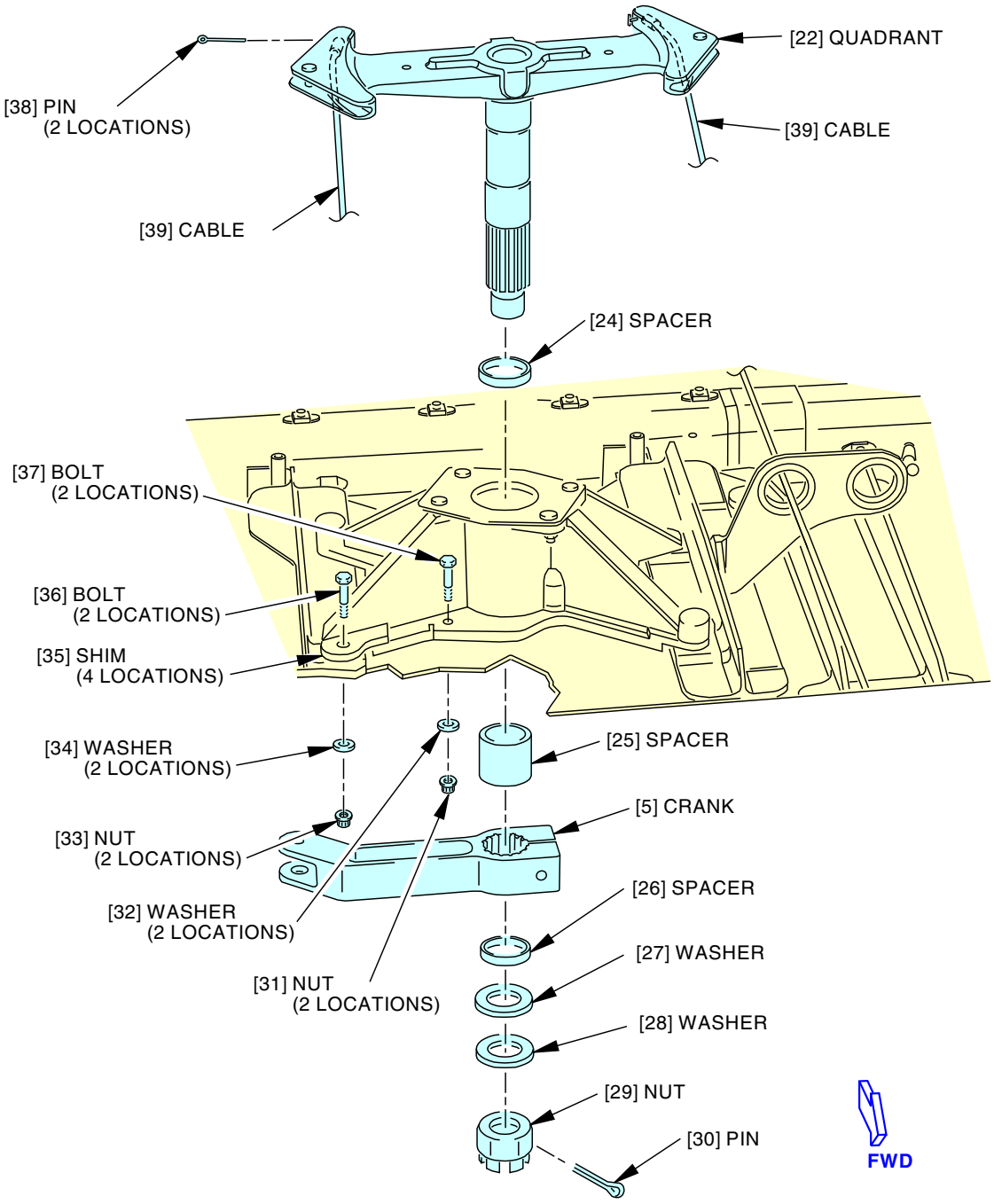




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**Brake Metering Valve Control Quadrant Installation**
**Figure 401/32-41-21-990-801 (Sheet 5 of 6)**



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**RIGHT BRAKE METERING VALVE CONTROL QUADRANT**

H

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**Brake Metering Valve Control Quadrant Installation**
**Figure 401/32-41-21-990-801 (Sheet 6 of 6)**



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**TASK 32-41-21-400-801**

## 3. Brake Metering Valve Control Quadrant Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 20-10-10-400-801 | Turnbuckle Lock Installation (P/B 401) |
| 25-22-00-400-801 | Passenger Seat Installation (P/B 401) |
| 25-27-15-400-801 | Carpet - Installation (P/B 401) |
| 32-41-00-820-801 | Hydraulic Brake System Adjustment (P/B 501) |
| 53-21-00-400-801 | Passenger Cabin Floor Panel Installation (P/B 401) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1569 | Clamp - Control Cable<br>Part #: A20005-9 Supplier: 81205 |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| C00259 | Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer | BMS10-11 Type I |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 22 | Quadrant | 32-41-21-03-090 | SIA ALL |
| | | 32-41-21-03-095 | SIA ALL |
| 30 | Pin | 32-41-21-03-070 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### F. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### G. Brake Metering Valve Control Quadrant Installation

**SUBTASK 32-41-21-160-001**

(1) Make sure that the pressure deck is clean in the area where the quadrant [22] is installed.



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SUBTASK 32-41-21-020-006

(2) Do the steps that follow to install shims [35] at the four outer bolt [36] and bolt [37] locations for the quadrant [22]:

(a) Put shims [35] on the pressure deck at the four outer bolt [36] and bolt [37] locations for the quadrant [22].

(b) Put the quadrant [22] in its location on the shims [35] and pressure deck.

(c) Make sure that the clearance between each shim [35] and the quadrant [22] is 0.005 in. (0.127 mm) or less.

(d) If the clearance at a shim [35] is too large, remove laminations from the other shims [35] to get the tolerance at that shim [35].

(e) Remove the quadrant [22] from its position.

(f) Re-install the shims [35] with wet primer, C00259.

SUBTASK 32-41-21-390-001

(3) Use sealant, A00247, to apply a fay surface seal to the surface between the quadrant [22], the pressure deck and around the shims [35].

NOTE: Make sure there is no obstructions that cover the drain hole for the control quadrant assembly.

SUBTASK 32-41-21-420-001

(4) Put the quadrant [22] in its location on the shims [35] and pressure deck.

SUBTASK 32-41-21-390-002

(5) In the wheel well, use sealant, A00247, to apply a fay surface seal to the surface between the rig pin bracket [13] and the ceiling of the wheel well.

SUBTASK 32-41-21-420-002

(6) Put the rig pin bracket [13] in its location on the wheel well ceiling when you install the bolts [36] and bolts [37] in the next step.

SUBTASK 32-41-21-020-007

(7) Do the steps that follow to install the bolts [36] and bolts [37] in the passenger compartment for the quadrant [22]:

NOTE: It is necessary to have a person in the wheel well to turn the nuts [31] and nuts [33] while you hold the bolts [36] and bolts [37].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply corrosion inhibiting material, G50136 to the two bolts [36], washers [34] and nuts [33], and two bolts [37], washers [32] and nuts [31].

(b) Install the two bolts [36], washers [34] and nuts [33], and two bolts [37], washers [32] and nuts [31], which hold the quadrant [22]c to the pressure deck.

1) Make sure that the person in the wheel well holds the rig pin bracket [13] to the wheel well ceiling when you install the bolts [36] and bolts [37].



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SUBTASK 32-41-21-420-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(8) Go to the wheel well and install the components for the quadrant [22] as follows:

(a) Apply corrosion inhibiting material, G50136, to the two bolts [14] and washers [15], and two bolts [17] and washers [18].

(b) Install the two bolts [14] and washers [15], and two bolts [17] and washers [18] that hold the quadrant [22] to the pressure deck.

(c) Remove the cotter pin [30], nut [29], washer [27], washer [28], spacer [25], and spacer [26] if they are installed on the quadrant [22] shaft.

(d) Install the spacer [25] on the quadrant [22] shaft.

(e) Install the crank [5] on the quadrant [22] shaft with the chamfer side of the spline toward the spacer [25].

(f) Install the spacer [26], washer [27], washer [28], and nut [29] on the quadrant [22] shaft.

(g) Tighten the nut [29]nut [29] to 22.5 ±12.5 in-lb (2.5 ±1.5 N·m).

(h) Install the new cotter pin [30] in the nut [29] and the shaft.

(i) Apply corrosion inhibiting material, G50136, to the bolt [20] for the crank [5].

(j) Install the bolt [20], washer [21], and nut [23] on the crank [5] to hold it to the quadrant [22] shaft.

SUBTASK 32-41-21-420-004

(9) Do the steps that follow to connect the control rod [6] to the crank [5].

(a) Put the control rod [6] in its position in the crank [5].

(b) Install the bushing [11] and then the retainer [10] on the crank [5].

(c) Install the bolt [9], washer [12], and nut [4] to connect the control rod [6] to the crank [5].

(d) Lubricate the two rod end bearings [40] with grease, D00633.

SUBTASK 32-41-21-420-005

(10) Go to the access opening in the passenger floor and do the steps that follow:

(a) Connect the cables [39] to the quadrant [22]:

1) Put the fittings on the end of the cables [39] in their position in the quadrant [22].

2) Install the new pins [38] that hold the ends of the cables [39] in the quadrant [22].

SUBTASK 32-41-21-020-008

(11) Go to the access opening that is forward of the nose wheel well and do the following:

(a) Tighten the turnbuckles [2] for the forward cables [3] to put the cables in light tension.

SUBTASK 32-41-21-020-009

(12) Do this task: Hydraulic Brake System Adjustment, TASK 32-41-00-820-801.

(a) Make sure you remove the control cable clamp, SPL-1569, from the two cables [39] that are connected to the quadrant [22] before you adjust the control cables.



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(b) Make sure that locking clips [1] are installed on the turnbuckles [2] when you have adjusted the forward cables [3] (TASK 20-10-10-400-801).

## H. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-41-21-840-005**

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

**SUBTASK 32-41-21-840-006**

(2) Install the floor panels (TASK 53-21-00-400-801).

**SUBTASK 32-41-21-840-007**

(3) Do this task: Carpet - Installation, TASK 25-27-15-400-801.

**SIA 001-014**

**SUBTASK 32-41-21-840-008**

(4) Do this task: Passenger Seat Installation, TASK 25-22-00-400-801.

**——— END OF TASK ———**



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## BRAKE METERING VALVE ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Brake Metering Valve Removal

(2) Brake Metering Valve Installation

(3) Brake Metering Valve Detailed Inspection

B. There are two brake metering valves. There is one for each main landing gear. Each brake metering valve supplies normal system braking and alternate system braking.

C. This procedure gives instructions to remove one brake metering valve, but it is applicable for the two brake metering valves.

D. The brake metering valves are in the aft section of the main landing gear wheel well on the ceiling.

**TASK 32-41-31-000-801**

### 2. Brake Metering Valve Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

#### D. Prepare for the Removal

**SUBTASK 32-41-31-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-31-480-002**

(2) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-31-860-001**

(3) Release the parking brake.



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SUBTASK 32-41-31-860-002

(4) To release the pressure from the normal brake (System B) and the alternate brake (System A) hydraulic system, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-41-31-840-001

(5) Fully push the brake pedals 12 times to remove hydraulic pressure from the brake accumulator.

## E. Brake Metering Valve Removal

SUBTASK 32-41-31-020-001

(1) Install labels on the hydraulic lines to make the installation easier.

SUBTASK 32-41-31-020-002

(2) Disconnect the hydraulic lines from the brake metering valve [1]:

SUBTASK 32-41-31-480-003

(3) Install caps/plugs, STD-14686, in the hydraulic lines and hydraulic fittings on the brake metering valve [1].

SUBTASK 32-41-31-020-003

(4) Remove the nut [10], washer [9] and bolt [8] that hold the crank to the shaft [11] on the brake metering valve [1].

SUBTASK 32-41-31-020-004

(5) Remove the nuts [12], washers [13], washers [5], bolt [3], bolt [4], bolt [6], and the bolt [7] that hold the brake metering valve [1] to the wheel well ceiling.

SUBTASK 32-41-31-020-005

(6) If the replacement brake metering valve [1] does not have hydraulic fittings installed, do these steps:

(a) Remove the adapters [20], adapter [24], adapters [29], packings [14], packings [16], packings [17], packings [19], packing [21], packing [23], and the rings [15], rings [18], ring [22] from the removed brake metering valve [1].

(b) Remove the filters [25], packings [26], packings [28], and rings [27] from the removed brake metering valve [1].

(c) Discard the packings [14], packings [16], packings [17], packings [19], packing [21], packing [23], packings [26], packings [28] and the rings [15], rings [18], ring [22], rings [27].

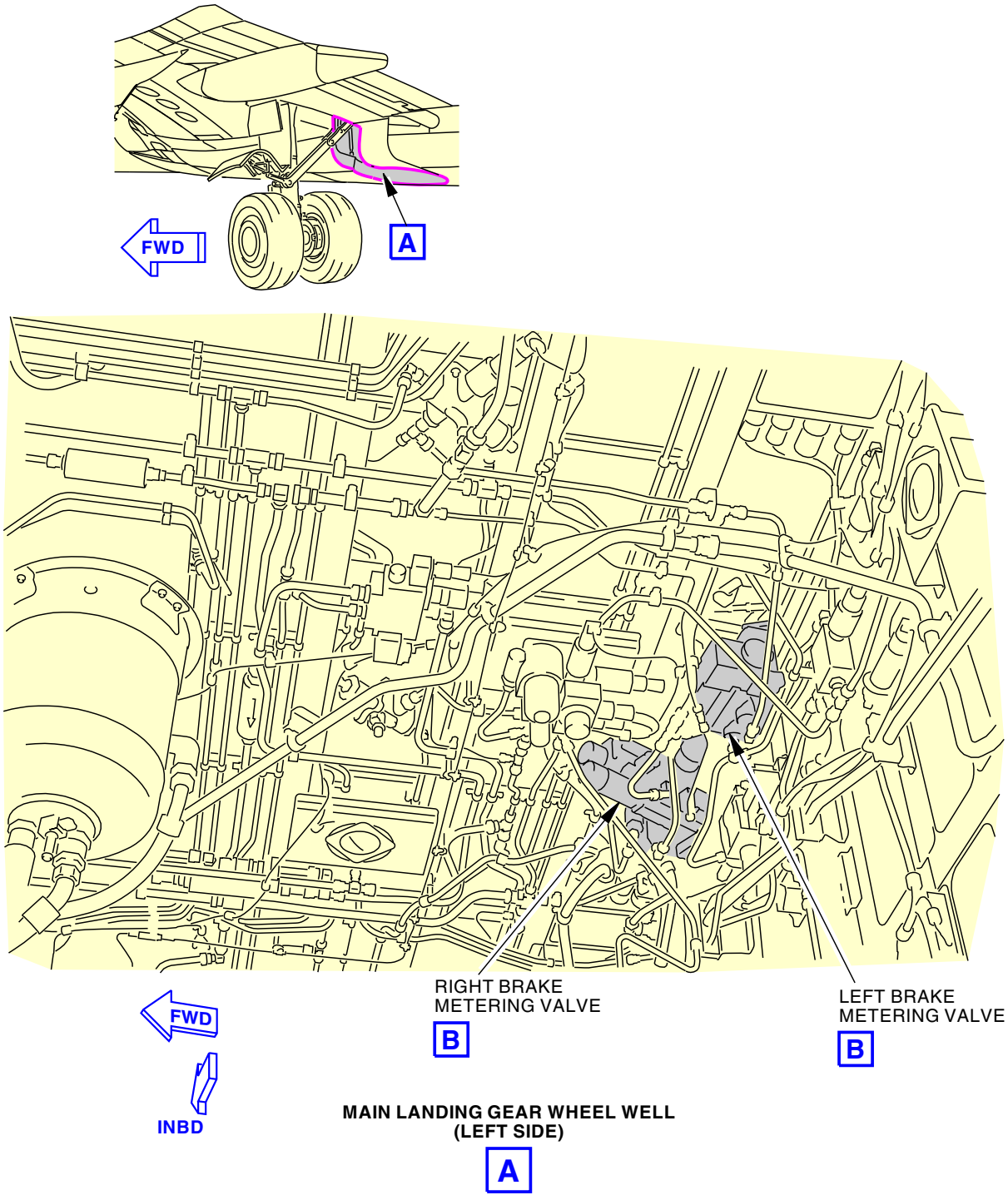
SUBTASK 32-41-31-480-004

(7) Install caps/plugs, STD-14686, in the ports of the brake metering valve [1].

——— END OF TASK ———



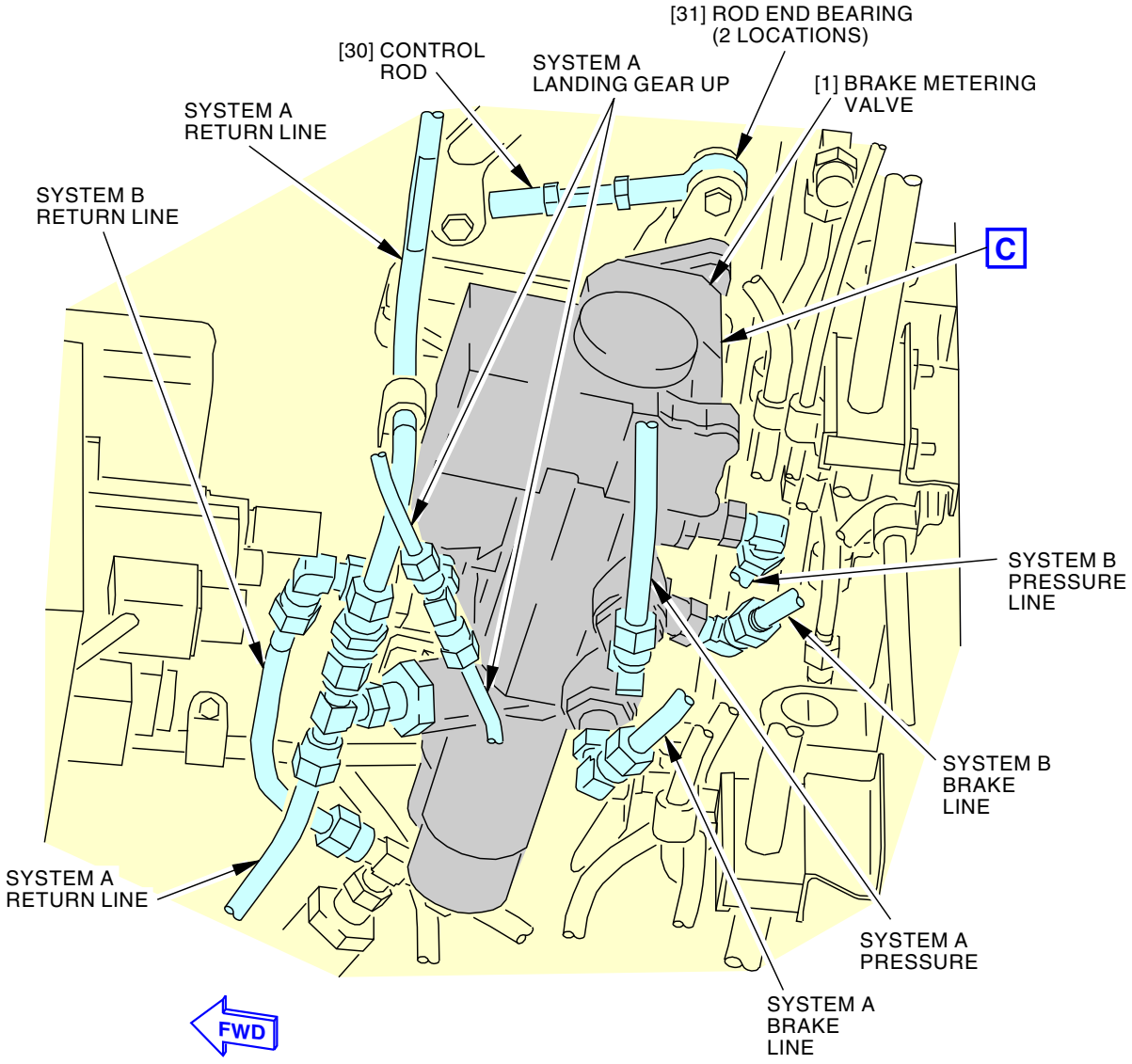
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Brake Metering Valve Installation**
**Figure 401/32-41-31-990-801 (Sheet 1 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**LEFT BRAKE METERING VALVE**
**(RIGHT BRAKE METERING VALVE IS EQUIVALENT)**

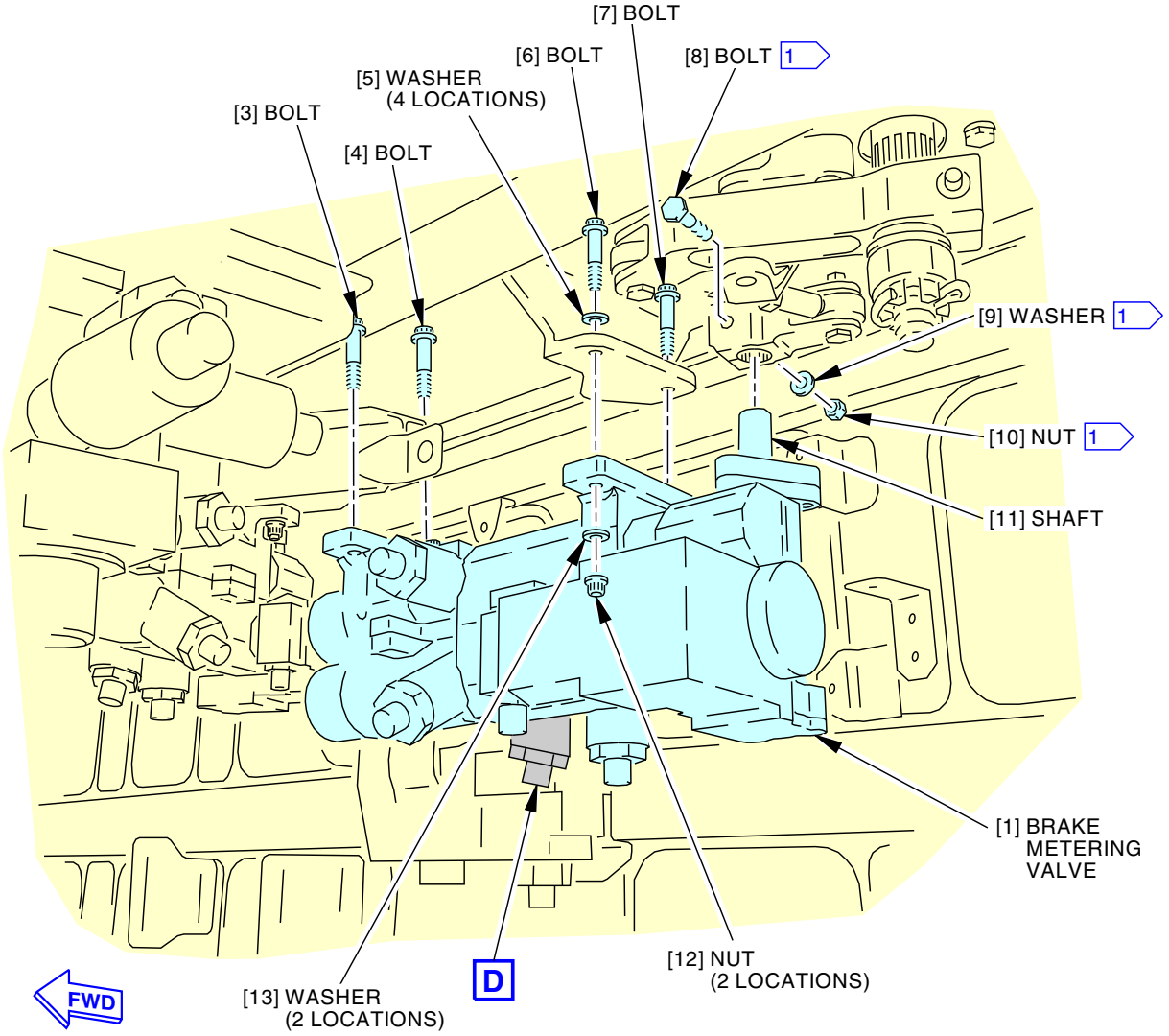
**B**

2414350 S00061534966_V2

**Brake Metering Valve Installation**
**Figure 401/32-41-31-990-801 (Sheet 2 of 4)**



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**BRAKE METERING VALVE INSTALLATION**

C

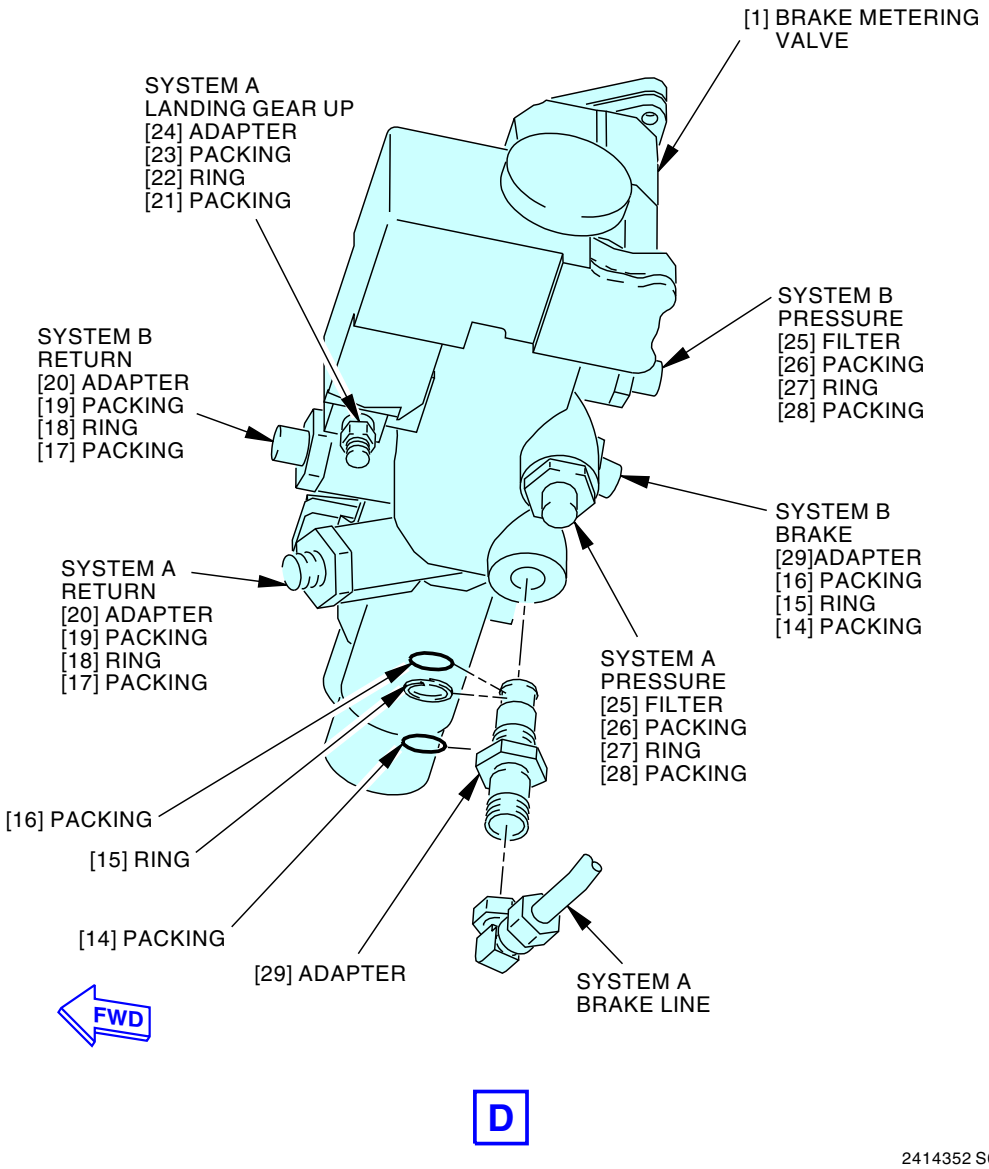
1 LEFT SIDE BOLT HEAD FACES FORWARD AS SHOWN, RIGHT SIDE BOLT HEAD FACES AFT

2984367 S0000762261_V1

**Brake Metering Valve Installation**
**Figure 401/32-41-31-990-801 (Sheet 3 of 4)**



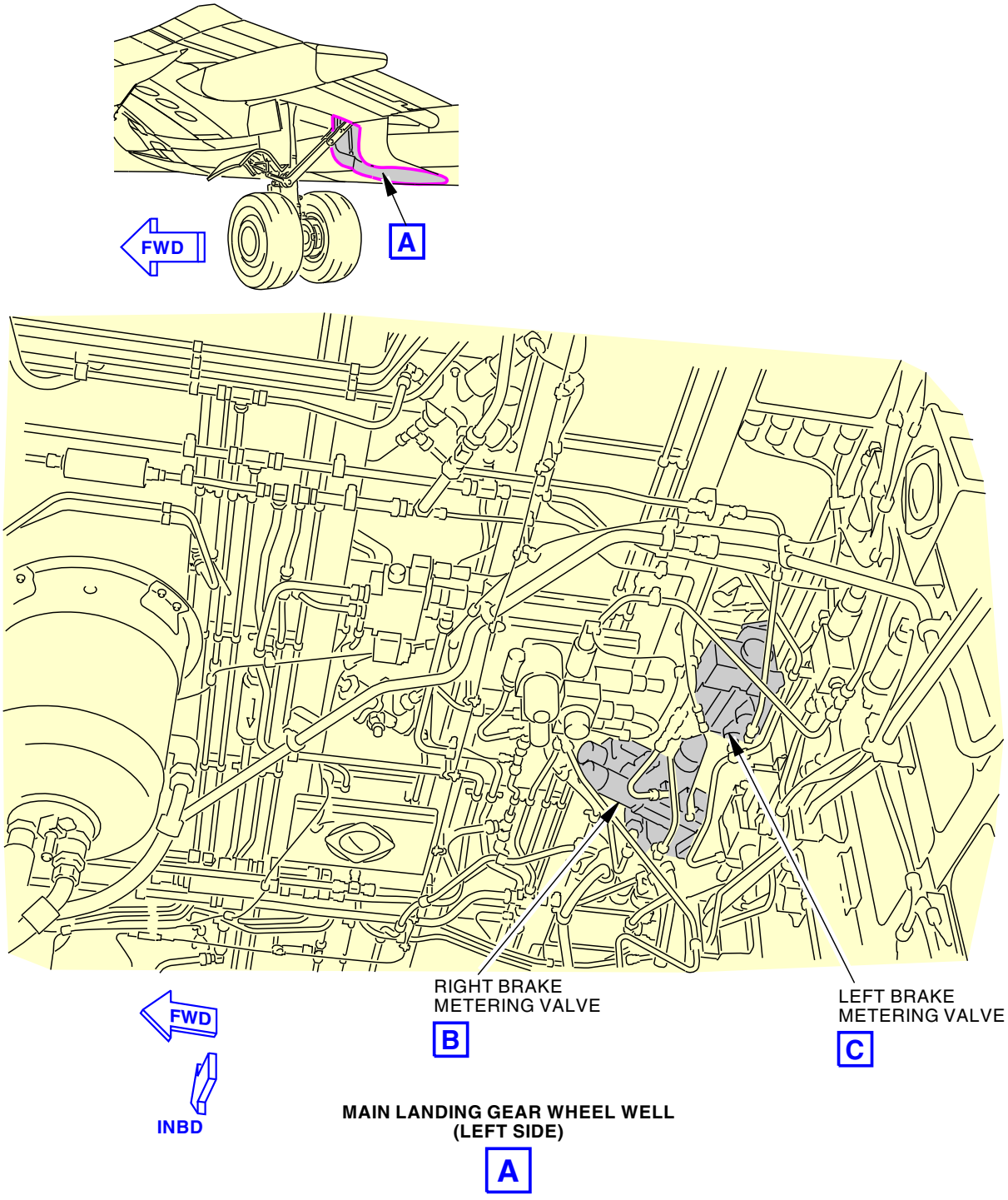
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Brake Metering Valve Installation**
**Figure 401/32-41-31-990-801 (Sheet 4 of 4)**



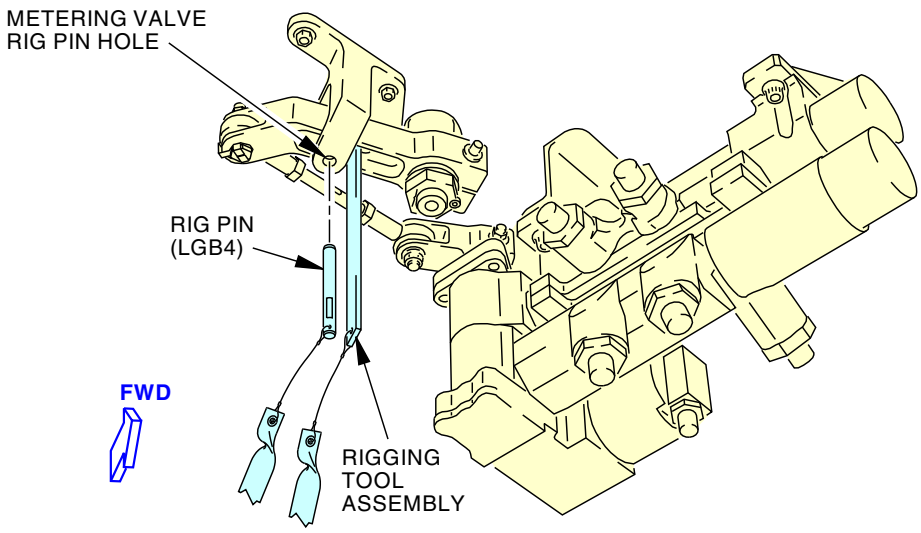
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Brake Metering Valve Rig Pin Installation**
**Figure 402/32-41-31-990-802 (Sheet 1 of 2)**

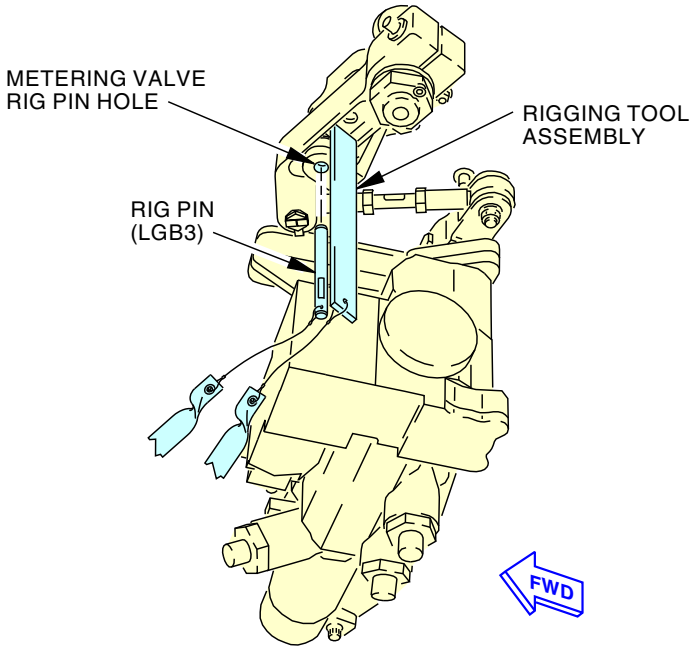


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**RIGHT BRAKE METERING VALVE**

**B**




**LEFT BRAKE METERING VALVE**

**C**

2414354 S00061534970_V1

**Brake Metering Valve Rig Pin Installation**
**Figure 402/32-41-31-990-802 (Sheet 2 of 2)**



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**TASK 32-41-31-400-801**

**3. Brake Metering Valve Installation**

(Figure 401, Figure 402)

**A. References**

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-41-00-820-801 | Hydraulic Brake System Adjustment (P/B 501) |
| 32-41-00-870-801 | Hydraulic Brake System Upstream of the Antiskid Valves Bleeding (P/B 201) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Brake metering valve | 32-41-31-03-090 | SIA ALL |
| 14 | Packing | 32-41-31-03-060 | SIA ALL |
| 15 | Ring | 32-41-31-03-055 | SIA ALL |
| 16 | Packing | 32-41-31-03-060 | SIA ALL |
| 17 | Packing | 32-41-31-03-045 | SIA ALL |
| 18 | Ring | 32-41-31-03-035 | SIA ALL |
| 19 | Packing | 32-41-31-03-040 | SIA ALL |
| 21 | Packing | 32-41-31-03-025 | SIA ALL |
| 22 | Ring | 32-41-31-03-015 | SIA ALL |
| 23 | Packing | 32-41-31-03-020 | SIA ALL |
| 26 | Packing | 32-41-31-03-085 | SIA ALL |
| 27 | Ring | 32-41-31-03-075 | SIA ALL |
| 28 | Packing | 32-41-31-03-080 | SIA ALL |
| 31 | Rod end bearing | 32-41-21-05-070 | SIA ALL |
| | | 32-41-21-05-075 | SIA ALL |



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**E. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**F. Brake Metering Valve Installation**

SUBTASK 32-41-31-080-001

(1) Remove all caps/plugs, STD-14686, that are in the ports of the brake metering valve [1].

SUBTASK 32-41-31-420-001

(2) If the replacement brake metering valve [1] does not have hydraulic fittings installed, do these steps:

(a) Lubricate the adapters [20], adapter [24], adapters [29], filters [25], new packings [14], new packings [16], new packings [17], new packings [19], new packing [21], new packing [23], new packings [26], new packings [28], new rings [15], new rings [18], new ring [22], and new rings [27] with hydraulic fluid, D00153.

(b) Install the new ring [18], new packing [17], and new packing [19] on each of the adapters [20].

(c) Install the new ring [22], new packing [21], and new packing [23] on the adapter [24].

(d) Install the new ring [15], new packing [14], and new packing [16] on each of the adapters [29].

(e) Install the new ring [27], new packing [26], and new packing [28] on each of the filters [25].

(f) Install the fittings in the brake metering valve [1].

SUBTASK 32-41-31-420-002

(3) Install rig pin LGB3 (left side) or rig pin LGB4 (right side), F70207-88, from rigging pin kit, SPL-1585, through the rig pin hole for the brake metering valve [1].

SUBTASK 32-41-31-420-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(4) Apply corrosion inhibiting material, G50136, to the bolt [3], bolt [4], bolt [6], bolt [7], washers [13], washers [5], and nuts [12] for the brake metering valve [1].

SUBTASK 32-41-31-420-004

(5) Hold the brake metering valve [1] in its position on the airplane such that the shaft [11] goes into the crank.

SUBTASK 32-41-31-020-006

(6) Install the bolt [3], bolt [4], bolt [6], bolt [7], washers [13], washers [5], and nuts [12], to hold the brake metering valve [1] to the wheel well ceiling.



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SUBTASK 32-41-31-420-005

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(7) Apply corrosion inhibiting material, G50136, to the bolt [8], washer [9], and nut [10] that hold the crank to the shaft [11].

SUBTASK 32-41-31-020-007

(8) Install the nut [10], washer [9], and bolt [8] to hold the crank to the shaft [11] on the brake metering valve [1].

(a) For the right brake metering valve installation, make sure that the bolt [8] head points in the aft direction.

SUBTASK 32-41-31-820-001

(9) Make sure that the rig pin LGB3 or LGB4 moves freely through the rig pin hole.

(a) If you can not move the rig pin freely, do the adjustment of the brake metering valve.

1) Do this task: Hydraulic Brake System Adjustment, TASK 32-41-00-820-801.

SUBTASK 32-41-31-080-002

(10) Remove the rig pin LGB3 or LGB4.

SUBTASK 32-41-31-080-003

(11) Remove the caps/plugs, STD-14686, from the hydraulic lines.

SUBTASK 32-41-31-420-006

(12) Connect the hydraulic lines to the brake metering valve [1].

NOTE: Each port on the metering valve may have marking of designated hydraulic system, and it may not correspond to the hydraulic system used on aircraft. Refer to Figure 401 for the correct connection.

(a) Tighten the B-nuts on the System A Pressure and Brake hydraulic lines to 270 ±14 in-lb (31 ±2 N·m).

(b) Tighten the B-nuts on the System B Pressure and Brake hydraulic lines to 270 ±14 in-lb (31 ±2 N·m).

(c) Tighten the B-nuts on the System A Return hydraulic lines to 270 ±14 in-lb (31 ±2 N·m).

(d) Tighten the B-nut on the System B Return hydraulic line to 270 ±14 in-lb (31 ±2 N·m).

(e) Tighten the B-nuts on the System A Landing Gear Up hydraulic lines to 140 ±7 in-lb (16 ±1 N·m).

SUBTASK 32-41-31-640-001

(13) Lubricate the two rod end bearings [31] with grease, D00633.

## G. Brake Metering Valve Installation Test

SUBTASK 32-41-31-790-001

(1) Do these steps to do a leak check and an operational check of the brake metering valve for each hydraulic system:

(a) For the normal (System B) hydraulic system:



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**WARNING** MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROLS SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.
2) Fully push the captain's brake pedals twelve times.
3) Make sure that there are no leaks around the brake metering valve.
4) Examine the brake wear indicators on the brakes to make sure that the brakes engaged.

(b) For the alternate (System A) hydraulic system:

**WARNING** MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROLS SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

1) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.
2) Fully push the captain's brake pedals twelve times.
3) Make sure that there are no leaks around the brake metering valve.
4) Examine the brake wear indicators on the brakes to make sure that the brakes engaged.

**SUBTASK 32-41-31-790-002**

(2) Do a gear retract braking actuator check:

**WARNING** MAKE SURE ALL PERSONS AND EQUIPMENT ARE CLEAR OF THE FLIGHT CONTROLS SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) For the normal (System B) and the alternate (System A) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(b) Move the control lever for the landing gear to the UP position.

NOTE: Each gear door connects to each shock strut and only moves when that landing gear extends or retracts.

(c) Examine the brake wear indicators on the brakes to make sure that the brakes engaged.

(d) Make sure there that the valve assembly does not produce noise or unusual sound.

(e) Make sure that there are no leaks around the brake metering valve.

(f) Move the control lever for the landing gear to the DN position.

(g) Examine each brake’s pistons to make sure that all brakes are released.



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SUBTASK 32-41-31-710-001

(3) For each hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-41-31-710-002

(4) Bleed the hydraulic systems:

(a) For the normal brake metering valves, do this task: Hydraulic Brake System Upstream of the Antiskid Valves Bleeding, TASK 32-41-00-870-801.

(b) For the alternate brake metering valves, do this task: Hydraulic Brake System Upstream of the Antiskid Valves Bleeding, TASK 32-41-00-870-801.

——— END OF TASK ———

**TASK 32-41-31-000-802**

**4. Brake Metering Valve Detailed Inspection**

(Figure 403)

NOTE: This procedure is a scheduled maintenance task.

**A. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

**B. Brake Metering Valve Detailed Inspection**

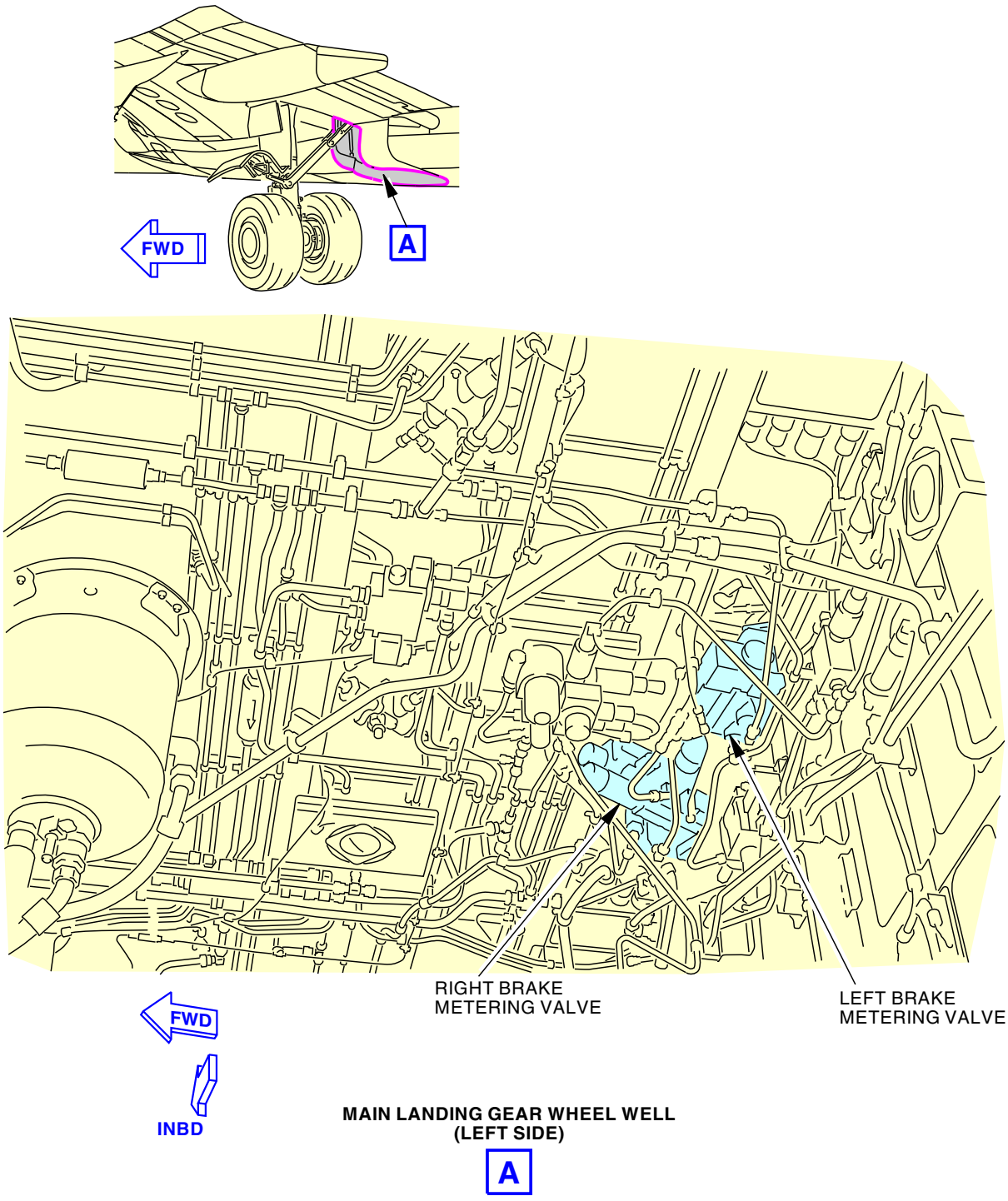
SUBTASK 32-41-31-210-001

(1) Do a detailed visual inspection of the brake metering valve.

——— END OF TASK ———



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**Brake Metering Valve - Detailed Inspection**
**Figure 403/32-41-31-990-803**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## MAIN LANDING GEAR BRAKE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the main landing gear brake

(2) An installation of the main landing gear brake.

**TASK 32-41-41-000-801**

### 2. Main Landing Gear Brake Removal

(Figure 401 or Figure 402)

#### A. General

(1) This task gives the instructions to remove the Main Landing Gear (MLG) brake.

#### B. References

| Reference | Title |
|---|---|
| 05-51-07-210-801 | High Energy Stop (P/B 201) |
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-41-11-000-801 | Brake Disconnect Removal (P/B 401) |
| 32-45-11-000-801 | Main Landing Gear Wheel and Tire Assembly Removal (P/B 401) |
| 32-46-21-000-801 | Brake Temperature Sensor Removal (P/B 401) |

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1816 | Sling - Hot Brake, 6 Foot Mesh Length, 6 Inch Mesh Width<br>Part #: 6T112X6 Supplier: 23755<br>Part #: SLG35-6X72-002-01 Supplier: 10380 |
| COM-1818 | Dolly - Wheel/Brake Change<br>Part #: 15F590 Supplier: 56535<br>Part #: 17500M Supplier: 94861<br>Part #: 175S-2 Supplier: 94861<br>Part #: 9092-016 Supplier: 00994<br>Part #: IA3201A-500 Supplier: 053H3<br>Part #: MH13-003 Supplier: D2029<br>Part #: SCA150KG Supplier: R9624<br>Part #: STC90475-101 Supplier: 07132<br>Opt Part #: 175 Supplier: 94861<br>Opt Part #: 8436-012 Supplier: 00994<br>Opt Part #: 9092-010 Supplier: 00994<br>Opt Part #: 9092-015 Supplier: 00994<br>Opt Part #: PF32-002-1 Supplier: 3D5B2<br>Opt Part #: TB900 Supplier: 56535 |


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(Continued)

| Reference | Description |
|---|---|
| COM-1823 | Cradle - Brake<br>Part #: BC400P Supplier: 94861<br>Opt Part #: BC400 Supplier: 94861 |
| COM-1874 | Bar - Tow, Dolly, Wheel and Brake<br>Part #: 9092F Supplier: 00994 |
| COM-13594 | Dolly - Brake Change<br>Part #: 15F3702 Supplier: 56535<br>Part #: STC90474-101 Supplier: 07132 |
| SPL-1876 | MLG Axle Thread Protector Equipment<br>Part #: C32022-38 Supplier: 81205<br>Opt Part #: C32022-15 Supplier: 81205<br>Opt Part #: C32022-17 Supplier: 81205<br>Opt Part #: C32022-23 Supplier: 81205 |
| SPL-14320 | Protector - Thread, Eqpt, MLG Axle (1/8 inch undersized threads)<br>Part #: C32022-39 Supplier: 81205<br>Opt Part #: C32022-32 Supplier: 81205 |

## D. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## E. Prepare for the Removal

SUBTASK 32-41-41-840-001

(1) For ground safety precautions necessary in the handling of hot brakes, refer to this task: High Energy Stop, TASK 05-51-07-210-801.

SUBTASK 32-41-41-480-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-41-41-020-001

(3) Do this task: Main Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-11-000-801.

NOTE: This procedure will install the equipment to protect the axle. Leave the equipment installed for the brake removal in subsequent steps.

SUBTASK 32-41-41-860-001

(4) Deactivate the hydraulic system A and B power (TASK 29-11-00-860-805).

SUBTASK 32-41-41-480-002

(5) Make sure that the tires for the nose landing gear and for the other main landing gear have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-41-860-002

(6) Release the parking brake.



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SUBTASK 32-41-41-860-003

(7) Fully push the captain's or first officer's brake pedals twelve times to remove the pressure from the brake accumulator.

## F. Main Landing Gear Brake Removal

SUBTASK 32-41-41-580-001

(1) Lift the wheel and tire assemblies with jacks until they are clear of the ground (TASK 07-10-03-580-801).

SUBTASK 32-41-41-020-002

(2) Disconnect the brake hose from the brake assembly [1] at the brake disconnect [3]:

(a) Push the barrel toward the brake and turn the barrel in the clockwise direction to disengage the brake half from the hose half.

(b) Pull up on the barrel of the brake disconnect [3], away from the brake assembly [1], until the threads of the two halves are engaged.

(c) Turn the barrel in the counterclockwise direction to disconnect the brake hose from the brake assembly [1].

SUBTASK 32-41-41-020-003

(3) If you will use the brake disconnect [3] from the old brake assembly [1] on a new brake assembly [1], do this task: Brake Disconnect Removal, TASK 32-41-11-000-801.

SUBTASK 32-41-41-020-004

(4) Remove the bolt [4], washer [5], washer [6], and nut [7] to disconnect the retention cable [2] from the brake assembly [1].

SUBTASK 32-41-41-020-008

(5) Disconnect the electrical connector from the brake temperature sensor (TASK 32-46-21-000-801).

(a) If the brake temperature sensor from the old brake will be used, remove the brake temperature sensor.

SUBTASK 32-41-41-480-003

(6) Make sure that the axle thread protector, SPL-1876, and the thread protector, SPL-14320 (if the axle has undersized threads), are installed.

NOTE: This equipment was installed during the wheel and tire removal steps.

SUBTASK 32-41-41-020-005

**CAUTION**

BE VERY CAREFUL WHEN YOU DO MAINTENANCE ON CARBON BRAKES. CARBON BRAKES ARE MORE EASILY DAMAGED THAN STEEL BRAKES. YOU CAN NOT REPAIR THEM. IF YOU LET THEM FALL OR HIT THEM, DAMAGE CAN OCCUR.

**CAUTION**

DO NOT APPLY FORCE TO THE CARBON BRAKE HEAT SHIELDS WHEN YOU REMOVE OR INSTALL THE CARBON BRAKES. BENT HEAT SHIELDS CANNOT BE REPAIRED. A CARBON BRAKE WITH A BENT HEAT SHIELD WILL CAUSE SCORING ON THE WHEEL INNER SURFACE WHEN THE WHEEL TURNS.



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**(CAUTION PRECEDES)**

**CAUTION**

DO NOT PUT THE BRAKE DOWN ON THE OUTER DIAMETER OF THE ROTORS AFTER YOU REMOVE IT. CARBON BRAKES ARE NOT SERVICEABLE IF THEY HAVE NICKS, OR CRACKS. YOU CANNOT REPAIR THEM. THE WEIGHT OF THE BRAKE CAN CAUSE DAMAGE TO CARBON BRAKE ROTORS.

(7) Do these steps to remove the brake assembly [1] from the axle:

**WARNING**

DO NOT PUT FINGERS IN THE LIGHTENING HOLES OF THE WHEEL RETAINING NUT SOCKET TOOL WHEN YOU REMOVE OR INSTALL THE WHEEL RETAINING NUT. THIS CAN CAUSE INJURIES TO PERSONS.

(a) Use one of the subsequent sets of equipment and remove the brake assembly [1] from the axle.

1) The wheel/brake changer dolly, COM-1818, with the optional tow bar, COM-1874, or
2) The cradle, COM-1823, and the dolly, 175S-2 or
3) The dolly, PF32-002-1, and the hot brake sling, COM-1816, or
4) The dolly, TB900, with the cradle, COM-1823, or
5) The brake dolly, COM-13594.

**SUBTASK 32-41-41-160-001**

(8) Remove the old grease from the axle and the brake sleeve [8].

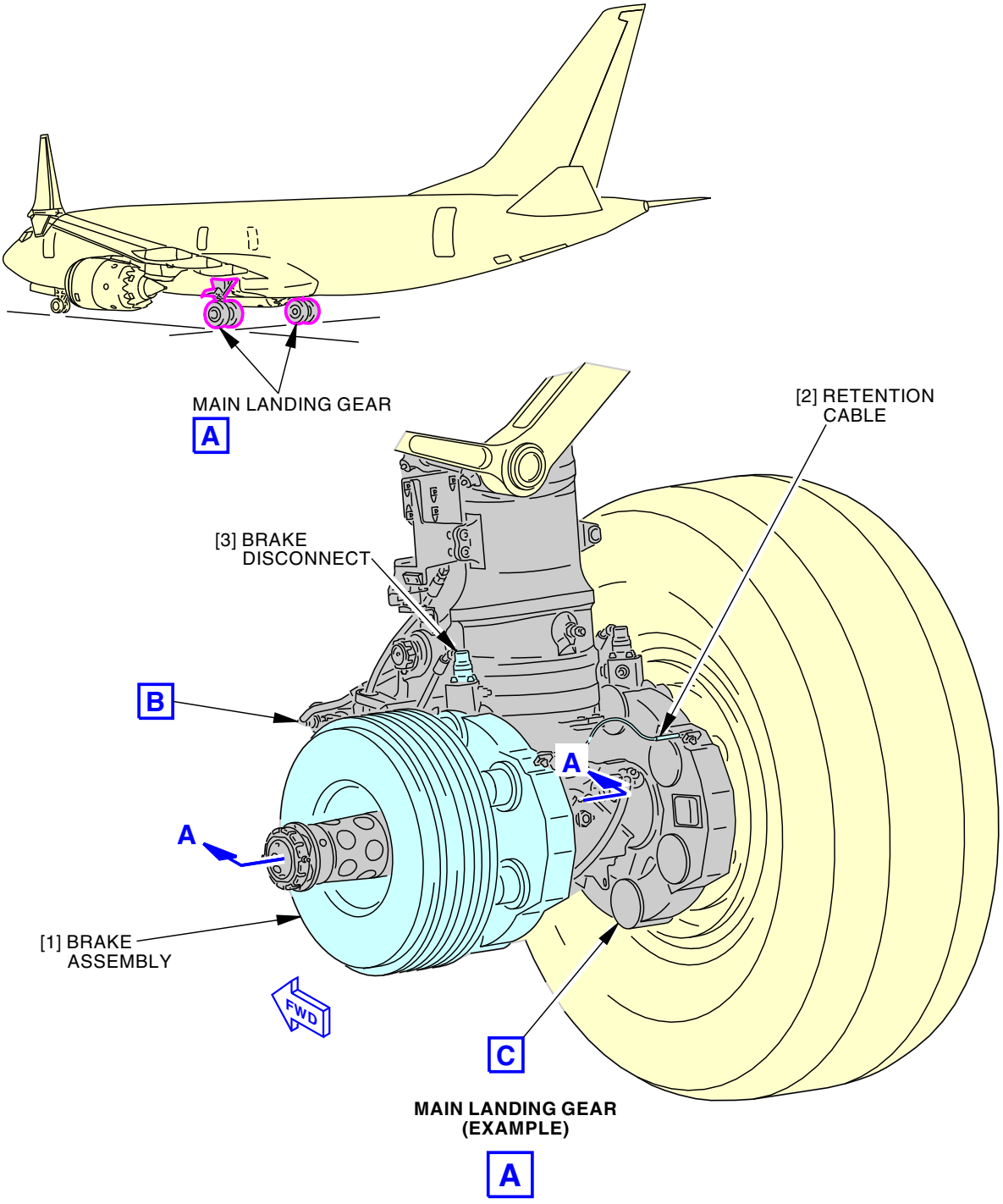
**SUBTASK 32-41-41-020-006**

(9) If the brake sleeve [8] remained in the brake assembly [1], remove the brake sleeve [8] from the brake assembly [1] and install it back on the axle.

**——— END OF TASK ———**



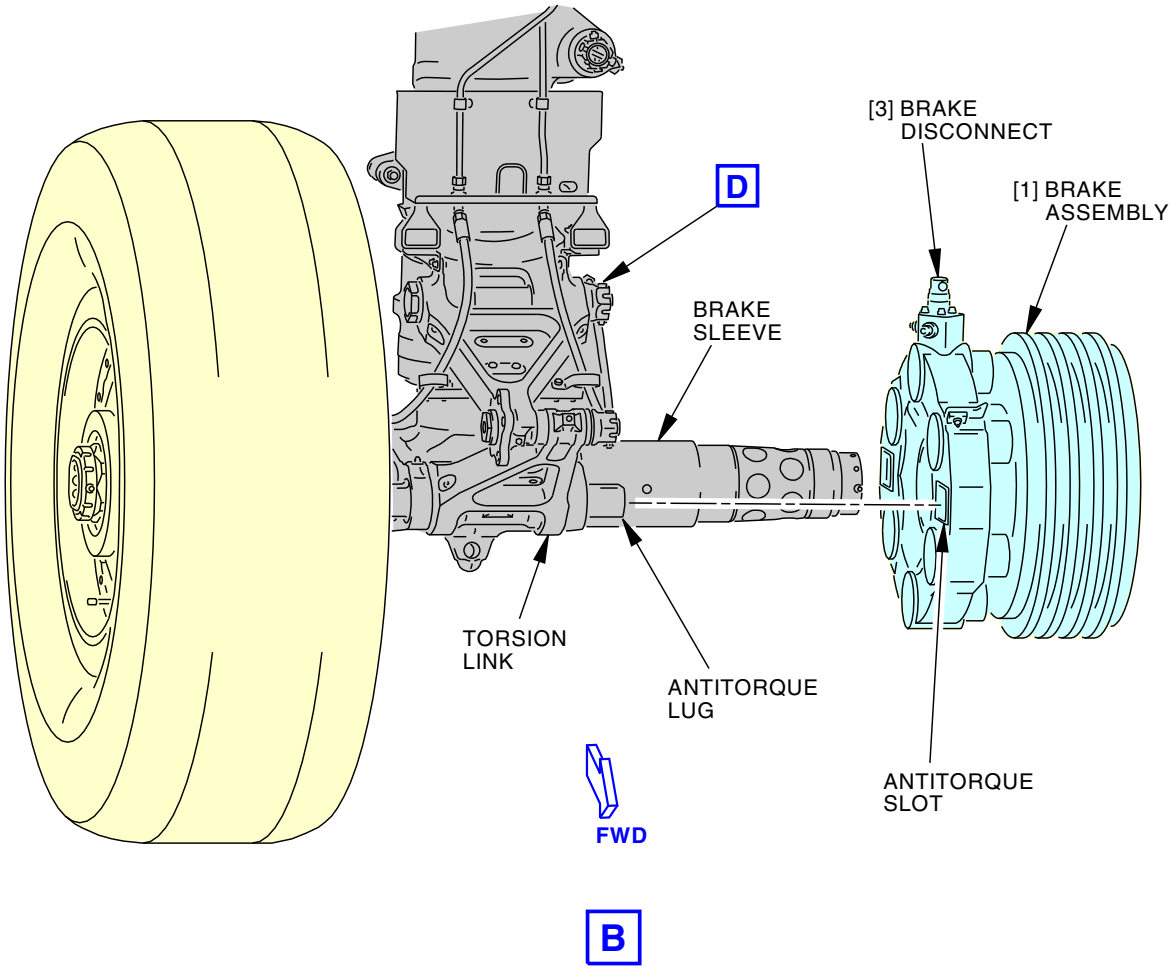
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**Main Landing Gear Brake Installation**
**Figure 401/32-41-41-990-801 (Sheet 1 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

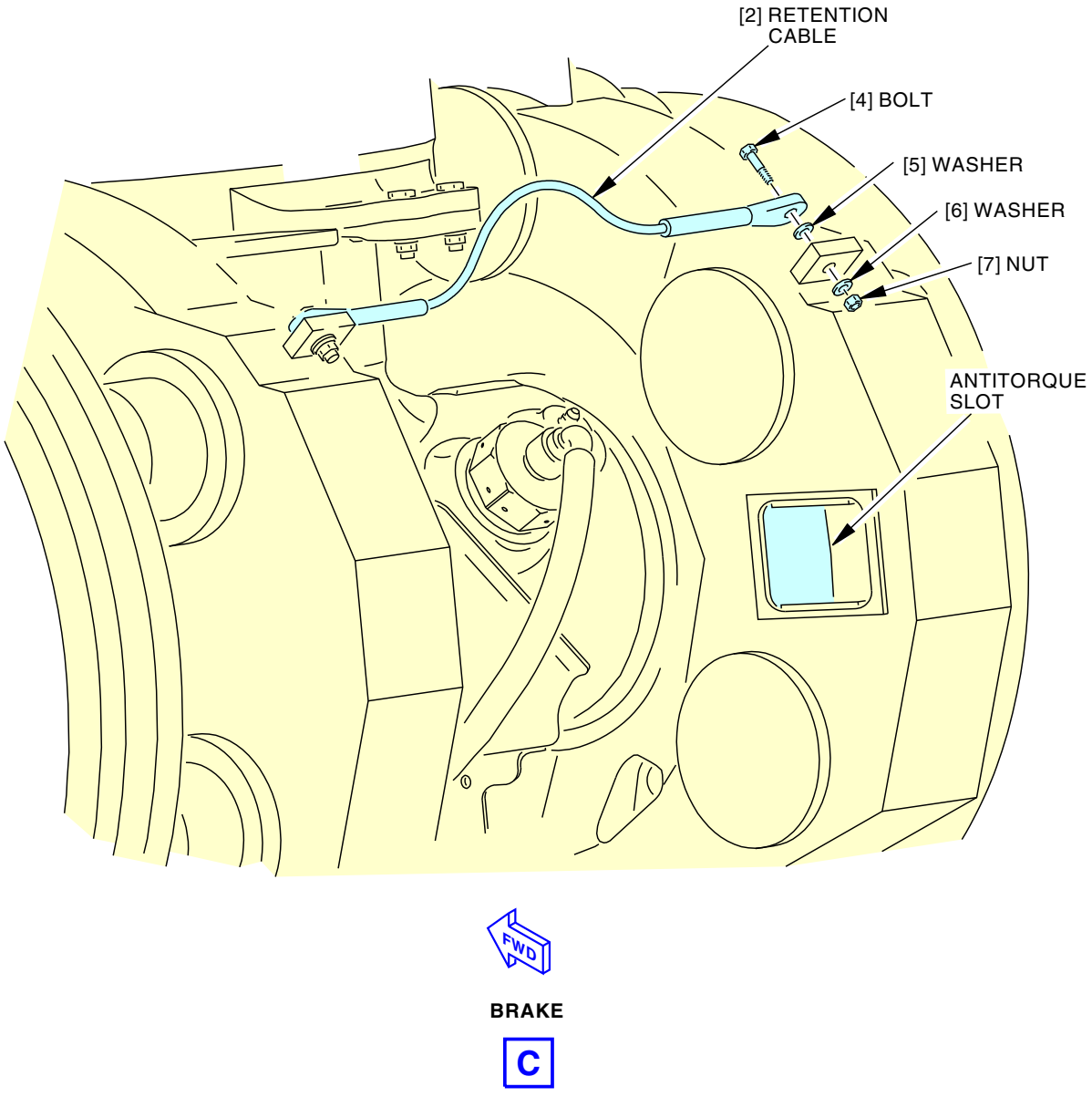



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**Main Landing Gear Brake Installation**
**Figure 401/32-41-41-990-801 (Sheet 2 of 5)**



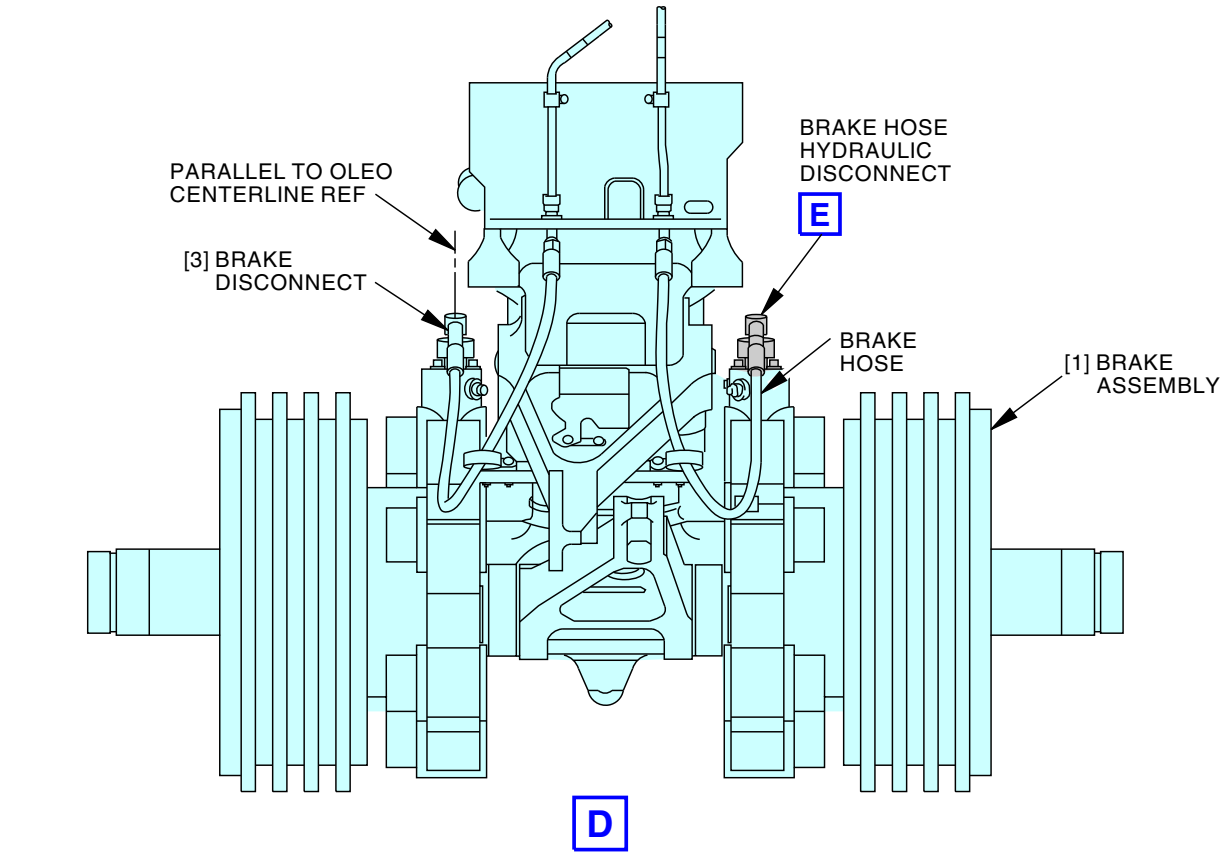
ECCN 9E991 BOEING PROPRIETARY - See title page for details

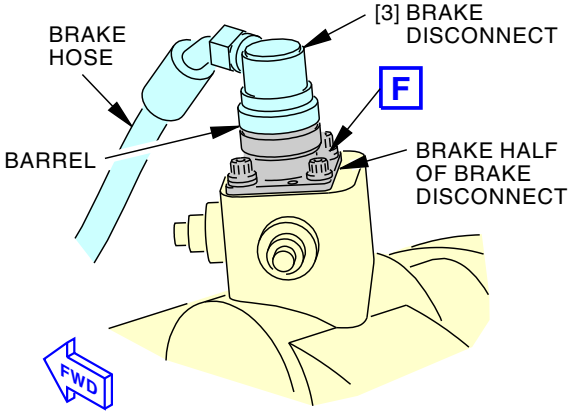



**Main Landing Gear Brake Installation**
**Figure 401/32-41-41-990-801 (Sheet 3 of 5)**



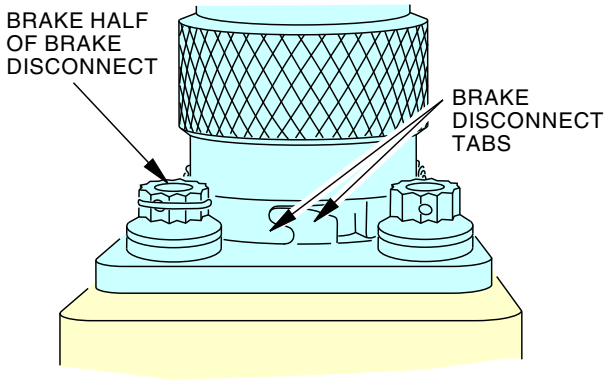
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**BRAKE HOSE HYDRAULIC DISCONNECT**

E




**(BRAKE DISCONNECT TABS ENGAGED)**

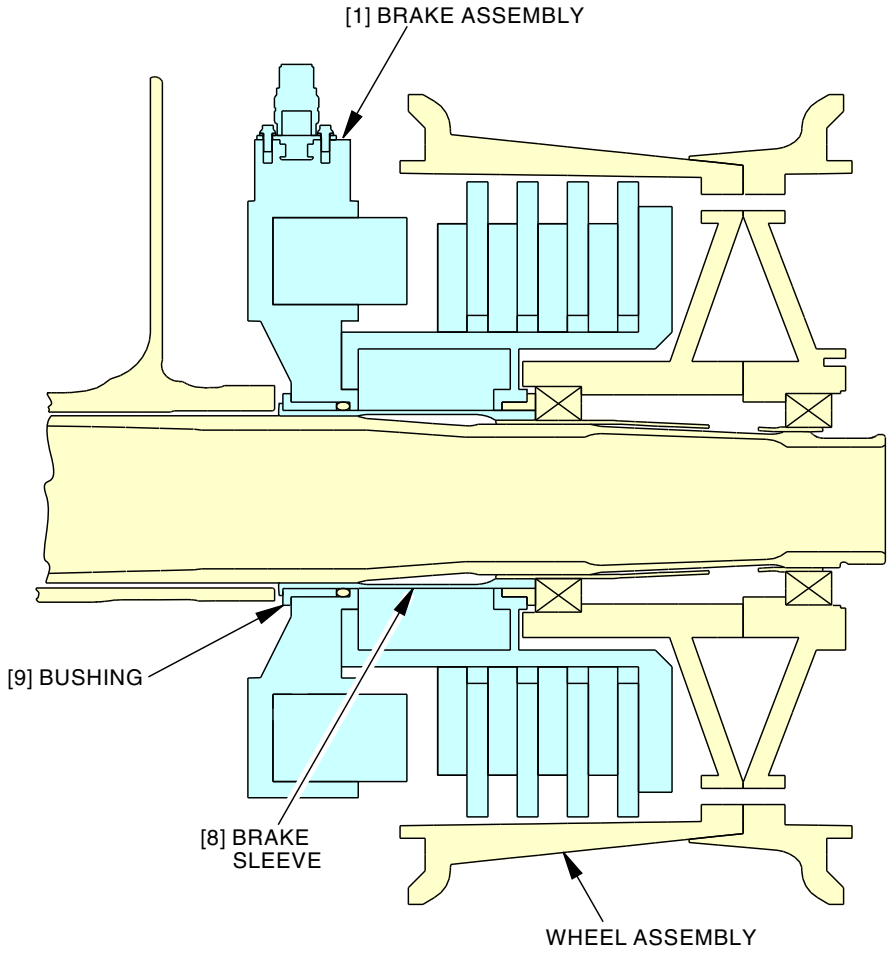
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**Main Landing Gear Brake Installation**
**Figure 401/32-41-41-990-801 (Sheet 4 of 5)**



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**(EXAMPLE)**

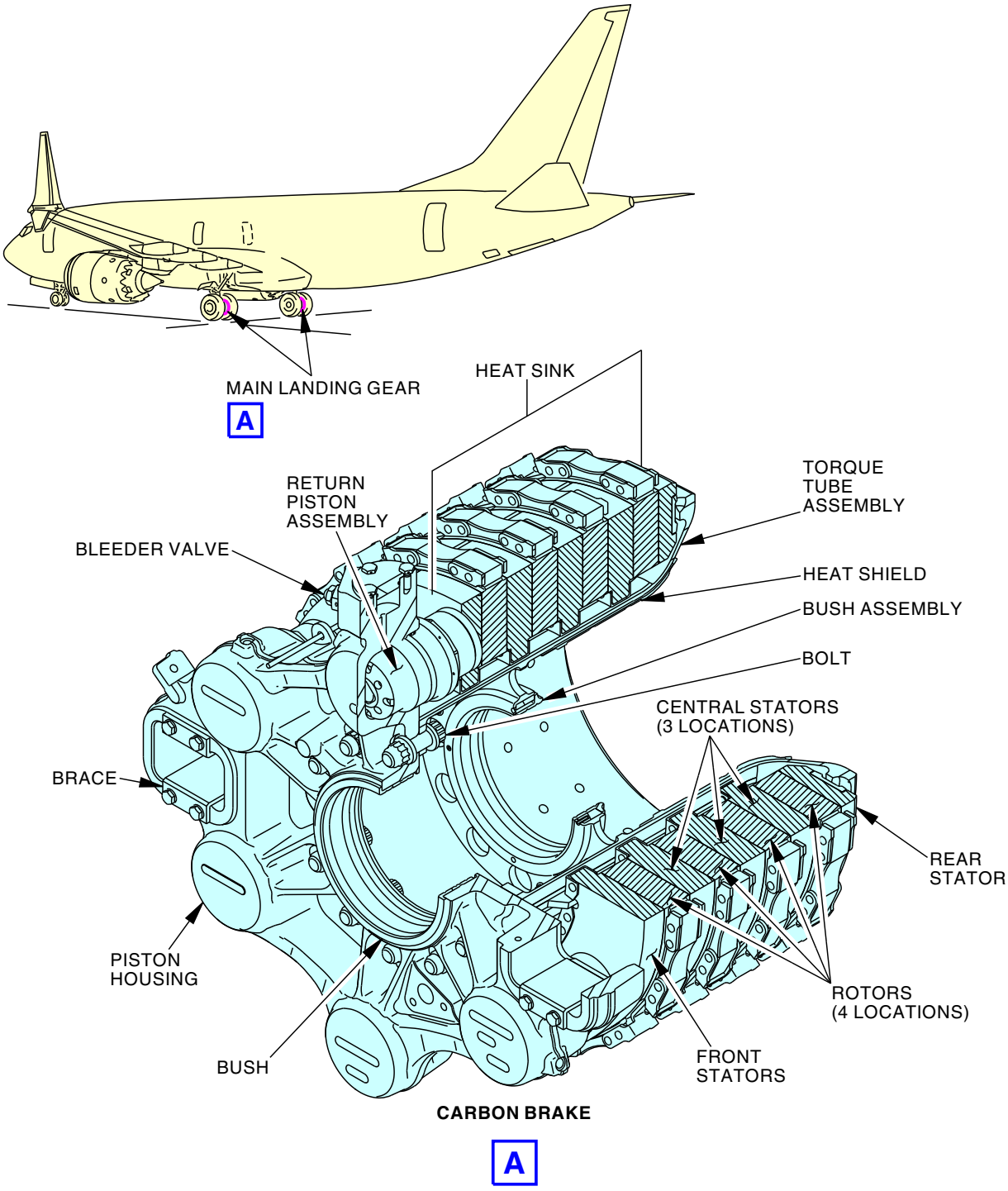
**A-A**

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**Main Landing Gear Brake Installation**
**Figure 401/32-41-41-990-801 (Sheet 5 of 5)**



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**Main Landing Gear Carbon Brake**
**Figure 402/32-41-41-990-802**



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**TASK 32-41-41-400-801**

## 3. Main Landing Gear Brake Installation

(Figure 401 or Figure 402)

### A. General

(1) This task gives the instructions to install the Main Landing Gear (MLG) brake.

(2) It is only necessary to lubricate the bushing for the MLG brake housing with grease at brake installation. There is no scheduled requirement to lubricate the MLG brake housing and there is no grease fitting on the brake.

### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-41-00-870-802 | Normal (System B) Hydraulic Brake System Bleeding (P/B 201) |
| 32-41-11-400-801 | Brake Disconnect Installation (P/B 401) |
| 32-45-11-400-801 | Main Landing Gear Wheel and Tire Assembly - Installation (P/B 401) |
| 32-46-21-400-801 | Brake Temperature Sensor Installation (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1816 | Sling - Hot Brake, 6 Foot Mesh Length, 6 Inch Mesh Width<br>Part #: 6T112X6 Supplier: 23755<br>Part #: SLG35-6X72-002-01 Supplier: 10380 |
| COM-1818 | Dolly - Wheel/Brake Change<br>Part #: 15F590 Supplier: 56535<br>Part #: 17500M Supplier: 94861<br>Part #: 175S-2 Supplier: 94861<br>Part #: 9092-016 Supplier: 00994<br>Part #: IA3201A-500 Supplier: 053H3<br>Part #: MH13-003 Supplier: D2029<br>Part #: SCA150KG Supplier: R9624<br>Part #: STC90475-101 Supplier: 07132<br>Opt Part #: 175 Supplier: 94861<br>Opt Part #: 8436-012 Supplier: 00994<br>Opt Part #: 9092-010 Supplier: 00994<br>Opt Part #: 9092-015 Supplier: 00994<br>Opt Part #: PF32-002-1 Supplier: 3D5B2<br>Opt Part #: TB900 Supplier: 56535 |
| COM-1823 | Cradle - Brake<br>Part #: BC400P Supplier: 94861<br>Opt Part #: BC400 Supplier: 94861 |
| COM-1874 | Bar - Tow, Dolly, Wheel and Brake<br>Part #: 9092F Supplier: 00994 |



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(Continued)

| Reference | Description |
|---|---|
| COM-13594 | Dolly - Brake Change<br>Part #: 15F3702 Supplier: 56535<br>Part #: STC90474-101 Supplier: 07132 |
| SPL-1876 | MLG Axle Thread Protector Equipment<br>Part #: C32022-38 Supplier: 81205<br>Opt Part #: C32022-15 Supplier: 81205<br>Opt Part #: C32022-17 Supplier: 81205<br>Opt Part #: C32022-23 Supplier: 81205 |
| SPL-14320 | Protector - Thread, Eqpt, MLG Axle (1/8 inch undersized threads)<br>Part #: C32022-39 Supplier: 81205<br>Opt Part #: C32022-32 Supplier: 81205 |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00233 | Grease - Aircraft, General Purpose, Wide Temperature - Mobil 28 | MIL-PRF-81322 |
| D00378 | Grease - Aircraft, General Purpose, Wide Temperature - Aeroshell 22 | MIL-PRF-81322 |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| D50005 | Grease - Wheel Bearing - Mobil Aviation Grease SHC 100 | |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

**E. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**F. Prepare for the Installation**

SUBTASK 32-41-41-480-004

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-41-41-020-007

**CAUTION** MAKE SURE THAT THE BRAKE SLEEVE IS INSTALLED BEFORE YOU INSTALL THE BRAKE. THE BRAKE SLEEVE CAN COME OFF WHEN YOU REMOVE THE BRAKE. IF YOU INSTALL THE BRAKE AND THE BRAKE SLEEVE IS NOT ON THE AXLE, DAMAGE CAN OCCUR TO THE AIRCRAFT.

(2) Make sure that the brake sleeve [8] is installed on the axle.

SUBTASK 32-41-41-480-005

(3) Make sure that the axle thread protector, SPL-1876, and thread protector, SPL-14320 (if the axle has undersized threads), are installed on the axle.



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SUBTASK 32-41-41-640-001

| | |
|---|---|
| **WARNING** | APPLY A THIN LAYER OF GREASE TO THE INTERFACE SURFACES OF THE BRAKE AND BRAKE SLEEVE ONLY. DO NOT APPLY GREASE IN THE SPACE BETWEEN THE AXLE BUSHINGS ON THE BRAKE ASSEMBLY. IF YOU APPLY TOO MUCH GREASE, A FIRE CAN OCCUR WHEN THE BRAKE BECOMES HOT AND CAN CAUSE DAMAGE OR INJURY. |

(4) Apply a thin layer of Mobil 28 grease, D00233, Aeroshell 22 grease, D00378, or Mobil Aviation Grease SHC 100 grease, D50005, to the brake sleeve [8] and bushing [9] on the brake assembly [1].

NOTE: This will let the brake assembly slide easily onto the axle.

## G. Main Landing Gear Brake Installation

SUBTASK 32-41-41-420-001

(1) If the brake half of the brake disconnect [3] is not installed on the brake assembly [1], do this task: Brake Disconnect Installation, TASK 32-41-11-400-801.

SUBTASK 32-41-41-420-006

(2) If it is not installed, install the brake temperature sensor (TASK 32-46-21-400-801).

SUBTASK 32-41-41-410-001

(3) Apply a thin layer of grease, D00633, to the anti-torque lug of the lower torsion link pin and anti-torque slot on the brake assembly [1].

SUBTASK 32-41-41-420-002

| | |
|---|---|
| **CAUTION** | BE VERY CAREFUL WHEN YOU DO MAINTENANCE ON CARBON BRAKES. CARBON BRAKES ARE MORE EASILY DAMAGED THAN STEEL BRAKES. YOU CAN NOT REPAIR THEM. IF YOU LET THEM FALL OR HIT THEM, DAMAGE CAN OCCUR. |

| | |
|---|---|
| **CAUTION** | DO NOT APPLY FORCE TO THE CARBON-BRAKE HEAT-SHIELDS WHEN YOU REMOVE OR INSTALL THE CARBON-BRAKES. YOU CAN NOT REPAIR BENT HEAT SHIELDS. A CARBON BRAKE WITH A BENT HEAT SHIELD WILL CAUSE SCORING ON THE WHEEL INNER SURFACE WHEN THE WHEEL TURNS. THIS CAN CAUSE DAMAGE. |

| | |
|---|---|
| **CAUTION** | DO NOT PUT THE BRAKE DOWN ON THE OUTER DIAMETER OF THE ROTORS AFTER YOU REMOVE IT. CARBON BRAKES ARE NOT SERVICEABLE IF THEY HAVE NICKS, OR CRACKS. YOU CANNOT REPAIR THEM. THE WEIGHT OF THE BRAKE CAN CAUSE DAMAGE TO CARBON BRAKE ROTORS. |

(4) Do this step to install the brake assembly [1] on the axle:

(a) Make sure that the anti-torque lug on the lower torsion link goes into the anti-torque slot in the brake assembly [1].

(b) Make sure that the brake torque pin goes into the anti-torque slot in the brake assembly [1].

NOTE: There is no requirement to install a grease seal.



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**WARNING** DO NOT PUT FINGERS IN THE HOLES YOU USE TO LIGHTEN THE WHEEL-RETAINING NUT SOCKET-TOOL. DO NOT PUT THEM IN WHEN YOU REMOVE/INSTALL THE WHEEL RETAINING NUT. THIS CAN CAUSE INJURIES TO PERSONS.

(c) Use one of the subsequent sets of equipment to install the brake assembly [1] in its position on the axle:

1) wheel/brake changer dolly, COM-1818, with the optional tow bar, COM-1874, or
2) cradle, COM-1823, and dolly, 175S-2, or
3) Dolly, PF32-002-1, and hot brake sling, COM-1816, or
4) Dolly, TB900, with the cradle, COM-1823, or
5) brake dolly, COM-13594.

**SUBTASK 32-41-41-410-002**

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Apply a layer of Cor-Ban 27L Compound, G50237, to the bolt [4], washer [5], washer [6], and nut [7] for the retention cable [2].

**SUBTASK 32-41-41-410-003**

(6) Install the bolt [4], washer [5], washer [6], and nut [7] to connect the retention cable [2] to the brake assembly [1].

**SUBTASK 32-41-41-420-003**

(7) Connect the brake hose to the brake assembly [1] at the brake disconnect [3].

(a) Install the hose half of the brake disconnect [3] on the brake half of the brake disconnect [3].

1) Turn the hose half of the brake disconnect [3] until the internal tangs align with the slots inside the brake half of the brake disconnect [3] and the hose half down can be pushed.
2) Push down on the barrel and turn it in the clockwise direction to engage the threads.
3) Turn the barrel in the clockwise direction until the slots in the bottom of the barrel snap onto the external tangs on the brake half of the brake disconnect [3].
4) Make sure that the elbow fitting on the brake disconnect [3] is parallel to the oleo centerline or up to ten degrees toward the shock strut.

NOTE: This will make sure that the hoses do not rub on the brake housing.

**SUBTASK 32-41-41-210-001**

(8) Do a visual check to make sure that the slots on the barrel are fully and correctly engaged with the tangs on the brake half of the brake disconnect [3].

(a) Make sure that the nuts between the hydraulic hose and brake disconnect [3] are tightened.

I (b) If the nuts on the brake half were removed then tighten the nuts to 270 ±14 in-lb (31 ±2 N·m).



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SUBTASK 32-41-41-420-004

(9) Visually check the two halves of the brake disconnect [3] to make sure that they are correctly engaged.

SUBTASK 32-41-41-420-007

(10) If not already done, connect the electrical connector to the brake temperature sensor (TASK 32-46-21-400-801).

SUBTASK 32-41-41-420-005

(11) Do this task: Main Landing Gear Wheel and Tire Assembly - Installation, TASK 32-45-11-400-801.

## H. Main Gear Wheel Brakes Bleeding and Installation Test

SUBTASK 32-41-41-860-005

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Activate the normal (System B) hydraulic system (TASK 29-11-00-860-801).

SUBTASK 32-41-41-790-001

(2) Do these steps to do an operational check of the brake:

(a) Push one set of brake pedals to the limit of travel to fully operate the brake assembly [1].

(b) Set the parking brake.

(c) Examine each brake's pistons to make sure that the brake assembly [1] engaged.

(d) Wait two minutes.

(e) Look for leaks around the brake assembly [1] and at the brake disconnect [3].

(f) Release the parking brake.

(g) Examine each brake's pistons to make sure that the brake assembly [1] released.

SUBTASK 32-41-41-870-001

(3) If the brakes do not feel normal, do this task: Normal (System B) Hydraulic Brake System Bleeding, TASK 32-41-00-870-802.

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-41-860-006

(1) Deactivate the normal (System B) hydraulic system (TASK 29-11-00-860-805).

SUBTASK 32-41-41-580-002

**WARNING**

MAKE SURE THAT THE AREA BELOW THE TIRES IS CLEAR OF PERSONS AND EQUIPMENT. IF THE AREA IS NOT CLEAR, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) Lower the wheel and tire assemblies and remove the jacks (TASK 07-10-03-580-801).

**END OF TASK**



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## MAIN LANDING GEAR BRAKE - INSPECTION/CHECK

### 1. General

A. This procedure has these tasks:

(1) Examine the Main Landing Gear Brakes for Wear

(2) Main Landing Gear Brake Fast Check (Wheel Installed on the Airplane)

(3) Main Landing Gear Brake Inspection (Wheel Removed from the Airplane).

**TASK 32-41-41-700-801**

### 2. Examine the Main Landing Gear Brakes for Wear

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

**A. General**

(1) This procedure has steps to examine the main landing gear brakes for wear.

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**D. Prepare for the Procedure**

**SUBTASK 32-41-41-480-007**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-41-41-480-008**

(2) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-41-860-007**

(3) Release the parking brake.



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SUBTASK 32-41-41-790-002

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Make sure to activate the normal (System B) hydraulic system (TASK 29-11-00-860-801).

## E. Procedure

SUBTASK 32-41-41-210-002

(1) Do these steps to examine the brakes for wear:

(a) Fully push the captain's or first officer's brake pedals and hold.

NOTE: You can set the parking brake to hold the brake pedals.

(b) For each of the brakes [3], make sure the wear indicator pins [1] extend out of the guides [2].

NOTE: For accuracy, you should do a check of the wear indicator pins [1] after the brakes have cooled.

(c) Replace each of the brakes [3], if the end of the wear indicator pins [1] is level with, or below the face of a guide [2].

## F. Put the Airplane Back to Its Usual Condition

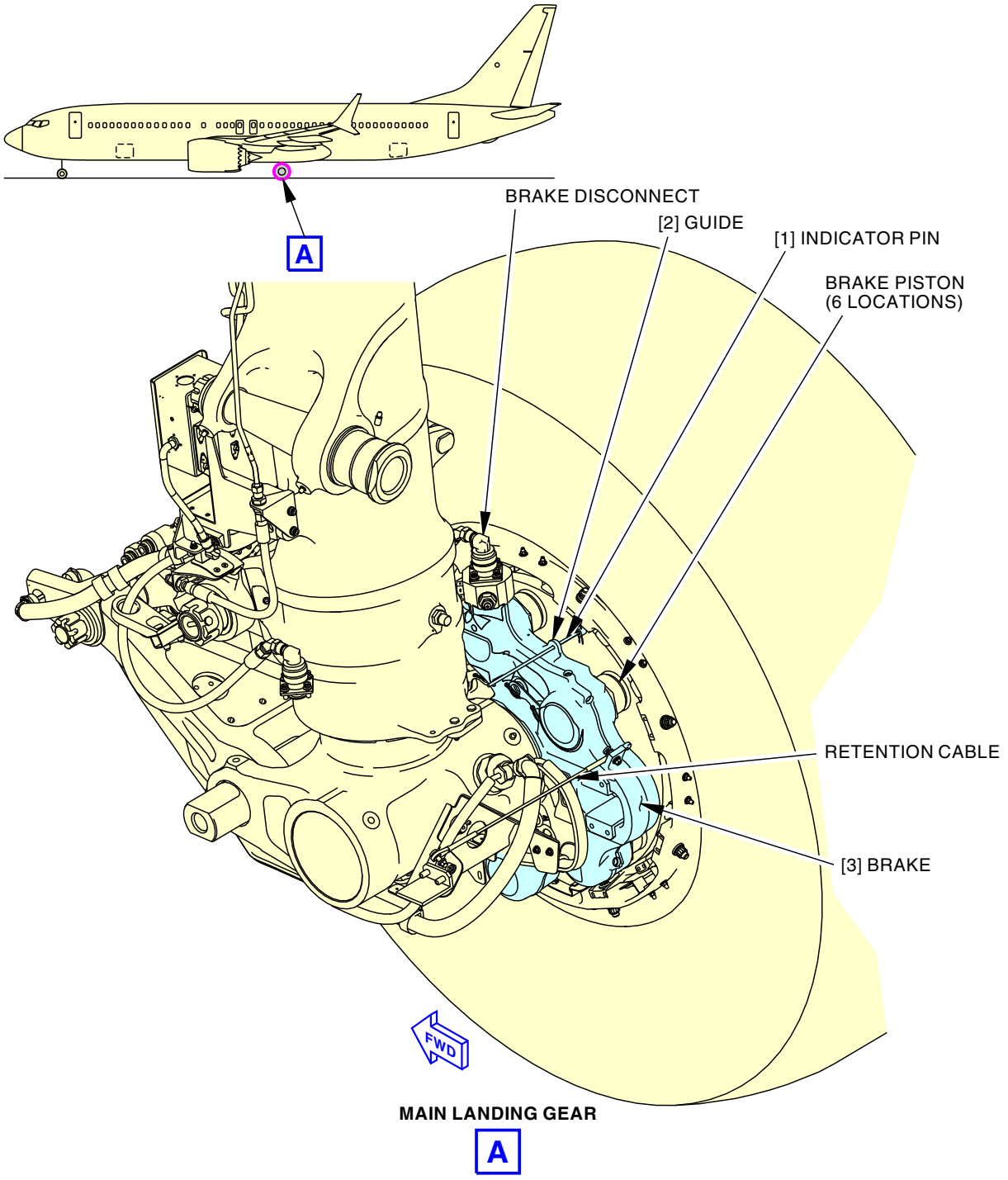
SUBTASK 32-41-41-860-008

(1) Make sure to deactivate the normal (System B) hydraulic system (TASK 29-11-00-860-805).

——— END OF TASK ———



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Carbon Brake Inspection (Wheel Installed)**
**Figure 601/32-41-41-990-803**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

TASK 32-41-41-700-802

## 3. Main Landing Gear Brake Fast Check (Wheel Installed on the Airplane)

(Figure 601)

### A. General

(1) This procedure has steps to do a fast check of the main landing gear brakes with the wheels installed.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Procedure

SUBTASK 32-41-41-480-010

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-41-41-480-011

(2) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-41-860-009

(3) Release the parking brake.

SUBTASK 32-41-41-790-003

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Make sure to activate the normal (System B) hydraulic system (TASK 29-11-00-860-801).

### E. Main Landing Gear Brake Fast Check (Wheel Installed on the Airplane)

SUBTASK 32-41-41-860-010

(1) Fully apply and release the captain's or first officers brake pedals five times.

SUBTASK 32-41-41-860-011

(2) With the brake pedals not applied, do a check of the brakes for fluid leaks at these locations:


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(a) brake pistons

(b) brake disconnect

(c) brake housing ports

(d) inlet and drain ports

(e) bleed ports.

**SUBTASK 32-41-41-790-004**

(3) Do a check of the brake.

(a) If the total leakage per brake at the above locations is greater than 1 drop/minute with the brake pedals not applied, repair the leak(s) or replace the brake prior to dispatch.

**SUBTASK 32-41-41-720-001**

(4) Slowly apply the brake pedals to the stops.

NOTE: You can set the parking brake to hold the brake pedals.

**SUBTASK 32-41-41-790-005**

(5) While you apply the brake pedals, do a check of the brakes for fluid leaks at these locations.

(a) brake pistons

(b) brake disconnect

(c) brake housing ports

(d) inlet and drain ports

(e) bleed ports.

**SUBTASK 32-41-41-790-006**

(6) Do a check of the brake.

(a) If the total leakage per brake at the above locations is greater than five drops/minute while the brakes are being applied, repair the leak(s) or replace the brake prior to dispatch.

(b) With leaks below these limits, the brake must be rechecked prior to each flight, and should be repaired or replaced at the next opportunity that manpower and material will permit.

**SUBTASK 32-41-41-790-008**

(7) Do a check of the brake for contamination.

NOTE: Signs of contamination include a wet or oily appearance, buildup of charred residue, or heavy smoke after landing.

(a) Remove, inspect and clean the brake in accordance with the brake supplier component maintenance manual if it is suspected that a brake has been exposed to significant levels of contamination.

**SUBTASK 32-41-41-790-009**

(8) Release the captain's or first officers brake pedals (or parking brake).

**SUBTASK 32-41-41-911-001**

(9) Do a check for missing brake wear indicator pins.

NOTE: Each brake has two brake wear indicator pins.

(a) If the two wear indicator pins are missing, you must replace the brake prior to the next flight.



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(b) If one wear indicator pin is missing, then the brake can stay in service if the remaining wear indicator pin operation is satisfactory.

SUBTASK 32-41-41-210-003

(10) Examine all of the brakes for these conditions:

(a) chips

(b) cracks or broken parts

(c) severe oxidation exhibited by porosity

(d) inconsistent appearance/form, distortion

(e) softness and/or exposed fibers

(f) parts that show a large amount of wear

(g) other damage that can cause a malfunction or a leak.

### F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-41-860-012

(1) Make sure to deactivate the normal (System B) hydraulic system (TASK 29-11-00-860-805).

——— END OF TASK ———

**TASK 32-41-41-700-803**

## 4. Main Landing Gear Brake Inspection (Wheel Removed from the Airplane)

(Figure 602 or Figure 603)

### A. General

(1) This task has steps to inspect the brake on the main landing gear with the wheels removed.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-765 | Scraper - Plastic |

### D. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Prepare for the Inspection

SUBTASK 32-41-41-480-012

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).



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SUBTASK 32-41-41-480-013

(2) Make sure that the tires have chocks installed around them (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-41-860-013

(3) Release the parking brake.

**F. Main Landing Gear Brake Inspection**

SUBTASK 32-41-41-210-004

(1) Examine the brake for these types of damage:

(a) Cracks that you can see.

(b) Broken parts.

(c) Parts that show a large quantity of worn areas.

(d) Other damage that can cause worn areas, or leaks of hydraulic fluid.

SUBTASK 32-41-41-210-005

(2) Do a check for missing brake wear indicator pins.

NOTE: Each brake has two brake wear indicator pins.

(a) If the two wear indicator pins are missing, replace the brake before the next flight.

(b) If one wear indicator pin is missing, the brake can stay in service, if the remaining wear indicator pin operation is satisfactory.

SUBTASK 32-41-41-210-006

(3) Do a check for corrosion on or around the brake.

(a) Make sure that the surface finishes are in good condition.

NOTE: Corrosion can occur quickly in some climates.

SUBTASK 32-41-41-210-007

(4) Do a check for the same brake running clearance between each brake piston and the pressure plate (Figure 602 or Figure 603).

(a) Measure the distance (running clearance) between each brake piston and the pressure plate.

(b) Make sure that the running clearance is from 0.071 in. (1.8 mm) to 0.213 in. (5.4 mm).

SUBTASK 32-41-41-210-008

(5) Check the brake heat sink (rotors, stators, pressure plate, and end plate) for damage as follows:

(a) Do a check for loose rotor drive clips and rivets.

(b) Do a check for pieces of carbon that have broken off the carbon disks.

(c) Do a check of the outside diameter of the stator discs for the correct 12 o'clock positions of their alignment grooves.

1) Replace the brake if any of the alignment grooves are not at the 12 o'clock position.

NOTE: A stator groove that is not aligned is an indication of possible stator disc drive failure.

SUBTASK 32-41-41-210-009

(6) Examine the heat sink (rotors, stators, pressure plate, and end plate) for damage due to carbon brake oxidation.

(a) Replace the carbon brakes if these conditions exist (Figure 602 or Figure 603):



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(b) Examine the brake and surrounding areas for unusual carbon debris such as chips or small pieces of carbon broken off of the rotors and stators.

(c) Do a check for oxidation damage on the brake rotors and stators.

NOTE: Carbon brake oxidation causes softness, flaking, and pieces to break off of the rotors and stators. Stains that are brown or orange are initial indications of possible oxidation. Oxidation damage normally occurs on the outside diameters of rotors and stators and non-wear surfaces of pressure plate and end plate and is easy to see. Oxidation damage can also occur on the inner diameter of the rotors and stators, end plate and pressure plate.

1) If the carbon material in a damaged area is soft, flaking or can be easily removed using a fingernail or plastic scraper, STD-765, the brake should be replaced.

(d) Examine the brakes for indentations or flaking carbon where the hydraulic pistons touch the carbon pressure plate.

(e) Examine the brakes for bent or missing wear indicator pins.

NOTE: This can be an indication of carbon stator damage.

(f) With the parking brake released, make sure that all rotor assemblies can be freely rotated with no binding.

(g) Make sure that the metal rotor drive clips on the outside diameter of each carbon rotor do not show excessive movement and there is no loose flaking carbon near the clips.

(h) With one hand at the 3 o'clock position and the other hand at the 9 o'clock position, rotate each stator individually and see that the stator does not move more than 0.25 in. (0.64 cm) as measured on the outside diameter of the stator, with the parking brake released.

NOTE: Most carbon brakes are configured with worn stator indicators. A worn stator indicator is a line machined in the stators at the 12 o'clock position of the brake. If this is the case, the worn stator indicators can be used as a visual reference to make sure that the stators do not rotate more than 0.25 in. (0.64 cm) when performing this step.

(i) Damage such as nicks, scratches, and gouges in the carbon that do not have cracks are acceptable provided that the carbon is not soft or flaking and cannot be scraped off with a fingernail or plastic scraper, STD-765.

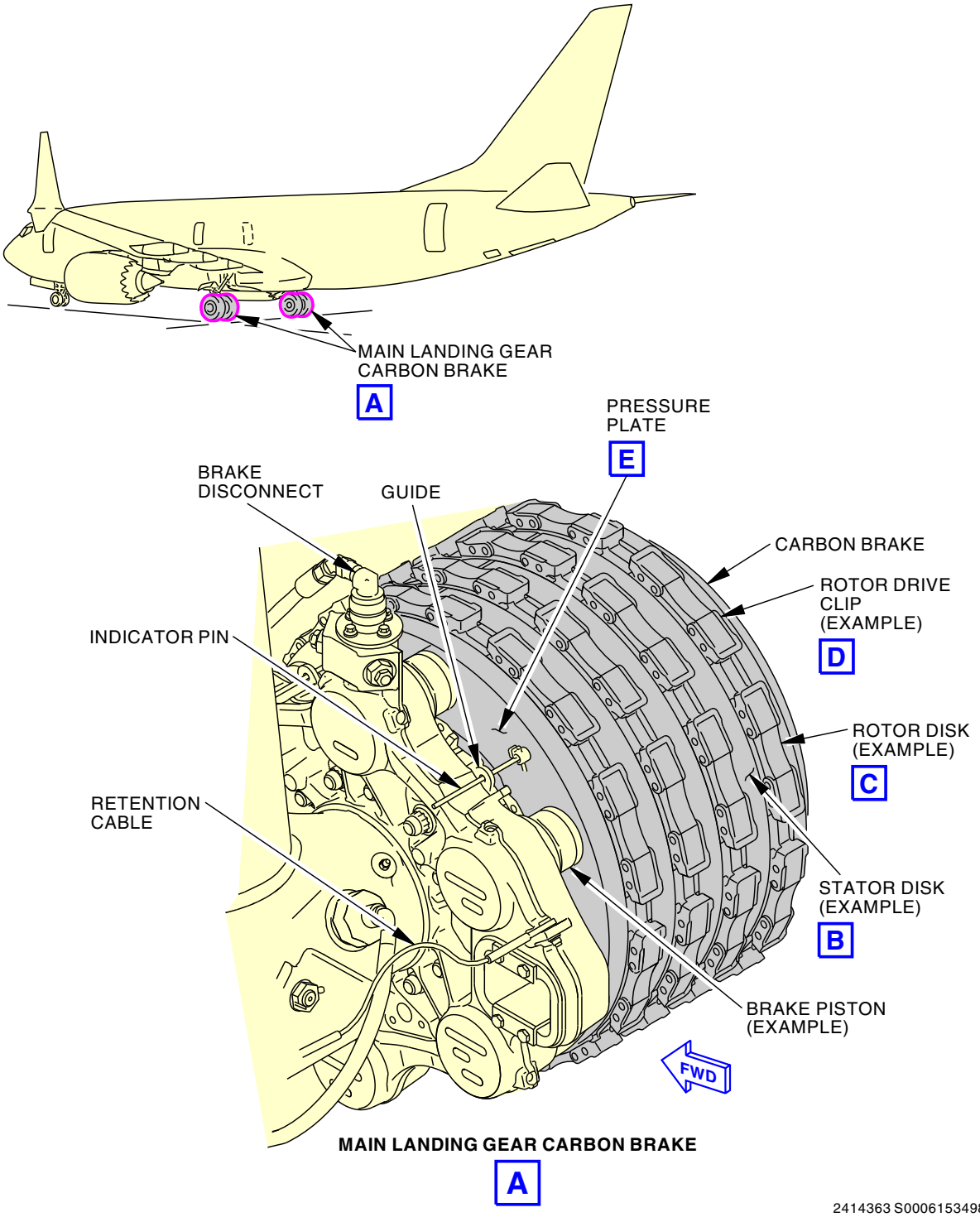
**SUBTASK 32-41-41-960-001**

(7) If the degree of the conditions that are seen on the brake during the above inspections are significant enough then replacement of the brake is necessary.

**——— END OF TASK ———**



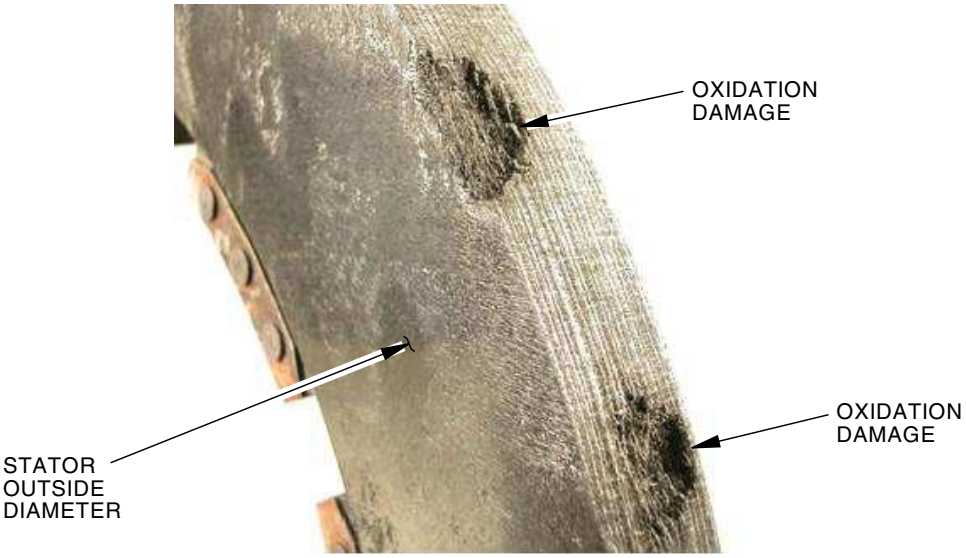
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Carbon Brakes Inspection (Wheel Removed)**
**Figure 602/32-41-41-990-804 (Sheet 1 of 4)**

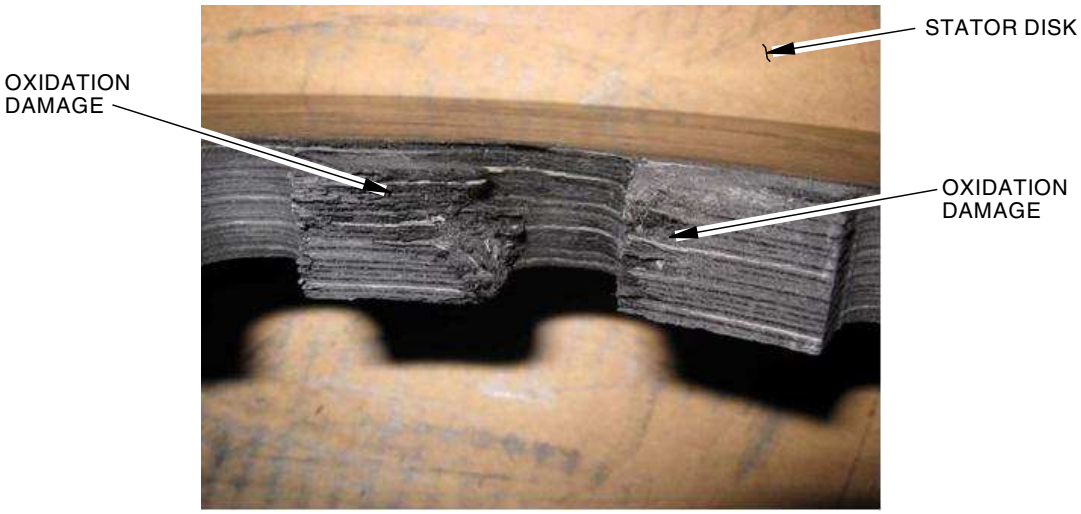


ECCN 9E991 BOEING PROPRIETARY - See title page for details




**STATOR DISK**
**(OXIDATION DAMAGE ON OUTSIDE DIAMETER)**
**(EXAMPLE)**

B




**STATOR DRIVE LUGS**
**(OXIDATION DAMAGE ON INSIDE DIAMETER)**
**(EXAMPLE)**

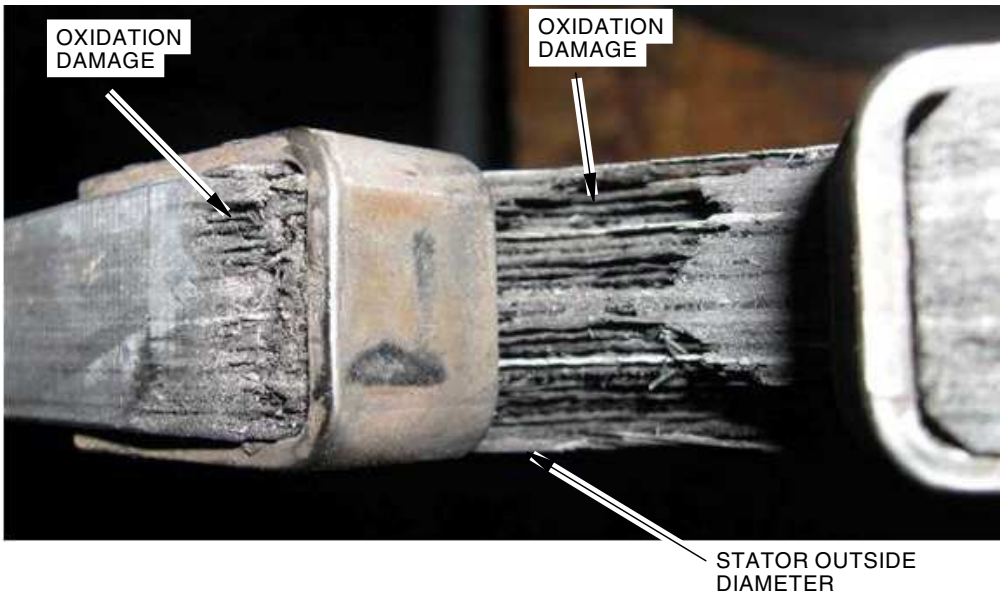
B

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**Main Landing Gear Carbon Brakes Inspection (Wheel Removed)**
**Figure 602/32-41-41-990-804 (Sheet 2 of 4)**



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**ROTOR DISK**
**(OXIDATION DAMAGE ON OUTSIDE DIAMETER)**
**(EXAMPLE)**

C




**ROTOR DRIVE CLIP**
**(OXIDATION DAMAGE ON OUTSIDE DIAMETER)**
**(EXAMPLE)**

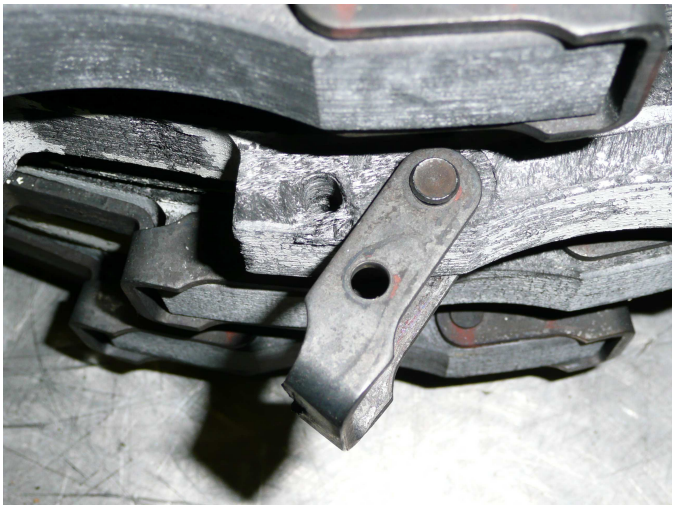
D

2414365 S00061534991_V2

**Main Landing Gear Carbon Brakes Inspection (Wheel Removed)**
**Figure 602/32-41-41-990-804 (Sheet 3 of 4)**

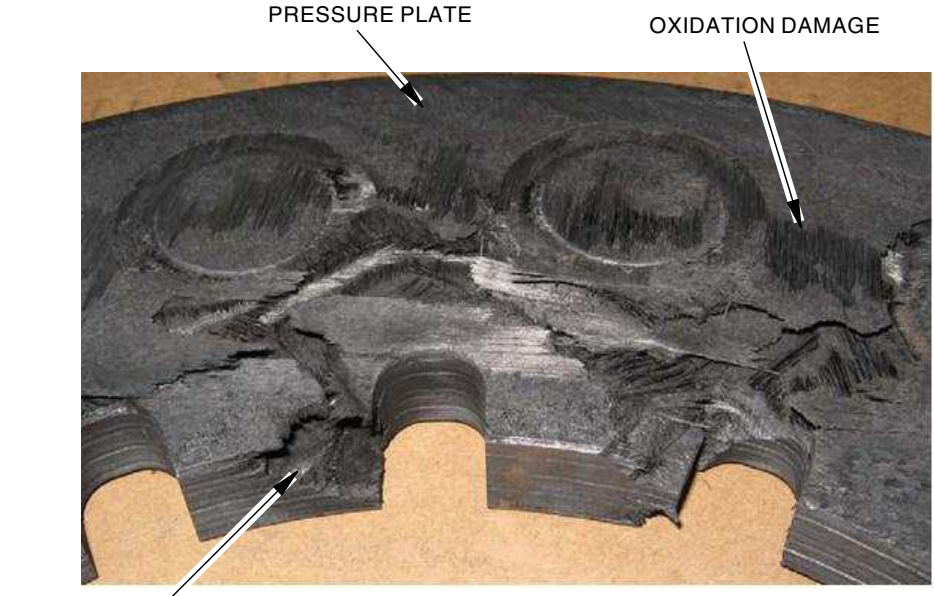


ECCN 9E991 BOEING PROPRIETARY - See title page for details



**ROTOR DRIVE CLIP**
**(ROTOR CLIP BROKEN, MISSING, OR LOOSE)**
**(EXAMPLE)**

**D**




**PRESSURE PLATE**
**(OXIDATION DAMAGE ON THRUST FACE)**
**(EXAMPLE)**

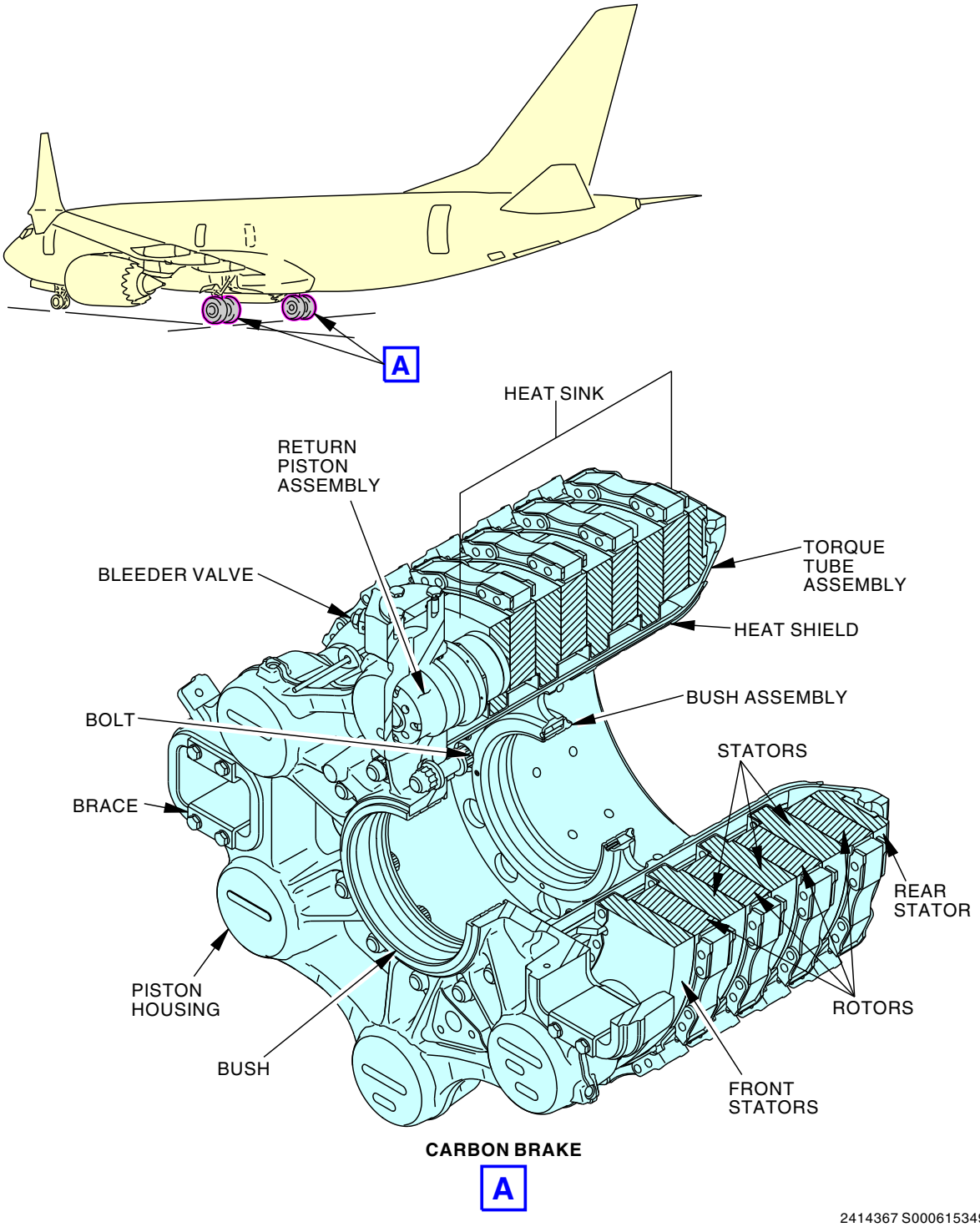
**E**

2414366 S00061534992_V2

**Main Landing Gear Carbon Brakes Inspection (Wheel Removed)**
**Figure 602/32-41-41-990-804 (Sheet 4 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Carbon Brake**
**Figure 603/32-41-41-990-805**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## MAIN LANDING GEAR BRAKE SLEEVE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the brake sleeve for the main landing gear

(2) An installation of the brake sleeve for the main landing gear.

**TASK 32-41-42-000-801**

### 2. Main Landing Gear Brake Sleeve Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1864 | Puller Equipment - Axle Sleeve Assembly, MLG<br>Part #: C32032-125 Supplier: 81205<br>Opt Part #: C32032-98 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### D. Prepare for the Removal

**SUBTASK 32-41-42-580-001**

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(1) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

#### E. Main Landing Gear Brake Sleeve Removal

**SUBTASK 32-41-42-020-001**

(1) Do this task: Main Landing Gear Brake Removal, TASK 32-41-41-000-801.

NOTE: This procedure will also remove the wheel and tire assemblies.



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SUBTASK 32-41-42-020-002

**CAUTION**

DO NOT APPLY TOO MUCH FORCE WHEN YOU REMOVE THE BRAKE SLEEVE. IF YOU USE TOO MUCH FORCE, DAMAGE TO THE AIRPLANE AND THE SUPPORT EQUIPMENT CAN OCCUR.

(2) Do these steps to remove the brake sleeve [2] from the axle shaft [1]:

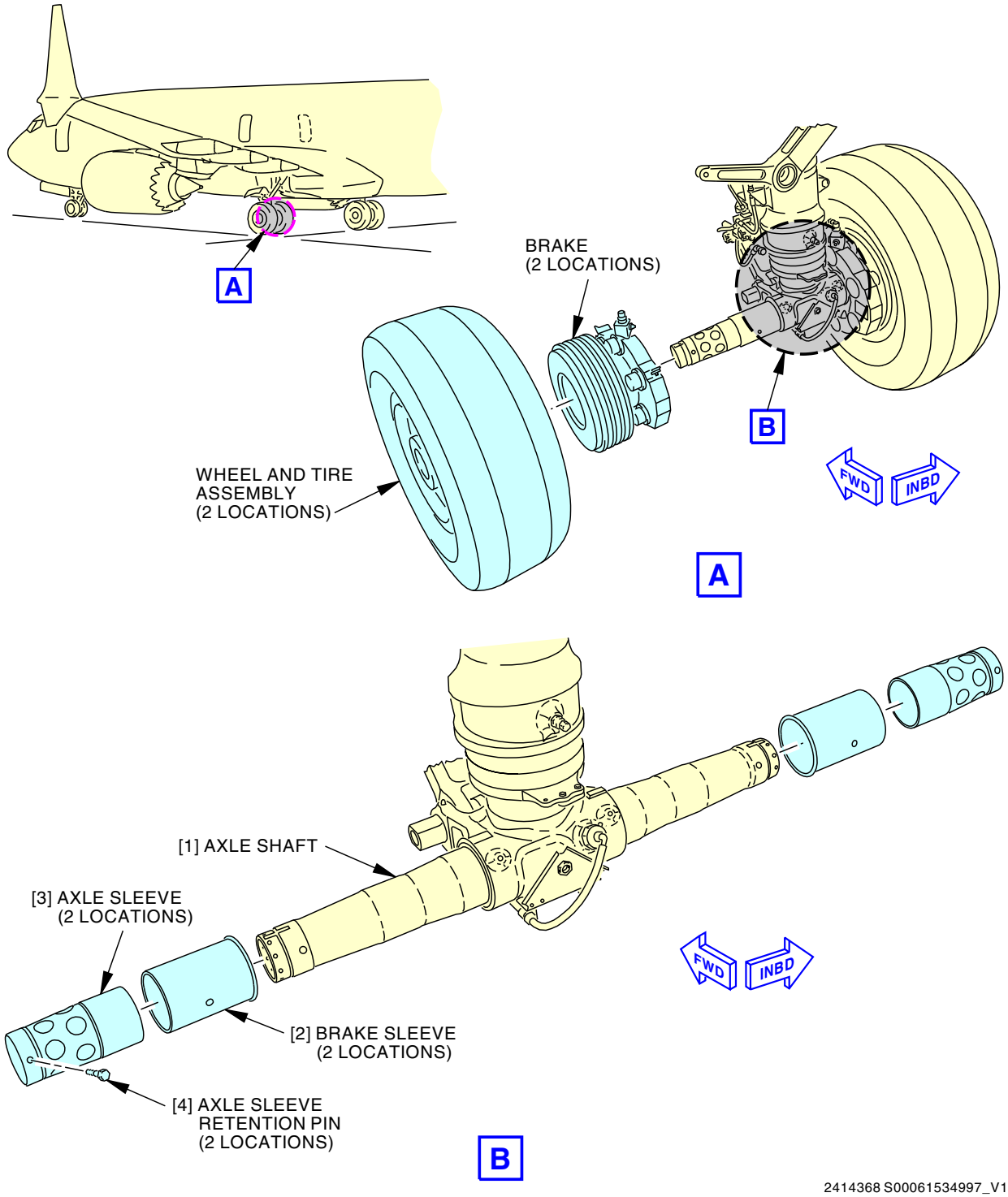
(a) Use puller equipment, SPL-1864, to remove the brake sleeve [2].

NOTE: Applied heat can decrease the force necessary for the removal.

——— END OF TASK ———



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Brake Sleeve Installation**
**Figure 401/32-41-42-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-41-42-420-801**

## 3. Main Landing Gear Brake Sleeve Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 2 | Brake sleeve | 32-11-85-01-050 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Prepare for the Installation

**SUBTASK 32-41-42-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

### F. Main Landing Gear Brake Sleeve Installation

**SUBTASK 32-41-42-420-001**

(1) Do the steps that follow to install the brake sleeve [2]:

(a) Apply a light coating of grease, D00633, to the lands of the axle shaft [1] and axle sleeve [3], where the brake sleeve [2] inside diameters set.

(b) Heat the brake sleeve [2] to 375 ±25°F (191 ±14°C).

(c) Install the brake sleeve [2] on the axle shaft [1] and the axle sleeve [3].

NOTE: The brake sleeve [2] will rapidly shrink to normal size and seize the axle, which prevents additional movement.

**SUBTASK 32-41-42-420-002**

(2) Do this task: Main Landing Gear Brake Installation, TASK 32-41-41-400-801.

NOTE: This procedure will also install the wheel and tire assemblies.

NOTE: Make sure you connect the correct wires to the correct in-axle assembly.



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## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-42-580-002

| | |
|---|---|
| CAUTION | MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR. |

| | |
|---|---|
| CAUTION | MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR. |

(1) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**END OF TASK**



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# HYDRAULIC BRAKE ACCUMULATOR - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the hydraulic brake accumulator

(2) An installation of the hydraulic brake accumulator

(3) A removal of the brake accumulator pressure gage

(4) An installation of the brake accumulator pressure gage.

B. The brake accumulator is above the 194DR aft wing to body fairing panel, that is aft of the right wheel well.

C. The brake accumulator pressure gage is installed aft of the right wheel well.

**TASK 32-41-51-000-801**

## 2. Hydraulic Brake Accumulator Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 194DR | Aft Wing To Body Fairing Panel |

### D. Prepare for the Removal

**SUBTASK 32-41-51-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-51-480-002**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-51-860-001**

(3) Release the parking brake.

**SUBTASK 32-41-51-010-001**

(4) To get access to the brake accumulator [1], do this step:



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(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 194DR | Aft Wing To Body Fairing Panel |

SUBTASK 32-41-51-860-002

(5) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-41-51-870-001

(6) Fully push the brake pedals 12 times to remove the hydraulic pressure from the brake accumulator [1].

SUBTASK 32-41-51-870-002

(7) Do these steps to remove the gas pressure from the brake accumulator [1]:

(a) Remove the cap [6] from the charging valve [8].

**WARNING** DO NOT LET THE VALVE TURN WITH THE SWIVEL NUT. THE PRESSURE IN THE ACCUMULATOR WILL DISENGAGE THE VALVE WITH EXPLOSIVE FORCE. INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Loosen the swivel nut [7] on the charging valve [8] a maximum of one complete turn in the counterclockwise direction to release the gas pressure from the brake accumulator [1].

## E. Brake Accumulator Removal

SUBTASK 32-41-51-020-001

(1) Do these steps to remove the brake accumulator [1]:

(a) Disconnect the hydraulic line from the forward end of the brake accumulator [1].

(b) Install a plug on the hydraulic line and a cap on the hydraulic port of the brake accumulator [1].

(c) Disconnect the gas line from the aft end of the brake accumulator [1].

(d) Install a plug on the gas line and a cap in the gas port of the brake accumulator [1].

(e) Loosen the clamp nuts for the accumulator clamps.

(f) Open the clamps.

(g) Remove the brake accumulator [1] from the airplane.

SUBTASK 32-41-51-020-002

(2) If the brake accumulator [1] that will be installed, does not have the reducer [3] and reducer [5] installed, do these steps:

(a) Remove the reducer [3] and reducer [5] from the brake accumulator [1].

(b) Remove and discard the packing [2] and packing [4] from the applicable fitting.

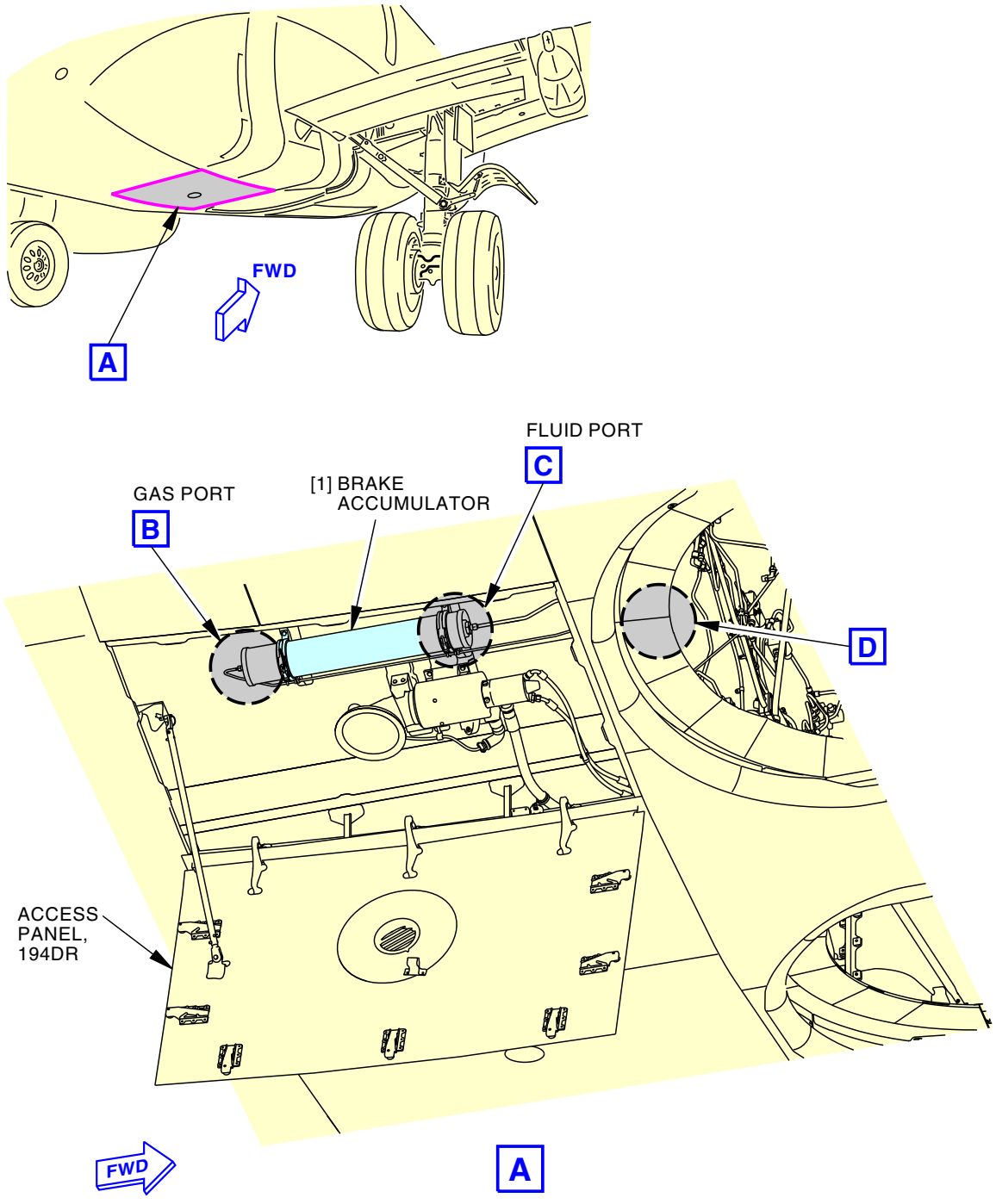
SUBTASK 32-41-51-480-003

(3) Install plugs in the ports of the brake accumulator [1].

**END OF TASK**



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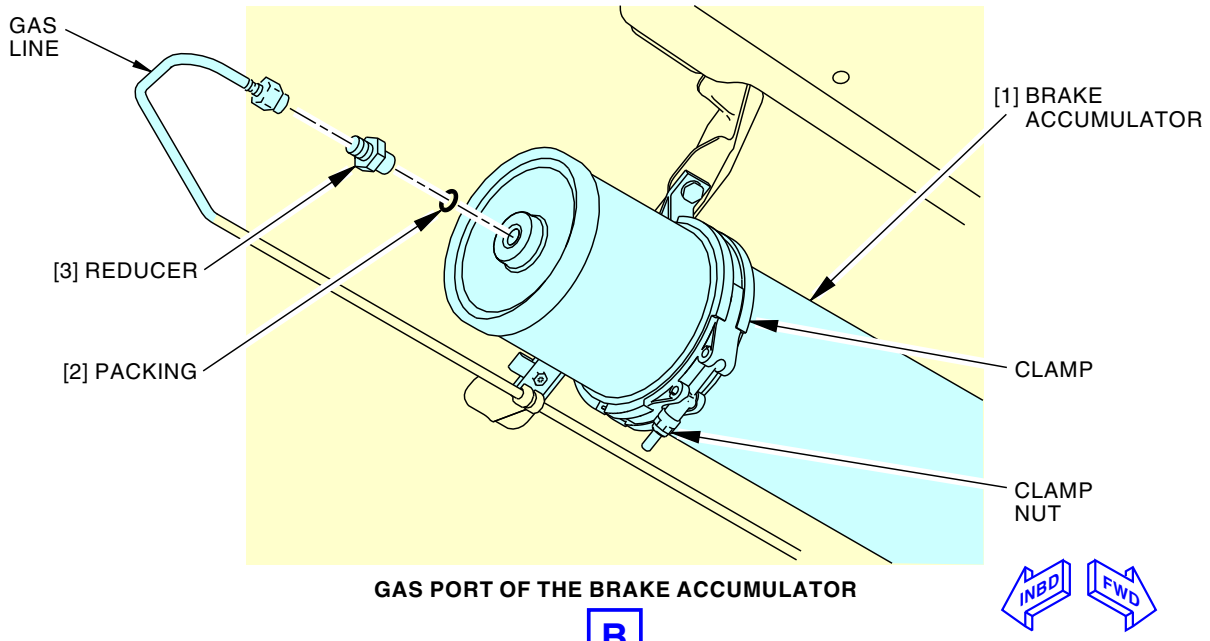



2414369 S00061535003_V2

**Hydraulic Brake Accumulator Installation**
**Figure 401/32-41-51-990-801 (Sheet 1 of 4)**

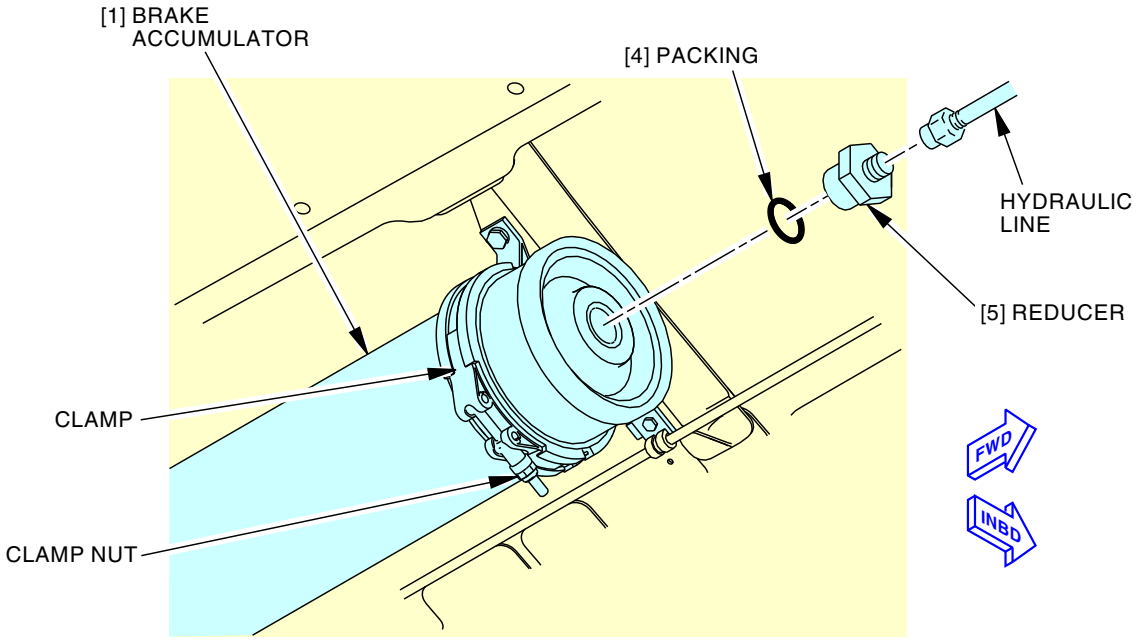


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**GAS PORT OF THE BRAKE ACCUMULATOR**

**B**




**FLUID PORT OF THE BRAKE ACCUMULATOR**

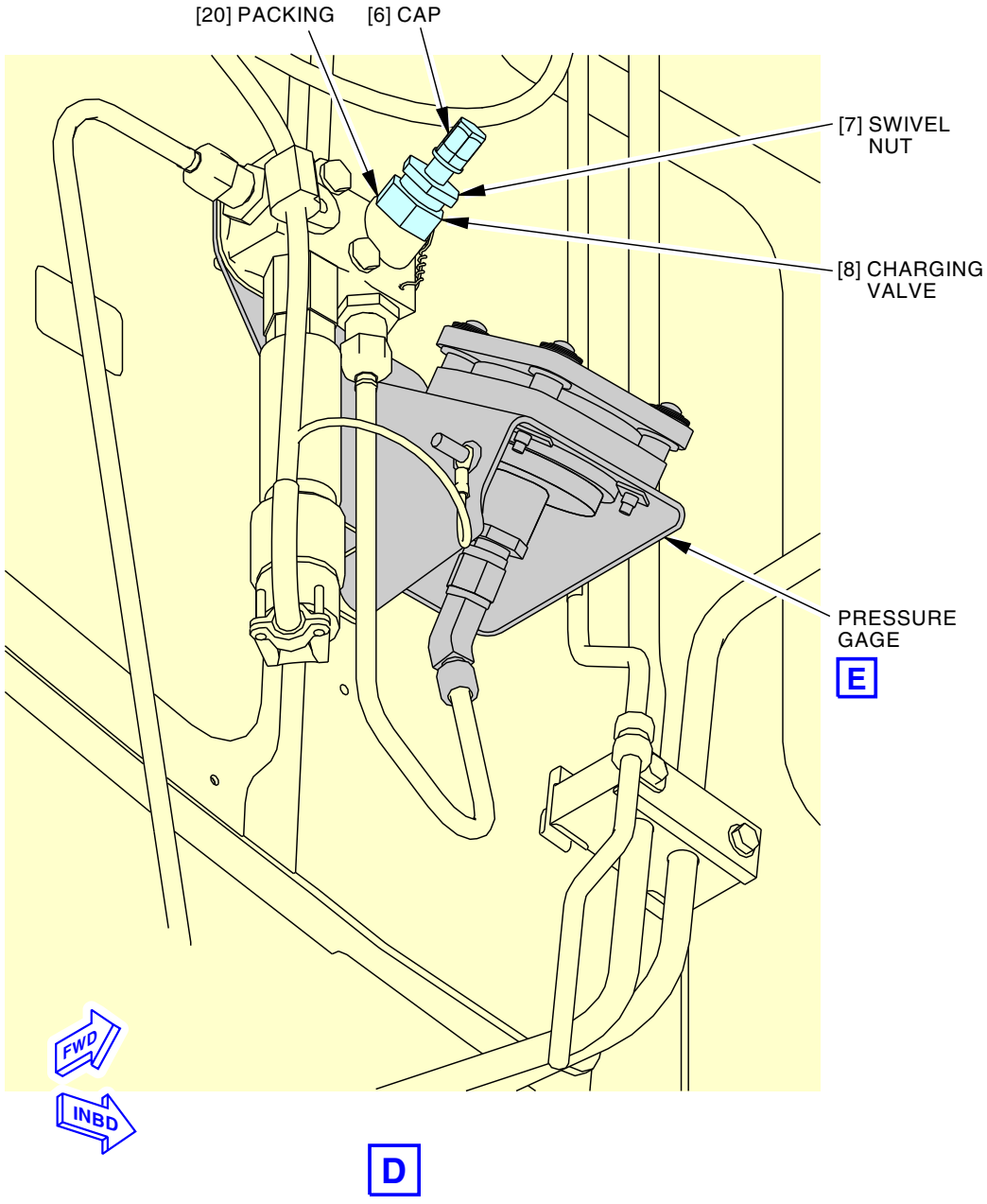
**C**

2414370 S00061535004_V2

**Hydraulic Brake Accumulator Installation**
**Figure 401/32-41-51-990-801 (Sheet 2 of 4)**



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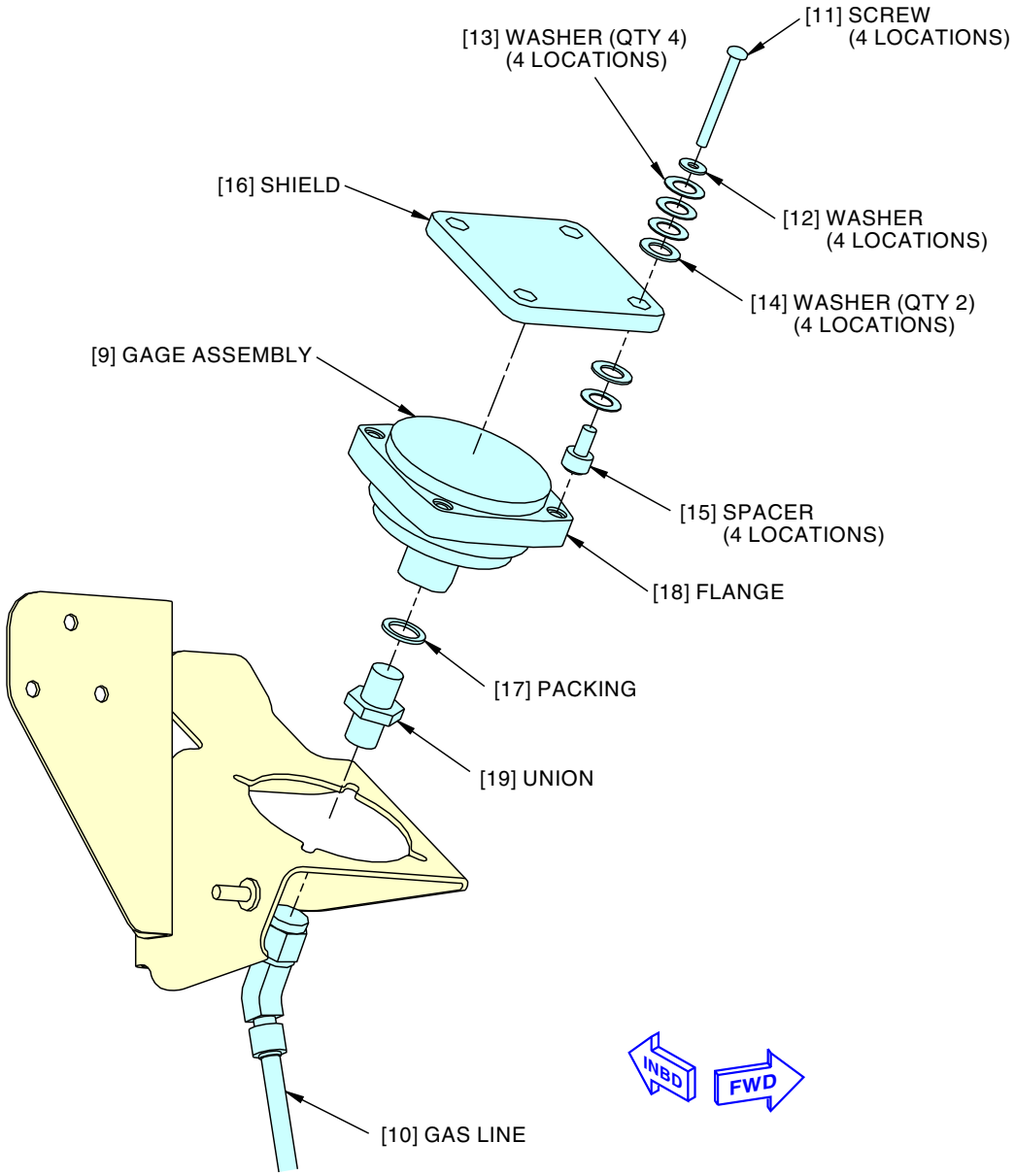



2414371 S00061535005_V2

**Hydraulic Brake Accumulator Installation**
**Figure 401/32-41-51-990-801 (Sheet 3 of 4)**



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**BRAKE ACCUMULATOR PRESSURE GAGE**

**E**

2414372 S00061535006_V1

**Hydraulic Brake Accumulator Installation**
**Figure 401/32-41-51-990-801 (Sheet 4 of 4)**



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**TASK 32-41-51-420-801**

## 3. Hydraulic Brake Accumulator Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 12-15-11-420-801 | Hydraulic Brake Accumulator Servicing (P/B 301) |
| 20-10-44-400-801 | Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401) |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 32-41-00-870-801 | Hydraulic Brake System Upstream of the Antiskid Valves Bleeding (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00054 | Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B) | |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50356 | Lockwire - MS20995C47, Corrosion Resistant Steel - 0.047 Inch (1.1938 mm) Diameter | NASM20995 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Brake accumulator | 32-41-51-01-045 | SIA ALL |
| 2 | Packing | 32-41-51-01-035 | SIA ALL |
| 4 | Packing | 32-41-51-01-040 | SIA ALL |
| 8 | Charging valve | 32-41-53-01-050 | SIA ALL |
| 20 | Packing | 32-41-53-01-052 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### E. Access Panels

| Number | Name/Location |
|---|---|
| 194DR | Aft Wing To Body Fairing Panel |

### F. Brake Accumulator Installation

**SUBTASK 32-41-51-020-003**

(1) Remove the caps or plugs from the ports of the brake accumulator [1].

**SUBTASK 32-41-51-410-001**

(2) If the reducer [3] and reducer [5] are not installed in the brake accumulator [1], do these steps:

(a) Lubricate the new packing [2], new packing [4], reducer [3], and reducer [5] with hydraulic fluid, D00153, or MCS 352B fluid, D00054.

(b) For the GAS end of the brake accumulator [1], do these steps:



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1) Install the packing [2] on the reducer [3].
2) Install the reducer [3] in the GAS PORT of the brake accumulator [1].

(c) For the HYDRAULIC end of the brake accumulator [1], do these steps:
1) Install the packing [4] on the reducer [5].
2) Install the reducer [5] in the FLUID PORT of the brake accumulator [1].

SUBTASK 32-41-51-420-001

(3) To install the brake accumulator [1], do these steps:
(a) Align the gas line with the reducer [3] on the brake accumulator [1] when you put the brake accumulator [1] in its position in the clamps.
(b) Tighten the clamp nuts.
(c) Connect the gas line from the brake accumulator charging valve [8] to the GAS PORT of the brake accumulator [1].
(d) Connect the hydraulic line to the FLUID PORT of the brake accumulator [1].
(e) Tighten the B-nut on the hydraulic line to 270 ±14 in-lb (31 ±2 N·m).

SUBTASK 32-41-51-420-002

(4) To put the brake accumulator [1] back to its usual condition, do these steps:
(a) Do this task: Hydraulic Brake Accumulator Servicing, TASK 12-15-11-420-801.
1) Make sure that the cap [6] is installed on the charging valve [8].
2) Make sure that MS20995C47 lockwire, G50356, is installed on the charging valve [8] (TASK 20-10-44-400-801).

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(b) For the normal (System B) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.
(c) Make sure that the gages for normal (System B) hydraulic system and brake accumulator [1] show approximately 3000 psig.
(d) Make sure that there is no leak at the connection for the hydraulic line on the brake accumulator [1].
(e) Apply a soap solution to the connection at the charging line.
1) Examine the connection for air bubbles.
(f) If leakage is detected at the charging valve [8], replace the charging valve [8], do these steps:
1) Make sure that the hydraulic reservoirs have been depressurized before removing the charging valve [8] (TASK 29-09-00-860-802).
2) Remove the cap [6] on the charging valve [8].
3) Slowly unscrew the swivel nut [7] to release any residual air pressure.
4) Remove MS20995C47 lockwire, G50356, from the charging valve [8] and manifold assembly.
5) Remove the charging valve [8] from the manifold assembly.


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6) Remove and discard the packing [20] from the charging valve [8].

7) Lubricate the new packing [20] with MCS 352B fluid, D00054, or hydraulic fluid, D00153.

8) Install the packing [20] onto the charging valve [8].

9) Install the charging valve [8] in the manifold assembly port.

a) Tighten the charging valve [8] to 100 in-lb (11.3 N·m) - 110 in-lb (12.4 N·m).

10) Install a new MS20995C47 lockwire, G50356, to the charging valve [8] and manifold assembly.

11) Install the cap [6] on the charging valve [8].

12) Tighten the swivel nut [7] on the charging valve [8].

13) Pressurize the pneumatic crossover manifold duct.

14) Use a solution of soap and water to make sure that no air leaks are at the charging valve [8].

15) Release pressure from the pneumatic cross manifold duct.

(g) Bleed the normal (System B) hydraulic system, do this task: Hydraulic Brake System Upstream of the Antiskid Valves Bleeding, TASK 32-41-00-870-801.

**G. Brake Accumulator Installation Test**

**SUBTASK 32-41-51-420-003**

(1) Do these steps to do an operational check of the brake accumulator [1]:

(a) Depressurize the normal (System B) hydraulic system (TASK 29-09-00-860-802).

(b) Push and release the brake pedals fully a minimum of seven times.

(c) Monitor the movement of the brake-wear indicators on each brake to make sure that the brakes work correctly.

**SUBTASK 32-41-51-010-002**

(2) Close this access panel:

| Number | Name/Location |
|---|---|
| 194DR | Aft Wing To Body Fairing Panel |

**SUBTASK 32-41-51-860-003**

(3) Set the parking brake.

**——— END OF TASK ———**

**TASK 32-41-51-000-802**

## 4. Brake Accumulator Pressure Gage Removal

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |


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## C. Prepare for the Removal

SUBTASK 32-41-51-480-004

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-41-51-480-005

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-51-860-004

(3) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-41-51-860-005

(4) Release the parking brake.

SUBTASK 32-41-51-860-006

(5) Fully push the captain's brake pedals 12 times to remove the hydraulic pressure from the brake accumulator [1].

SUBTASK 32-41-51-840-001

(6) Do these steps to remove the gas pressure from the brake accumulator [1]:

(a) Remove the cap [6] from the charging valve [8] for the brake accumulator [1].

**WARNING** DO NOT LET THE VALVE TURN WITH THE SWIVEL NUT. THE PRESSURE IN THE ACCUMULATOR WILL DISENGAGE THE VALVE WITH EXPLOSIVE FORCE. INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(b) Loosen the swivel nut [7] on the charging valve [8] a maximum of one complete turn in the counterclockwise direction to release the gas pressure from the brake accumulator [1].

(c) Make sure that the gage assembly [9] for the brake accumulator [1] goes to zero.

SUBTASK 32-41-51-020-004

(7) Do these steps to remove the gage assembly [9]:

(a) Disconnect the gas line [10] from the gage assembly [9].

(b) Install a plug on the gas line [10].

(c) Remove the screws [11], washers [12], washers [13], and washers [14] from the airplane.

(d) Remove the shield [16] from the airplane.

(e) Remove the washers [13], washers [14], and spacers [15].

(f) Remove the gage assembly [9] from the airplane.

1) Remove the flange [18] from the gage assembly [9].

(g) Put a cap on the union [19] on the gage.

SUBTASK 32-41-51-020-005

(8) If the replacement gage assembly [9] does not have a union [19] installed, do these steps:

(a) Remove the union [19] and packing [17] from the port of the gage.


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(b) Discard the packing [17].

——— END OF TASK ———

**TASK 32-41-51-420-802**

**5. Brake Accumulator Pressure Gage Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 12-15-11-420-801 | Hydraulic Brake Accumulator Servicing (P/B 301) |
| 20-10-44-400-801 | Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 32-41-00-870-801 | Hydraulic Brake System Upstream of the Antiskid Valves Bleeding (P/B 201) |

**B. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00054 | Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B) | |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50356 | Lockwire - MS20995C47, Corrosion Resistant Steel - 0.047 Inch (1.1938 mm) Diameter | NASM20995 |

**C. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 9 | Gage assembly | 32-41-51-07-035 | SIA ALL |
| 17 | Packing | 32-41-51-07-038 | SIA ALL |

**D. Location Zones**

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

**E. Brake Accumulator Pressure Gage Installation**

**SUBTASK 32-41-51-080-001**

(1) Remove the cap or plug from the port of the gage assembly [9] and gas line [10].

**SUBTASK 32-41-51-420-004**

(2) If the replacement gage assembly [9] does not have a union [19] installed in the port, do these steps:

(a) Lightly lubricate the new packing [17], threads of gage assembly [9], and threads of union [19] with hydraulic fluid, D00153, or MCS 352B fluid, D00054 (alternative).

(b) Install the packing [17] on the union [19].

(c) Install the union [19] on the port of the gage assembly [9].



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SUBTASK 32-41-51-420-005

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(3) Do these step to install the gage assembly [9]:

(a) Install the flange [18] on the gage assembly [9].

(b) Install the gage assembly [9] on the bracket in the right wheel well.

(c) Apply a thin layer of corrosion inhibiting material, G50136, to the faces of the washers [13], washers [14], and spacers [15].

1) Remove the excess corrosion inhibiting material, G50136.

(d) Install the spacers [15], washers [14], washers [13] on the flange [18].

NOTE: The rubber washers [14] should always be against the shield [16].

(e) Install the shield [16] on the spacers [15].

(f) Apply a thin layer of corrosion inhibiting material, G50136, to the thread reliefs and threads of the screws [11], and faces of the washers [12], washers [13], and washers [14].

1) Remove the excess corrosion inhibiting material, G50136.

(g) Install the washers [14], washers [13], washers [12], and screws [11].

1) Install washers [13] until a maximum of one washer [13] is above the spacer [15] to prevent movement of the shield [16].

2) Tighten, but do not damage, the washers [14].

(h) Connect the gas line [10] to the union [19] on the gage assembly [9].

## F. Brake Accumulator Pressure Gage Installation Test

SUBTASK 32-41-51-710-001

(1) For each pressure reading, compare the pressure measured by the brake accumulator pressure gage in the wheel well with the pressure measured by the brake accumulator pressure gage in the flight compartment.

(a) Make sure that the compared pressure values are approximately the same.

SUBTASK 32-41-51-790-001

(2) Do these steps to do an operational test of the gage assembly [9]:

(a) Do this task: Hydraulic Brake Accumulator Servicing, TASK 12-15-11-420-801.

1) Make sure that the cap [6] is installed on the charging valve [8].

2) Make sure that MS20995C47 lockwire, G50356, is installed on the charging valve [8] (TASK 20-10-44-400-801).

(b) For the normal (System B) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(c) Make sure that the gages for the normal (System B) hydraulic system and brake accumulator show approximately 3000 psig (20,684 kPa).



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(d) Make sure that there is no leak at the connection for the gas line [10] on the gage assembly [9].

(e) Apply a soap solution to the connection at the union [19].

1) Examine the connection for air bubbles.

(f) Bleed the normal (System B) hydraulic system, do this task: Hydraulic Brake System Upstream of the Antiskid Valves Bleeding, TASK 32-41-00-870-801.

**——— END OF TASK ———**



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## BRAKE ACCUMULATOR PRESSURE TRANSMITTER - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the brake accumulator pressure transmitter

(2) An installation of the brake accumulator pressure transmitter.

**TASK 32-41-53-000-801**

### 2. Brake Accumulator Pressure Transmitter Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

#### C. Prepare for the Removal

**SUBTASK 32-41-53-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-53-860-001**

(2) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-41-53-480-002**

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-53-860-002**

(4) Release the parking brake.

**SUBTASK 32-41-53-860-003**

(5) Fully push the brake pedals twelve times to remove the hydraulic pressure from the brake accumulator.

#### D. Brake Accumulator Pressure Transmitter Removal

(Figure 401)

**SUBTASK 32-41-53-840-001**

(1) Do these steps to remove the gas pressure from the brake accumulator:

(a) Remove the cap [2] from the brake accumulator charging valve [4].



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**WARNING** DO NOT LOOSEN THE BODY OF THE BRAKE-ACCUMULATOR CHARGING VALVE. THE PRESSURE IN THE BRAKE ACCUMULATOR CAN QUICKLY PUSH THE GAS CHARGING VALVE OFF THE MANIFOLD. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(b) Turn the swivel nut [3] of the brake accumulator charging valve [4] one turn counterclockwise.

NOTE: This will release the gas pressure from the brake accumulator.

(c) Make sure that the brake accumulator pressure gage [5] goes to zero.

**SUBTASK 32-41-53-020-001**

(2) Do these steps to remove the pressure transmitter [7]:

(a) Disconnect the electrical connector [6] from the pressure transmitter [7].

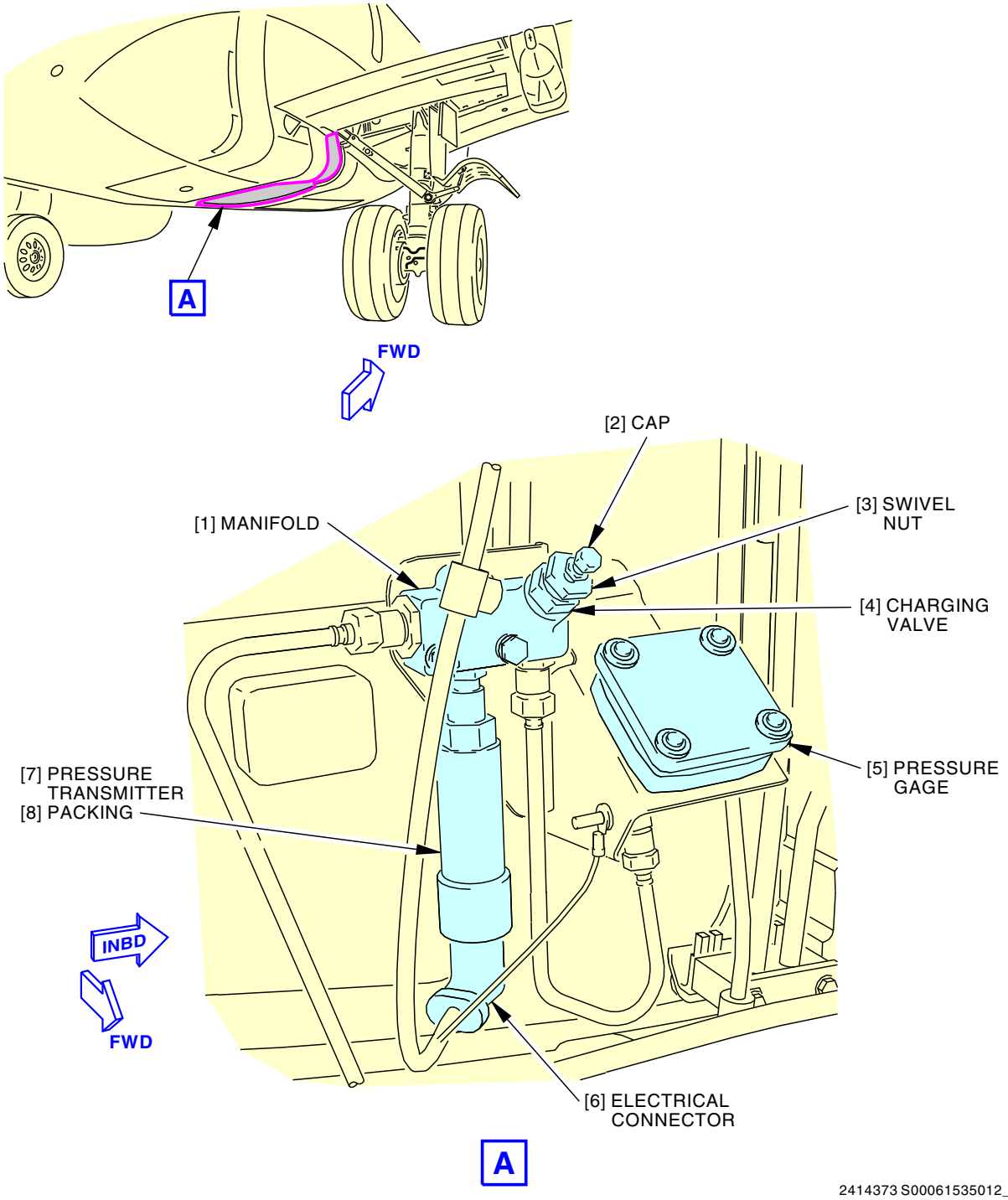
(b) Remove the pressure transmitter [7] from the manifold [1].

(c) Remove the packing [8] from the pressure transmitter [7] and discard it.

**END OF TASK**



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**Hydraulic Brake Accumulator Pressure Transmitter Installation**
**Figure 401/32-41-53-990-801**



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**TASK 32-41-53-400-801**

## 3. Brake Accumulator Pressure Transmitter Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 12-15-11-420-801 | Hydraulic Brake Accumulator Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 7 | Pressure transmitter | 32-41-53-01-075 | SIA ALL |
| 8 | Packing | 32-41-53-01-070 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### E. Brake Accumulator Pressure Transmitter Installation

**SUBTASK 32-41-53-420-001**

(1) Do these steps to install the pressure transmitter [7]:

(a) Lubricate a new packing [8] with hydraulic fluid, D00153.

(b) Install the packing [8] on the pressure transmitter [7].

(c) Install the pressure transmitter [7] in its location on the accumulator manifold [1].

(d) Before you connect the electrical connector [6] to the pressure transmitter [7], examine the electrical connector [6] for corrosion.

**WARNING**

DO THE STEPS BELOW WHEN YOU OPERATE THE AIRPLANE WHERE YOU USE DEICING FLUID (THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE). ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT. IF YOU DO NOT DO THESE STEPS, YOU CAN CAUSE DAMAGE TO EQUIPMENT OR INJURY TO PERSONNEL.

(e) If there was corrosion, refer to SWPM 20-60-03 to correct the problem.

(f) Apply D5026NS or ZC-026 compound, G50171, to the connector (SWPM 20-60-03).

(g) Connect the electrical connector [6] to the pressure transmitter [7].



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SUBTASK 32-41-53-610-001

(2) Do this task: Hydraulic Brake Accumulator Servicing, TASK 12-15-11-420-801.

SUBTASK 32-41-53-410-001

(3) Make sure that the cap [2] is installed after you service the brake accumulator.

## F. Brake Accumulator Pressure Transmitter Installation Test

SUBTASK 32-41-53-860-004

(1) For the B hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-41-53-720-001

(2) Measure the brake accumulator pressure with the direct reading gage (pressure gage [5]).

NOTE: The direct reading gage (pressure gage [5]) is in the wheel well for the right main landing gear, next to the pressure transmitter [7].

SUBTASK 32-41-53-720-002

(3) Measure the brake accumulator pressure with the BRAKE ACCUM PRESS gage.

NOTE: The BRAKE ACCUM PRESS gage is in the flight compartment on the first officer's instrument panel (P3).

SUBTASK 32-41-53-710-001

(4) Make sure that the pressure shown by the BRAKE ACCUM PRESS gage is approximately the same as the pressure shown by the direct reading pressure gage (pressure gage [5]).

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-53-860-005

(1) For the B hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**——— END OF TASK ———**



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## BRAKE ACCUMULATOR PRESSURE GAGE (FLIGHT COMPARTMENT) - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the brake accumulator pressure gage (flight compartment).

(2) An installation of the brake accumulator pressure gage (flight compartment).

**TASK 32-41-54-000-801**

### 2. Brake Accumulator Pressure Gage (Flight Compartment) Removal

(Figure 401)

**A. Location Zones**

| Zone | Area |
|---|---|
| 212 | Flight Compartment - Right |

**B. Prepare for the Removal**

**SUBTASK 32-41-54-860-001**

(1) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 13 | C00306 | HYDRAULIC SYSTEM BRAKE PRESS IND |

**C. Brake Accumulator Pressure Gage Removal**

**SUBTASK 32-41-54-020-001**

(1) Loosen the quick release fasteners [5] that hold the P3-1 panel [4] to the airplane.

**SUBTASK 32-41-54-020-002**

(2) Pull the P3-1 panel [4] away from the right forward panel.

**SUBTASK 32-41-54-020-003**

(3) Disconnect the electrical connector [7] from the brake accumulator pressure gage [3].

**SUBTASK 32-41-54-020-004**

(4) Loosen the clamp [1] that holds the brake accumulator pressure gage [3]:

NOTE: The clamp [1] has two fasteners: the mounting screw [6] that holds the clamp [1] to the P3-1 panel [4], and the adjusting screw [2] that loosens the clamp.

(a) Loosen the adjusting screw [2] that holds the clamp [1] to the brake accumulator pressure gage [3] until the brake accumulator pressure gage [3] can be removed from the P3-1 panel [4].

NOTE: Do not loosen the mounting screw [6] that holds the clamp [1] to the P3-1 panel [4].

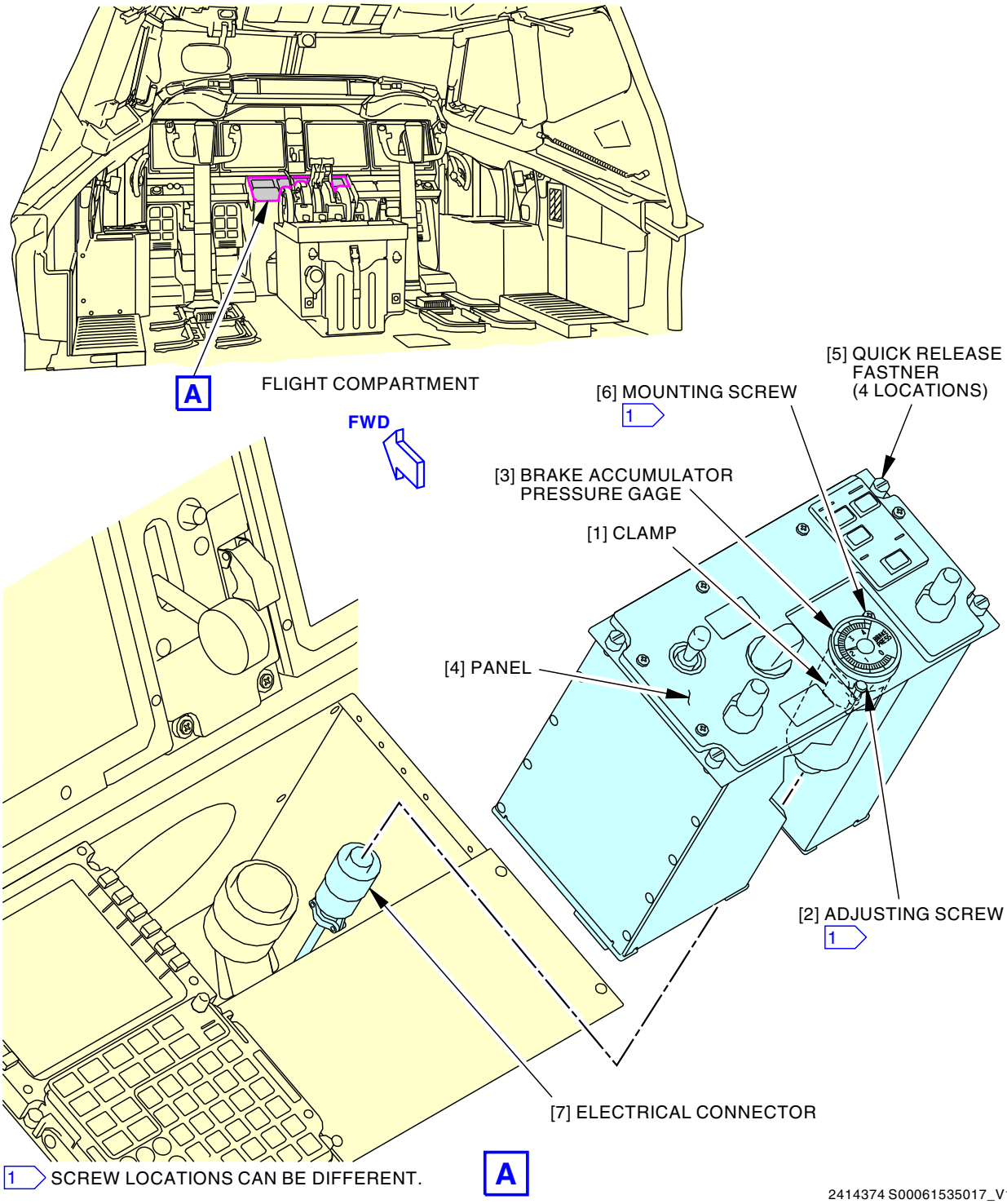
**SUBTASK 32-41-54-020-005**

(5) Remove the brake accumulator pressure gage [3].

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Brake Accumulator Pressure Gage Installation**
**Figure 401/32-41-54-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-41-54-400-801**

## 3. Brake Accumulator Pressure Gage (Flight Compartment) Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 24-22-00-860-801 | Supply Electrical Power (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Brake accumulator pressure gage | 32-41-54-01-020 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 212 | Flight Compartment - Right |

### E. Brake Accumulator Pressure Gage Installation

SUBTASK 32-41-54-420-001

(1) Put the brake accumulator pressure gage [3] in its location in the P3-1 panel [4].

SUBTASK 32-41-54-020-006

(2) Tighten the adjusting screw [2] on the clamp [1] that holds the brake accumulator pressure gage [3]:

(a) Tighten the mounting screw [6] on the clamp [1] until the brake accumulator pressure gage [3] is firmly held to the P3-1 panel [4].

SUBTASK 32-41-54-420-002

(3) Before you connect the electrical connector [7] to the brake accumulator pressure gage [3], examine the electrical connector [7] for corrosion.

**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to SWPM 20-60-03 to correct the problem.

(b) Apply D5026NS or ZC-026 compound, G50171, to the electrical connector [7] (SWPM 20-60-03).

(4) Connect the electrical connector [7] to the brake accumulator pressure gage [3].



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SUBTASK 32-41-54-420-003

(5) Hold the P3-1 panel [4] on the forward panel.

SUBTASK 32-41-54-420-004

(6) Tighten the quick release fastener [5] which hold the P3-1 panel [4] to the airplane.

SUBTASK 32-41-54-860-002

(7) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 13 | C00306 | HYDRAULIC SYSTEM BRAKE PRESS IND |

## F. Brake Accumulator Pressure Gage Installation Test

SUBTASK 32-41-54-480-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 32-41-54-790-001

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) For the B hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-41-54-710-001

(3) Make sure the brake accumulator pressure gage [3] shows approximately 3000 psig.

SUBTASK 32-41-54-860-003

(4) For the B hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-41-54-480-002

(5) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-54-860-004

(6) Release the parking brake.

SUBTASK 32-41-54-860-005

(7) Fully push the captain's brake pedals twelve times to remove the pressure from the brake accumulator.

SUBTASK 32-41-54-710-002

(8) Make sure the brake accumulator pressure gage [3] (flight compartment) shows approximately 1000 psig.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## BRAKE ACCUMULATOR PRESSURE RELIEF VALVE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the brake accumulator pressure relief valve

(2) An installation of the brake accumulator pressure relief valve

B. The brake system relief valve [1] is on the aft wall of the right wheel well.

**TASK 32-41-71-000-801**

### 2. Brake Accumulator Pressure Relief Valve Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

#### D. Prepare for the Removal

**SUBTASK 32-41-71-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-71-480-002**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-71-860-001**

(3) Release the parking brake.

**SUBTASK 32-41-71-860-002**

(4) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-41-71-870-001**

(5) Fully push the brake pedals twelve times to remove the hydraulic pressure from the brake accumulator (Figure 401).


ECCN 9E991 BOEING PROPRIETARY - See title page for details

## E. Brake Accumulator Pressure Relief Valve Removal

**SUBTASK 32-41-71-020-001**

(1) Do these steps to remove the brake accumulator pressure relief valve (brake system relief valve [1]):

(a) Remove the bolts [4] and the washers [3] and the clamp [2] from the airplane.

(b) Disconnect the outboard hydraulic line from the brake system relief valve [1].

(c) Disconnect the inboard hydraulic tee from the brake system relief valve [1].

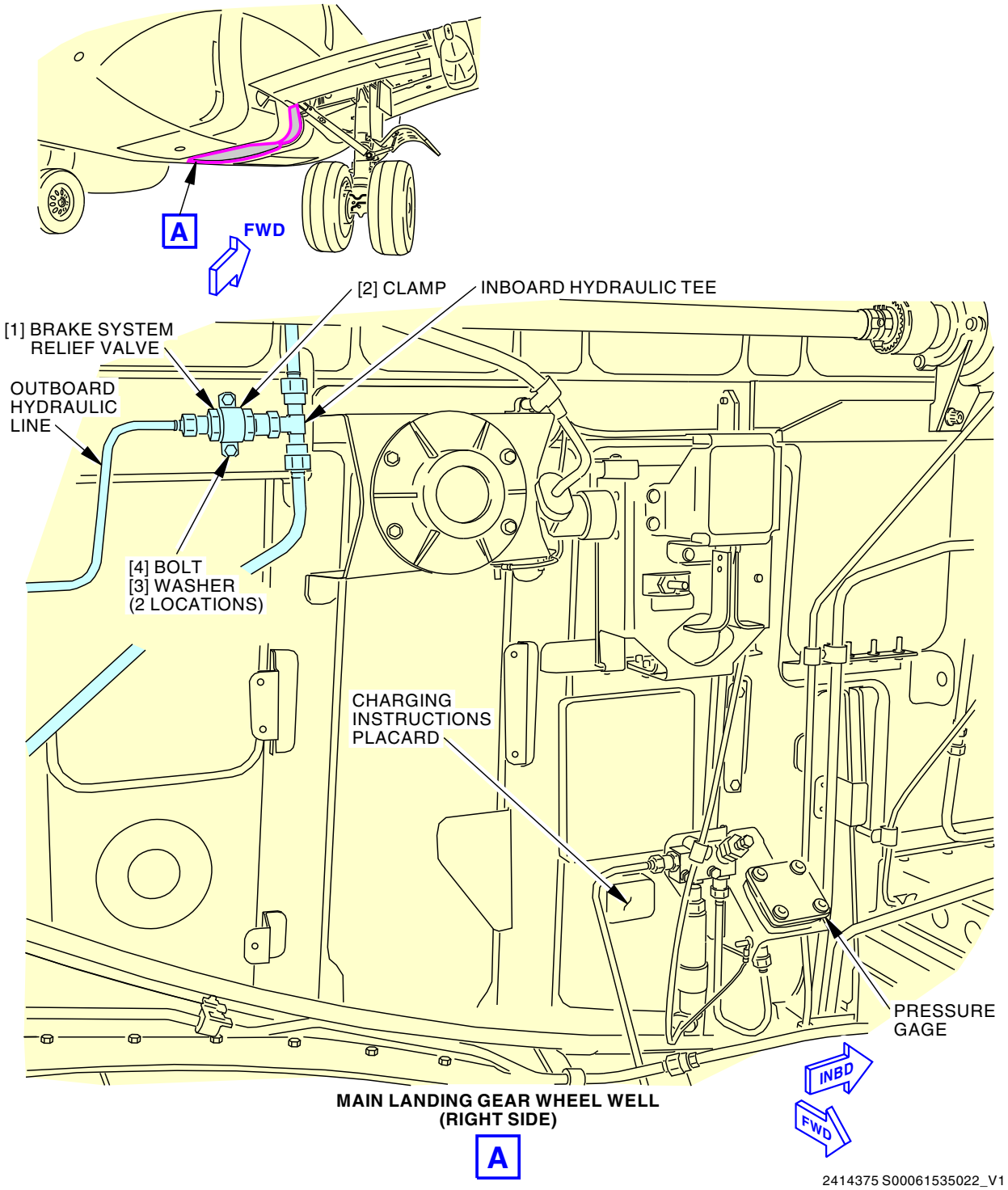
(d) Install caps/plugs, STD-14686, on the hydraulic lines.

(e) Remove the brake system relief valve [1] from the airplane.

**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Brake System Relief Valve Installation**
**Figure 401/32-41-71-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-41-71-420-801**

## 3. Brake Accumulator Pressure Relief Valve Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 12-15-11-420-801 | Hydraulic Brake Accumulator Servicing (P/B 301) |
| 20-10-44-400-801 | Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G01505 | Lockwire - Safety And Lock | NASM20995 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Brake system relief valve | 32-41-71-01-040 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### F. Brake Accumulator Pressure Relief Valve Installation

**SUBTASK 32-41-71-420-001**

(1) Do these steps to install the brake accumulator pressure relief valve (brake system relief valve [1]):

(a) Remove the caps/plugs, STD-14686, from the hydraulic lines.

(b) Put the brake system relief valve [1] in its position in the hydraulic line.

(c) Connect the inboard hydraulic tee to the brake system relief valve [1].

(d) Connect the outboard hydraulic line to the brake system relief valve [1].

(e) Tighten the B-nut on the hydraulic line to 140 ±7 in-lb (16 ±1 N·m).

(f) Put the clamp [2] in its position on the brake system relief valve [1].

(g) Install the bolts [4] and the washers [3] to connect the clamp [2] to the airplane.

**SUBTASK 32-41-71-420-002**

(2) Do the steps that follow to make sure the brake accumulator is in its usual condition:

(a) Make sure that the brake accumulator charge pressure is correct.

NOTE: The brake accumulator charge pressure can be found on the placard located next to the brake accumulator pressure gage.

(b) If the brake accumulator needs to be serviced, do this task: Hydraulic Brake Accumulator Servicing, TASK 12-15-11-420-801.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

1) Make sure that the cap is installed on the charging valve and it has lockwire, G01505, on it (TASK 20-10-44-400-801).

## G. Brake Accumulator Pressure Relief Valve Leakage Test

SUBTASK 32-41-71-870-002

(1) Do the steps that follow to do a leakage check of the brake accumulator pressure relief valve:

**WARNING**

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) For the normal (System B) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Fully push the brake pedals twelve times to bleed the air out through the brake metering valves.

NOTE: Wait approximately 5 seconds between each time that you push the brake pedals.

(c) Make sure that there are no leaks from the brake system relief valve [1] when you bleed the brake system.

(d) For the normal (System B) hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## BRAKE HYDRAULIC FUSES - REMOVAL/INSTALLATION

### 1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has these tasks:

(1) A removal of the hydraulic fuses for the alternate brake system for the main landing gear.

(2) An installation of the hydraulic fuses for the alternate brake system for the main landing gear.

(3) A removal of the hydraulic fuses for the normal brake system for the main landing gear.

(4) An installation of the hydraulic fuses for the normal brake system for the main landing gear.

C. There is one fuse for the left alternate brake hydraulic system and one fuse for the right alternate hydraulic system.

(1) The two fuses are in the wheel well of the main landing gear.

(2) This procedure shows one hydraulic fuse for the alternate brake system.

(3) The example fuse is for the left main landing gear.

(4) This procedure also applies to the other two hydraulic fuses for the alternate brake system.

D. There are two fuses for the left normal brake hydraulic system and two fuses for the right normal hydraulic system.

(1) The four fuses are in the wheel well of the main landing gear.

(2) This procedure shows one hydraulic fuse for the normal brake system.

(3) The example fuse is for the left main landing gear.

(4) This procedure also applies to the other three hydraulic fuses for the normal brake system.

**TASK 32-41-72-020-801**

### 2. Brake Hydraulic Fuse (Alternate Brake System) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## D. Prepare for the Removal

SUBTASK 32-41-72-480-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-41-72-480-002

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-72-860-001

(3) Release the parking brake.

SUBTASK 32-41-72-860-002

(4) For the A hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-41-72-870-001

(5) Fully push the brake pedals 12 times to remove the hydraulic pressure from the brake accumulator.

## E. Hydraulic Fuse Removal

SUBTASK 32-41-72-020-001

(1) To remove each fuse (alternate brake system) [1] do these steps:

(a) Disconnect each hydraulic line [5] from the fuse (alternate brake system) [1].

(b) Install caps/plugs, STD-14686, in each hydraulic line [5] and the fittings of the fuse (alternate brake system) [1].

(c) Remove the bolts [2], washers [3] and clamp [4] that hold the fuse (alternate brake system) [1] to the airplane.

(d) Remove the fuse (alternate brake system) [1] from the airplane.

## F. Brake Hydraulic Fuses Functional Test

SUBTASK 32-41-72-720-001

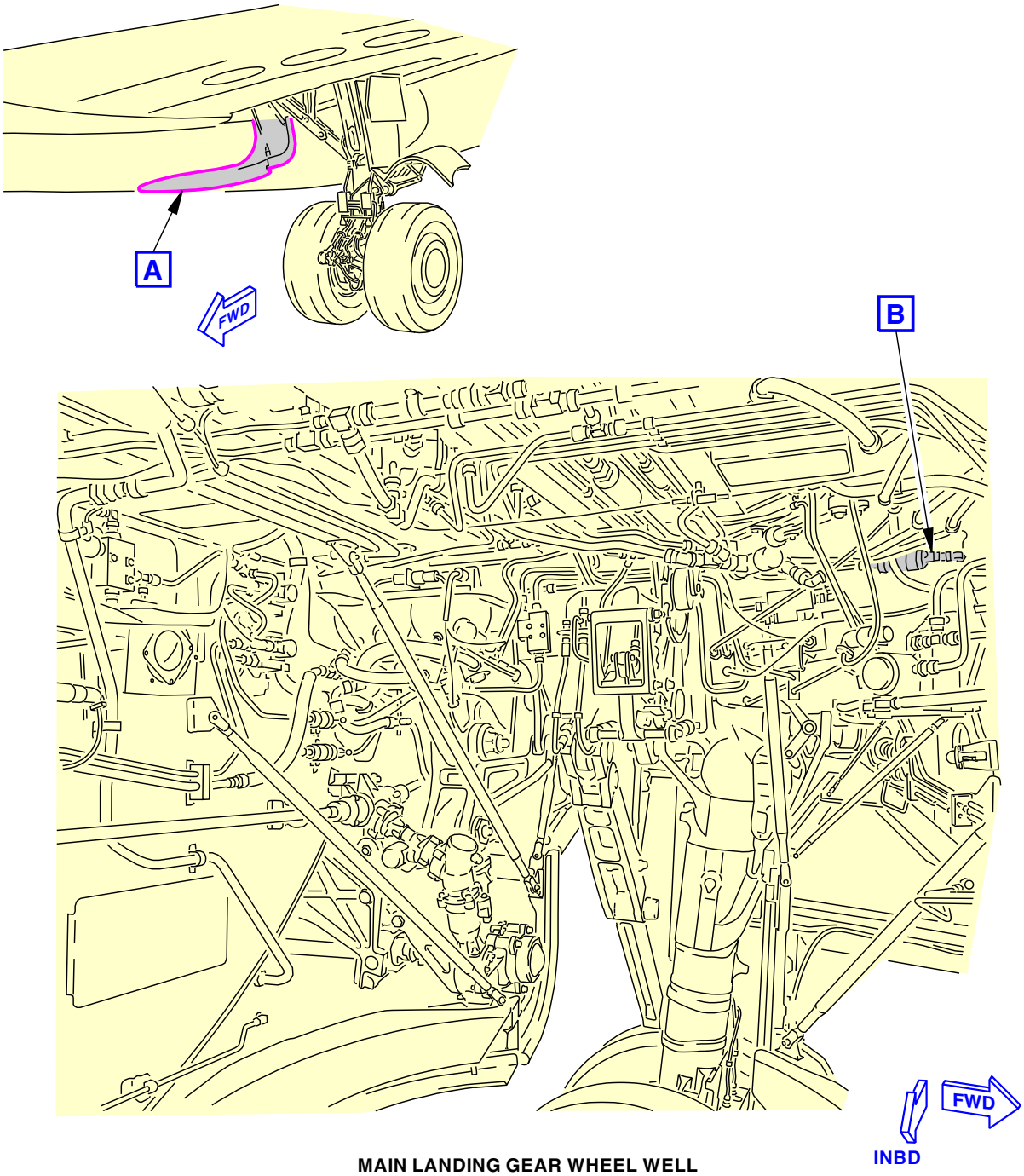
(1) Do the functional test of the brake hydraulic fuses with the suppliers recommended component maintenance test instructions and test equipment.

NOTE: The suppliers instructions give a reverse flow test, internal leakage test, pressure drop test, volumetric capacity test and reset test for the fuses. This is an off-airplane bench test.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

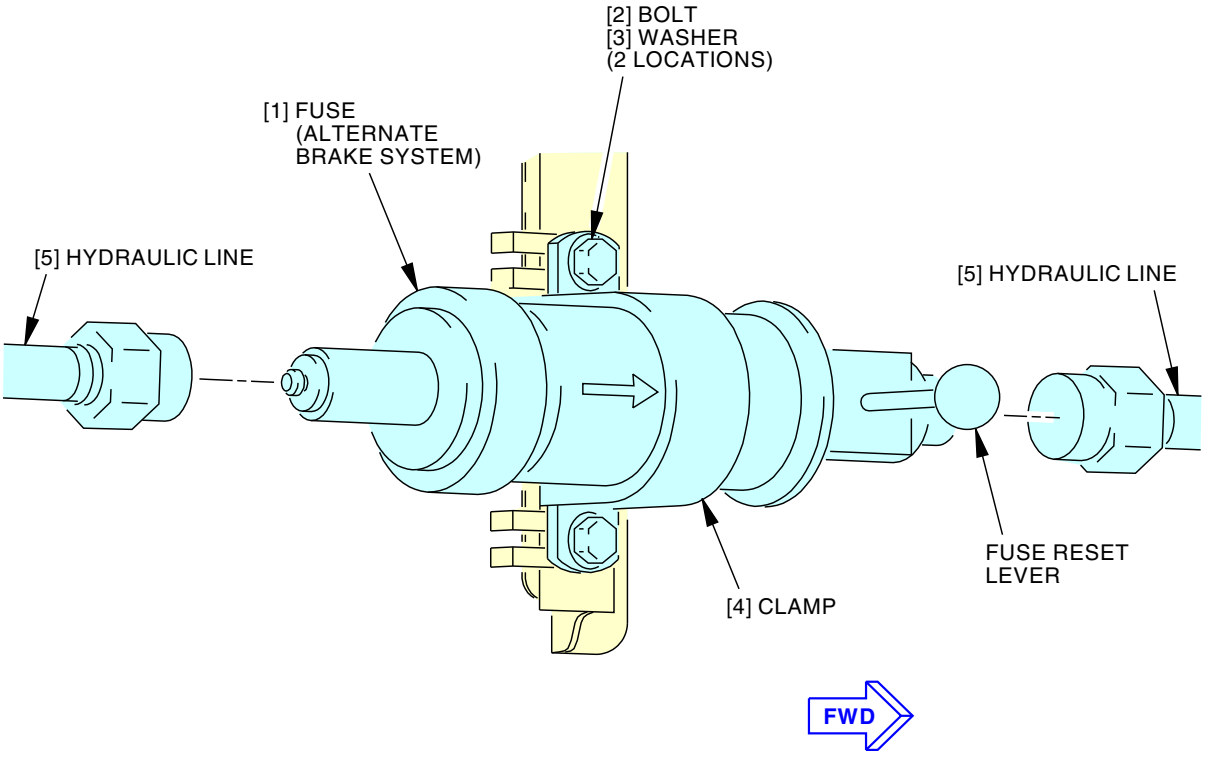
A

2414376 S00061535027_V1

**Brake Hydraulic Fuse (Alternate Brake System) Installation**
**Figure 401/32-41-72-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




A SYSTEM - ALTERNATE BRAKE HYDRAULIC FUSE
(EXAMPLE)

B

2414377 S00061535028_V1

**Brake Hydraulic Fuse (Alternate Brake System) Installation**
**Figure 401/32-41-72-990-801 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-41-72-420-801**

## 3. Brake Hydraulic Fuse (Alternate Brake System) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-41-00-870-803 | Alternate (System A) Hydraulic Brake System Bleeding (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Fuse (alternate brake system) | 32-41-72-05-030 | SIA ALL |
| | | 32-41-72-15-030 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### E. Hydraulic Fuse Installation

**SUBTASK 32-41-72-420-001**

(1) To install each fuse (alternate brake system) [1], do these steps:

(a) Hold the fuse (alternate brake system) [1] in its position.

NOTE: Boeing recommends that you put the hydraulic fuse into a position that lets you see the reset lever from the ground.

(b) Install the bolts [2], washers [3] and clamp [4] to attach the fuse (alternate brake system) [1] to the airplane.

(c) Remove the caps/plugs, STD-14686, from each hydraulic line [5] and the fittings of the fuse (alternate brake system) [1].

(d) Connect the hydraulic lines [5] to the fuse (alternate brake system) [1].

(e) Tighten the B-nuts on the hydraulic lines [5] to 270 ±14 in-lb (31 ±2 N·m).

### F. Hydraulic Fuse Installation Test

**SUBTASK 32-41-72-790-001**

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) For the alternate brake system, pressurize the hydraulic system A (TASK 29-11-00-860-801).



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-41-72-790-002

(2) Do a visual check of each fuse (alternate brake system) [1] for hydraulic leaks.

SUBTASK 32-41-72-870-002

(3) To bleed the alternate (System A) hydraulic system, do this task: Alternate (System A) Hydraulic Brake System Bleeding, TASK 32-41-00-870-803.

**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-41-72-860-003

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-41-72-860-004

(2) Set the parking brakes.

——— END OF TASK ———

**TASK 32-41-72-000-801**

**4. Brake Hydraulic Fuse (Normal Brake System) Removal**

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

**D. Prepare for the Removal**

SUBTASK 32-41-72-860-005

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-41-72-860-006

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-72-860-007

(3) Release the parking brake.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-41-72-860-008

(4) For the B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-41-72-870-003

(5) Fully push the brake pedals 12 times to remove the hydraulic pressure from the brake accumulator.

## E. Brake Hydraulic Fuse Removal

SUBTASK 32-41-72-020-002

(1) To remove each fuse (normal brake system) [6], do these steps:

(a) Disconnect each hydraulic line [5] from the fuse (normal brake system) [6].

(b) Install caps/plugs, STD-14686, in each hydraulic line [5] and the fittings of the fuse (normal brake system) [6].

(c) Remove the bolts [2], washers [3] and clamp [4] that attaches the fuse (normal brake system) [6] to the airplane.

(d) Remove the fuse (normal brake system) [6] from the airplane.

## F. Brake Hydraulic Fuses Functional Test

SUBTASK 32-41-72-720-002

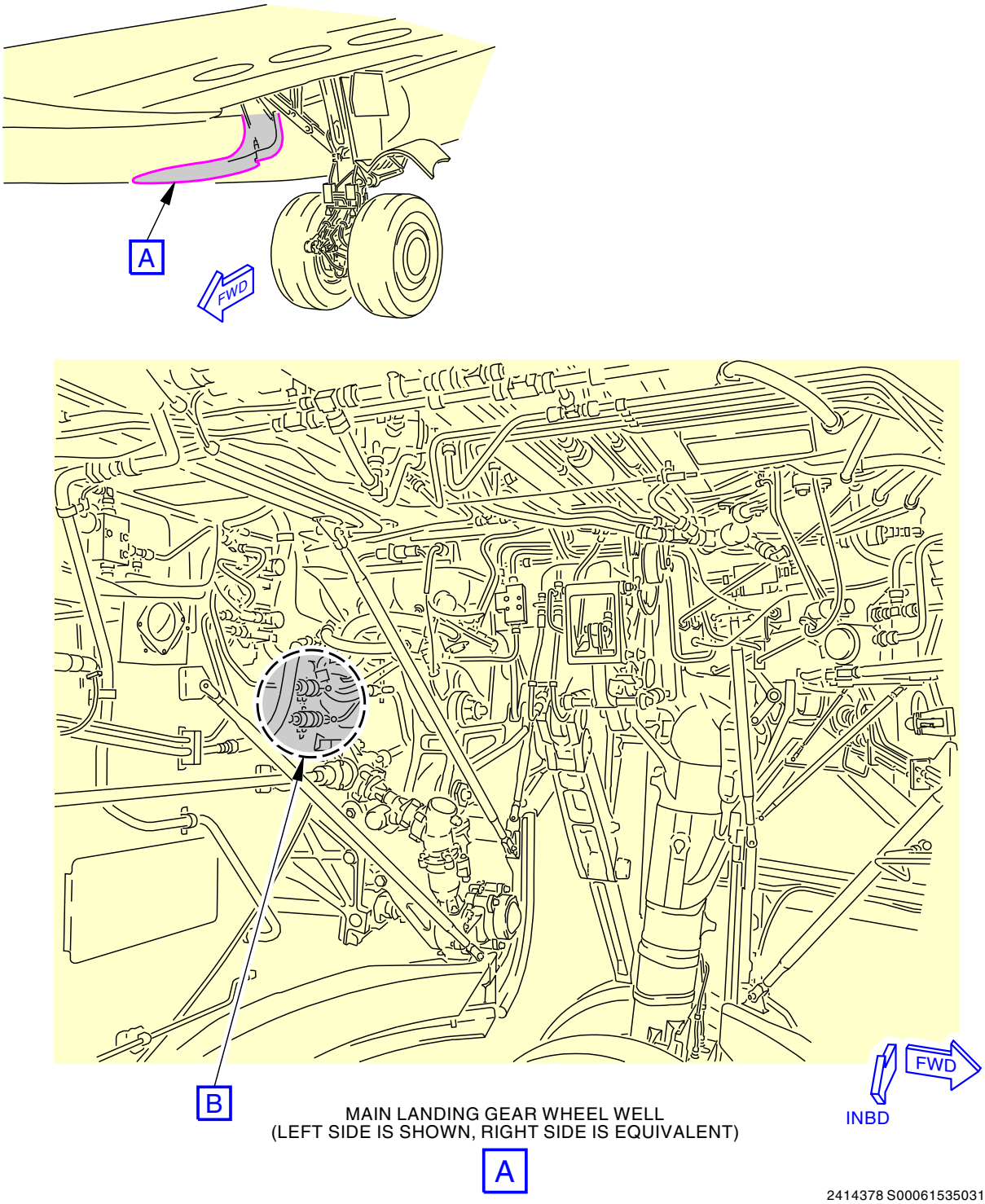
(1) Do the functional test of the brake hydraulic fuses with the suppliers recommended component maintenance test instructions and test equipment.

NOTE: The suppliers instructions give a reverse flow test, internal leakage test, pressure drop test, volumetric capacity test and reset test for the fuses. This is an off-airplane bench test.

——— END OF TASK ———



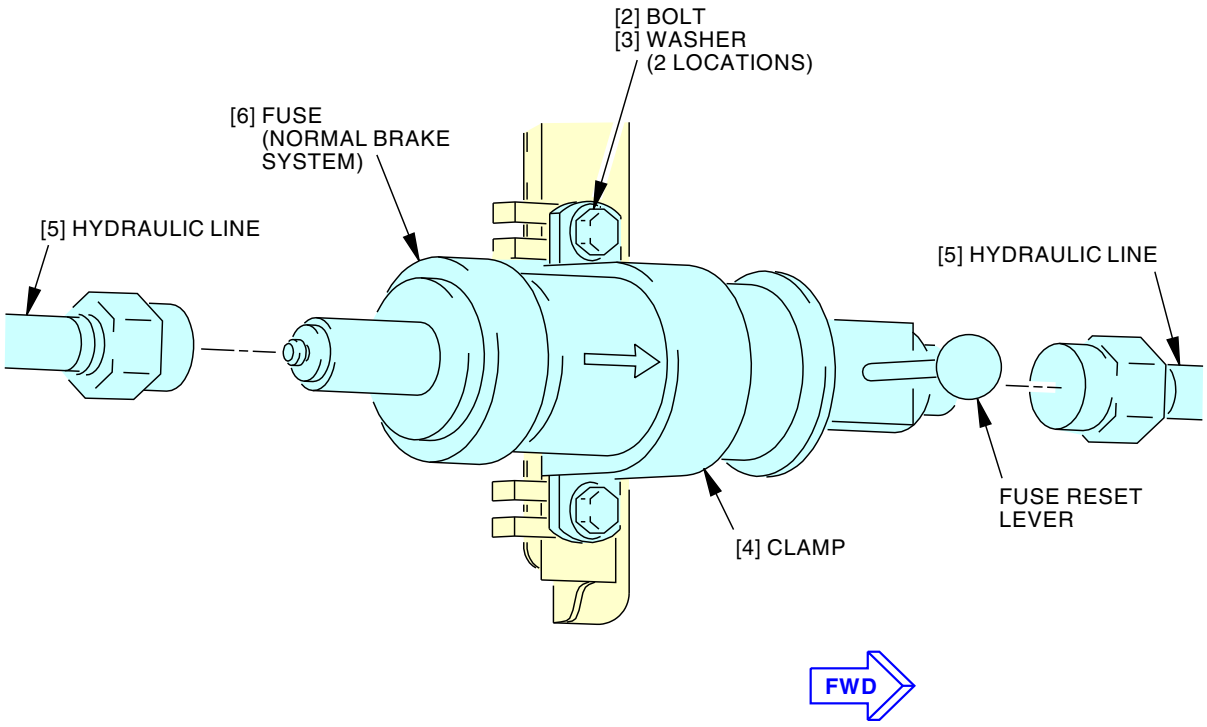
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Brake Hydraulic Fuse (Normal Brake System) Installation**
**Figure 402/32-41-72-990-802 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




B SYSTEM - NORMAL BRAKE HYDRAULIC FUSE
(EXAMPLE)

B

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**Brake Hydraulic Fuse (Normal Brake System) Installation**
**Figure 402/32-41-72-990-802 (Sheet 2 of 2)**



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**TASK 32-41-72-400-801**

## 5. Brake Hydraulic Fuse (Normal Brake System) Installation

(Figure 402)

NOTE: This procedure is a scheduled maintenance task.

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-41-00-870-802 | Normal (System B) Hydraulic Brake System Bleeding (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 6 | Fuse (normal brake system) | 32-41-72-01-030 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### E. Brake Hydraulic Fuse Installation

**SUBTASK 32-41-72-420-002**

(1) To install each fuse (normal brake system) [6], do these steps:

(a) Hold the fuse (normal brake system) [6] in its position.

NOTE: Boeing recommends that you put the hydraulic fuse into a position that lets you see the reset lever from the ground.

(b) Install the bolts [2], washers [3] and clamp [4] to attach the fuse (normal brake system) [6] to the airplane.

(c) Remove the caps/plugs, STD-14686, from each hydraulic line [5] and the fittings of the fuse (normal brake system) [6].

(d) Connect the hydraulic lines [5] to the fuse (normal brake system) [6].

(e) Tighten the B-nuts on the hydraulic lines [5] to 270 ±14 in-lb (31 ±2 N·m).

### F. Brake Hydraulic Fuse Installation Test

**SUBTASK 32-41-72-790-003**

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) For the normal brake system, pressurize the hydraulic system B (TASK 29-11-00-860-801).

**SUBTASK 32-41-72-790-004**

(2) Do a visual check of each fuse (normal brake system) [6] for hydraulic leaks.



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SUBTASK 32-41-72-870-004

(3) To bleed the normal (System B) hydraulic system, do this task: Normal (System B) Hydraulic Brake System Bleeding, TASK 32-41-00-870-802.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-72-860-009

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-41-72-860-010

(2) Set the parking brakes.

——— END OF TASK ———



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## HYDRAULIC BRAKE CONTROL CABLE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these three tasks:

(1) Removal of the hydraulic brake control cables.

(2) Installation of the hydraulic brake control cables.

**TASK 32-41-81-000-801**

### 2. Hydraulic Brake Control Cable Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 20-10-10-000-801 | Turnbuckle Lock Removal (P/B 401) |
| 25-22-00-000-801 | Passenger Seat Removal (P/B 401) |
| 25-27-15-000-801 | Carpet Removal (P/B 401) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-21-00-000-801 | Passenger Cabin Floor Panel Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1569 | Clamp - Control Cable<br>Part #: A20005-9 Supplier: 81205 |
| STD-837 | String |

#### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |

#### D. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |

#### E. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

#### F. Prepare for the Removal

**SUBTASK 32-41-81-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.



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SUBTASK 32-41-81-480-002

(2) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-41-81-860-001

(3) Release the parking brake.

SUBTASK 32-41-81-840-001

(4) To get access to the aft cables [2], forward cables [4], turnbuckles [3], and quadrant [5] (forward of nose wheel well), do this step:

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

**SIA 001-014**

SUBTASK 32-41-81-840-002

(5) Remove the passenger seats from station 706 through station 727 (TASK 25-22-00-000-801).

NOTE: Do this step to get access to the control quadrant assemblies of the brake metering valves.

**SIA ALL**

SUBTASK 32-41-81-840-003

(6) Do this task: Carpet Removal, TASK 25-27-15-000-801.

SUBTASK 32-41-81-840-004

(7) Remove the center floor panels to get access to the control quadrant assemblies of the brake metering valve (TASK 53-21-00-000-801).

## G. Hydraulic Brake Control Cable Removal

NOTE: The steps that follow are applicable for all of the brake control cables (aft cables [2], forward cable [4]).

SUBTASK 32-41-81-020-001

(1) In the forward compartment, forward of the nose wheel well, do these steps:

(a) Install a control cable clamp, SPL-1569, on the cable (aft cable [2] or forward cable [4]) opposite the one you will remove to keep light tension on the cable (aft cable [2] or forward cable [4]) .

NOTE: Light tension on the cable (aft cable [2] or forward cable [4]) will prevent wind off on the cable drums. Light tension will also make sure the cables (aft cable [2] or forward cable [4]) do not move out of the quadrant [5] or quadrant [8] guides.

(b) Remove the locking clip [1] from the turnbuckle [3] on the aft cables [2], forward cables [4] (TASK 20-10-10-000-801).

(c) Loosen the turnbuckle [3] for the aft cable [2], forward cable [4] to release the tension in the cable.

NOTE: Make sure you keep light tension on the cable (aft cable [2] or forward cable [4]) to keep the cable in the quadrant [5] or quadrant [8] guides.

(d) For the forward cable [4], disconnect the forward cable [4] from the quadrant [5]:

1) Remove the pins [7], that hold the ends of the forward cable [4], from the quadrants [5].

2) Pull the fittings on the ends of the forward cable [4] from the quadrant [5].

3) Remove the forward cable [4] from the quadrant [5].



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SUBTASK 32-41-81-020-002

(2) In the passenger compartment, do these steps:

(a) Disconnect the aft cable [2] from the quadrant [8]:

1) Remove the pins [9] that holds the ends of the aft cable [2], from the quadrant [8].

2) Pull the fittings on the ends of the aft cable [2] from the quadrant [8].

SUBTASK 32-41-81-020-003

(3) Attach the new aft cable [2] or forward cable [4], or a piece of string, STD-837, to the old aft cables [2].

NOTE: The new aft cable [2] or forward cable [4] must be pulled through the system to make the new aft cable [2] or forward cable [4] installation easy. If you remove the old aft cable [2] or forward cable [4] without attaching anything to it, installation of the new aft cable [2] or forward cable [4] will be very difficult.

SUBTASK 32-41-81-020-004

(4) Remove the aft cable [2] or forward cable [4]:

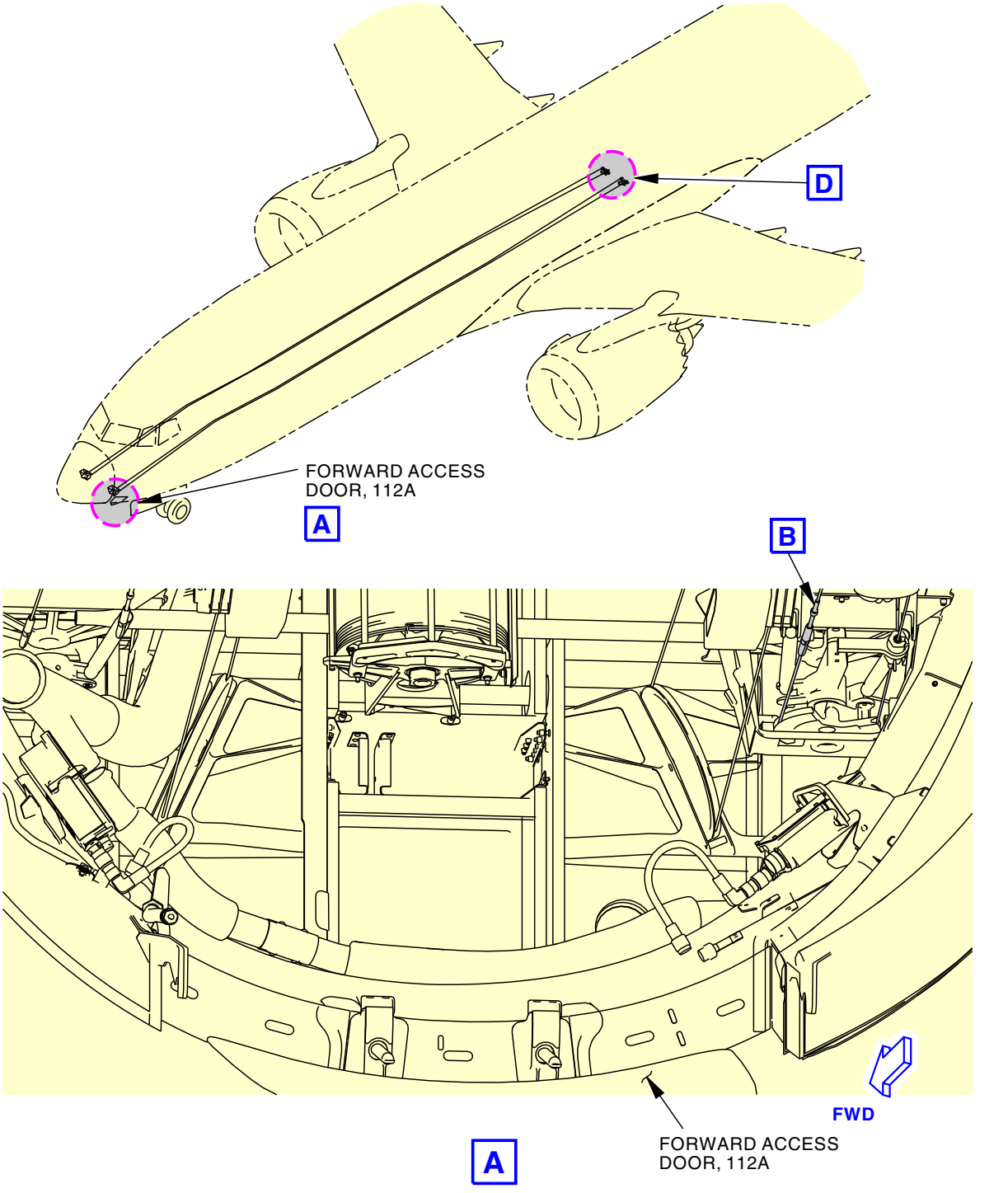
(a) Pull the old aft cable [2] or forward cable [4] out, which will pull the new aft cable [2] or forward cable [4], or string, STD-837, through the cable system at the same time.

NOTE: Make sure the new aft cable [2] or forward cable [4] has grease, D00633, applied to it before it is installed.

**END OF TASK**



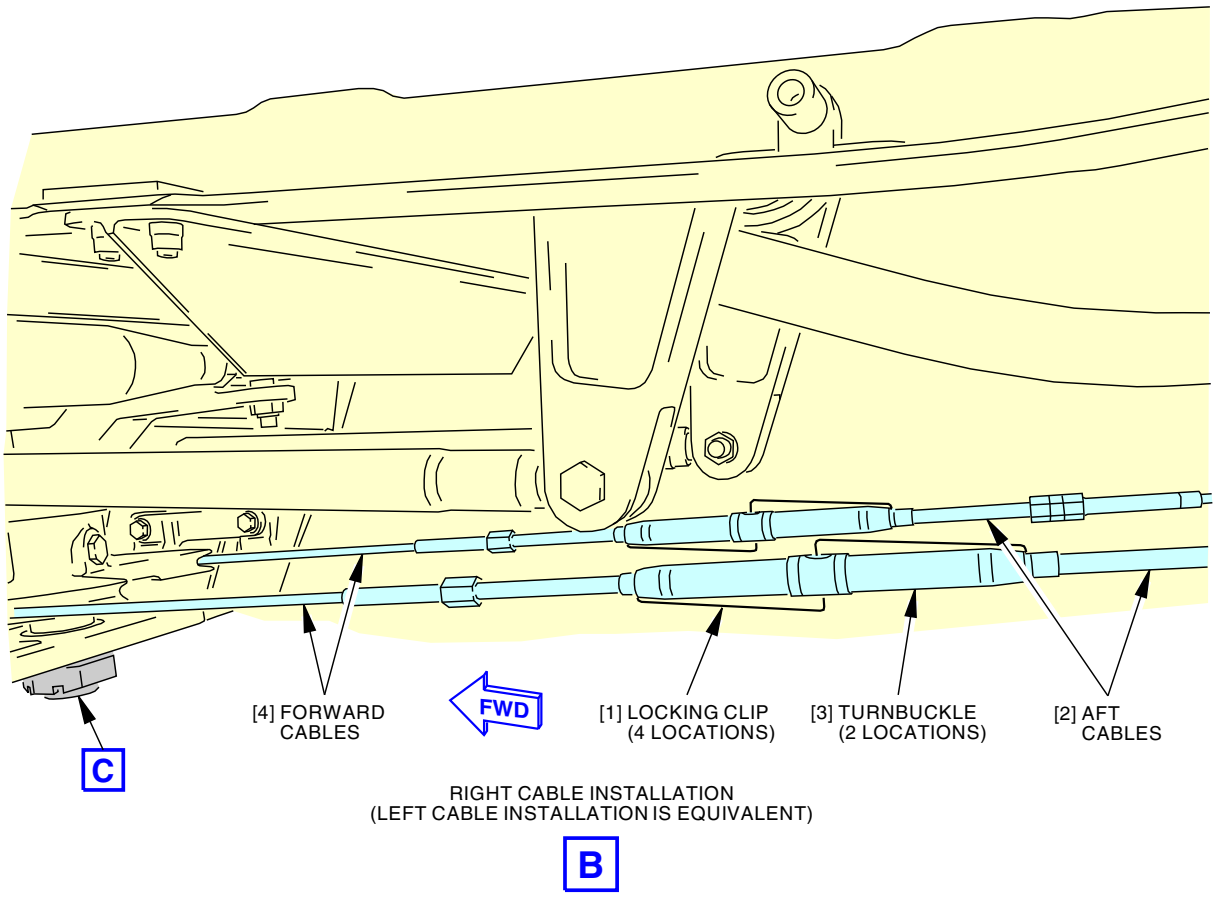
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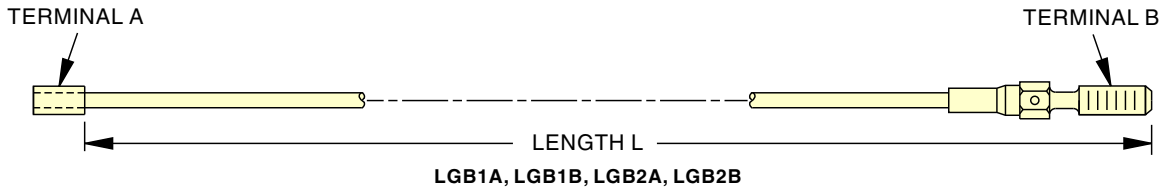



**Hydraulic Brake Control Cable Installation**
**Figure 401/32-41-81-990-801 (Sheet 1 of 5)**



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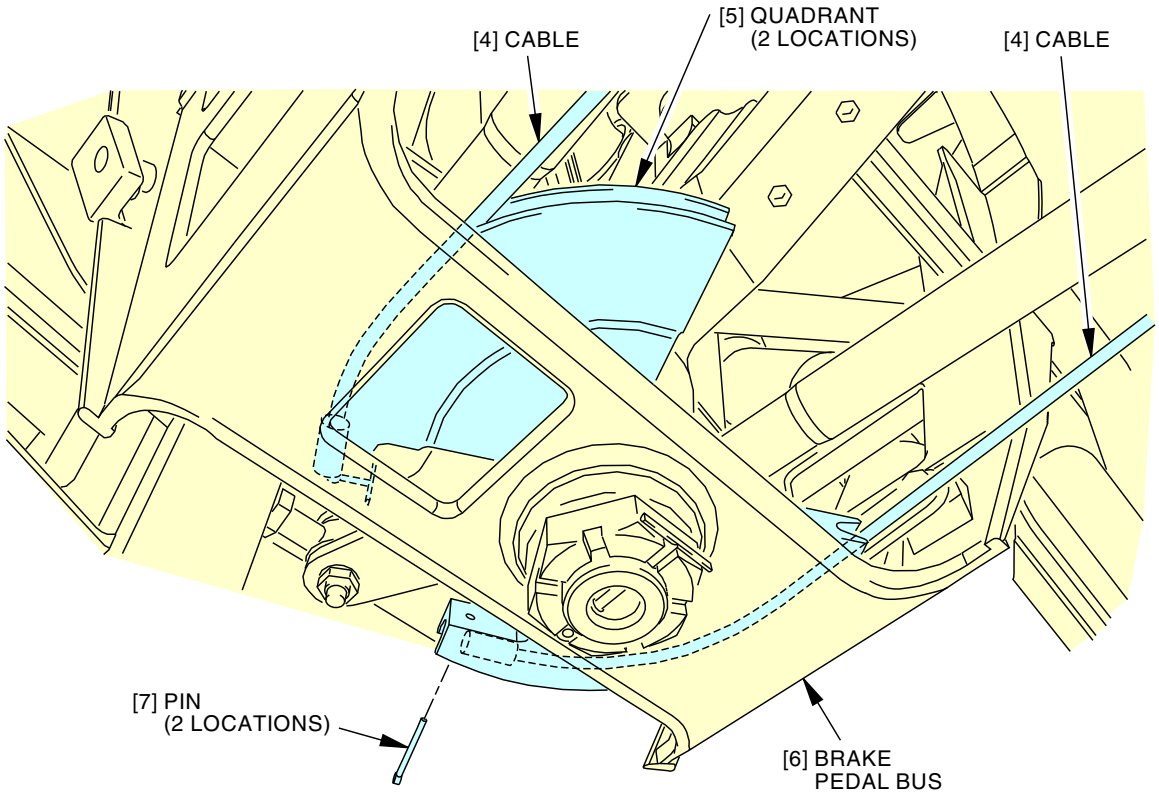




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**Hydraulic Brake Control Cable Installation**
**Figure 401/32-41-81-990-801 (Sheet 2 of 5)**



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**RIGHT BUS INSTALLATION**
**(LEFT BUS INSTALLATION IS EQUIVALENT)**

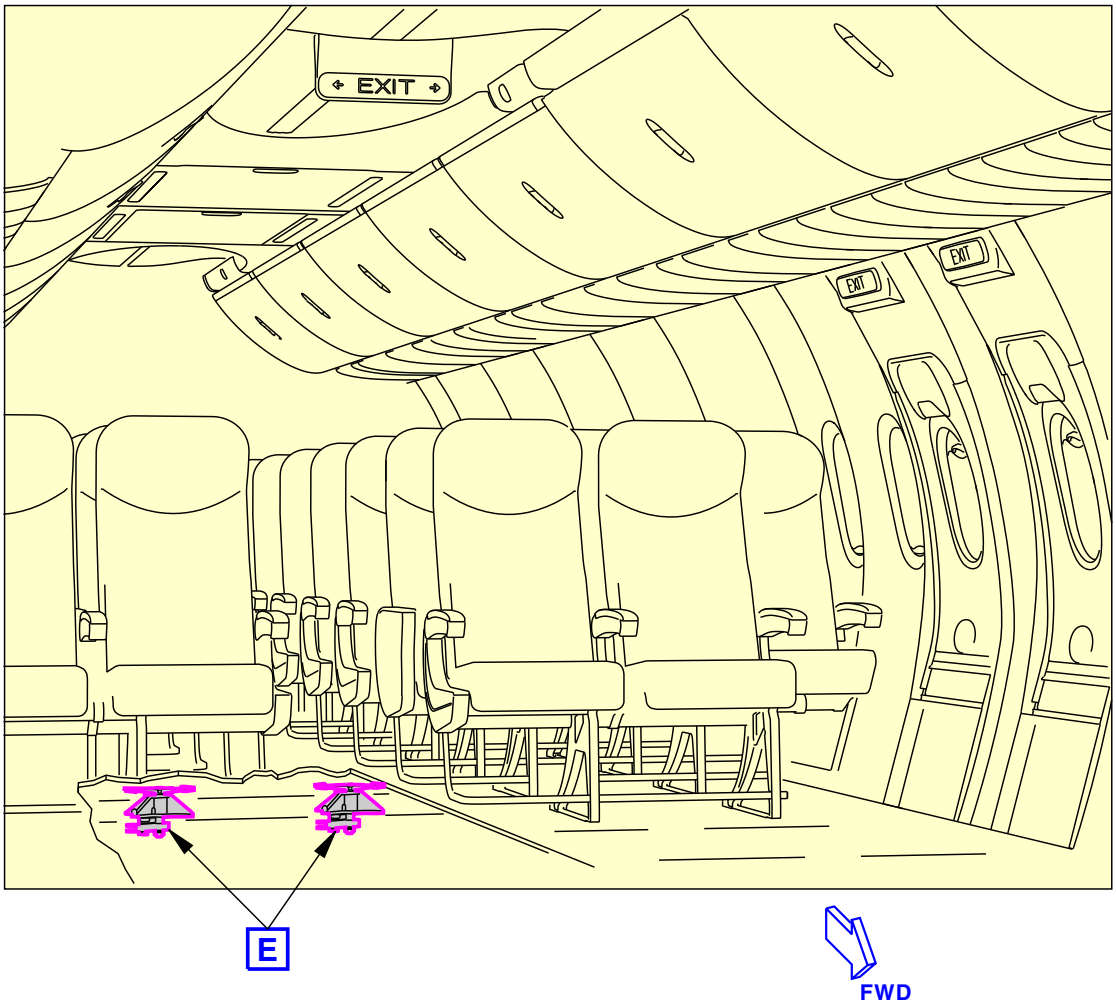
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**Hydraulic Brake Control Cable Installation**
**Figure 401/32-41-81-990-801 (Sheet 3 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

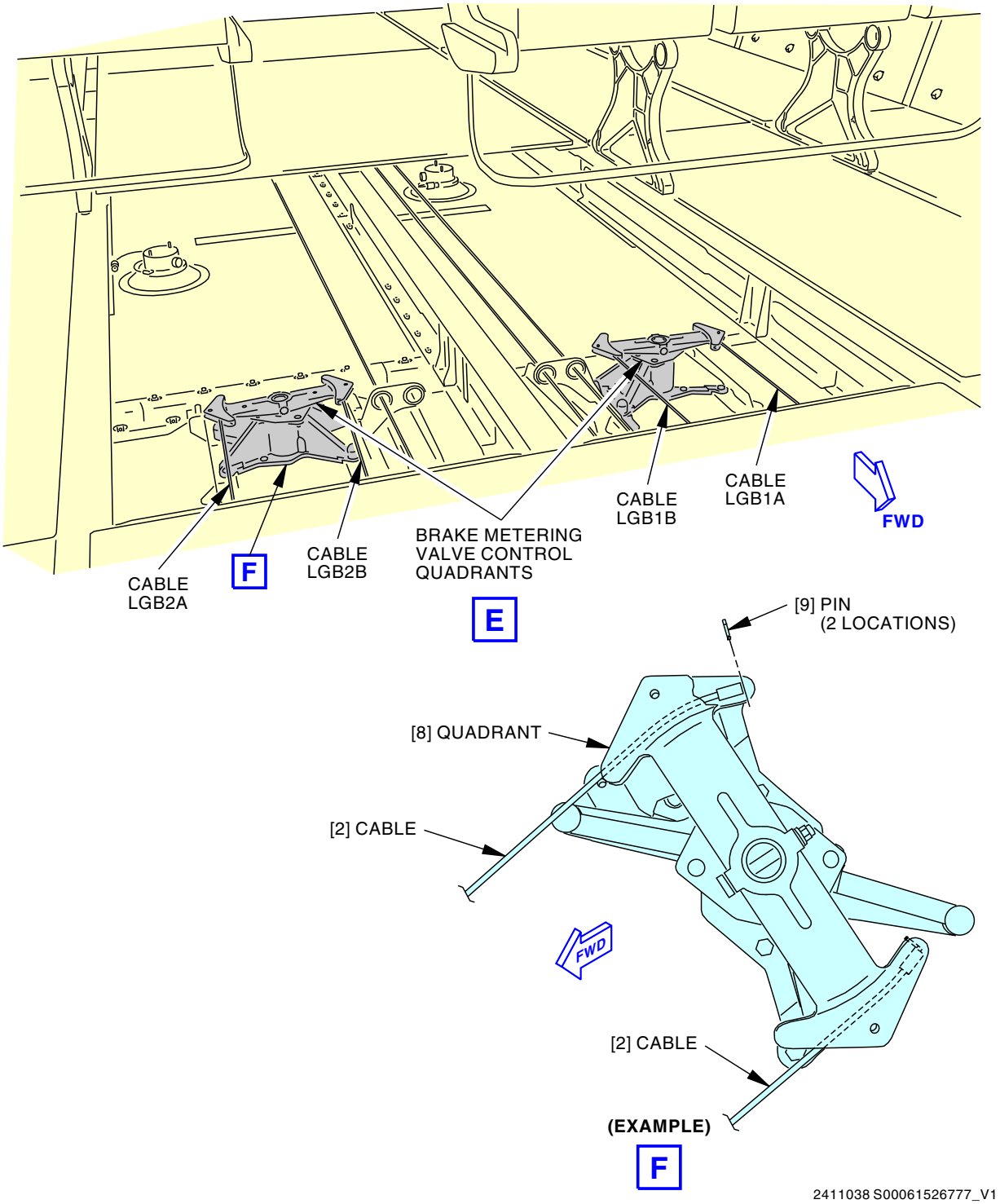



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**Hydraulic Brake Control Cable Installation**
**Figure 401/32-41-81-990-801 (Sheet 4 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Hydraulic Brake Control Cable Installation**
**Figure 401/32-41-81-990-801 (Sheet 5 of 5)**



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**TASK 32-41-81-400-801**

**3. Hydraulic Brake Control Cable Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 20-10-10-400-801 | Turnbuckle Lock Installation (P/B 401) |
| 20-10-91-400-801 | Control Cables Installation (P/B 401) |
| 20-20-31-200-801 | Inspection of the Control Cable Wire Rope (P/B 601) |
| 25-22-00-400-801 | Passenger Seat Installation (P/B 401) |
| 25-27-15-400-801 | Carpet - Installation (P/B 401) |
| 32-41-00-710-801 | Normal and Alternate Brake Application Functional Test (P/B 501) |
| 32-41-00-820-801 | Hydraulic Brake System Adjustment (P/B 501) |
| 53-21-00-400-801 | Passenger Cabin Floor Panel Installation (P/B 401) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1553 | Tensiometer - Cable, Low Tension (200 lbs and below)<br>Part #: 102-03108 Supplier: 21844<br>Part #: 102-03120 Supplier: 21844<br>Part #: ACM-200 Supplier: 13331<br>Part #: ACX-250-1 Supplier: 13331<br>Part #: T60-1001-C8-1A Supplier: 0N8U4 |
| STD-837 | String |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 2 | Aft cable | 32-41-81-01-035 | SIA ALL |
| | | 32-41-81-01-040 | SIA ALL |
| 4 | Forward cable | 32-41-21-01-035 | SIA ALL |
| | | 32-41-21-02-035 | SIA ALL |
| 7 | Pin | 32-41-21-01-030 | SIA ALL |
| | | 32-41-21-02-030 | SIA ALL |
| 9 | Pin | 32-41-81-01-005 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |

**F. Access Panels**

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |



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## G. Hydraulic Brake Control Cable Installation

**SUBTASK 32-41-81-020-005**

(1) Apply grease, D00633, to the new aft cable [2] or forward cable [4] before it is installed.

**SUBTASK 32-41-81-420-001**

(2) If the new aft cable [2] or new forward cable [4] was not pulled through the cable system with the old aft cable [2] or new forward cable [4], do these steps:

(a) Attach the new aft cable [2] or new forward cable [4] to the string, STD-837, that was pulled through the cable system.

(b) Pull the string, STD-837, out, which will pull the new aft cable [2] or forward cable [4] through the cable system.

(c) Make sure that you keep light tension on the aft cable [2] or forward cable [4] to keep the aft cable [2] or forward cable [4] in the quadrant [8] or quadrant [5] guides.

**SUBTASK 32-41-81-020-006**

(3) In the passenger compartment, do these steps:

(a) Connect the aft cable [2] to the quadrant [8] (TASK 20-10-91-400-801).

1) Put the aft cable [2] in its position in the quadrant [8].

2) Install the new pins [9] to hold the end of the aft cable [2] in the quadrant [8].

**SUBTASK 32-41-81-020-007**

(4) In the forward compartment, forward of the nose wheel well, do these steps:

(a) Connect the forward cable [4] to the quadrant [5] (TASK 20-10-91-400-801).

1) Put the forward cable [4] in its position in the quadrant [5].

2) Install the new pins [7] to hold the end of the forward cable [4] in the quadrant [5].

(b) Install the turnbuckles [3].

1) Connect the forward cable [4] to the aft cable [2].

**SUBTASK 32-41-81-420-002**

(5) Adjust the brake cable tension with the low tension cable tensiometer, COM-1553, to 200 ±10 lbf (890 ±45 N) tension.

**SUBTASK 32-41-81-200-001**

(6) Do this task: Inspection of the Control Cable Wire Rope, TASK 20-20-31-200-801.

**SUBTASK 32-41-81-420-003**

(7) Operate the aft cable [2] and forward cable [4] through full travel 25 times.

**SUBTASK 32-41-81-420-004**

(8) Do this task: Hydraulic Brake System Adjustment, TASK 32-41-00-820-801.

**SUBTASK 32-41-81-420-005**

(9) Make sure that a locking clip [1] is installed on the turnbuckle [3] when you have adjusted the aft cables [2] and forward cables [4] (TASK 20-10-10-400-801).

**SUBTASK 32-41-81-420-006**

(10) Do this task: Normal and Alternate Brake Application Functional Test, TASK 32-41-00-710-801.



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## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-81-840-005

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

SUBTASK 32-41-81-840-006

(2) Install the floor panels (TASK 53-21-00-400-801).

SUBTASK 32-41-81-840-007

(3) Do this task: Carpet - Installation, TASK 25-27-15-400-801.

**SIA 001-014**

SUBTASK 32-41-81-840-008

(4) Do this task: Passenger Seat Installation, TASK 25-22-00-400-801.

**SIA ALL**

SUBTASK 32-41-81-840-009

(5) Set the parking brakes.

**END OF TASK**



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## HYDRAULIC BRAKE CONTROL CABLE - INSPECTION/CHECK

### 1. General

A. This procedure contains scheduled maintenance task data.

B. This procedure has this task:

(1) Brake Control System Detailed Inspection

**TASK 32-41-81-211-801**

### 2. Brake Control System Detailed Inspection

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |

**B. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

**C. Access Panels**

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

**D. Prepare for the Inspection**

**SUBTASK 32-41-81-480-003**

(1) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-81-860-002**

(2) If necessary, release the parking brake.

**E. Forward Brake Control Mechanism Detailed Inspection**

**SUBTASK 32-41-81-840-014**

(1) To get access to the pilots and copilots brake/rudder pedals and visible brake control components (forward of nose wheel well), do this step:

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

**SUBTASK 32-41-81-210-003**

(2) Do a detailed inspection of the brake cable quadrants, bell cranks, control rods.

**F. Aft Brake Control Mechanism Detailed Inspection**

**SUBTASK 32-41-81-840-015**

(1) Go to the main landing gear wheel well.

**SUBTASK 32-41-81-210-004**

(2) Do a detailed inspection of the visible part of the brake control mechanism to the brake metering valve.



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## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-81-840-016

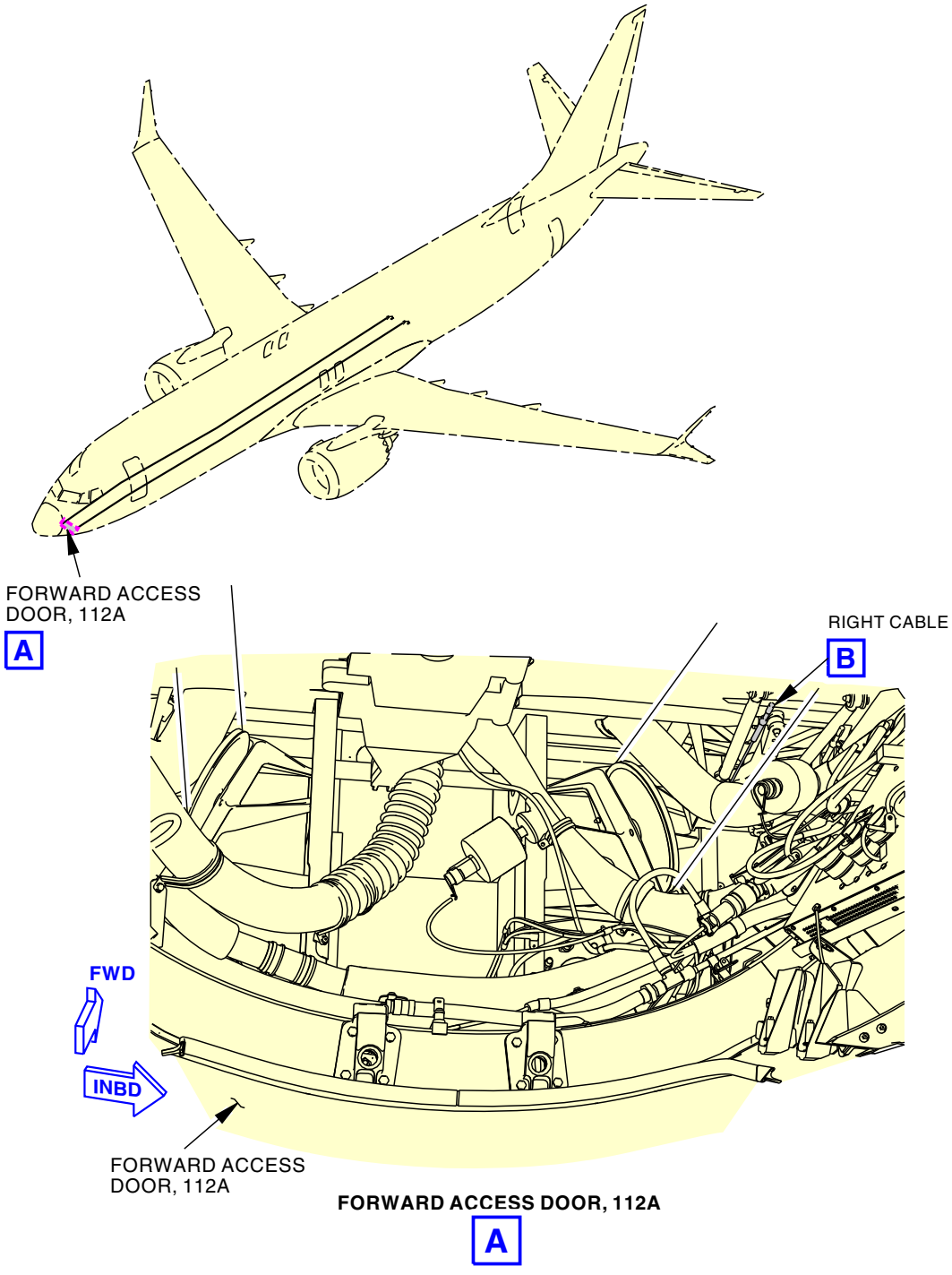
(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

——— END OF TASK ———



ECCN 9E991 BOEING PROPRIETARY - See title page for details

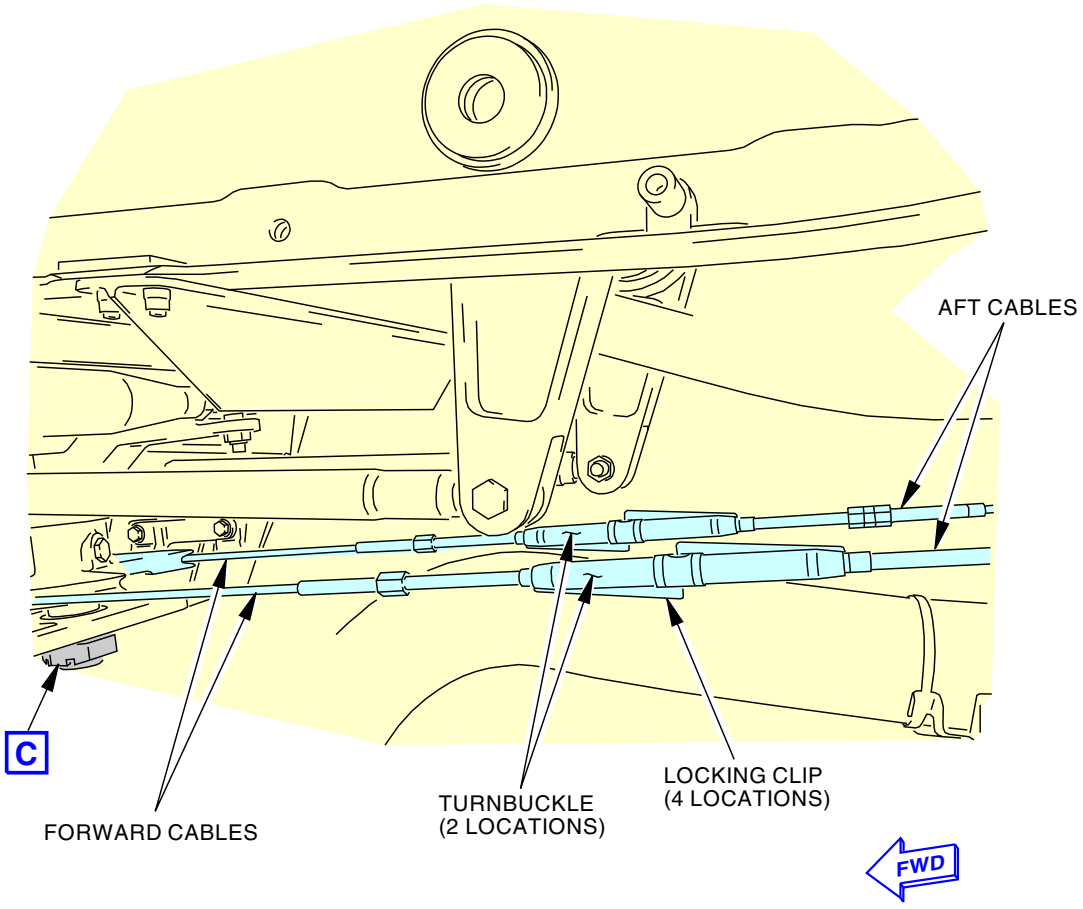



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**Brake Control System Detailed Inspection**
**Figure 601/32-41-81-990-803 (Sheet 1 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**RIGHT CABLE**
**(LEFT CABLE IS EQUIVALENT)**

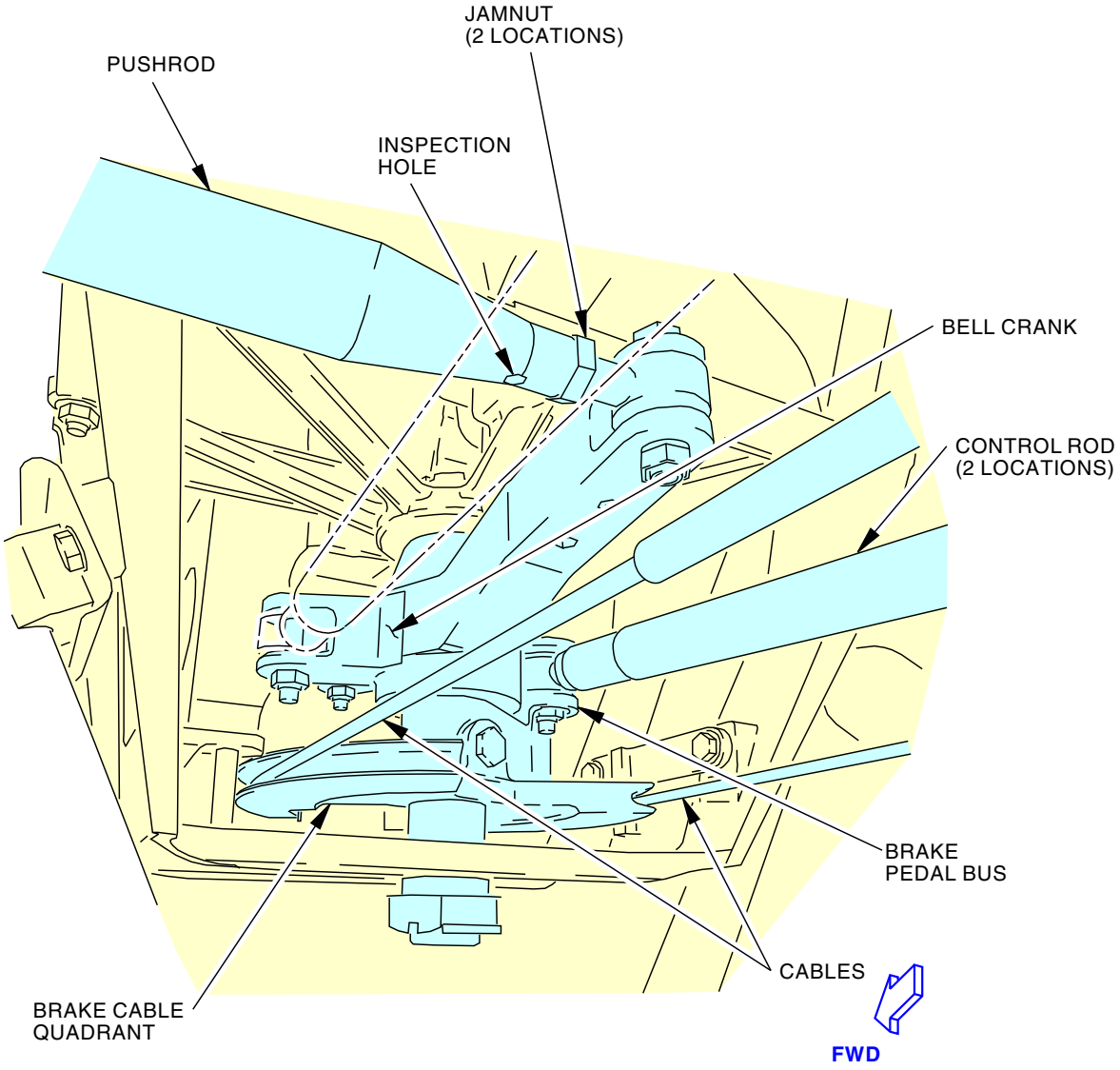
**B**

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**Brake Control System Detailed Inspection**
**Figure 601/32-41-81-990-803 (Sheet 2 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**RIGHT BRAKE PEDAL BUS**
**(LEFT BRAKE PEDAL BUS IS EQUIVALENT)**

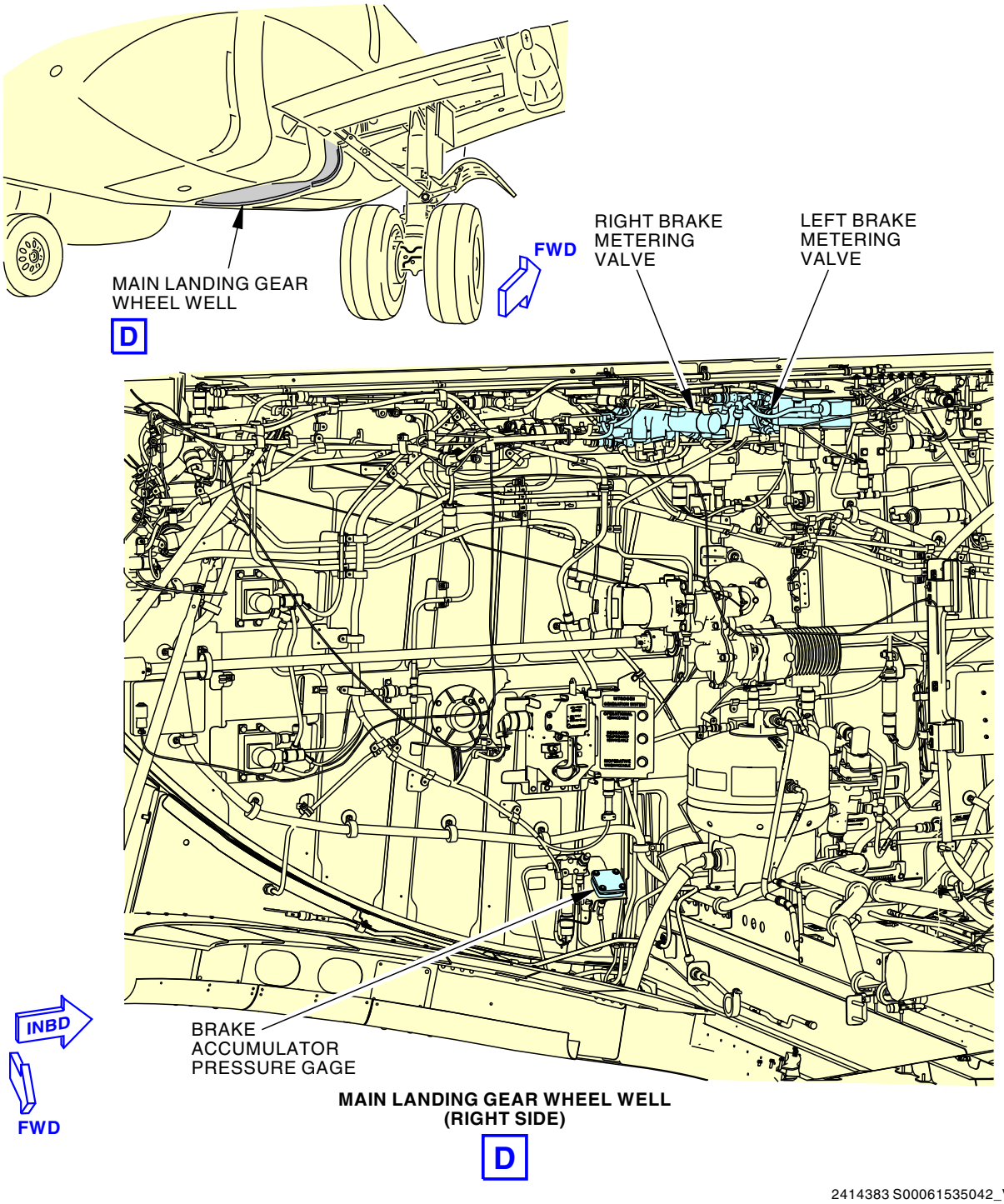
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**Brake Control System Detailed Inspection**
**Figure 601/32-41-81-990-803 (Sheet 3 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




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**Brake Control System Detailed Inspection**
**Figure 601/32-41-81-990-803 (Sheet 4 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## BRAKE ACCUMULATOR ISOLATION VALVE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the brake accumulator isolation valve (referred to as the accumulator isolation valve [13]).

(2) Installation of the brake accumulator isolation valve.

**TASK 32-41-91-000-801**

### 2. Accumulator Isolation Valve Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-41-91-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-91-480-002**

(2) Put chocks around the tires of all the landing gear (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-91-860-001**

(3) Release the parking brake.

**SUBTASK 32-41-91-860-002**

(4) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.


ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-41-91-870-001

(5) Bleed the pressure from the brake accumulator:

(a) Operate the brake pedals for approximately 12 times or until the gage on the brake accumulator shows no change in the pressure.

NOTE: This step will make sure that the pressure is fully released from the brake accumulator.

## E. Accumulator Isolation Valve Removal

SUBTASK 32-41-91-020-001

(1) Do these steps to remove the accumulator isolation valve [13]:

(a) Disconnect the hydraulic line [1], hydraulic line [8], and elbow [11] on the hydraulic line [12] from the accumulator isolation valve [13].

(b) Install caps/plugs, STD-14686, in the hydraulic line [1], hydraulic line [8], and elbow [11].

(c) Install caps/plugs, STD-14686, on the reducer [2], reducer [7], and reducer [10] in the ports of the accumulator isolation valve [13].

(d) Remove the bolts [4], and washers [5] that attach the accumulator isolation valve [13] to the mating surface.

(e) Remove the accumulator isolation valve [13] from the airplane.

SUBTASK 32-41-91-020-002

(2) If the replacement accumulator isolation valve [13] does not have hydraulic fittings installed, do these steps:

(a) Remove the reducer [2], reducer [7], and reducer [10] from the ports of the accumulator isolation valve [13].

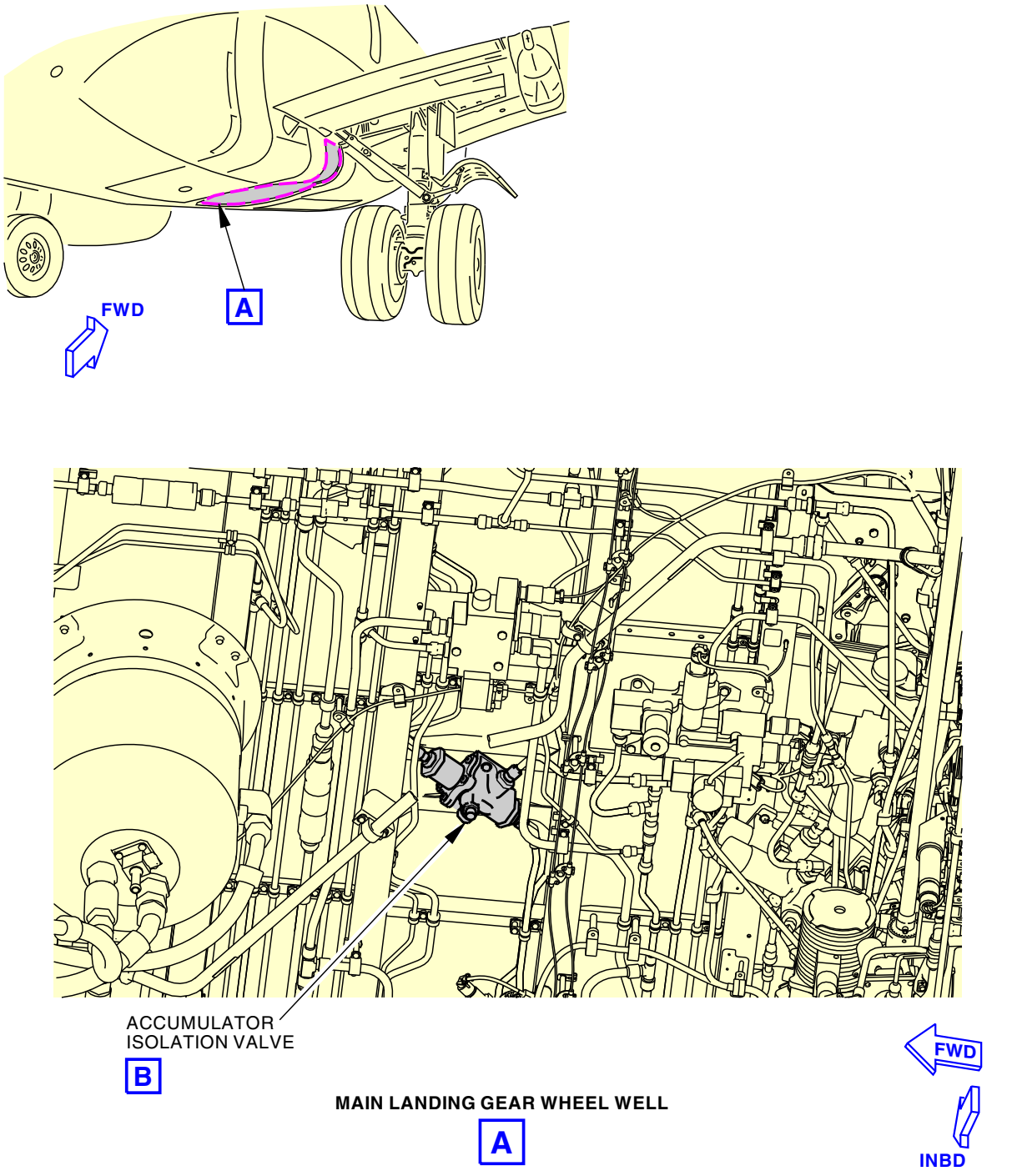
(b) Remove and discard the packing [3], packing [6], and packing [9].

(c) Install caps/plugs, STD-14686, in the hydraulic ports of the accumulator isolation valve [13].

——— END OF TASK ———



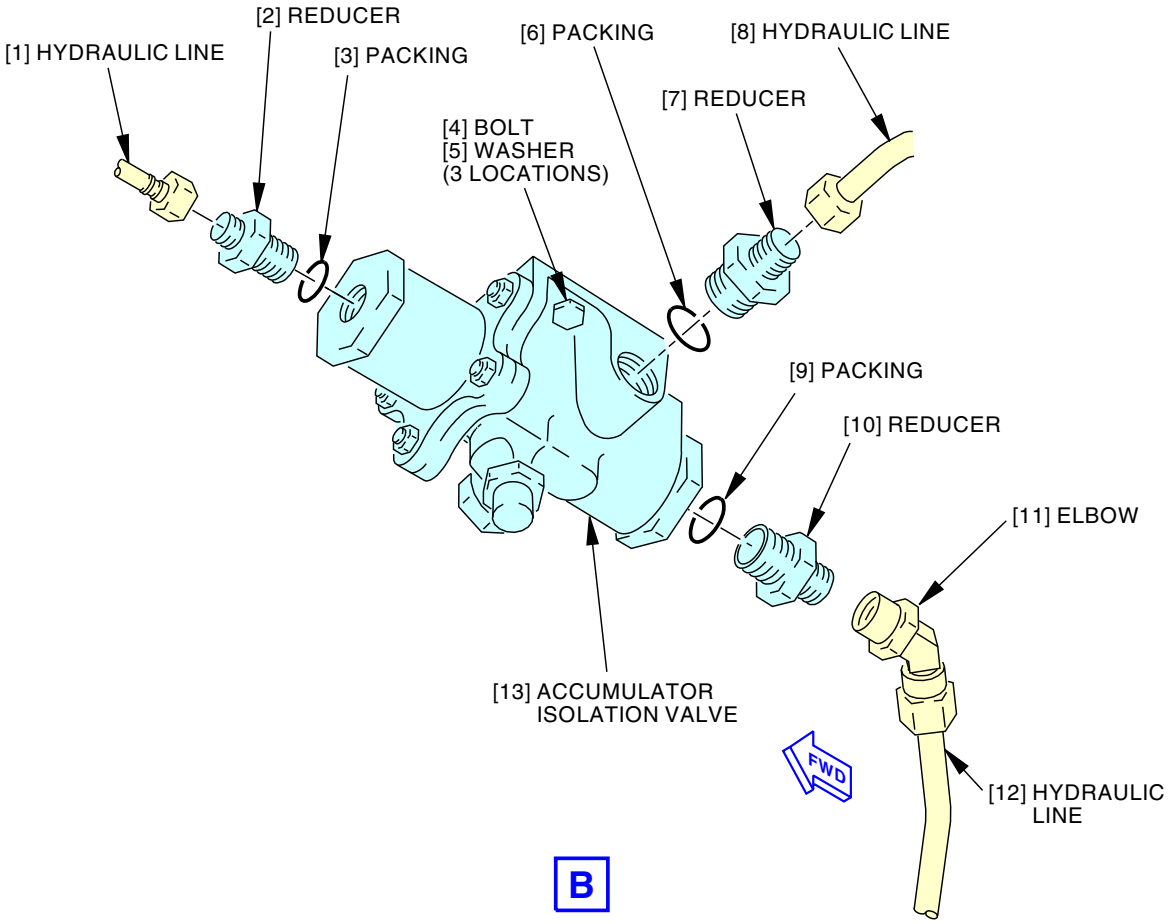
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**Accumulator Isolation Valve Installation**
**Figure 401/32-41-91-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




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**Accumulator Isolation Valve Installation**
**Figure 401/32-41-91-990-801 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-41-91-420-801**

## 3. Accumulator Isolation Valve Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| B00083 | Solvent - VM&P Naphthas | TT-N-95 Type II, ASTM D-3735 Type III |
| D00054 | Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B) | |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Packing | 32-41-91-01-035 | SIA ALL |
| 6 | Packing | 32-41-91-01-030 | SIA ALL |
| 9 | Packing | 32-41-91-01-030 | SIA ALL |
| 13 | Accumulator isolation valve | 32-41-91-01-045 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

### F. Prepare for the Installation

**SUBTASK 32-41-91-110-001**

(1) Prepare the mating surfaces for installation of the accumulator isolation valve [13] (Figure 401).

(a) Clean the mating surface of the accumulator isolation valve [13] with the solvent, B00083.

(b) Clean the mating surface that the accumulator isolation valve [13] attaches to with the solvent, B00083.

### G. Accumulator Isolation Valve Installation

**SUBTASK 32-41-91-640-001**

(1) If the reducer [2], reducer [7], and reducer [10] and the packing [3], packing [6], and packing [9] are not installed, do these steps:



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(a) Lubricate the reducer [2], reducer [7], and reducer [10], and the new packing [3], new packing [6], and new packing [9] with hydraulic fluid, D00153, or MCS 352B fluid, D00054.

(b) Install the reducer [2], reducer [7], and reducer [10], and the new packing [3], new packing [6], and new packing [9] in their locations on the accumulator isolation valve [13].

SUBTASK 32-41-91-420-001

(2) Do these steps to install the accumulator isolation valve [13]:

(a) Put the accumulator isolation valve [13] on the mating surface.

(b) Install the bolts [4], and washers [5] to attach the accumulator isolation valve [13] on the mating surface.

(c) Remove the caps/plugs, STD-14686, from the hydraulic ports of the accumulator isolation valve [13].

(d) Remove the caps/plugs, STD-14686, from the hydraulic line [1], hydraulic line [8], and elbow [11] on the hydraulic line [12].

(e) Connect hydraulic line [1] to the accumulator isolation valve [13].

1) Tighten the B-nut on hydraulic line [1] to 140 ±7 in-lb (16 ±1 N·m).

(f) Connect hydraulic line [8] to the accumulator isolation valve [13].

1) Tighten the B-nut on hydraulic line [8] to 270 ±14 in-lb (31 ±2 N·m).

(g) Connect elbow [11] to the accumulator isolation valve [13].

1) Tighten the B-nut on elbow [11] to 270 ±14 in-lb (31 ±2 N·m).

## H. Accumulator Isolation Valve Installation Test

SUBTASK 32-41-91-870-002

(1) Do the steps that follow to make sure that the accumulator isolation valve assembly does not leak:

**WARNING**

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) For the normal and alternate brake hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Make sure that the PRESS A, PRESS B, and BRAKE hydraulic connections on the accumulator isolation valve [13] do not leak.

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-91-870-003

(1) Bleed the brake hydraulic system:

(a) Operate the brake pedals 6 times.

1) Operate the pedals slowly and wait a minimum of 5 seconds between each time you push the pedals.

SUBTASK 32-41-91-860-003

(2) For the normal and alternate hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-41-91-840-001

(3) Set the parking brakes.

SUBTASK 32-41-91-840-002

(4) Remove the chocks from around the tires of all the landing gear.

——— END OF TASK ———



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## ALTERNATE BRAKE SELECTOR VALVE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the alternate brake selector valve (referred to as the alternate brake selector valve [1])

(2) An installation of the alternate brake selector valve

**TASK 32-41-93-000-801**

### 2. Alternate Brake Selector Valve Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-41-93-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-93-860-002**

(2) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-41-93-870-001**

(3) Bleed the pressure from the brake accumulator:

(a) Operate the brake pedals for approximately 12 times or until the gage on the brake accumulator shows no change in the pressure.

NOTE: This step will make sure that the pressure is fully released from the brake accumulator.



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## E. Alternate Brake Selector Valve Removal

SUBTASK 32-41-93-020-001

(1) Do these steps to remove the alternate brake selector valve [1]:

(a) Disconnect the electrical connector [3] from the pressure switch [2] on the alternate brake selector valve [1].

(b) Disconnect the hydraulic line [6] from the normal port on the alternate brake selector valve [1].

(c) Disconnect the elbow [7] from the return port on the alternate brake selector valve [1].

(d) Disconnect the T-fitting [10] from the brake port on the alternate brake selector valve [1].

(e) Disconnect the elbow [13] from the alt pressure port on the alternate brake selector valve [1].

(f) Install the caps/plugs, STD-14686, on the hydraulic line [6], elbow [7], T-fitting [10], and elbow [13].

(g) Install the caps/plugs, STD-14686, in the hydraulic ports of the alternate brake selector valve [1].

(h) Remove the nuts [16] and washers [17] that attach the alternate brake selector valve [1] to the mating surface.

(i) Remove the alternate brake selector valve [1] from the airplane.

SUBTASK 32-41-93-020-002

(2) If you will install a new alternate brake selector valve [1] without the unions or reducers, do these steps:

(a) Remove the union [8], reducer [5], reducer [11], and reducer [14] from the alternate brake selector valve [1].

(b) Remove and discard the packing [4], packing [9], packing [12], and packing [15].

SUBTASK 32-41-93-020-003

(3) Do the steps that follow to remove the pressure switch from the alternate brake selector valve [1]:

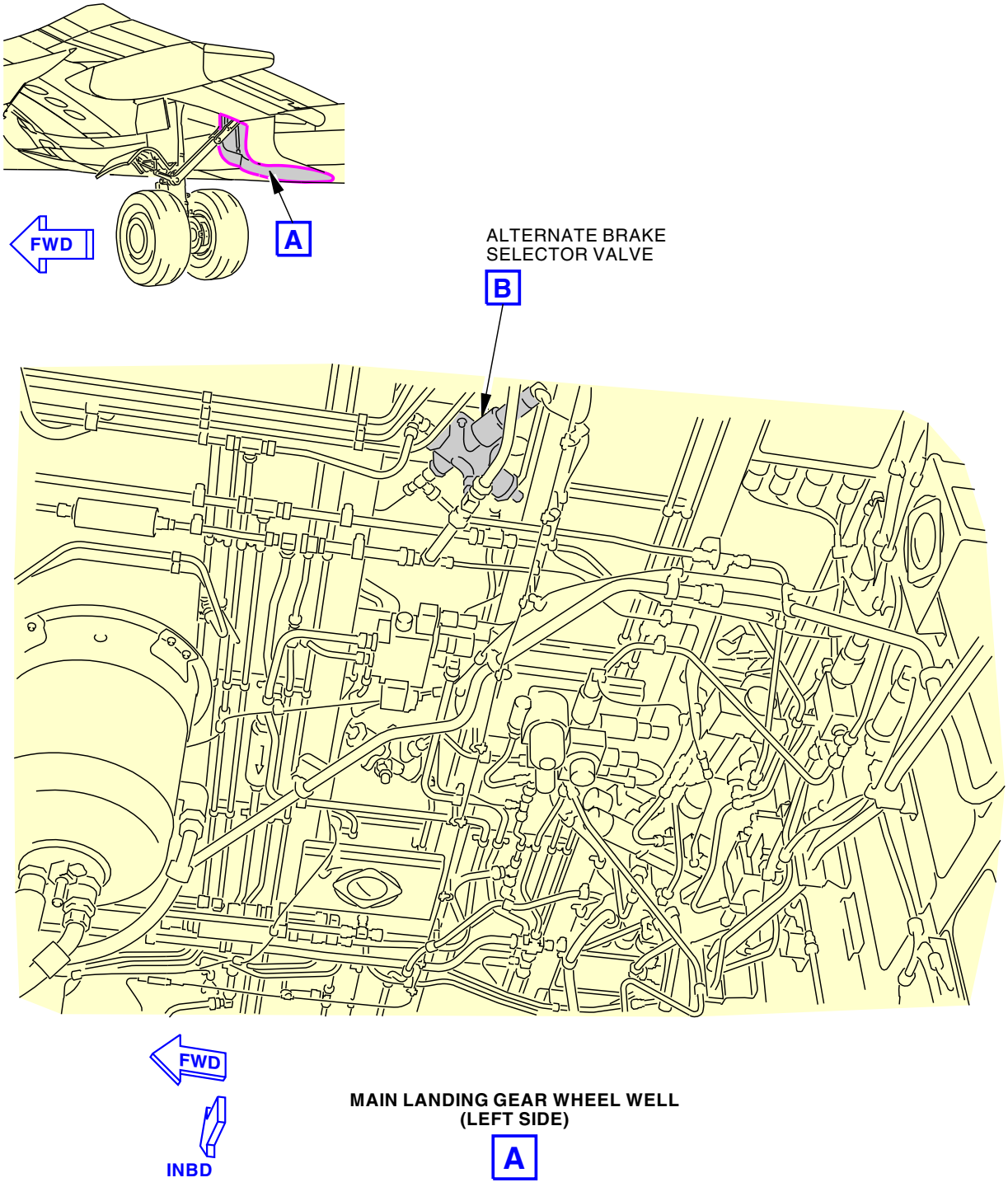
(a) Remove the pressure switch [2] from the alternate brake selector valve [1].

(b) Remove and discard the packing from the pressure switch [2].

——— END OF TASK ———



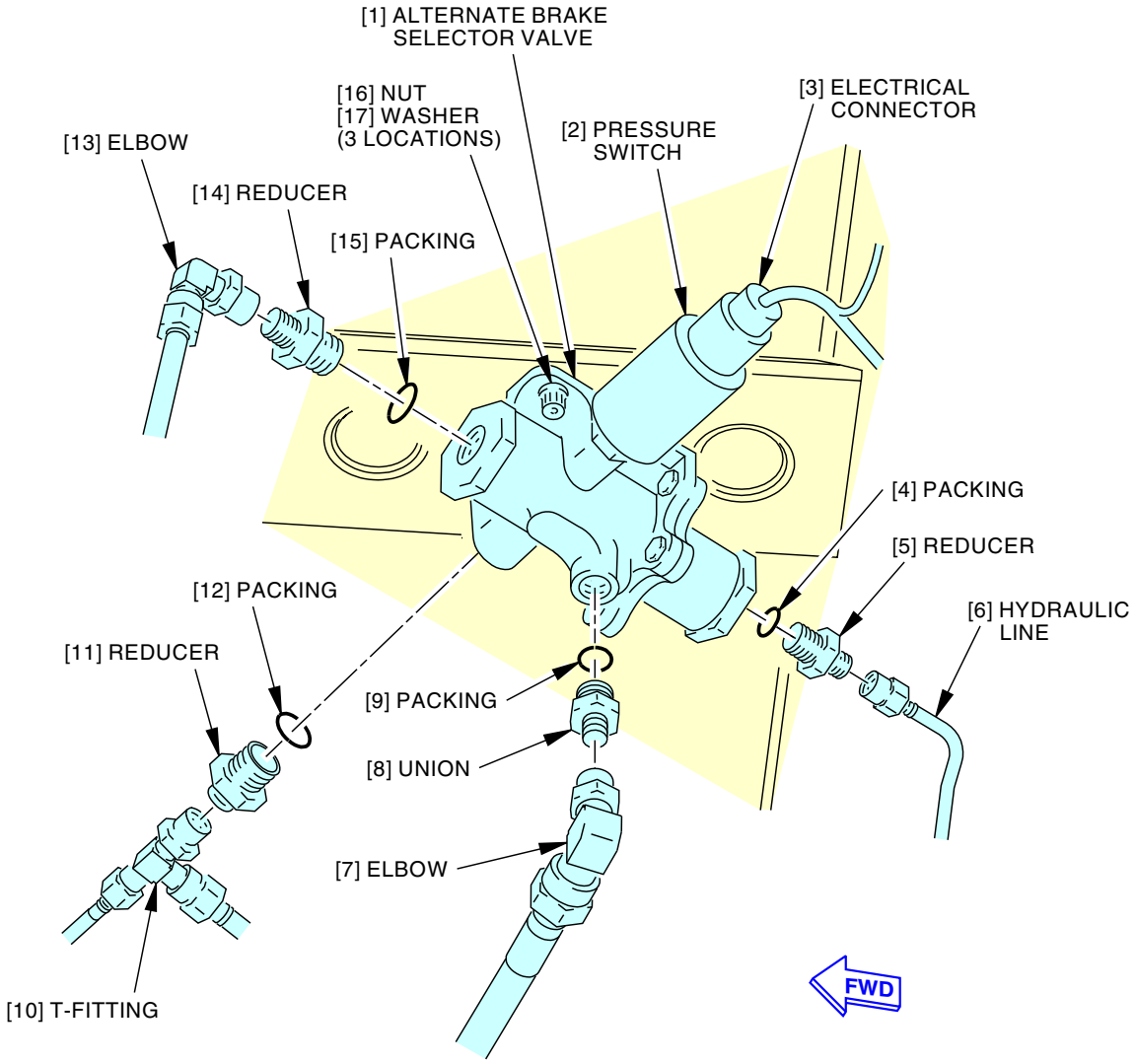
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**Alternate Brake Selector Valve Installation**
**Figure 401/32-41-93-990-801 (Sheet 1 of 2)**



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**Alternate Brake Selector Valve Installation**
**Figure 401/32-41-93-990-801 (Sheet 2 of 2)**



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**TASK 32-41-93-420-801**

**3. Alternate Brake Selector Valve Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-41-93-710-801 | Alternate Brake Selector Valve Operational Test (P/B 501) |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| B00083 | Solvent - VM&P Naphthas | TT-N-95 Type II, ASTM D-3735 Type III |
| D00054 | Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B) | |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |

**D. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

**E. Prepare for the Installation**

**SUBTASK 32-41-93-110-001**

(1) Prepare the mating surfaces for installation of the alternate brake selector valve [1].

(a) Clean the mating surface of the alternate brake selector valve [1] with solvent, B00083.

**F. Alternate Brake Selector Valve Installation**

**SUBTASK 32-41-93-640-001**

(1) If the union [8], reducer [5], reducer [11], reducer [14], packing [4], packing [9], packing [12], and packing [15] are not installed, do these steps:

(a) Lubricate the union [8], reducer [5], reducer [11], reducer [14], new packing [4], packing [9], packing [12], and packing [15] with hydraulic fluid, D00153, or MCS 352B fluid, D00054.



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(b) Install the union [8], reducer [5], reducer [11], reducer [14], new packing [4], packing [9], packing [12], and packing [15], in their locations on the alternate brake selector valve [1].

SUBTASK 32-41-93-420-001

(2) If the pressure switch is not installed in the alternate brake selector valve [1], do these steps:

(a) Install the packing on the pressure switch [2].

(b) Install the pressure switch [2] on the alternate brake selector valve [1].

SUBTASK 32-41-93-080-001

(3) Do these steps to install the alternate brake selector valve [1]:

(a) Put the alternate brake selector valve [1] on the mating surface.

(b) Install the washers [17] and nuts [16] to attach the alternate brake selector valve [1] on the mating surface.

(c) Remove the caps/plugs, STD-14686, from the hydraulic ports of the alternate brake selector valve [1].

(d) Remove the caps/plugs, STD-14686, from the hydraulic line [6], elbow [7], T-fitting [10], and elbow [13].

(e) Connect the hydraulic line [6] to the normal port on the alternate brake selector valve [1].

1) Tighten the B-nut on hydraulic line [6] to 140 ±7 in-lb (16 ±1 N·m).

(f) Connect the elbow [7] to the return port on the alternate brake selector valve [1].

1) Tighten the B-nut on the elbow [7] to 270 ±14 in-lb (31 ±2 N·m).

(g) Connect the T-fitting [10] to the brake port on the alternate brake selector valve [1].

1) Tighten the B-nut on the T-fitting [10] to 270 ±14 in-lb (31 ±2 N·m).

(h) Connect the elbow [13] to the alt pressure port on the alternate brake selector valve [1].

1) Tighten the B-nut on the elbow [13] to 270 ±14 in-lb (31 ±2 N·m).

(i) Before you connect the electrical connector [3] to the pressure switch [2] on the alternate brake selector valve [1], examine the connector for corrosion.

**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(j) If there was corrosion, correct the problem (SWPM 20-60-03).

(k) Apply D5026NS or ZC-026 compound, G50171, to the electrical connector [3] (SWPM 20-60-03).

(l) Connect the electrical connector [3] to the pressure switch [2] on the alternate brake selector valve [1].



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SUBTASK 32-41-93-790-001

**WARNING**

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the A and the B hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-41-93-870-002

(5) Bleed the brake hydraulic system:

(a) Operate the brake pedals 6 times.

1) Operate the pedals slowly and wait a minimum of 5 seconds between each operation.

SUBTASK 32-41-93-710-001

(6) Do this task: Alternate Brake Selector Valve Operational Test, TASK 32-41-93-710-801.

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-41-93-860-011

(1) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**END OF TASK**



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## ALTERNATE BRAKE SELECTOR VALVE - ADJUSTMENT/TEST

### 1. General

A. This procedure contains these tasks:

(1) Alternate Brake Selector Valve Test

(2) Gear Retract Braking Operational Test.

**TASK 32-41-93-710-801**

### 2. Alternate Brake Selector Valve Operational Test

NOTE: This procedure is a scheduled maintenance task.

#### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 730 | Subzone - Left Main Landing Gear and Landing Gear Doors |
| 740 | Subzone - Right Main Landing Gear and Landing Gear Doors |

#### C. Prepare for the Test

**SUBTASK 32-41-93-480-004**



**WARNING**

MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-93-790-002**



**WARNING**

KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Make sure that the A and the B hydraulic systems are pressurized (TASK 29-11-00-860-801).

#### D. Alternate Brake Selector Valve Operational Test (Hydraulic System B)

**SUBTASK 32-41-93-720-001**

(1) Push the brake pedals 5 times to apply and release the brakes.

(a) Wait approximately 3 seconds each time the brakes are applied.



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SUBTASK 32-41-93-720-002

(2) Make sure that the brake pistons move to show that the brakes operate correctly.

**E. Alternate Brake Selector Valve Operational Test (Hydraulic System A)**

SUBTASK 32-41-93-860-003

(1) For hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-41-93-210-001

(2) Make sure that the BRAKE PRESS indicator gage on the First Officer's panel shows 3000 ±100 psi (20,684 ±689 kPa) and stays constant during the brake operation when you do the steps that follow.

SUBTASK 32-41-93-720-003

(3) Push the brake pedals 5 times to apply and release the brakes.

SUBTASK 32-41-93-720-004

(4) Make sure that the brake pistons move to show that the brakes operate correctly.

SUBTASK 32-41-93-710-002

(5) Do this test of the ANTISKID INOP light:

(a) Remove the connector from one of the alternate antiskid valves.

(b) Make sure that the ANTISKID INOP light, on the P2 panel, comes on.

(c) Attach the connector to the alternate antiskid valve.

SUBTASK 32-41-93-860-004

(6) After five to ten minutes, do a check for leaks around the alternate brake selector valve.

**F. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-41-93-860-013

(1) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——— END OF TASK ———

**TASK 32-41-93-710-802**

**3. Gear Retract Braking Operational Test**

**A. References**

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

| Reference | Description |
|---|---|
| SPL-10813 | Gauge Set - Hydraulic Brake System, Pressure Checking<br>Part #: C32051-1 Supplier: 81205<br>Opt Part #: F72977-45 Supplier: 81205<br>Opt Part #: F72977-46 Supplier: 81205<br>Opt Part #: F72977-47 Supplier: 81205<br>Opt Part #: F72977-62 Supplier: 81205 |
| SPL-15031 | Test Equipment - Brake Bleed<br>Part #: G32075-16 Supplier: 81205 |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Operational Test

SUBTASK 32-41-93-480-009

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that the nose and main landing gear downlock pins are installed (TASK 32-00-01-480-801).

SUBTASK 32-41-93-480-010

(2) Install the pressure gauge, SPL-15031, or the gauge set, SPL-10813, on each brake.

### E. Gear Retract Braking Operational Test

SUBTASK 32-41-93-790-003

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) For the A and the B hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-41-93-860-006

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR BEFORE YOU MOVE THE CONTROL LEVER. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) Put the landing gear control lever in the UP position.

SUBTASK 32-41-93-870-003

(3) Wait 2 seconds.


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SUBTASK 32-41-93-710-003

(4) Make sure that the hydraulic pressure at all brakes is 537.5 ±37.5 psig (3705.9 ±258.6 kPa).

SUBTASK 32-41-93-710-004

(5) Put the landing gear control lever in the DN position.

SUBTASK 32-41-93-710-005

(6) Make sure that the hydraulic pressure at all of the brakes is less than 60 psig (414 kPa).

**F. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-41-93-860-008

(1) For the A and the B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-41-93-080-002

(2) Remove the pressure gauge, SPL-15031, or the gauge set, SPL-10813, from each brake.

**——— END OF TASK ———**



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# BRAKE SHUTTLE VALVES - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the brake shuttle valves

(2) An installation of the brake shuttle valves

B. There are four brake shuttle valves (two on the right and the two on the left) on the sides of the main gear wheel well. This procedure contains the removal and installation tasks for each of the brake shuttle valves.

C. In this procedure, the brake shuttle valve will be referred to as the shuttle valve [5].

**TASK 32-41-95-000-801**

## 2. Brake Shuttle Valve - Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### D. Prepare for the Removal

**SUBTASK 32-41-95-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-95-860-001**

(2) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-41-95-480-002**

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-95-860-002**

(4) Release the parking brake.



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SUBTASK 32-41-95-840-001

(5) Operate the brake pedals until the gage at the brake accumulator shows no change in the pressure.

NOTE: You will have to operate the brake pedals approximately 12 times to fully release the pressure from the accumulator.

## E. Brake Shuttle Valve Removal

SUBTASK 32-41-95-020-001

(1) Do these steps to remove the shuttle valve [5]:

(a) Disconnect hydraulic line [8], hydraulic line [9], hydraulic line [10], hydraulic line [11], hydraulic line [12], and t-fitting [13] from the shuttle valve [5].

(b) Install caps/plugs, STD-14686, on hydraulic line [8], hydraulic line [9], hydraulic line [10], hydraulic line [11], hydraulic line [12], and t-fitting [13].

(c) Remove the bolts [3] or bolts [7] and washers [4].

(d) Remove the shuttle valve [5] from the airplane.

SUBTASK 32-41-95-020-002

(2) If the shuttle valve [5] you will install does not have the unions [1] installed, do these steps:

(a) Remove the unions [1] from the old shuttle valve [5].

(b) Remove and discard the packings [2] from the applicable fitting.

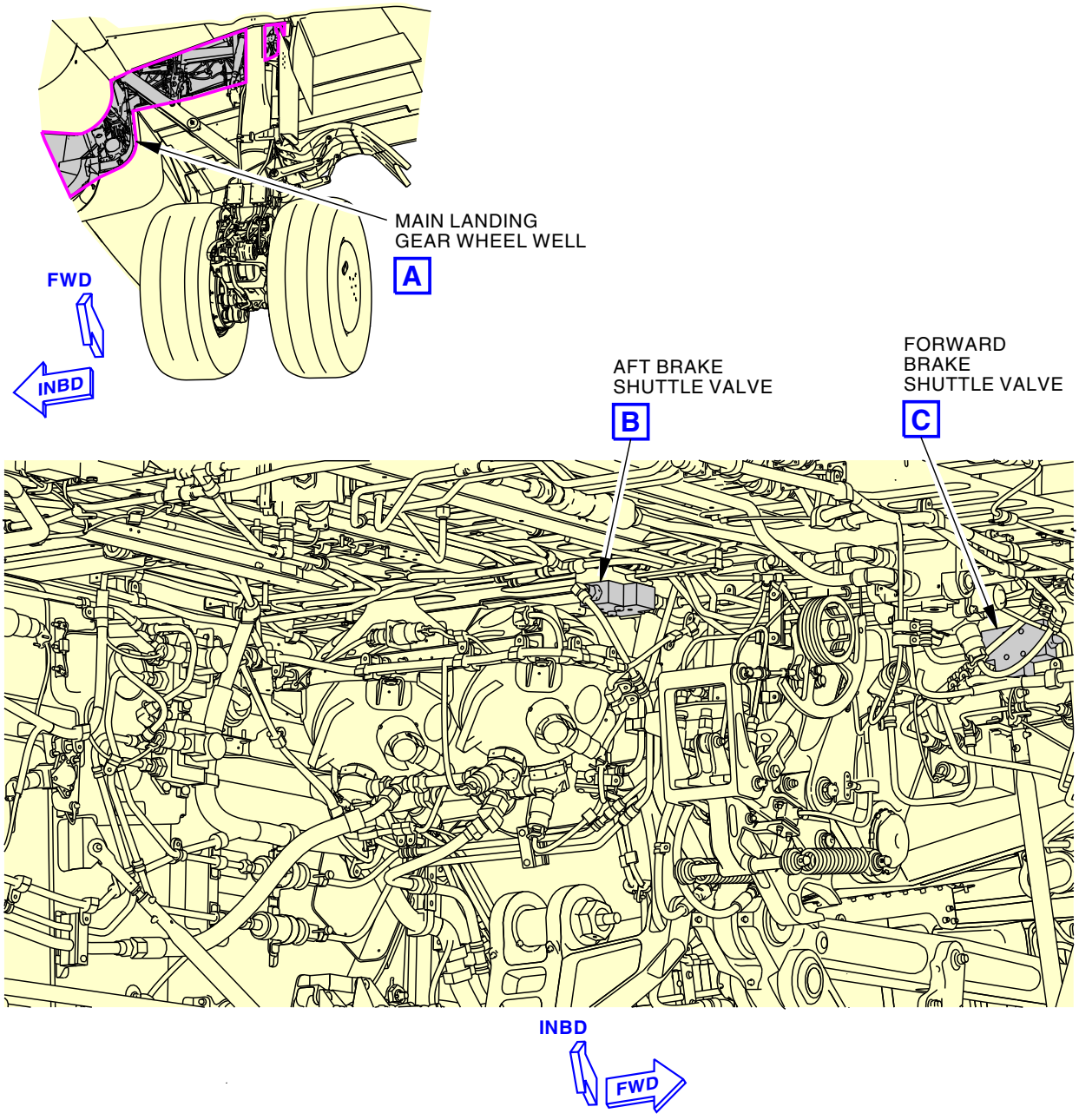
SUBTASK 32-41-95-480-003

(3) Install caps/plugs, STD-14686, on the ports of the shuttle valve [5].

——— END OF TASK ———



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**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

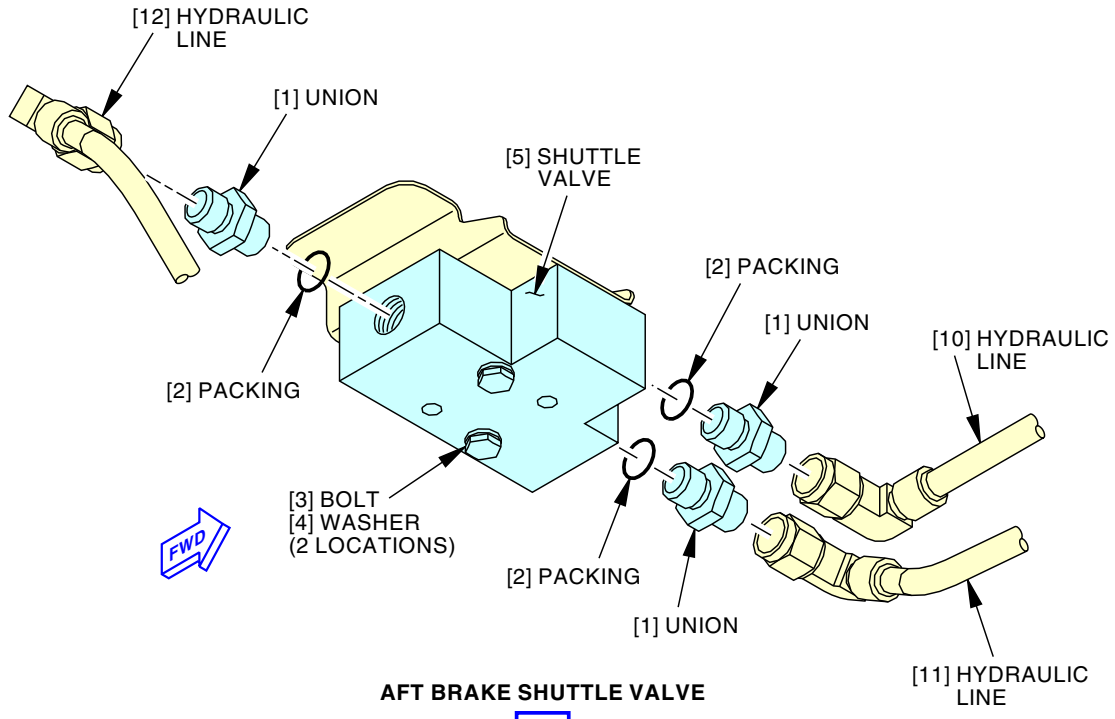
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**Brake Shuttle Valves Installation**
**Figure 401/32-41-95-990-801 (Sheet 1 of 2)**

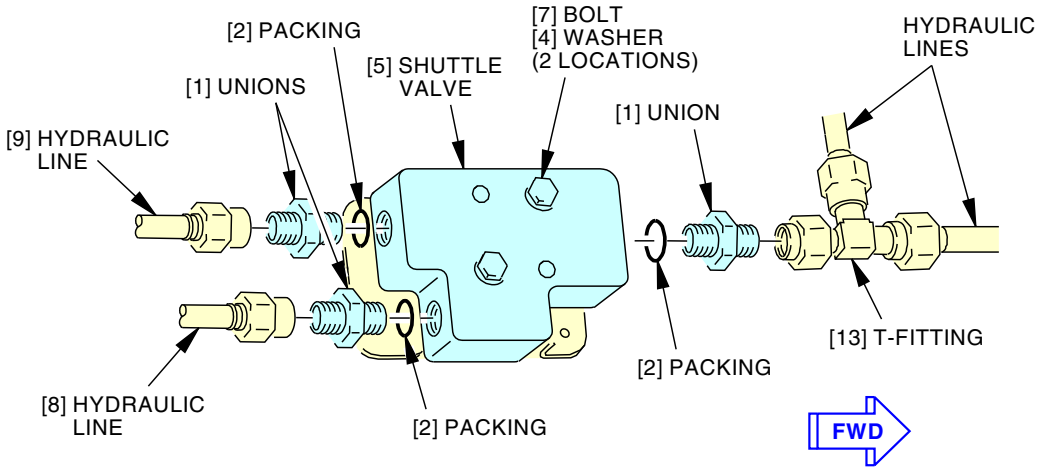


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**AFT BRAKE SHUTTLE VALVE**

**B**




**FORWARD BRAKE SHUTTLE VALVE**

**C**

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**Brake Shuttle Valves Installation**
**Figure 401/32-41-95-990-801 (Sheet 2 of 2)**



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**TASK 32-41-95-400-801**

## 3. Brake Shuttle Valve Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-41-00-870-802 | Normal (System B) Hydraulic Brake System Bleeding (P/B 201) |
| 32-41-00-870-803 | Alternate (System A) Hydraulic Brake System Bleeding (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00054 | Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B) | |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Shuttle valve | 32-41-95-02-010 | SIA ALL |
| | | 32-41-95-03-010 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### F. Brake Shuttle Valve Installation

**SUBTASK 32-41-95-020-003**

(1) Remove the caps/plugs, STD-14686, from the ports of the shuttle valve [5].

**SUBTASK 32-41-95-410-001**

(2) If the unions [1] are not installed in the shuttle valve [5], do these steps:

(a) Lubricate the packings [2] and the unions [1] with hydraulic fluid, D00153, or MCS 352B fluid, D00054.

(b) Install the packings [2] on the unions [1].

(c) Install the unions [1] in the ports of the shuttle valve [5].

**SUBTASK 32-41-95-420-001**

(3) Do the steps that follow to install the shuttle valve [5]:

(a) Make sure that the shuttle valve [5] and the mounting bracket are clean.

(b) Hold the shuttle valve [5] on the mounting bracket.

(c) Install the bolts [3] or bolts [7] and washers [4].



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(d) Remove the caps/plugs, STD-14686, from the applicable hydraulic lines.

(e) Connect hydraulic line [8], hydraulic line [9], hydraulic line [10], hydraulic line [11], and hydraulic line [12] to the shuttle valve [5].

1) Tighten the B-nuts on hydraulic line [8], hydraulic line [9], hydraulic line [10], hydraulic line [11], and hydraulic line [12] to 270 ±14 in-lb (31 ±2 N·m).

(f) Connect the t-fitting [13] to the shuttle valve [5].

1) Tighten the B-nut on the t-fitting [13] to 270 ±14 in-lb (31 ±2 N·m).

**SUBTASK 32-41-95-790-001**

(4) To bleed the brake hydraulic systems, do these tasks: Normal (System B) Hydraulic Brake System Bleeding, TASK 32-41-00-870-802 and Alternate (System A) Hydraulic Brake System Bleeding, TASK 32-41-00-870-803.

(a) Make sure that there is no leakage from the shuttle valve [5] as you bleed the brake hydraulic system.

## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-41-95-860-003**

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-41-95-860-004**

(2) Set the parking brake.

**——— END OF TASK ———**



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# BRAKE FLOW LIMITERS - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) Removal of the brake flow limiters.

(2) Installation of the brake flow limiters.

B. There are four brake flow limiters, one for each main landing gear brake. The procedure that follows gives the removal and installation for each of the brake flow limiters.

**TASK 32-41-96-000-801**

## 2. Brake Flow Limiter Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Location Zones

| Zone | Area |
|---|---|
| 551 | Left Wing - Rear Spar To Landing Gear Support Beam |
| 651 | Right Wing - Rear Spar to Landing Gear Support Beam |

### D. Prepare for Removal

**SUBTASK 32-41-96-480-001**

**WARNING** MAKE SURE THAT YOU INSTALL THE DOWNLOCKS ON THE NOSE AND MAIN LANDING GEAR. WITHOUT THE DOWNLOCKS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE THE EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-41-96-860-001**

(2) For the A and B hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802 .

**SUBTASK 32-41-96-480-002**

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-41-96-860-002**

(4) Release the parking brake.



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SUBTASK 32-41-96-840-001

(5) Operate the brake pedals until the gage at the brake accumulator shows no change in the pressure.

NOTE: You will have to operate the brake pedals approximately 12 times to fully release the pressure from the brake accumulator.

## E. Brake Flow Limiter Removal

SUBTASK 32-41-96-020-001

(1) Do the steps that follow to remove the flow limiter [1].

(a) Loosen the coupling nut [4] and disconnect the hydraulic line [3] from the flow limiter [1].

(b) Loosen the coupling nut [5] and disconnect the high pressure flexible hose [2] from the outboard end of the flow limiter [1].

(c) Install caps/plugs, STD-14686, on the hydraulic lines [3].

(d) Loosen and remove the nut [6] and washers [7] from the flow limiter [1].

(e) Remove the flow limiter [1] from the bulkhead.

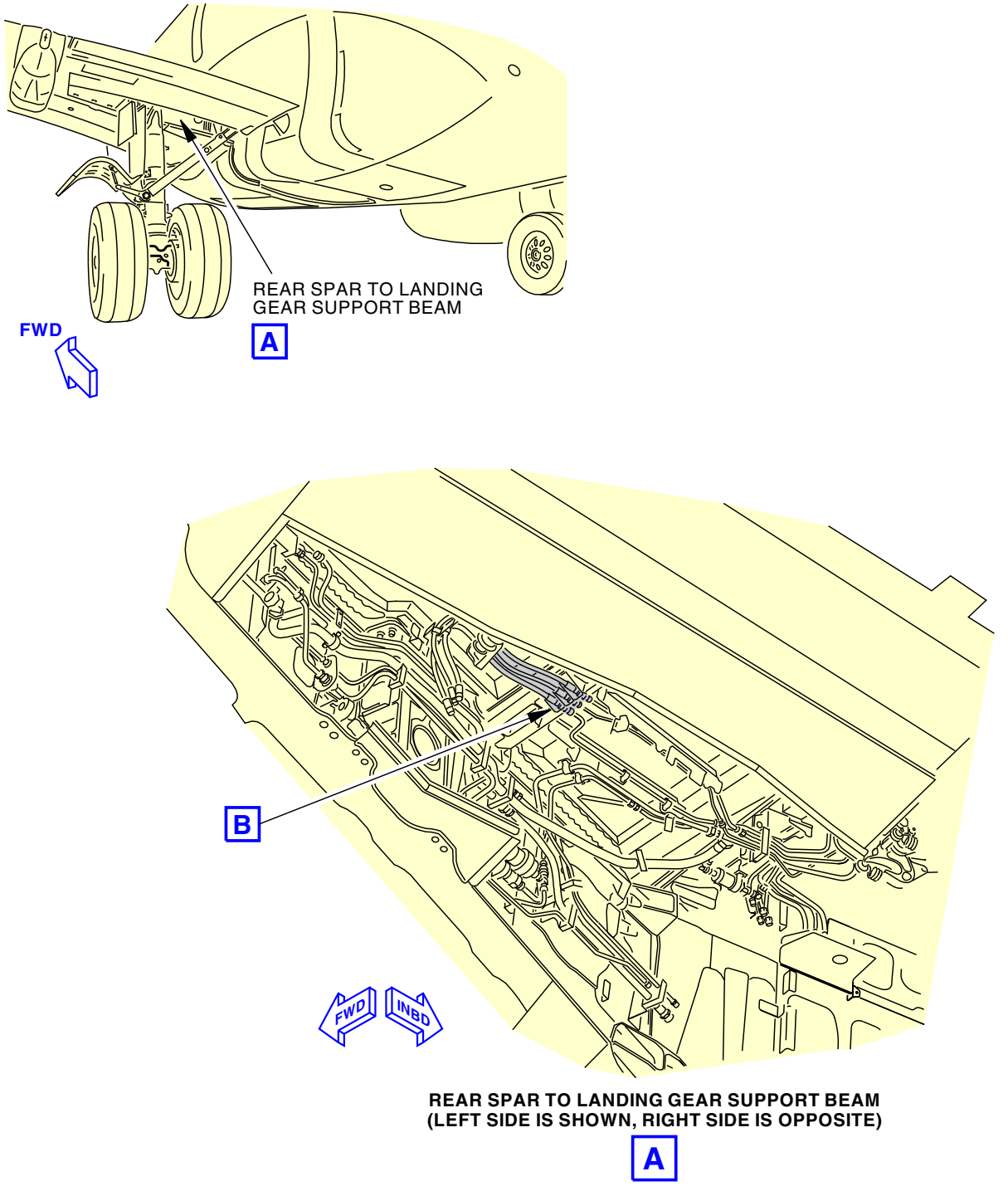
SUBTASK 32-41-96-480-003

(2) Install caps/plugs, STD-14686, on the ports of the flow limiter [1].

**——— END OF TASK ———**



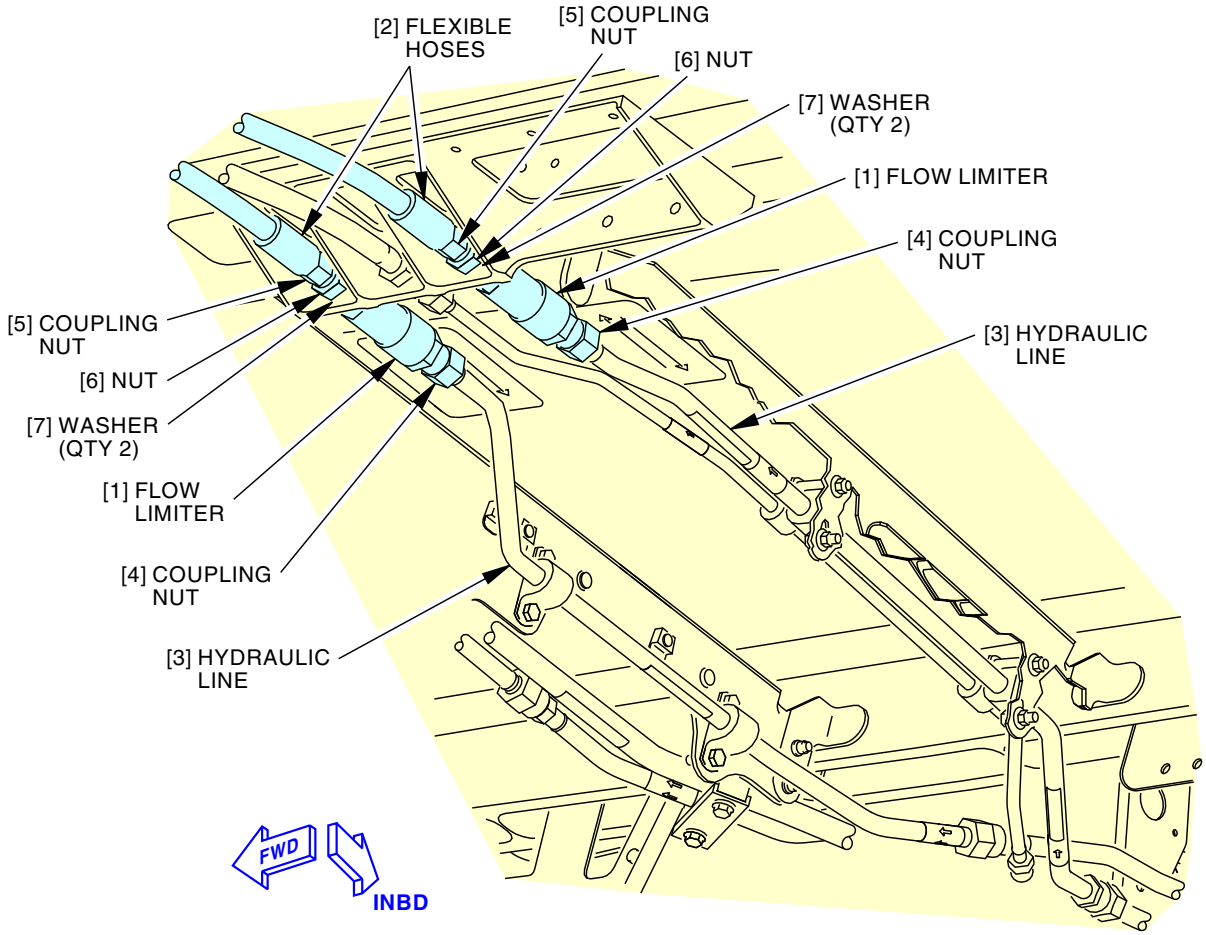
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Brake Flow Limiter Installation**
**Figure 401/32-41-96-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




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**Brake Flow Limiter Installation**
**Figure 401/32-41-96-990-801 (Sheet 2 of 2)**



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**TASK 32-41-96-400-801**

## 3. Brake Flow Limiter Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-41-00-870-802 | Normal (System B) Hydraulic Brake System Bleeding (P/B 201) |
| 32-41-00-870-803 | Alternate (System A) Hydraulic Brake System Bleeding (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Flow limiter | 32-41-96-01-050 | SIA ALL |
| | | 32-41-96-02-050 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 551 | Left Wing - Rear Spar To Landing Gear Support Beam |
| 651 | Right Wing - Rear Spar to Landing Gear Support Beam |

### E. Brake Flow Limiter Installation

**SUBTASK 32-41-96-020-002**

(1) Remove the caps/plugs, STD-14686, from the ports of the flow limiter [1].

**SUBTASK 32-41-96-030-001**

(2) Remove the caps/plugs, STD-14686, from the ends of the hydraulic lines [3].

**SUBTASK 32-41-96-420-001**

(3) Do these steps to install the flow limiter [1]:

(a) Make sure that the flow limiter [1] and the bulkhead are clean.

(b) Install a washer [7] on the end of the flow limiter [1] that will fit into the opening in the bulkhead.

(c) Install the flow limiter [1] in the bulkhead.

(d) Install one washer [7] and nut [6] on the flow limiter [1] on the opposite side of the bulkhead and tighten the nut [6].

(e) Install and connect the hydraulic line [3] to the inboard end of the flow limiter [1].

1) Tighten the coupling nut [4] on the hydraulic line [3] to 270 ±14 in-lb (31 ±2 N·m).

(f) Install and connect the high pressure flexible hose [2] to the outboard end of the flow limiter [1].

1) Tighten the coupling nut [5] on the high pressure flexible hose [2] to 110 ±6 in-lb (12 ±1 N·m).

### F. Brake Flow Limiter Installation Test

**SUBTASK 32-41-96-790-001**

(1) To bleed the brake hydraulic systems, do these tasks:



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Normal (System B) Hydraulic Brake System Bleeding, TASK 32-41-00-870-802

Alternate (System A) Hydraulic Brake System Bleeding, TASK 32-41-00-870-803.

(a) Make sure that there is no leakage from the ends of the brake flow limiter [1] as you bleed the brake hydraulic system.

## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-41-96-860-003**

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-41-96-860-004**

(2) Set the parking brake.

**——— END OF TASK ———**



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## ANTISKID/AUTOBRAKE SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure has these tasks:

(1) An Antiskid/Autobrake Control Unit Operational Test

(2) A Normal and Alternate Antiskid Valve Functional Test

(3) An Antiskid Transducer Functional Test

(4) A Normal and Alternate Antiskid Valve Operational Test

(5) An Autobrake Pressure Control Module Functional Test

(6) An Autobrake Shuttle Valve Operational Test

(7) An Antiskid Transducer Operational Test

(8) An Antiskid/Autobrake Control Unit BITE Procedure

**TASK 32-42-00-720-801**

### 2. Antiskid/Autobrake Control Unit Operational Test

(Figure 501)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 34-21-00-040-801 | Air Data Inertial Reference System - Deactivation (P/B 201) |
| 34-21-00-820-801 | Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201) |
| 34-21-00-820-802 | Air Data Inertial Reference System - Alignment from the ISDU (P/B 201) |
| 34-21-00-820-803 | Air Data Inertial Reference System - Automatic Alignment from the IRS MSU (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |

#### C. Access Panels

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

#### D. Prepare for the Test

**SUBTASK 32-42-00-480-001**

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.



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SUBTASK 32-42-00-480-002

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-42-00-860-002

(3) Release the parking brake.

SUBTASK 32-42-00-790-001

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) For the A and B hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-42-00-860-003

(5) Make sure that the two thrust levers are in the IDLE position.

SUBTASK 32-42-00-860-004

(6) Make sure that the landing gear control lever is in the DN position.

SUBTASK 32-42-00-860-005

(7) Make sure that the spoilers are stowed.

SUBTASK 32-42-00-860-006

(8) Make sure that the right and left Air Data Inertial Reference System (ADIRS)s are in the NAV mode.

(a) Align the ADIRS (TASK 34-21-00-820-802 or TASK 34-21-00-820-801 or TASK 34-21-00-820-803).

SUBTASK 32-42-00-010-003

(9) To get access to the Antiskid/Autobrake Control Unit (AACU) on the E1-3 shelf, do this step:

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-42-00-860-007

(10) Make sure that the BRAKE TEST selector switch on the AACU is in the NORM position.

## E. Antiskid/Autobrake Control Unit Operational Test

SUBTASK 32-42-00-860-008

(1) Do the following steps for AACU:

(a) Push and then release the RESET switch on the AACU.

(b) Make sure that the display on the front panel of the AACU shows MEM CLR and then clears.

(c) Set the AUTOBRAKE selector switch on the P2-2 panel to "OFF" then to position "1".

NOTE: If the AUTOBRAKE DISARM light is on when you do the three subsequent steps, the test will not successfully complete and one or more faults will show on the front panel of the AACU.

(d) Push and hold the ENABLE/VERIFY switch on the AACU.

(e) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.



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(f) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The AACU display will flash WAIT during the test.

(g) Make sure that you see the following indications:

1) Make sure that the AACU display shows TEST END after 10 - 20 seconds.

**SIA 001-003**

2) Make sure that the ANTISKID INOP light on the P2-2 panel flashes two times.

**SIA 004-999**

3) Make sure that the ANTISKID INOP light on the P2-2 panel flashes four times.

**SIA ALL**

4) Make sure that the AUTOBRAKE DISARM light on the P2-2 panel is ON, then OFF, and then remains ON at the end of the test.

(h) Set the autobrake selector switch to the OFF position.

## F. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-42-00-410-002**

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

**SUBTASK 32-42-00-860-009**

(2) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-42-00-860-112**

(3) Do this task: Air Data Inertial Reference System - Deactivation, TASK 34-21-00-040-801.

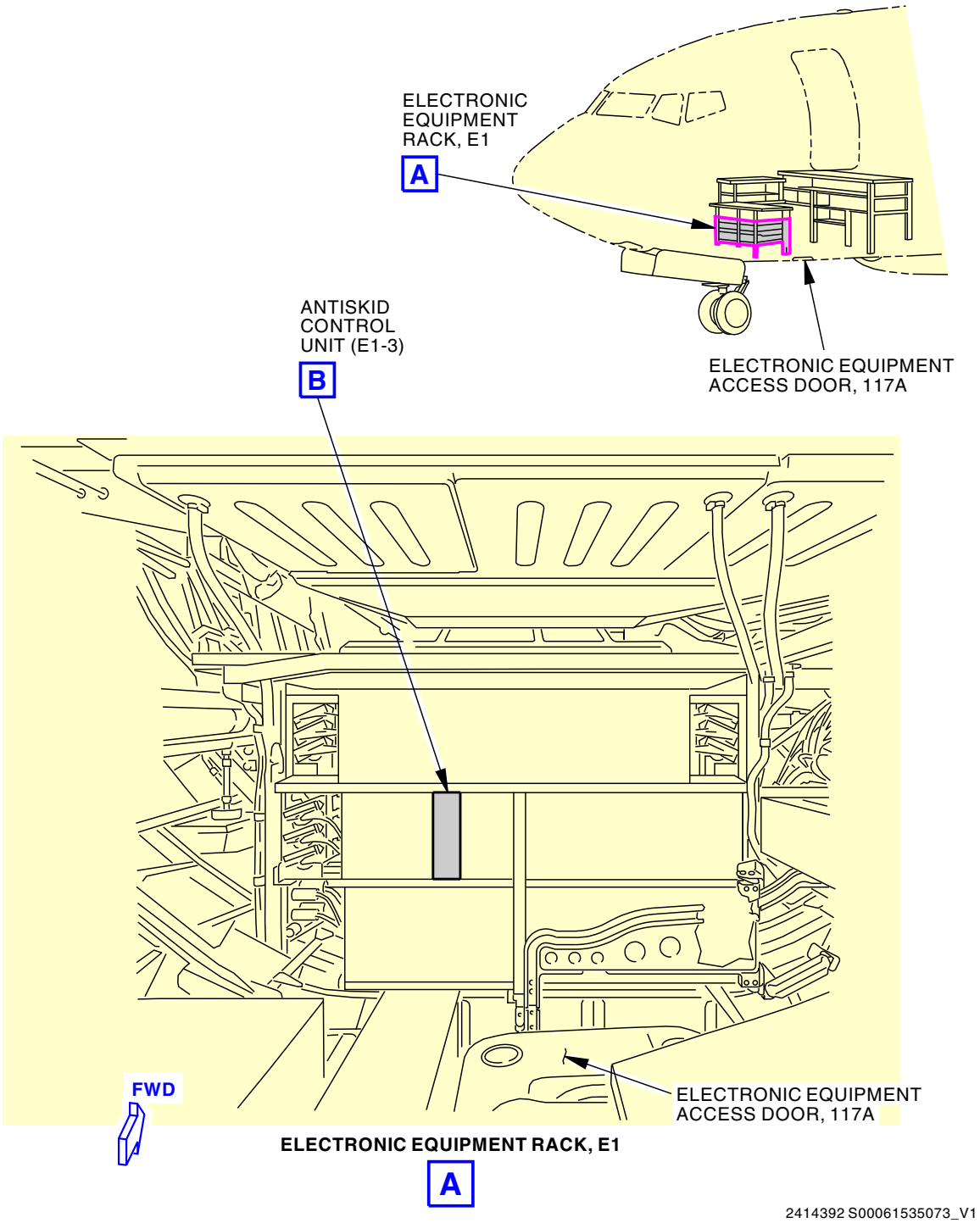
**SUBTASK 32-42-00-860-010**

(4) Set the parking brake.

**——— END OF TASK ———**



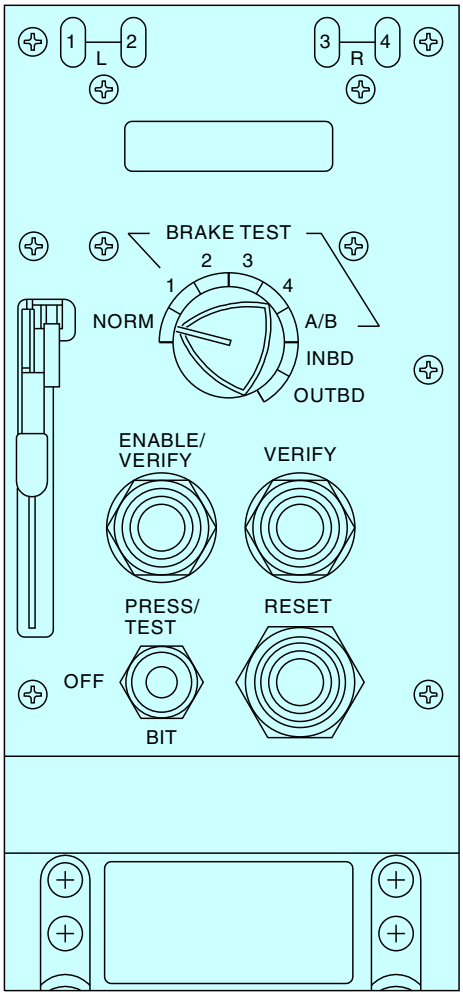
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Antiskid/Autobrake Control Unit Test**
**Figure 501/32-42-00-990-801 (Sheet 1 of 3)**



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**ANTISKID CONTROL UNIT**

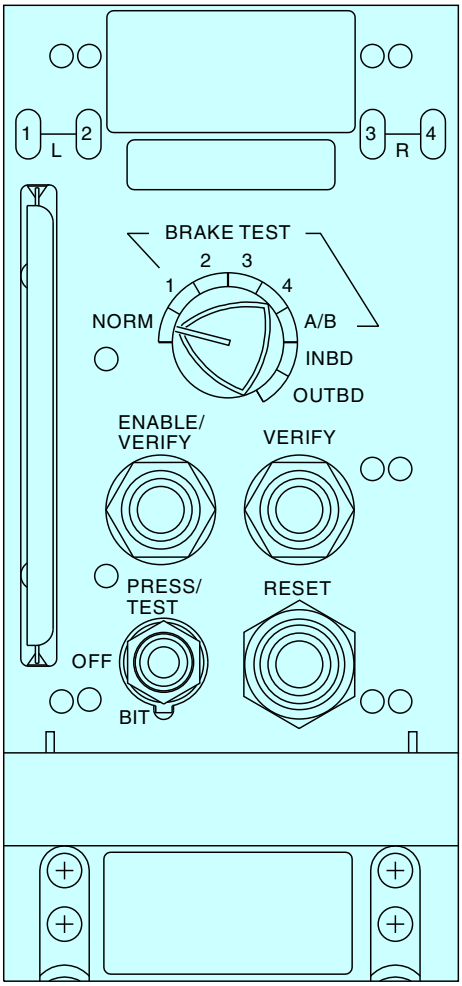
**B**

2414393 S00061535074_V2

**Antiskid/Autobrake Control Unit Test**
**Figure 501/32-42-00-990-801 (Sheet 2 of 3)**



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**ANTISKID CONTROL UNIT**

**B**

2787387 S0000633341_V1

**Antiskid/Autobrake Control Unit Test**
**Figure 501/32-42-00-990-801 (Sheet 3 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-42-00-720-802**

## 3. Antiskid Valve Functional Test

(Figure 501, Figure 502)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-10813 | Gauge Set - Hydraulic Brake System, Pressure Checking<br>Part #: C32051-1 Supplier: 81205<br>Opt Part #: F72977-45 Supplier: 81205<br>Opt Part #: F72977-46 Supplier: 81205<br>Opt Part #: F72977-47 Supplier: 81205<br>Opt Part #: F72977-62 Supplier: 81205 |
| SPL-15031 | Test Equipment - Brake Bleed<br>Part #: G32075-16 Supplier: 81205 |

### C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

### E. Prepare For the Functional Test

**SUBTASK 32-42-00-480-021**

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-42-00-480-003**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).


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SUBTASK 32-42-00-860-011

(3) If necessary, release the parking brake.

SUBTASK 32-42-00-480-004

(4) Do these steps to install a pressure gage at each brake:

(a) Disconnect the brake at the brake disconnect:

1) Push the barrel toward the brake and turn the barrel in the clockwise direction to disengage the brake half from the hose half.

2) Pull up on the barrel of the brake disconnect, away from the brake, until the threads of the two halves are engaged.

3) Turn the barrel in the counterclockwise direction to disconnect the brake hose from the brake assembly.

(b) Remove the brake bleeder assembly from the brake.

NOTE: Each brake bleeder assembly has a bleeder valve installed in an adapter. The adapter is installed in the brake.

(c) Install the pressure gauge, SPL-15031, or the gauge set, SPL-10813, on the brake bleed port.

(d) Connect the brake at the brake disconnect:

1) Turn the hose half of the brake disconnect until the internal tangs align with the slots inside the brake half of the brake disconnect and you can push the hose half down.

2) Push down on the barrel and turn it in the clockwise direction to engage the threads.

3) Turn the barrel in the clockwise direction until the slots in the bottom of the barrel snap into position on the external tangs on the brake half of the brake disconnect.

(e) Do a visual check to make sure that the slots on the barrel are fully and correctly engaged with the tangs on the brake half of the brake disconnect.

SUBTASK 32-42-00-860-013

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) For the normal (system B) hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-42-00-860-014

(6) Disable the parking brake indication:

(a) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-42-00-860-015

(7) Set the parking brake.

SUBTASK 32-42-00-010-004

(8) To get access to the antiskid/autobrake control unit (AACU) on the E1-3 shelf, do this step:



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(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

## F. Normal Antiskid Valve Functional Test

SUBTASK 32-42-00-860-016

(1) Make sure that the hydraulic pressure at the controlled brake is within 200 psi (1379 kPa) of B hydraulic supply pressure.

SUBTASK 32-42-00-860-017

(2) Do these steps for each antiskid valve that you removed:

(a) Move the BRAKE TEST selector switch on the Antiskid/Autobrake Control Unit to the wheel position for the brake valve that you will test.

NOTE: See the top of the Antiskid/Autoskid Control Unit for the brake number.

(b) Push and hold the ENABLE/VERIFY switch on the Antiskid/Autobrake Control Unit.

(c) Push and hold the VERIFY switch on the Antiskid/Autobrake Control Unit.

(d) Release the ENABLE/VERIFY and the VERIFY switches at the same time.

NOTE: The Antiskid/Autobrake Control Unit display will show BRK X during the test, where X = the wheel number selected by the BRAKE TEST selector switch.

(e) Make sure that the hydraulic pressure at the controlled brake is less than or equal to 150 psi (1034 kPa) for 5 to 10 seconds and then applies to within 200 psi (1379 kPa) of B hydraulic supply pressure.

(f) Move the BRAKE TEST selector switch to the NORM position.

## G. Alternate Antiskid Valve Functional Test

SUBTASK 32-42-00-860-018

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) For the normal (system B) hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-42-00-860-019

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) For the alternate (system A) hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-42-00-860-020

(3) Do these steps for each alternate antiskid valve that you removed:



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(a) Move the BRAKE TEST selector switch on the Antiskid/Autobrake Control Unit to the position for the brake valve that you will test.

NOTE: Either 1 or 2 for the left alternate antiskid control valve, or 3 or 4 for the right alternate antiskid control valve.

(b) Push and hold the ENABLE/VERIFY switch on the Antiskid/Autobrake Control Unit.

(c) Push and hold the VERIFY switch on the Antiskid/Autobrake Control Unit.

(d) Release the ENABLE/VERIFY and the VERIFY switches at the same time.

NOTE: The Antiskid/Autobrake Control Unit display will show BRK X during the test, where X = the wheel number selected by the BRAKE TEST selector switch.

(e) Make sure that the hydraulic pressures at the controlled brakes are less than or equal to 150 psi (1034 kPa) for 5 to 10 seconds and then applies to within 200 psi (1379 kPa) of A hydraulic supply pressure.

(f) Move the BRAKE TEST selector switch to the NORM position.

## H. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-42-00-410-003**

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

**SUBTASK 32-42-00-080-001**

(2) Do these steps to remove the pressure gages at each brake:

(a) Disconnect the brake at the brake disconnect:

1) Pull up on the barrel of the brake disconnect.

2) Turn the barrel in the counterclockwise direction to disconnect the brake hose from the brake assembly.

(b) Remove the pressure gauge, SPL-15031, or the gauge set, SPL-10813, from the brake bleed port.

(c) Install the brake bleeder assembly on the brake.

NOTE: Each brake bleeder assembly has a bleeder valve installed in an adapter. The adapter is installed in the brake.

(d) Connect the brake at the brake disconnect:

1) Turn the hose half of the brake disconnect until the internal tangs align with the slots inside the brake half of the brake disconnect and you can push the hose half down.

2) Push down on the barrel and turn it in the clockwise direction to engage the threads.

3) Turn the barrel in the clockwise direction until the slots in the bottom of the barrel snap into position on the external tangs on the brake half of the brake disconnect.

(e) Do a visual check to make sure that the slots on the barrel are fully and correctly engaged with the tangs on the brake half of the brake disconnect.

**SUBTASK 32-42-00-710-001**

(3) Enable the parking brake indication:

(a) Release the parking brake.



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(b) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

(c) Set the parking brake.

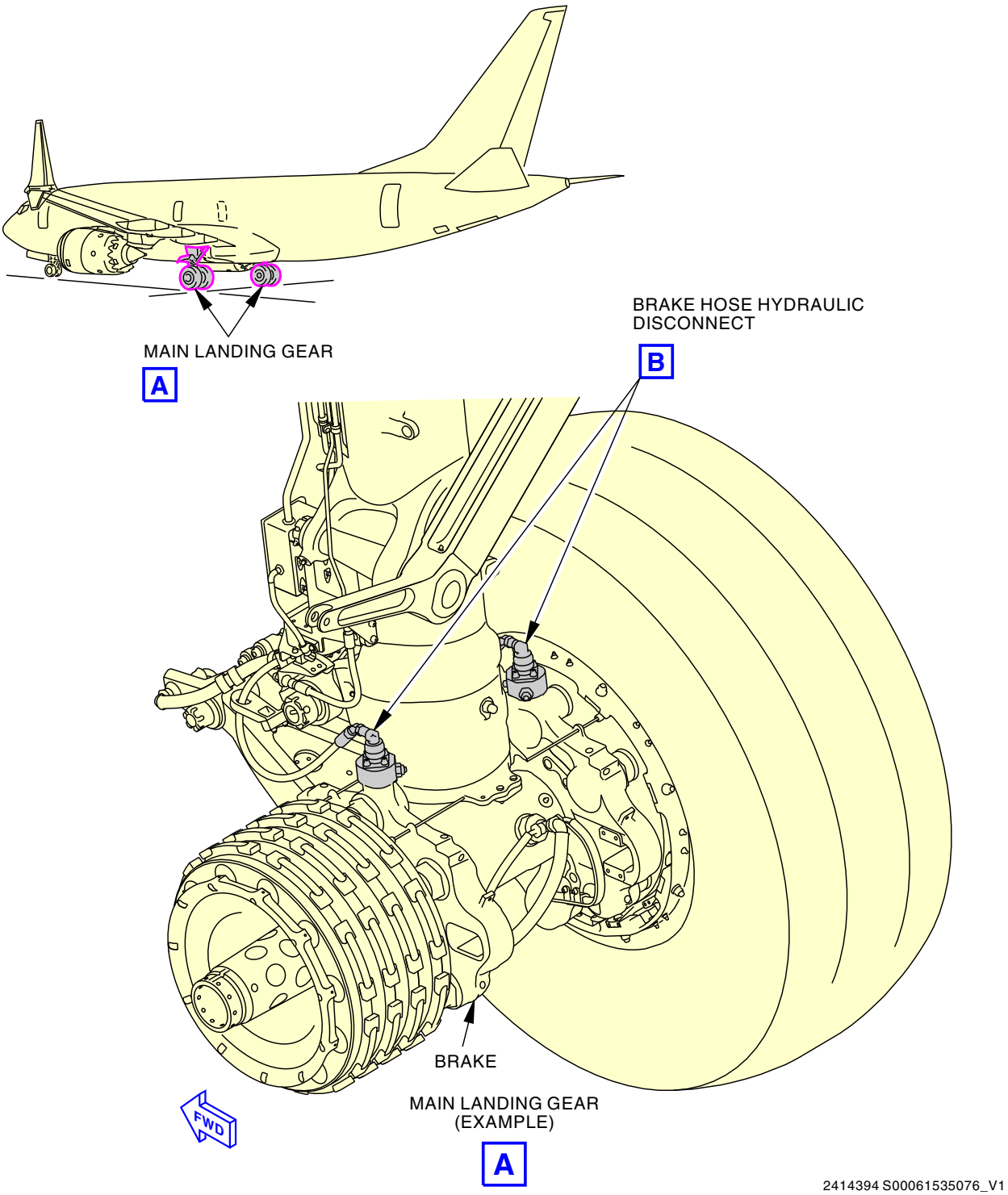
**SUBTASK 32-42-00-860-021**

(4) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**——— END OF TASK ———**



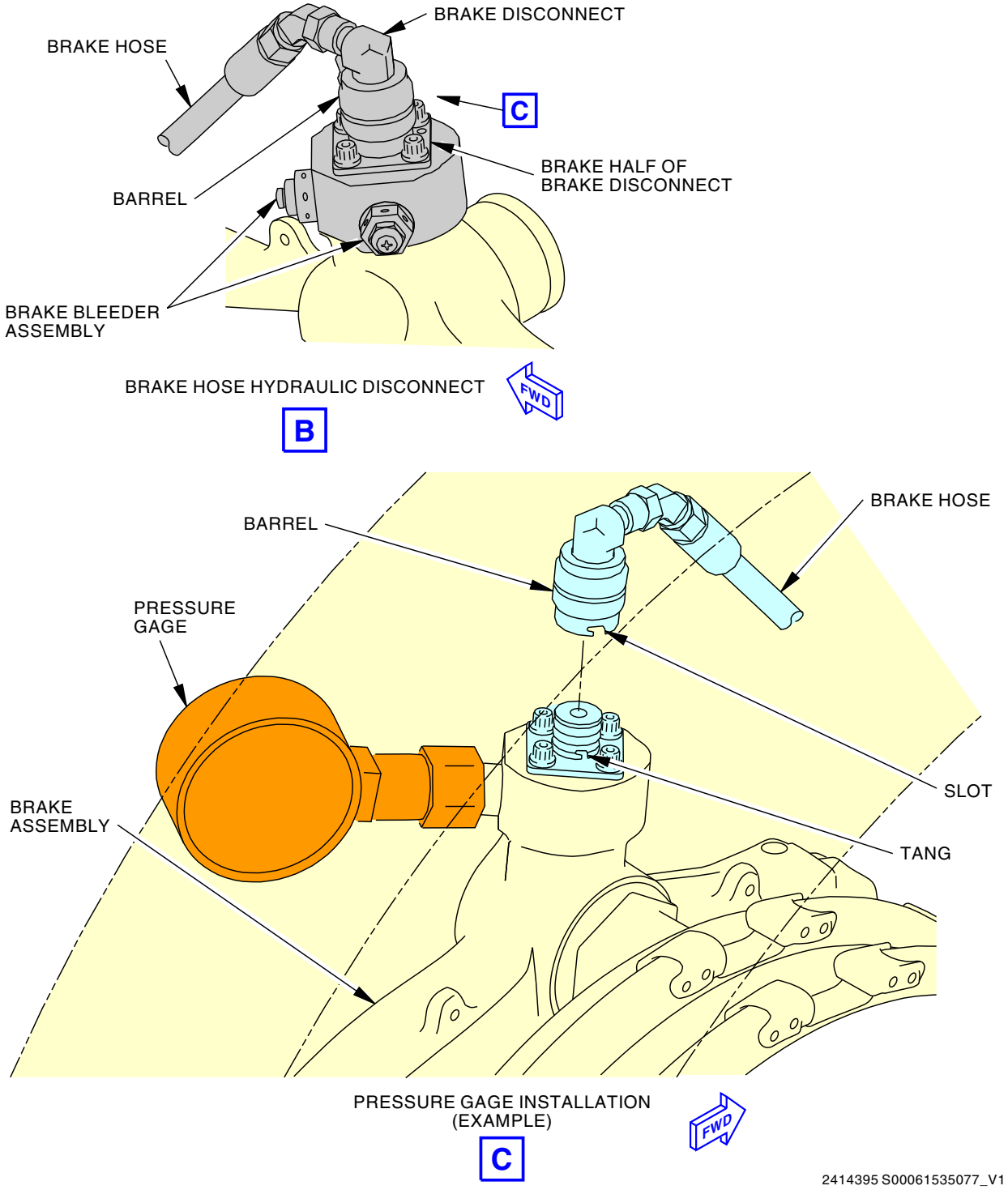
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**Brake Line Disconnection and Pressure Gage Installation**
**Figure 502/32-42-00-990-802 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Brake Line Disconnection and Pressure Gage Installation**
**Figure 502/32-42-00-990-802 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-42-00-710-801**

## 4. Transducer Functional Test

(Figure 502, Figure 503)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 46-13-02-700-805 | Existing Faults Check (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1831 | Adapter - Spin Up, Wheel Speed Transducer, Anti-Skid System<br>Part #: A32075-10 Supplier: 81205<br>Opt Part #: A32075-1 Supplier: 81205<br>Opt Part #: A32075-9 Supplier: 81205 |
| SPL-10813 | Gauge Set - Hydraulic Brake System, Pressure Checking<br>Part #: C32051-1 Supplier: 81205<br>Opt Part #: F72977-45 Supplier: 81205<br>Opt Part #: F72977-46 Supplier: 81205<br>Opt Part #: F72977-47 Supplier: 81205<br>Opt Part #: F72977-62 Supplier: 81205 |
| SPL-15031 | Test Equipment - Brake Bleed<br>Part #: G32075-16 Supplier: 81205 |
| STD-3906 | Mallet - Rubber |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### D. Prepare for the Functional Test

**SUBTASK 32-42-00-860-022**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-42-00-480-006**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-42-00-860-023**

(3) Release the parking brake.


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SUBTASK 32-42-00-480-007

(4) Do these steps to install a pressure gage at each brake (Figure 502):

(a) Disconnect the brake at the brake disconnect:

1) Pull up on the barrel of the brake disconnect.

2) Turn the barrel in the counterclockwise direction to disconnect the brake hose from the brake assembly.

(b) Remove the brake bleeder assembly from the brake.

NOTE: Each brake bleeder assembly has a bleeder valve installed in an adapter. The adapter is installed in the brake.

(c) Install the pressure gauge, SPL-15031, or the gauge set, SPL-10813, on the brake bleed port.

(d) Connect the brake at the brake disconnect:

1) Turn the hose half of the brake disconnect until the internal tangs align with the slots inside the brake half of the brake disconnect and you can push the hose half down.

2) Push down on the barrel and turn it in the clockwise direction to engage the threads.

3) Turn the barrel in the clockwise direction until the slots in the bottom of the barrel snap into position on the external tangs on the brake half of the brake disconnect.

(e) Do a visual check to make sure that the slots on the barrel are fully and correctly engaged with the tangs on the brake half of the brake disconnect.

SUBTASK 32-42-00-790-002

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) For the normal (system B) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-42-00-860-024

(6) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-42-00-860-025

(7) Set the parking brake.

## E. Transducer Functional Test

SUBTASK 32-42-00-020-001

(1) Do these steps to remove the hubcap [1], hubcap [10] (Figure 503):

(a) For an outboard wheel, turn the camlock fasteners [6] 1/4-turn to disconnect the hubcap fairing [4] from the outboard hubcap [1].

(b) Remove the bolts [3] and washers [2] to disconnect the outboard hubcap [1] or inboard hubcap [10] from the wheel.

(c) Remove the outboard hubcap [1] or inboard hubcap [10] from the wheel.



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SUBTASK 32-42-00-860-026

(2) Install the spin up wheel speed transducer anti-skid system adapter, SPL-1831, in a drill.

SUBTASK 32-42-00-860-027

(3) Make sure that the hydraulic pressure at all brakes is equal to the system B pressure ± 200 psi (1379 kPa).

NOTE: This is to make sure that the antiskid system does not inadvertently release the brakes.

SUBTASK 32-42-00-710-002

(4) Do these steps for each wheel speed transducer [5] that you will test:

(a) Use the spin up wheel speed transducer anti-skid system adapter, SPL-1831, and a variable speed drill to turn the wheel speed transducer [5] between 250 and 2200 RPM.

1) If the wheel speed transducer is spun for more than 30 seconds, then the SPEEDBRAKE DO NOT ARM Light can come on with a correlated Maintenance Message.

a) Do this task if a correlated Maintenance Message occurs: Existing Faults Check, TASK 46-13-02-700-805.

(b) Make sure that the brake at the paired wheel is less than or equal to 150 psi (1034 kPa) (Table 501).

NOTE: The wheels are numbered from the left to the right.

**Table 501/32-42-00-993-801 ANTISKID TRANSDUCER PAIR WHEELS**

| TRANSDUCER | CONTROLLED WHEEL | PAIRED WHEEL |
|---|---|---|
| 1 | 1 | 4 |
| 2 | 2 | 3 |
| 3 | 3 | 2 |
| 4 | 4 | 1 |

(c) Stop the movement of the wheel speed transducer [5] as quickly as possible.

(d) Make sure that the controlled brake for the wheel speed transducer [5] you do a check of is less than or equal to 150 psi (1034 kPa).

(e) Wait 5 to 10 seconds.

(f) Make sure that the hydraulic pressure at all brakes is equal to the system B pressure ± 200 psi (1379 kPa).

SUBTASK 32-42-00-420-001

**CAUTION** DO NOT TIGHTEN THE HUBCAP BOLTS TOO MUCH. MAKE SURE THAT THE HUBCAP IS IN THE CORRECT POSITION BEFORE YOU TIGHTEN THE BOLTS. TOO MUCH TORQUE WILL CAUSE DAMAGE TO THE BOLTS AND THE HUBCAP.

(5) Do these steps to install the hubcap [1], hubcap [10] (Figure 503):

(a) Turn the antiskid transducer dog inside the wheel such that the drive on the hubcap [1] or hubcap [10] and the dog in the wheel will connect when the hubcap [1] or hubcap [10] are installed.

(b) Put the hubcap [1] or hubcap [10] in its position on the wheel.

(c) Make sure that the hubcap [1] or hubcap [10] are flush with the wheel assembly.



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1) Use a soft rubber mallet, STD-3906, to lightly tap the hubcap [1] or hubcap [10] to make it flush.

(d) Install the washers [2] and bolts [3] to connect the hubcap [1] or hubcap [10] to the wheel and torque the bolts [3] to 65 ±15 in-lb (7 ±2 N·m).

(e) Install lockwire on the bolts [3].

(f) Do these steps for the outboard wheel:

1) Put the hubcap fairing [4] on the hubcap [1].

2) Turn the camlock fasteners [6] 1/4-turn to attach the hubcap fairing [4] to the hubcap [1].

## F. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-42-00-860-028**

(1) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-42-00-860-029**

(2) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

**SUBTASK 32-42-00-080-002**

(3) Remove the pressure gauge, SPL-15031, or the gauge set, SPL-10813, from the brake bleed port.

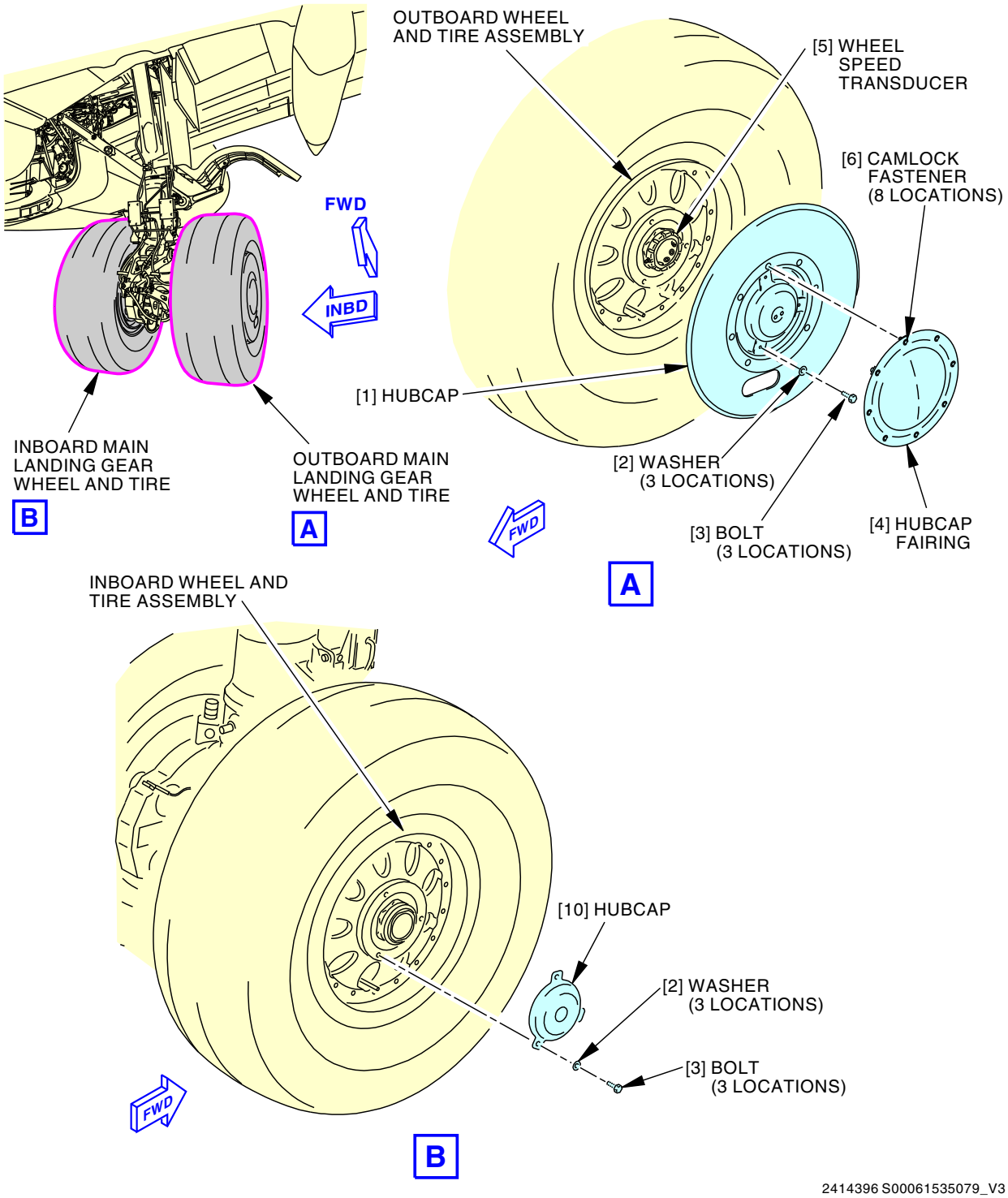
**SUBTASK 32-42-00-860-030**

(4) Release the parking brake.

**——— END OF TASK ———**



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**Main Landing Gear Hubcap Installation**
**Figure 503/32-42-00-990-803**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-42-00-720-803**

## 5. Antiskid Valve Operational Test

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

### D. Prepare for the Operational Test

**SUBTASK 32-42-00-480-008**

(1) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-42-00-860-031**

(2) Release the parking brake.

**SUBTASK 32-42-00-860-033**

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(3) For the normal (system B) hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-42-00-860-034**

(4) Disable the parking brake indication:

(a) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

**SUBTASK 32-42-00-860-035**

(5) Set the parking brake.

**SUBTASK 32-42-00-010-005**

(6) To get access to the antiskid/autobrake control unit (AACU) on the E1-3 shelf, do this step:



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(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

## E. Normal Antiskid Valve Operational Test

SUBTASK 32-42-00-860-036

(1) Do these steps for each antiskid valve that you removed:

(a) Move the BRAKE TEST selector switch on the Antiskid/Autobrake Control Unit to the wheel position for the brake valve that you will test.

NOTE: See the top of the Antiskid/Autobrake Control Unit for the brake number.

(b) Push and hold the ENABLE/VERIFY switch on the Antiskid/Autobrake Control Unit.

(c) Push and hold the VERIFY switch on the Antiskid/Autobrake Control Unit.

(d) Release the ENABLE/VERIFY and the VERIFY switches at the same time.

NOTE: The Antiskid/Autobrake Control Unit display will show BRK X during the test, where X = the wheel number selected by the BRAKE TEST selector switch.

(e) If there are no failures, the selected brake will release and then receive pressure again.

(f) Move the BRAKE TEST selector switch to the NORM position.

## F. Alternate Antiskid Valve Operational Test

SUBTASK 32-42-00-860-037

(1) For the normal (system B) hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-42-00-860-038

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(2) For the alternate (system A) hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-42-00-860-039

(3) Do these steps for each alternate antiskid valve that you removed:

(a) Move the BRAKE TEST selector switch on the Antiskid/Autobrake Control Unit to the position for the brake valve that you will test.

NOTE: Either 1 or 2 for the left alternate antiskid control valve, or 3 or 4 for the right alternate antiskid control valve.

(b) Push and hold the ENABLE/VERIFY switch on the Antiskid/Autobrake Control Unit.

(c) Push and hold the VERIFY switch on the Antiskid/Autobrake Control Unit.

(d) Release the ENABLE/VERIFY and the VERIFY switches at the same time.

NOTE: The Antiskid/Autobrake Control Unit display will show BRK X during the test, where X = the wheel number selected by the BRAKE TEST selector switch.

(e) If there are no failures, the selected main landing gear brake pairs will release and then receive pressure again.

(f) Move the BRAKE TEST selector switch to the NORM position.



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**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-42-00-410-004

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-42-00-710-003

(2) Enable the parking brake indication:

(a) Release the parking brake.

(b) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

(c) Set the parking brake.

SUBTASK 32-42-00-860-040

(3) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**——— END OF TASK ———**

**TASK 32-42-00-400-801**

## 6. Autobrake Pressure Control Module Functional Test

(Figure 501, Figure 502)

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 34-21-00-820-801 | Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201) |
| 34-21-00-820-802 | Air Data Inertial Reference System - Alignment from the ISDU (P/B 201) |
| 34-21-00-820-803 | Air Data Inertial Reference System - Automatic Alignment from the IRS MSU (P/B 201) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-10813 | Gauge Set - Hydraulic Brake System, Pressure Checking<br>Part #: C32051-1 Supplier: 81205<br>Opt Part #: F72977-45 Supplier: 81205<br>Opt Part #: F72977-46 Supplier: 81205<br>Opt Part #: F72977-47 Supplier: 81205<br>Opt Part #: F72977-62 Supplier: 81205 |



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(Continued)

| Reference | Description |
|---|---|
| SPL-15031 | Test Equipment - Brake Bleed<br>Part #: G32075-16 Supplier: 81205 |

**C. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**D. Access Panels**

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

**E. Autobrake Pressure Control Module Functional Test**

SUBTASK 32-42-00-860-041

(1) Make sure that the two thrust levers are in the IDLE position.

SUBTASK 32-42-00-860-042

(2) Make sure that the LANDING GEAR control lever is in the DN position.

SUBTASK 32-42-00-860-043

(3) Make sure that the spoilers are stowed (SPD BRK lever in DN position).

SUBTASK 32-42-00-860-044

(4) Make sure that the right and left Air Data Inertial Reference System (ADIRS) are in the NAV mode.

(a) Align the ADIRS (TASK 34-21-00-820-802 or TASK 34-21-00-820-801 or TASK 34-21-00-820-803).

SUBTASK 32-42-00-480-023

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(5) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-42-00-480-009

(6) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-42-00-860-045

(7) Release the PARKING BRAKE.

SUBTASK 32-42-00-860-046

(8) Install the pressure gauge, SPL-15031, or the gauge set, SPL-10813, on each brake for the two Main Landing Gear (MLG).

SUBTASK 32-42-00-480-010

(9) Do these steps to install a pressure gage at each brake:

(a) Disconnect the brake at the brake disconnect:



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1) Pull up on the barrel of the brake disconnect.
2) Turn the barrel in the counterclockwise direction to disconnect the brake hose from the brake assembly.

(b) Remove the brake bleeder assembly from the brake.

NOTE: Each brake bleeder assembly has a bleeder valve installed in an adapter. The adapter is installed in the brake.

(c) Install the pressure gauge on the brake bleed port.

(d) Connect the brake at the brake disconnect:

1) Turn the hose half of the brake disconnect until the internal tangs align with the slots inside the brake half of the brake disconnect and you can push the hose half down.
2) Push down on the barrel and turn it in the clockwise direction to engage the threads.
3) Turn the barrel in the clockwise direction until the slots in the bottom of the barrel snap into position on the external tangs on the brake half of the brake disconnect.

(e) Do a visual check to make sure that the slots on the barrel are fully and correctly engaged with the tangs on the brake half of the brake disconnect.

SUBTASK 32-42-00-860-047

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(10) For the normal (system B) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-42-00-010-007

(11) To get access to the Antiskid/Autobrake Control Unit (AACU), on the E1-3 shelf, do this step:

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-42-00-860-049

(12) Set the BRAKE TEST selector switch, on the AACU, to A/B.

NOTE: In this step and the next four steps, if the AUTO BRAKE DISARM light is ON when you push the ENABLE/VERIFY switches, the test will not successfully complete and the display on the front panel of the AACU will show "BRK ####."

SUBTASK 32-42-00-860-050

(13) Do the steps that follow for AUTO BRAKE selector position "1".

(a) Set the AUTO BRAKE selector switch, on the P9-82 pane, l to "OFF" then to "1" position.

(b) Push and then release the RESET switch on the AACU.

NOTE: The display on the front panel of the AACU will show "MEM CLR".

(c) Push and hold the ENABLE/VERIFY switch on the AACU.

(d) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.



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(e) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The AACU display will show BRK A/B1 during the test.

(f) Make sure that the hydraulic pressure at a brake is 1250 ±250 psi (8618 ±1724 kPa) for approximately 10 to 30 seconds, then to 300 ±250 psi (2068 ±1724 kPa) for approximately 5 to 20 seconds, and then to less than 150 psi (1034 kPa).

(g) Make sure that the AUTO BRAKE DISARM light, on the P9-82 panel, comes on.

(h) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "OFF".

**SUBTASK 32-42-00-860-051**

(14) Do the steps that follow for AUTO BRAKE selector position "2".

(a) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "2".

(b) Push and hold the ENABLE/VERIFY switch on the AACU.

(c) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.

(d) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The AACU display will show BRK A/B2 during the test.

(e) Make sure that the hydraulic pressure at a brake is 1500 ±250 psi (10,342 ±1724 kPa) for approximately 10 to 30 seconds, then to 300 ±250 psi (2068 ±1724 kPa) for approximately 5 to 20 seconds, and then to less than 150 psi (1034 kPa).

(f) Make sure that the AUTO BRAKE DISARM light, on the P9-82 panel, comes on.

(g) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "OFF".

**SUBTASK 32-42-00-860-052**

(15) Do the steps that follow for AUTO BRAKE selector position "3".

(a) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "3".

(b) Push and hold the ENABLE/VERIFY switch on the AACU.

(c) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.

(d) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The AACU display will show BRK A/B3 during the test.

(e) Make sure that the hydraulic pressure at a brake is 2000 ±250 psi (13,790 ±1724 kPa) for approximately 10 to 30 seconds, then to 300 ±250 psi (2068 ±1724 kPa) for approximately 5 to 20 seconds, and then to less than 150 psi (1034 kPa).

(f) Make sure that the AUTO BRAKE DISARM light, on the P9-82 panel, comes on.

(g) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "OFF".

**SUBTASK 32-42-00-860-053**

(16) Do the steps that follow for AUTO BRAKE selector position "MAX".

(a) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "MAX".

(b) Push and hold the ENABLE/VERIFY switch on the AACU.

(c) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.

(d) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The AACU display will show BRK A/B4 during the test.



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(e) Make sure that the hydraulic pressure at a brake is 3000 ±300 psi (20,684 ±2068 kPa) for approximately 10 to 30 seconds, then to 300 ±250 psi (2068 ±1724 kPa) for approximately 5 to 20 seconds, and then to less than 150 psi (1034 kPa).

(f) Make sure that the AUTO BRAKE DISARM light, on the P9-82 panel, comes on.

(g) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "OFF".

SUBTASK 32-42-00-860-054

(17) Do the steps that follow for AUTO BRAKE selector position "RTO".

(a) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "RTO".

(b) Push and hold the ENABLE/VERIFY switch on the AACU.

(c) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.

(d) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The AACU display will show BRK RTO during the test.

(e) Make sure that the hydraulic pressure at any brake is 3000 ±300 psi (20,684 ±2068 kPa) for approximately 15 to 45 seconds, then decays to less than 150 psi (1034 kPa).

(f) Make sure that the AUTO BRAKE DISARM light, on the P9-82 panel, comes on.

(g) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "OFF".

SUBTASK 32-42-00-860-055

(18) Do the steps that follow to test the brake metered pressure switches.

(a) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "1".

(b) Push and hold the left brake pedal to the stop.

(c) Make sure that the AUTO BRAKE DISARM light, on the P9-82 panel, comes on.

(d) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "OFF" and then set it back to "1".

(e) Push and hold the right brake pedal to the stop.

(f) Make sure that the AUTO BRAKE DISARM light, on the P9-82 panel, comes on.

SUBTASK 32-42-00-860-056

(19) Set the AUTO BRAKE selector switch, on the P9-82 panel, to "OFF".

SUBTASK 32-42-00-860-057

(20) Set the BRAKE TEST selector switch, on the AACU, to NORM.

## F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-42-00-410-007

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-42-00-080-003

(2) Do these steps to remove the pressure gages at each brake:

(a) Disconnect the brake at the brake disconnect:

1) Pull up on the barrel of the brake disconnect.

2) Turn the barrel in the counterclockwise direction to disconnect the brake hose from the brake assembly.



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(b) Remove the pressure gauge, SPL-15031, or the gauge set, SPL-10813, from the brake bleed port.

(c) Install the brake bleeder assembly on the brake.

NOTE: Each brake bleeder assembly has a bleeder valve installed in an adapter. The adapter is installed in the brake.

(d) Connect the brake at the brake disconnect:

1) Turn the hose half of the brake disconnect until the internal tangs align with the slots inside the brake half of the brake disconnect and you can push the hose half down.

2) Push down on the barrel and turn it in the clockwise direction to engage the threads.

3) Turn the barrel in the clockwise direction until the slots in the bottom of the barrel snap into position on the external tangs on the brake half of the brake disconnect.

(e) Do a visual check to make sure that the slots on the barrel are fully and correctly engaged with the tangs on the brake half of the brake disconnect.

**SUBTASK 32-42-00-860-114**

(3) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**——— END OF TASK ———**

**TASK 32-42-00-710-802**

## 7. Autobrake Shuttle Valve Operational Test

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

### D. Prepare For the Operational Test

**SUBTASK 32-42-00-860-060**

(1) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |



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SUBTASK 32-42-00-480-011

(2) Make sure that the tires have chocks installed around them CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 32-42-00-860-061

(3) Release the parking brake.

SUBTASK 32-42-00-860-062

**WARNING**

KEEP PERSONS AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES. THE AILERONS, ELEVATORS, RUDDER, FLAPS, SLATS, SPOILERS, STABILIZER, AND NOSE GEAR CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) For the normal (system B) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-42-00-010-006

(5) To get access to the antiskid/autobrake control unit (AACU) on the E1-3 shelf, do this step:

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

## E. Operational Test of the Autobrake Shuttle Valve

SUBTASK 32-42-00-860-064

(1) Set the BRAKE TEST selector switch on the Antiskid/Autobrake Control Unit to A/B.

SUBTASK 32-42-00-860-065

(2) Set the autobrake selector switch on the P2-2 panel to RTO.

SUBTASK 32-42-00-860-066

(3) Push and then release the RESET switch on the Antiskid/Autobrake Control Unit.

NOTE: The display on the front panel of the Antiskid/Autobrake Control Unit will show "MEM CLR".

SUBTASK 32-42-00-860-067

(4) Push and hold the ENABLE/VERIFY switch on the Antiskid/Autobrake Control Unit.

SUBTASK 32-42-00-860-068

(5) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the Antiskid/Autobrake Control Unit.

SUBTASK 32-42-00-860-069

(6) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

SUBTASK 32-42-00-480-020

(7) Make sure that all of the brakes apply and then release after approximately 10 to 45 seconds.

SUBTASK 32-42-00-860-070

(8) Set the autobrake selector switch on the P2-2 panel to OFF.

SUBTASK 32-42-00-860-071

(9) Set the BRAKE TEST switch on the Antiskid/Autobrake Control Unit to NORM.



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**F. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-42-00-410-005

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-42-00-860-072

(2) Push the brake pedals fully to the stops and then release them after approximately 10 seconds.

(a) Make sure that the brakes apply and release with brake pedal movement.

SUBTASK 32-42-00-860-073

(3) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——— END OF TASK ———

**TASK 32-42-00-710-803**

**8. Transducer Operational Test**

(Figure 503)

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1831 | Adapter - Spin Up, Wheel Speed Transducer, Anti-Skid System<br>Part #: A32075-10 Supplier: 81205<br>Opt Part #: A32075-1 Supplier: 81205<br>Opt Part #: A32075-9 Supplier: 81205 |
| STD-3906 | Mallet - Rubber |

**C. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |



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## D. Prepare for the Operational Test

SUBTASK 32-42-00-480-022

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-42-00-480-014

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-42-00-860-074

(3) Release the parking brake.

SUBTASK 32-42-00-790-003

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) For the normal (system B) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-42-00-860-075

(5) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-42-00-860-076

(6) Set the parking brake.

## E. Transducer Operational Test

SUBTASK 32-42-00-020-002

(1) If the hubcap is installed, do these steps to remove the hubcap (Figure 503):

(a) For an outboard wheel, turn the camlock fasteners [6] 1/4-turn to disconnect the hubcap fairing [4] from the outboard hubcap [1].

(b) Remove the bolts [3] and washers [2] to disconnect the outboard hubcap [1] or inboard hubcap [10] from the wheel.

(c) Remove the outboard hubcap [1] or inboard hubcap [10] from the wheel.

SUBTASK 32-42-00-020-003

(2) Do the steps that follow to do a check of the mechanical condition of the transducer and drive coupling:

(a) Turn the transducer drive coupling while you do a check to make sure that you do not have these conditions:

1) Free play in the bearing for the transducer drive coupling.

2) A drive shaft for the transducer drive coupling that is bent.



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SUBTASK 32-42-00-860-077

(3) Install the spin up wheel speed transducer anti-skid system adapter, SPL-1831, in a drill.

SUBTASK 32-42-00-710-004

(4) Do these steps for each transducer that you will test:

**WARNING** KEEP PERSONS AND EQUIPMENT AWAY FROM THRUST REVERSERS. THE OPERATION OF THE WHEEL SPEED TRANSDUCER CAN CAUSE AUTOMATIC OPERATION OF THE STANDBY HYDRAULIC PUMP AND SUDDEN THRUST REVERSER MOVEMENTS. IF YOU DO NOT DO THIS, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

(a) Use the spin up wheel speed transducer anti-skid system adapter, SPL-1831, and a variable speed drill to turn the wheel speed transducer between 250 and 2200 Revolutions Per Minute (RPM).

NOTE: We recommend that you keep the wheel speed below 60 knots. If the aircraft is not in this condition, the standby hydraulic pump can operate automatically.

(b) Make sure that the brake at the paired wheel releases (Table 502).

NOTE: The wheels are numbered from the left to the right.

**Table 502/32-42-00-993-802 ANTISKID TRANSDUCER PAIR WHEELS**

| TRANSDUCER | CONTROLLED WHEEL | PAIRED WHEEL |
|---|---|---|
| 1 | 1 | 4 |
| 2 | 2 | 3 |
| 3 | 3 | 2 |
| 4 | 4 | 1 |

(c) Stop the movement of the transducer as quickly as possible.

(d) Make sure that the controlled brake releases momentarily and then reapplies again in 5 to 10 seconds.

NOTE: You can see the brake apply and release if you watch the brake wear pins move.

SUBTASK 32-42-00-420-002

**CAUTION** DO NOT TIGHTEN THE HUBCAP BOLTS TOO MUCH. MAKE SURE THAT THE HUBCAP IS IN THE CORRECT POSITION BEFORE YOU TIGHTEN THE BOLTS. TOO MUCH TORQUE WILL CAUSE DAMAGE TO THE BOLTS AND THE HUBCAP.

(5) Do these steps to install the hubcap [1], hubcap [10] (Figure 503):

(a) Turn the antiskid transducer dog inside the wheel such that the drive on the hubcap [1] or hubcap [10] and the dog in the wheel will connect when the hubcap [1] or hubcap [10] are installed.

(b) Put the hubcap [1] or hubcap [10] in its position on the wheel.

1) Visually make sure that the hubcap [1] or hubcap [10] are flush with the wheel assembly.

a) Use a soft rubber mallet, STD-3906, to lightly tap the hubcap [1] or hubcap [10] to make it flush.



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(c) Install the washers [2] and bolts [3] to connect the hubcap [1] or hubcap [10] to the wheel and torque the bolts [3] to 65 ±15 in-lb (7 ±2 N·m).

(d) Install lockwire on the bolts [3].

(e) Do these steps for the outboard wheel:

1) Put the hubcap fairing [4] on the hubcap [1].

2) Turn the camlock fasteners [6] 1/4-turn to attach the hubcap fairing [4] to the hubcap [1].

**F. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-42-00-860-078

(1) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-42-00-860-079

(2) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-42-00-860-080

(3) Release the parking brake.

**——— END OF TASK ———**

**TASK 32-42-00-740-801**

## 9. Antiskid/Autobrake Control Unit BITE Procedure

(Figure 504)

**A. General**

(1) The antiskid/autobrake control unit (AACU) supplies skid control, automatic braking signals and monitors operation of the brake system.

(2) The AACU is on the E1-3 shelf in the electronic equipment bay.

(3) This Built-In-Test Equipment (BITE) procedure contains four tasks:

(a) A memory recall test (fault history)

(b) A display test

(c) An Antiskid/Autobrake control test

(d) A reset test

**B. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |
| 34-21-00-820-801 | Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201) |


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(Continued)

| Reference | Title |
|---|---|
| 34-21-00-820-802 | Air Data Inertial Reference System - Alignment from the ISDU (P/B 201) |
| 34-21-00-820-803 | Air Data Inertial Reference System - Automatic Alignment from the IRS MSU (P/B 201) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |

**D. Access Panels**

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

**E. Prepare for the Procedure(s)**

SUBTASK 32-42-00-010-001

(1) Open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

**F. Memory Recall Test (Fault History)**

SUBTASK 32-42-00-740-001

(1) Do these BIT Test steps on the AACU front panel for the memory recall:

(a) Momentarily push the PRESS/TEST switch to the BIT position.

(b) If there are no faults, then the display will show TEST END.

(c) If there are faults in the memory, then the display will show the first fault message.

1) Make a record of the faults.

2) Push the PRESS/TEST-BIT switch to the BIT position again to look for more faults until the display show TEST END.

NOTE: If you do not set the PRESS/TEST-BIT switch to the BIT position in 45 seconds, the test will end and the fault will be removed from the display. The AACU will go back to its monitor mode.

**G. Display Test**

SUBTASK 32-42-00-740-005

(1) Do the steps that follow for the display test:

(a) Set the PRESS/TEST switch on the AACU front panel to the PRESS/TEST position.

(b) Make sure that all display segments on the AACU display come on in a checkboard pattern.

(c) Make sure that the ANTI SKID INOP light in the flight compartment also comes on with the display test.

NOTE: The display test function is automatically stopped after 5 seconds.



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## H. Antiskid/Autobrake Control Test

SUBTASK 32-42-00-480-017

**WARNING** OBEY THE PROCEDURE FOR THE INSTALLATION OF THE DOWNLOCK PINS. IF YOU MOVE THE CONTROL LEVER FOR THE LANDING GEAR TO THE UP POSITION, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-42-00-480-018

(2) Make sure that the tires have chocks installed around them (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 32-42-00-860-091

(3) Release the parking brake.

SUBTASK 32-42-00-790-005

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Prepare hydraulic systems A and B. Do this task: (Hydraulic System A or B Pressurization, TASK 29-11-00-860-801).

SUBTASK 32-42-00-860-092

(5) Make sure that the two thrust levers are in the IDLE position.

SUBTASK 32-42-00-860-093

(6) Make sure that the landing gear control lever is in the DN position.

SUBTASK 32-42-00-860-094

(7) Make sure that the spoilers are stowed.

SUBTASK 32-42-00-860-095

(8) Make sure that the left and right Air Data Inertial Reference System (ADIRS)s are in the NAV mode.

(a) Align the ADIRS. To do this, do this task: (Air Data Inertial Reference System - Alignment from the ISDU, TASK 34-21-00-820-802 or Air Data Inertial Reference System - Alignment from the FMC CDU, TASK 34-21-00-820-801 or Air Data Inertial Reference System - Automatic Alignment from the IRS MSU, TASK 34-21-00-820-803).

SUBTASK 32-42-00-860-097

(9) Make sure that the speedbrake lever is in the DOWN position.

SUBTASK 32-42-00-860-098

(10) Make sure that the airplane is in the ground mode. To put the airplane in the ground mode, do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 32-42-00-740-006

(11) Do these steps for the antiskid/autobrake control test:

(a) Make sure that BRAKE TEST selector switch on the AACU is in the NORM position.

(b) Push and release the RESET switch on the AACU.



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(c) Set the autobrake selector switch as follows:

1) Set the autobrake switch to the OFF position.

2) Set the autobrake switch to position 1.

NOTE: The AUTO BRAKE DISARM amber lights will stay on if the autobrake is disabled or the above arming conditions are not met.

(d) Push and hold the ENABLE/VERIFY switch on the AACU.

(e) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.

NOTE: The ANTISKID INOP and AUTO BRAKE DISARM amber lights in the flight compartment must be on briefly during this test.

(f) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

(g) Make sure that the display shows TEST END. Do this step to complete the task:

1) Remove hydraulic power from hydraulic systems A and B. Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(h) If the display shows BRK ####, then the test was started but not correctly executed. You must do the test again and make sure that all the initial conditions are completed.

(i) If there are existing faults, then the display on the AACU will show the first fault message. Do these steps:

1) Make a record of the faults.

2) Push the VERIFY switch to look for more faults until the display shows TEST END.

NOTE: The display shows TEST END when the test is completed. If you do not push the VERIFY switch in 45 seconds, the test will end and the fault will be removed from the display.

3) Remove hydraulic power from hydraulic systems A and B. To remove it, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

4) If necessary, go to the Fault Isolation Manual and do the Fault Isolation Procedure for each Maintenance Message.

## I. Reset Test

**SUBTASK 32-42-00-740-007**

(1) Do this step to erase all faults in the fault storage memory:

(a) Press push-button RESET on the AACU front panel.

(b) Make sure that a message MEM CLR shows for 2 seconds.

NOTE: The AACU will go through its Memory Clear procedure to make sure that there is no active fault. If the Line Replaceable Unit (LRU) is serviceable correctly, the AACU will then erase the fault from its storage memory.

## J. Put the Airplane Back to its Usual Condition

**SUBTASK 32-42-00-410-001**

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |



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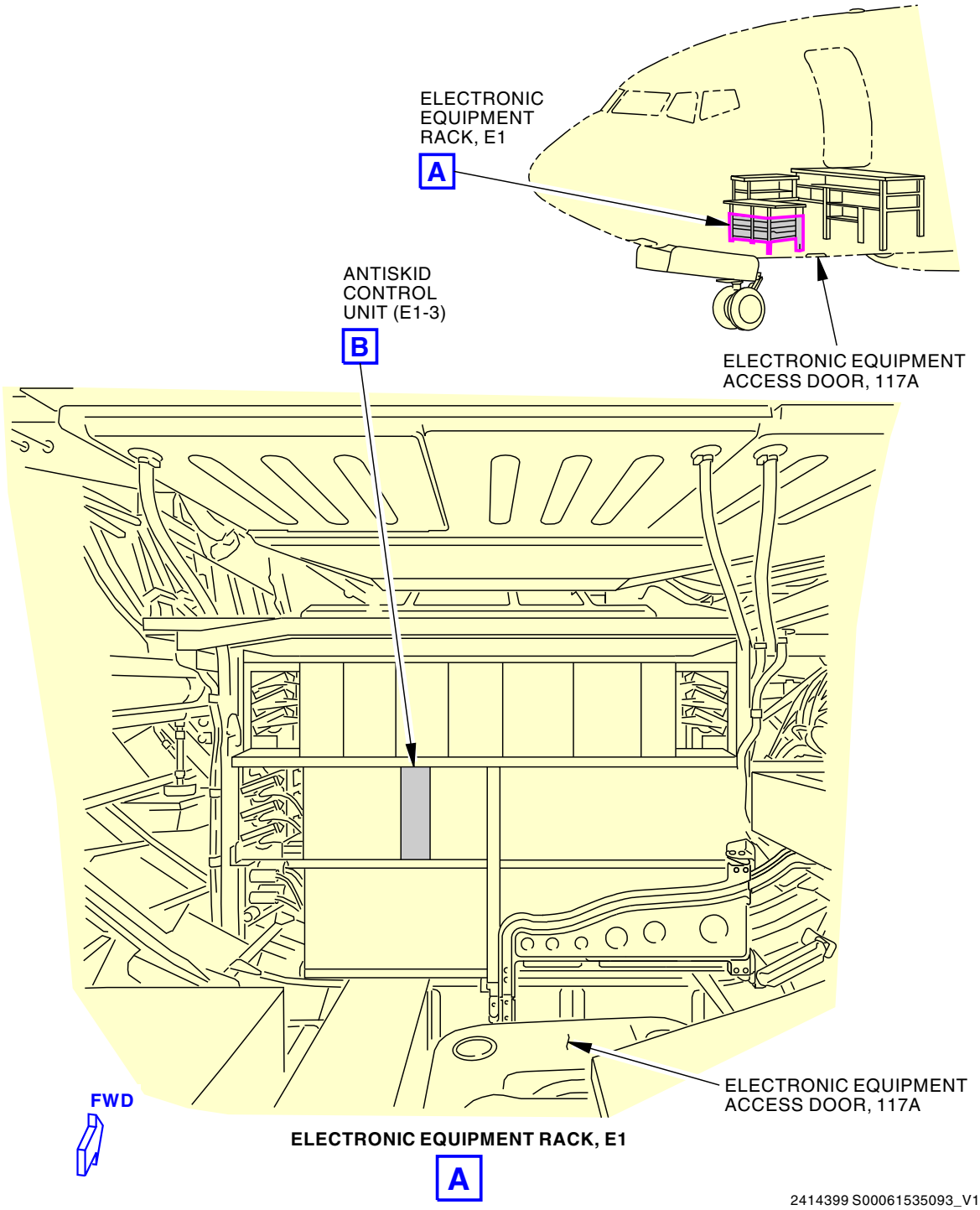
SUBTASK 32-42-00-860-081

(2) Set the parking brake.

END OF TASK



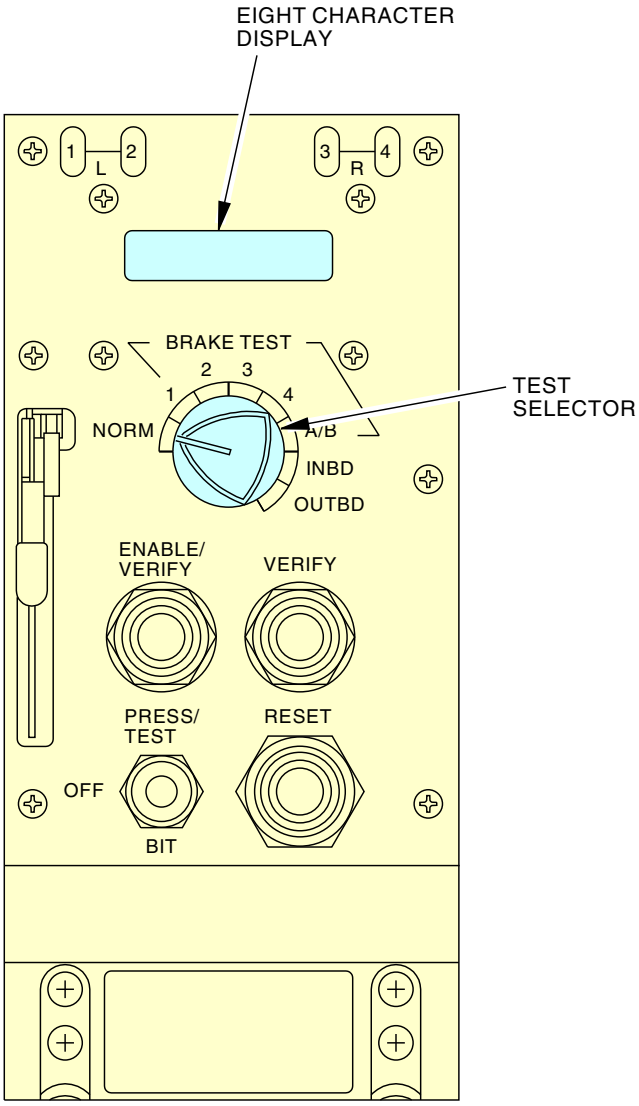
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**Antiskid/Autobrake Control Unit**
**Figure 504/32-42-00-990-804 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**[1] ANTISKID CONTROL UNIT**

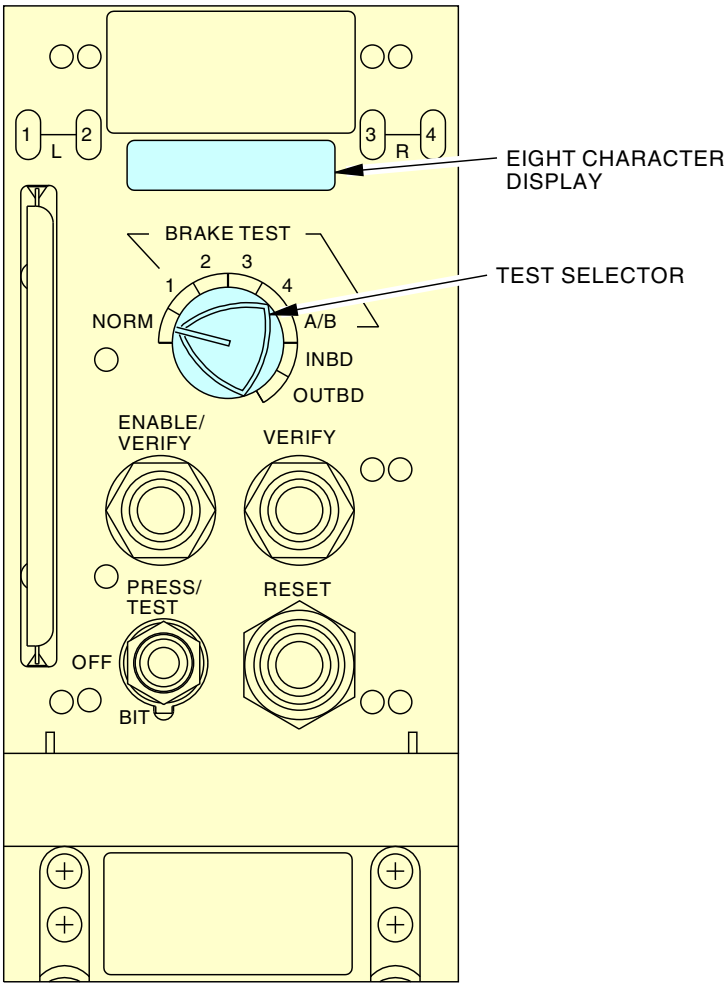
B

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**Antiskid/Autobrake Control Unit**
**Figure 504/32-42-00-990-804 (Sheet 2 of 3)**



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**[1] ANTISKID CONTROL UNIT**

**B**

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**Antiskid/Autobrake Control Unit**
**Figure 504/32-42-00-990-804 (Sheet 3 of 3)**



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## ANTISKID WHEEL SPEED TRANSDUCER - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the antiskid wheel speed transducer

(2) An installation of the antiskid wheel speed transducer.

**TASK 32-42-11-000-801**

### 2. Antiskid Wheel Speed Transducer Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### C. Prepare for the Removal

**SUBTASK 32-42-11-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-42-11-860-001**

(2) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

#### D. Antiskid Wheel Speed Transducer Removal

**SUBTASK 32-42-11-020-001**

(1) Remove the hubcap [3]:

(a) For an outboard wheel, turn the eight CAM-LOCs [4] fasteners 1/4 turn to disconnect the outboard hubcap fairing [5] from the hubcap [3].

(b) Remove the bolts [6] and the washers [7] to disconnect the hubcap [3] from the wheel assembly [1].

(c) Remove the hubcap [3] from the wheel assembly [1].

**SUBTASK 32-42-11-020-005**

(2) Remove the in-axle adapter [15]:



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(a) Remove the nuts [8], washers [9], and bolts [10] that hold the in-axle adapter [15] to the axle.

(b) Carefully pull the in-axle adapter [15] out from the wheel assembly [1].

(c) Disconnect the electrical connectors [12] from the in-axle adapter [15] and transducer [14].

1) Identify each electrical connector [12] and wire with a label to record its initial position from the inboard or the outboard transducer [14].

**SUBTASK 32-42-11-020-006**

(3) Do these steps to remove the transducer [14] from the in-axle adapter [15]:

NOTE: The transducer must be removed from the back side of the in-axle adapter.

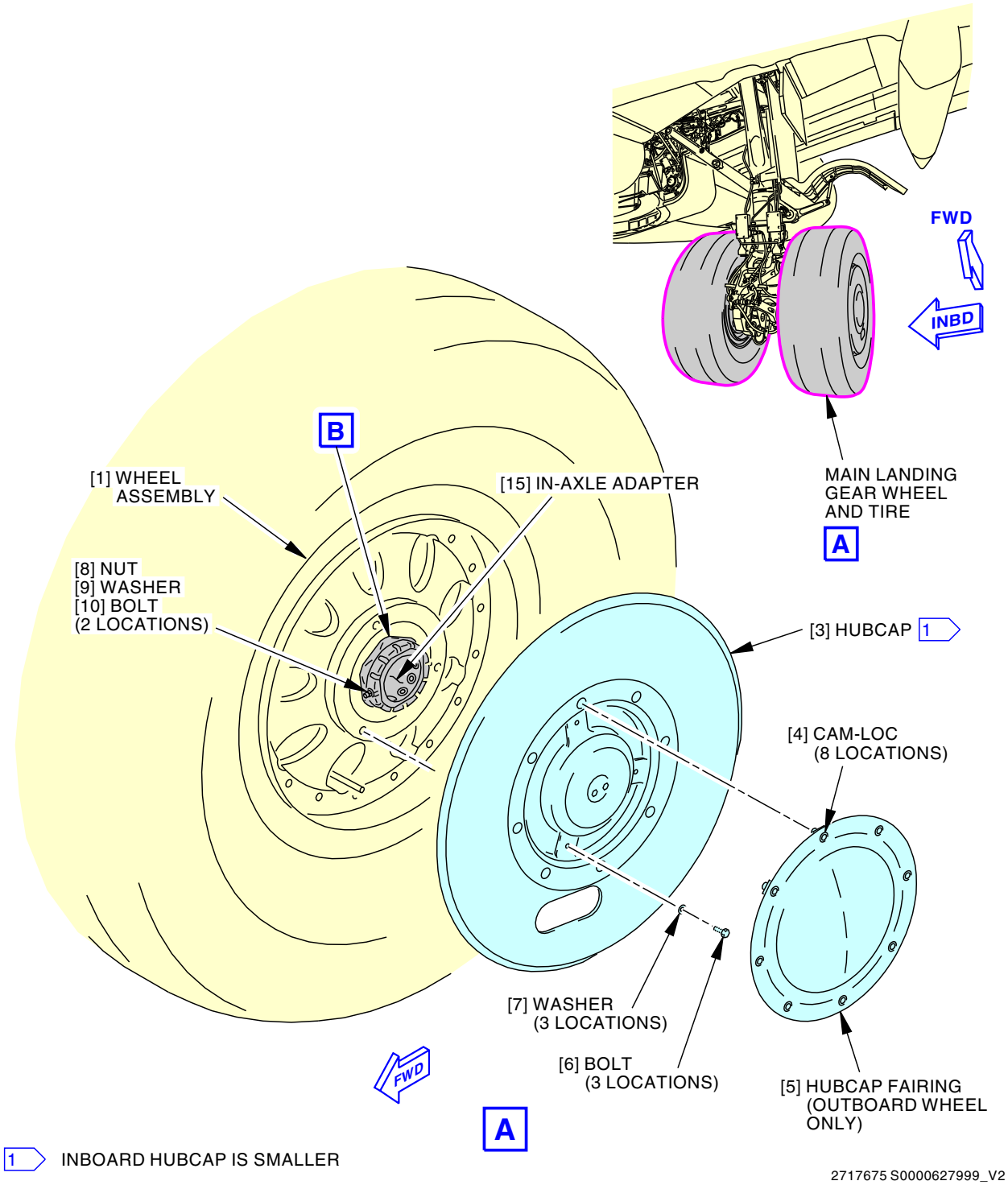
(a) Remove the screws [17] and locking [16] that hold the transducer [14] to the in-axle adapter [15].

(b) Remove the transducer [14] from the back side of the in-axle adapter [15].

**——— END OF TASK ———**



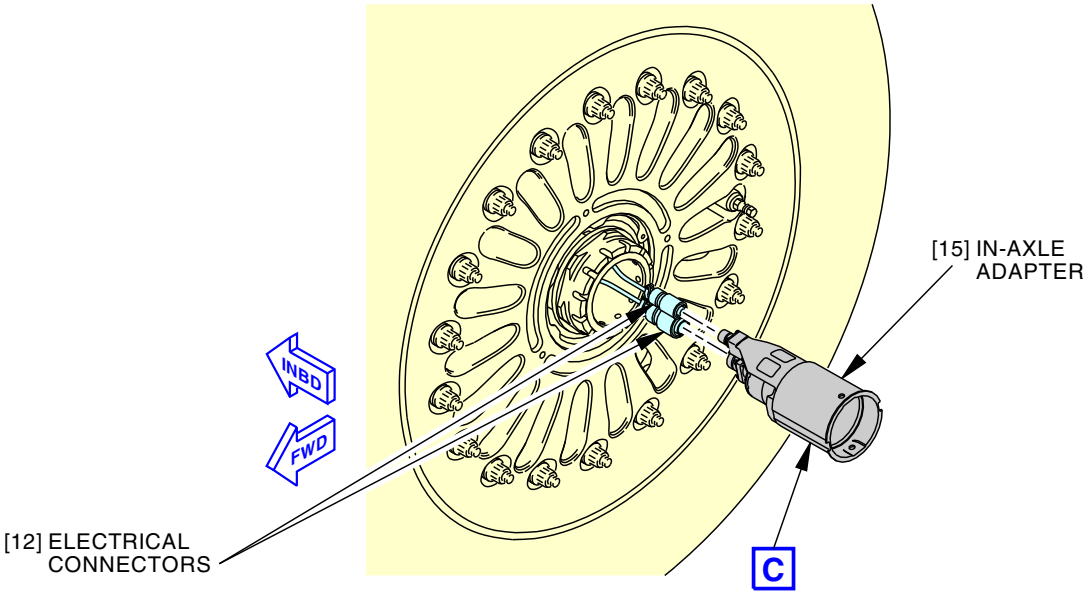
ECCN 9E991 BOEING PROPRIETARY - See title page for details



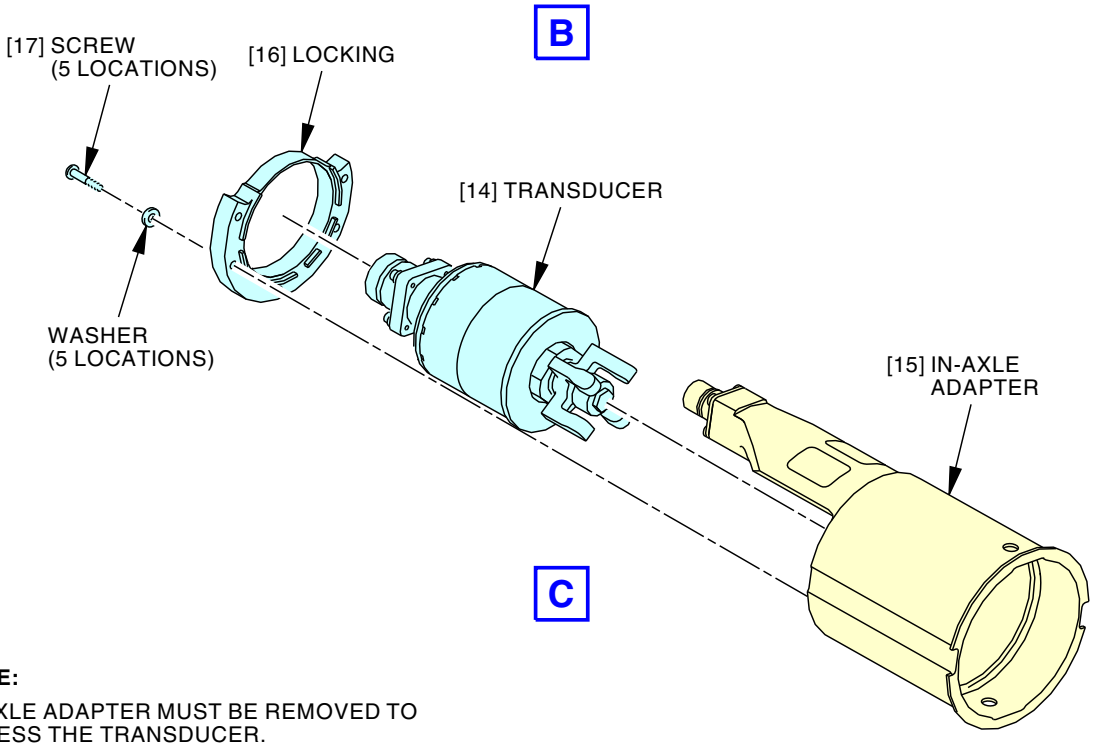

**Antiskid Wheel Speed Transducer Installation**
**Figure 401/32-42-11-990-801 (Sheet 1 of 2)**



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**MAIN LANDING GEAR IN-AXLE ADAPTER (4 LOCATIONS) (EXAMPLE)**




**NOTE:**

IN-AXLE ADAPTER MUST BE REMOVED TO ACCESS THE TRANSDUCER.

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**Antiskid Wheel Speed Transducer Installation**
**Figure 401/32-42-11-990-801 (Sheet 2 of 2)**



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**TASK 32-42-11-400-801**

**3. Antiskid Wheel Speed Transducer Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 20-60-07-910-802 | Inspection, Cleaning and Sealing of Electrical Connectors (P/B 201) |
| 32-42-00-710-803 | Transducer Operational Test (P/B 501) |

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-3906 | Mallet - Rubber |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 14 | Transducer | 32-42-11-01-060 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**F. Antiskid Wheel Speed Transducer Installation**

SUBTASK 32-42-11-860-006

(1) Make sure that these circuit breakers are open and have safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-42-11-420-007

(2) Install the transducer [14] in the in-axle adapter [15]:

(a) Put the transducer [14] in its position in the in-axle adapter [15].

NOTE: The transducer is installed from the back side of the in-axle adapter.

(b) Install the locking [16] and screws [17] to hold the transducer [14] in place.

SUBTASK 32-42-11-420-009

(3) Connect the electrical connector [12] to the transducer [14] and in-axle adapter [15]:



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**WARNING** DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) Do this task: Inspection, Cleaning and Sealing of Electrical Connectors, TASK 20-60-07-910-802.

(b) Wind the electrical wires so that the overall coil diameter is approximately 50% of the internal diameter of the landing gear axle diameter.

NOTE: If not coiled, the wire bundle section inside the axle is somewhat stiff and may result in hard contact with the inside of the axle.

(c) Connect the electrical connectors [12] to the back of the transducer [14] and in-axle adapter [15].

**SUBTASK 32-42-11-420-008**

(4) Connect the in-axle adapter [15] to the wheel assembly [1]:

(a) Install the bolts [10] with the head to the inside of the axle.

(b) Install the washers [9] and nuts [8].

**SUBTASK 32-42-11-860-004**

(5) Do this task: Transducer Operational Test, TASK 32-42-00-710-803.

**SUBTASK 32-42-11-420-003**

**CAUTION** DO NOT TIGHTEN THE HUBCAP BOLTS TOO MUCH. MAKE SURE THAT THE HUBCAP IS IN THE CORRECT POSITION BEFORE YOU TIGHTEN THE BOLTS. TOO MUCH TORQUE WILL CAUSE DAMAGE TO THE BOLTS AND THE HUBCAP.

(6) Install the hubcap [3]:

(a) Turn the transducer drive coupling inside the wheel assembly [1] such that the drive on the hubcap [3] and dog in the wheel will connect when the hubcap [3] is installed.

(b) Put the hubcap [3] in its position on the wheel assembly [1] and turn it if it is necessary to engage the drive on the hubcap [3] with the drive coupling on the transducer [14].

(c) Make sure that the hubcap [3] is flush with the wheel assembly [1].

1) Use a rubber mallet, STD-3906, to lightly tap the hubcap [3] to make it flush.

(d) Install the bolts [6] and washers [7] to attach the hubcap [3] to the wheel assembly [1].

(e) Tighten the bolts [6] to 65 ±15 in-lb (7 ±2 N·m).

(f) Install MS20995C32 lockwire, G01048, on the bolts [6].

(g) Do these steps for the outboard wheel:

1) Put the hubcap fairing [5] on the hubcap [3].

2) Turn the CAM-LOCs [4] fasteners 1/4 turn to attach the hubcap fairing [5] to the hubcap [3].


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SUBTASK 32-42-11-860-005

(7) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## ANTISKID/AUTOBRAKE CONTROL UNIT - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the antiskid/autobrake control unit

(2) An installation of the antiskid/autobrake control unit.

B. The antiskid/autobrake control unit [1] is in the electronic equipment rack, E1-3, which is in the left side of the main equipment center.

**TASK 32-42-21-000-801**

### 2. Antiskid/Autobrake Control Unit Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 20-10-07-000-801 | E/E Box Removal (P/B 401) |
| 20-40-12-000-802 | ESDS Handling for Metal Encased Unit Removal (P/B 201) |
| 20-40-12-400-803 | Conductive Dust Cap and Connector Cover Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |

#### C. Prepare for the Removal

**SUBTASK 32-42-21-860-001**

(1) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 9 | C00440 | FLIGHT CONTROL AUTO SPEED BRAKE |
| B | 11 | C04040 | GROUND SPOILER CONTROL |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

**WARNING** KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT SPOILERS. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU OPEN/CLOSE THESE CIRCUIT BREAKERS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 10 | C04032 | SPOILER CONTROL ELEC PWR A |
| C | 12 | C04033 | SPOILER CONTROL ELEC PWR B |


ECCN 9E991 BOEING PROPRIETARY - See title page for details

## D. Antiskid/Autobrake Control Unit Removal

**SUBTASK 32-42-21-840-001**

**CAUTION** DO NOT TOUCH THE CONTROL UNIT BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CONTROL UNIT.

(1) Do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

**SUBTASK 32-42-21-020-001**

(2) To remove the antiskid/autobrake control unit [1] from the airplane, do this task: E/E Box Removal, TASK 20-10-07-000-801.

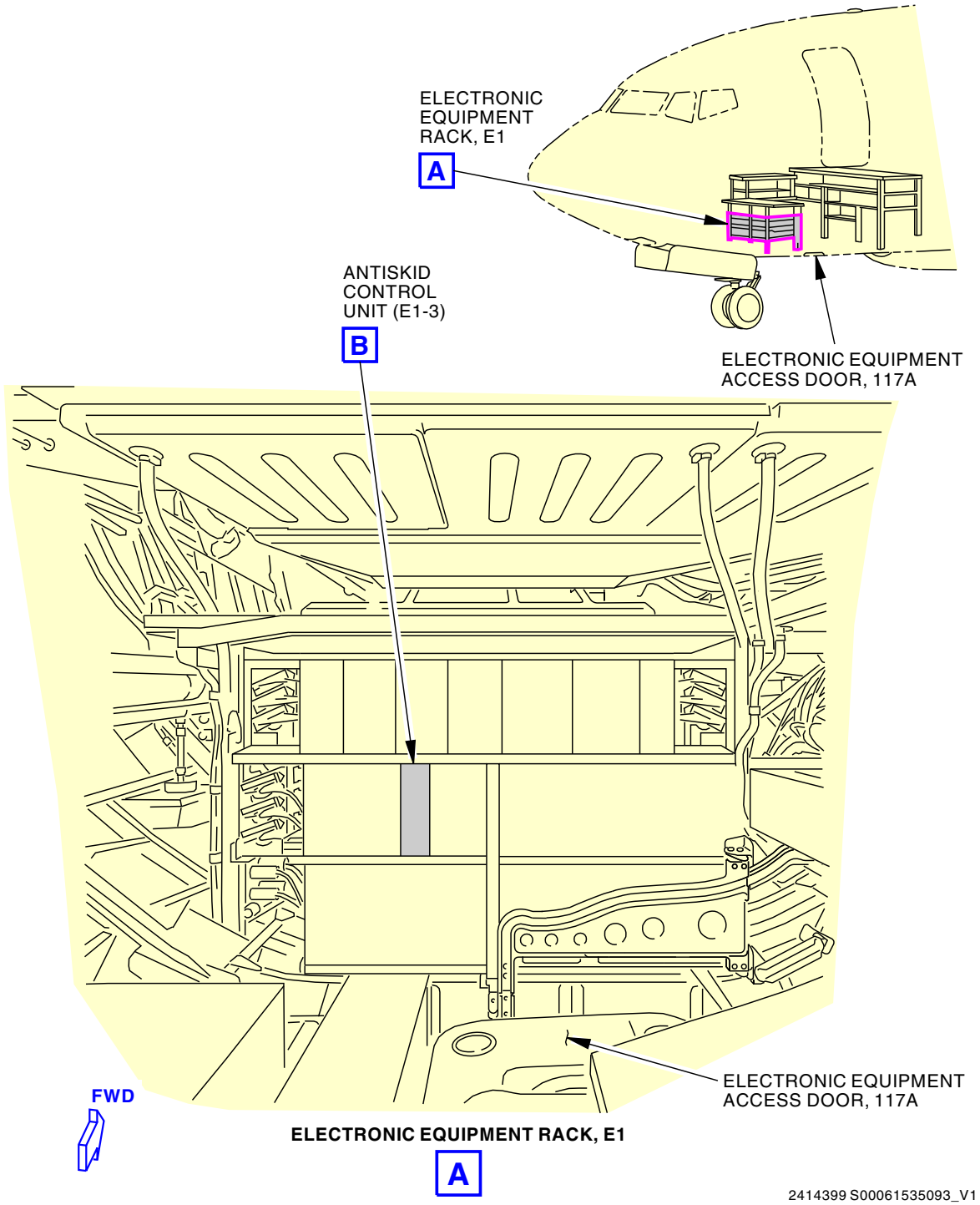
**SUBTASK 32-42-21-840-002**

(3) Do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-803.

**——— END OF TASK ———**



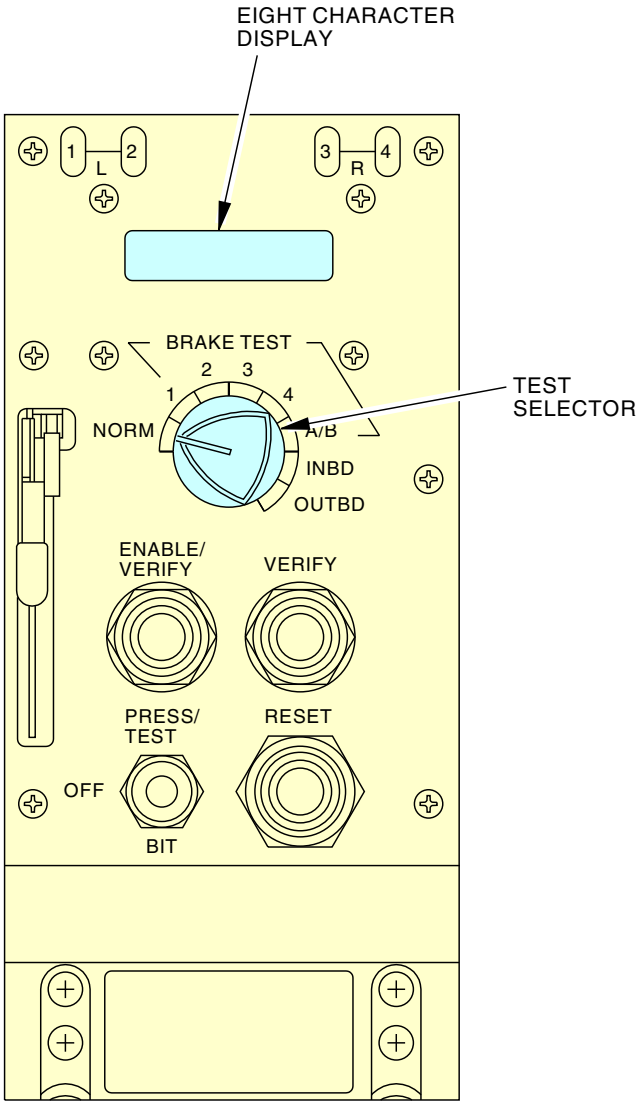
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Antiskid Control Unit Installation**
**Figure 401/32-42-21-990-801 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**[1] ANTISKID CONTROL UNIT**

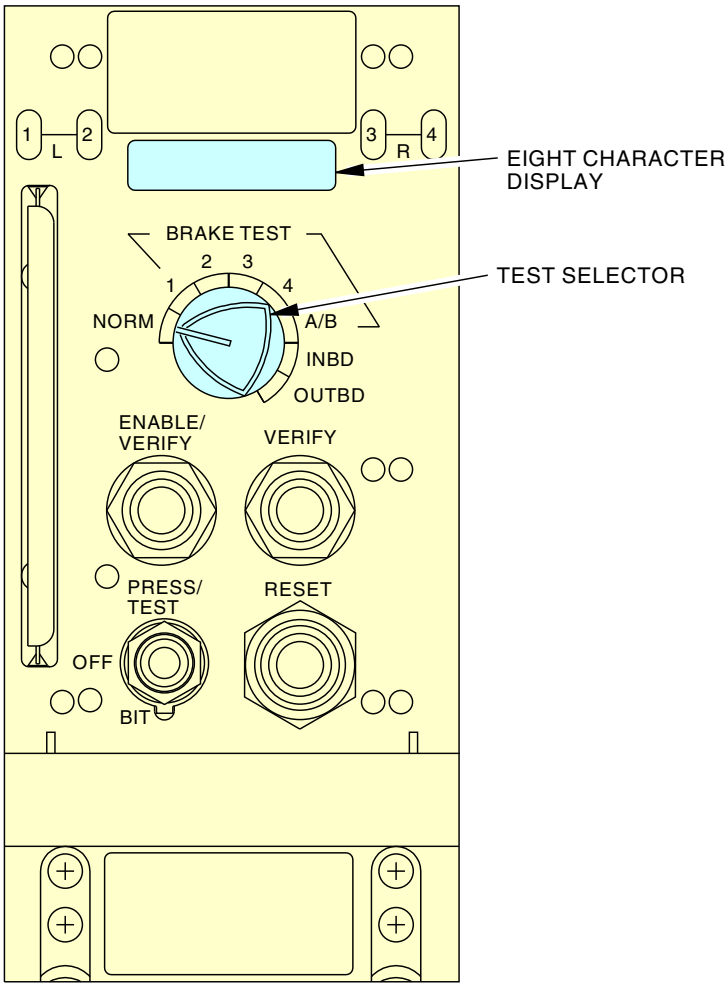
**B**

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**Antiskid Control Unit Installation**
**Figure 401/32-42-21-990-801 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**[1] ANTISKID CONTROL UNIT**

**B**

2788318 S0000633984_V1

**Antiskid Control Unit Installation**
**Figure 401/32-42-21-990-801 (Sheet 3 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-42-21-400-801**

## 3. Antiskid/Autobrake Control Unit Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 20-10-07-400-801 | E/E Box Installation (P/B 401) |
| 20-40-12-000-803 | Conductive Dust Cap and Connector Cover Removal (P/B 201) |
| 20-40-12-400-802 | ESDS Handling for Metal Encased Unit Installation (P/B 201) |
| 32-42-00-720-801 | Antiskid/Autobrake Control Unit Operational Test (P/B 501) |

### B. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Unit | 32-42-21-03-005 | SIA 001-003 |
| | | 32-42-21-03-095 | SIA 004-999 |

### C. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |

### D. Antiskid/Autobrake Control Unit Installation

**SUBTASK 32-42-21-840-003**

**CAUTION** DO NOT TOUCH THE CONTROL UNIT BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CONTROL UNIT.

(1) Do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

**SUBTASK 32-42-21-840-004**

(2) Do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-40-12-000-803.

**SUBTASK 32-42-21-420-001**

(3) To install the antiskid/autobrake control unit [1], do this task: E/E Box Installation, TASK 20-10-07-400-801.

**SUBTASK 32-42-21-860-002**

(4) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 9 | C00440 | FLIGHT CONTROL AUTO SPEED BRAKE |
| B | 11 | C04040 | GROUND SPOILER CONTROL |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |



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**WARNING** KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT SPOILERS. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU OPEN/CLOSE THESE CIRCUIT BREAKERS. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-5**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 10 | C04032 | SPOILER CONTROL ELEC PWR A |
| C | 12 | C04033 | SPOILER CONTROL ELEC PWR B |

## E. Antiskid/Autobrake Control Unit Installation Test

**SUBTASK 32-42-21-710-001**

(1) Do this task: Antiskid/Autobrake Control Unit Operational Test, TASK 32-42-00-720-801.

**END OF TASK**



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## ANTISKID VALVE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the antiskid valve

(2) Installation of the antiskid valve.

**SIA 001 PRE SB 737-32-1527**

B. There are four normal antiskid valves, one for each brake, located on the aft wall of the main landing gear wheel well.

C. There are two alternate antiskid valves, one for each main landing gear, located on the outboard walls of the main landing gear wheel well.

D. This procedure is applicable for all six antiskid valves.

E. In this procedure the antiskid valve will be referred to as the antiskid control valve [6].

**SIA 002-999; SIA 001 POST SB 737-32-1527**

F. There are two normal Unigain antiskid valves, located on the aft wall of the main landing gear wheel well.

G. There are two alternate antiskid valves, one for each main landing gear, located on the outboard walls of the main landing gear wheel well.

H. This procedure is applicable for all four antiskid valves.

I. In this procedure the antiskid valve will be referred to as the antiskid control valve [6].

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**TASK 32-42-31-000-801**

### 2. Antiskid Valve Removal

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |



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## D. Prepare for the Removal

SUBTASK 32-42-31-480-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-42-31-860-001

(2) For the normal (system B) and the alternate (system A) hydraulic system, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-42-31-480-002

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-42-31-860-002

(4) Release the parking brake.

SUBTASK 32-42-31-840-001

(5) Operate the brake pedals until the gage at the brake accumulator shows no change in the pressure.

NOTE: You will have to operate the brake pedals approximately 12 times to fully release the pressure from the accumulator.

SUBTASK 32-42-31-860-003

(6) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

## E. Antiskid Valve Removal

**CAUTION** BE CAREFUL WHEN YOU DISCONNECT THE HYDRAULIC LINES, UNIONS, FILTERS, AND CHECK VALVES FROM THE ANTISKID VALVES. DAMAGE TO THE ANTISKID VALVES CAN OCCUR.

SUBTASK 32-42-31-020-001

(1) Disconnect the electrical connector [14] from the applicable normal antiskid control valve [6].

SUBTASK 32-42-31-020-002

(2) For the LWR Normal antiskid control valve [6], do these steps:

(a) Disconnect the brake hydraulic line [20] from the union [12].

(b) Disconnect the return hydraulic lline [21] and return hydraulic line [22].

(c) Disconnect the pressure hydraulic line [23] from the filter [4].

SUBTASK 32-42-31-020-003

(3) For the UPR Normal antiskid control valve [6], do these steps:

(a) Disconnect the brake hydraulic line [24] from the union [12].



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**SIA 001 PRE SB 737-32-1527 (Continued)**

(b) Disconnect the return hydraulic line [22] from the union [12].

(c) Disconnect the pressure hydraulic line [23] and pressure hydraulic line [25].

**SUBTASK 32-42-31-020-014**

(4) For the Alternate antiskid control valve [6] do these steps:

(a) Disconnect the brake hydraulic line [26] from the union [12].

(b) Disconnect the return hydraulic line [27] from the check valve [13].

(c) Disconnect the pressure hydraulic line [28] and pressure hydraulic line [29].

**SUBTASK 32-42-31-420-001**

(5) Install caps/plugs, STD-14686, on the hydraulic lines.

**SUBTASK 32-42-31-020-004**

(6) Remove the bolts [8] and washers [7] to remove the antiskid control valve [6] from the airplane.

**SUBTASK 32-42-31-020-005**

(7) If the Normal replacement antiskid control valve [6] does not have hydraulic fittings installed, do these steps:

(a) Remove the unions [12] and the packings [5].

(b) Remove the filter [11] and the packing [10].

(c) Remove the filter [4] and the packing [5].

(d) Discard the packings [5] and packing [10].

**SUBTASK 32-42-31-020-012**

(8) If the Alternate replacement antiskid control valve [6] does not have hydraulic fittings installed, do these steps:

(a) Remove the union [12] and the packing [5].

(b) Remove the filter [11] and the packing [10].

(c) Remove the check valve [13] and the packing [5].

(d) Remove the filter [4] and the packing [5].

(e) Discard the packings [5] and packing [10].

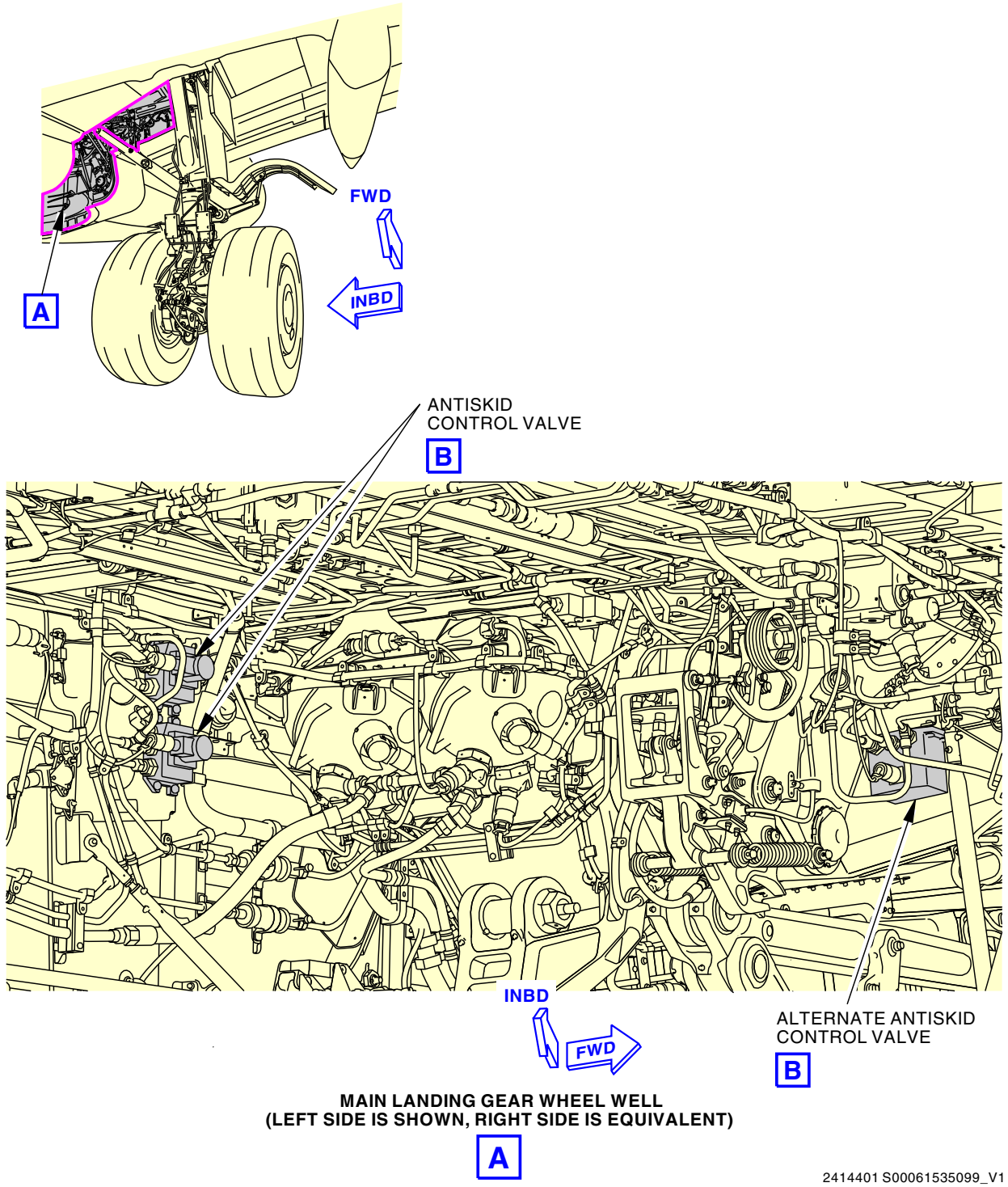
**SUBTASK 32-42-31-480-003**

(9) Install caps/plugs, STD-14686, in the ports of the antiskid control valve [6].

**——— END OF TASK ———**



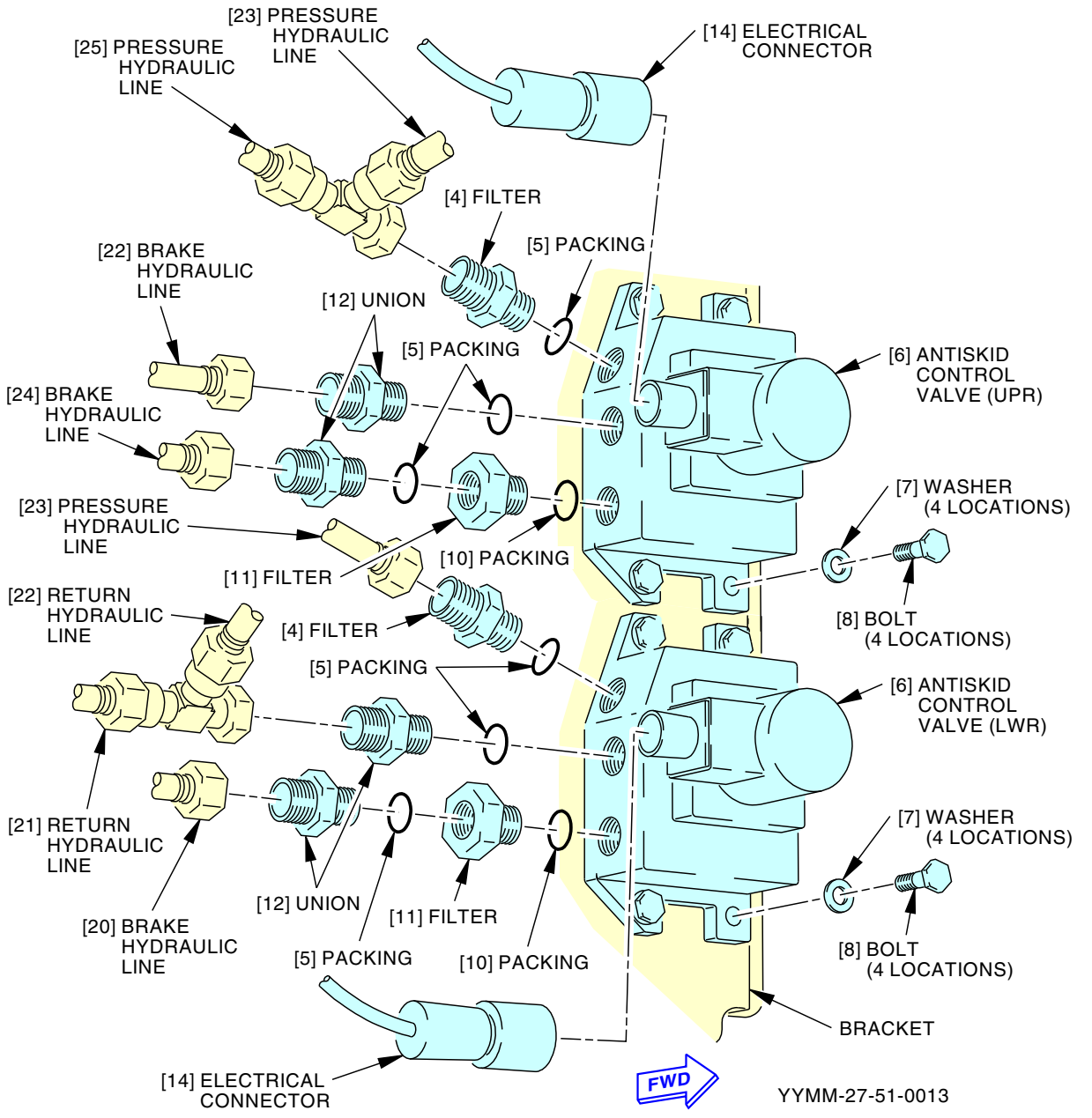
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Antiskid Valve Installation**
**Figure 401/32-42-31-990-801 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**ANTISKID CONTROL VALVE (NORMAL)**

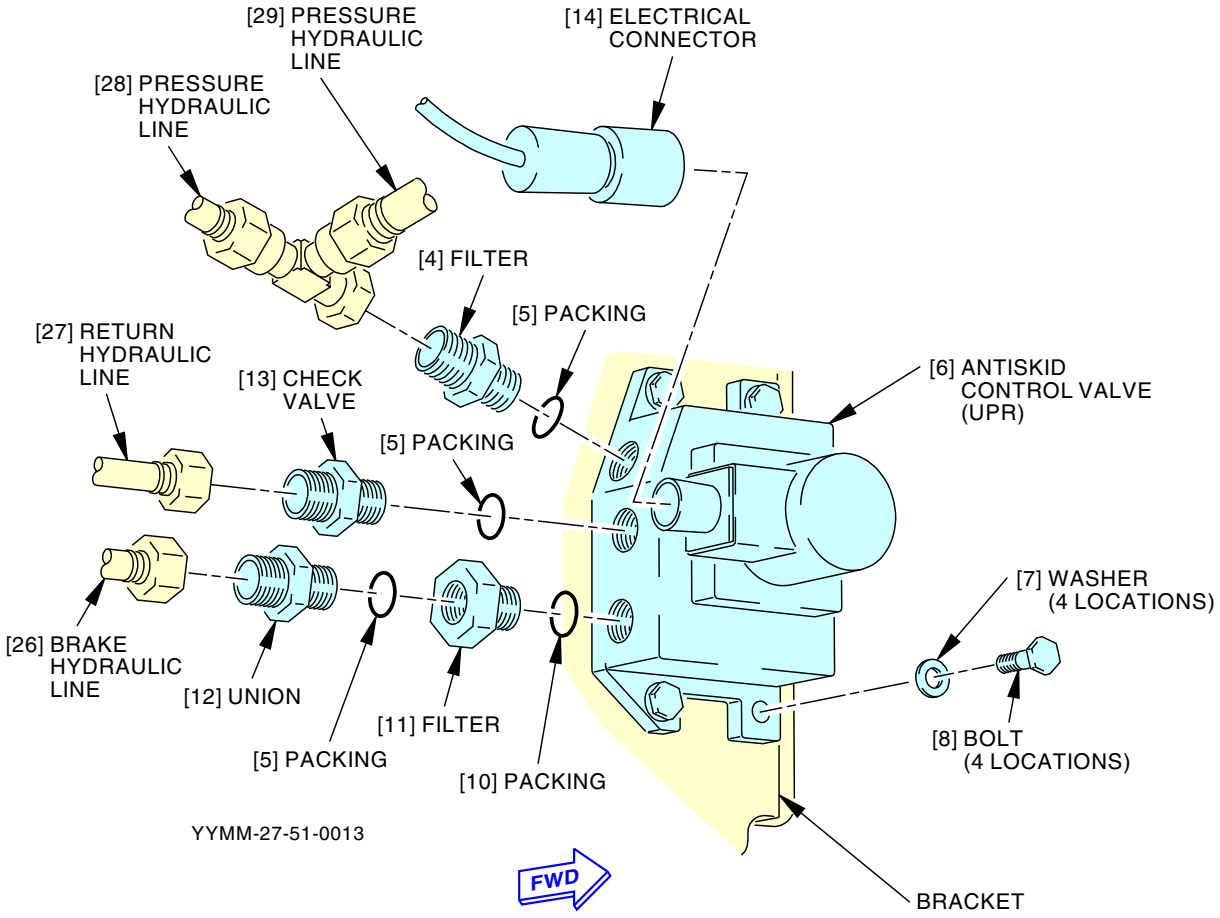
**B**

2414402 S00061535100_V2

**Antiskid Valve Installation**
**Figure 401/32-42-31-990-801 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**ANTISKID CONTROL VALVE (ALTERNATE)**

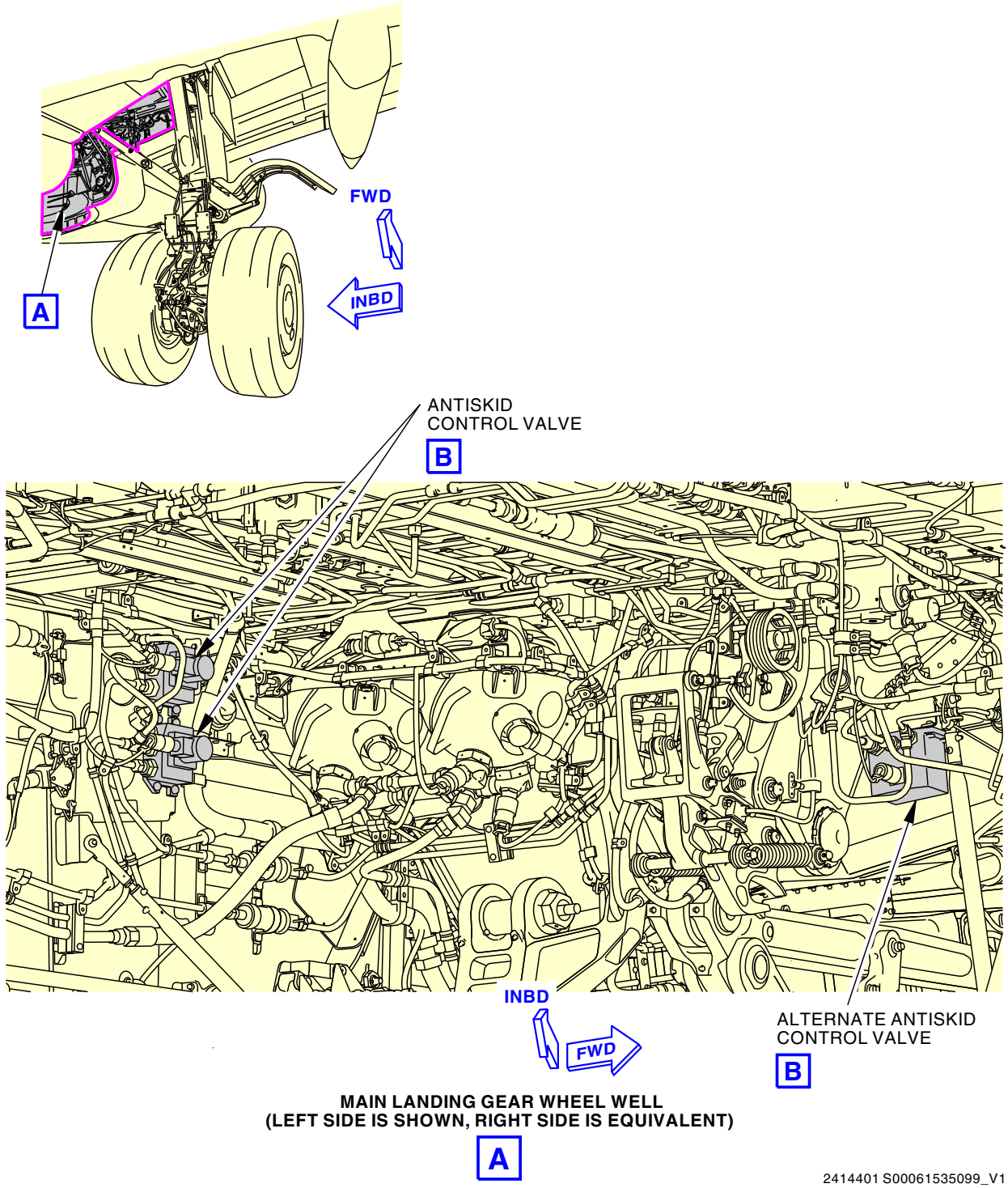
**B**

2578377 S0000620759_V1

**Antiskid Valve Installation**
**Figure 401/32-42-31-990-801 (Sheet 3 of 3)**



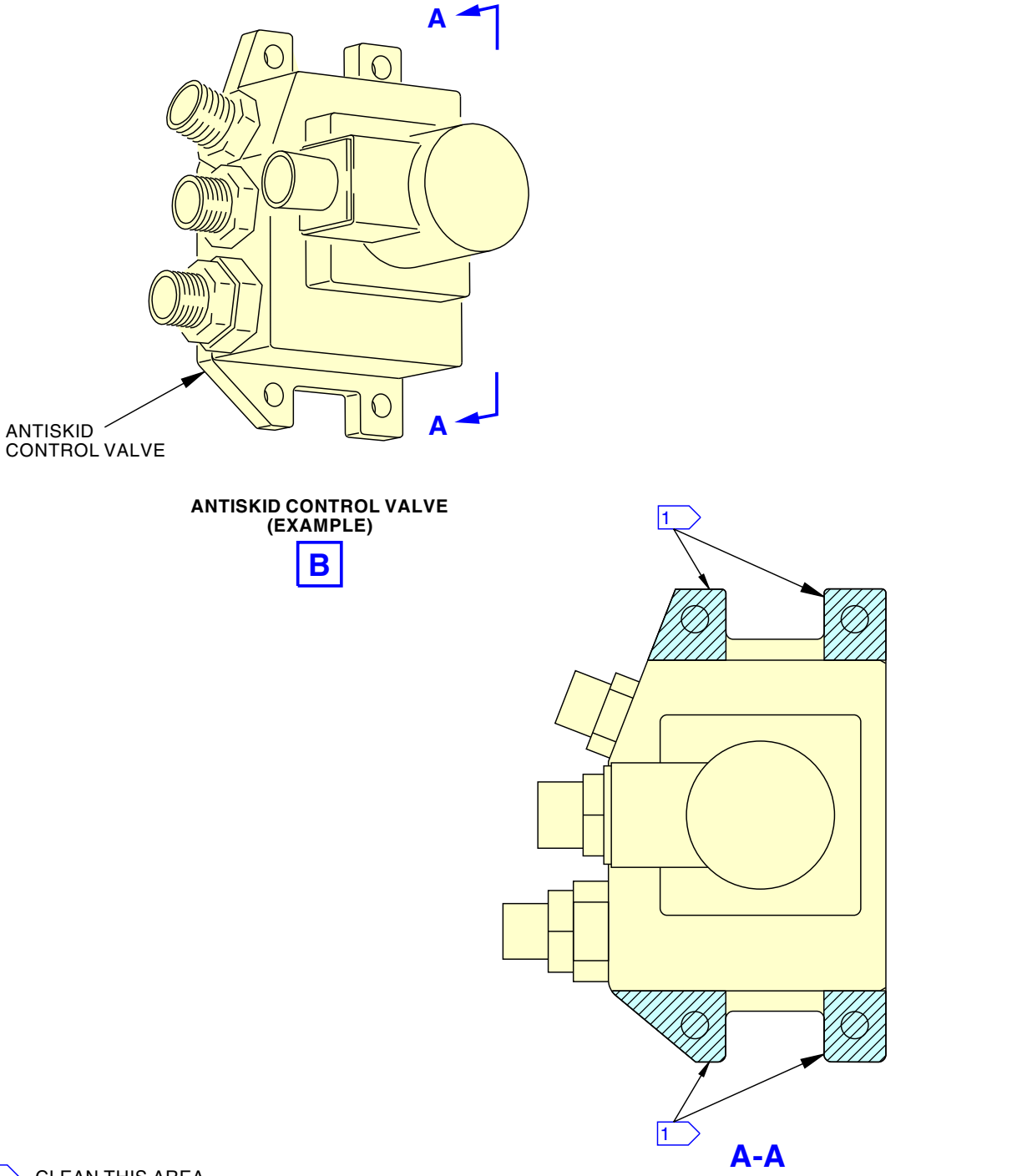
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Cleaning of the Antiskid Valve**
**Figure 402/32-42-31-990-802 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Cleaning of the Antiskid Valve**
**Figure 402/32-42-31-990-802 (Sheet 2 of 2)**



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SIA 001 PRE SB 737-32-1527 (Continued)

TASK 32-42-31-400-801

3. Antiskid Valve Installation

(Figure 401)

A. References

| Reference | Title |
|---|---|
| 20-10-34-120-801 | Hand Clean Metal Surfaces with Abrasives (P/B 701) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-41-00-870-802 | Normal (System B) Hydraulic Brake System Bleeding (P/B 201) |
| 32-41-00-870-803 | Alternate (System A) Hydraulic Brake System Bleeding (P/B 201) |
| 32-42-00-720-803 | Antiskid Valve Operational Test (P/B 501) |
| 51-22-00-390-806 | Fillet Seal Application (P/B 201) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |


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**SIA 001 PRE SB 737-32-1527 (Continued)**

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Packing | 32-42-31-01-040 | SIA 001 |
| | | 32-42-31-02-050 | SIA 001 |
| 6 | Antiskid control valve | 32-42-31-01-015 | SIA 001 |
| | | 32-42-31-01-045 | SIA 001 |
| 10 | Packing | 32-42-31-02-040 | SIA 001 |

**E. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**F. Antiskid Valve Installation**

**SUBTASK 32-42-31-080-001**

(1) Remove the caps/plugs, STD-14686, from the ports of the antiskid control valve [6].

**SUBTASK 32-42-31-420-002**

(2) If the replacement antiskid control valve [6] does not have hydraulic fittings installed, do these steps:

(a) Lubricate the union [12], check valve [13], filter [4], filter [11], packing [10], and packings [5] for the antiskid control valve [6] with hydraulic fluid, D00153.

(b) Install the packings [5] on the hydraulic fittings and install the packing [10] on the filter [11].

(c) Install the fittings in the antiskid control valve [6]:

1) Install the filter [11] in the brake port of the antiskid control valve [6].

2) Install the union [12] in the brake port of the antiskid control valve [6].

3) Install the fitting in the return port:

a) For the Normal antiskid control valve [6], install the union [12] in the return port of the normal antiskid control valve [6]

b) For the Alternate antiskid control valve [6], install the check valve [13] in the return port of the alternate antiskid control valve [6].

4) Install the filter [4] in the pressure port of the antiskid control valve [6].

**SUBTASK 32-42-31-100-001**

(3) Do the steps below to help get a good electrical bond between the antiskid control valve [6] and the bracket:

(a) To fully clean the mating surface of the bracket and the antiskid control valve [6], do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.

1) Clean the valve body and the mating bracket surfaces at a minimum of two of the four lugs as shown in Figure 402.

a) Do not clean more than the specified areas to prevent possible corrosion problems.



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**SIA 001 PRE SB 737-32-1527 (Continued)**

(b) For all cleaned areas, and if there is any damage to the finish on the antiskid control valve [6], manually apply coating, C00064.

**SUBTASK 32-42-31-420-003**

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(4) Apply Cor-Ban 27L Compound, G50237 to all of the areas of the fastener hole.

(a) Make sure that you install the bolts [8] and washers [7] immediately.

**SUBTASK 32-42-31-390-001**

(5) Apply sealant, A00247, to the cleaned areas faying surfaces.

NOTE: Operators can defer the application of the sealant for the valve installation to avoid a flight delay. This step can be deferred for up to eight weeks but must be performed to put the airplane back to serviceable condition.

**SUBTASK 32-42-31-420-004**

(6) Hold the antiskid control valve [6] in its position on the airplane.

**SUBTASK 32-42-31-420-005**

(7) Install the bolts [8] and washers [7] which hold the antiskid control valve [6] to the airplane.

**SUBTASK 32-42-31-080-002**

(8) With the intrinsically safe approved bonding meter, COM-1550, make sure that the resistance between the body of the antiskid control valve [6] and the bracket is less than 0.0025 ohm (2.5 milliohms) (SWPM 20-20-00).

**SUBTASK 32-42-31-390-002**

(9) Apply sealant, A00247, to the edge of the antiskid control valve [6] around the mating surface (TASK 51-22-00-390-806).

NOTE: Operators can defer the application of the sealant for the valve installation to avoid a flight delay. This step can be deferred for up to eight weeks but must be performed to put the airplane back to serviceable condition.

**SUBTASK 32-42-31-080-003**

(10) Remove the caps/plugs, STD-14686, from the hydraulic lines.

**SUBTASK 32-42-31-420-006**

(11) For the LWR Normal antiskid control valve [6], do these steps:

(a) Connect the hydraulic lines to the antiskid control valve [6]:

1) Connect the brake hydraulic line [20]to the union [12].

a) Tighten the B-nut on the brake hydraulic line [20] to 270 ±14 in-lb (31 ±2 N·m).

2) Connect the return hydraulic lline [21] and return hydraulic line [22] to the tee fitting.

a) Tighten the B-nuts on the return hydraulic lline [21] and return hydraulic line [22] to 270 ±14 in-lb (31 ±2 N·m).

3) Connect the pressure hydraulic line [23] to the filter [4].

a) Tighten the B-nut on the pressure hydraulic line [23] to 270 ±14 in-lb (31 ±2 N·m).



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**SIA 001 PRE SB 737-32-1527 (Continued)**

SUBTASK 32-42-31-420-016

(12) For the UPR Normal antiskid control valve [6], do these steps:

(a) Connect the hydraulic lines to the antiskid control valve [6]:

1) Connect the brake hydraulic line [24] to the union [12].

a) Tighten the B-nut on the brake hydraulic line [24] to 270 ±14 in-lb (31 ±2 N·m).

2) Connect the return hydraulic line [22] to the tee fitting.

a) Tighten the B-nut on the return hydraulic line [22] to 270 ±14 in-lb (31 ±2 N·m).

3) Connect the pressure hydraulic line [23] and pressure hydraulic line [25] to the filter [4].

a) Tighten the B-nuts on the pressure hydraulic line [23] and pressure hydraulic line [25] to 270 ±14 in-lb (31 ±2 N·m).

**SUBTASK 32-42-31-420-007**

(13) For the Alternate antiskid control valve [6], do these steps:

(a) Connect the hydraulic lines to the antiskid control valve [6]:

1) Connect the brake hydraulic line [26] to the union [12].

a) Tighten the B-nut on the brake hydraulic line [26] to 270 ±14 in-lb (31 ±2 N·m).

2) Connect the return hydraulic line [27] to the check check valve [13].

a) Tighten the B-nut on the return hydraulic line [27] to 270 ±14 in-lb (31 ±2 N·m).

3) Connect the pressure hydraulic line [28] and pressure hydraulic line [29] line tee fitting.

a) Tighten the B-nut on the pressure hydraulic line [28] to 140 ±7 in-lb (16 ±1 N·m).

b) Tighten the B-nut on the pressure hydraulic line [29] to 270 ±14 in-lb (31 ±2 N·m).

**SUBTASK 32-42-31-420-008**

(14) Before you connect the electrical connector [14] to the antiskid control valve [6], examine the electrical connector [14] for corrosion.

**WARNING**

DO THE STEPS BELOW WHEN YOU OPERATE THE AIRPLANE WHERE YOU USE DEICING FLUID (THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE). ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT. IF YOU DO NOT DO THESE STEPS, YOU CAN CAUSE DAMAGE TO EQUIPMENT OR INJURY TO PERSONNEL.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171, to the electrical connector [14] (SWPM 20-60-03).

**SUBTASK 32-42-31-420-018**

(15) Connect the electrical connector [14] to the antiskid control valve [6].



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**SIA 001 PRE SB 737-32-1527 (Continued)**

SUBTASK 32-42-31-860-004

(16) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

### G. Antiskid Valve Installation Test

**SUBTASK 32-42-31-790-001**

(1) Do these steps to do a leak check of the antiskid control valve [6]:

**WARNING** MAKE SURE THAT EQUIPMENT AND PERSONNEL ARE CLEAR OF THE FLIGHT CONTROLS SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) For the normal (system B) and the alternate (system A) hydraulic systems, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Fully push the captain's brake pedals twelve times.

(c) Look for leaks around the antiskid control valve [6].

**SUBTASK 32-42-31-710-001**

(2) Bleed the hydraulic system.

(a) For the Normal antiskid control valve [6], do this task: Normal (System B) Hydraulic Brake System Bleeding, TASK 32-41-00-870-802.

(b) For the alternate antiskid control valve [6], do this task: Alternate (System A) Hydraulic Brake System Bleeding, TASK 32-41-00-870-803.

**SUBTASK 32-42-31-860-005**

(3) Do this task: Antiskid Valve Operational Test, TASK 32-42-00-720-803.

### H. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-42-31-860-006**

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**END OF TASK**

**SIA 002-999; SIA 001 POST SB 737-32-1527**

**TASK 32-42-31-000-802**

## 4. Antiskid Valve - Removal

(Figure 403, Figure 404)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |



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SIA 002-999; SIA 001 POST SB 737-32-1527 (Continued)

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**D. Prepare for the Removal**

SUBTASK 32-42-31-480-004

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-42-31-860-007

(2) Do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-42-31-480-005

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-42-31-860-008

(4) Release the parking brake.

SUBTASK 32-42-31-840-002

(5) Operate the brake pedals until the gage at the brake accumulator shows no change in the pressure.

NOTE: You will have to operate the brake pedals approximately 12 times to fully release the pressure from the accumulator.

SUBTASK 32-42-31-860-009

(6) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

**E. Antiskid Valve Removal**

SUBTASK 32-42-31-020-006

(1) Disconnect the electrical connectors [14] from the antiskid control valve [6].

SUBTASK 32-42-31-020-007

(2) For the right normal antiskid control valve [6], do the these steps:

(a) Disconnect the brake hydraulic line [33] line from the filter [11].



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(b) Disconnect the return hydraulic line [32] and return hydraulic line [34] from the tee fitting.

(c) Disconnect the pressure hydraulic line [31] and pressure hydraulic line [35] from the filters [4].

(d) Disconnect the pressure hydraulic line [30] from the filter [18].

(e) Install the caps/plugs, STD-14686, on the hydraulic lines.

(f) Remove the bolt [9], washer [7], washer [16], bonding jumper [15], and washer [17].

(g) Remove the bolts [8] and washers [7] to remove the antiskid control valve [6] from the airplane.

SUBTASK 32-42-31-020-013

(3) For the left normal antiskid control valve [6], do the these steps:

(a) Disconnect the brake hydraulic line [38] from the filter [11].

(b) Disconnect the return hydraulic line [40] from the union [12].

(c) Disconnect the pressure hydraulic line [36] and pressure hydraulic line [39] from the filters [4].

(d) Disconnect pressure hydraulic line [37] from filter [18].

(e) Install the caps/plugs, STD-14686, on the hydraulic lines.

(f) Remove the bolt [9], washer [7], washer [16], bonding jumper [15], and washer [17].

(g) Remove the bolts [8] and washers [7] to remove the antiskid control valve [6] from the airplane.

SUBTASK 32-42-31-020-008

(4) For the alternate antiskid control valve [6], do these steps:

(a) Disconnect the brake hydraulic line [41] from the union [12].

(b) Disconnect the return hydraulic line [42] from the check valve [13].

(c) Disconnect the pressure hydraulic line [43] and pressure hydraulic line [44] from the tee fitting.

(d) Install caps/plugs, STD-14686, on the hydraulic lines.

(e) Remove the bolts [8] and washers [7] to remove the antiskid control valve [6] from the airplane.

SUBTASK 32-42-31-020-011

(5) If the replacement of the normal antiskid control valve [6] does not have hydraulic fittings installed, do these steps:

(a) Remove the lockwires from the filters [4], filter [11], and filter [18].

(b) Remove the union [12] and packing [10].

(c) Remove the filter [11] and packing [5].

(d) Remove the filters [4] and packings [5].

(e) Remove the filter [18] and packing [19].

(f) Discard the packings [5], packing [10], and packing [19].

SUBTASK 32-42-31-020-015

(6) If the replacement of the alternate antiskid control valve [6] does not have hydraulic fittings installed, do these steps:



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**SIA 002-999; SIA 001 POST SB 737-32-1527 (Continued)**

(a) Remove the lockwires from the filter [4], filter [11], and check valve [13].

(b) Remove the union [12] and packing [5].

(c) Remove the filter [11] and packing [10].

(d) Remove the check valve [13] and packing [5].

(e) Remove the filter [4] and packing [5].

(f) Discard the packings [5] and packing [10].

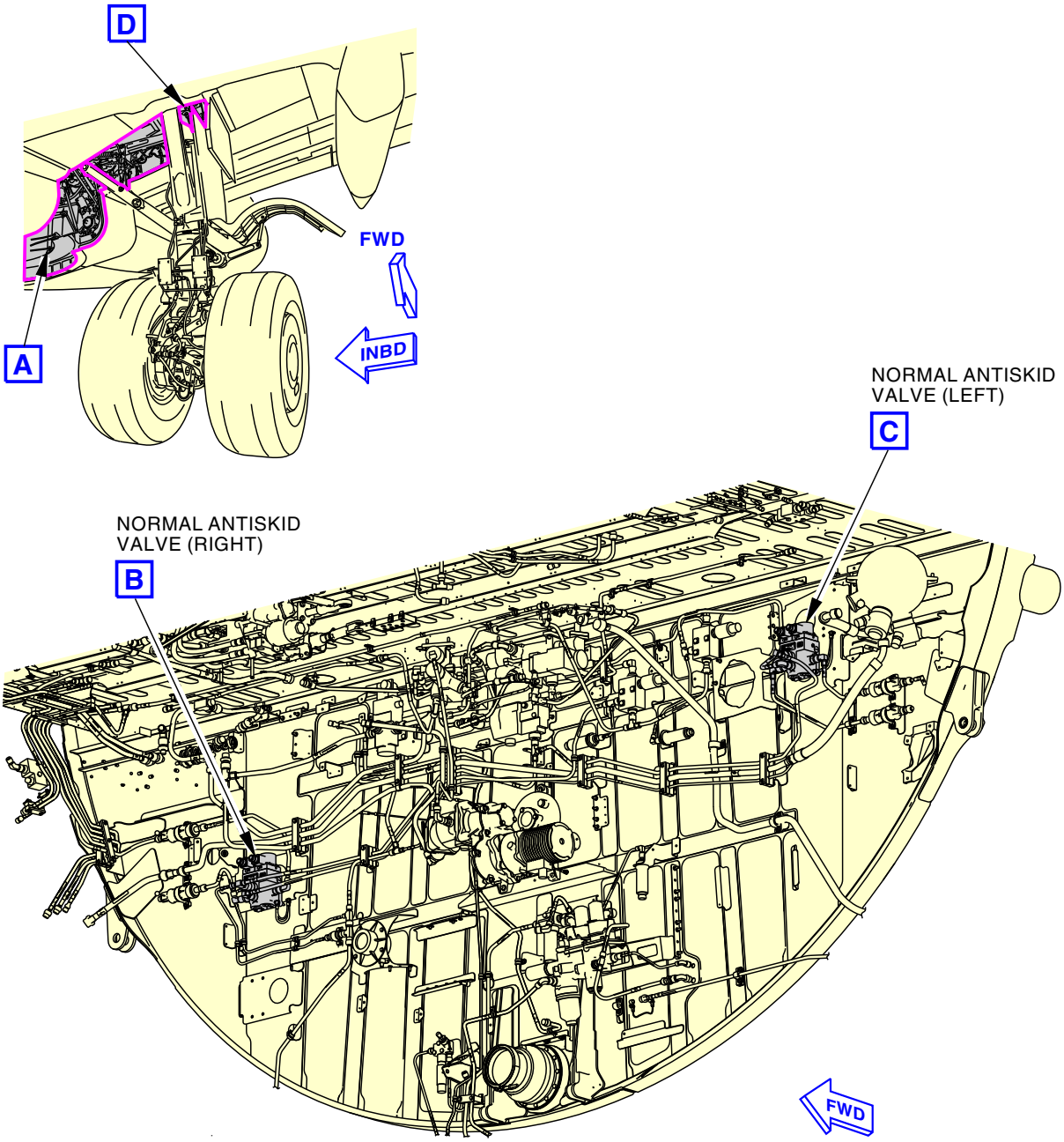
**SUBTASK 32-42-31-420-010**

(7) Install the caps/plugs, STD-14686, in the ports of the antiskid control valve [6].

**——— END OF TASK ———**



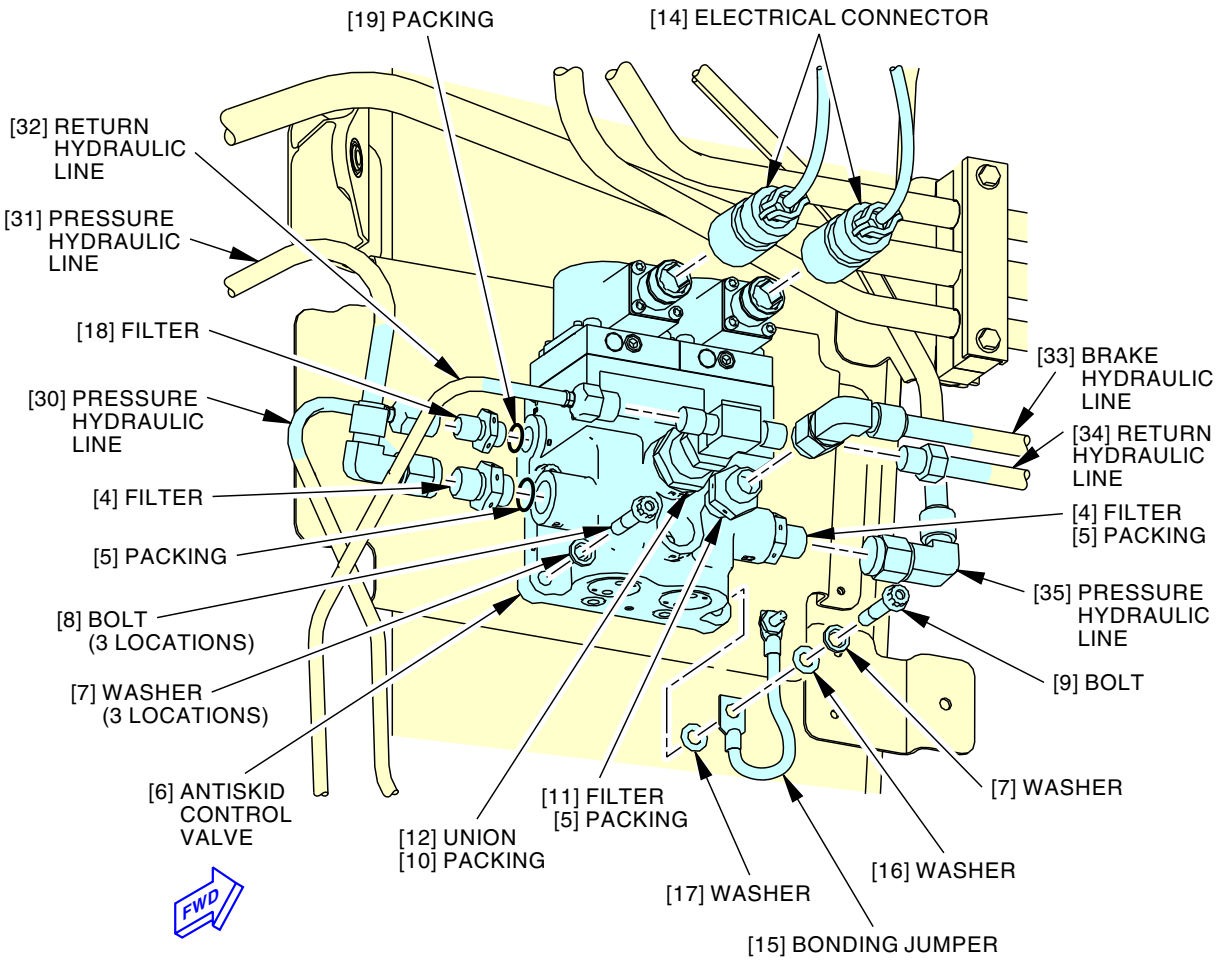
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Antiskid Valve Installation**
**Figure 403/32-42-31-990-803 (Sheet 1 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**NORMAL ANTISKID VALVE (RIGHT)**

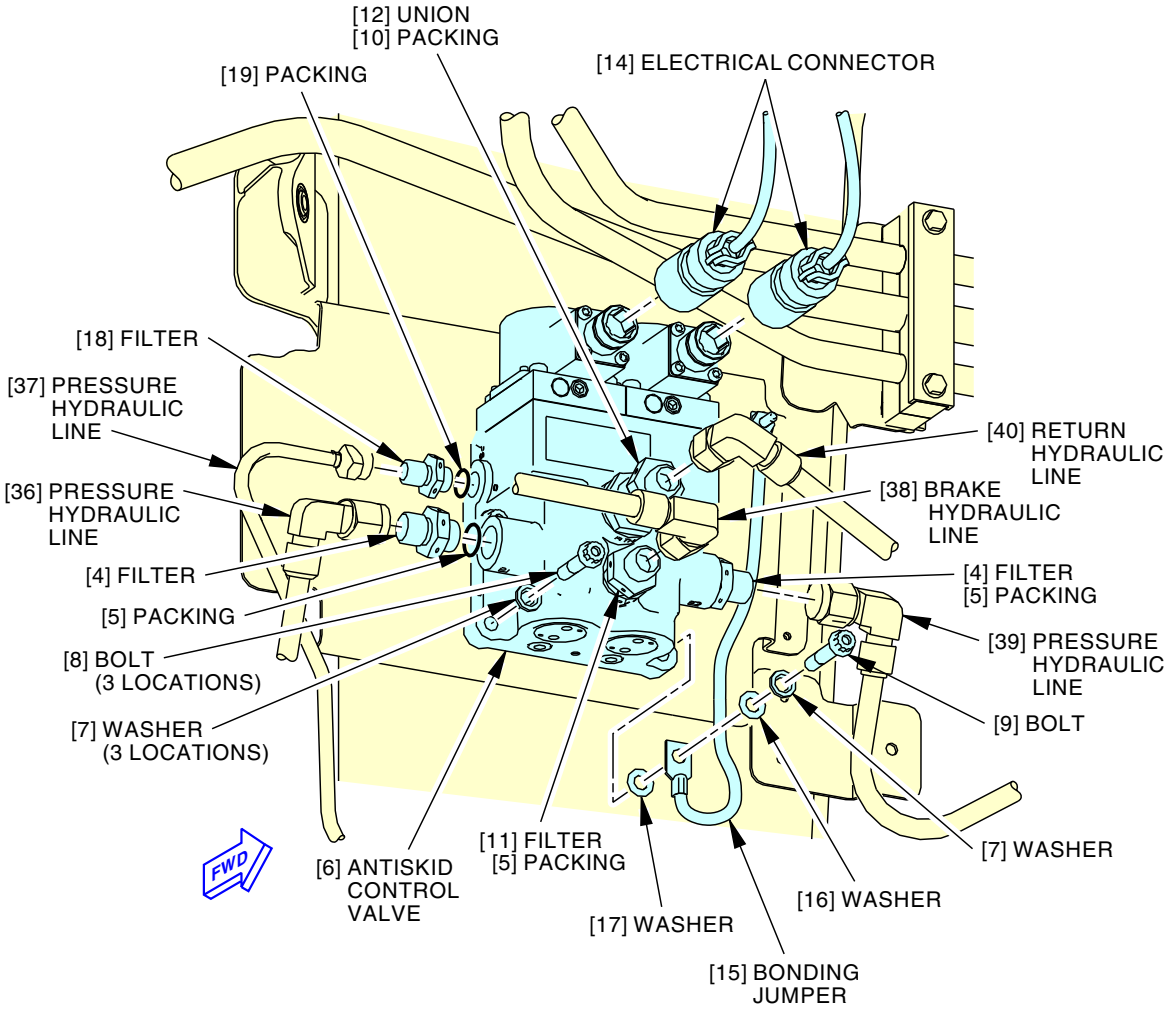
**B**

2561715 S0000611436_V6

**Antiskid Valve Installation**
**Figure 403/32-42-31-990-803 (Sheet 2 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**NORMAL ANTISKID VALVE (LEFT)**

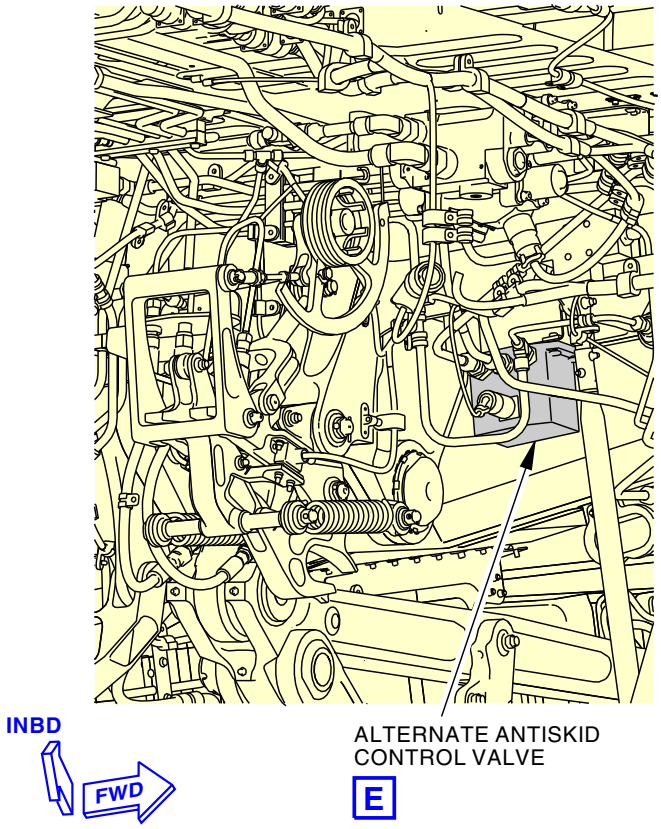
C

2578799 S0000620986_V4

**Antiskid Valve Installation**
**Figure 403/32-42-31-990-803 (Sheet 3 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

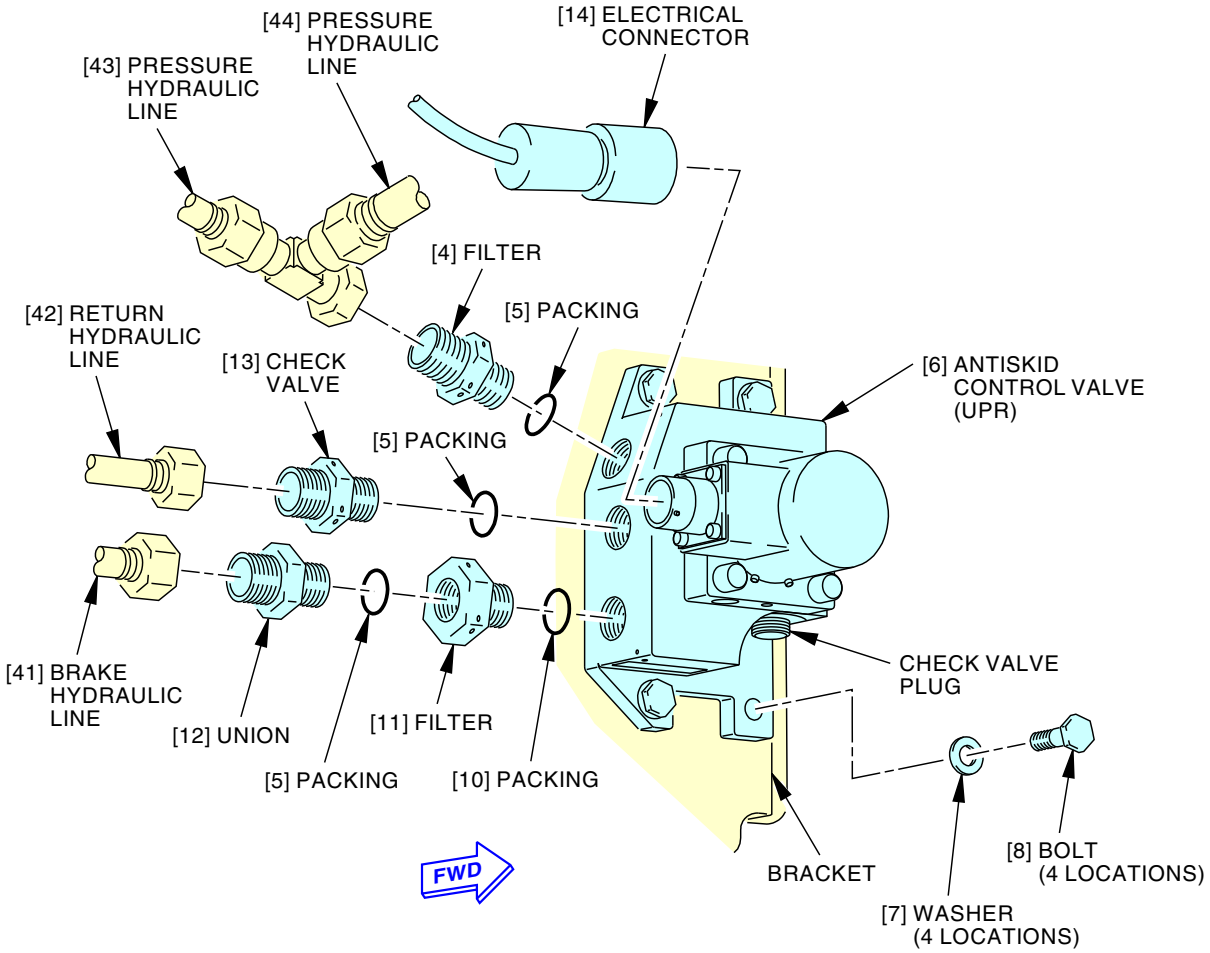
**D**

2561713 S0000611435_V2

**Antiskid Valve Installation**
**Figure 403/32-42-31-990-803 (Sheet 4 of 5)**



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**ALTERNATE ANTISKID VALVE**

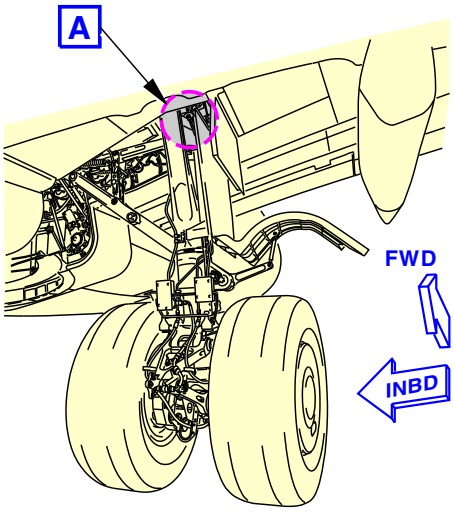
**E**

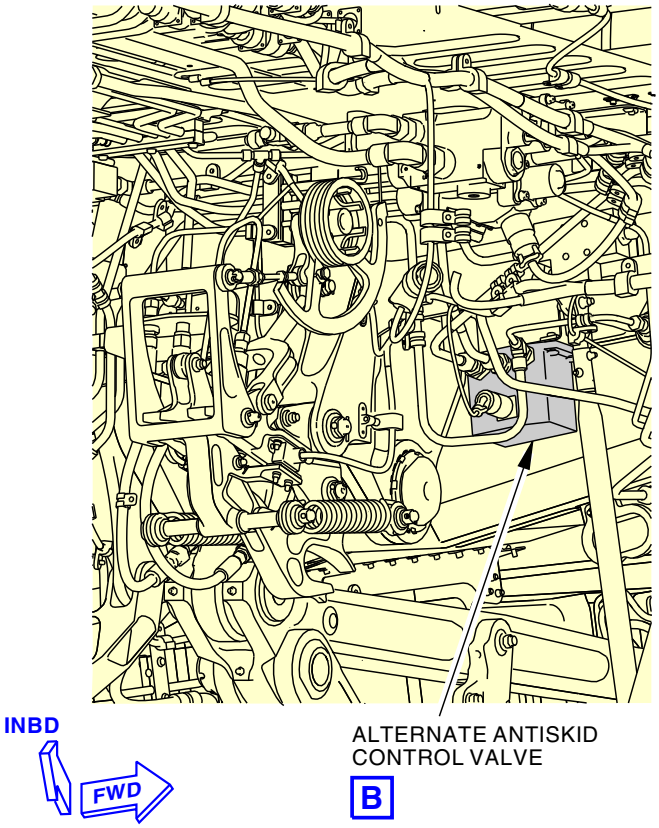
2561727 S0000611437_V3

**Antiskid Valve Installation**
**Figure 403/32-42-31-990-803 (Sheet 5 of 5)**



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**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

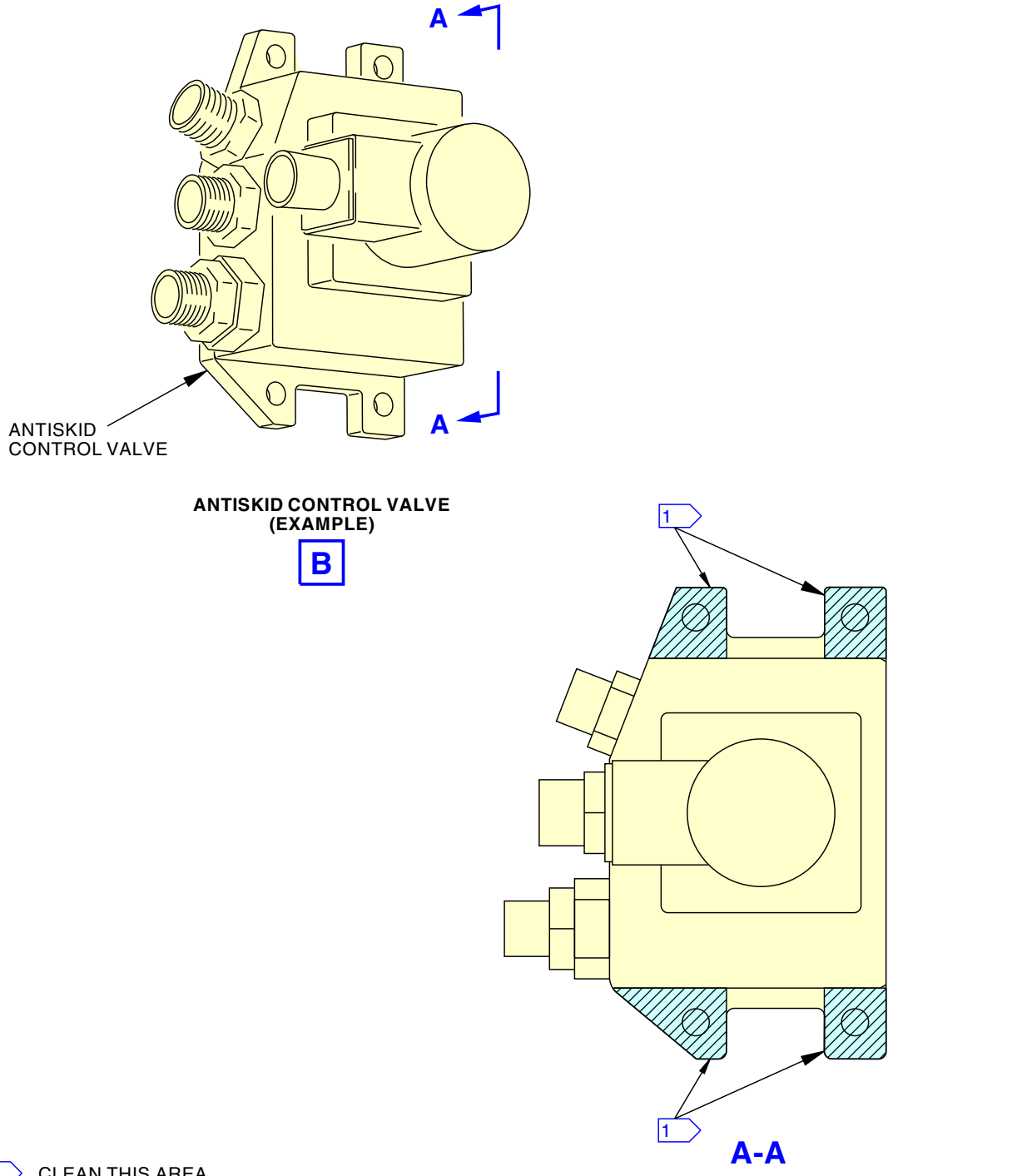
A

2561736 S0000611438_V1

**Cleaning of the Antiskid Valve**
**Figure 404/32-42-31-990-804 (Sheet 1 of 2)**



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**Cleaning of the Antiskid Valve**
**Figure 404/32-42-31-990-804 (Sheet 2 of 2)**



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TASK 32-42-31-400-802

5. Antiskid Valve - Installation

(Figure 403, Figure 404)

A. References

| Reference | Title |
|---|---|
| 20-10-34-120-801 | Hand Clean Metal Surfaces with Abrasives (P/B 701) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-41-00-870-802 | Normal (System B) Hydraulic Brake System Bleeding (P/B 201) |
| 32-41-00-870-803 | Alternate (System A) Hydraulic Brake System Bleeding (P/B 201) |
| 32-42-00-720-803 | Antiskid Valve Operational Test (P/B 501) |
| 51-22-00-390-806 | Fillet Seal Application (P/B 201) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-60-03 | SPECIAL PROTECTION OF ELECTRICAL CONNECTORS |

B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |
| G50225 | Lockwire - MS20995C20, Corrosion Resistant Steel - 0.020 Inch (0.508 mm) Diameter | NASM20995 |



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**SIA 002-999; SIA 001 POST SB 737-32-1527 (Continued)**

(Continued)

| Reference | Description | Specification |
|---|---|---|
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

**D. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**E. Antiskid Valve Installation**

**SUBTASK 32-42-31-080-004**

(1) Remove the caps/plugs, STD-14686, from the ports of the antiskid control valve [6].

**SUBTASK 32-42-31-420-011**

(2) If the replacement of the normal antiskid control valve [6] does not have hydraulic fittings installed, do these steps:

(a) Lubricate the union [12], filters [4], filter [11], filter [18], packing [10], packing [19], and packings [5] for the antiskid control valve [6] with hydraulic fluid, D00153.

(b) Install the packings [5] on the filters [4] and filter [11].

(c) Install the packing [10] on the union [12]

(d) Install the packing [19] on the filter [18].

(e) Install the filter [11] in the brake port of the antiskid control valve [6].

(f) Install the union [12] in the return port of the antiskid control valve [6].

(g) Install the filters [4] and filter [18] in the pressure port of the antiskid control valve [6].

(h) Install the MS20995C20 lockwires, G50225, on the filters [4], filter [11], and filter [18].

**SUBTASK 32-42-31-420-020**

(3) If the replacement of the alternate antiskid control valve [6] does not have hydraulic fittings installed, do these steps:

(a) Lubricate the union [12], filter [4], filter [11], check valve [13], packing [10], and packings [5] for the antiskid control valve [6] with hydraulic fluid, D00153.

(b) Install the packings [5] on the filter [4], check valve [13], and union [12].

(c) Install the packing [10] on the filter [11]

(d) Install the filter [11] and union [12] in the brake port of the antiskid control valve [6].

(e) Install the check valve [13] in the return port of the antiskid control valve [6].

(f) Install the filter [4] in the pressure port of the antiskid control valve [6].

(g) Install the MS20995C20 lockwires, G50225, on the filter [4], filter [11], and check valve [13].

**SUBTASK 32-42-31-420-012**

(4) For the normal antiskid control valve [6], do these steps:

(a) Do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.



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**SIA 002-999; SIA 001 POST SB 737-32-1527 (Continued)**

(b) For all cleaned areas, and if there is any damage to the finish on the antiskid control valve [6], manually apply the coating, C00064.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(c) Apply the Cor-Ban 27L Compound, G50237, to all of the areas of the fastener hole.

1) Make sure that you install the bolts [8] and washers [7] immediately.

(d) Apply the sealant, A00247, to the mating surfaces of the bonding jumper [15] and the antiskid control valve [6].

NOTE: Operators can defer the application of the sealant for the valve installation to avoid a flight delay. This step can be deferred for up to eight weeks but must be performed to put the airplane back to serviceable condition.

(e) Hold the antiskid control valve [6] in its position on the airplane.

(f) Install the bolts [8] and washers [7] which hold the antiskid control valve [6] to the airplane.

1) Tighten the bolts [8] to 63 in-lb (7.1 N·m) to 77 in-lb (8.7 N·m).

(g) Install the washer [17] bonding jumper [15], washer [16] washer [7] and bolt [9].

1) Tighten the bolt [9] to 63 in-lb (7.1 N·m) to 77 in-lb (8.7 N·m).

2) With the intrinsically safe approved bonding meter, COM-1550, make sure that the resistance between the body of the antiskid control valve [6] and the bonding jumper [15] is 0.001 ohm (1.0 milliohms) or less (SWPM 20-20-00).

**SUBTASK 32-42-31-420-013**

(5) For the alternate antiskid control valve [6], do these steps to help get a good electrical bond between the antiskid control valve [6] and the bracket:

(a) Do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.

1) Clean the valve body and the mating bracket surfaces at a minimum of two of the four lugs as shown in Figure 404.

a) Do not clean more than the specified areas to prevent possible corrosion problems.

(b) For all cleaned areas, and if there is any damage to the finish on the antiskid control valve [6], manually apply the coating, C00064.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(c) Apply the Cor-Ban 27L Compound, G50237, to all of the areas of the fastener hole.

1) Make sure that you install the bolts [8] and washers [7] immediately.


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(d) Apply the sealant, A00247, to the cleaned areas faying surfaces.

NOTE: Operators can defer the application of the sealant for the valve installation to avoid a flight delay. This step can be deferred for up to eight weeks but must be performed to put the airplane back to serviceable condition.

(e) Hold the antiskid control valve [6] in its position on the airplane.

(f) Install the bolts [8] and washers [7] which hold the antiskid control valve [6] to the airplane.

1) Tighten the bolts [8] to 63 in-lb (7.1 N·m) to 77 in-lb (8.7 N·m).

(g) With the intrinsically safe approved bonding meter, COM-1550, make sure that the resistance between the body of the antiskid control valve [6] and the bracket is 0.0025 ohm (2.5 milliohms) or less (SWPM 20-20-00).

(h) Apply the sealant, A00247, to the edge of the antiskid control valve [6] around the mating surface (TASK 51-22-00-390-806).

NOTE: Operators can defer the application of the sealant for the valve installation to avoid a flight delay. This step can be deferred for up to eight weeks but must be performed to put the airplane back to serviceable condition.

**SUBTASK 32-42-31-080-005**

(6) Remove the caps/plugs, STD-14686, from the hydraulic lines.

**SUBTASK 32-42-31-420-014**

(7) For the right normal antiskid control valve [6], do these steps:

(a) Connect the brake hydraulic line [33] to the filter [11].

1) Tighten the B-nut on brake hydraulic line [33] to 270 ±14 in-lb (31 ±2 N·m).

(b) Connect the return hydraulic line [32] and return hydraulic line [34] to the tee fitting.

1) Tighten the B-nut on return hydraulic line [32] to 140 ±7 in-lb (16 ±1 N·m).

2) Tighten the B-nut on return hydraulic line [34] to 270 ±14 in-lb (31 ±2 N·m).

(c) Connect the pressure hydraulic line [31] and pressure hydraulic line [35] to the filters [4].

1) Tighten the B-nuts on pressure hydraulic line [31] and pressure hydraulic line [35] to 270 ±14 in-lb (31 ±2 N·m).

(d) Connect the pressure hydraulic line [30] to the filter [18].

1) Tighten the B-nut on pressure hydraulic line [30] to 140 ±7 in-lb (16 ±1 N·m).

**SUBTASK 32-42-31-420-017**

(8) For the left normal antiskid control valve [6], do the these steps:

(a) Connect the brake hydraulic line [38] to the filter [11].

1) Tighten the B-nut on brake hydraulic line [38] to 270 ±14 in-lb (31 ±2 N·m).

(b) Connect the return hydraulic line [40] to the union [12].

1) Tighten the B-nut on return hydraulic line [40] to 270 ±14 in-lb (31 ±2 N·m).

(c) Connect the pressure hydraulic line [36] and pressure hydraulic line [39] to the filters [4].

1) Tighten the B-nuts on hydraulic line [36] and pressure hydraulic line [39] to 270 ±14 in-lb (31 ±2 N·m).

(d) Connect pressure hydraulic line [37] to the filter [18].

1) Tighten the B-nut on pressure hydraulic line [37] to 140 ±7 in-lb (16 ±1 N·m).



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**SIA 002-999; SIA 001 POST SB 737-32-1527 (Continued)**

SUBTASK 32-42-31-420-015

(9) For the alternate antiskid control valve [6], do these steps:

(a) Connect the brake hydraulic line [41] to the union [12].

1) Tighten the B-nut on brake hydraulic line [41] to 270 ±14 in-lb (31 ±2 N·m).

(b) Connect the return hydraulic line [42] to the check valve [13].

1) Tighten the B-nut on return hydraulic line [42] to 270 ±14 in-lb (31 ±2 N·m).

(c) Connect the pressure hydraulic line [43] and pressure hydraulic line [44] to the tee fitting.

1) Tighten the B-nut on pressure hydraulic line [43] to 140 ±7 in-lb (16 ±1 N·m).

2) Tighten the B-nut on pressure hydraulic line [44] to 270 ±14 in-lb (31 ±2 N·m).

**SUBTASK 32-42-31-210-001**

(10) Before you connect the electrical connector [14] to the antiskid control valve [6], examine the electrical connector [14] for corrosion.

**WARNING**

DO THE STEPS BELOW WHEN YOU OPERATE THE AIRPLANE WHERE YOU USE DEICING FLUID (THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE). ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT. IF YOU DO NOT DO THESE STEPS, YOU CAN CAUSE DAMAGE TO EQUIPMENT OR INJURY TO PERSONNEL.

(a) If there was corrosion, refer to SWPM 20-60-03 to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171, to the electrical connector [14] (SWPM 20-60-03).

**SUBTASK 32-42-31-420-019**

(11) Connect the electrical connector [14] to the antiskid control valve [6].

**SUBTASK 32-42-31-860-010**

(12) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

## F. Antiskid Valve Installation Test

**SUBTASK 32-42-31-790-002**

(1) Do these steps to do a leak check of the antiskid control valve [6]:

**WARNING**

MAKE SURE THAT EQUIPMENT AND PERSONNEL ARE CLEAR OF THE FLIGHT CONTROLS SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(a) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Fully push the captain's brake pedals twelve times.



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**SIA 002-999; SIA 001 POST SB 737-32-1527 (Continued)**

(c) Look for leaks around the antiskid control valve [6].

**SUBTASK 32-42-31-870-001**

(2) Bleed the hydraulic system.

(a) For the normal antiskid control valve [6], do this task: Normal (System B) Hydraulic Brake System Bleeding, TASK 32-41-00-870-802.

(b) For the alternate antiskid control valve [6], do this task: Alternate (System A) Hydraulic Brake System Bleeding, TASK 32-41-00-870-803.

**SUBTASK 32-42-31-710-003**

(3) Do this task: Antiskid Valve Operational Test, TASK 32-42-00-720-803.

## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-42-31-860-011**

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**——— END OF TASK ———**



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# AUTOBRAKE SELECTOR SWITCH - REMOVAL/INSTALLATION

## 1. General

A. This procedure contains these tasks:

(1) AUTO BRAKE Selector Switch Removal

(2) AUTO BRAKE Selector Switch Installation

**TASK 32-42-61-000-801**

## 2. Autobrake Selector Switch Removal

(Figure 401)

### A. General

(1) This task is for the removal of the autobrake selector switch.

### B. References

| Reference | Title |
|---|---|
| 10-11-05-500-801 | Chock Installation Winds/Gusts Maximum 40 mph (35 Knots) (P/B 201) |
| 10-11-05-500-802 | Chock Installation in Winds More Than 35 Knots - Handling (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### D. Prepare for Removal

**SUBTASK 32-42-61-490-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that you install the landing gear downlock pins (TASK 32-00-01-480-801).

**SUBTASK 32-42-61-490-002**

(2) Make sure that you install the wheel chocks (TASK 10-11-05-500-801 or TASK 10-11-05-500-802).

**SUBTASK 32-42-61-860-002**

(3) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

### E. Autobrake Selector Switch Removal

**SUBTASK 32-42-61-020-001**

(1) Remove the autobrake selector switch knob [6] from the autobrake selector switch shaft [7].



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SUBTASK 32-42-61-020-002

(2) Remove the knob [8] and knob [9].

SUBTASK 32-42-61-020-003

(3) Remove the lightplate [10].

SUBTASK 32-42-61-020-004

(4) Loosen the fasteners that attach the multi-function control panel, P9-82 [5] to the P9 panel.

SUBTASK 32-42-61-020-005

(5) Remove the multi-function control panel, P9-82 [5] from the P9 panel.

SUBTASK 32-42-61-020-006

(6) Disconnect the electrical connnector [1] from the autobrake selector switch [2].

SUBTASK 32-42-61-020-007

(7) Remove the nut [3] and washer [4] which hold the autobrake selector switch [2] in the control panel, P9-82 [5].

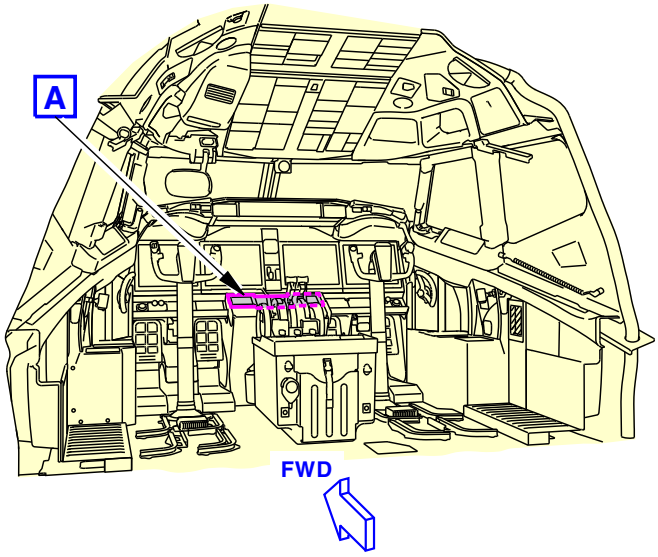
SUBTASK 32-42-61-020-008

(8) Remove the autobrake selector switch [2] from the control panel, P9-82 [5].

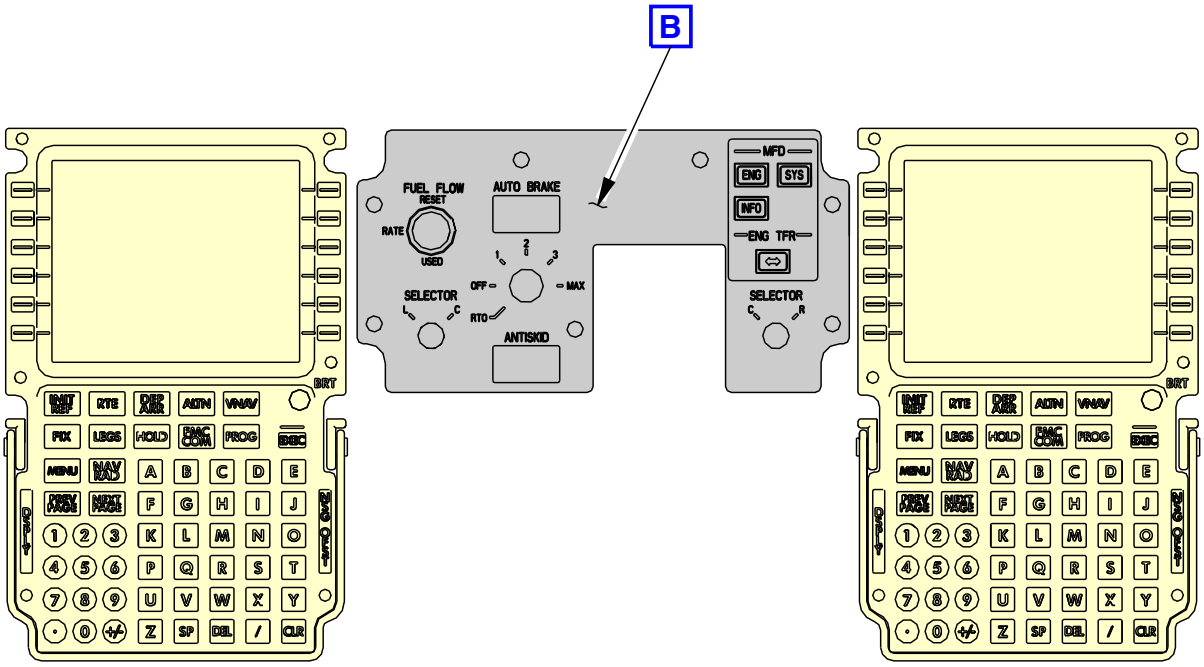
——— END OF TASK ———



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FLIGHT COMPARTMENT



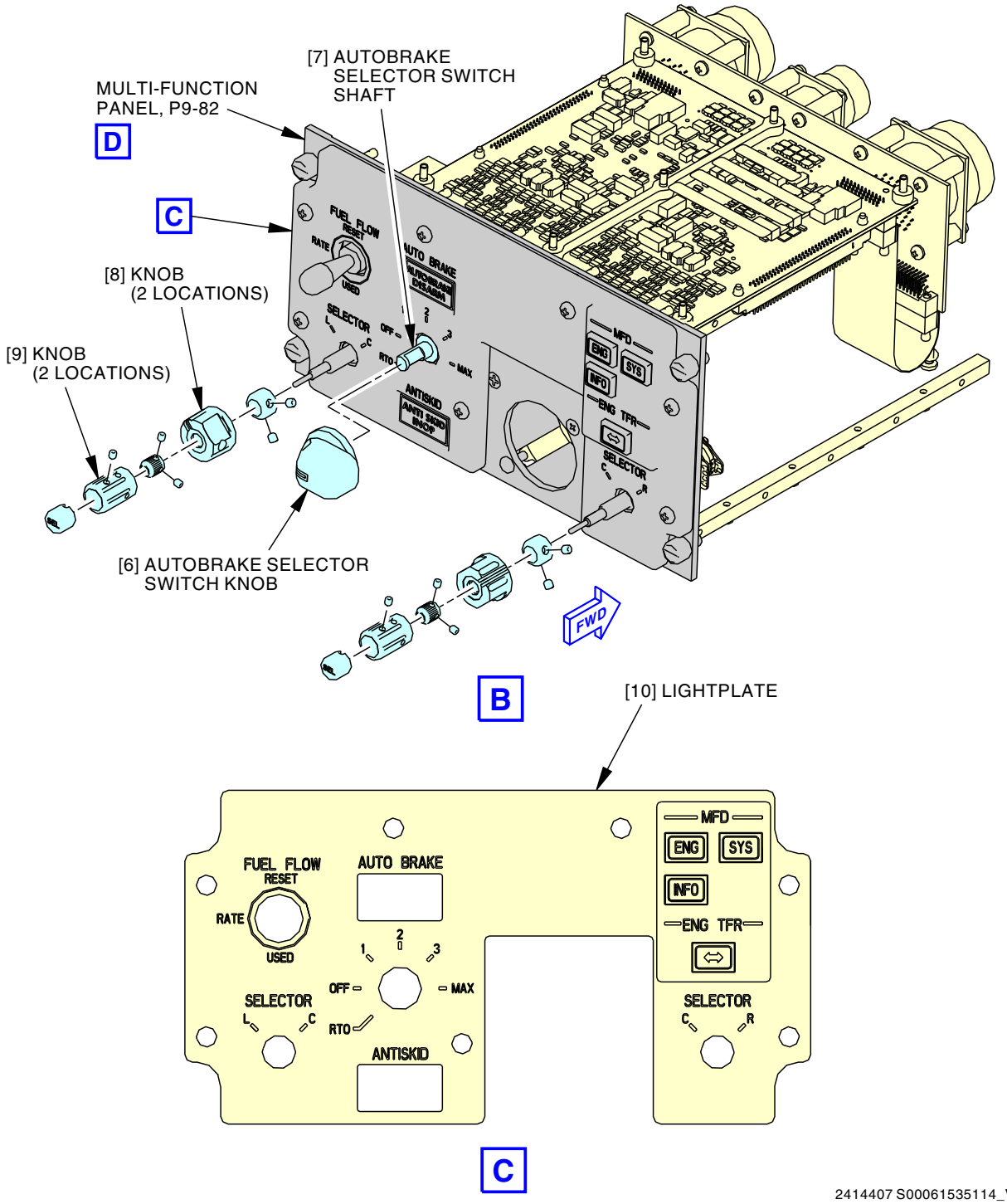

(VIEW IN THE DOWN DIRECTION)

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**Autobrake Selector Switch Installation**
**Figure 401/32-42-61-990-802 (Sheet 1 of 3)**



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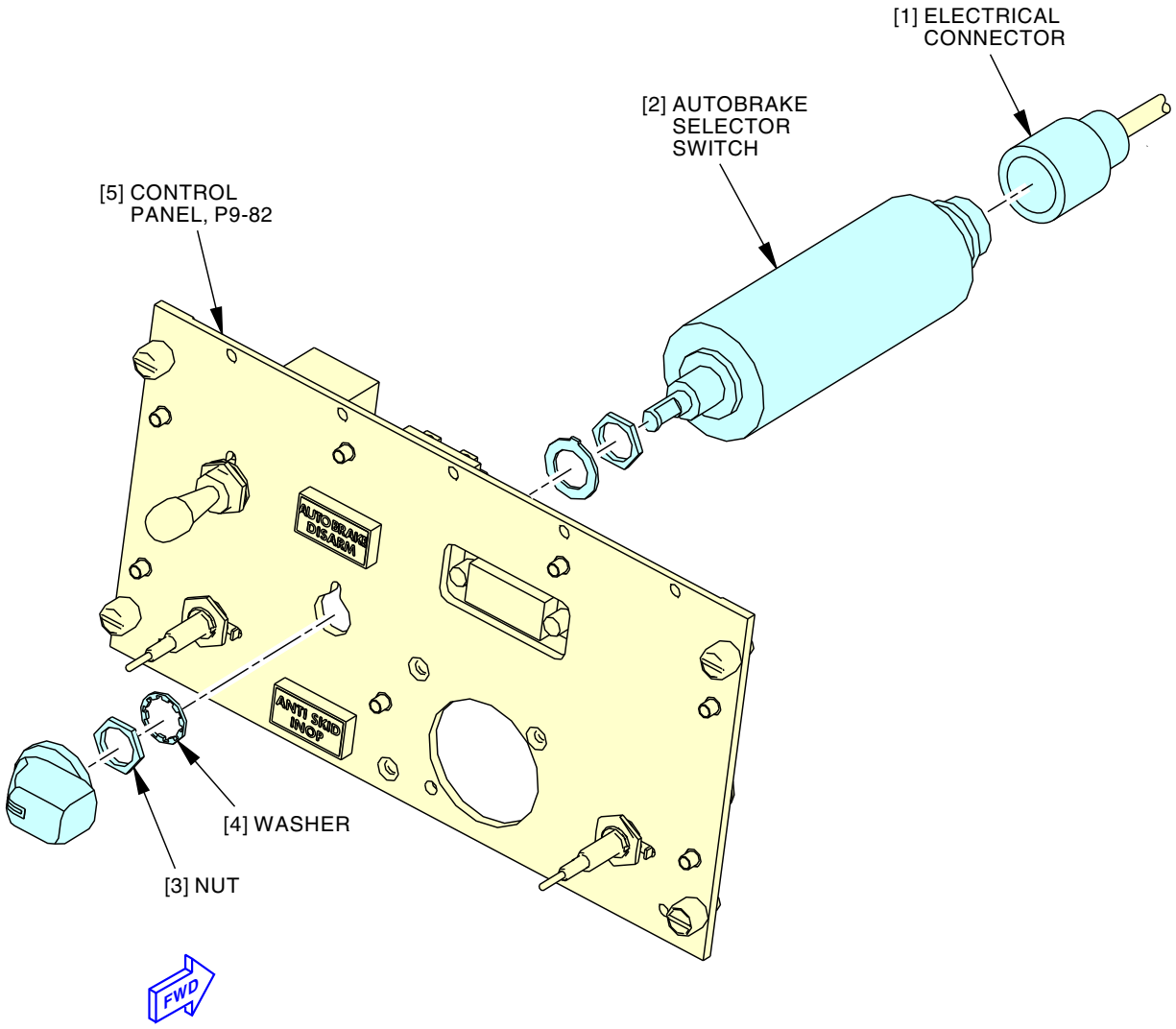



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**Autobrake Selector Switch Installation**
**Figure 401/32-42-61-990-802 (Sheet 2 of 3)**



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**MULTI-FUNCTION CONTROL PANEL, P9-82**

D

2414408 S00061535115_V1

**Autobrake Selector Switch Installation**
**Figure 401/32-42-61-990-802 (Sheet 3 of 3)**



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**TASK 32-42-61-400-801**

## 3. Autobrake Selector Switch Installation

(Figure 401)

### A. General

(1) This task is for the installation of the autobrake selector switch.

### B. References

| Reference | Title |
|---|---|
| 10-11-05-500-801 | Chock Installation Winds/Gusts Maximum 40 mph (35 Knots) (P/B 201) |
| 10-11-05-500-802 | Chock Installation in Winds More Than 35 Knots - Handling (P/B 201) |
| 20-50-11-910-801 | Standard Torque Values (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 34-21-00-820-801 | Air Data Inertial Reference System - Alignment from the FMC CDU (P/B 201) |
| 34-21-00-820-802 | Air Data Inertial Reference System - Alignment from the ISDU (P/B 201) |
| 34-21-00-820-803 | Air Data Inertial Reference System - Automatic Alignment from the IRS MSU (P/B 201) |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 2 | Autobrake selector switch | 32-42-61-01-055 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### E. Autobrake Selector Switch Installation

**SUBTASK 32-42-61-420-001**

(1) Install the autobrake selector switch [2] in the control panel, P9-82 [5] as follows:

(a) Install the electrical connnector [1] on the autobrake selector switch [2].

(b) Install the autobrake selector switch [2] in the control panel, P9-82 [5].

(c) Install the washer [4] and nut [3] on the autobrake selector switch shaft [7] that holds the autobrake selector switch [2] to the control panel, P9-82 [5].

(d) Tighten the nut [3] (TASK 20-50-11-910-801).

(e) Install the lightplate [10].

(f) Install the autobrake selector switch knob [6] on the autobrake selector switch shaft [7].

(g) Install the knob [8] and knob [9].

**SUBTASK 32-42-61-420-002**

(2) Install the control panel, P9-82 [5] in the P9 panel and tighten the fasteners.



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SUBTASK 32-42-61-865-001

(3) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |

## F. Autobrake Selector Switch Installation Test

SUBTASK 32-42-61-860-003

(1) Make sure that the two thrust Levers are in the IDLE position.

SUBTASK 32-42-61-860-004

(2) Make sure that the landing gear control lever is in the DN position.

SUBTASK 32-42-61-860-005

(3) Make sure that the SPD BRK lever is in the DN position and the spoilers are stowed.

SUBTASK 32-42-61-860-006

(4) Make sure that the right and left ADIRSs are in the NAV mode as follows:

(a) Align the ADIRS (TASK 34-21-00-820-802 or TASK 34-21-00-820-801 or TASK 34-21-00-820-803).

SUBTASK 32-42-61-480-001

(5) Make sure that you install the wheel chocks (TASK 10-11-05-500-801 or TASK 10-11-05-500-802).

SUBTASK 32-42-61-860-007

(6) Release the PARKING BRAKE.

SUBTASK 32-42-61-860-008

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(7) Pressurize the B hydraulic system (TASK 29-11-00-860-801).

SUBTASK 32-42-61-860-010

(8) Set the BRAKE TEST selector switch on the Antiskid/Autobrake Control Unit (AACU) to A/B.

NOTE: In next five steps, if the AUTO BRAKE DISARM light is ON when you push the ENABLE/VERIFY switches, the test will not successfully complete and the display on the front panel of the Antiskid/Autobrake Control Unit will show BRK ####.

SUBTASK 32-42-61-860-011

(9) Do the steps that follow for AUTO BRAKE selector switch position 1.

(a) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to OFF then to the 1 position.

(b) Push and then release the RESET switch on the AACU.

NOTE: The display on the front panel of the Antiskid/Autobrake Control Unit will show MEM CLR.

(c) Push and hold the ENABLE/VERIFY switch on the AACU.



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(d) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.

(e) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The Antiskid/Autobrake Control Unit display will show BRK A/B1 during the test.

(f) Make sure that the AUTO BRAKE DISARM light on the control panel, P9-82 [5] comes ON.

(g) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to OFF.

**SUBTASK 32-42-61-860-012**

(10) Do the steps that follow for AUTO BRAKE selector switch position 2.

(a) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to 2 .

(b) Push and hold the ENABLE/VERIFY switch on the AACU.

(c) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.

(d) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The Antiskid/Autobrake Control Unit display will show BRK A/B2 during the test.

(e) Make sure that the AUTO BRAKE DISARM light on the control panel, P9-82 [5] comes ON.

(f) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to OFF.

**SUBTASK 32-42-61-860-013**

(11) Do the steps that follow for AUTO BRAKE selector switch position 3 .

(a) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to 3.

(b) Push an hold the ENABLE/VERIFY switch on the AACU.

(c) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.

(d) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The Antiskid/Autobrake Control Unit display will show BRK A/B3 during the test.

(e) Make sure that the AUTO BRAKE DISARM light on the control panel, P9-82 [5] comes ON.

(f) Set the autobrake selector switch [2]a on the control panel, P9-82 [5] to OFF.

**SUBTASK 32-42-61-860-014**

(12) Do the steps that follow for the AUTO BRAKE selector switch position MAX.

(a) Set the autobrake selector switch [2]a on the control panel, P9-82 [5] panel to MAX.

(b) Push and hold the ENABLE/VERIFY switch on the AACU.

(c) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACUt.

(d) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The Antiskid/Autobrake Control Unit display will show BRK A/B4 during the test.

(e) Make sure that the AUTO BRAKE DISARM light on the control panel, P9-82 [5] comes ON.

(f) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to OFF.

**SUBTASK 32-42-61-860-015**

(13) Do the steps that follow for AUTO BRAKE selector switch position RTO.



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(a) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to RTO.

(b) Push and hold the ENABLE/VERIFY switch on the AACU.

(c) While you hold the ENABLE/VERIFY switch, push and hold the VERIFY switch on the AACU.

(d) Release the ENABLE/VERIFY switch and the VERIFY switch at the same time.

NOTE: The Antiskid/Autobrake Control Unit display will show BRK RTO during the test.

(e) Make sure that the AUTO BRAKE DISARM light on the control panel, P9-82 [5] comes ON.

(f) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to OFF.

**SUBTASK 32-42-61-860-016**

(14) Do the steps that follow to test the brake metered pressure switches.

(a) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to 1.

(b) Push and hold the left brake pedal to the stop.

(c) Make sure that the AUTO BRAKE DISARM light on the control panel, P9-82 [5] comes ON.

(d) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to OFF and then set it back to 1.

(e) Push and hold the right brake pedal to the stop.

(f) Make sure that the AUTO BRAKE DISARM light on the control panel, P9-82 [5] comes ON.

**SUBTASK 32-42-61-860-017**

(15) Set the autobrake selector switch [2] on the control panel, P9-82 [5] to OFF.

**SUBTASK 32-42-61-860-018**

(16) Set the BRAKE TEST selector switch on the AACU to NORM.

## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-42-61-860-019**

(1) Do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**——— END OF TASK ———**



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## AUTOBRAKE SHUTTLE VALVE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the autobrake shuttle valve

(2) Installation of the autobrake shuttle valve.

B. The pressure switch removal and installation steps will be given as a part of the autobrake shuttle valve removal and installation task.

C. There are two autobrake shuttle valves, one for each landing gear, located on the aft wall of the main landing gear wheel well.

D. This procedure is applicable for the two shuttle valves.

**TASK 32-42-71-000-801**

### 2. Autobrake Shuttle Valve Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

#### D. Prepare for the Removal

**SUBTASK 32-42-71-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-42-71-860-001**

(2) To remove pressure from the normal (system B) hydraulic system, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

**SUBTASK 32-42-71-480-002**

(3) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-42-71-860-002**

(4) Release the PARKING BRAKE.



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SUBTASK 32-42-71-840-001

(5) Operate the brake pedals until the gage at the brake accumulator shows no change in the pressure.

NOTE: You will have to operate the brake pedals approximately 12 times to fully release the pressure from the accumulator.

SUBTASK 32-42-71-860-003

(6) Set the PARKING BRAKE.

SUBTASK 32-42-71-860-004

(7) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

## E. Autobrake Shuttle Valve Removal

SUBTASK 32-42-71-020-001

(1) Disconnect the electrical connector [1] from the pressure switch [2] on the autobrake shuttle valve [3].

SUBTASK 32-42-71-020-002

(2) Disconnect the hydraulic lines from the left autobrake shuttle valve [3]:

(a) Disconnect the hydraulic line [4] from the union [5].

(b) Disconnect the hydraulic line [9] from the union [5].

(c) Disconnect the hydraulic lines [7] and hydraulic line [13] from the tee coupling [18].

SUBTASK 32-42-71-020-006

(3) Disconnect the hydraulic lines from the right autobrake shuttle valve [3]:

(a) Disconnect the hydraulic line [17] from the union [5].

(b) Disconnect the hydraulic line [15] and hydraulic line [16] from the tee coupling [18].

(c) Disconnect the hydraulic line [14] and hydraulic line [9] from the tee coupling [18].

SUBTASK 32-42-71-480-003

(4) Install caps/plugs, STD-14686, in the hydraulic lines.

SUBTASK 32-42-71-020-003

(5) Remove the bolts [11] and washers [10] which hold the autobrake shuttle valve [3] to the valve bracket [8].

SUBTASK 32-42-71-020-004

(6) If the replacement autobrake shuttle valve [3] does not have hydraulic fittings installed, then do these steps:

(a) Remove the unions [5] and packings [6].

(b) Discard the packings [6].

SUBTASK 32-42-71-020-005

(7) Do the steps that follow to remove the pressure switch [2] from the autobrake shuttle valve [3]:

(a) Remove the pressure switch [2] from the autobrake shuttle valve [3].



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(b) Remove the packing [12] from the pressure switch [2].

(c) Discard the packing [12].

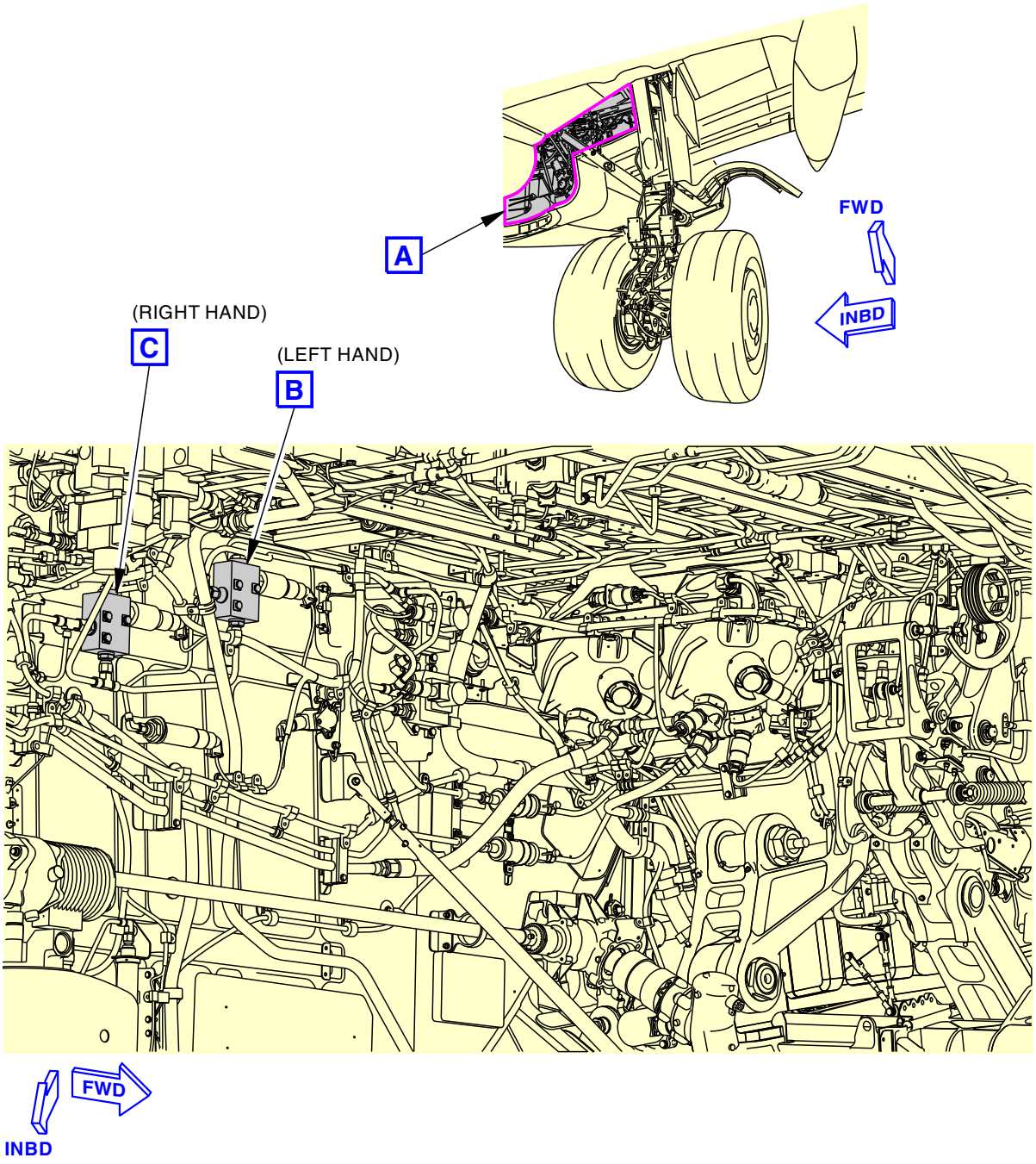
**SUBTASK 32-42-71-480-004**

(8) Install caps/plugs, STD-14686, in the ports of the autobrake shuttle valve [3].

**——— END OF TASK ———**



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**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE)**

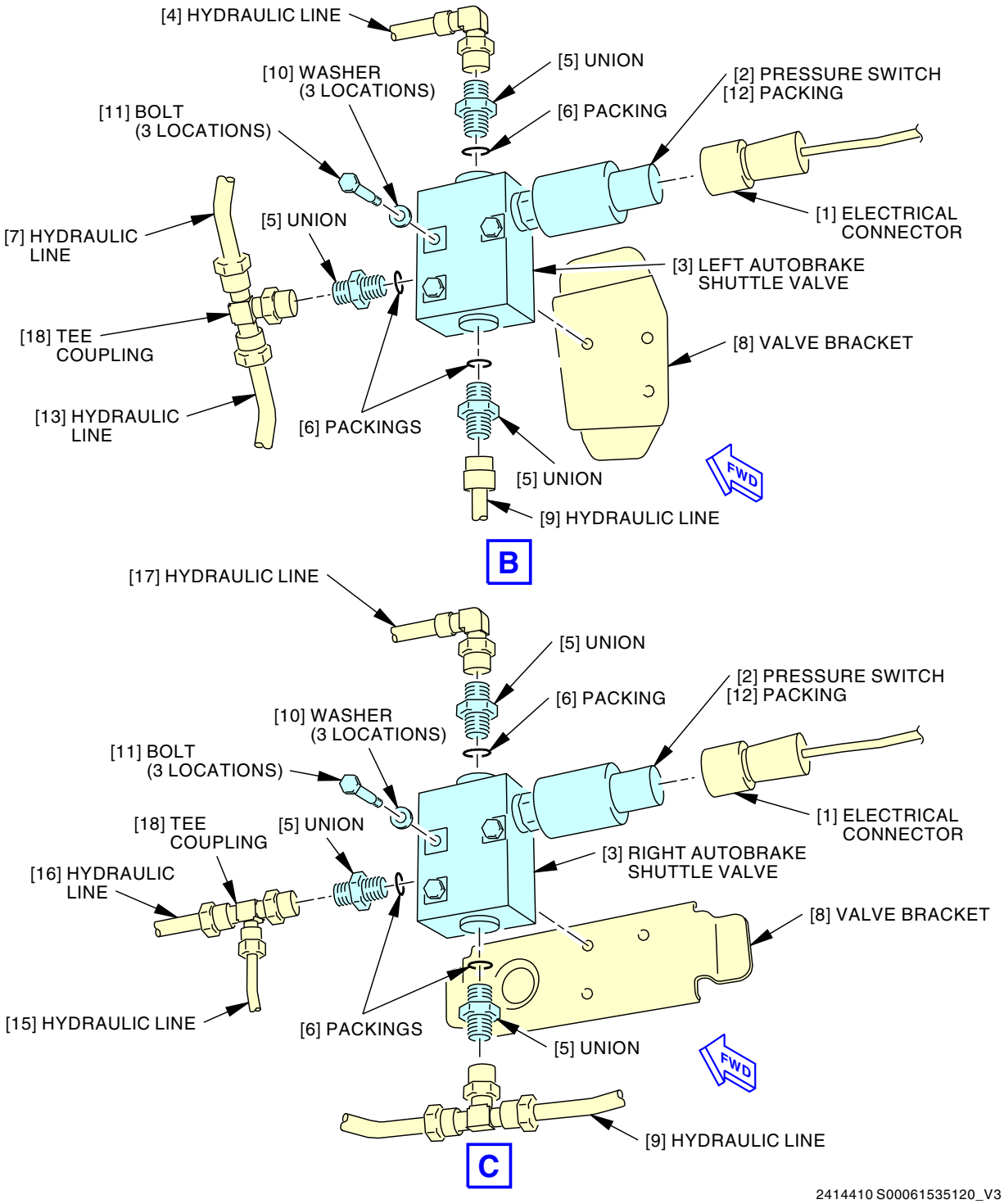
**A**

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**Autobrake Shuttle Valve Installation**
**Figure 401/32-42-71-990-801 (Sheet 1 of 2)**



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**Autobrake Shuttle Valve Installation**
**Figure 401/32-42-71-990-801 (Sheet 2 of 2)**



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**TASK 32-42-71-400-801**

**3. Autobrake Shuttle Valve Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 20-10-34-120-801 | Hand Clean Metal Surfaces with Abrasives (P/B 701) |
| 32-41-00-870-801 | Hydraulic Brake System Upstream of the Antiskid Valves Bleeding (P/B 201) |
| 32-42-00-710-802 | Autobrake Shuttle Valve Operational Test (P/B 501) |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

**B. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Autobrake shuttle valve | 32-42-71-01-010 | SIA ALL |
| 6 | Packing | 32-42-71-02-010 | SIA ALL |
| 12 | Packing | 32-42-71-02-060 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

**F. Autobrake Shuttle Valve Installation**

**SUBTASK 32-42-71-860-006**

(1) Make sure that these circuit breakers are open and have safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |



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(Continued)

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-42-71-080-001

(2) Remove the caps/plugs, STD-14686, from the ports of the autobrake shuttle valve [3].

SUBTASK 32-42-71-420-001

(3) If the replacement autobrake shuttle valve [3] does not have hydraulic fittings installed, do these steps:

(a) Lubricate the unions [5] and new packings [6] for the autobrake shuttle valve [3] with hydraulic fluid, D00153.

(b) Install the packings [6] on the unions [5].

(c) Install the unions [5] in the three hydraulic ports in the autobrake shuttle valve [3].

SUBTASK 32-42-71-420-002

(4) Do the steps that follow to install the pressure switch [2] on the autobrake shuttle valve [3]:

(a) Lubricate the threads of the pressure switch [2] and the new packing [12] with hydraulic fluid, D00153.

(b) Install the packing [12] on the pressure switch [2].

(c) Install the pressure switch [2] on the autobrake shuttle valve [3] and tighten to a torque of 170 in-lb (19 N·m).

SUBTASK 32-42-71-100-001

(5) Do the steps below to get a good electrical bond between the autobrake shuttle valve [3] and valve bracket [8]:

(a) To fully clean the mating surface of the valve bracket [8] and the autobrake shuttle valve [3], do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.

(b) Manually apply coating, C00064, to all of the cleaned areas of the valve bracket [8].

(c) Fay surface seal the autobrake shuttle valve [3] to the valve bracket [8] with sealant, A00247.

SUBTASK 32-42-71-420-003

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(6) Apply Cor-Ban 27L Compound, G50237, to the bolts [11] and washers [10] that hold the autobrake shuttle valve [3] to the valve bracket [8].

SUBTASK 32-42-71-420-004

(7) Install the bolts [11] and washers [10] to hold the autobrake shuttle valve [3] to the valve bracket [8].

SUBTASK 32-42-71-080-002

(8) Remove caps/plugs, STD-14686, from the hydraulic lines.



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SUBTASK 32-42-71-420-005

(9) Connect the hydraulic lines to the left autobrake shuttle valve [3]:

(a) Connect the hydraulic line [4] to the union [5].

1) Tighten the B-nut on hydraulic line [4] to 270 ±14 in-lb (31 ±2 N·m).

(b) Connect the hydraulic line [9] to the union [5].

1) Tighten the B-nut on hydraulic line [9] to 270 ±14 in-lb (31 ±2 N·m).

(c) Connect the hydraulic lines [7] and hydraulic line [13] to the tee coupling [18].

1) Tighten the B-nut on hydraulic lines [7] to 270 ±14 in-lb (31 ±2 N·m).

2) Tighten the B-nut on hydraulic line [13] to 140 ±7 in-lb (16 ±1 N·m).

SUBTASK 32-42-71-420-007

(10) Connect the hydraulic lines to the right autobrake shuttle valve [3]:

(a) Connect the hydraulic line [17] to the union [5].

1) Tighten the B-nut on hydraulic line [17] to 270 ±14 in-lb (31 ±2 N·m).

(b) Connect the hydraulic line [15] and hydraulic line [16] to the tee coupling [18].

1) Tighten the B-nut on hydraulic line [16] to 270 ±14 in-lb (31 ±2 N·m).

2) Tighten the B-nut on hydraulic line [15] to 140 ±7 in-lb (16 ±1 N·m).

(c) Connect the hydraulic line [14] and hydraulic line [9] to the tee coupling [18].

1) Tighten the B-nuts on hydraulic line [14] and hydraulic line [9] to 270 ±14 in-lb (31 ±2 N·m).

SUBTASK 32-42-71-420-006

(11) Before you connect the electrical connector [1] to the autobrake shuttle valve [3], examine the electrical connector [1] for corrosion.

**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171, to the electrical connector [1] (SWPM 20-60-03).

SUBTASK 32-42-71-420-008

(12) Connect the electrical connector [1] to the autobrake shuttle valve [3].

## G. Autobrake Shuttle Valve Installation Test

SUBTASK 32-42-71-860-005

(1) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |



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(Continued)

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

**SUBTASK 32-42-71-710-001**

(2) For the normal brake system, do this task: Hydraulic Brake System Upstream of the Antiskid Valves Bleeding, TASK 32-41-00-870-801.

**SUBTASK 32-42-71-710-002**

(3) Do this task: Autobrake Shuttle Valve Operational Test, TASK 32-42-00-710-802.

**——— END OF TASK ———**



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# AUTOBRAKE PRESSURE CONTROL MODULE - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the autobrake pressure control module

(2) An installation of the autobrake pressure control module

(3) A removal of the control module line replaceable units, (the servo valve, the solenoid valve, and the pressure switches).

(4) An installation of the control module line replaceable units, (the servo valve, the solenoid valve, and the pressure switches).

B. The autobrake pressure control module is on the ceiling of the main landing gear wheel well.

C. The autobrake pressure control module is referred to as the valve module [20] in this procedure.

**TASK 32-42-81-000-801**

## 2. Autobrake Pressure Control Module Valve Removal

(Figure 401)

### A. General

(1) The autobrake pressure control module valve is referred to as the valve module [20] in this task.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### E. Prepare for the Removal

**SUBTASK 32-42-81-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-42-81-480-002**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-42-81-860-001**

(3) Release the PARKING BRAKE.



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SUBTASK 32-42-81-840-001

(4) Operate the brake pedals until the gage at the brake accumulator shows no change in the pressure.

NOTE: You will have to operate the brake pedals approximately 12 times to fully release the pressure from the accumulator.

SUBTASK 32-42-81-860-002

(5) To remove pressure from the normal (system B) and the alternate (system A) hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-42-81-860-003

(6) Set the PARKING BRAKE.

SUBTASK 32-42-81-860-004

(7) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

## F. Autobrake Pressure Control Module Removal

SUBTASK 32-42-81-020-001

(1) Disconnect the hydraulic line [2], hydraulic line [9], and hydraulic line [11] from the valve module [20].

SUBTASK 32-42-81-480-003

(2) Install caps/plugs, STD-14686, in the hydraulic line [2], hydraulic line [9], and hydraulic line [11] and on the unions [13] and union [18].

SUBTASK 32-42-81-020-002

(3) Disconnect the electrical connector [1], electrical connector [6], electrical connector [7], and electrical connector [8] from the valve module [20].

SUBTASK 32-42-81-020-003

(4) Remove the bolts [3] and washer [4] which hold the valve module [20] to the airplane.

SUBTASK 32-42-81-020-004

(5) If the replacement valve module [20] does not have hydraulic fittings installed, do these steps:

(a) Remove the unions [13], union [18], packings [14], and packing [19].

(b) Discard the packings [14] and packing [19].

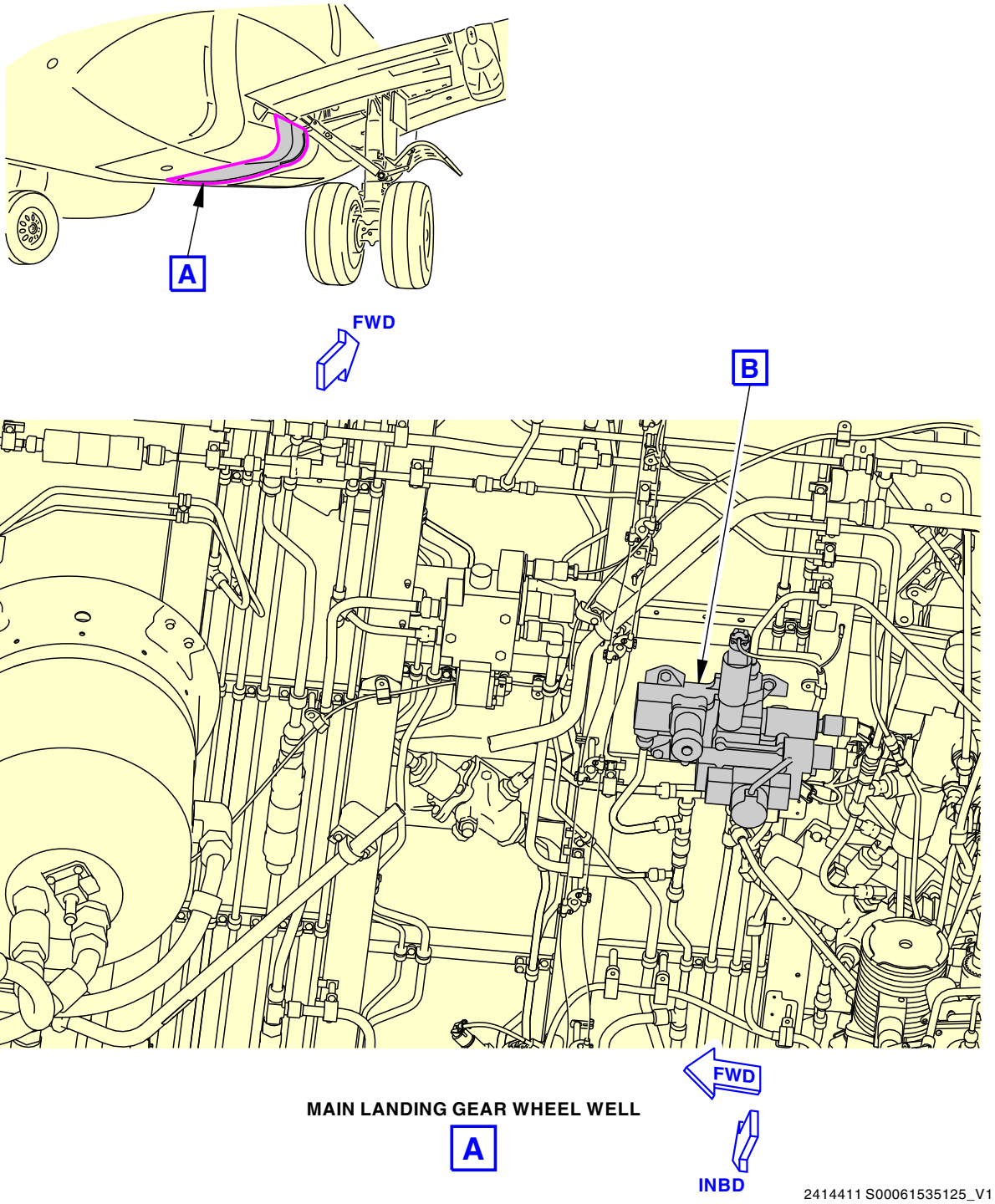
SUBTASK 32-42-81-480-004

(6) Install caps/plugs, STD-14686, in the hydraulic ports of the valve module [20].

**——— END OF TASK ———**



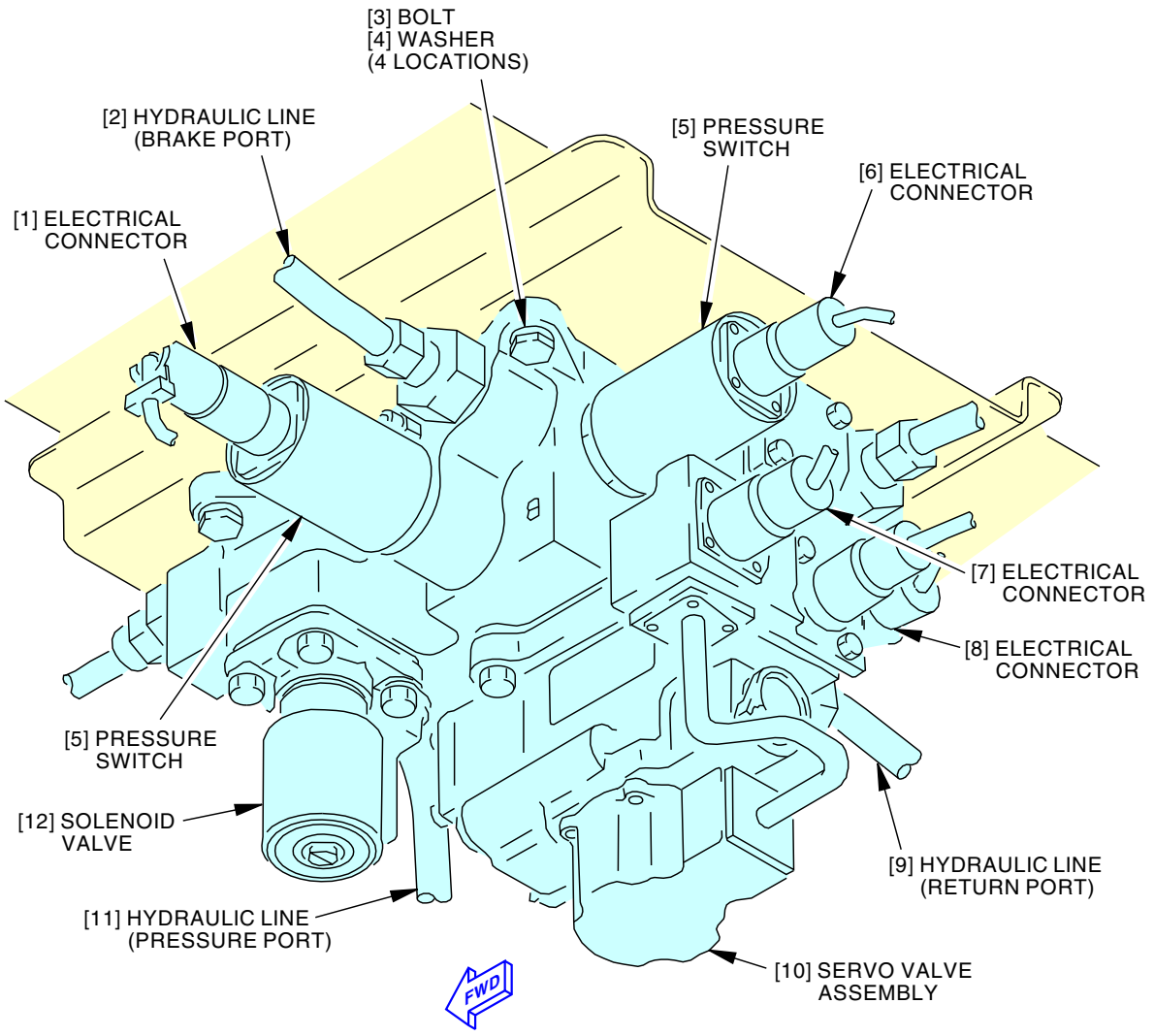
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Autobrake Pressure Control Module Installation**
**Figure 401/32-42-81-990-801 (Sheet 1 of 3)**



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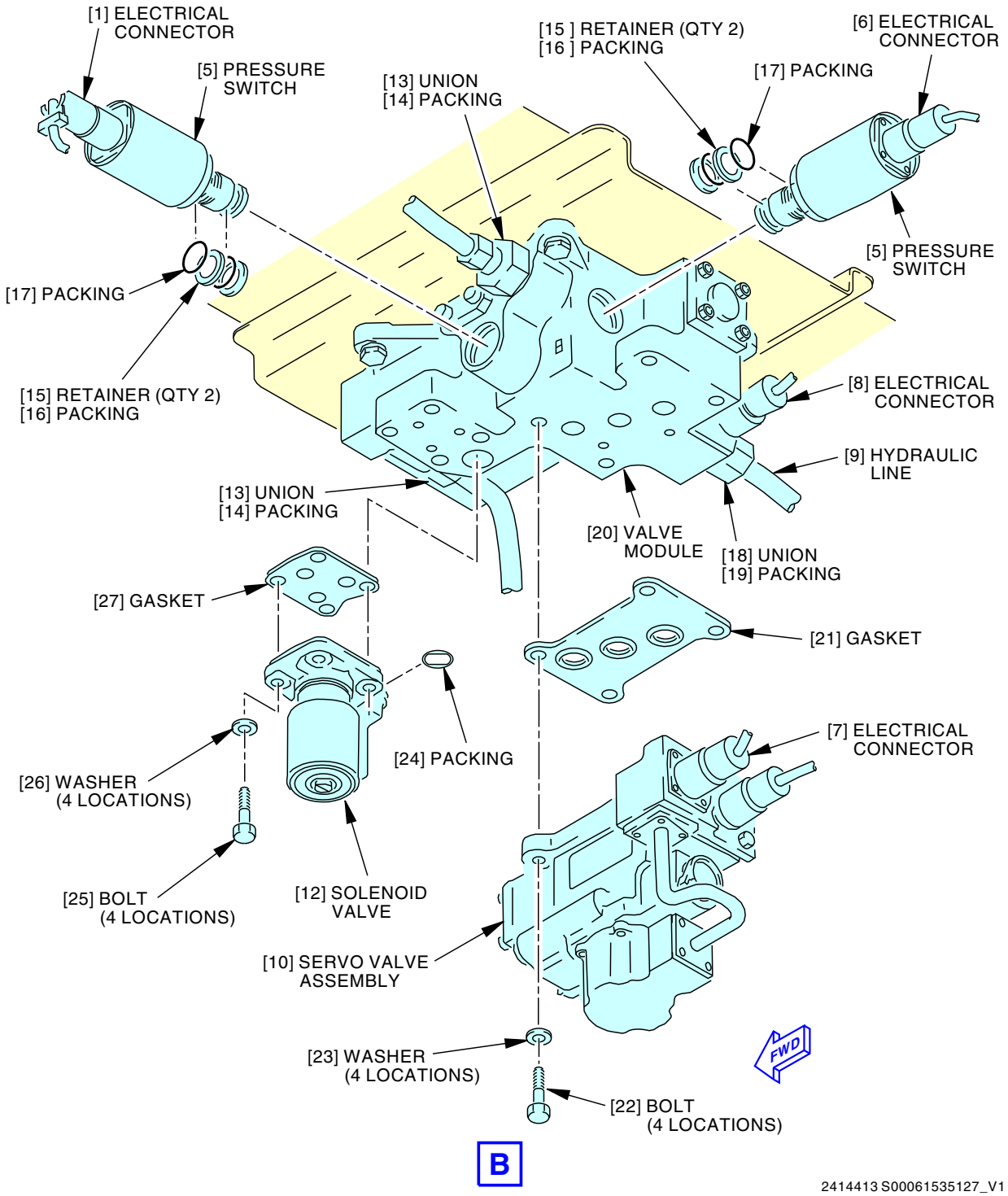

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**Autobrake Pressure Control Module Installation**
**Figure 401/32-42-81-990-801 (Sheet 2 of 3)**



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**Autobrake Pressure Control Module Installation**
**Figure 401/32-42-81-990-801 (Sheet 3 of 3)**



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**TASK 32-42-81-400-801**

## 3. Autobrake Pressure Control Module Valve Installation

(Figure 401)

### A. General

(1) The autobrake pressure control module valve is referred to as the valve module [20] in this task.

### B. References

| Reference | Title |
|---|---|
| 20-10-34-120-801 | Hand Clean Metal Surfaces with Abrasives (P/B 701) |
| 32-41-00-870-801 | Hydraulic Brake System Upstream of the Antiskid Valves Bleeding (P/B 201) |
| 32-42-00-720-801 | Antiskid/Autobrake Control Unit Operational Test (P/B 501) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-20-00, Section 14E | Standard Wiring Practices Manual |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A02315 | Sealant - Low Density, Synthetic Rubber. 2 Part | BMS5-142 Type II |
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

### E. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 14 | Packing | 32-42-81-01-030 | SIA 001-007 |



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(Continued)

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 14 (cont.) | | 32-42-81-02-070 | SIA 008-999 |
| 19 | Packing | 32-42-81-01-030 | SIA 001-007 |
| | | 32-42-81-02-070 | SIA 008-999 |
| 20 | Valve module | 32-42-81-01-035 | SIA 001-007 |
| | | 32-42-81-02-075 | SIA 008-999 |

**F. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

**G. Autobrake Pressure Control Module Installation**

SUBTASK 32-42-81-080-001

(1) Remove the caps/plugs, STD-14686, from the ports of the valve module [20].

SUBTASK 32-42-81-420-001

(2) If the replacement valve module [20] does not have hydraulic fittings installed, do these steps:

(a) Lubricate the unions [13], union [18], new packings [14], and new packing [19] for the valve module [20] with the hydraulic fluid, D00153.

(b) Install the packings [14] and packing [19] on the unions [13] and union [18].

(c) Install the unions [13] and union [18] in the valve module [20].

1) Tighten the union [13] and union [18] to 360 ±18 in-lb (41 ±2 N·m).

SUBTASK 32-42-81-100-001

(3) Do the steps below to help get a good electrical bond between the valve module [20] and the module bracket:

(a) Fully clean the mating surface of the bracket and the valve module [20] (TASK 20-10-34-120-801).

(b) Manually apply the coating, C00064, to all of the cleaned areas of the bracket.

SUBTASK 32-42-81-420-002

(4) Install the valve module [20]:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply Cor-Ban 27L Compound, G50237, to the bolts [3] and washers [4] that hold the valve module [20] to the bracket.

(b) Install the bolts [3] and washers [4] to hold the valve module [20] to the bracket.

(c) Do a check of the resistance between the valve module [20] and the bracket with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00).

1) Make sure that the resistance is 0.0025 ohm (2.5 milliohms) or less.

(d) Remove caps/plugs, STD-14686, from the hydraulic line [2], hydraulic line [9], and hydraulic line [11].



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(e) Connect the hydraulic line [2], hydraulic line [9], and hydraulic line [11] to the unions [13] and union [18] on the valve module [20].

(f) Tighten the B-nuts on hydraulic line [2], hydraulic line [9], and hydraulic line [11] to 170 ±9 in-lb (19.2 ±1.0 N·m).

(g) Before you connect the electrical connector [1], electrical connector [6], electrical connector [7], and electrical connector [8] to the valve module [20], examine the electrical connector [1], electrical connector [6], electrical connector [7], and electrical connector [8] for corrosion.

**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

1) If there is corrosion, refer to SWPM 20-60-03 to correct the problem.

2) Apply the D5026NS or ZC-026 compound, G50171, to the electrical connector [1], electrical connector [6], electrical connector [7], and electrical connector [8] (SWPM 20-60-03).

3) Connect the electrical connector [1], electrical connector [6], electrical connector [7], and electrical connector [8] to the valve module [20].

SUBTASK 32-42-81-390-001

(5) Apply a fillet seal with sealant, A02315, around the mounting points between the valve module [20] and the bracket (SWPM 20-20-00, Section 14E).

## H. Autobrake Pressure Control Module Installation Test

SUBTASK 32-42-81-860-005

(1) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-42-81-710-001

(2) Do this task: Antiskid/Autobrake Control Unit Operational Test, TASK 32-42-00-720-801.

SUBTASK 32-42-81-870-001

(3) Do this task: Hydraulic Brake System Upstream of the Antiskid Valves Bleeding, TASK 32-41-00-870-801.

**END OF TASK**



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TASK 32-42-81-000-802

## 4. Autobrake Pressure Control Module Line Replaceable Units Removal

(Figure 401)

### A. General

(1) The autobrake pressure control module is referred to as the valve module [20] in this task.

(2) This procedure has the removal of these components on the valve module [20]:

(a) solenoid valve [12]

(b) servo valve assembly [10]

(c) pressure switch [5]

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Tools/Equipment

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

### E. Prepare for the Removal

SUBTASK 32-42-81-480-005

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-42-81-860-006

(2) To remove pressure from the normal (system B) and the alternate (system A) hydraulic systems, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-42-81-480-006

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-42-81-860-007

(4) Release the PARKING BRAKE.

SUBTASK 32-42-81-840-002

(5) Operate the brake pedals until the gage at the brake accumulator shows no change in the pressure.

NOTE: You will have to operate the brake pedals approximately 12 times to fully release the pressure from the accumulator.



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SUBTASK 32-42-81-860-008

(6) Set the PARKING BRAKE.

SUBTASK 32-42-81-860-009

(7) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

## F. Solenoid Valve Removal

SUBTASK 32-42-81-020-005

(1) Remove the bolts [25] and washers [26] that connect the solenoid valve [12] to the valve module [20].

SUBTASK 32-42-81-480-007

**CAUTION** WHEN YOU REMOVE THE SOLENOID VALVE AND THE GASKET, MAKE SURE THAT CONTAMINATION CAN NOT GO INTO THE MODULE'S OPEN PORTS. DAMAGE TO THE VALVE CAN OCCUR IF LET CONTAMINATION GO INTO THE PORTS.

(2) Remove the solenoid valve [12] from the valve module [20].

SUBTASK 32-42-81-480-008

(3) Remove the packing [24] from the solenoid valve [12].

(a) Discard the packing [24].

SUBTASK 32-42-81-020-006

(4) Remove the gasket [27] from the valve module [20].

SUBTASK 32-42-81-480-009

(5) Install a cap/plug, STD-14686, in the port for the solenoid valve [12].

## G. Servo Valve Removal

SUBTASK 32-42-81-020-007

(1) Disconnect the electrical connector [7] from the servo valve assembly [10].

SUBTASK 32-42-81-020-008

(2) Remove the bolts [22] and washers [23] that connect the servo valve assembly [10] to the valve module [20].

SUBTASK 32-42-81-480-010

**CAUTION** WHEN YOU REMOVE THE SERVOVALVE AND THE GASKET, MAKE SURE THAT CONTAMINATION CAN NOT GO INTO THE MODULE'S OPEN PORTS. DAMAGE TO THE VALVE CAN OCCUR IF YOU LET CONTAMINATION GO INTO THE PORTS.

(3) Remove the servo valve assembly [10] from the valve module [20].

SUBTASK 32-42-81-020-009

(4) Remove the gasket [21].



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SUBTASK 32-42-81-480-011

(5) Install caps/plugs, STD-14686, in the ports for the servo valve assembly [10].

**H. Pressure Switch Removal**

NOTE: These steps apply to the pressure switch [5] of the solenoid valve [12] and the pressure switch [5] of the servo valve assembly [10].

SUBTASK 32-42-81-020-010

(1) Disconnect the electrical connector [1] or electrical connector [6] from the pressure switch [5].

SUBTASK 32-42-81-480-012

(2) Remove the pressure switch [5] from the valve module [20].

SUBTASK 32-42-81-480-013

(3) Remove the packing [16], packing [17], and retainers [15] from the pressure switch [5].

(a) Discard the packing [16] and packing [17].

SUBTASK 32-42-81-480-014

(4) Install a cap/plug, STD-14686, in the port for the pressure switch [5].

——— END OF TASK ———

**TASK 32-42-81-400-802**

**5. Autobrake Pressure Control Module Line Replaceable Units Installation**

(Figure 401)

**A. General**

(1) The autobrake pressure control module is referred to as the valve module [20] in this task.

(2) The procedure that follows installs these components of the valve module [20]autobrake pressure control module:

(a) solenoid valve [12]

(b) servo valve assembly [10]

(c) pressure switch [5]

**B. References**

| Reference | Title |
|---|---|
| 32-42-00-720-801 | Antiskid/Autobrake Control Unit Operational Test (P/B 501) |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

**C. Tools/Equipment**

| Reference | Description |
|---|---|
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |



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**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Pressure switch | 32-42-81-01-040 | SIA 001-007 |
| | | 32-42-81-03-005 | SIA 008-999 |
| 10 | Servo valve assembly | 32-42-81-01-110 | SIA 001-007 |
| | | 32-42-81-03-075 | SIA 008-999 |
| 12 | Solenoid valve | 32-42-81-01-080 | SIA 001-007 |
| | | 32-42-81-03-045 | SIA 008-999 |
| 16 | Packing | 32-42-81-01-050 | SIA 001-007 |
| | | 32-42-81-03-015 | SIA 008-999 |
| 17 | Packing | 32-42-81-01-045 | SIA 001-007 |
| | | 32-42-81-03-010 | SIA 008-999 |
| 21 | Gasket | 32-42-81-01-095 | SIA 001-007 |
| | | 32-42-81-03-060 | SIA 008-999 |
| 24 | Packing | 32-42-81-01-070 | SIA 001-007 |
| | | 32-42-81-03-035 | SIA 008-999 |
| 27 | Gasket | 32-42-81-01-075 | SIA 001-007 |
| | | 32-42-81-03-040 | SIA 008-999 |

**F. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |

**G. Solenoid Valve Installation**

SUBTASK 32-42-81-420-003

(1) Install the new packing [24] on the solenoid valve [12].

SUBTASK 32-42-81-480-015

(2) Remove the cap/plug, STD-14686, from the port for the solenoid valve [12].

SUBTASK 32-42-81-480-016

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(3) Apply corrosion inhibiting material, G50136, to the bolts [25].

SUBTASK 32-42-81-020-011

(4) Install the gasket [27] on the valve module [20].

SUBTASK 32-42-81-020-012

(5) Put the solenoid valve [12] in its position on the valve module [20].

SUBTASK 32-42-81-420-004

(6) Install the bolts [25] and washers [26] to connect the solenoid valve [12] to the valve module [20].



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SUBTASK 32-42-81-420-005

(7) Tighten the bolts [25] to 77.5 ±2.5 in-lb (8.8 ±0.3 N·m) in a crisscross sequence.

(a) Start with the bolt [25] closest to the nearest bolt [3] for the valve module [20]control module.

(b) Tighten all the bolts [25] to 7.5 ±2.5 in-lb (0.8 ±0.3 N·m), then 37.5 ±2.5 in-lb (4.2 ±0.3 N·m), and then to the final torque: 77.5 ±2.5 in-lb (8.8 ±0.3 N·m).

SUBTASK 32-42-81-420-006

(8) Use a 0.0015 in. (0.0381 mm) shim stock to examine the gasket [27] for gaps.

(a) Gaps more than 0.0015 in. (0.0381 mm) are not permitted.

NOTE: This applies to gaps on either side of the gasket [27]. There must be no gap more than 0.0015 in. (0.0381 mm) between the solenoid valve [12] and the gasket [27] and between the valve module [20] and the gasket [27].

## H. Servo Valve Installation

SUBTASK 32-42-81-480-017

(1) Remove the caps/plugs, STD-14686, from the port for the servo valve assembly [10].

SUBTASK 32-42-81-480-018

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(2) Apply corrosion inhibiting material, G50136 to the bolts [22].

SUBTASK 32-42-81-020-013

(3) Install the gasket [21] on the valve module [20].

SUBTASK 32-42-81-020-014

(4) Put the servo valve assembly [10] in its position on the valve module [20].

SUBTASK 32-42-81-420-007

(5) Install the bolts [22] and washers [23] to connect the servo valve assembly [10] to the valve module [20].

SUBTASK 32-42-81-420-008

(6) Tighten the bolts [22] to 77.5 ±2.5 in-lb (8.8 ±0.3 N·m) in a crisscross sequence.

(a) Start with the bolt [22] closest to the solenoid valve [12].

(b) Tighten all the bolts [22] to 7.5 ±2.5 in-lb (0.8 ±0.3 N·m), then 37.5 ±2.5 in-lb (4.2 ±0.3 N·m), and then to the final torque: 77.5 ±2.5 in-lb (8.8 ±0.3 N·m).

SUBTASK 32-42-81-420-009

(7) Use a 0.0015 in. (0.0381 mm) shim stock to examine the gasket [21] for gaps.

(a) Gaps more than 0.0015 in. (0.0381 mm) are not permitted.

NOTE: This applies to gaps on either side of the gasket [21]. There must be no gap more than 0.0015 in. (0.0381 mm) between the servo valve assembly [10] and the gasket [21] and between the valve module [20] and the gasket [21].



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SUBTASK 32-42-81-020-015

(8) Before you connect the electrical connector [7] to the servo valve assembly [10], examine the electrical connector [7] for corrosion.

**WARNING** DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to SWPM 20-60-03 to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171, to the electrical connector [7] (SWPM 20-60-03).

(9) Connect the electrical connector [7] to the servo valve assembly [10].

## I. Pressure Switch Installation

NOTE: These steps apply to the pressure switch [5] of the solenoid valve [12] and the pressure switch [5] of the servo valve assembly [10] .

SUBTASK 32-42-81-420-010

(1) Lubricate the new packing [16], new packing [17], and retainers [15] with hydraulic fluid, D00153.

SUBTASK 32-42-81-420-011

(2) Install the packing [17] in the middle groove of the pressure switch [5].

SUBTASK 32-42-81-420-012

(3) Install a retainer [15], packing [16], and retainer [15] in the end groove of the pressure switch [5].

SUBTASK 32-42-81-480-019

(4) Install the pressure switch [5] on the valve module [20].

(a) For HR Textron (P/N 20102060 series) pressure switch [5], tighten the pressure switch [5] to a torque of 359.5 ±17.5 in-lb (40.6 ±2.0 N·m).

SUBTASK 32-42-81-420-013

(5) Before you connect the electrical connector [1] or electrical connector [6] to the pressure switch [5], examine the electrical connector [1] or electrical connector [6] for corrosion.

**WARNING** DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to SWPM 20-60-03 to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171, to the electrical connector [1] or electrical connector [6] (SWPM 20-60-03).

(c) Connect the electrical connector [1] or electrical connector [6] to the pressure switch [5].



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## J. Put the Airplane Back to its Usual Condition

SUBTASK 32-42-81-860-010

(1) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| A | 16 | C01345 | LANDING GEAR AUTOBRAKE BITE CONT 2 |
| A | 18 | C00583 | LANDING GEAR AUTOBRAKE BITE CONT 1 |
| E | 16 | C00196 | LANDING GEAR ANTISKID INBD |
| E | 18 | C00195 | LANDING GEAR ANTISKID OUTBD |

SUBTASK 32-42-81-710-002

(2) Do this task: Antiskid/Autobrake Control Unit Operational Test, TASK 32-42-00-720-801.

**——— END OF TASK ———**



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# PARKING BRAKE SYSTEM - ADJUSTMENT/TEST

## 1. General

A. This procedure has these tasks:

(1) Adjustment of the parking brake system

(2) Operational test of the parking brake system

(3) Parking brake hold check.

**TASK 32-44-00-820-801**

## 2. Parking Brake System Adjustment

(Figure 501, Figure 502)

### A. General

(1) This procedure has the steps to adjust the parking brake system for the captain or first officer.

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### D. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 211 | Flight Compartment - Left |

### E. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### F. Prepare for the Adjustment

**SUBTASK 32-44-00-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.



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SUBTASK 32-44-00-860-001

(2) Open this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

to get access to the parking brake system.

SUBTASK 32-44-00-480-002

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-44-00-860-003

(4) Release the parking brake.

## G. Parking Brake System Adjustment

SUBTASK 32-44-00-820-001

(1) Adjust the pawls [11] of the parking brake:

(a) Extend the pawls [11] one turn at a time until the parking brake can not be set.

(b) Retract the pawls [11] 1 to 2 turns to set adjustment.

(c) Remove cotter pins [10] from pawls [11].

(d) Remove the nuts [9] from the pawls [11].

(e) Adjust the pawls [11] to make sure that there is a 0.13 in. (3.30 mm) - 0.17 in. (4.32 mm) gap between the support assembly [21] and the bellcrank [13] when parking brake is engaged.

(f) Make sure that both pawls [11] adjusted to the same height.

(g) Install the nuts [9] and cotter pins [10] to the pawls [11].

SUBTASK 32-44-00-820-002

(2) Adjust the pawl stop:

(a) Install the rig pin LGB1, from rigging pin kit, SPL-1585, to the bellcrank rig pin holes [3] on captain side thought bellcranks [13] and structure.

(b) Rotate the pawls [11] until they touch the bellcrank bushings [12].

(c) Hold the pawls against the bushings [12].

(d) Adjust the pawl stop until the clearance between rubber bumper [4] and pawls [11] at the closest point is 0.34 in. (8.64 mm) - 0.46 in. (11.68 mm):

1) Remove the nut [7] from the pawl stop assembly.

2) Remove the pawl stop assembly (the bumper [4], screw [5], and washers [6]) from the pawl stop bracket [8].

3) Add or remove washers [6] until you get the correct clearance.

4) Install the pawl stop assembly (the bumper [4], screw [5], and washers [6]) on the pawl stop bracket [8].

5) Install the nut [7] on the pawl stop assembly.

(e) Release the bellcranks [13].

SUBTASK 32-44-00-820-003

(3) Adjust the parking brake lever [42] (Figure 501, Figure 502):

(a) Make sure that the rig pin LGB1, from rigging pin kit, SPL-1585, is installed.

(b) Install a rig pin LGB2, from rigging pin kit, SPL-1585, through the jackshaft rig pin hole [15] and switch support bracket [18].



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(c) Make sure that the pawl [11] is against rubber bumper [4].

(d) Adjust the length of the rod [1] and the rod [49] so that the rod end bearing holes align with the crank holes.

(e) Make sure that at least one half of the rod end is shown in the inspection holes.

(f) If necessary, remove the cotter pin [47], washer [46], and pin [45] from the parking brake lever [42] and the rod [44].

(g) Loosen the jamnut [48] on the bottom of the rod [44].

(h) Adjust the length of the rod [44] until the stop surface of the parking brake lever [42] is against the top of the control stand when the pin [45] is installed.

NOTE: If the rod [44] is adjusted with this method, the rod [44] itself must be turned in full 360 degree turns. The rod assembly is orientation sensitive.

(i) Tighten the jamnut [48] on the rod [44].

(j) If removed, install the pin [45], washer [46], and cotter pin [47] to hold the parking brake lever [42] to the rod [44].

(k) Make sure that the parking brake lever [42] moves smoothly.

(l) Remove the rig pin LGB2, from rigging pin kit, SPL-1585, from the jackshaft rig pin hole [15] and the switch support bracket [18].

(m) Remove the rig pin LGB1, from rigging pin kit, SPL-1585, from the bellcrank rig pin holes [3] on captain side thought bellcranks [13] and structure.

**SUBTASK 32-44-00-820-004**

(4) Adjust the switch [17] (Figure 501, Figure 502):

(a) Make sure that the rudder pedals are released.

(b) Pull the parking brake lever [42] on the control stand, until it stops, and hold it in this position.

(c) Make sure that the switch actuator roller [22] lightly touches the rod [1] end.

(d) Make sure that the parking brake light [43], next to the parking brake lever [42], does not come on.

(e) If the switch [17] does not operate in the correct range, do these steps:

1) Install the rig pin LGB1, from rigging pin kit, SPL-1585, to the bellcrank rig pin holes [3] on captain side thought bellcranks [13] and structure.

2) Loosen the screws [19] and nuts [20] that hold the switch actuator [16] and switch [17] to the airplane.

3) Rotate the pawls [11] until they touch the bellcrank bushings [12].

4) Adjust the switch actuator [16] until the switch actuator roller [22] touches the end of the rod [1].

5) Continue to rotate switch [17] until the switch clicks.

6) Tighten the screws [19] and nuts [20].

7) Remove the rig pin LGB1, rigging pin kit, SPL-1585 from the bellcrank rig pin holes [3] on captain side.

(f) Set the parking brake by depressing both brake pedals on the applicable side (captain's or first officer's) to the stops.



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(g) Pull the parking brake lever [42] and make sure that parking brake light [43] next to the parking brake lever [42] comes on.

NOTE: The parking brake light [43] should come on between 35 to 45 degrees of parking brake lever [42] travel from the released position.

(h) Continue to pull the parking brake lever [42] until it stops.

(i) With the parking brake lever [42] at the stops, release the brake pedals.

(j) Make sure that the brake pedals stay applied.

(k) Release the parking brake by depressing both pedal simultaneously.

(l) Make sure that the parking brake light [43] goes off.

(m) Make sure that the parking brake lever [42] returns to its usual position without assistance.

(n) Set the parking brake.

(o) Repeat steps (f) through (n) to adjust the first officer's rudder pedals.

**SUBTASK 32-44-00-860-004**

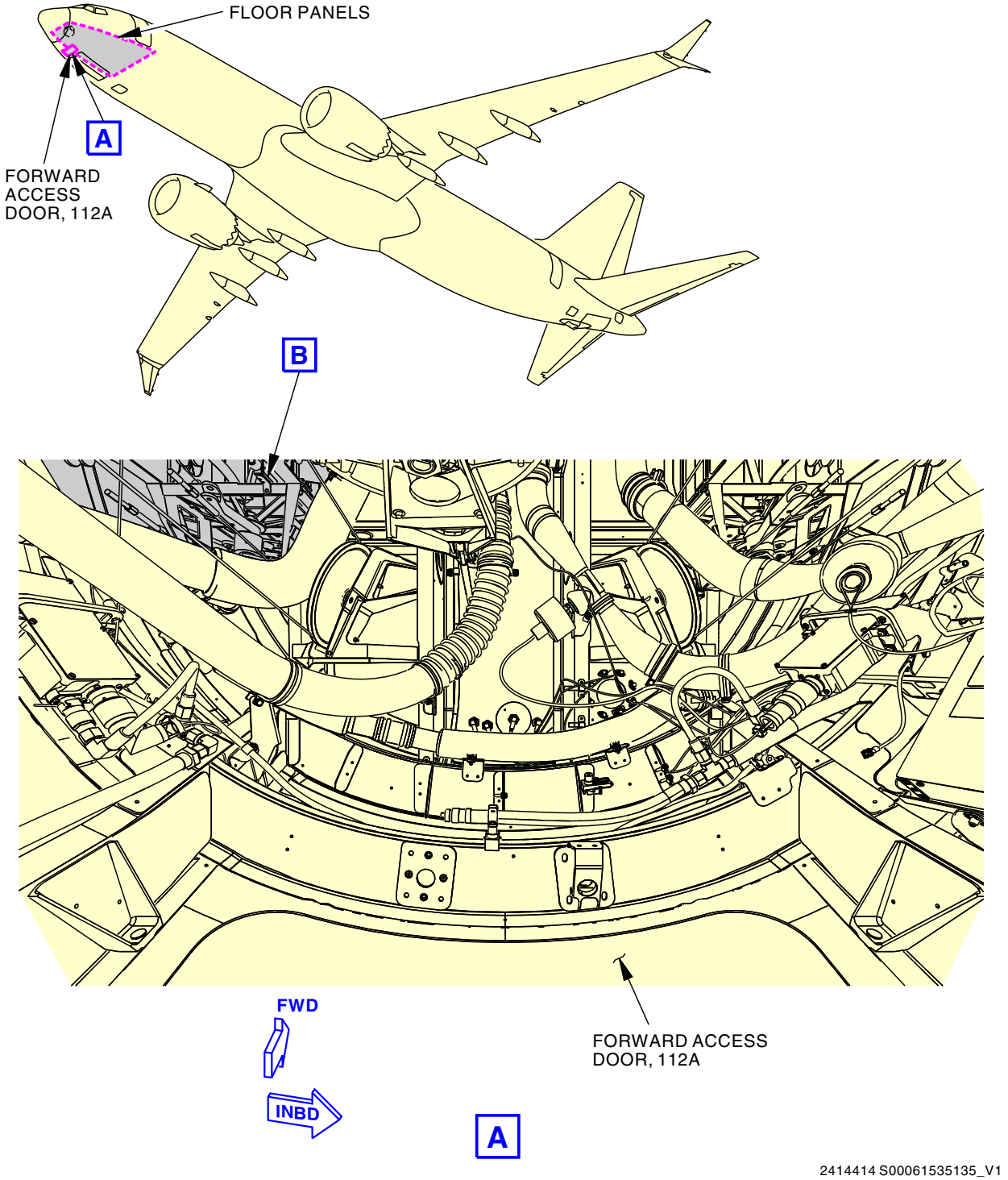
(5) Close this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

**——— END OF TASK ———**



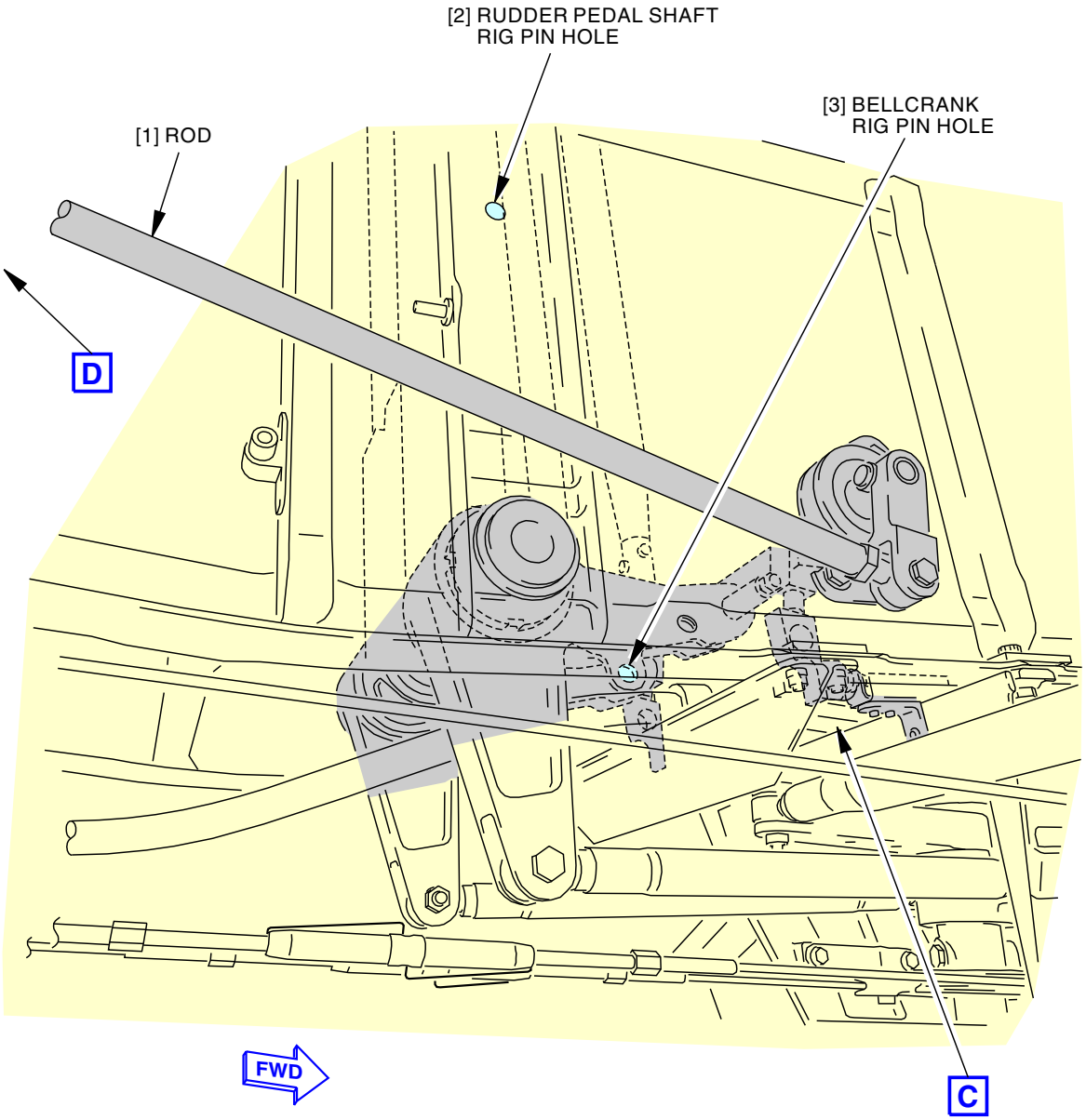
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Parking Brake System Adjustment**
**Figure 501/32-44-00-990-801 (Sheet 1 of 6)**



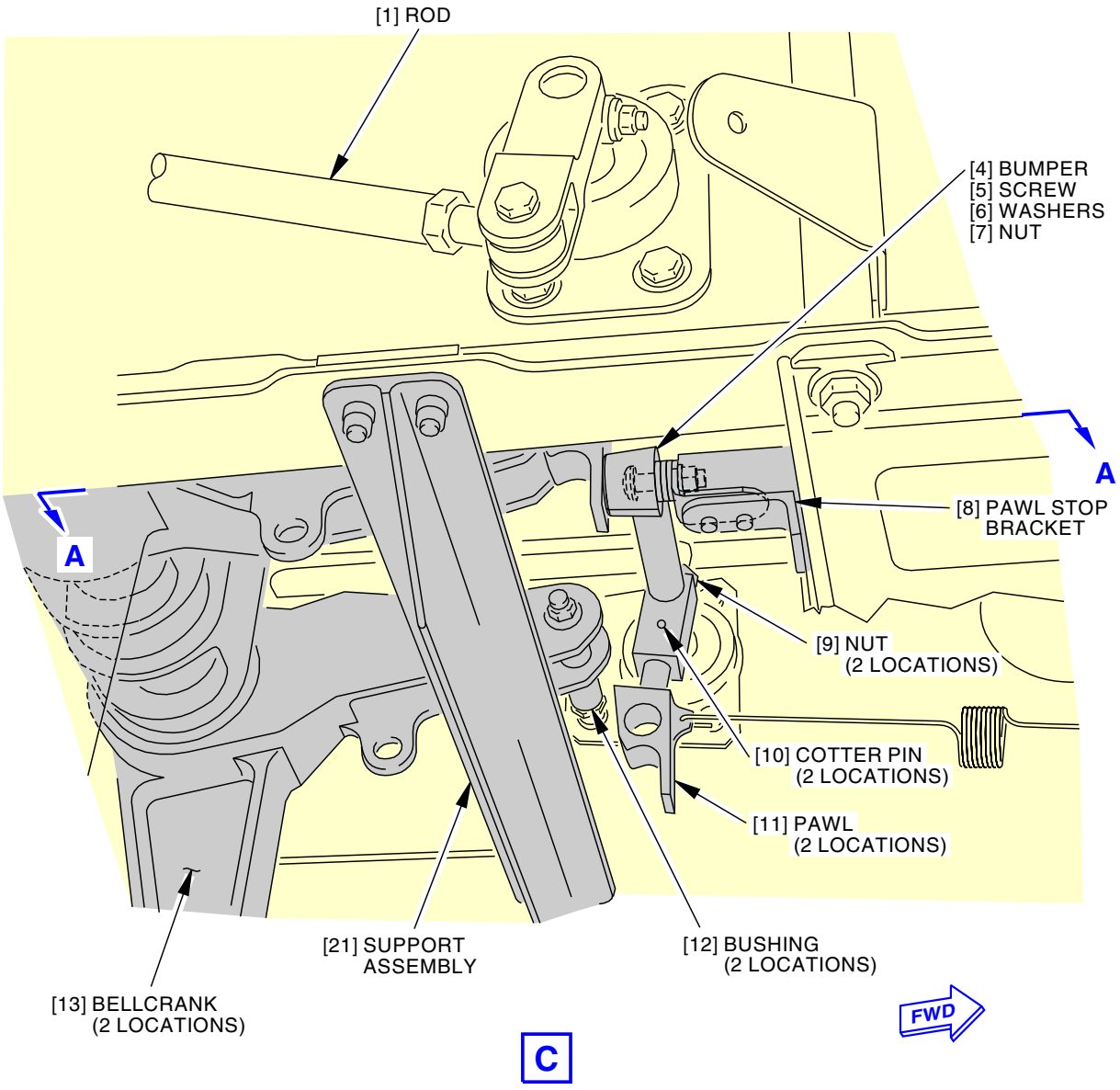
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Parking Brake System Adjustment**
**Figure 501/32-44-00-990-801 (Sheet 2 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

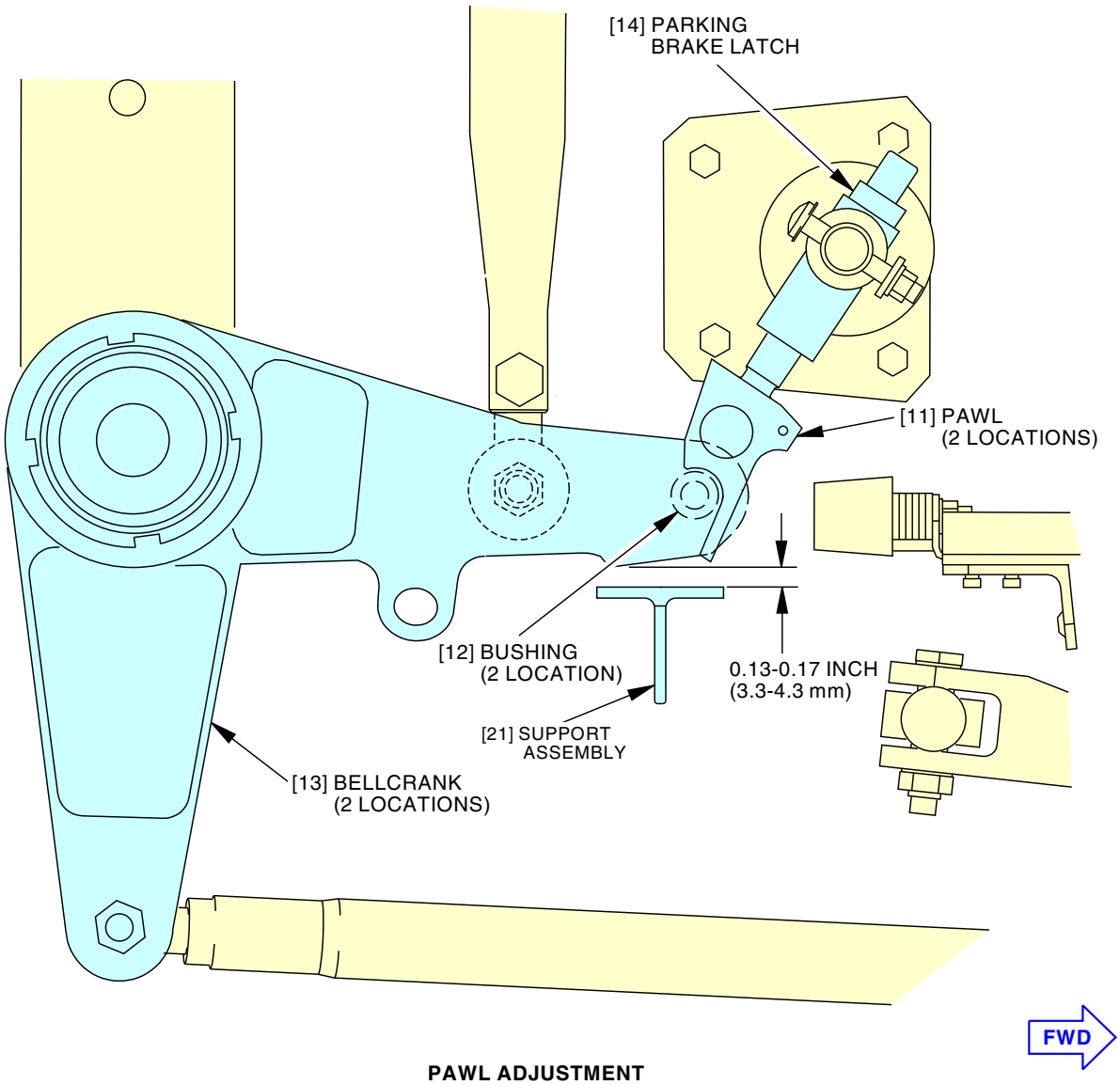



2414416 S00061535137_V2

**Parking Brake System Adjustment**
**Figure 501/32-44-00-990-801 (Sheet 3 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**PAWL ADJUSTMENT**
**(PARKING BRAKE ''ON''POSITION)**

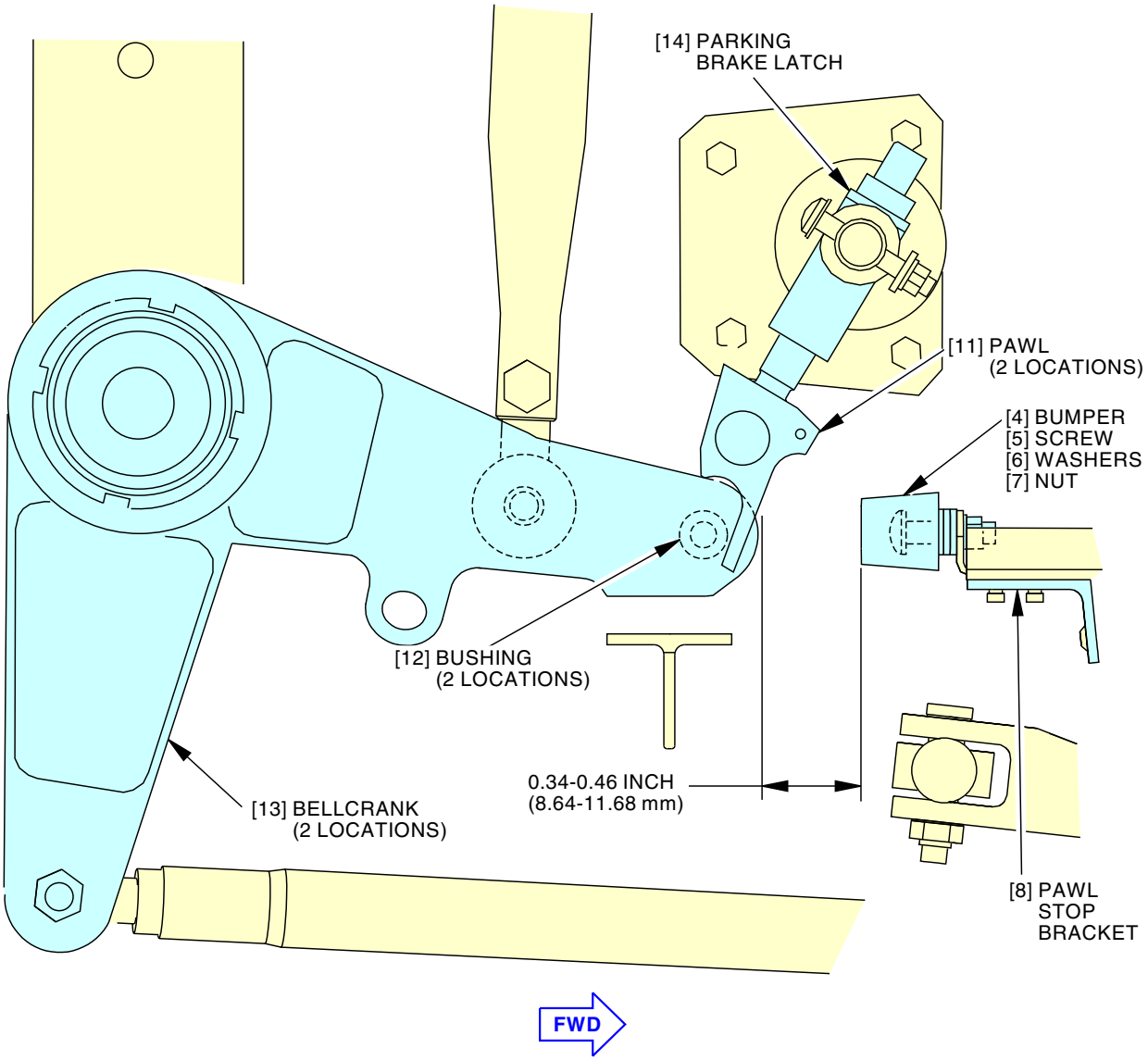
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2414417 S00061535138_V2

**Parking Brake System Adjustment**
**Figure 501/32-44-00-990-801 (Sheet 4 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**PAWL ADJUSTMENT**
**(PAWLS CONTACT BUSHINGS)**

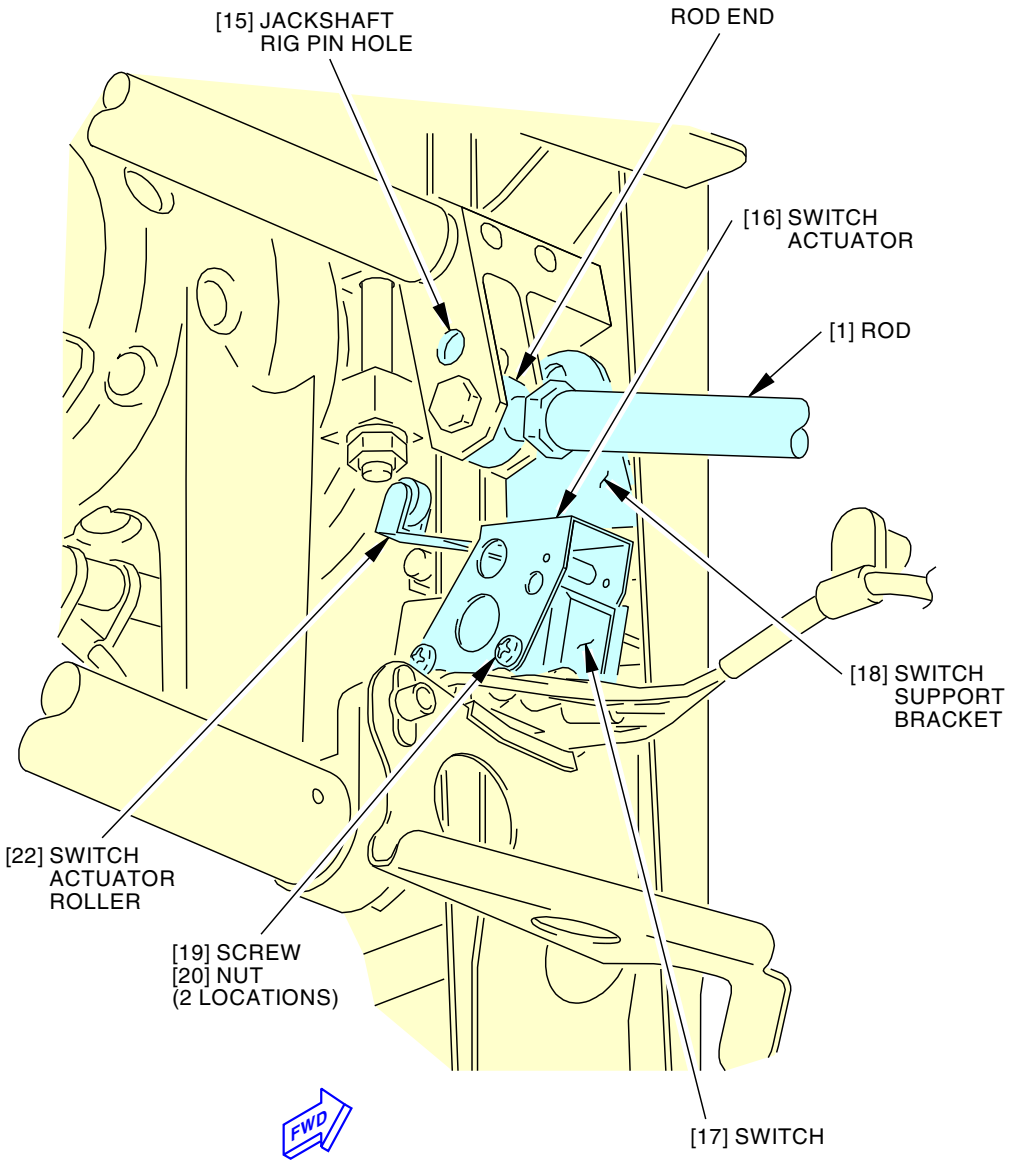
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2414418 S00061535139_V2

**Parking Brake System Adjustment**
**Figure 501/32-44-00-990-801 (Sheet 5 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**SWITCH ADJUSTMENT**

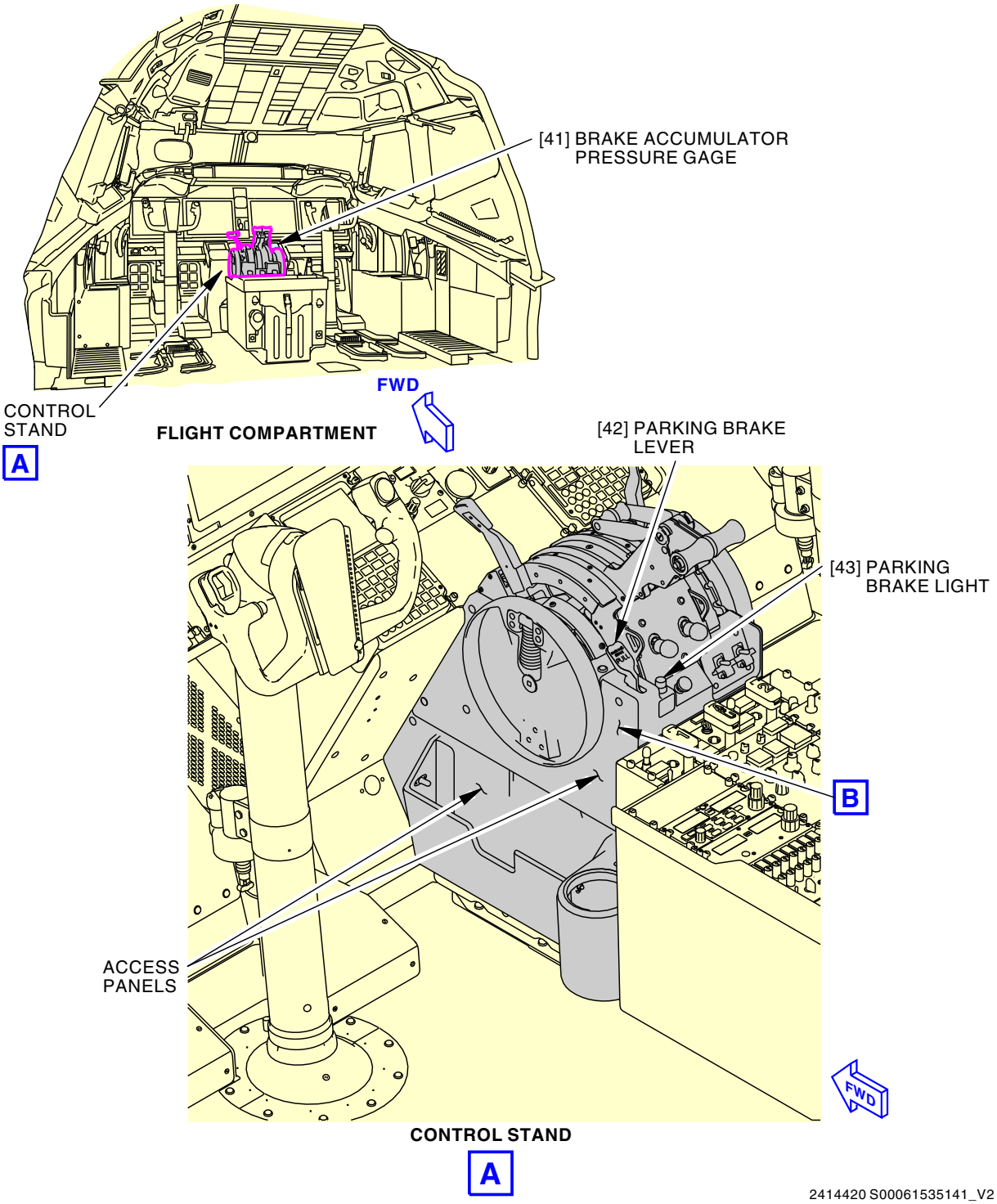
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2414419 S00061535140_V2

**Parking Brake System Adjustment**
**Figure 501/32-44-00-990-801 (Sheet 6 of 6)**



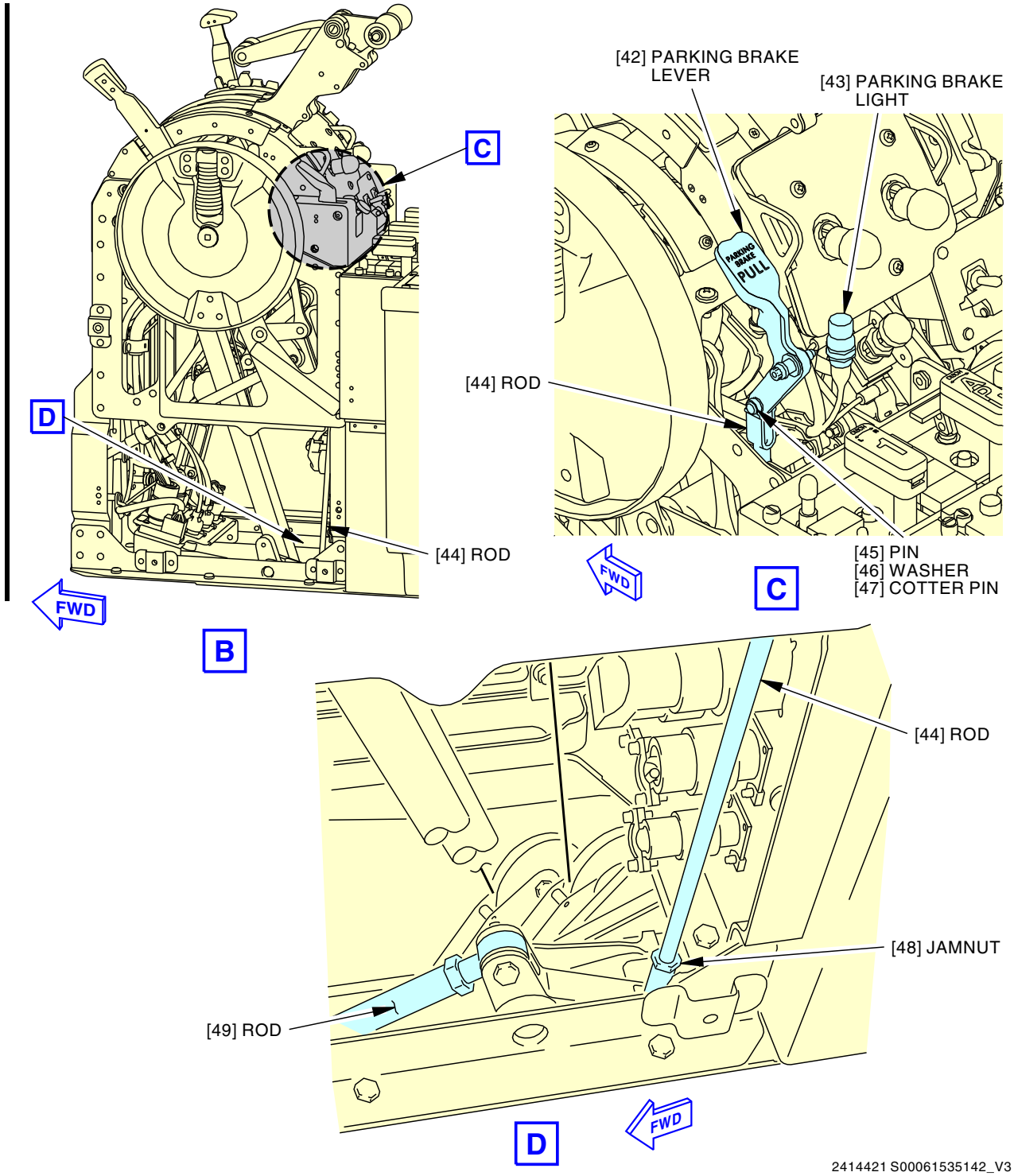
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Parking Brake Lever Adjustment**
**Figure 502/32-44-00-990-802 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Parking Brake Lever Adjustment**
**Figure 502/32-44-00-990-802 (Sheet 2 of 2)**



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**TASK 32-44-00-710-801**

## 3. Parking Brake System Operational Test

(Figure 501, Figure 502)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Test

SUBTASK 32-44-00-480-004

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-44-00-860-005

(2) For the system A and system B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-44-00-480-005

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-44-00-860-006

(4) Release the parking brake.

SUBTASK 32-44-00-840-001

(5) Fully push the brake pedals 12 times to remove hydraulic pressure from the brake accumulator.

NOTE: You can look at the brake pistons to see that the brakes no longer actuate when the brake pedals are pushed.



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SUBTASK 32-44-00-480-006

(6) Install rig pins R1 and R2, from rigging pin kit, SPL-1585, through the captain's and first officer's rudder pedal shaft rig pin holes [2] and into the structure.

NOTE: The placard on the inside of the box for the rigging pin kit, SPL-1585, identifies the different rigging pins.

## E. Parking Brake System Operational Test

SUBTASK 32-44-00-790-001

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) For the B hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-44-00-720-001

(2) Make sure that the pressure shown on the HYD BRAKE PRESS gage is approximately the same as the B hydraulic system pressure.

NOTE: The HYD BRAKE PRESS gage is in the flight compartment on the main instrument panel for the first officer.

SUBTASK 32-44-00-710-001

(3) Do these steps for the captain's brake pedals:

(a) Push the two brake pedals fully to their stops and set the parking brake.

(b) Release the brake pedals.

(c) Make sure that the parking brake engages.

(d) Make sure that the parking brake light [43] on the control stand is on.

(e) Make sure that the parking brake light on the external power panel, P19 is on.

(f) Look at the pistons on each brake to see that the brakes are engaged.

(g) Release the parking brake.

(h) Make sure that the parking brake light [43] on the control stand is off.

(i) Make sure that the parking brake light on the external power panel, P19 is off.

(j) Look at the pistons on each brake to see that the brakes are not engaged.

(k) For the B hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(l) Fully push the captain's brake pedals twelve times to remove the pressure from the brake accumulator.

(m) Push the two brake pedals fully to their stops and set the parking brake.

(n) Release the brake pedals.

(o) Make sure that the parking brake engages.

(p) Make sure that the parking brake light [43] on the control stand is on.

(q) Make sure that the parking brake light on the external power panel, P19 is on.

(r) Look at the pistons on each brake to see that the brakes are not engaged.

(s) Release the parking brake.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(t) For the B hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(u) Push the left brake pedal fully to the stop.

(v) Pull the parking brake lever [42] on the control stand.

(w) Make sure that the parking brake will not engage.

(x) Make sure that the parking brake light [43] on the control stand is off.

(y) Make sure that the parking brake light on the external power panel is off.

(z) Look at the pistons on each brake to see that the brakes on the left gear are engaged and the brakes on the right gear are not engaged.

(aa) Release the left brake pedal.

(ab) Push the right brake pedal fully to the stop.

(ac) Pull the parking brake lever [42] on the control stand.

(ad) Make sure that the parking brake will not engage.

(ae) Make sure that the parking brake light [43] on the control stand is off.

(af) Make sure that the parking brake light on the external power panel, P19 is off.

(ag) Look at the pistons on each brake to see that the brakes on the right gear are engaged and the brakes on the left gear are not engaged.

(ah) Release the right brake pedal.

**SUBTASK 32-44-00-710-002**

(4) Do these steps for the first officer's brake pedals:

(a) Push the two brake pedals fully to their stops and set the parking brake.

(b) Release the brake pedals.

(c) Make sure that the parking brake engages.

(d) Release the parking brake.

(e) Push the left brake pedal fully to the stop.

(f) Pull the parking brake lever [42] on the control stand.

(g) Make sure that the parking brake will not engage.

(h) Release the left brake pedal.

(i) Push the right brake pedal fully to the stop.

(j) Pull the parking brake lever [42] on the control stand.

(k) Make sure that the parking brake will not engage.

(l) Release the right brake pedal.

**SUBTASK 32-44-00-080-001**

(5) Remove rig pins R1 and R2, from rigging pin kit, SPL-1585, from the rudder pedal shaft rig pin hole [2].



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SUBTASK 32-44-00-720-002

(6) Do this task: Parking Brake Hold Check, TASK 32-44-00-790-801.

——— END OF TASK ———

**TASK 32-44-00-790-801**

## 4. Parking Brake Hold Check

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) This procedure includes:

(a) Parking brake system bleed down test - Parking brake set

(b) Parking brake system bleed down test - Parking brake released

### B. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare for the Procedure

SUBTASK 32-44-00-480-007

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-44-00-480-008

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-44-00-860-007

(3) Release the parking brake.

SUBTASK 32-44-00-860-008

(4) For the A and B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-44-00-870-001

(5) Push the Captain's or the First Officer's left and right toe brake pedals to the stops several times until the brakes no longer actuate.

NOTE: This will release the hydraulic pressure at the accumulator.

(a) You can look at the pistons on each brake to see that the brakes no longer actuate when the brake pedals are pushed.



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SUBTASK 32-44-00-860-009

(6) Make sure that the brake accumulator Nitrogen/Dry Air charge is correct.

NOTE: You can find the correct charge pressure from the accumulator placard located on the rear bulkhead in the right main gear wheel well.

SUBTASK 32-44-00-790-002

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(7) To pressurize B hydraulic system to 3000 ±150 psig (20,684 ±1034 kPa), do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-44-00-860-010

(8) Set the parking brake.

NOTE: This step keeps the brake system pressurized with the accumulator.

SUBTASK 32-44-00-720-003

(9) Wait at least 10 minutes for the accumulator temperature to stabilize.

## E. Parking Brake Hold Check - Parking Brake Set

SUBTASK 32-44-00-720-004

(1) Write down the pressure shown on the PRESS gage for the brake accumulator.

NOTE: The PRESS gage is located on the rear bulkhead in the right main gear wheel well.

SUBTASK 32-44-00-860-011

(2) For the B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

NOTE: This will leave the accumulator charged and pressurized.

(a) Record the initial time when the B hydraulic system pressure is removed.

SUBTASK 32-44-00-710-003

(3) Do a check of the brake pressure at the end of any of the time periods that follow. If the necessary pressure drop for one time period is not within the limits, you can use the next time period.

NOTE: It is permitted to read the brake pressures from the brake pressure gage in the cockpit, or the brake accumulator gage in the wheel well.

(a) After 10 minutes, the pressure drop should be less than 100 psi (689 kPa).

(b) After 30 minutes, the pressure drop should be less than 300 psi (2068 kPa).

(c) After 1 hour, the pressure drop should be less than 500 psi (3447 kPa).

(d) After 8 hours, the pressure should be more than 1200 psi (8274 kPa) minimum.

SUBTASK 32-44-00-780-001

(4) If the brake accumulator pressure drops faster than permitted, do a check for leaks in the accumulator system.

SUBTASK 32-44-00-780-002

(5) The troubleshooting of the brake system can be delayed until the next convenient maintenance period if the conditions that follow are met:



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(a) With the parking brake set, the brake accumulator pressure drop must be less than 800 psi (5516 kPa) in the first 30 minutes.

(b) The system passes the Parking Brake Hold Check - Parking Brake Released.

SUBTASK 32-44-00-860-012

(6) Release the parking brake.

SUBTASK 32-44-00-720-005

(7) Push the Captain's or First Officer's left and right toe brake pedals to the stops 7 times while you monitor the brake pistons on all of the brakes.

NOTE: Wait approximately 3 seconds each time you apply the brakes.

(a) Make sure that the brake pistons compress and release each of the 7 times the pedals are pushed.

## F. Parking Brake Hold Check - Parking Brake Released

SUBTASK 32-44-00-790-003

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Pressurize B hydraulic system to 3000 ±150 psig (20,684 ±1034 kPa), do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-44-00-720-006

(2) Wait at least 10 minutes for the accumulator temperature to stabilize.

SUBTASK 32-44-00-720-007

(3) Write down the pressure shown on the PRESS gage for the brake accumulator.

NOTE: The PRESS gage is located on the rear bulkhead in the right main gear wheel well.

SUBTASK 32-44-00-860-013

(4) For the B hydraulic systems, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

NOTE: This will leave the accumulator charged and pressurized.

(a) Record the initial time when the B hydraulic system pressure is removed.

SUBTASK 32-44-00-780-003

(5) Do a check of the brake pressure at 30 minutes after the test start.

(a) Make sure that the pressure decrease of the brake accumulator is less than 450 psi (3103 kPa).

SUBTASK 32-44-00-780-004

(6) If the brake accumulator pressure drops faster than permitted, do a check of the accumulator system for leaks.



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## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-44-00-790-004**

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Pressurize B hydraulic system to 3000 ±150 psig (20,684 ±1034 kPa), do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

**SUBTASK 32-44-00-720-008**

(2) Set the parking brake.

**SUBTASK 32-44-00-860-014**

(3) For the B hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**END OF TASK**



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## PARKING BRAKE LINKAGE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the parking brake lever.

(2) Installation of the parking brake lever.

(3) Removal of the parking brake jackshaft.

(4) Installation of the parking brake jackshaft.

(5) Removal of the parking brake latch.

(6) Installation of the parking brake latch.

(7) Removal of the parking brake latch switch.

(8) Installation of the parking brake latch switch.

(9) Visual inspection of the parking brake mechanism.

**TASK 32-44-11-000-801**

### 2. Parking Brake Lever Removal

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |

**C. Prepare for the Removal**

**SUBTASK 32-44-11-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-44-11-480-002**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-44-11-860-001**

(3) Release the parking brake.

**SUBTASK 32-44-11-860-019**

(4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 10 | C00207 | FLIGHT CONTROL STAB TRIM CONT |
| D | 10 | C00840 | FLIGHT CONTROL STAB TRIM ACTUATOR |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-44-11-860-002

**WARNING** STAY AWAY FROM THE STABILIZER TRIM WHEEL ON THE CONTROL STAND IF YOU USE THE STABILIZER TRIM SWITCH ON THE CONTROL WHEEL. THE STABILIZER TRIM SWITCH CAN CAUSE THE STABILIZER TRIM WHEEL TO TURN QUICKLY. INJURY TO PERSONS CAN OCCUR IF YOU TOUCH IT WHEN IT TURNS.

(5) Open the access panels on the left side of the control stand to get access to the parking brake linkage.

## D. Parking Brake Lever Removal

SUBTASK 32-44-11-020-001

(1) Remove the cotter pin [5], washer [4], and pin [3] which hold the parking brake lever [1] to the rod [6].

SUBTASK 32-44-11-020-002

(2) Remove the bolt [8], washer [9] and bearing [10] which hold the parking brake lever [1] to the control stand.

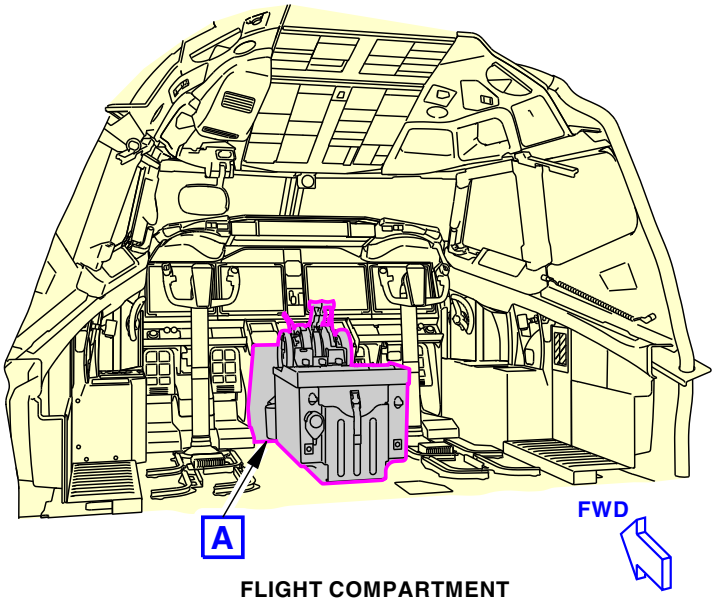
SUBTASK 32-44-11-020-003

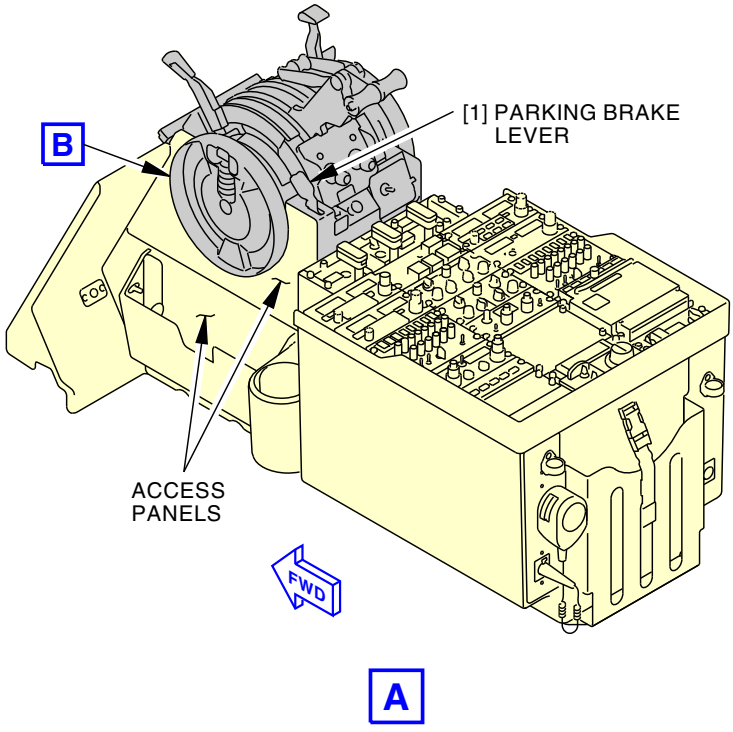
(3) Remove the parking brake lever [1].

——— END OF TASK ———



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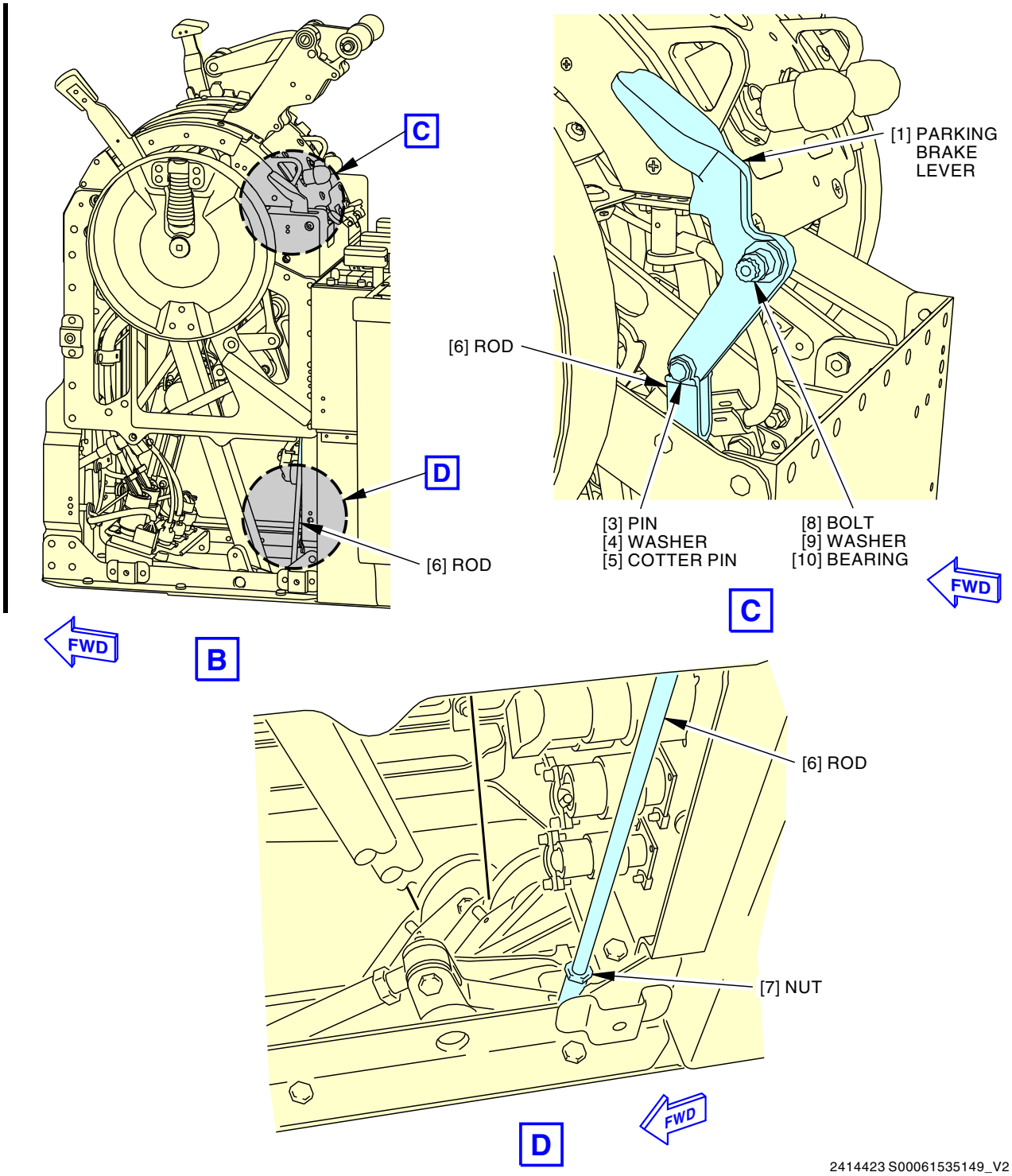




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**Parking Brake Lever Installation**
**Figure 401/32-44-11-990-801 (Sheet 1 of 2)**



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**Parking Brake Lever Installation**
**Figure 401/32-44-11-990-801 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-44-11-400-801**

**3. Parking Brake Lever Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 32-44-00-820-801 | Parking Brake System Adjustment (P/B 501) |

**B. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Parking brake lever | 32-44-11-05-070 | SIA ALL |
| 5 | Cotter pin | 32-44-11-05-005 | SIA ALL |

**C. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |

**D. Parking Brake Lever Installation**

SUBTASK 32-44-11-420-001

(1) Install the parking brake lever [1] on the control stand.

SUBTASK 32-44-11-420-002

(2) Install the bearing [10], washer [9] and bolt [8] which hold the parking brake lever [1] to the control stand.

SUBTASK 32-44-11-020-004

(3) Install the pin [3] to hold the parking brake lever [1] to the rod [6].

SUBTASK 32-44-11-820-001

(4) If the stop surface of the parking brake lever [1] is not against the top of the control stand, adjust the length of the rod [6] (TASK 32-44-00-820-801).

SUBTASK 32-44-11-020-005

(5) Install the washer [4] and new cotter pin [5] to hold the pin [3] in the rod [6].

SUBTASK 32-44-11-410-001

**WARNING** STAY AWAY FROM THE STABILIZER TRIM WHEEL ON THE CONTROL STAND IF YOU USE THE STABILIZER TRIM SWITCH ON THE CONTROL WHEEL. THE STABILIZER TRIM SWITCH CAN CAUSE THE STABILIZER TRIM WHEEL TO TURN QUICKLY. INJURY TO PERSONS CAN OCCUR IF YOU TOUCH IT WHEN IT TURNS.

(6) Close the access panels on the left side of the control stand.

SUBTASK 32-44-11-860-018

(7) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 10 | C00207 | FLIGHT CONTROL STAB TRIM CONT |
| D | 10 | C00840 | FLIGHT CONTROL STAB TRIM ACTUATOR |

SUBTASK 32-44-11-860-003

(8) Set the parking brake.



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(a) Make sure that the parking brake light comes on.

——— END OF TASK ———

**TASK 32-44-11-000-802**

## 4. Parking Brake Jackshaft Removal

(Figure 402)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### D. Prepare for the Removal

**SUBTASK 32-44-11-480-003**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-44-11-480-004**

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-44-11-860-004**

(3) Release the parking brake.

**SUBTASK 32-44-11-860-005**

(4) Open this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

to get access to the parking brake jackshaft mechanism.

### E. Parking Brake Jackshaft Removal

**SUBTASK 32-44-11-020-006**

(1) Remove the bolt [30], washer [31], and nut [32] to disconnect the rod [29] from the outboard jackshaft lever.

**SUBTASK 32-44-11-020-007**

(2) Remove the bolt [33], washer [34], and nut [35] to disconnect the rod [21] from the inboard jackshaft lever.

**SUBTASK 32-44-11-020-008**

(3) Do these steps to remove the jackshaft [28]:



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(a) Remove the cotter pin [23], nut [24], and washer [25] from the inboard end of the stud [22] that goes through the jackshaft [28].

(b) Remove the stud [22] from the other side of the jackshaft [28].

(c) Remove the jackshaft [28] from the airplane.

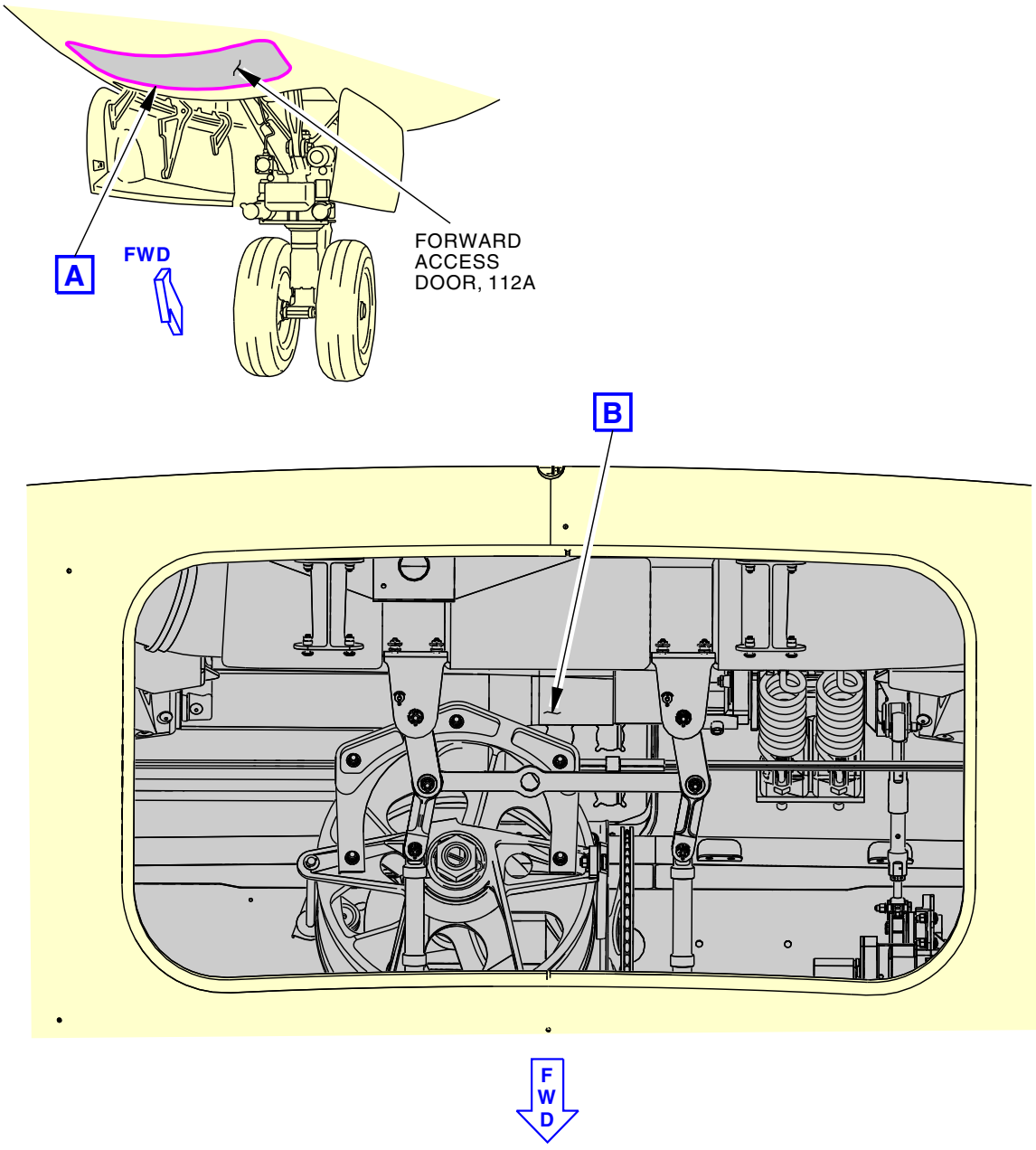
1) Remove the bearings [26] and the spacer [27] if it is necessary.

NOTE: One bearing is installed in each end of the jackshaft, and the spacer is installed between these bearings.

**END OF TASK**



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**FORWARD ACCESS DOOR, 112A**
**(VIEW IN THE UP DIRECTION)**

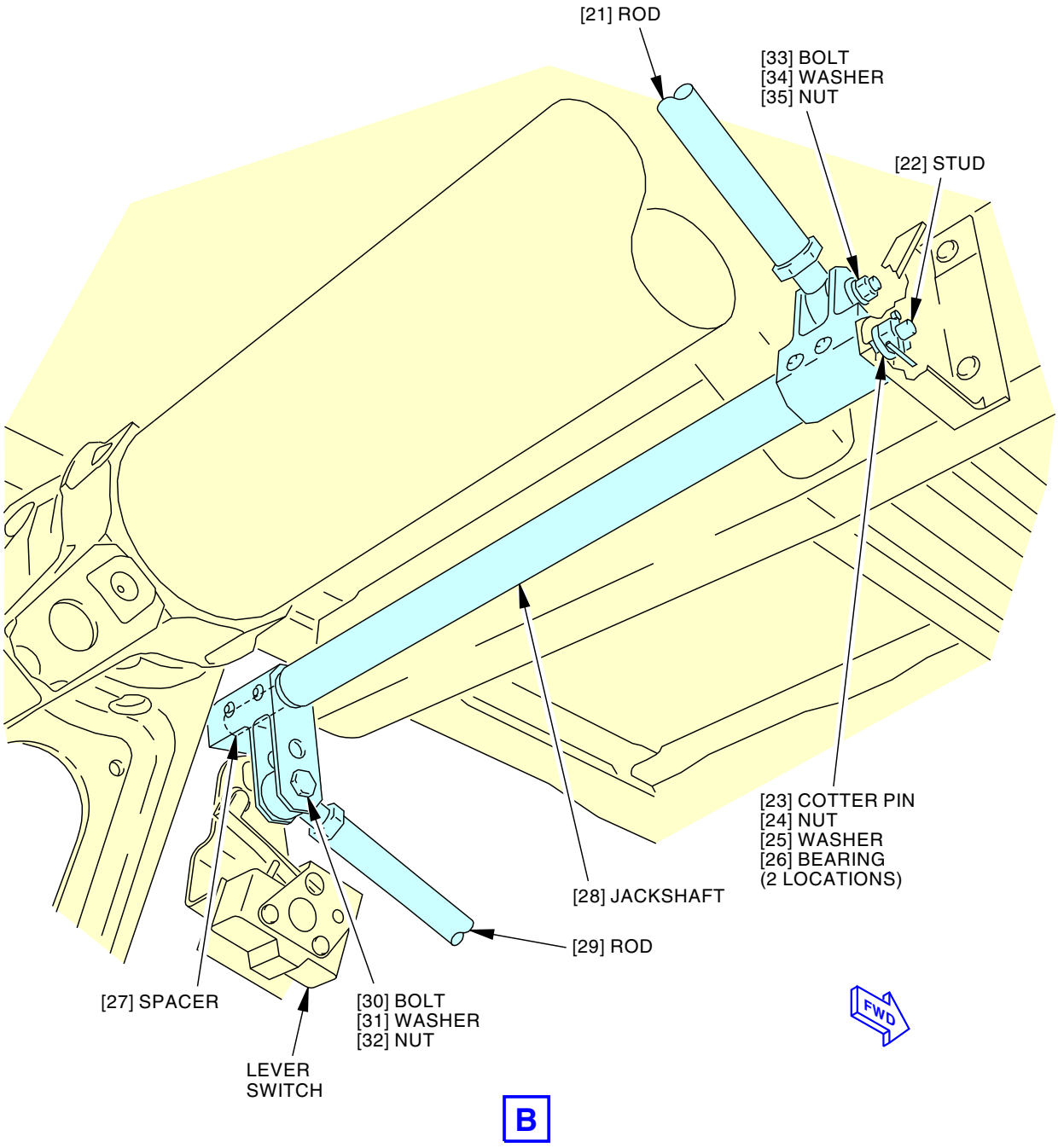
**A**

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**Parking Brake Jackshaft Mechanism Installation**
**Figure 402/32-44-11-990-802 (Sheet 1 of 2)**



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**Parking Brake Jackshaft Mechanism Installation**
**Figure 402/32-44-11-990-802 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-44-11-400-802**

## 5. Parking Brake Jackshaft Installation

(Figure 402)

### A. References

| Reference | Title |
|---|---|
| 32-44-00-820-801 | Parking Brake System Adjustment (P/B 501) |

### B. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 23 | Cotter pin | 32-44-11-01-115 | SIA ALL |
| 26 | Bearing | 32-44-11-01-140 | SIA ALL |
| 27 | Spacer | 32-44-11-01-145 | SIA ALL |
| 28 | Jackshaft | 32-44-11-01-150 | SIA ALL |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### E. Parking Brake Jackshaft Installation

**SUBTASK 32-44-11-420-003**

(1) Install the new bearings [26] and new spacer [27] if they were removed.

NOTE: One bearing is installed in each end of the jackshaft, and the spacer is installed between these bearings.

**SUBTASK 32-44-11-420-004**

(2) Do these steps to install the jackshaft [28]:

(a) Put the jackshaft [28] in its position in the airplane.

1) Make sure that the jackshaft lever with the rig pin hole is above the lever switch.

(b) Install the stud [22] in the jackshaft [28].

(c) Install the washer [25], nut [24], and new cotter pin [23] on the end of the stud [22].

**SUBTASK 32-44-11-420-005**

(3) Install the bolt [30], washer [31], and nut [32] to connect the rod [29] to the outboard jackshaft lever.

**SUBTASK 32-44-11-020-009**

(4) Install the bolt [33], washer [34], and nut [35] to connect the rod [21] to the inboard jackshaft lever.

(a) Make sure that the end of the bolt [33] has clearance with the adjacent bracket.

**SUBTASK 32-44-11-820-002**

(5) If the length of any of the connecting rods were changed, do this task: Parking Brake System Adjustment, TASK 32-44-00-820-801.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-44-11-860-006

(6) Close this access panel that you opened to get access to the parking brake jackshaft mechanism:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

END OF TASK

TASK 32-44-11-000-803

## 6. Parking Brake Latch Removal

(Figure 403)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### D. Prepare for the Removal

SUBTASK 32-44-11-480-005

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-44-11-480-006

(2) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-44-11-860-007

(3) Release the parking brake.

SUBTASK 32-44-11-860-008

(4) Open this access panel to get access to the parking brake latch:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### E. Parking Brake Latch Removal

SUBTASK 32-44-11-020-010

(1) Do these steps to remove the arm [55]:

(a) Remove the nut [54], washer [52], washer [53], and bolt [51] which holds the rod [29] to the arm [55].

NOTE: This step is optional.



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(b) Remove the nut [59], washer [58], washer [57], and bolt [56] which holds the arm [55] to the parking brake latch [63].

(c) Remove the arm [55] from the parking brake latch [63].

**SUBTASK 32-44-11-020-011**

(2) Disconnect the return spring [64] from the pawl.

**SUBTASK 32-44-11-020-012**

(3) Do these steps to remove the inboard housing [66] from the parking brake latch [63]:

(a) Remove the nut [62], washer [61], and bolt [60] which hold the inboard housing [66] to the airplane.

(b) Remove the inboard housing [66] with the bearing [67] from the parking brake latch [63].

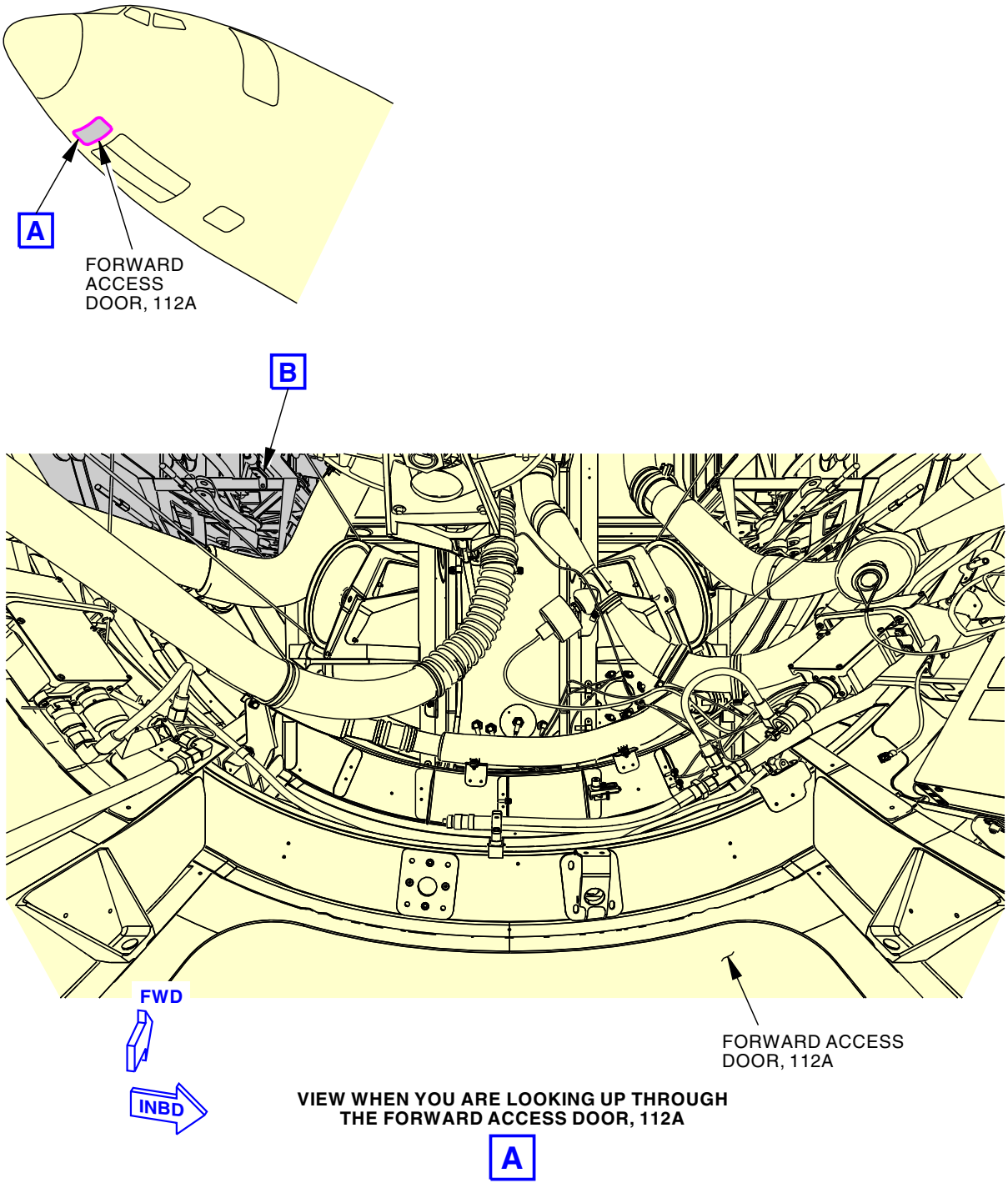
**SUBTASK 32-44-11-020-013**

(4) Remove the parking brake latch [63] from the outboard housing [65].

**——— END OF TASK ———**



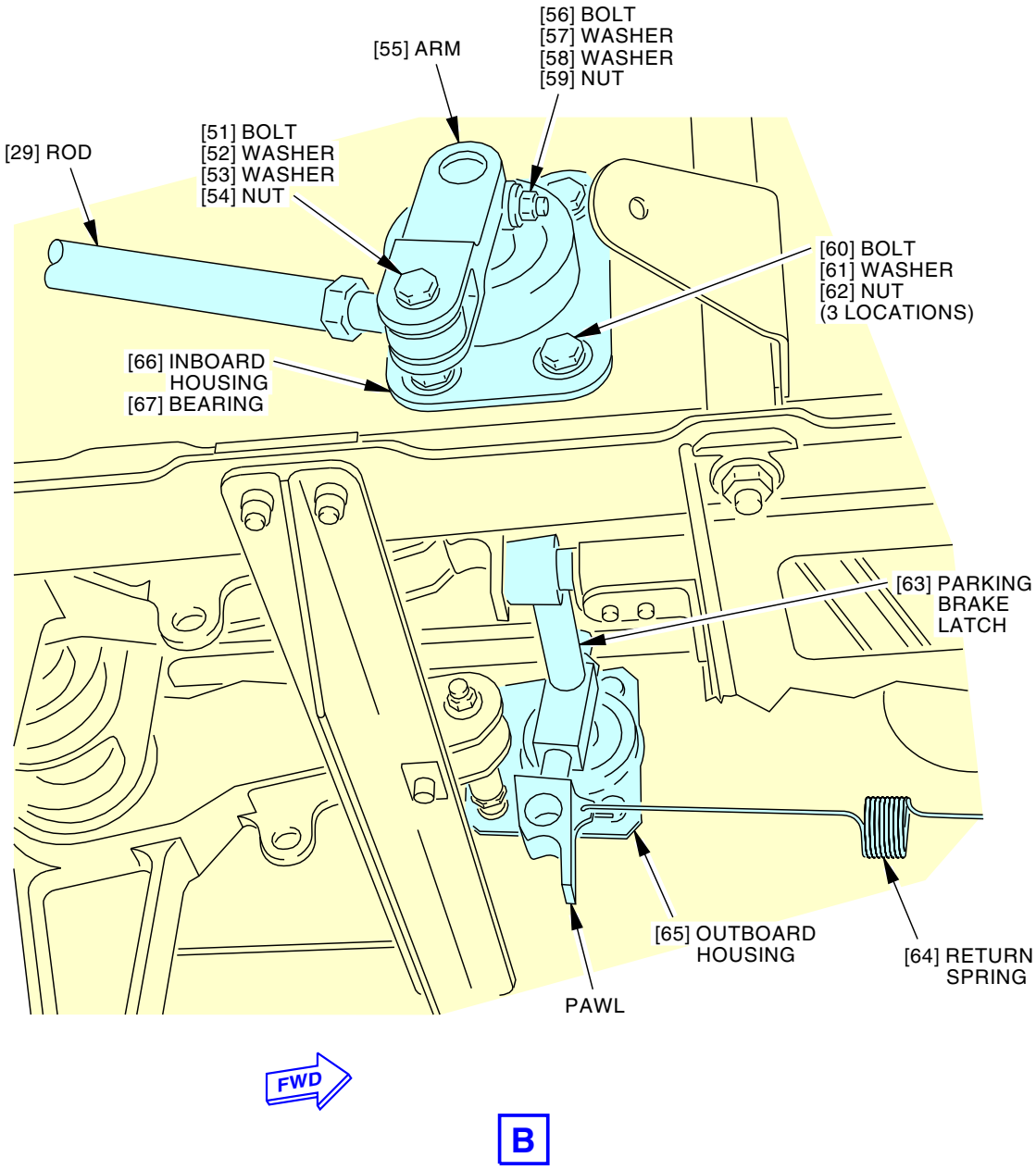
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Parking Brake Latch Mechanism Installation**
**Figure 403/32-44-11-990-803 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2414427 S00061535157_V1

**Parking Brake Latch Mechanism Installation**
**Figure 403/32-44-11-990-803 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-44-11-400-803**

## 7. Parking Brake Latch Installation

(Figure 403)

### A. References

| Reference | Title |
|---|---|
| 32-44-00-820-801 | Parking Brake System Adjustment (P/B 501) |

### B. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 63 | Parking brake latch | 32-44-11-02-003 | SIA ALL |

### C. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### E. Parking Brake Latch Installation

**SUBTASK 32-44-11-420-006**

(1) Install the parking brake latch [63] in the outboard housing [65].

**SUBTASK 32-44-11-420-007**

(2) Do these steps to install the inboard housing [66] for the parking brake latch [63]:

(a) Install the inboard housing [66] and bearing [67] on the parking brake latch [63].

(b) Install the bolt [56], washer [57], washer [58], and nut [59] which hold the inboard housing [66] to the airplane.

**SUBTASK 32-44-11-020-014**

(3) Connect the return spring [64] to the pawl.

**SUBTASK 32-44-11-420-008**

(4) Do these steps to install the arm [55]:

(a) Install the arm [55] on the parking brake latch [63] such that the bolt holes in the arm [55] and the parking brake latch [63] are aligned.

1) Make sure that the flat surface of the arm [55] is on the side that is opposite the bearing and the yoke for the rod pointing down (Figure 403).

(b) Install the bolt [56], washer [57], washer [58], and nut [59] which holds the arm [55] to the parking brake latch [63].

(c) Install the bolt [51], washer [52], washer [53], and nut [54] which hold the rod [29] to the arm [55].

1) Install the thin washer [53] under the head of the bolt [51].

**SUBTASK 32-44-11-820-003**

(5) If you replaced the pawls, the length of the pawls was changed, or the length of the connecting rod was changed, do this task: Parking Brake System Adjustment, TASK 32-44-00-820-801.



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SUBTASK 32-44-11-860-009

(6) Close this access panel that you opened to get access to the parking brake latch mechanism:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

——— END OF TASK ———

TASK 32-44-11-000-804

## 8. Parking Brake Latch Switch Removal

(Figure 404)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

### D. Prepare for the Removal

SUBTASK 32-44-11-480-007

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-44-11-480-008

(2) Make sure the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

SUBTASK 32-44-11-860-010

(3) Release the parking brake.

SUBTASK 32-44-11-860-011

(4) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-44-11-860-012

(5) Open this access panel to get access to the parking brake latch mechanism:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## E. Parking Brake Latch Switch Removal

**SUBTASK 32-44-11-020-015**

(1) Disconnect the wires [82] from the switch [81].

**SUBTASK 32-44-11-020-016**

(2) Remove the screw [83] and nut [84] which hold the switch [81] to the mounting bracket.

NOTE: The switch [81] and the switch actuator are held together by the mounting screws.

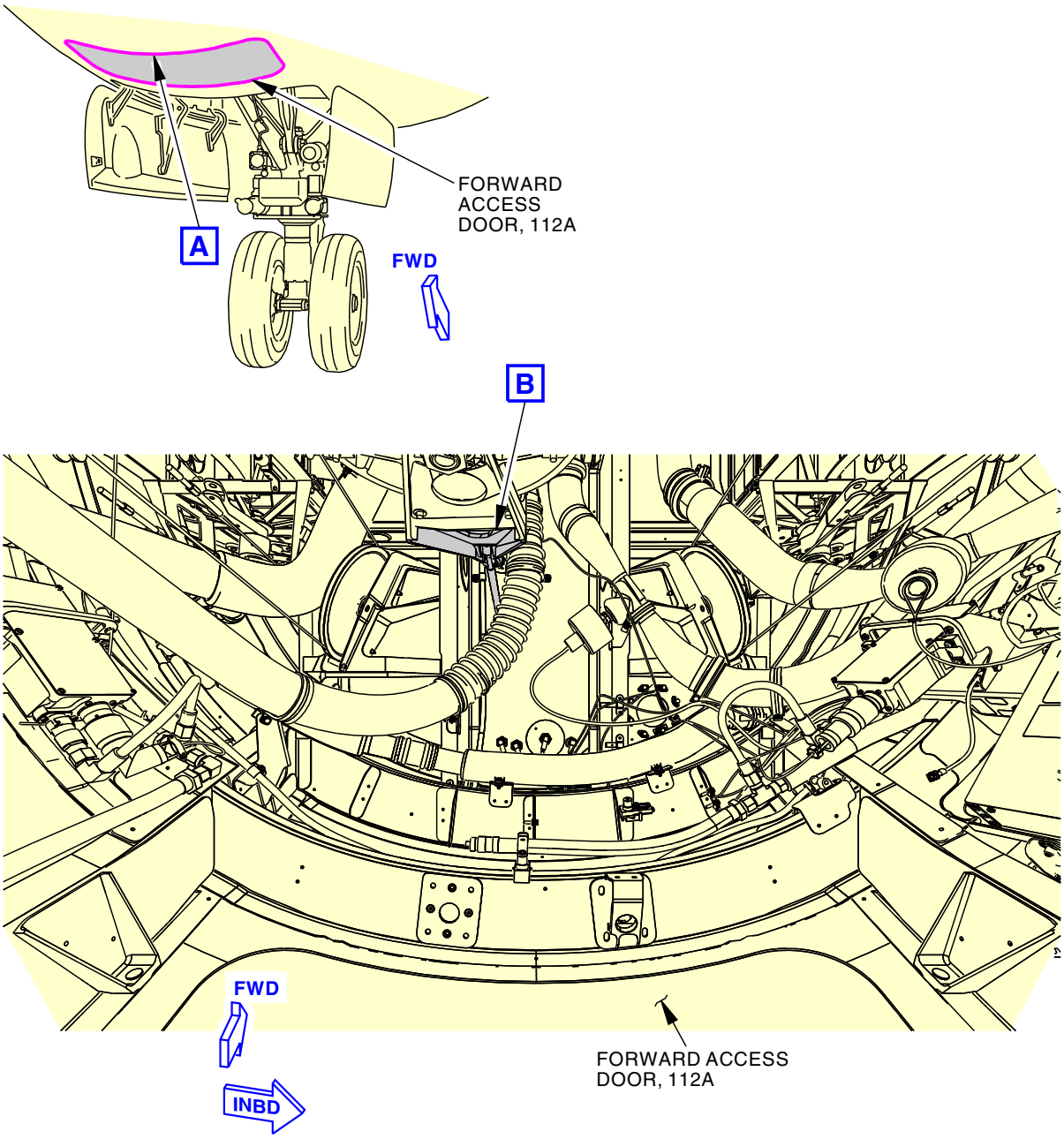
**SUBTASK 32-44-11-020-017**

(3) Remove the switch [81] from the airplane.

**——— END OF TASK ———**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**VIEW WHEN YOU ARE LOOKING UP THROUGH THE FORWARD ACCESS DOOR, 112A**

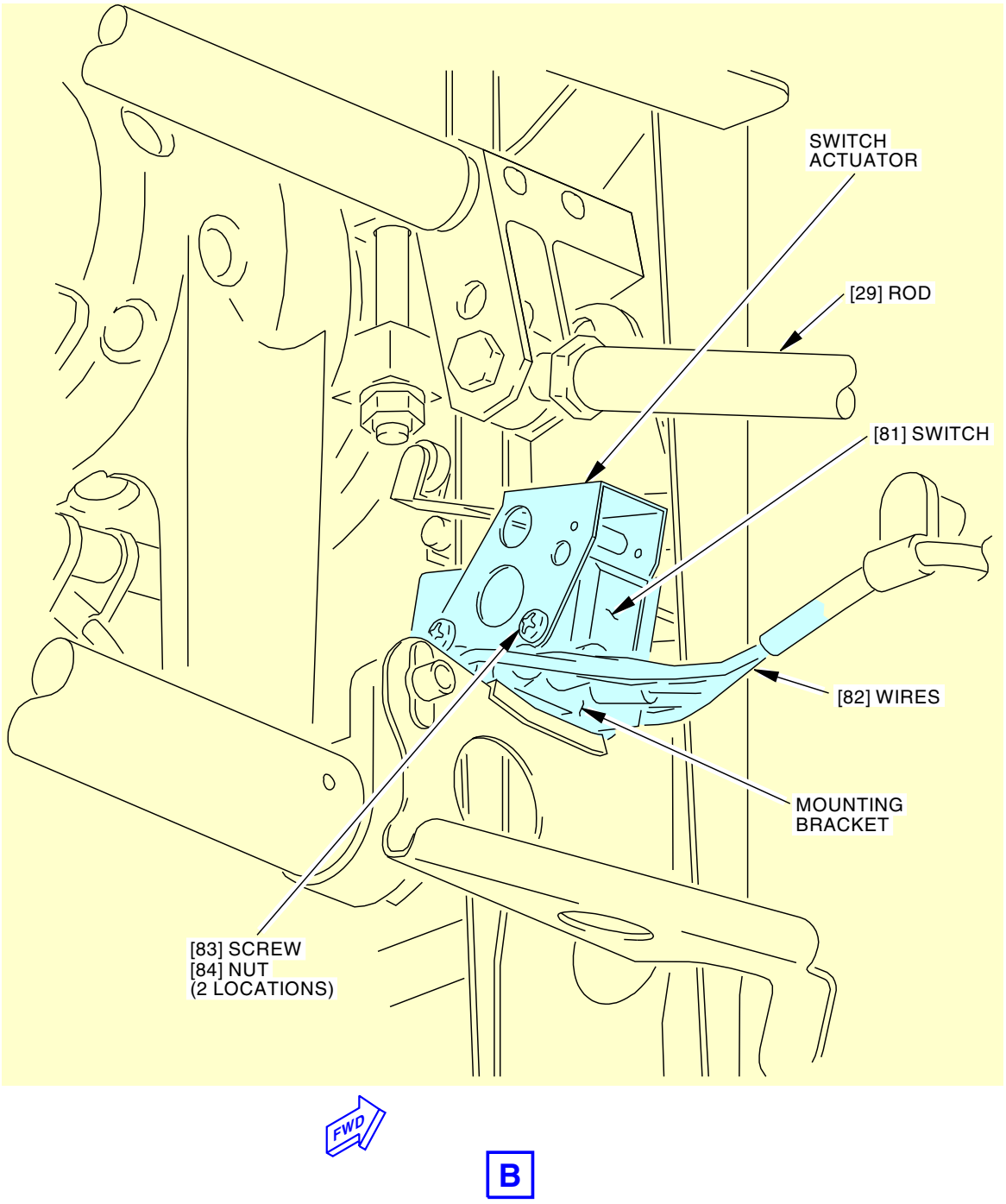
**A**

2414428 S00061535160_V1

**Parking Brake Latch Switch Installation**
**Figure 404/32-44-11-990-804 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2414429 S00061535161_V1

**Parking Brake Latch Switch Installation**
**Figure 404/32-44-11-990-804 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-44-11-400-804**

**9. Parking Brake Latch Switch Installation**

(Figure 404)

**A. References**

| Reference | Title |
|---|---|
| 32-44-00-820-801 | Parking Brake System Adjustment (P/B 501) |

**B. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 81 | Switch | 32-44-11-01-070 | SIA ALL |

**C. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |

**D. Access Panels**

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

**E. Parking Brake Latch Switch Installation**

SUBTASK 32-44-11-420-009

(1) Make sure that the switch actuator is correctly mated to the switch plunger on the switch [81].

SUBTASK 32-44-11-420-010

(2) Hold the switch [81] in its position on the airplane.

SUBTASK 32-44-11-420-011

(3) Install the screw [83] and nut [84] which hold the switch [81] to the mounting bracket.

SUBTASK 32-44-11-420-012

(4) Connect the wires [82] to the switch [81].

SUBTASK 32-44-11-860-013

(5) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

SUBTASK 32-44-11-820-004

(6) Do the applicable step to adjust the parking brake latch switch [81], do this task: TASK 32-44-00-820-801.

NOTE: Do not bend the switch actuator arm to adjust the switch [81].

SUBTASK 32-44-11-720-002

(7) Do a function check of the parking brake latch switch as follows:

(a) Release the parking brake.

(b) Set the parking brake.

(c) On the OMF, make sure that the maintenance messages related to the parking brake switches are not shown or are NOT ACTIVE.



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SUBTASK 32-44-11-410-004

(8) Close this access panel that you opened to get access to the parking brake latch mechanism:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

END OF TASK

TASK 32-44-11-000-805

**10. Parking Brake Mechanism Visual Inspection**

NOTE: This procedure is a scheduled maintenance task.

**A. Location Zones**

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |

**B. Access Panels**

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

**C. Parking Brake Mechanism Inspection**

SUBTASK 32-44-11-860-015

(1) Open the access panels on the left side of the control stand to get access to the parking brake mechanism.

SUBTASK 32-44-11-860-016

(2) Open this access panel to get access to the parking brake mechanism:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

SUBTASK 32-44-11-210-001

(3) Do a detail visual inspection of the mechanical control path for the parking brake mechanism.

SUBTASK 32-44-11-410-002

(4) Close the access panels on the left side of the control stand.

SUBTASK 32-44-11-860-017

(5) Close this access panel that you opened to get access to the parking brake latch mechanism:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

END OF TASK



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# PARKING BRAKE SHUTOFF VALVE - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) Parking Brake Shutoff Valve Removal

(2) Parking Brake Shutoff Valve Installation.

B. The parking brake shutoff valve is located on the aft wall of the main landing gear wheel well.

**TASK 32-44-21-000-801**

## 2. Parking Brake Shutoff Valve Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

| Reference | Description |
|---|---|
| STD-7394 | Cap - Dust, Electrical Connector |

### C. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### D. Prepare for the Removal

**SUBTASK 32-44-21-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-44-21-860-001**

(2) Remove the pressure from the normal (system B) and alternate (system A) hydraulic systems (TASK 29-09-00-860-802).

**SUBTASK 32-44-21-480-002**

(3) Make sure that the tires have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-44-21-860-002**

(4) Release the parking brake.



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SUBTASK 32-44-21-840-001

(5) Operate the brake pedals until the gage at the brake accumulator shows no change in the pressure.

NOTE: It will be necessary to operate the brake pedals approximately 12 times to fully release the pressure from the accumulator.

SUBTASK 32-44-21-860-003

(6) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

## E. Parking Brake Shutoff Valve Removal

SUBTASK 32-44-21-020-001

(1) Disconnect the electrical connector [6] from the parking brake shutoff valve [5].

SUBTASK 32-44-21-020-002

(2) Disconnect the tee fitting from the reducer [3] on the parking brake shutoff valve [5].

SUBTASK 32-44-21-020-003

(3) Disconnect the elbow from the reducer [3] on the parking brake shutoff valve [5].

SUBTASK 32-44-21-480-003

(4) Install the dust caps, STD-7394, on the elbow and the tee fitting.

SUBTASK 32-44-21-020-004

(5) Remove the bolt [2] and washer [1] that hold the parking brake shutoff valve [5] to the airplane.

SUBTASK 32-44-21-020-005

(6) If the replacement parking brake shutoff valve [5] does not have hydraulic fittings installed, do these steps:

(a) Remove the hydraulic reducer [3] and packings [4].

(b) Discard the packings [4].

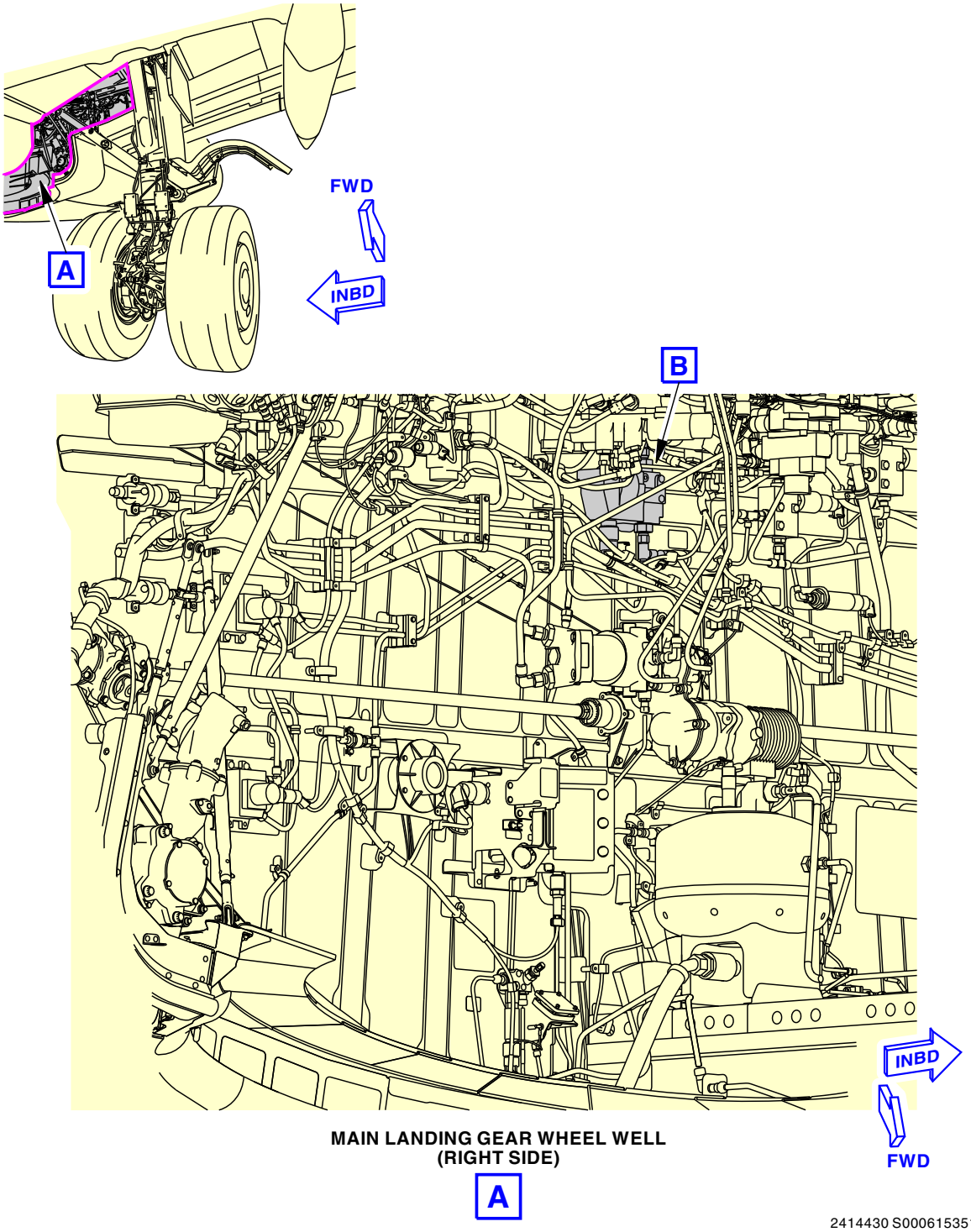
SUBTASK 32-44-21-480-004

(7) Install the dust caps, STD-7394, in the ports of the parking brake shutoff valve [5].

**——— END OF TASK ———**



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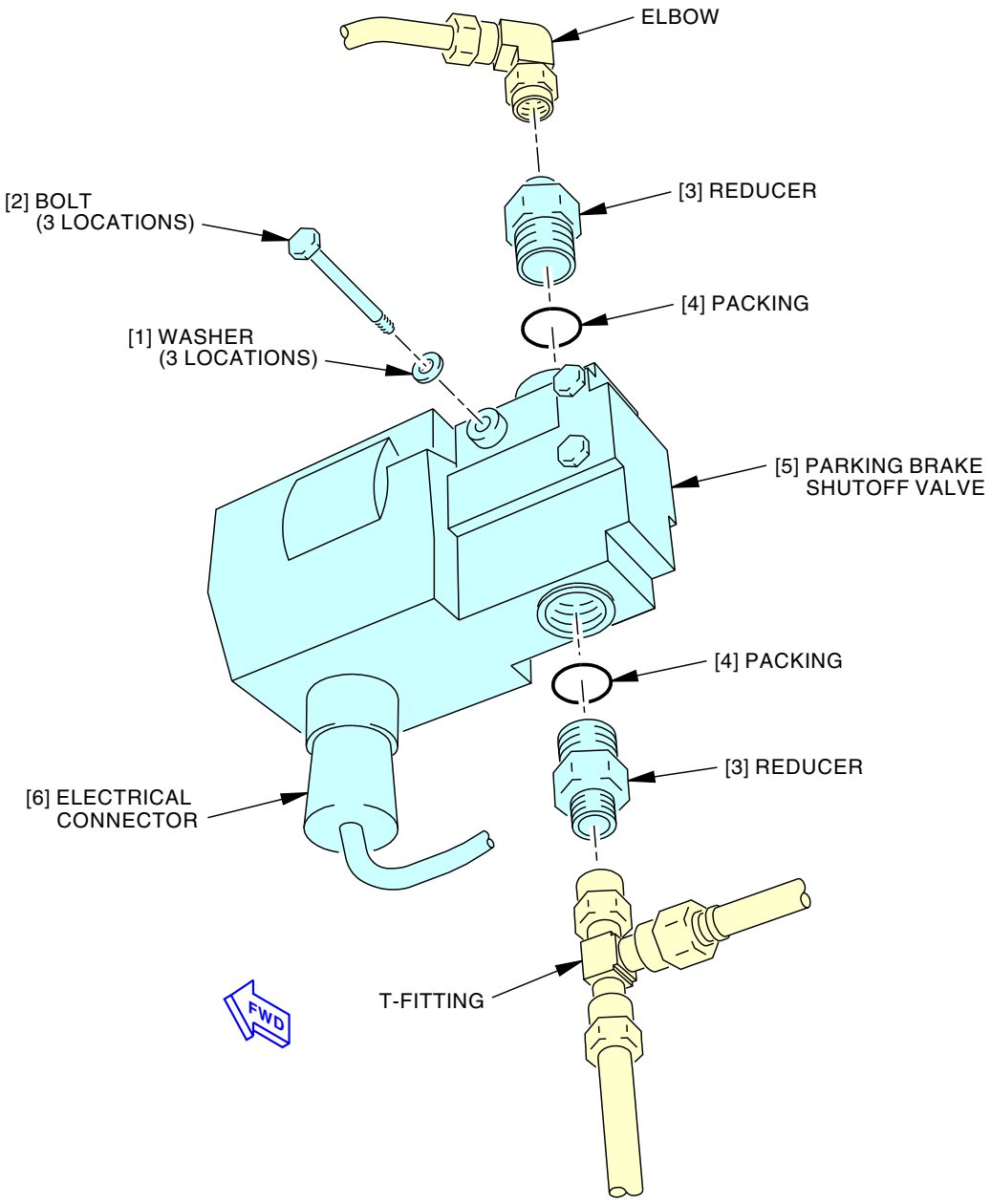

**MAIN LANDING GEAR WHEEL WELL
(RIGHT SIDE)**

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**Parking Brake Shutoff Valve Installation
Figure 401/32-44-21-990-801 (Sheet 1 of 2)**



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**PARKING BRAKE SHUTOFF VALVE**

**B**

2414431 S00061535168_V1

**Parking Brake Shutoff Valve Installation**
**Figure 401/32-44-21-990-801 (Sheet 2 of 2)**



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**TASK 32-44-21-400-801**

**3. Parking Brake Shutoff Valve Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 20-10-34-120-801 | Hand Clean Metal Surfaces with Abrasives (P/B 701) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-41-00-870-801 | Hydraulic Brake System Upstream of the Antiskid Valves Bleeding (P/B 201) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-20-00, Section 14F | Standard Wiring Practices Manual |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| A02315 | Sealant - Low Density, Synthetic Rubber. 2 Part | BMS5-142 Type II |
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| D00054 | Fluid - Hydraulic Assembly Lubricant - MCS 352B (Formerly Monsanto MCS 352B) | |
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |



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**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Packing | 32-44-21-01-033 | SIA 001-007 |
| | | 32-44-21-02-070 | SIA 008-999 |
| 5 | Parking brake shutoff valve | 32-44-21-01-010 | SIA 001-007 |
| | | 32-44-21-02-055 | SIA 008-999 |

**E. Location Zones**

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

**F. Parking Brake Shutoff Valve Installation**

SUBTASK 32-44-21-080-001

(1) Remove the dust caps from the ports of the parking brake shutoff valve [5].

SUBTASK 32-44-21-420-001

(2) If the replacement parking brake shutoff valve [5] does not have hydraulic fittings installed, do these steps:

(a) Lubricate the hydraulic reducer [3] and new packings [4] for the parking brake shutoff valve [5] with hydraulic fluid, D00153, or MCS 352B fluid, D00054.

(b) Install the packings [4] on the hydraulic reducer [3].

(c) Install the hydraulic reducer [3] in the parking brake shutoff valve [5].

SUBTASK 32-44-21-100-001

(3) To get a good electrical bond between the parking brake shutoff valve [5] and support bracket, do these steps:

(a) To fully clean the mating surface of the support bracket and parking brake shutoff valve [5], do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.

(b) Chemically prepare the mating surface of the support bracket with coating, C00064.

SUBTASK 32-44-21-390-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(4) Apply a layer of corrosion inhibiting material, G50136, to the threads and shank of each bolt [2].

NOTE: Do not let corrosion inhibiting material, G50136, dry before the bolts installation.

(a) Install the bolts [2] when corrosion inhibiting material, G50136, is wet.

SUBTASK 32-44-21-420-002

(5) Hold the parking brake shutoff valve [5] in its position on the airplane.



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SUBTASK 32-44-21-420-003

(6) Install the bolts [2] and washers [1] that hold the parking brake shutoff valve [5] to the airplane.

SUBTASK 32-44-21-390-002

(7) Use sealant, A00247, or sealant, A02315, to apply a fay seal to the mating surface between the parking brake shutoff valve [5] and support bracket (SWPM 20-20-00, Section 14F).

SUBTASK 32-44-21-760-001

(8) Measure the electrical bonding resistance between the parking brake shutoff valve [5] and bracket (SWPM 20-20-00).

(a) Use an intrinsically safe approved bonding meter, COM-1550.

(b) Make sure that the electrical resistance is 0.0025 ohm (2.5 milliohms) or less.

1) If the measured resistance is not less than 0.0025 ohm (2.5 milliohms), clean the mating surfaces of the bracket and parking brake shutoff valve [5], do this task: Hand Clean Metal Surfaces with Abrasives, TASK 20-10-34-120-801.

2) Apply coating, C00064, again.

SUBTASK 32-44-21-080-002

(9) Remove the dust caps from the elbow and tee fitting.

SUBTASK 32-44-21-420-004

(10) Connect the tee fitting to the reducer [3] on the parking brake shutoff valve [5].

SUBTASK 32-44-21-420-005

(11) Connect the elbow to the reducer [3] on the parking brake shutoff valve [5].

SUBTASK 32-44-21-420-006

(12) Before the connection of the electrical connector [6] to the parking brake shutoff valve [5], examine the electrical connector [6] for corrosion.

**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, correct the problem (SWPM 20-60-03).

(b) Apply D5026NS or ZC-026 compound, G50171, to the electrical connector [6] (SWPM 20-60-03).

SUBTASK 32-44-21-420-007

(13) Connect the electrical connector [6] to the parking brake shutoff valve [5].

SUBTASK 32-44-21-860-004

(14) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| B | 16 | C01346 | LANDING GEAR PARKING BRAKE |

## G. Parking Brake Shutoff Valve Installation Test

SUBTASK 32-44-21-790-001

(1) Do these steps to do a leak check of the parking brake shutoff valve [5]:



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**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(a) For the normal (system B) hydraulic system, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(b) Fully push the captain's brake pedals twelve times.

(c) Look for leaks around the parking brake shutoff valve [5].

SUBTASK 32-44-21-710-001

(2) Do this task: Hydraulic Brake System Upstream of the Antiskid Valves Bleeding, TASK 32-41-00-870-801.

SUBTASK 32-44-21-710-002

(3) Do these steps to do a check of the parking brake shutoff valve [5] installation:

(a) Set the parking brake.

(b) Make sure that the parking brake light on the captain's control stand comes on.

(c) Release the parking brake.

(d) Make sure that the parking brake light is off.

SUBTASK 32-44-21-860-006

(4) Make sure that the ANTISKID INOP light, on the P2 panel, is off.

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-44-21-860-005

(1) For the normal (system B) hydraulic system, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**END OF TASK**



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# TIRES AND WHEELS - MAINTENANCE PRACTICES

## 1. General

A. This procedure has these tasks:

(1) Landing Gear Tire - Deflation

(2) Landing Gear Tire - Inflation

**TASK 32-45-00-910-801**

## 2. Landing Gear Tire - Deflation

(Figure 201)

### A. General

(1) This procedure has instructions to deflate nose and main landing gear tires.

### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-4046 | Deflator - Tire, Valve Core Removal and Installation (Small Bore) and Tire Deflation<br>Part #: 320008B-SO Supplier: SFN11<br>Part #: 968RB Supplier: $1315<br>Opt Part #: 320008B Supplier: SFN11 |

### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Prepare to Deflate the Tire

**SUBTASK 32-45-00-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-45-00-480-002**

(2) Make sure that the nose and main wheel assembly is clear of the ground before you deflate the tire, do these tasks:


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(a) Do this task: Lift the Airplane on Axle Jacks-Handling, TASK 07-10-03-580-801.

(b) Do this task: Lift the Nose Landing Gear Axle With Axle Jacks-Handling, TASK 07-10-03-580-803.

## F. Deflate the Tire

SUBTASK 32-45-00-080-001

(1) Remove the valve cap [1] from the nose wheel assembly.

SUBTASK 32-45-00-080-002

(2) Remove the valve cap [2] from the main wheel assembly.

SUBTASK 32-45-00-840-001

**WARNING** FULLY DEFLATE THE TIRE BEFORE YOU REMOVE THE WHEEL AND TIRE ASSEMBLY. OR, DO AN INSPECTION OF THE WHEEL AND TIRE TO MAKE SURE THAT THEY ARE SAFE. AIR PRESSURE CAN CAUSE AN EXPLOSION OF THE DAMAGED WHEEL AND TIRE COMPONENTS. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

**WARNING** MAKE SURE THAT ALL PERSONNEL ARE CLEAR OF THE INFLATION VALVE ASSEMBLY PATH WHILE YOU REMOVE IT. IF THE INFLATION VALVE ASSEMBLY EJECTS WHILE YOU REMOVE IT, INJURY TO PERSONNEL CAN OCCUR.

**WARNING** BE CAREFUL WHEN DEFLATING TIRES, A FLYING INFLATION VALVE CAP AND CORE CAN CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL.

**CAUTION** MAKE SURE THAT THE DEFLATED TIRE THAT IS ON THE AXLE DOES NOT TOUCH THE GROUND. IF THE TIRE DOES TOUCH THE GROUND, THE TIRE'S BEAD SEAT CAN MOVE OUT OF ITS POSITION AND BECOME UNSEATED. THE UNSEATED BEAD SEAT CAN CAUSE LEAKAGE WHICH THEN CAN CAUSE DAMAGE TO THE TIRE AND WHEEL.

(3) Deflate the tire with the small bore tire deflator, COM-4046.

NOTE: Always go near the wheels from the front or rear.

NOTE: If the tire is hot, let the tire cool before you deflate it.

**WARNING** DO NOT LOOSEN OR REMOVE THE VALVE BODY UNDER PRESSURE. THE VALVE CAN BLOW OUT CAUSING INJURY TO PERSONNEL.

(a) If you cannot use the usual procedure to deflate the tire because the valve core is damaged, do these steps:

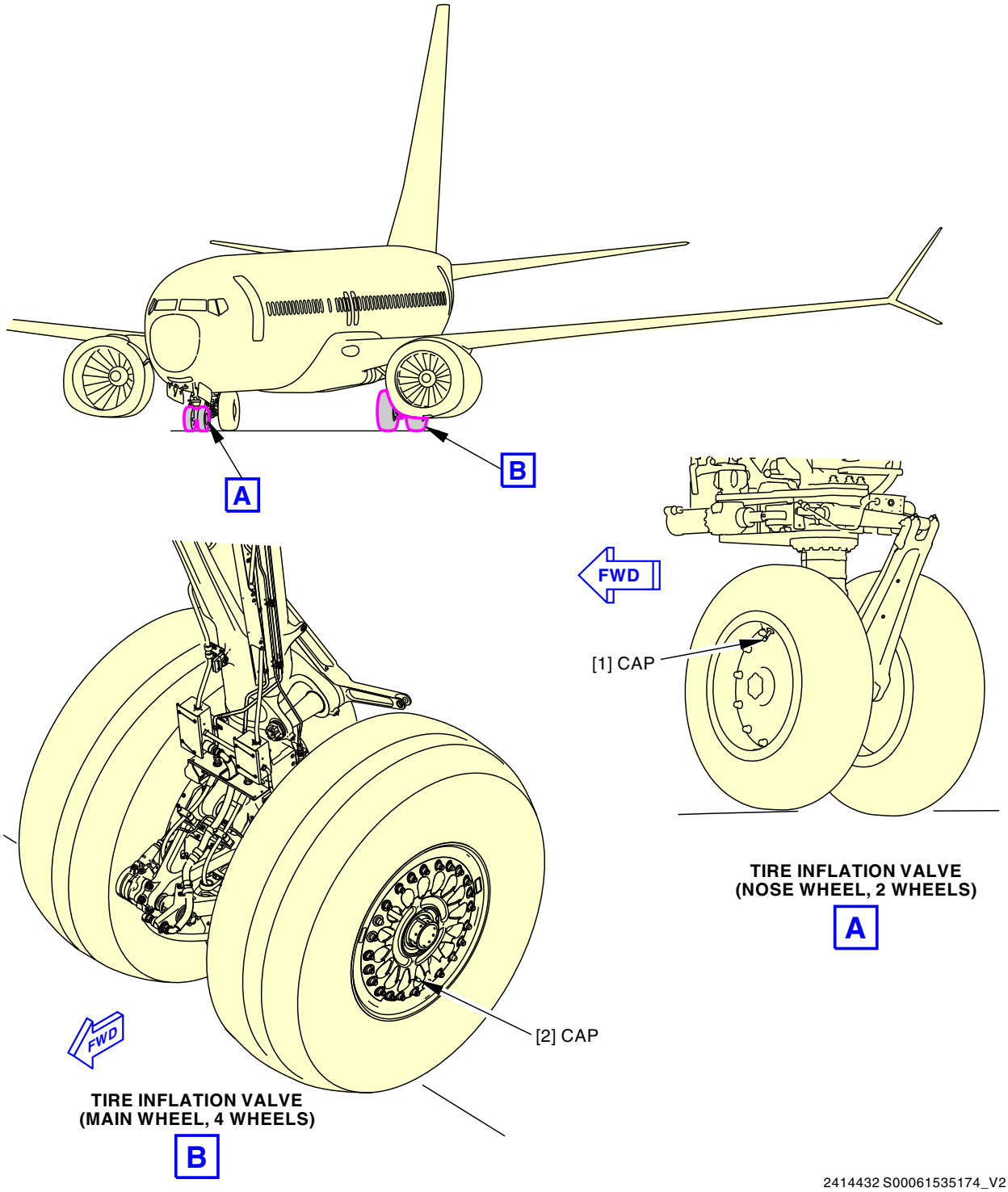
1) Turn the valve assembly slowly in a counterclockwise direction until there is gas leakage through the boss.

2) At the same time, push lightly on the valve assembly.

3) After all of the gas has been released, remove the valve assembly from the tire.

**END OF TASK**


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**Landing Gear Tire Servicing**
**Figure 201/32-45-00-990-801**



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**TASK 32-45-00-910-802**

## 3. Landing Gear Tire - Inflation

(Figure 201)

### A. General

(1) This procedure has instructions to inflate nose and main landing gear tires.

### B. References

| Reference | Title |
|---|---|
| 12-15-51-610-802 | Add Nitrogen or Air to the Tire (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare to Inflate the Tire

**SUBTASK 32-45-00-480-003**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

### E. Inflate the Tire

**SUBTASK 32-45-00-080-003**

(1) Remove the valve cap [1] from the nose wheel assembly.

**SUBTASK 32-45-00-080-004**

(2) Remove the valve cap [2] from the main wheel assembly.

**SUBTASK 32-45-00-910-001**

**WARNING** USE A PRESSURE SOURCE WITH A REGULATOR TO INFLATE THE TIRES. A PRESSURE SOURCE WITHOUT A REGULATOR CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Do this task: Add Nitrogen or Air to the Tire, TASK 12-15-51-610-802.

**SUBTASK 32-45-00-480-004**

(4) Install the valve cap [1] to the nose wheel assembly.

**SUBTASK 32-45-00-480-005**

(5) Install the valve cap [2] to the main wheel assembly.

**END OF TASK**



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## TIRES AND WHEELS - INSPECTION/CHECK

### 1. General

A. This procedure has these tasks:

(1) Wheels Fast Check (Wheel Installed on the Airplane)

(2) Wheels Inspection (Wheel Removed from the Airplane)

(3) Landing Gear Tire Inspection

**TASK 32-45-00-700-801**

### 2. Wheels Fast Check (Wheel Installed on the Airplane)

NOTE: This procedure is a scheduled maintenance task.

**A. General**

(1) This task gives the instructions to do a fast check of the installed wheel on the airplane.

**B. References**

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**D. Procedure**

**SUBTASK 32-45-00-480-006**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-45-00-210-001**

(2) Look at the wheels for these types of damage:

(a) Corrosion

(b) Cracks

(c) Flaked or blistered paint

(d) Damage to the heat shield

(e) Tiebolts and tiebolt nuts that are loose, damaged, or missing

(f) Damage from heat

(g) Chafing on the rim of the wheel due to low tire pressure

NOTE: It is not necessary to remove the hubcap to examine the wheels for damage unless the examination reveals a condition that makes a more detailed check of the area hidden by the hubcap necessary.



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SUBTASK 32-45-00-020-001

(3) If you found one or more of these, replace the wheel-tire assembly:

(a) There is a loose, or damaged tiebolt.

(b) A tiebolt is missing.

(c) There is tire circumferential movement relative to the wheel

SUBTASK 32-45-00-210-002

(4) Make sure that the hubcaps are not loose.

(a) Tighten or replace hubcaps if it is necessary.

——— END OF TASK ———

**TASK 32-45-00-700-802**

## 3. Wheels Inspection (Wheel Removed from the Airplane)

### A. General

(1) This task gives the instructions to do the wheel inspection when removed from the airplane.

### B. References

| Reference | Title |
|---|---|
| 05-51-07-210-801 | High Energy Stop (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Procedure

SUBTASK 32-45-00-210-003

(1) Examine the wheel for:

(a) Breaks

(b) Corrosion

(c) Cracks

(d) Distortion

(e) Flaked or blistered paint

(f) Heat shield damage

(g) Loose, damaged, or missing tiebolts and tiebolt nuts

(h) Nicks or gouges

(i) Overheat damage

(j) Scratches along the rim of a wheel that show the wheel rolled without a tire

(k) Worn plating

(l) Other damage.

SUBTASK 32-45-00-210-004

(2) Examine the grease seals for:

(a) Nicks

(b) Gouges



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(c) Overheat damage.

SUBTASK 32-45-00-210-005

(3) Examine the bearing and bearing surfaces: Wheel Bearings Inspection, TASK 32-45-00-211-801.

SUBTASK 32-45-00-210-006

(4) Examine the brake torque bars for wear.

SUBTASK 32-45-00-210-007

(5) Examine the wheel heat shield for:

NOTE: Dents, scratches and discoloration are permitted.

(a) Cracks

(b) Tears.

SUBTASK 32-45-00-220-001

(6) If a wheel has a blown thermal fuse, do this task: High Energy Stop, TASK 05-51-07-210-801.

**END OF TASK**

**TASK 32-45-00-700-803**

## 4. Landing Gear Tire Inspection

(Figure 601 and Figure 602)

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) This task gives the instructions to do the inspection of the aircraft radial ply tires.

### B. References

| Reference | Title |
|---|---|
| 12-15-51-780-801 | Landing Gear Tire Pressure Check and Tire Servicing (P/B 301) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Landing Gear Tire Inspection

SUBTASK 32-45-00-480-007

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-45-00-220-002

(2) Do this task: Landing Gear Tire Pressure Check and Tire Servicing, TASK 12-15-51-780-801.

SUBTASK 32-45-00-210-008

(3) Examine the tires as follows (Figure 601 and Figure 602):



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(a) Examine the tires for air leaks, abrasions, unusual worn areas, cuts, and flat spots.

(b) Examine the tires for the presence of contaminants.

1) Keep the tires clean of contaminants such as oils, fuels, hydraulic fluids, aircraft cleaning agents, and greases.

a) Cover the tires if these or other potentially harmful chemicals can spill on the tires during maintenance.

b) Clean the tire with a soapy solution if the tire becomes contaminated.

2) The tire should be removed from service as soon as practical if the surface of the tire appears soft, spongy, or there are bulges present.

(c) Remove the tires that have the conditions that follow:

1) Cuts or weather cracks in the grooves, the tread, shoulders or sidewalls that exceed the limits (Figure 602).

2) Blisters, bulges, or other signs of ply separation in the tread, shoulder or sidewall area.

3) Tires with a flat spot which shows the tread reinforcement/cut protector (radial).

NOTE: If the reinforcement/cut protector (radial) shows, the tire should be replaced as soon as possible. If necessary, the tire may be used for a small number of landings until it is replaced. However, you may not be able to retread the tire if you leave the tire in service too long with this condition.

4) Other types of damage which can cause tire problems.

(d) Examine the tires for worn areas.

1) Measure the depth of the tire tread groove at three points that are equally apart.

2) If the average depth of any groove is 0.03 in. (0.76 mm) or less, the tire must be replaced at the next convenient maintenance opportunity.

3) If the tread belt ply (radial) shows at any location, the tire is not serviceable and must be replaced.

4) If the tread is worn so that the reinforcement/cut protector (radial) shows at any location, the tire must be replaced at the next convenient maintenance opportunity.

NOTE: If the reinforcement/cut protector (radial) shows, the tire should be replaced as soon as possible. If necessary, the tire may be used for a small number of landings until it is replaced. However, you may not be able to retread the tire if you leave the tire in service too long with this condition.

## E. Tire Tread Conditions and Service

**SUBTASK 32-45-00-220-003**

**WARNING**

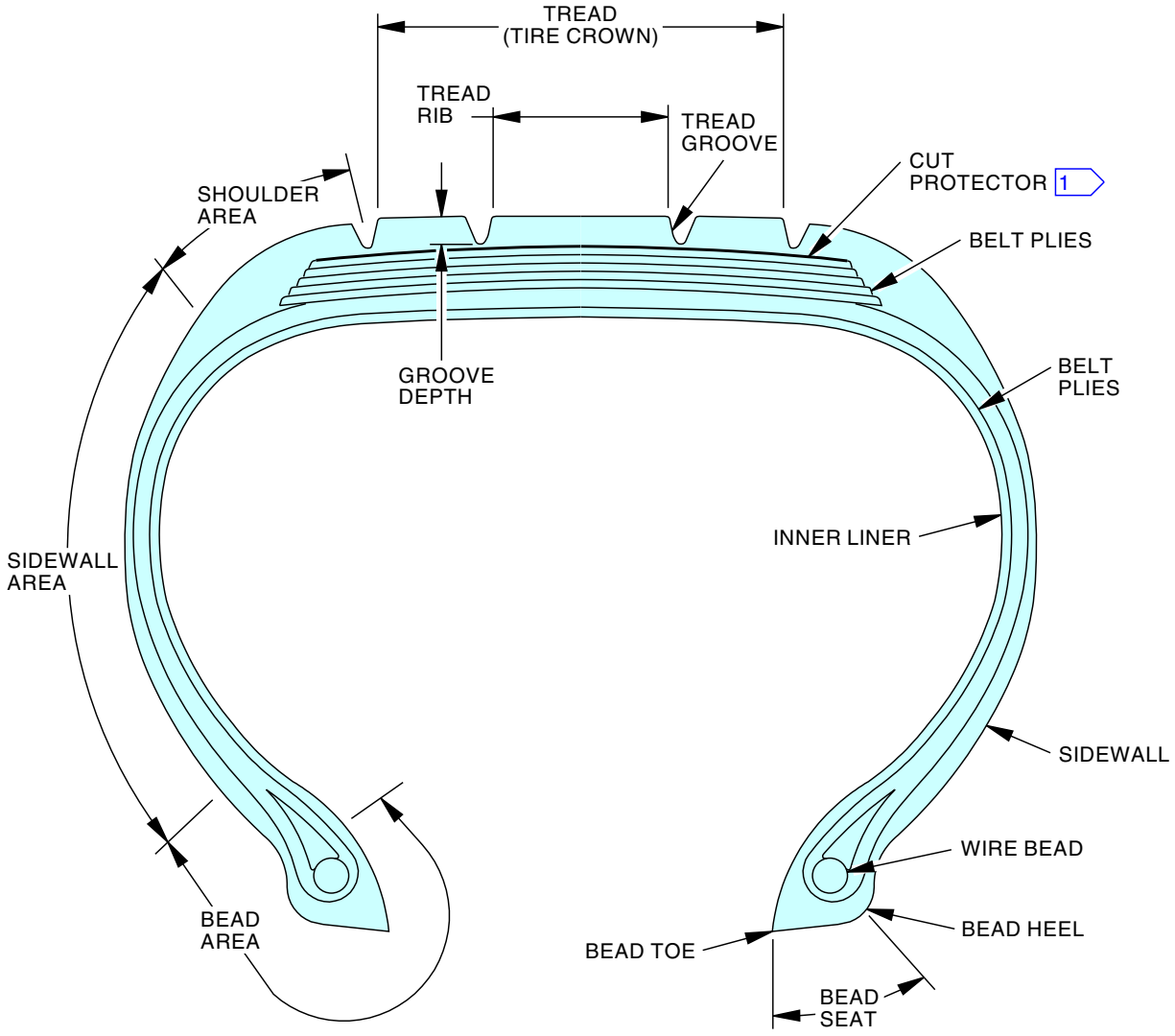
DO NOT PUSH ON A DAMAGED TIRE WITH TOOLS. DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

(1) Check the tire tread conditions (Figure 602).

**END OF TASK**



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**RADIAL TIRE**

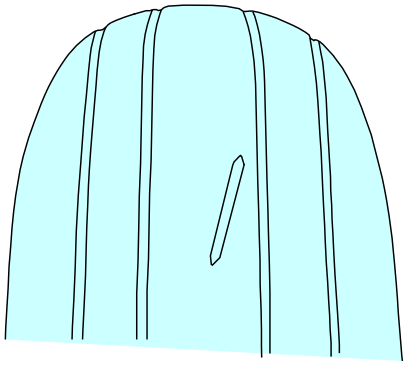
1 THE TREAD REINFORCEMENT/CUT PROTECTOR CAN BE METAL OR KEVLAR.

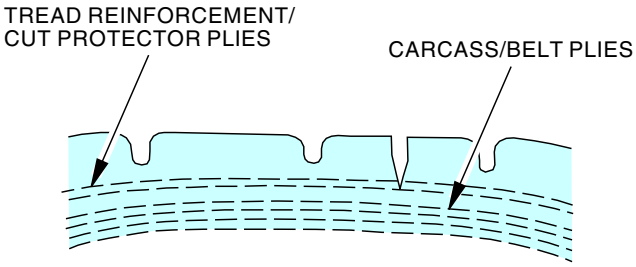
2414433 S00061535179_V4

**Tire Nomenclature (Example)**
**Figure 601/32-45-00-990-802**



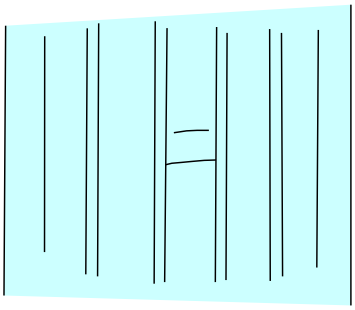
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**CIRCUMFERENTIAL CUTS**

CIRCUMFERENTIAL CUTS THAT PENETRATE ANY OF THE FABRIC PLIES ARE NOT SERVICEABLE.



**TRANSVERSE CUTS**

(A) TRANSVERSE CUTS THAT ARE CONTAINED WITHIN A RIB AND PENETRATE INTO THE CARCASS PLIES (BIAS) OR BELT PLIES (RADIAL) ARE NOT SERVICEABLE.

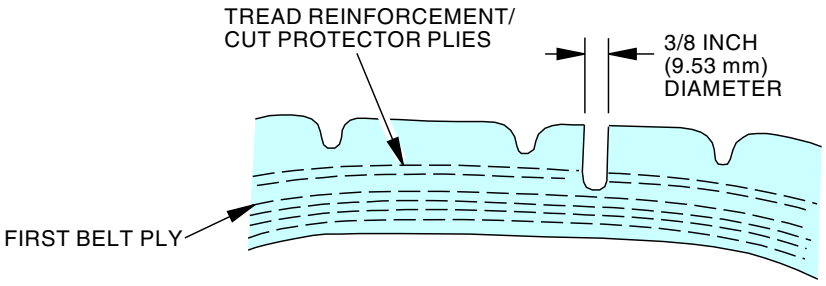
(B) CUTS THAT EXTEND ACROSS A RIB FROM GROOVE TO GROOVE WHICH ARE DEEPER THAN THE GROOVE ARE NOT SERVICEABLE.

F98055 S0006575654_V3

**Tire Wear Conditions (Example)**
**Figure 602/32-45-00-990-803 (Sheet 1 of 8)**

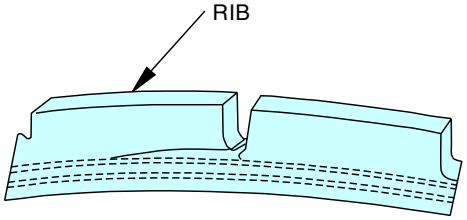


ECCN 9E991 BOEING PROPRIETARY - See title page for details



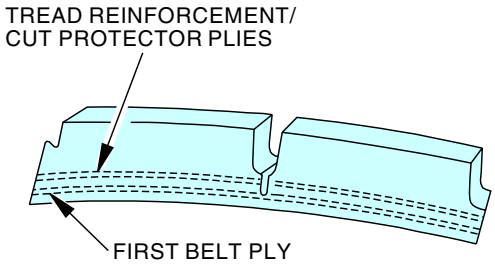

**PUNCTURE**

TIRES WITH HOLES LARGER THAN 3/8 INCH (9.53 mm) DIAMETER OR HOLES THAT PENETRATE INTO THE BELT PLIES (RADIAL) ARE NOT SERVICEABLE.




**RIB UNDERCUTS**

TIRES WITH A CRACK THAT EXTENDS BELOW A TREAD RIB ARE NOT SERVICEABLE.




**GROOVE CRACKS**

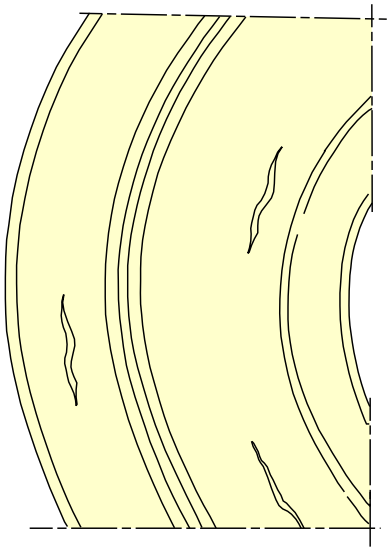
TIRES WITH CIRCUMFERENTIAL CRACKS AT THE BOTTOM OF THE GROOVES ARE NOT SERVICEABLE IF THE CRACKS EXPOSE ANY FABRIC.

2414436 S00061535182_V2

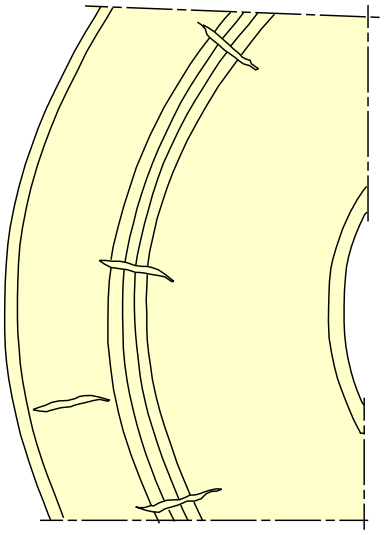
**Tire Wear Conditions (Example)**
**Figure 602/32-45-00-990-803 (Sheet 2 of 8)**



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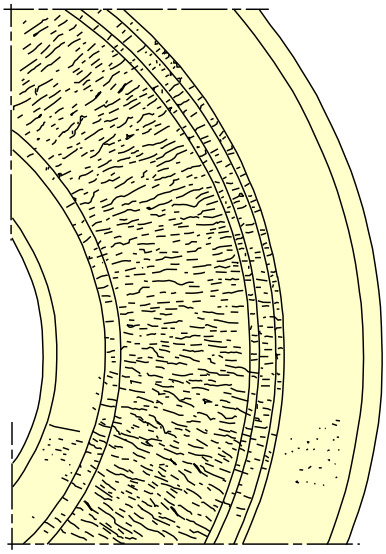


CIRCUMFERENTIAL SIDEWALL CUTS OR CRACKS



RADIAL SIDEWALL CUTS OR CRACKS

TIRES WITH CIRCUMFERENTIAL OR RADIAL CUTS OR CRACKS IN EITHER THE SIDEWALL OR SHOULDER AREA, WHICH EXPOSE THE FABRIC, SHOULD BE IMMEDIATELY REMOVED FROM THE AIRCRAFT. TIRES WITH CIRCUMFERENTIAL OR RADIAL CUTS IN EITHER THE SIDEWALL OR SHOULDER AREA, WHICH ARE DEEP ENOUGH TO REACH THE FABRIC, ARE NOT SERVICEABLE.



OZONE AND/OR WEATHER CUTS OR CRACKS

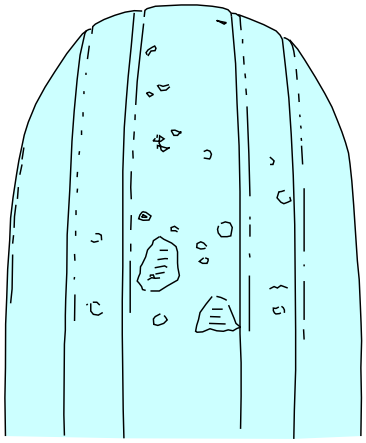
TIRES WITH CUTS OR CRACKS IN THE SIDEWALL WHICH ARE CAUSED BY AGE/WEATHER DETERIORATION ARE NOT SERVICEABLE IF THE FABRIC IS EXPOSED.

2414437 S00061535183_V2

**Tire Wear Conditions (Example)**
**Figure 602/32-45-00-990-803 (Sheet 3 of 8)**

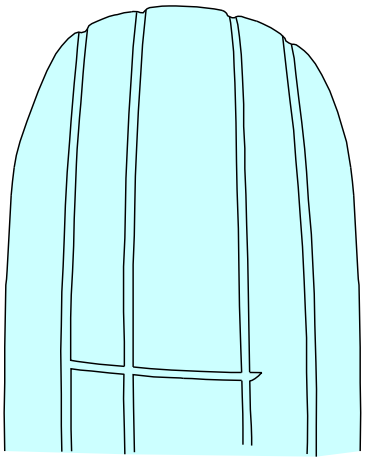


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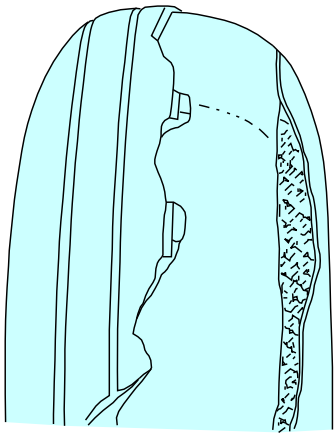
**TREAD FLAKING, CHIPPING OR CHUNKING**

TIRES WITH FLAKING, CHIPPING OR CHUNKING TREADS ARE NOT SERVICEABLE IF ANY FABRIC IS EXPOSED.



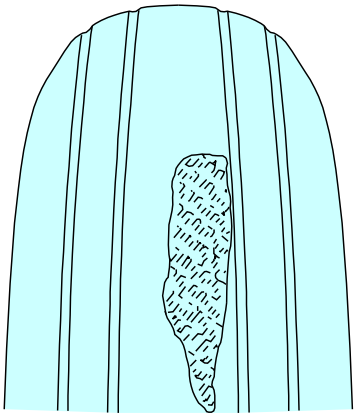
**OPEN TREAD SPLICE**

TIRES WITH AN OPEN TREAD SPLICE ARE NOT SERVICEABLE. A CLOSED TREAD SPLICE WILL APPEAR AS A THIN LINE THAT CROSSES THE TREAD RIBS.



**THROWN TREAD**

TIRES WITH THROWN TREADS ARE NOT SERVICEABLE.



**PEELED RIB**

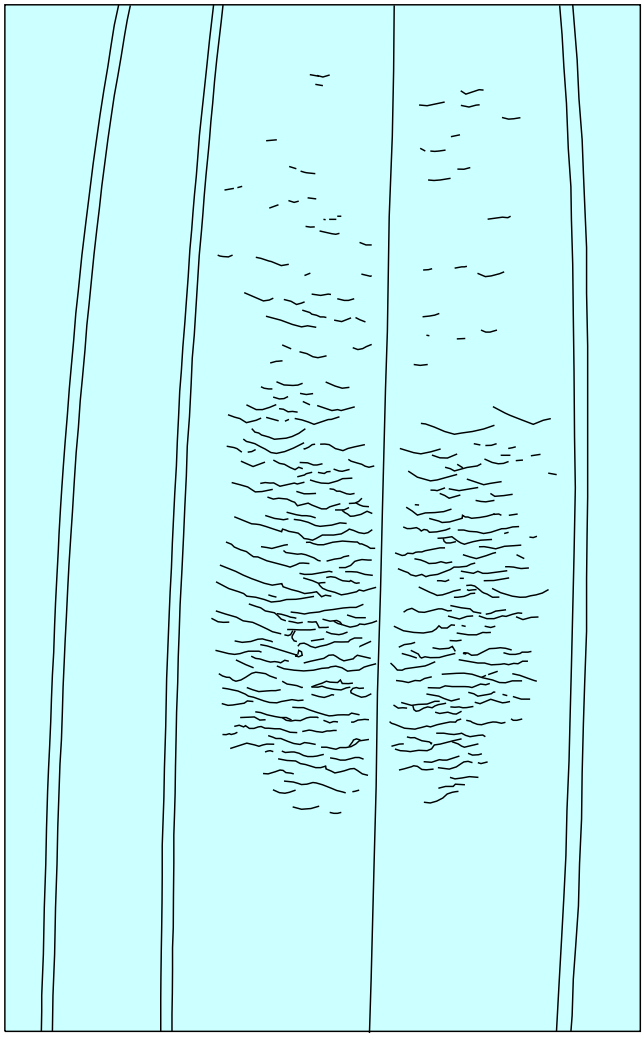
TIRES WITH PEELED RIBS ARE NOT SERVICEABLE.

2414438 S00061535184_V1

**Tire Wear Conditions (Example)**
**Figure 602/32-45-00-990-803 (Sheet 4 of 8)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



**CHEVRON CUTS**

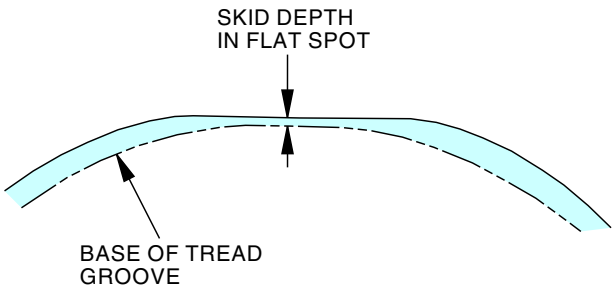
TIRES WITH CHEVRON CUTS IN THE TREAD ARE NOT SERVICEABLE IF ANY OF THE SINGLE CUT LIMITS ARE EXCEEDED OR CHUNKING OCCURS WHICH EXPOSES THE FABRIC.

2414439 S00061535185_V1

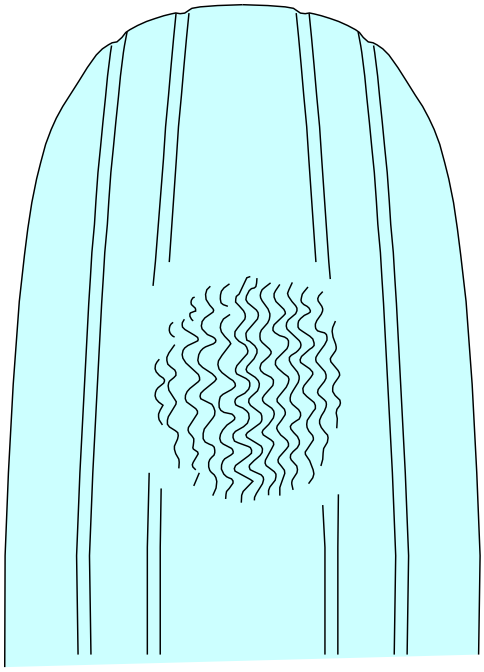
**Tire Wear Conditions (Example)**
**Figure 602/32-45-00-990-803 (Sheet 5 of 8)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

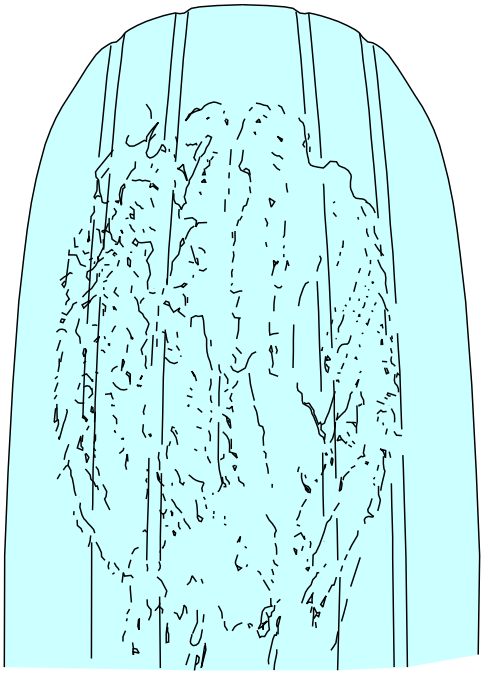



**TREAD FLAT SPOTS**



**FLAT SPOT**

TIRES WITH FLAT SPOTS ARE NOT SERVICEABLE IF THE FLAT SPOT EXPOSES THE TREAD REINFORCEMENT OR CUT PROTECTOR PLIES OR TIRE BALANCE IS AFFECTED.



**ICE SKID BURN/TREAD RUBBER REVERSION**

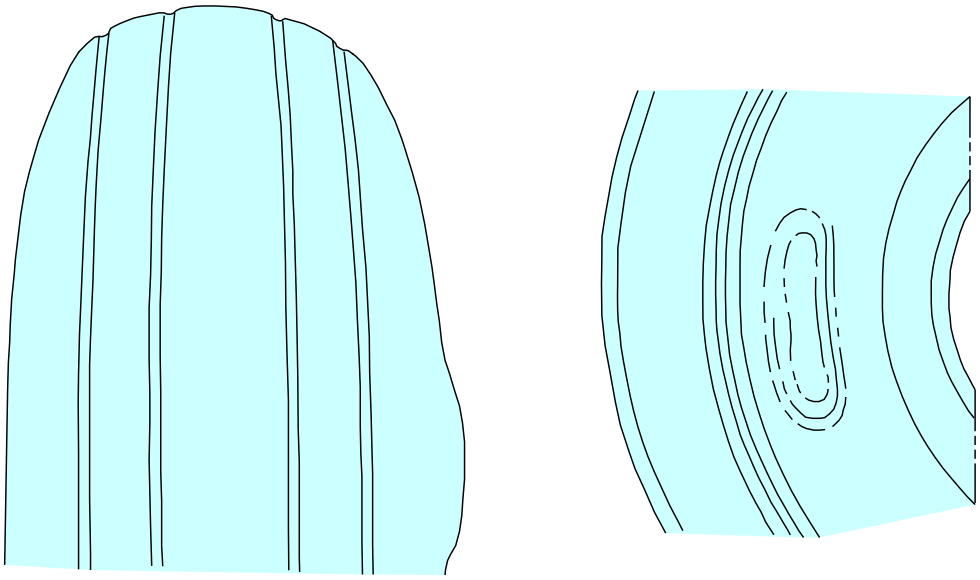
TIRES WITH ICE BURN/TREAD RUBBER REVERSION ARE NOT SERVICEABLE IF THE DAMAGE EXPOSES THE TREAD REINFORCEMENT OR CUT PROTECTOR PLIES OR TIRE BALANCE IS AFFECTED.

2414440 S00061535186_V1

**Tire Wear Conditions (Example)**
**Figure 602/32-45-00-990-803 (Sheet 6 of 8)**

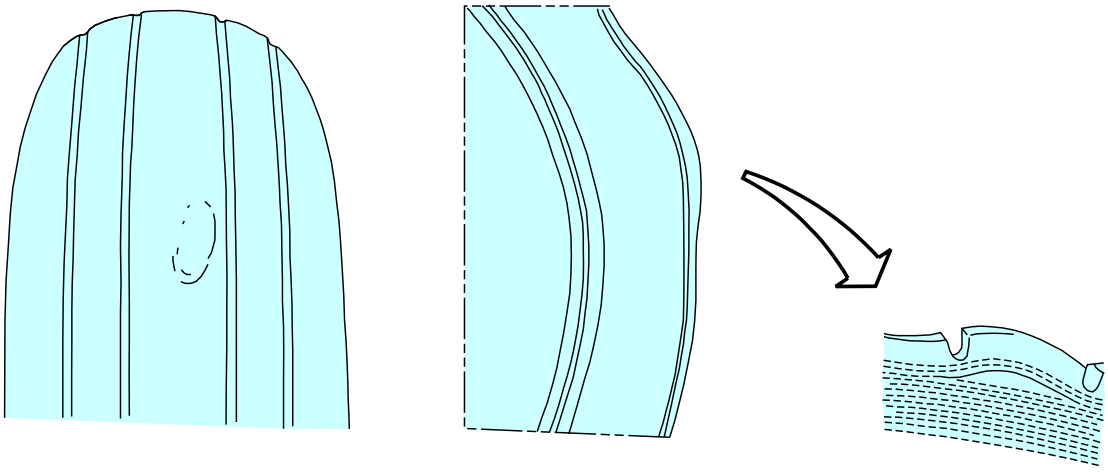


ECCN 9E991 BOEING PROPRIETARY - See title page for details



**SIDEWALL SEPARATION**

TIRES WITH BLISTERS OR BULGES IN THE SIDEWALL ARE NOT SERVICEABLE. REMOVE TIRE IMMEDIATELY.



**TREAD SEPARATION**

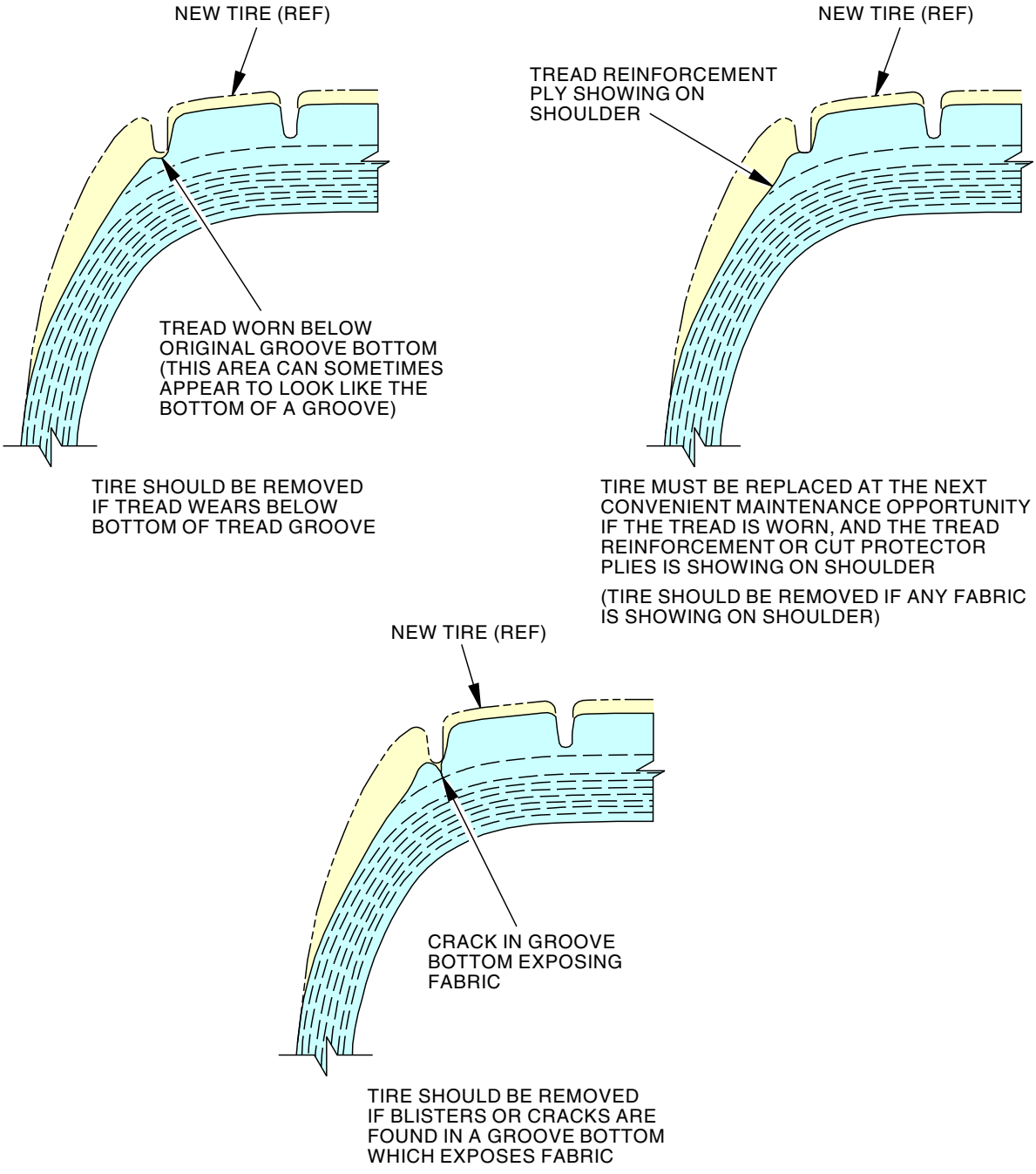
TIRES WITH BLISTERS OR BULGES IN THE TREAD ARE NOT SERVICEABLE. REMOVE TIRE IMMEDIATELY.

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**Tire Wear Conditions (Example)**
**Figure 602/32-45-00-990-803 (Sheet 7 of 8)**



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**Tire Wear Conditions (Example)**
**Figure 602/32-45-00-990-803 (Sheet 8 of 8)**



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**TASK 32-45-00-211-801**

## 5. Wheel Bearings Inspection

Figure 603

### A. General

(1) This procedure will inspect the internal and external areas of the wheel bearings.

### B. References

| Reference | Title |
|---|---|
| 32-45-11-000-801 | Main Landing Gear Wheel and Tire Assembly Removal (P/B 401) |
| 32-45-11-400-801 | Main Landing Gear Wheel and Tire Assembly - Installation (P/B 401) |
| 32-45-21-000-801 | Nose Landing Gear Wheel and Tire Assembly Removal (P/B 401) |
| 32-45-21-400-801 | Nose Landing Gear Wheel and Tire Assembly Installation (P/B 401) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00233 | Grease - Aircraft, General Purpose, Wide Temperature - Mobil 28 | MIL-PRF-81322 |
| D00378 | Grease - Aircraft, General Purpose, Wide Temperature - Aeroshell 22 | MIL-PRF-81322 |
| D50005 | Grease - Wheel Bearing - Mobil Aviation Grease SHC 100 | |
| G00834 | Cloth - Lint-free Cotton | |
| G50492 | Pad - 3M Scotch Brite 7448 Ultra Fine Pad | MIL-A-9962A Type III Grade AAA |
| G51224 | Pad - Abrasive, Scotch-Brite, Very Fine, Maroon 7447 | A-A-58054 Type I Grade A |

### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Prepare for the Inspection

**SUBTASK 32-45-00-020-002**

(1) If not previously done, perform the following tasks as applicable:

(a) For the Main Landing Gear: Main Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-11-000-801.

(b) For the Nose Landing Gear: Nose Landing Gear Wheel and Tire Assembly Removal, TASK 32-45-21-000-801.

### F. Procedure

**SUBTASK 32-45-00-020-003**

(1) Remove the bearing cone from the bearing cup (Figure 603 (Sheet 1)).

(2) Put the bearing cone in a clean area.



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(a) Make sure that no unwanted materials get into the bearing cone while setting it aside.

SUBTASK 32-45-00-210-009

(3) Examine the internal and external surfaces of the bearing cup and cone for water or any other unwanted material in the grease.

(a) If water or unwanted material is found in the grease, remove and replace the entire wheel assembly.

SUBTASK 32-45-00-210-010

(4) Examine the internal and external surfaces of the bearing cup and cone for any obvious signs of cracking, flat spots or damage.

(a) If cracking, flat spots or damage is found, remove and replace the entire wheel assembly, including the wheel bearing cone.

SUBTASK 32-45-00-100-001

(5) Wipe off the grease only from the cup race with a lint-free cloth, G00834.

NOTE: Remove only enough grease to get a clear view of bearing cup race surface.

NOTE: Do not use solvents to clean the bearing cup race surface.

SUBTASK 32-45-00-210-011

(6) Visually examine the cup race with a flashlight for marks, discoloration or corrosion. See Figure 603 (Sheet 2) for examples of marks and discolorations.

(a) If no defects are found, do the steps:

1) Re-apply a thin layer of bearing grease Aeroshell 22 grease, D00378, Mobil 28 grease, D00233 or Mobil Aviation Grease SHC 100 grease, D50005 to the surface of the cup race.

2) Re-insert the wheel bearing cone into the bearing cup.

(b) If discoloration, texture or surface corrosion is found, attempt to remove it by gently using Scotch-Brite 7447 pad, G51224 or Scotch-Brite 7448 pad, G50492. Perform this task for no longer than 2 minutes.

NOTE: Equivalent abrasive papers or cloths to the ones given inhere (with a grade between 600 to 1000) can be used instead.

NOTE: Do not use wire metal brushes, rotary brushes or flappers of any kind to perform this task.

(c) After the area has been reworked, slowly slide a ball point pen, a non-metallic scraper/pick or a bare fingernail along the whole cup race surface to feel for abnormalities:

1) If texture is felt, remove and replace the entire wheel assembly including the wheel bearing cone.

2) If corrosion is still present, remove and replace the entire wheel assembly including the wheel bearing cone.

3) If no texture is felt, do the steps:

a) Re-apply a thin layer of bearing grease Aeroshell 22 grease, D00378, Mobil 28 grease, D00233 or Mobil Aviation Grease SHC 100 grease, D50005 to the surface of the cup race.

b) Re-insert the wheel bearing cone into the bearing cup.



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## G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-45-00-840-002**

(1) Do as applicable:

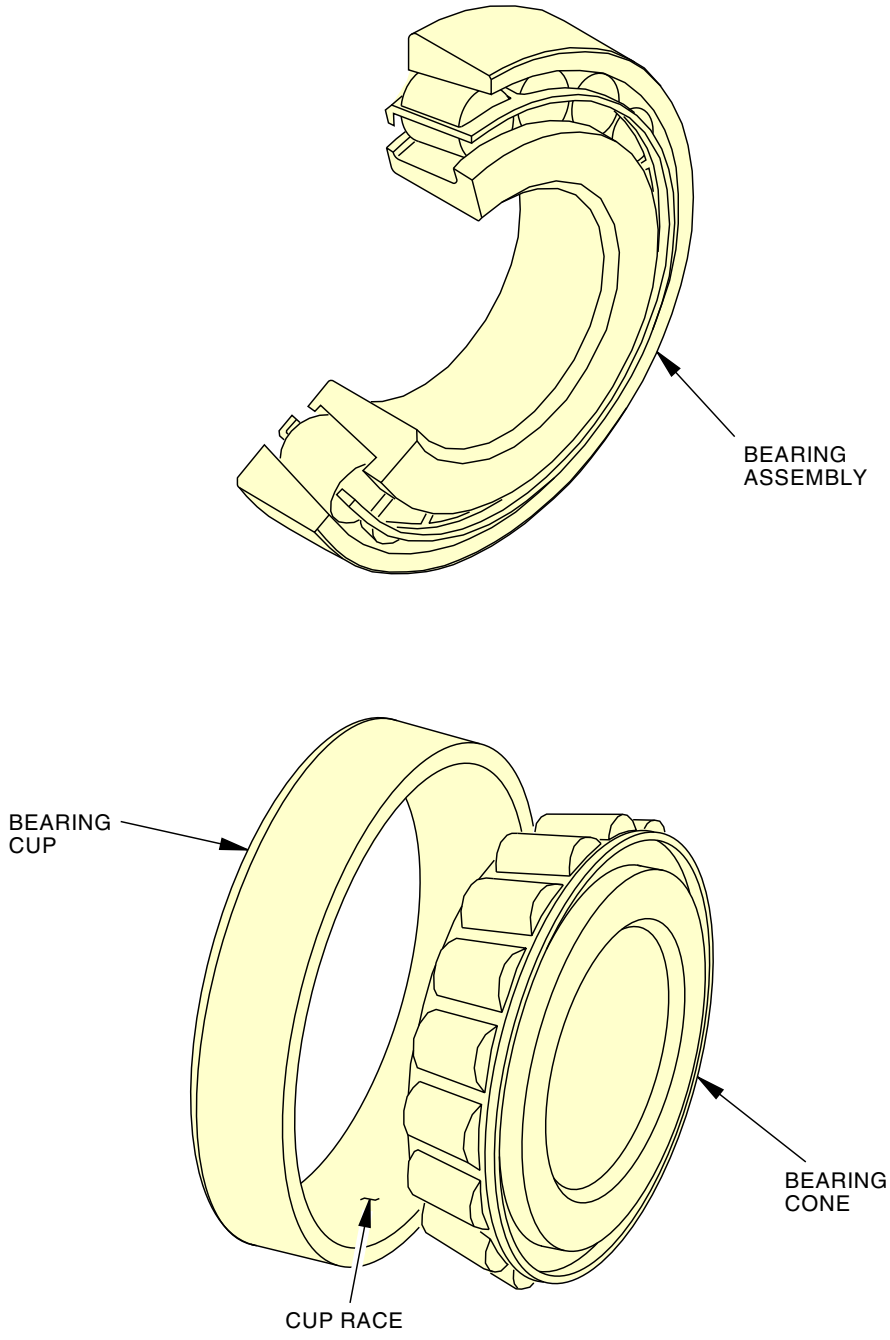
(a) For the Main Landing Gear:Main Landing Gear Wheel and Tire Assembly - Installation, TASK 32-45-11-400-801.

(b) For the Nose Landing Gear:Nose Landing Gear Wheel and Tire Assembly Installation, TASK 32-45-21-400-801.

**——— END OF TASK ———**



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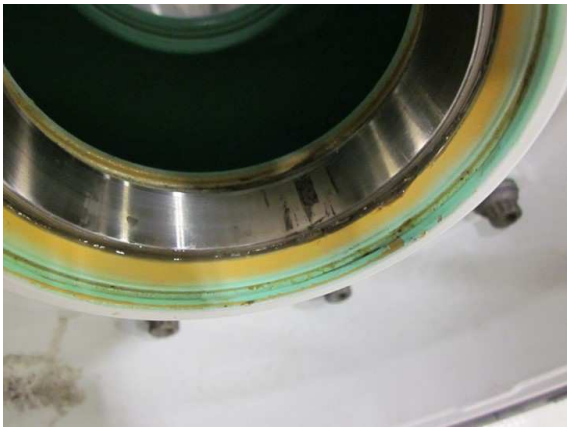



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**Wheel Bearings Inspection**
**Figure 603/32-45-00-990-804 (Sheet 1 of 2)**



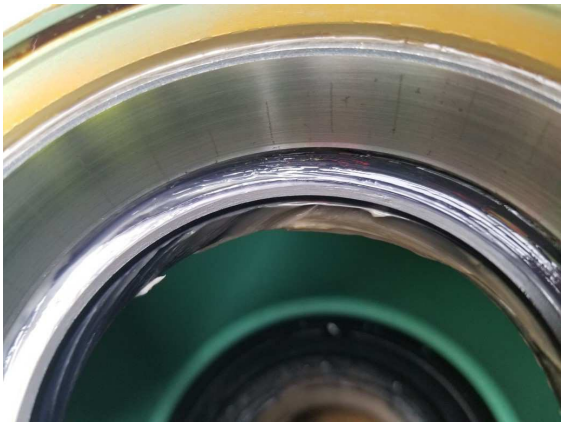
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NOSE WHEEL BEARING CUP DISCOLORATION



MAIN WHEEL BEARING CUP DISCOLORATION



BEARING CUP MARKS

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**Wheel Bearings Inspection**
**Figure 603/32-45-00-990-804 (Sheet 2 of 2)**



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# TIRE INFLATION VALVE - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) A removal of the tire inflation valve

(2) An installation of the tire inflation valve.

B. These tasks are for both the main and nose landing gear tires.

**TASK 32-45-08-000-801**

## 2. Tire Inflation Valve Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-4046 | Deflator - Tire, Valve Core Removal and Installation (Small Bore) and Tire Deflation<br>Part #: 320008B-SO Supplier: SFN11<br>Part #: 968RB Supplier: $1315<br>Opt Part #: 320008B Supplier: SFN11 |

### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Tire Inflation Valve Removal

**SUBTASK 32-45-08-420-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-45-08-420-002**

(2) Install chocks around all tires (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-45-08-580-001**

(3) Raise the axle on the jack so that there is clearance between the wheel and tire assembly and the ground (TASK 07-10-03-580-801).



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SUBTASK 32-45-08-840-001

| | |
|---|---|
| **WARNING** | MAKE SURE THAT YOU DEFLATE THE TIRE BEFORE YOU REMOVE THE VALVE. IF YOU DO NOT DEFLATE THE TIRE, VALVE PARTS CAN COME OUT OF THE VALVE AT A HIGH VELOCITY WHEN YOU TRY TO REMOVE THE VALVE. THIS CAN CAUSE INJURIES TO PERSONNEL. |

| | |
|---|---|
| **WARNING** | MAKE SURE THAT ALL PERSONNEL ARE CLEAR OF THE INFLATION VALVE ASSEMBLY PATH WHILE YOU REMOVE IT. IF THE INFLATION VALVE ASSEMBLY EJECTS WHILE YOU REMOVE IT, INJURY TO PERSONNEL CAN OCCUR. |

| | |
|---|---|
| **WARNING** | BE VERY CAREFUL WHEN DEFLATING TIRES (606) TO PREVENT INJURY TO PERSONNEL FROM A FLYING INFLATION VALVE CAP AND/OR VALVE CORE. |

| | |
|---|---|
| **CAUTION** | MAKE SURE THAT THE DEFLATED TIRE THAT IS ON THE AXLE DOES NOT TOUCH THE GROUND. IF THE TIRE DOES TOUCH THE GROUND, THE TIRE'S BEAD SEAT CAN MOVE OUT OF ITS POSITION AND BECOME UNSEATED. THE UNSEATED BEAD SEAT CAN CAUSE LEAKAGE WHICH THEN CAN CAUSE DAMAGE TO THE TIRE AND WHEEL. |

(4) Deflate the tire with a small bore tire deflator, COM-4046.

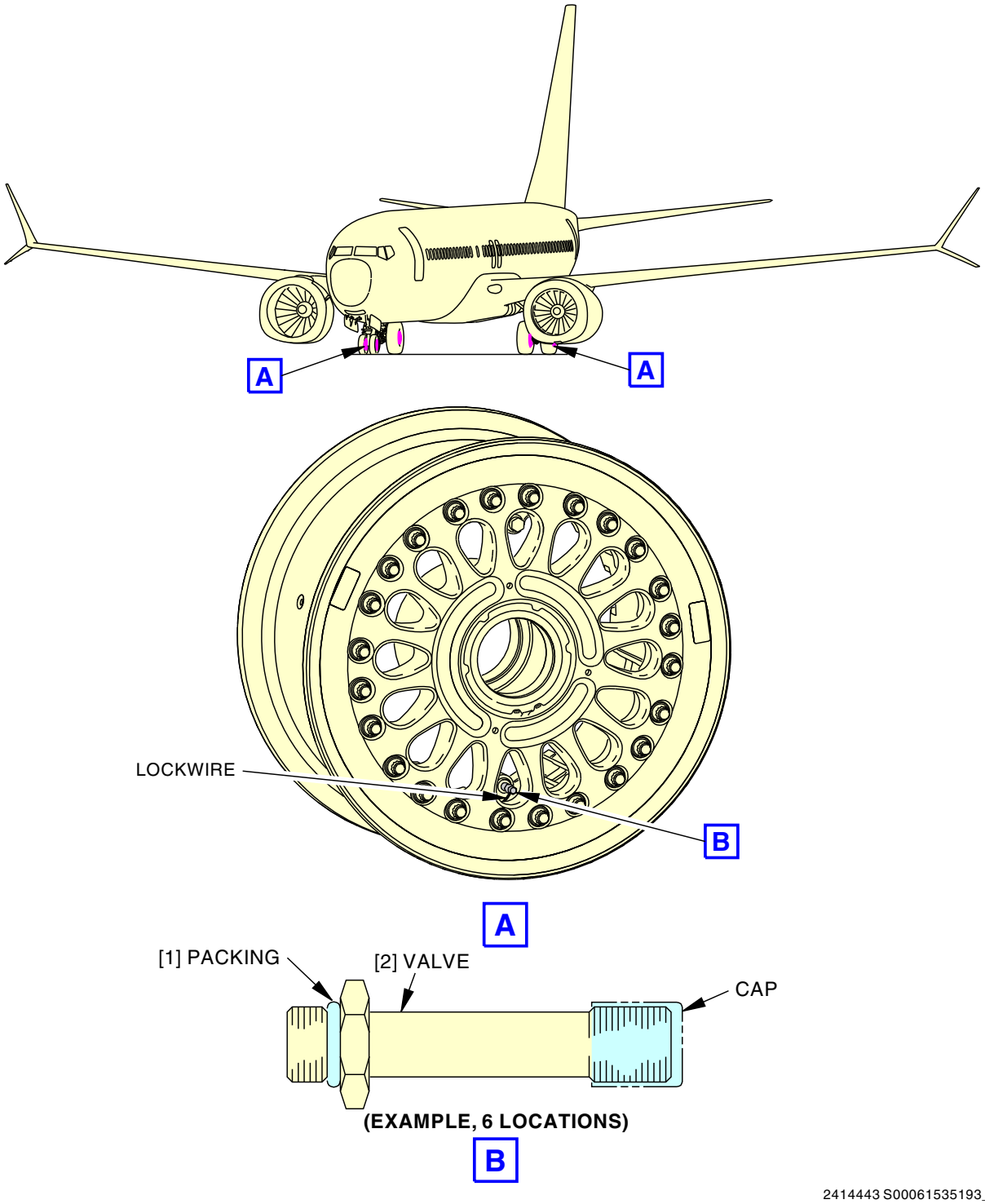
SUBTASK 32-45-08-020-001

(5) Remove the tire inflation valve [2] from the wheel.

**END OF TASK**



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**Tire Inflation Valve**
**Figure 401/32-45-08-990-802**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-45-08-400-801**

## 3. Tire Inflation Valve Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 12-15-51-610-802 | Add Nitrogen or Air to the Tire (P/B 301) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A50584 | Adhesive - Threadlocking, Loctite 242 (Telair ES406-13) | ASTM D5363 Grp 3 Cl 2 Gd 1 (SUPERSEDES MIL-S-46163) |
| A50585 | Adhesive - Threadlocking, Loctite 243 (Telair ES406-13) | |
| D00016 | Grease - Aircraft, General Purpose, Wide Temperature Range | MIL-PRF-81322 |
| G50135 | Leak Detector - Liquid, Non-Corrosive Soap Compound | MIL-PRF-25567 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Packing | 32-45-21-50-055 | SIA ALL |
| | | 32-49-03-01-045 | SIA ALL |
| 2 | Inflation valve | 32-45-21-50-060 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Tire Inflation Valve Installation

**SUBTASK 32-45-08-210-001**

(1) Do a check of the port in the wheel half for cracks, burrs, or scratches propagating from the port.

(a) If you find cracks, burrs, or scratches, remove the wheel and tire.

**SUBTASK 32-45-08-400-001**

(2) With a new or reusable packing [1], install the tire inflation valve [2] into the port.

(a) For the Goodrich main wheel assembly, tighten the tire inflation valve [2] to 210 in-lb (23.7 N·m).

(b) For the Safran main wheel assembly, do these steps:

1) Apply Loctite 242 adhesive, A50584, or Loctite 243 adhesive, A50585, to the tire inflation valve [2] thread.

2) Tighten the tire inflation valve [2] to 159 in-lb (18.0 N·m).

(c) For the Goodrich nose wheel assembly, tighten the tire inflation valve [2] to 175 in-lb (19.8 N·m).



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(d) For the Safran nose wheel assembly, tighten the tire inflation valve [2] to 143.4 in-lb (16.2 N·m) - 175.2 in-lb (19.8 N·m).

(e) If the main and nose wheel assemblies used the tire pressure sensor as an inflation valve [2], do these steps:

1) Lubricate the packing [1] with grease, D00016.

2) Prevent contact with the thread of the inflation valve [2].

3) Tighten the tire inflation valve [2] to 150 in-lb (16.9 N·m) - 200 in-lb (22.6 N·m).

(f) If it is necessary, install lockwire on the tire inflation valve [2].

NOTE: Some inflation valves do not use lockwire.

**SUBTASK 32-45-08-580-002**

(3) Inflate the tire (TASK 12-15-51-610-802).

**F. Tire Inflation Valve Installation Test**

**SUBTASK 32-45-08-210-002**

(1) Do a check for leaks around base of the tire inflation valve [2] with leak detector, G50135.

**G. Put the Airplane Back to Its Usual Condition**

**SUBTASK 32-45-08-580-003**

(1) Lower the aircraft (TASK 07-10-03-580-801).

**SUBTASK 32-45-08-020-002**

(2) If it is necessary remove the chocks.

**——— END OF TASK ———**



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## MAIN LANDING GEAR WHEEL AND TIRE ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Main Landing Gear Wheel and Tire Assembly Removal

(2) Main Landing Gear Wheel and Tire Assembly Installation

**TASK 32-45-11-000-801**

### 2. Main Landing Gear Wheel and Tire Assembly Removal

(Figure 401 or Figure 402 or Figure 403)

NOTE: This procedure is a scheduled maintenance task.

#### A. General

(1) This procedure has steps to remove the main landing gear wheel and tire assembly.

#### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-45-00-700-801 | Wheels Fast Check (Wheel Installed on the Airplane) (P/B 601) |
| 32-45-00-700-803 | Landing Gear Tire Inspection (P/B 601) |
| 32-45-00-910-801 | Landing Gear Tire - Deflation (P/B 201) |

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1818 | Dolly - Wheel/Brake Change<br>Part #: 15F590 Supplier: 56535<br>Part #: 17500M Supplier: 94861<br>Part #: 175S-2 Supplier: 94861<br>Part #: 9092-016 Supplier: 00994<br>Part #: IA3201A-500 Supplier: 053H3<br>Part #: MH13-003 Supplier: D2029<br>Part #: SCA150KG Supplier: R9624<br>Part #: STC90475-101 Supplier: 07132<br>Opt Part #: 175 Supplier: 94861<br>Opt Part #: 8436-012 Supplier: 00994<br>Opt Part #: 9092-010 Supplier: 00994<br>Opt Part #: 9092-015 Supplier: 00994<br>Opt Part #: PF32-002-1 Supplier: 3D5B2<br>Opt Part #: TB900 Supplier: 56535 |
| COM-4046 | Deflator - Tire, Valve Core Removal and Installation (Small Bore) and Tire Deflation<br>Part #: 320008B-SO Supplier: SFN11<br>Part #: 968RB Supplier: $1315<br>Opt Part #: 320008B Supplier: SFN11 |



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(Continued)

| Reference | Description |
|---|---|
| SPL-1865 | Equipment - Removal / Installation, Wheel Retention Nut, MLG and NLG<br>Part #: C32012-12 Supplier: 81205<br>Opt Part #: 1922 Supplier: 45225<br>Opt Part #: F80168-1 Supplier: 81205 |
| SPL-1876 | MLG Axle Thread Protector Equipment<br>Part #: C32022-38 Supplier: 81205<br>Opt Part #: C32022-15 Supplier: 81205<br>Opt Part #: C32022-17 Supplier: 81205<br>Opt Part #: C32022-23 Supplier: 81205 |
| SPL-14320 | Protector - Thread, Eqpt, MLG Axle (1/8 inch undersized threads)<br>Part #: C32022-39 Supplier: 81205<br>Opt Part #: C32022-32 Supplier: 81205 |

## D. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

## E. Prepare for the Removal

SUBTASK 32-45-11-480-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-45-11-480-002

(2) Make sure that the tires have chocks installed around them (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 32-45-11-860-001

(3) Make sure that the parking brake is released.

SUBTASK 32-45-11-580-001

(4) Make sure to lift the wheel and tire assemblies with jacks until they are clear of the ground (TASK 07-10-03-580-801).

SUBTASK 32-45-11-860-002

(5) Make sure that the parking brake is set.

NOTE: When you set the parking brake, the brake rotors will be aligned for wheel installation.

SUBTASK 32-45-11-840-001

**WARNING** FULLY DEFLATE THE TIRE BEFORE YOU REMOVE THE WHEEL AND TIRE ASSEMBLY. OR, DO AN INSPECTION OF THE WHEEL AND TIRE TO MAKE SURE THAT THEY ARE SAFE. AIR PRESSURE CAN CAUSE AN EXPLOSION OF THE DAMAGED WHEEL AND TIRE COMPONENTS. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.


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**(WARNING PRECEDES)**

**WARNING** REMOVE ONE WHEEL AND TIRE ASSEMBLY FROM THE LANDING GEAR. IF MORE THAN ONE WHEEL AND TIRE ASSEMBLY IS REMOVED FROM THE LANDING GEAR, DAMAGE TO THE EQUIPMENT AND INJURIES TO PERSONNEL CAN OCCUR.

(6) Do the following steps to examine the tire and wheel assembly to see if it is safe to remove without tire deflation or deflate the tire (TASK 32-45-00-910-801).

NOTE: If you will not install the same wheel and tire assembly, deflate the tire to prevent transporting an inflated tire.

(a) Inspect the outboard wheel and tire assembly [1] and/or the inboard wheel and tire assembly [17] to see if it has the conditions that follow:

1) Inspect the tires and make sure that there are no air leaks, abrasions, unusual worn areas, cuts or flat spots, do this task: Landing Gear Tire Inspection, TASK 32-45-00-700-803.

2) Inspect the wheels and make sure that there is no evidence of wheel damage, including corrosion, loose or damaged or missing tire bolts or tire nuts, overheat damage or cracks, do this task: Wheels Fast Check (Wheel Installed on the Airplane), TASK 32-45-00-700-801.

3) If the wheel and tire assembly has any of the conditions in the above steps, you must deflate the tire.

**WARNING** MAKE SURE THAT ALL PERSONNEL ARE CLEAR OF THE INFLATION VALVE ASSEMBLY PATH WHILE YOU REMOVE IT. IF THE INFLATION VALVE ASSEMBLY EJECTS WHILE YOU REMOVE IT, INJURY TO PERSONNEL CAN OCCUR.

**CAUTION** MAKE SURE THAT THE DEFLATED TIRE THAT IS ON THE AXLE DOES NOT TOUCH THE GROUND. IF THE TIRE DOES TOUCH THE GROUND, THE TIRE'S BEAD SEAT CAN MOVE OUT OF ITS POSITION AND BECOME UNSEATED. THE UNSEATED BEAD SEAT CAN CAUSE LEAKAGE WHICH THEN CAN CAUSE DAMAGE TO THE TIRE AND WHEEL.

**CAUTION** DO NOT USE TOO MUCH FORCE ON THE VALVE CORE. THE CORE PARTS CAN MOVE AND THE SLEEVE AND THE LOWER END OF THE POPPET WILL STAY IN THE VALVE STEM. IF PARTS STAY IN THE VALVE STEM, DAMAGE CAN OCCUR TO THE VALVE STEM.

(b) Deflate the tire with the small bore tire deflator, COM-4046.

NOTE: If the wheel and tire are not damaged, it is acceptable to leave approximately 50 psi (345 kPa) or 25% of the service pressure in the tire while deflating. Leaving approximately 50 psi (345 kPa) or 25% of the service pressure in the tire can prevent damage to the tire when the wheel and tire are transported.

(c) If you cannot use the usual procedure to deflate the tire because the valve core is damaged, do these steps:

1) Turn the valve assembly slowly in a counterclockwise direction until there is gas leakage through the boss.

2) At the same time, push lightly on the valve assembly.


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3) After all of the gas has been released, remove the valve assembly from the tire.

SUBTASK 32-45-11-020-003

(7) Remove the hubcap [3] from the outboard wheel and tire assembly [1] or hubcap [18] from the inboard wheel and tire assembly [17], do these steps for the applicable wheel:

(a) For the outboard wheel and tire assembly [1], turn the cam-locs [4] 1/4 turn to disconnect the hubcap fairing [5] from the hubcap [3].

(b) Remove the bolts [6] and washers [7] to disconnect the hubcap from the wheel.

(c) Remove the hubcap from the wheel.

## F. Main Landing Gear Wheel and Tire Assembly Removal

SUBTASK 32-45-11-020-002

(1) Remove the outboard wheel and tire assembly [1] or inboard wheel and tire assembly [17], do these steps for the applicable wheel:

(a) Remove the two nuts [8], two washers [9], and two bolts [10] that hold the axle nut [16] to the axle.

**WARNING** DO NOT PUT FINGERS IN THE LIGHTENING HOLES OF THE WHEEL RETAINING NUT SOCKET TOOL WHEN YOU REMOVE OR INSTALL THE WHEEL RETAINING NUT. THIS CAN CAUSE INJURIES TO PERSONS.

(b) Remove the nut [16] with the socket, SPL-1865.

(c) Remove the retention washer [15].

(d) Install the thread protector assembly, of the thread protector, SPL-1876, or the thread protector, SPL-14320, (for undersized threads) on the axle threads.

(e) Use the wheel/brake changer dolly, COM-1818, to lift and remove the wheel.

(f) Mark the reason for the tire removal on the tire to aid the inspectors when they examine the tire.

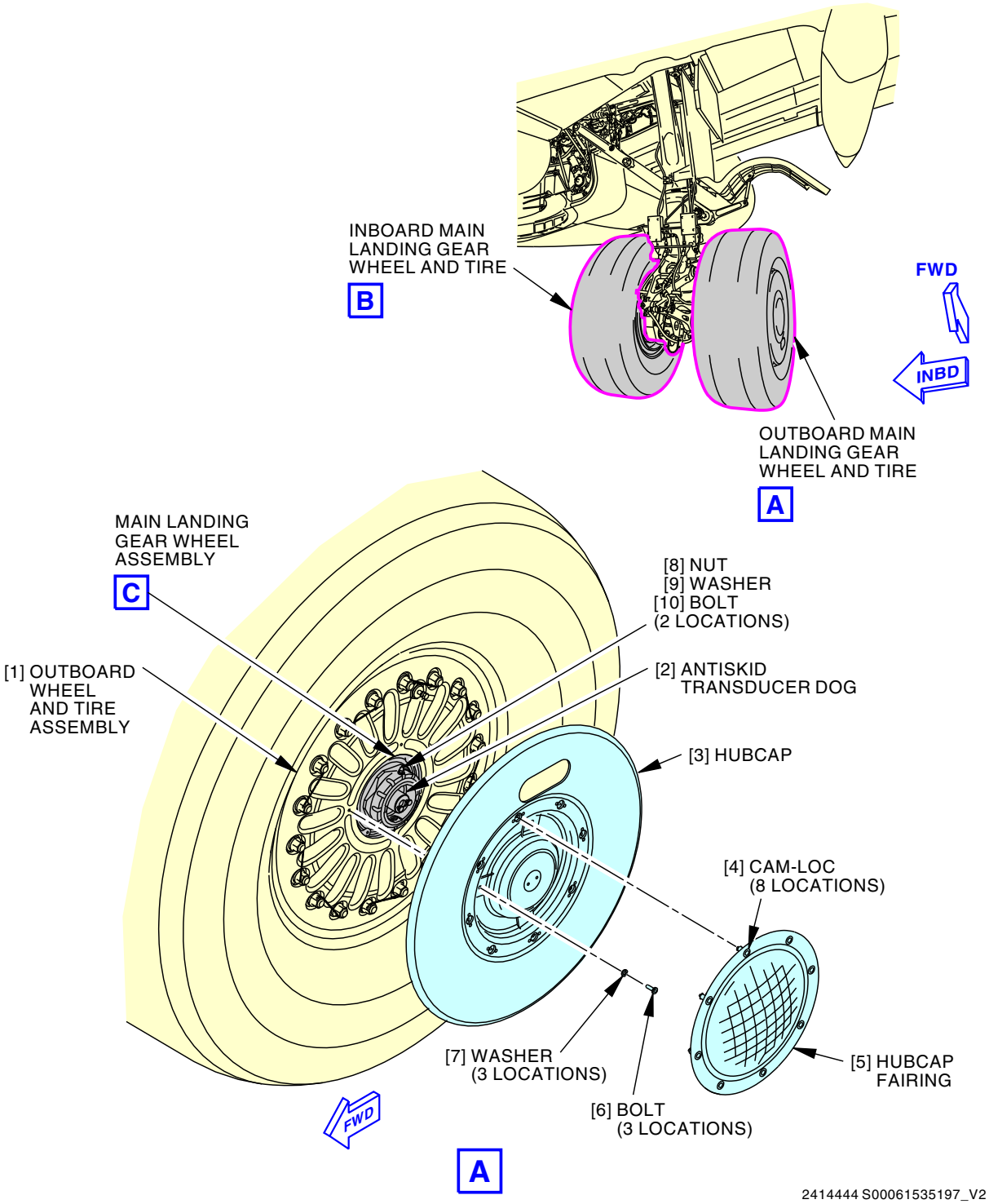
(g) Remove the wheel and tire assembly.

(h) Install the axle protector assembly, of the thread protector, SPL-1876, on the axle.

**END OF TASK**



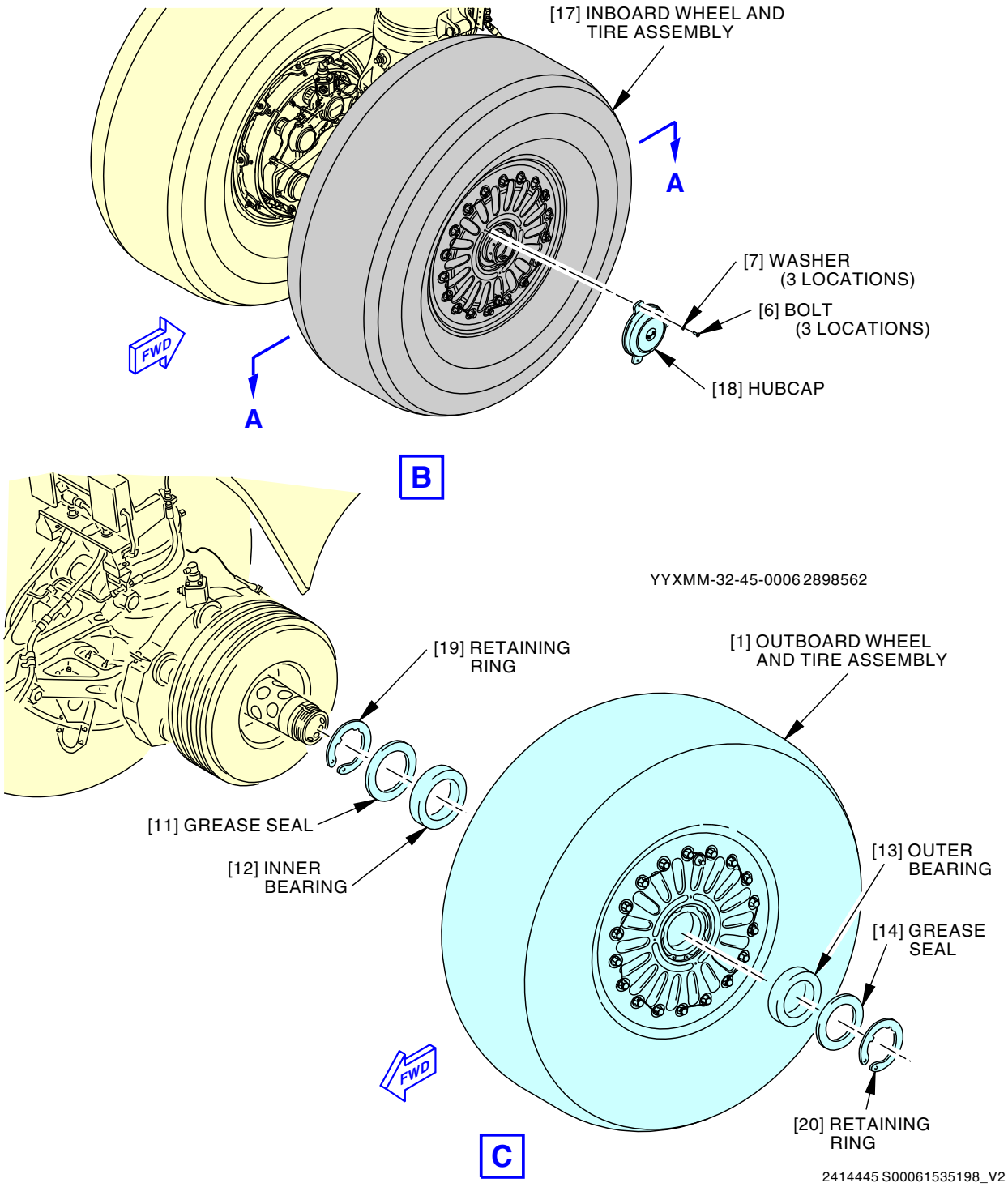
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**Main Landing Gear Wheel and Tire Assembly Installation**
**Figure 401/32-45-11-990-801 (Sheet 1 of 3)**



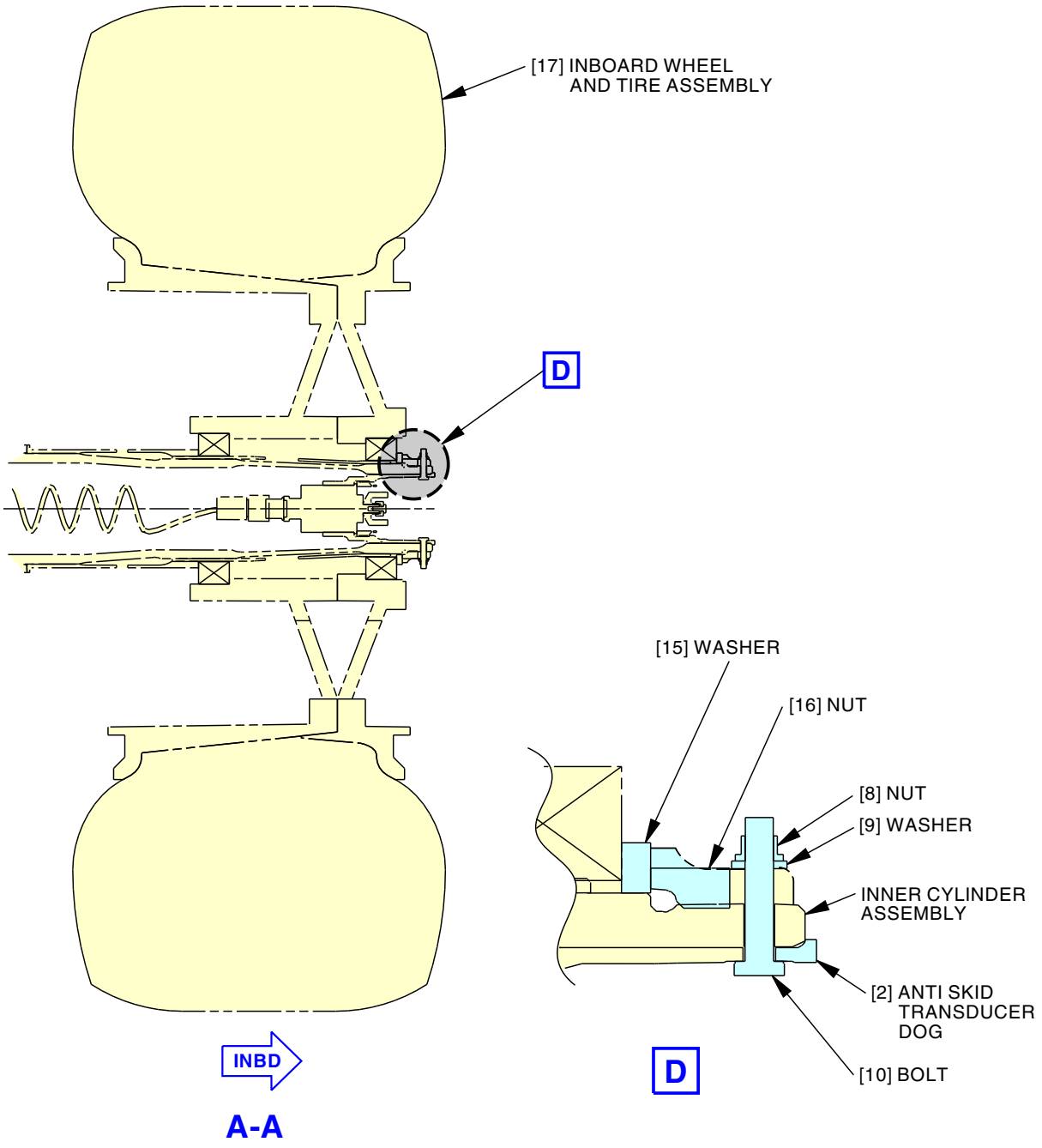
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**Main Landing Gear Wheel and Tire Assembly Installation**
**Figure 401/32-45-11-990-801 (Sheet 2 of 3)**



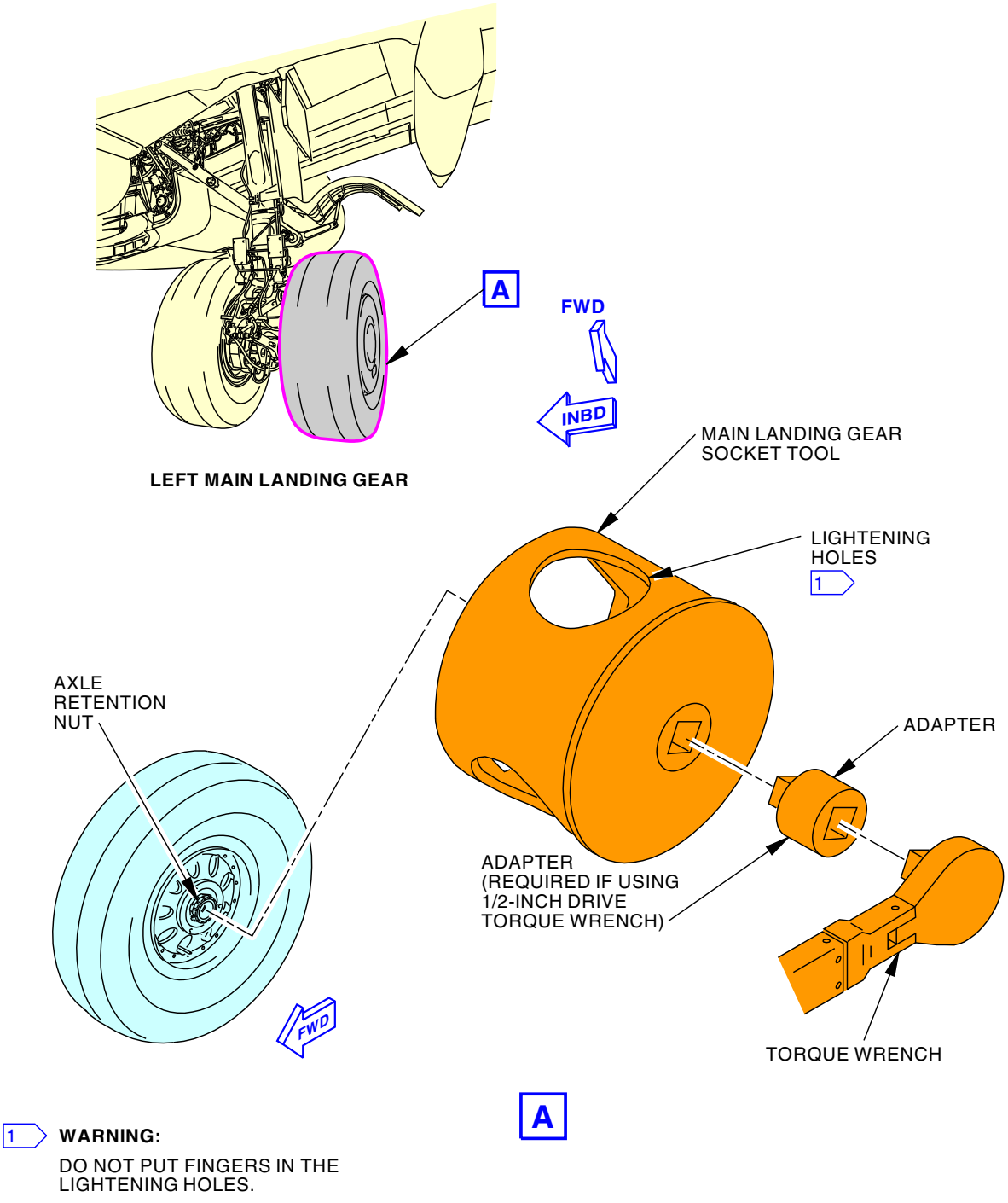
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**Main Landing Gear Wheel and Tire Assembly Installation**
**Figure 401/32-45-11-990-801 (Sheet 3 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

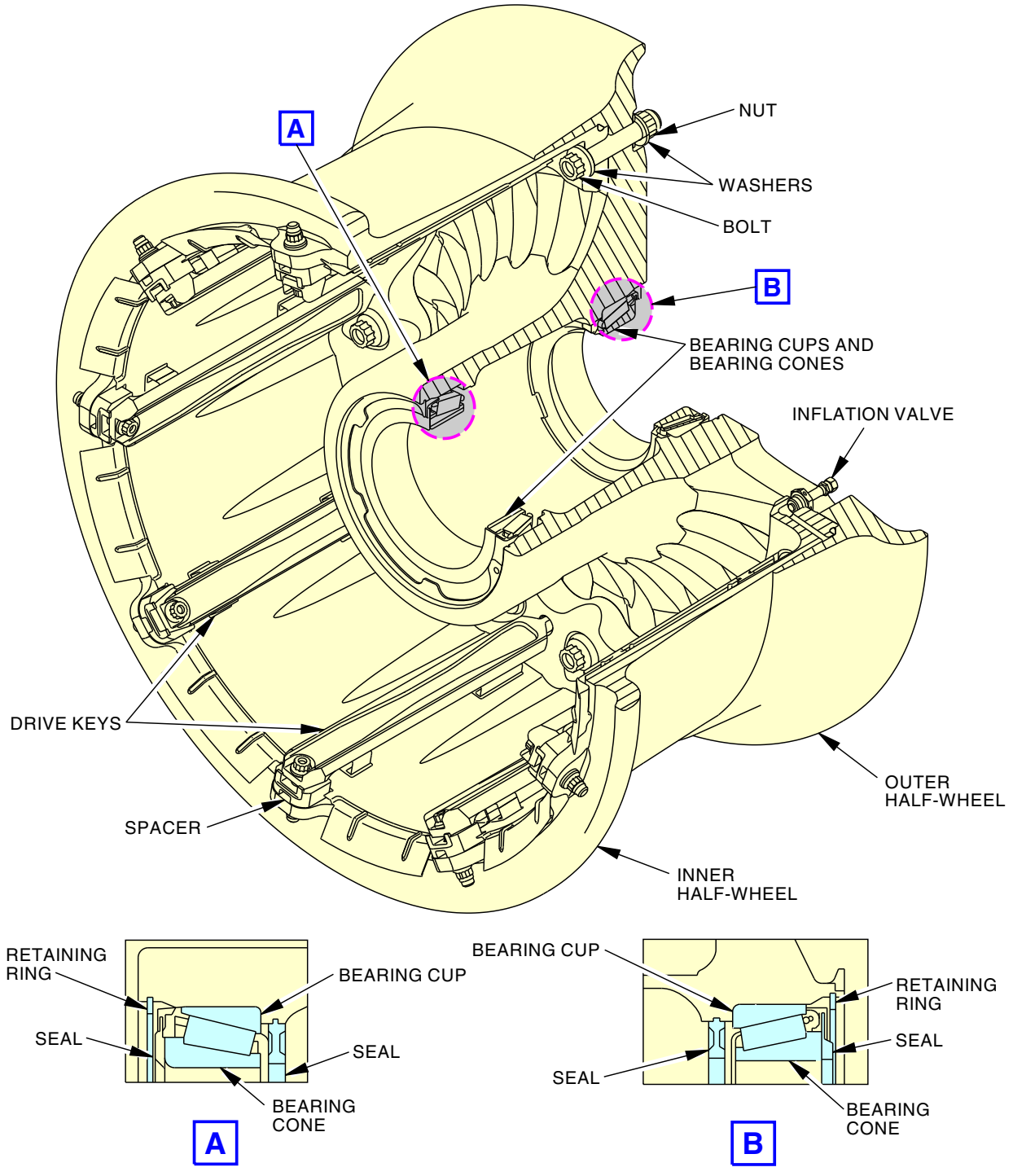



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**Main Landing Gear Axle Nut Socket Tool**
**Figure 402/32-45-11-990-802**



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**Main Landing Gear Wheel for Carbon Brakes**
**Figure 403/32-45-11-990-803**



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**TASK 32-45-11-400-801**

## 3. Main Landing Gear Wheel and Tire Assembly - Installation

(Figure 401 or Figure 402 or Figure 403)

NOTE: This procedure is a scheduled maintenance task.

### A. General

(1) This procedure has steps to install main landing gear wheel and tire assembly.

### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-801 | Lift the Airplane on Axle Jacks-Handling (P/B 201) |
| 12-15-51-780-801 | Landing Gear Tire Pressure Check and Tire Servicing (P/B 301) |
| 20-10-44-400-801 | Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401) |
| 20-50-11-910-801 | Standard Torque Values (P/B 201) |
| 32-41-41-700-803 | Main Landing Gear Brake Inspection (Wheel Removed from the Airplane) (P/B 601) |
| 32-45-00-700-803 | Landing Gear Tire Inspection (P/B 601) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1818 | Dolly - Wheel/Brake Change<br>Part #: 15F590 Supplier: 56535<br>Part #: 17500M Supplier: 94861<br>Part #: 175S-2 Supplier: 94861<br>Part #: 9092-016 Supplier: 00994<br>Part #: IA3201A-500 Supplier: 053H3<br>Part #: MH13-003 Supplier: D2029<br>Part #: SCA150KG Supplier: R9624<br>Part #: STC90475-101 Supplier: 07132<br>Opt Part #: 175 Supplier: 94861<br>Opt Part #: 8436-012 Supplier: 00994<br>Opt Part #: 9092-010 Supplier: 00994<br>Opt Part #: 9092-015 Supplier: 00994<br>Opt Part #: PF32-002-1 Supplier: 3D5B2<br>Opt Part #: TB900 Supplier: 56535 |
| SPL-1865 | Equipment - Removal / Installation, Wheel Retention Nut, MLG and NLG<br>Part #: C32012-12 Supplier: 81205<br>Opt Part #: 1922 Supplier: 45225<br>Opt Part #: F80168-1 Supplier: 81205 |
| SPL-1876 | MLG Axle Thread Protector Equipment<br>Part #: C32022-38 Supplier: 81205<br>Opt Part #: C32022-15 Supplier: 81205<br>Opt Part #: C32022-17 Supplier: 81205<br>Opt Part #: C32022-23 Supplier: 81205 |
| SPL-14320 | Protector - Thread, Eqpt, MLG Axle (1/8 inch undersized threads)<br>Part #: C32022-39 Supplier: 81205<br>Opt Part #: C32022-32 Supplier: 81205 |


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(Continued)

| Reference | Description |
|---|---|
| STD-1021 | Wrench - Torque, 100 to 600 ft-lbs (135.58 to 813.48 N·m) |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00233 | Grease - Aircraft, General Purpose, Wide Temperature - Mobil 28 | MIL-PRF-81322 |
| D00378 | Grease - Aircraft, General Purpose, Wide Temperature - Aeroshell 22 | MIL-PRF-81322 |
| D50005 | Grease - Wheel Bearing - Mobil Aviation Grease SHC 100 | |

**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Wheel and tire assembly | 32-45-11-01-010 | SIA ALL |
| 11 | Grease seal | Not Specified | |
| 14 | Grease seal | Not Specified | |

**F. Location Zones**

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**G. Prepare for the Installation**

SUBTASK 32-45-11-840-002

(1) Do these steps to prepare for installation:

(a) Remove the axle protector assembly, of the thread protector, SPL-1876, from the axle.

(b) Remove all the old grease from the axle.

(c) Remove all the old grease from the inner diameter of the brake.

(d) Do an inspection of the brake (TASK 32-41-41-700-803).

(e) Do an inspection of the axle.

(f) Examine the antiskid transducer drive components in the axle and hubcap [3], hubcap [18] for damage.

(g) If the wheel is not new, inspect the bearings, the seals, and other parts of the wheel assembly.

(h) If the tire is not new, do a tire inspection (TASK 32-45-00-700-803).

(i) Do these steps if the wheel inboard and outboard bearing assemblies need to be installed:

1) Apply Aeroshell 22 grease, D00378, Mobil 28 grease, D00233, or Mobil Aviation Grease SHC 100 grease, D50005, to all of the parts of the bearing assemblies.

**CAUTION**

MAKE SURE TO INSTALL THE OUTSIDE BEARING ON THE WHEEL, INSTALLATION OF THE INSIDE BEARING ON THE OUTSIDE OF THE WHEEL WILL DAMAGE THE WHEEL.

2) Install the inner bearing [12] in the inner side of the wheel and the outer bearing [13] in the outer side of the wheel.



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CAUTION: MAKE SURE TO INSTALL THE OUTSIDE GREASE SEAL ON THE WHEEL, INSTALLATION OF THE INSIDE GREASE SEAL IN THE OUTSIDE GREASE SEAL LOCATION WILL DAMAGE THE SEAL.

3) Install the grease seal [11] in the inner side of the wheel and grease seal [14] in the outer side of the wheel.

4) If part of the assembly, install retention ring [19] in the inner side of the wheel and the retention ring [20] in the outer side of the wheel.

NOTE: Some wheel assemblies may not have the retention rings retaining rings as part of the configuration, or they may look different from those illustrated.

## H. Main Landing Gear Wheel and Tire Assembly Installation

SUBTASK 32-45-11-420-001

(1) Install the outboard wheel and tire assembly [1] or inboard wheel and tire assembly [17], do these steps for the applicable wheel:

CAUTION: DO NOT APPLY GREASE TO THE AREA BETWEEN AXLE BEARINGS. HIGH TEMPERATURES CAN OCCUR IN THIS AREA DURING A LANDING, DAMAGE TO THE WHEELS, TIRES AND BRAKES CAN OCCUR.

(a) Apply a thin layer of Aeroshell 22 grease, D00378, Mobil 28 grease, D00233, or Mobil Aviation Grease SHC 100 grease, D50005, to the inner diameter surface of the two bearings where they will touch the axle.

(b) Apply a thin layer of Aeroshell 22 grease, D00378, Mobil 28 grease, D00233, or Mobil Aviation Grease SHC 100 grease, D50005, to the faces of the washer [15] and nut [16], and to the axle threads.

(c) Apply a thin layer of Aeroshell 22 grease, D00378, Mobil 28 grease, D00233, or Mobil Aviation Grease SHC 100 grease, D50005, on the axle where the axle will touch the wheel bearings.

(d) If you need to align the brake disks, do these steps:

1) Release the parking brake.

CAUTION: MAKE SURE BRAKE ROTORS ARE ALIGNED. DRIVE KEYS ON THE WHEELS CAN DAMAGE THE ROTORS.

2) Align the brake disks.

3) Set the parking brake.

NOTE: This will keep the brake rotors aligned.

(e) Make sure that the thread protector assembly, of the thread protector, SPL-1876, or the thread protector, SPL-14320, (for undersized threads) is installed.

(f) Install the wheel with the wheel/brake changer dolly, COM-1818.

1) Make sure that the rotor drive keys on the wheel fully engage the key slots in the brake rotors.

(g) Remove the thread protector assembly, of the thread protector, SPL-1876, or the thread protector, SPL-14320, (for undersized threads) from the axle threads.



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**CAUTION** MAKE SURE TO PUSH WHEEL AND LOCK WASHER ON THE AXLE UNTIL THE WHEEL IS SEATED BEFORE INSTALLING THE AXLE NUT. DAMAGE TO THE WHEEL AND THE AIRCRAFT CAN OCCUR.

**CAUTION** MAKE SURE THE KEY LOCK IS FIRMLY ENGAGED IN THE KEYWAY GROOVE IN THE AXLE. DAMAGE TO THE WHEEL AND AIRCRAFT CAN OCCUR.

**CAUTION** DO NOT USE THE AXLE NUT TO PUSH THE WHEEL AND LOCK WASHER ONTO THE AXLE. DAMAGE TO THE WHEEL AND AIRCRAFT CAN OCCUR.

(h) Install the washer [15].

(i) Install the nut [16].

(j) Release the parking brake.

**WARNING** DO NOT PUT FINGERS IN THE LIGHTENING HOLES OF THE WHEEL RETAINING NUT SOCKET TOOL WHEN YOU REMOVE OR INSTALL THE WHEEL RETAINING NUT. THIS CAN CAUSE INJURIES TO PERSONS.

(k) Do these steps to tighten the nut [16] with the socket, SPL-1865, and torque wrench, STD-1021:

1) While you turn the wheel, tighten the nut [16] to 500 ft-lb (678 N·m) - 600 ft-lb (813 N·m).
2) Stop the wheel.
3) While you turn the wheel, loosen the nut [16] to almost zero torque.

   NOTE: It is necessary to re-seat the wheel if the nut is set to zero torque.
4) While you turn the wheel, tighten the nut [16] to 150 ft-lb (203 N·m).
5) If the holes for bolt [10] do not align, continue to tighten the nut [16] to align the holes.
   a) Do not tighten the nut to more than 300 ft-lb (407 N·m).

      NOTE: The holes will align every 6 degrees that you turn the nut.

(l) Do these steps to install the two bolts [10] to lock the nut [16] to the wheel:

1) Install the two bolts [10] with the heads to the inside of the axle.
2) Install the washers [9] and nuts [8].
3) Check the self locking nuts (TASK 20-50-11-910-801).
4) Tighten the nuts [8] to 65 ±2 in-lb (7.3 ±0.2 N·m).

   NOTE: This is per Standard Torque Values, TASK 20-50-11-910-801 to have the lowest maximum value when both nuts and the bolts can be tightened.



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SUBTASK 32-45-11-420-002

**CAUTION** DO NOT TIGHTEN THE HUBCAP BOLTS TOO MUCH. MAKE SURE THAT THE HUBCAP IS IN THE CORRECT POSITION BEFORE YOU TIGHTEN THE BOLTS. TOO MUCH TORQUE WILL CAUSE DAMAGE TO THE BOLTS AND THE HUBCAP.

(2) Install the hubcap [3] and hubcap [18].

(a) Do these steps to install the hubcap [3]:

1) Turn antiskid transducer dog [2] inside the outboard wheel and tire assembly [1] such that the drive on the hubcap [3] and antiskid transducer dog [2] in the wheel will connect when the hubcap [3] is installed.

2) Put the hubcap [3] in its position on the outboard wheel and tire assembly [1].

3) Make sure that the hubcap [3] flush with the outboard wheel and tire assembly [1].

a) Use a soft mallet to lightly tap the hubcap [3] to make it flush.

4) Install the bolts [6] and washers [7] to connect the hubcap [3] to the outboard wheel and tire assembly [1].

a) Tighten the bolts [6] to 50 in-lb (6 N·m) - 80 in-lb (9 N·m).

5) Install the lockwire on the bolts [6] (TASK 20-10-44-400-801).

6) Put the hubcap fairing [5] on the hubcap [3].

7) Turn the cam-locs [4], 1/4 turn to attach the hubcap fairing [5] to the hubcap [3].

(b) Do these steps to install the hubcap [18]:

1) Turn antiskid transducer dog [2] inside the inboard wheel and tire assembly [17] such that the drive on the hubcap [18] and antiskid transducer dog [2] in the wheel will connect when the hubcap [18] is installed.

2) Put the hubcap [18] in its position on the inboard wheel and tire assembly [17].

3) Make sure that the hubcap [18] flush with the inboard wheel and tire assembly [17].

a) Use a soft mallet to lightly tap the hubcap [18] to make it flush.

4) Install the bolts [6] and washers [7] to connect the hubcap [18] to the inboard wheel and tire assembly [17].

a) Tighten the bolts [6] to 50 in-lb (6 N·m) - 80 in-lb (9 N·m).

5) Install the lockwire on the bolts [6] (TASK 20-10-44-400-801).

SUBTASK 32-45-11-860-003

(3) Make sure that the tire is inflated to at least half of the normal inflation pressure before you remove the jacks (TASK 12-15-51-780-801).

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-45-11-580-002

**WARNING** MAKE SURE THE AREA AROUND THE TIRES IS CLEAR OF PERSONS AND EQUIPMENT. IF THE AREA AROUND THE TIRES IS NOT CLEAR, INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT CAN OCCUR.

(1) Lower the axle and remove the jacks (TASK 07-10-03-580-801).



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SUBTASK 32-45-11-610-002

(2) Make sure that the Landing Gear Tire Pressure is within the servicing limits (TASK 12-15-51-780-801).

——— END OF TASK ———



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## NOSE LANDING GEAR WHEEL AND TIRE ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the nose landing gear wheel and tire assembly

(2) An installation of the landing gear wheel and tire assembly.

B. When a replacement of the nose wheel and tire assembly is accomplished, it is recommended to replace the wheel and tire assembly on the opposite side. The differences in diameter between the new and worn tires can contribute to the nose landing gear vibration. To prevent the nose landing gear vibration, the installed tires should have equal pressure, nearly the same inflated diameters, and matching supplier part numbers.

**TASK 32-45-21-000-801**

### 2. Nose Landing Gear Wheel and Tire Assembly Removal

(Figure 401 or Figure 402)

NOTE: This procedure is a scheduled maintenance task.

#### A. General

(1) This task has steps to remove the nose landing gear wheel and tire assembly.

#### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-45-00-700-801 | Wheels Fast Check (Wheel Installed on the Airplane) (P/B 601) |
| 32-45-00-700-803 | Landing Gear Tire Inspection (P/B 601) |
| 32-45-00-910-801 | Landing Gear Tire - Deflation (P/B 201) |

#### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1818 | Dolly - Wheel/Brake Change<br>Part #: 15F590 Supplier: 56535<br>Part #: 17500M Supplier: 94861<br>Part #: 175S-2 Supplier: 94861<br>Part #: 9092-016 Supplier: 00994<br>Part #: IA3201A-500 Supplier: 053H3<br>Part #: MH13-003 Supplier: D2029<br>Part #: SCA150KG Supplier: R9624<br>Part #: STC90475-101 Supplier: 07132<br>Opt Part #: 175 Supplier: 94861<br>Opt Part #: 8436-012 Supplier: 00994<br>Opt Part #: 9092-010 Supplier: 00994<br>Opt Part #: 9092-015 Supplier: 00994<br>Opt Part #: PF32-002-1 Supplier: 3D5B2<br>Opt Part #: TB900 Supplier: 56535 |



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(Continued)

| Reference | Description |
|---|---|
| COM-4046 | Deflator - Tire, Valve Core Removal and Installation (Small Bore) and Tire Deflation<br>Part #: 320008B-SO Supplier: SFN11<br>Part #: 968RB Supplier: $1315<br>Opt Part #: 320008B Supplier: SFN11 |
| SPL-1817 | Socket, C32012-3 (included in C32012 Equipment)<br>Part #: C32012-12 Supplier: 81205 |
| SPL-1865 | Equipment - Removal / Installation, Wheel Retention Nut, MLG and NLG<br>Part #: C32012-12 Supplier: 81205<br>Opt Part #: 1922 Supplier: 45225<br>Opt Part #: F80168-1 Supplier: 81205 |
| SPL-1877 | NLG Axle Thread Protector Equipment<br>Part #: C32022-20 Supplier: 81205<br>Opt Part #: C32022-2 Supplier: 81205 |
| SPL-14582 | NLG Axle Thread Protector Eqpt - 1/16" Undersize<br>Part #: C32022-35 Supplier: 81205 |

## D. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

## E. Prepare for the Removal

SUBTASK 32-45-21-480-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-45-21-480-002

(2) Make sure that the tires have chocks installed around them (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

SUBTASK 32-45-21-860-001

(3) Make sure that the parking brake is set.

SUBTASK 32-45-21-580-001

(4) Make sure to lift the nose landing gear and wheel and tire assembly with jacks until they are clear of the ground (TASK 07-10-03-580-803).

SUBTASK 32-45-21-840-001

**WARNING** FULLY DEFLATE THE TIRE BEFORE YOU REMOVE THE WHEEL AND TIRE ASSEMBLY. OR, DO AN INSPECTION OF THE WHEEL AND TIRE TO MAKE SURE THAT THEY ARE SAFE. AIR PRESSURE CAN CAUSE AN EXPLOSION OF THE DAMAGED WHEEL AND TIRE COMPONENTS. INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.



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**(WARNING PRECEDES)**

**WARNING** REMOVE ONE WHEEL AND THE TIRE ASSEMBLY FROM THE NOSE LANDING GEAR AT A TIME. IF YOU REMOVE THE TWO WHEEL AND THE TIRE ASSEMBLIES AT THE SAME TIME, THE AIRPLANE CAN FALL. STRUCTURAL DAMAGE AND INJURY TO PERSONNEL CAN OCCUR.

(5) Do the following steps to examine the tire and wheel assembly to see if it is safe to remove without tire deflation, or deflate the tire (TASK 32-45-00-910-801):

NOTE: If you will not install the same tire and wheel assembly, deflate the tire to prevent transporting an inflated tire.

(a) Inspect the wheel and tire assembly [1] to see if it has the conditions that follow:

1) Inspect the tires and make sure that there are no air leaks, abrasions, unusual worn areas, cuts or flat spots (TASK 32-45-00-700-803).

2) Inspect the wheels and make sure that there is no evidence of wheel damage, including corrosion, loose or damaged or missing tie bolts or tie nuts, overheat damage or cracks (TASK 32-45-00-700-801).

3) If the wheel and tire assembly [1] has any of the conditions in the above steps, you must deflate the tire.

**WARNING** MAKE SURE THAT ALL PERSONNEL ARE CLEAR OF THE INFLATION VALVE ASSEMBLY PATH WHILE YOU REMOVE IT. IF THE INFLATION VALVE ASSEMBLY EJECTS WHILE YOU REMOVE IT, INJURY TO PERSONNEL CAN OCCUR.

**WARNING** BE CAREFUL WHEN DEFLATING TIRES, A FLYING INFLATION VALVE CAP AND CORE CAN CAUSE DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL.

**CAUTION** MAKE SURE THAT THE DEFLATED TIRE THAT IS ON THE AXLE DOES NOT TOUCH THE GROUND. IF THE TIRE DOES TOUCH THE GROUND, THE TIRE'S BEAD SEAT CAN MOVE OUT OF ITS POSITION AND BECOME UNSEATED. THE UNSEATED BEAD SEAT CAN CAUSE LEAKAGE WHICH THEN CAN CAUSE DAMAGE TO THE TIRE AND WHEEL.

(b) Deflate the tire with the small bore tire deflator, COM-4046.

(c) If you cannot use the usual procedure to deflate the tire because the valve core is damaged, do these steps:

1) Turn the valve assembly slowly in a counterclockwise direction until there is gas leakage through the boss.

2) At the same time, push lightly on the valve assembly.

3) After all of the gas has been released, remove the valve assembly from the tire.

## F. Nose Landing Gear Wheel and Tire Assembly Removal

**SUBTASK 32-45-21-020-001**

(1) Do these steps to remove the wheel and tire assembly [1]:

(a) Remove the lockwire from the screws [4].

(b) Remove the screws [4] that hold the axle nut [3] to the axle.



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(c) Remove the axle nut [3] with the NLG socket, C32012-3, SPL-1817, from kit socket, SPL-1865.

(d) Remove the washer [2].

(e) Install the axle Thread protector, SPL-1877, or the thread protector, SPL-14582 (if the axle has undersized threads).

1) If it is necessary, use tape to hold the thread protector to the axle.

**CAUTION**

MAKE SURE TO KEEP CLEARANCE BETWEEN THE NOSE-WHEEL INNER BEARING AND PAINTED SURFACES OF THE NOSE GEAR AXLE DURING REMOVAL AND INSTALLATION. FRICTION CAN CAUSE DAMAGE TO NOSE-WHEEL AXLE PAINT AND OTHER EQUIPMENT.

(f) Use the wheel/brake changer dolly, COM-1818, to lift and remove the wheel and tire assembly [1].

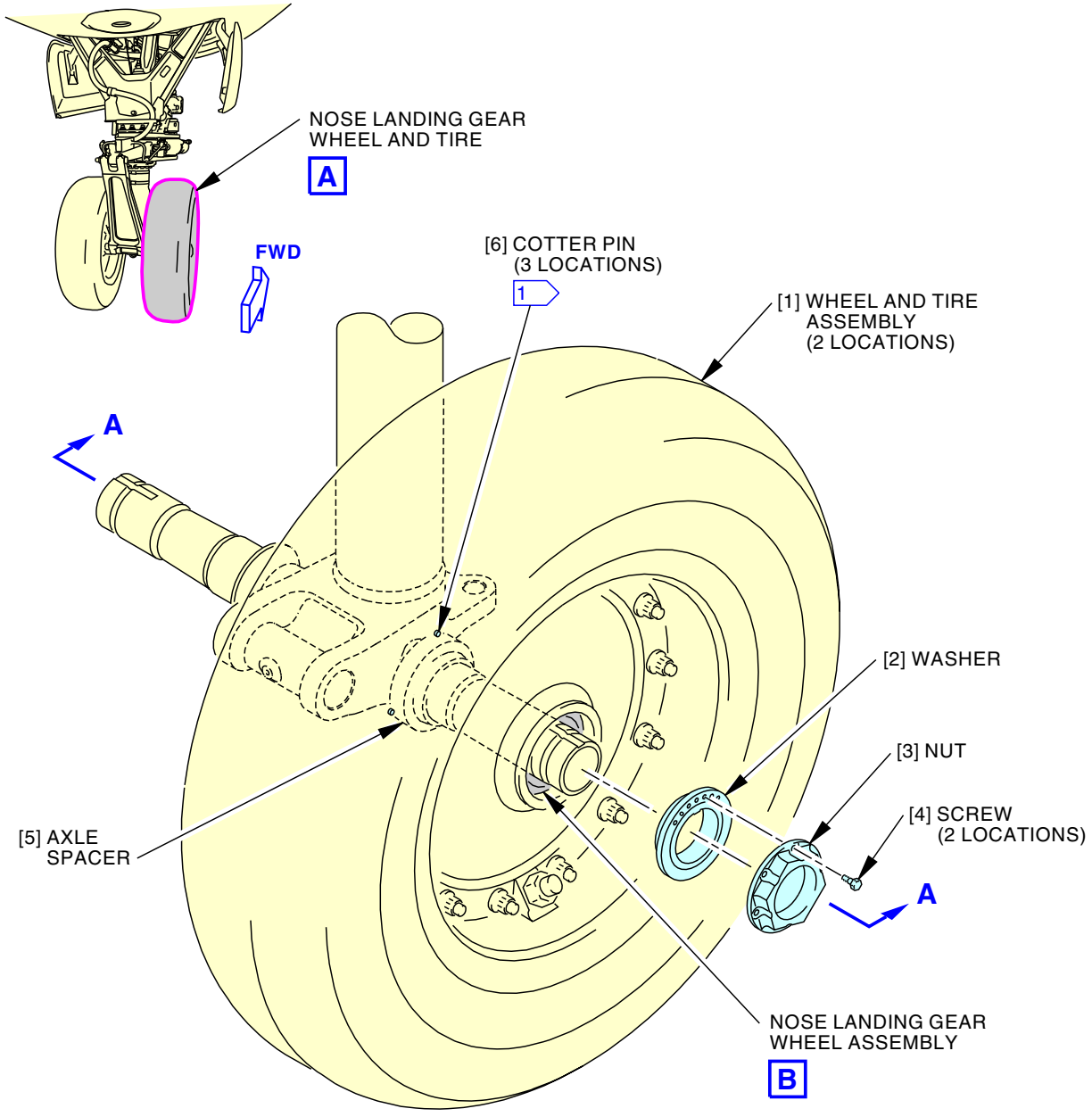
(g) Remove the wheel and tire assembly [1].

(h) Mark the reason for the tire removal on the tire to aid the inspectors when they examine the tire.

**——— END OF TASK ———**



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**NOSE LANDING GEAR WHEEL AND TIRE (EXAMPLE)**

A

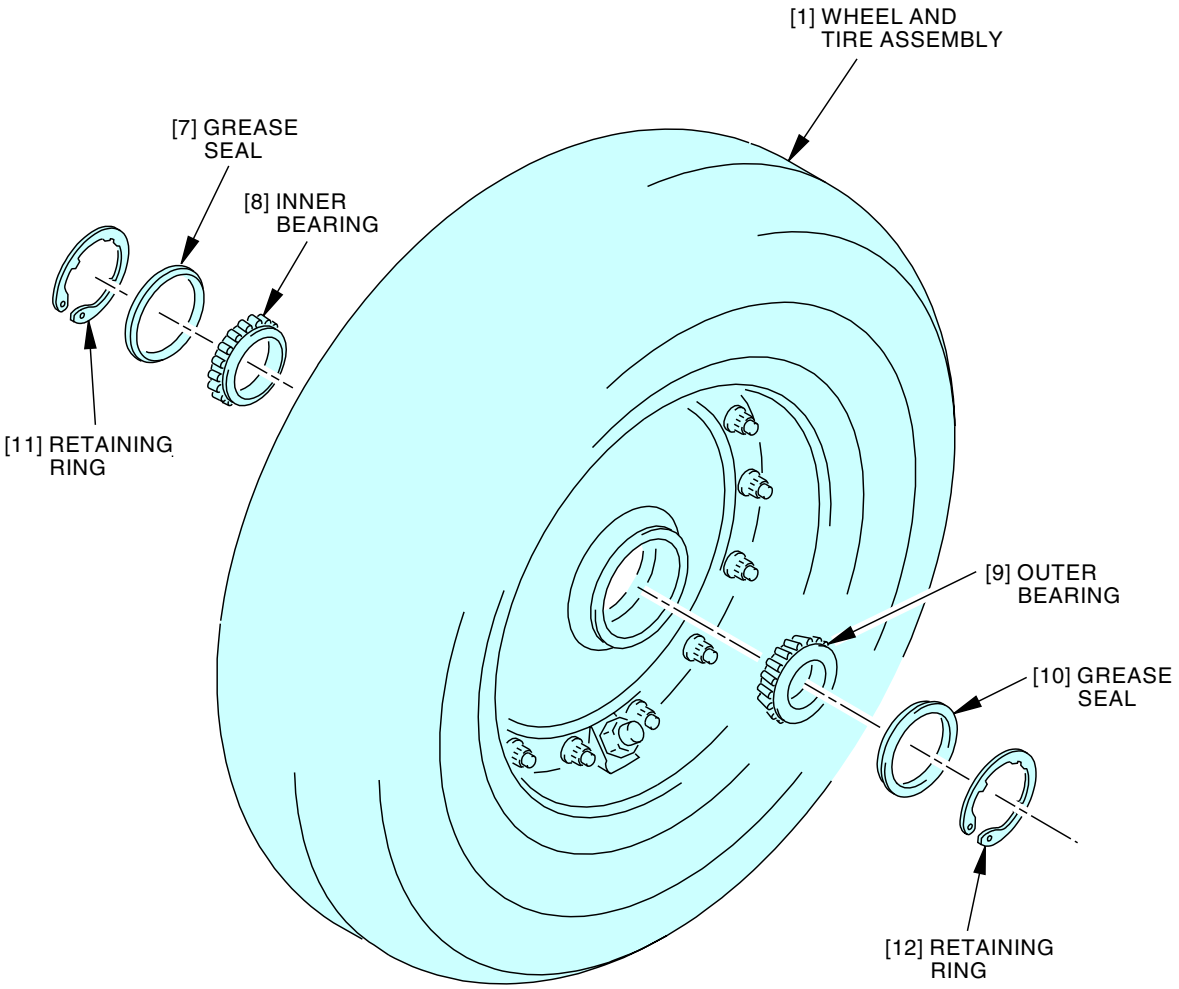
1 SPACERS WITH SIX HOLES USE LOCKWIRE

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**Nose Landing Gear Wheel and Tire Assemblies Installation**
**Figure 401/32-45-21-990-801 (Sheet 1 of 3)**



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**NOSE LANDING GEAR WHEEL ASSEMBLY**

B

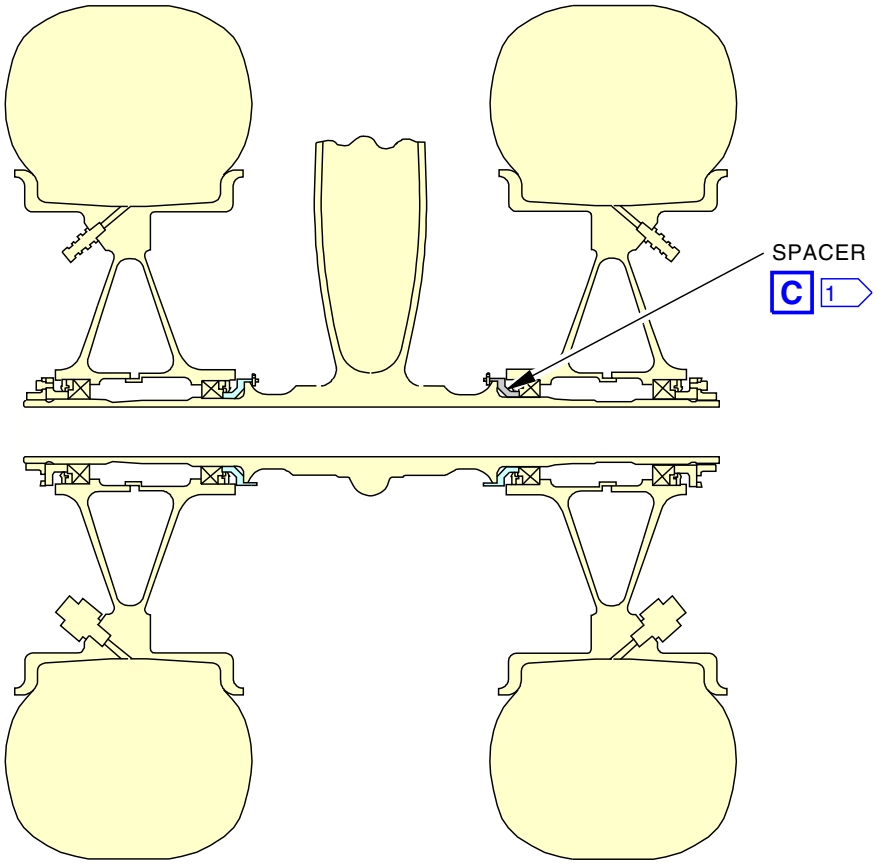
**NOTE:**
RETAINING RINGS CAN LOOK DIFFERENT.

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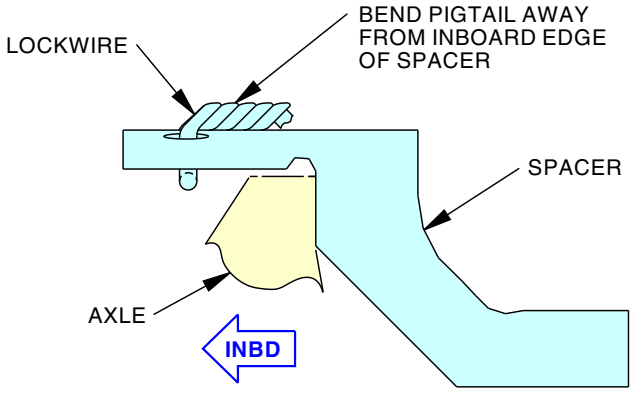
**Nose Landing Gear Wheel and Tire Assemblies Installation**
**Figure 401/32-45-21-990-801 (Sheet 2 of 3)**



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A-A




**SPACER (6 LOCATIONS)**

C

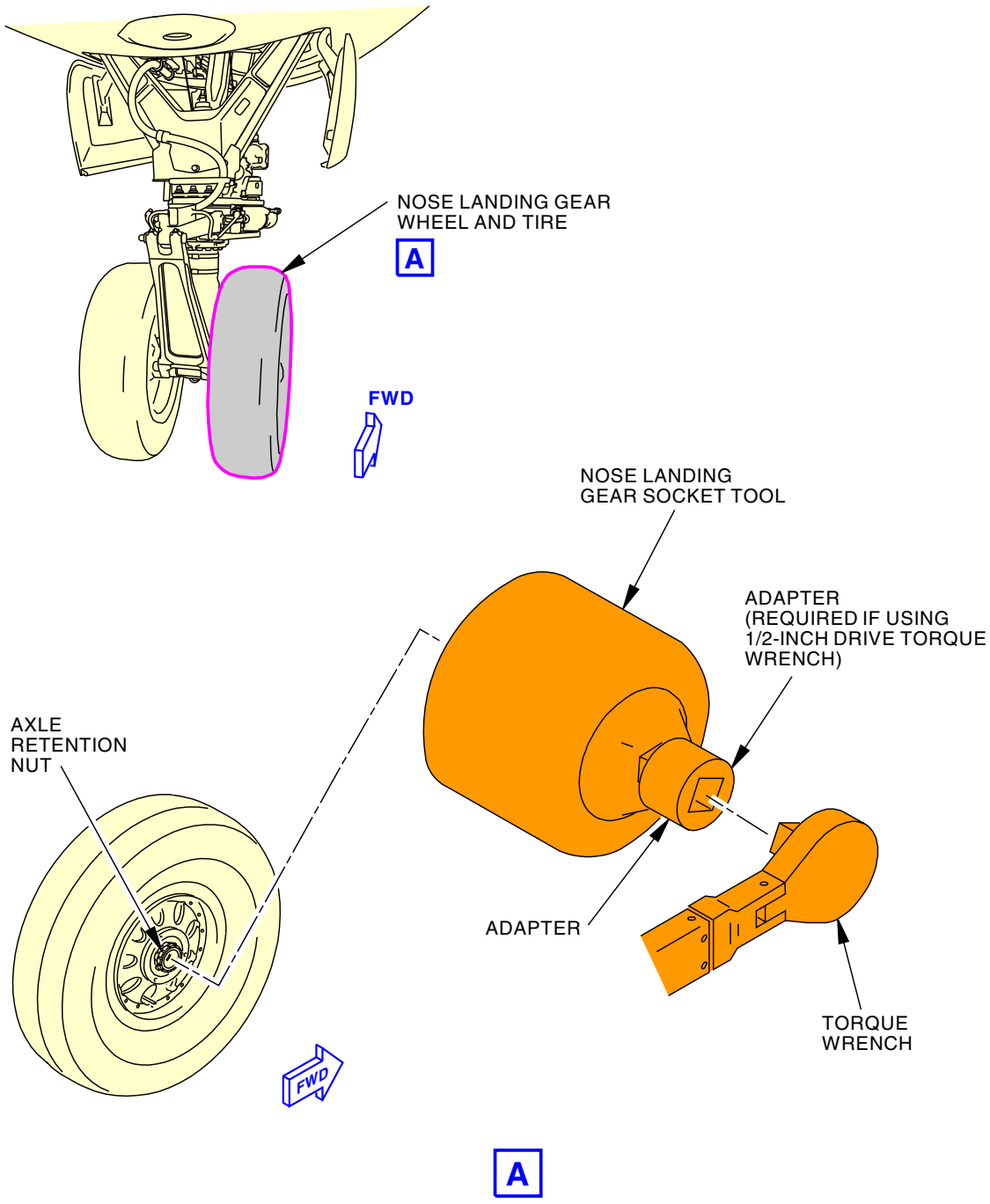
1 SPACERS WITH SIX HOLES USE LOCKWIRE

2414451 S00061535208_V2

**Nose Landing Gear Wheel and Tire Assemblies Installation**
**Figure 401/32-45-21-990-801 (Sheet 3 of 3)**



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2414452 S00061535209_V1

**Nose Landing Gear Axle Nut Socket Tool**
**Figure 402/32-45-21-990-802**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-45-21-400-801**

**3. Nose Landing Gear Wheel and Tire Assembly Installation**

(Figure 401 or Figure 402)

NOTE: This procedure is a scheduled maintenance task.

**A. General**

(1) This task has the steps to install the nose landing gear wheel and tire assembly.

**B. References**

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 12-15-51-780-801 | Landing Gear Tire Pressure Check and Tire Servicing (P/B 301) |
| 32-21-71-200-801 | Nose Gear Axle Detailed Inspection for Corrosion (P/B 601) |
| 32-45-00-700-803 | Landing Gear Tire Inspection (P/B 601) |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1818 | Dolly - Wheel/Brake Change<br>Part #: 15F590 Supplier: 56535<br>Part #: 17500M Supplier: 94861<br>Part #: 175S-2 Supplier: 94861<br>Part #: 9092-016 Supplier: 00994<br>Part #: IA3201A-500 Supplier: 053H3<br>Part #: MH13-003 Supplier: D2029<br>Part #: SCA150KG Supplier: R9624<br>Part #: STC90475-101 Supplier: 07132<br>Opt Part #: 175 Supplier: 94861<br>Opt Part #: 8436-012 Supplier: 00994<br>Opt Part #: 9092-010 Supplier: 00994<br>Opt Part #: 9092-015 Supplier: 00994<br>Opt Part #: PF32-002-1 Supplier: 3D5B2<br>Opt Part #: TB900 Supplier: 56535 |
| SPL-1817 | Socket, C32012-3 (included in C32012 Equipment)<br>Part #: C32012-12 Supplier: 81205 |
| SPL-1865 | Equipment - Removal / Installation, Wheel Retention Nut, MLG and NLG<br>Part #: C32012-12 Supplier: 81205<br>Opt Part #: 1922 Supplier: 45225<br>Opt Part #: F80168-1 Supplier: 81205 |
| SPL-1877 | NLG Axle Thread Protector Equipment<br>Part #: C32022-20 Supplier: 81205<br>Opt Part #: C32022-2 Supplier: 81205 |
| SPL-14582 | NLG Axle Thread Protector Eqpt - 1/16" Undersize<br>Part #: C32022-35 Supplier: 81205 |



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**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00233 | Grease - Aircraft, General Purpose, Wide Temperature - Mobil 28 | MIL-PRF-81322 |
| D00378 | Grease - Aircraft, General Purpose, Wide Temperature - Aeroshell 22 | MIL-PRF-81322 |
| D50005 | Grease - Wheel Bearing - Mobil Aviation Grease SHC 100 | |
| G00440 | Lockwire - MS20995C41, Corrosion Resistant Steel - 0.041 Inch (1.0414 mm) Diameter | NASM20995 |

**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Wheel and tire assembly | 32-45-21-01-005 | SIA ALL |
| 7 | Grease seal | 32-45-21-50-135 | SIA ALL |
| 10 | Grease seal | 32-45-21-50-120 | SIA ALL |

**F. Location Zones**

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

**G. Prepare for the Installation**

SUBTASK 32-45-21-840-002

(1) Do these steps to prepare for installation:

(a) Remove the axle Thread protector, SPL-1877, or thread protector, SPL-14582, from the axle.

(b) Remove all the old grease from the axle.

(c) If the wheel is not new, inspect the bearings, the seals, and other parts of the wheel assembly for damage.

(d) If the tire is not new, do a tire inspection (TASK 32-45-00-700-803).

(e) Do these steps if the component of the nose wheel assembly (the bearings, seals, and other parts) need to be installed:

1) Apply Aeroshell 22 grease, D00378, Mobil 28 grease, D00233, or Mobil Aviation Grease SHC 100 grease, D50005, to the inner bearing [8], outer bearing [9], grease seal [7], and grease seal [10].

**CAUTION**

MAKE SURE TO INSTALL THE OUTSIDE BEARING ON THE WHEEL, INSTALLATION OF THE INSIDE BEARING ON THE OUTSIDE OF THE WHEEL WILL DAMAGE THE WHEEL.

2) Install the inner bearing [8] on the inner side of the wheel and outer bearing [9] on the outer side of the wheel.

a) Check that the inner bearing [8] is installed on the wheel side opposite inflation valve.


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**CAUTION** MAKE SURE TO INSTALL THE OUTSIDE GREASE SEAL ON THE WHEEL, INSTALLATION OF THE INSIDE GREASE SEAL IN THE OUTSIDE GREASE SEAL LOCATION WILL DAMAGE THE SEAL.

3) Install the grease seal [7] on the inner side of the wheel and grease seal [10] on the outer side of the wheel.
   a) Check that tab of grease seal fits indentation of cutout in wheel housing.
4) Install the retaining ring [11] on the inner side of the wheel and retaining ring [12] on the outer side of the wheel.

## H. Nose Landing Gear Wheel and Tire Assembly Installation

**SUBTASK 32-45-21-420-001**

(1) Do these steps to install the wheel and tire assembly [1]:
   (a) Inspect the axles for nicks, gouges, and damaged chrome plate.
   (b) If the axle spacer is removed, do a general visual inspection of the axles for corrosion (TASK 32-21-71-200-801).

**CAUTION** MAKE SURE THAT THE SPACER IS CORRECTLY INSTALLED ON THE AXLE. THE SPACER CAN MOVE WHEN THE WHEEL AND TIRE ASSEMBLY IS REMOVED. IF IT IS NOT IN ITS CORRECT POSITION, THE WHEEL AND TIRE ASSEMBLY WILL NOT INSTALL CORRECTLY. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

   (c) Make sure that the axle spacer [5] is installed on the axle.

   NOTE: The axle spacer is inboard of the wheel on the axle. The inner bearing will touch the spacer when the wheel is installed.

   1) For airplanes that use the cotter pins, make sure that the cotter pins [6] are installed to hold the spacer on the axle.

      NOTE: An axle spacer that uses cotter pins has 3 holes.

      a) Make sure that there is no interference between the cotter pins [6] installed on the spacer and lower torsion link lug during wheel installation.

   2) For airplanes that use the lockwire, make sure that you install MS20995C41 lockwire, G00440.

      a) Make sure that the lockwire ends pigtails are bent away from the inboard edge of the spacer (Figure 401 or Figure 402).

      b) Examine the completed installation to be sure that the lockwire ends do not touch the axle or torsion link lugs.

      c) Adjust the installed lockwire as necessary to be sure there will be no interference with the landing gear parts during landing gear operations.

         NOTE: An axle spacer that uses lockwire has six holes.



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**WARNING** DO NOT APPLY GREASE TO THE AREA BETWEEN THE AXLE BEARINGS. HIGH TEMPERATURES IN THIS AREA DURING A LANDING CAN CAUSE ALL GREASE IN THIS AREA TO BURN. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(d) Apply a thin layer of Aeroshell 22 grease, D00378, Mobil 28 grease, D00233, or Mobil Aviation Grease SHC 100 grease, D50005, to the face and outer diameter of the axle spacer [5].

(e) Apply a thin layer of Aeroshell 22 grease, D00378, Mobil 28 grease, D00233, or Mobil Aviation Grease SHC 100 grease, D50005, to the inner diameter surface of the two bearings where they will touch the axle.

(f) Apply a thin layer of Aeroshell 22 grease, D00378, Mobil 28 grease, D00233, or Mobil Aviation Grease SHC 100 grease, D50005, to the faces of the washer [2], axle nut [3], and axle threads.

(g) Apply a thin layer of Aeroshell 22 grease, D00378, Mobil 28 grease, D00233, or Mobil Aviation Grease SHC 100 grease, D50005, on the axle where the axle will touch the wheel bearings.

(h) Install the axle Thread protector, SPL-1877, or thread protector, SPL-14582 (if the axle has undersized threads).

**CAUTION** MAKE SURE TO KEEP CLEARANCE BETWEEN THE NOSE-WHEEL INNER BEARING AND PAINTED SURFACES OF THE NOSE GEAR AXLE DURING REMOVAL AND INSTALLATION. FRICTION CAN CAUSE DAMAGE TO NOSE-WHEEL AXLE PAINT AND OTHER EQUIPMENT.

(i) Use the wheel/brake changer dolly, COM-1818, to install the wheel and tire assembly [1].

(j) Install the wheel and tire assembly [1].

(k) Remove the axle Thread protector, SPL-1877, or thread protector, SPL-14582, from the axle.

(l) Align the key of the washer with the keyway of the axle and install the washer [2].

(m) Install the axle nut [3].

(n) Do these steps to tighten the axle nut [3] with the NLG socket, C32012-3, SPL-1817, from kit socket, SPL-1865:

1) While you turn the wheel, tighten the axle nut [3] to 80 ft-lb (108 N·m) - 100 ft-lb (136 N·m).
2) Stop the wheel.
3) While you turn the wheel, loosen the axle nut [3] to almost zero torque.
4) While you turn the wheel, tighten the axle nut [3] to 30 ft-lb (41 N·m).
5) Continue to tighten the axle nut [3] until two bolt holes in the nut align with two threaded holes in the washer [2].
   a) Do not tighten the axle nut [3] over 60 ft-lb (81 N·m).

(o) Install the two lock screws [4] to lock the axle nut [3] to the washer [2].

1) Tighten the two lock screws [4] to 31.0 in-lb (3.5 N·m) - 38.0 in-lb (4.3 N·m).

(p) Install lockwire on the screws [4].



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SUBTASK 32-45-21-580-002

(2) Make sure that the tire is inflated to at least half of the normal inflation pressure before you remove the jacks (TASK 12-15-51-780-801).

## I. Put the Airplane Back to Its Usual Condition

SUBTASK 32-45-21-580-003

(1) Lower the axle and remove the jacks (TASK 07-10-03-580-803).

SUBTASK 32-45-21-610-001

(2) Do this task: Landing Gear Tire Pressure Check and Tire Servicing, TASK 12-15-51-780-801.

——— END OF TASK ———



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## NOSE WHEEL SPIN BRAKE LINING - MAINTENANCE PRACTICES

### 1. General

A. This procedure has these tasks for the nose wheel spin brake lining.

(1) Removal of the nose wheel spin brake lining

(2) Installation of the nose wheel spin brake lining

(3) Inspection of the nose wheel spin brake lining.

B. There are two nose wheel spin brake linings, one for each nose landing gear tire.

**TASK 32-45-31-000-801**

### 2. Nose Wheel Spin Brake Lining Removal

(Figure 201)

**A. References**

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |

**C. Nose Wheel Spin Brake Lining Removal**

**SUBTASK 32-45-31-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-45-31-860-001**

(2) Set the parking brake.

**SUBTASK 32-45-31-020-001**

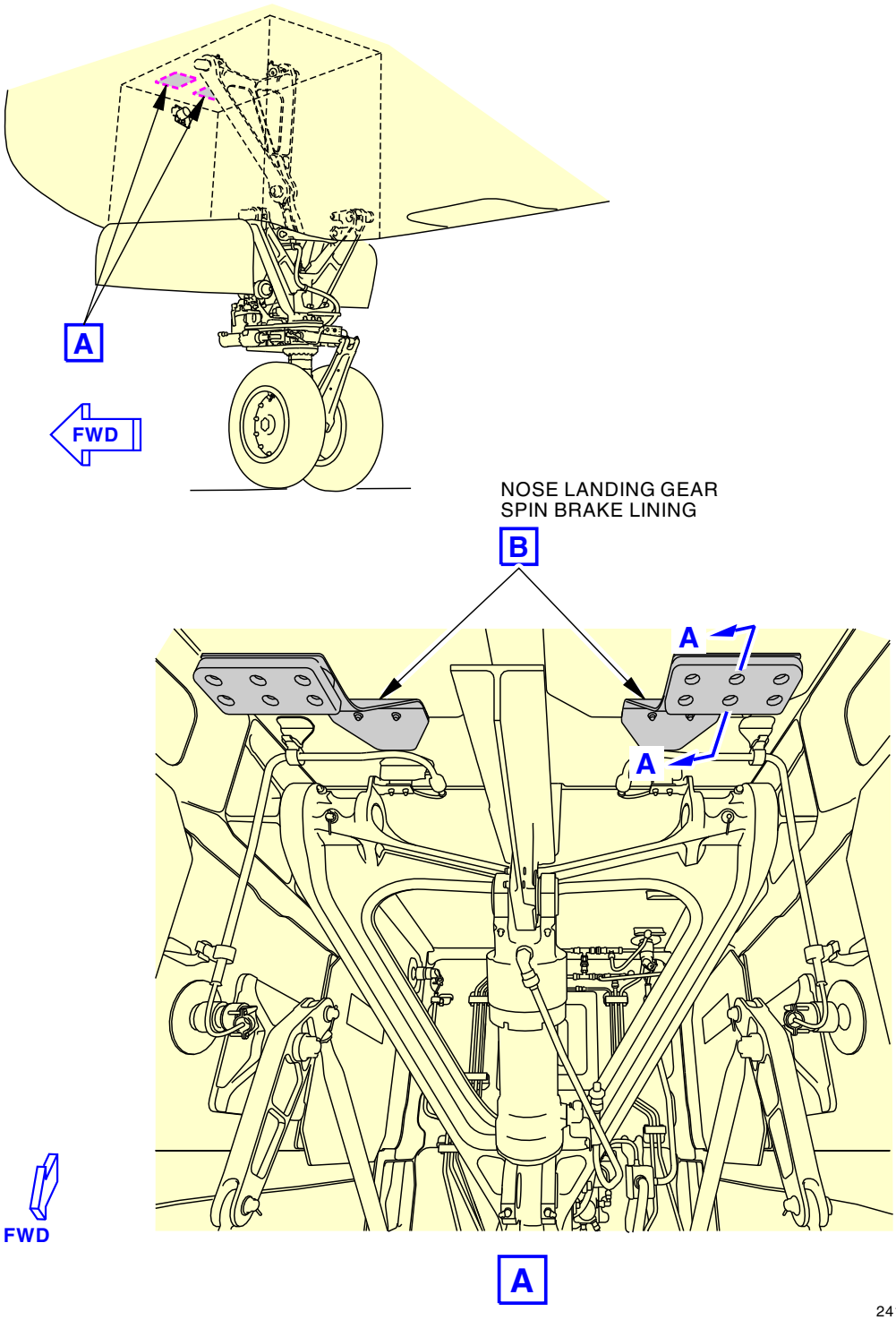
(3) Remove the screws [6], washers [1], and nuts [2] which hold the spin brake lining [5] to the spin brake spring [3].

**SUBTASK 32-45-31-020-002**

(4) Remove the spin brake lining [5] and the spacers [4].

**END OF TASK**

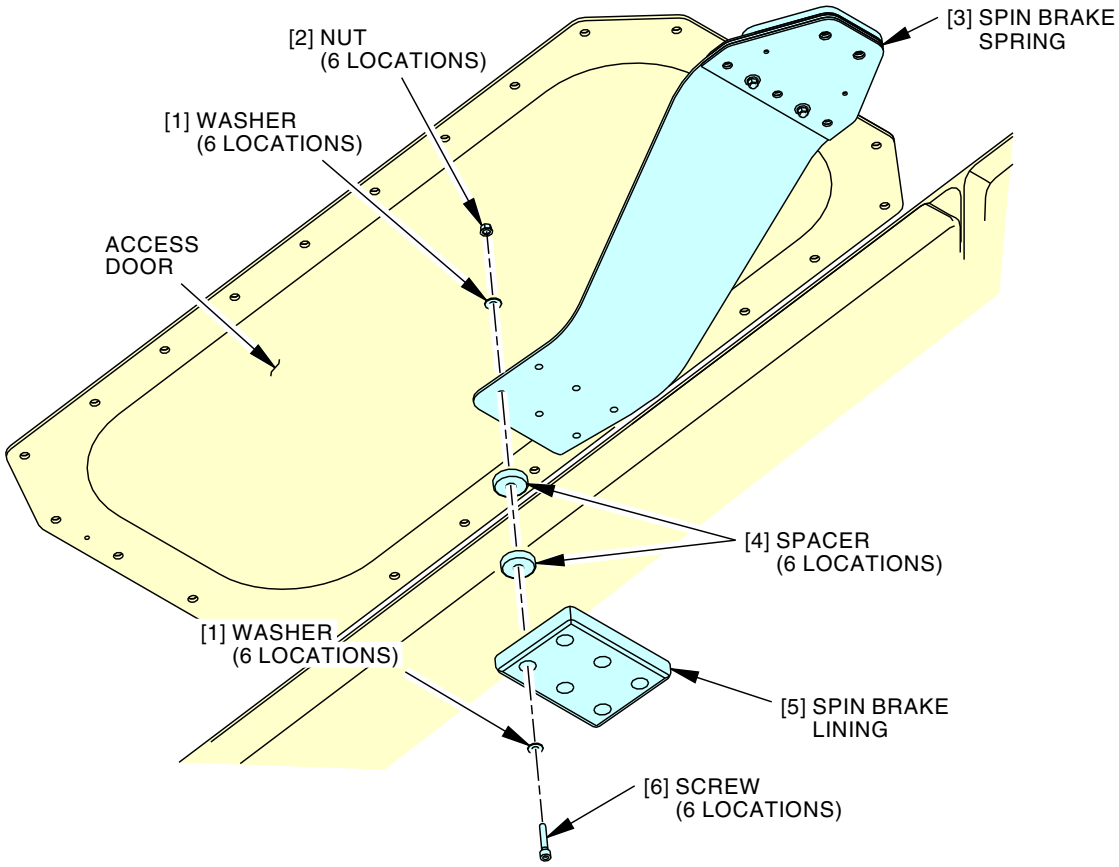

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**Nose Landing Gear Spin Brake Lining Installation**
**Figure 201/32-45-31-990-801 (Sheet 1 of 2)**

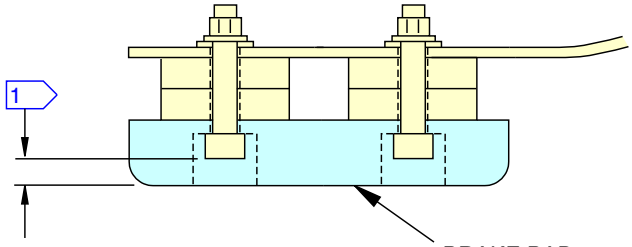


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**NOSE LANDING GEAR SPIN BRAKE LINING**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

**B**




**A-A**

1 REPLACE BRAKE PAD IF THICKNESS IS EQUAL TO OR LESS THAN 0.060 INCH (1.524 mm).

2414454 S00061535215_V2

**Nose Landing Gear Spin Brake Lining Installation**
**Figure 201/32-45-31-990-801 (Sheet 2 of 2)**



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**TASK 32-45-31-400-801**

**3. Nose Wheel Spin Brake Lining Installation**

(Figure 201)

**A. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |

**B. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Spin brake lining | 32-22-11-02-120 | SIA ALL |

**C. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |

**D. Nose Wheel Spin Brake Lining Installation**

**SUBTASK 32-45-31-420-001**

(1) Apply sealant, A00247, to the six locations on the spin brake spring [3] where you will install the spacers [4].

**SUBTASK 32-45-31-420-002**

(2) Hold the spin brake lining [5] in its position on the spin brake spring [3].

**SUBTASK 32-45-31-420-003**

(3) Do these steps for each screw [6]:

(a) Install the two spacers [4] between the spin brake lining [5] and spin brake spring [3] where you will install the screw [6].

(b) Install the screw [6] and washer [1] through the spin brake lining [5], spacers [4], and spin brake spring [3].

(c) Install the washer [1] and nut [2] on the screw [6].

**——— END OF TASK ———**

**TASK 32-45-31-700-801**

**4. Nose Wheel Spin Brake Lining Inspection**

(Figure 201)

**A. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |

**B. Nose Wheel Spin Brake Lining Inspection**

**SUBTASK 32-45-31-220-001**

(1) Measure the distance from the head of each screw [6] to the wear surface of the spin brake lining [5].



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SUBTASK 32-45-31-350-001

(2) If the measured distance is equal to or less than 0.060 in. (1.524 mm), replace that spin brake lining [5] (Nose Wheel Spin Brake Lining Removal, TASK 32-45-31-000-801, Nose Wheel Spin Brake Lining Installation, TASK 32-45-31-400-801).

END OF TASK



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## TIRE AND BRAKE MONITORING SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure has this task:

(1) A system test of the tire and brake monitoring system.

**TASK 32-46-00-730-801**

### 2. Tire and Brake Monitoring System - System Test

#### A. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

#### B. System Test

**SUBTASK 32-46-00-730-004**

(1) Make sure that the BRAKE TEMP light, on the P9 panel, comes on for approximately 2 seconds.

(a) Wait for at least 15 seconds.

NOTE: After power application, the Tire and Brake Monitoring System (TBMS) performs an internal check and a system check which takes 5 to 15 seconds.

**SUBTASK 32-46-00-730-003**

(2) Select either the CAPT SELECTOR or the FO SELECTOR switch to display on the Left/Center or the Center/Right Multi-function display (MFD). The default screen element will be auto-highlighted.

NOTE: Navigate through the selectable screen elements by rotating the Tabber clock-wise or counter-clockwise until the desired screen element is highlighted. Press the center selection "SEL" button to active the screen element's intended behavior.

(3) Select the SYS button on the Multi Function Panel (MFP).

(4) Make sure that the Landing Gear Synoptic Page on the MFD shows the value of "0.0" to "0.1" in all 4 brake temperature readouts.

NOTE: This test assumes that the main landing gear brakes are below 100°F (37.8°C) in temperature.

(5) Select MAINT on the MFD.

(6) Select STATUS on the MFD. Make sure that the status message BRAKE TEMP SYS do not show on the display.

**——— END OF TASK ———**



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## BRAKE TEMPERATURE SENSOR - REMOVAL/ INSTALLATION

### 1. General

A. This procedure contains these tasks:

(1) A removal of a brake temperature sensor

(2) An installation of a brake temperature sensor.

**TASK 32-46-21-000-801**

### 2. Brake Temperature Sensor Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### C. Prepare for the Removal

SUBTASK 32-46-21-420-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

#### D. Brake Temperature Sensor Removal

SUBTASK 32-46-21-020-001

(1) Disconnect the electrical connector [2] from the brake temperature sensor [1].

SUBTASK 32-46-21-020-004

(2) Remove lockwire from the bolts [3].

SUBTASK 32-46-21-020-002

(3) Remove the bolts [3] and washers [4] that hold the brake temperature sensor [1] to the brake.

SUBTASK 32-46-21-020-003

(4) Remove the brake temperature sensor [1] from the airplane.

(a) If the brake temperature sensor [1] cannot be removed, do these tasks:

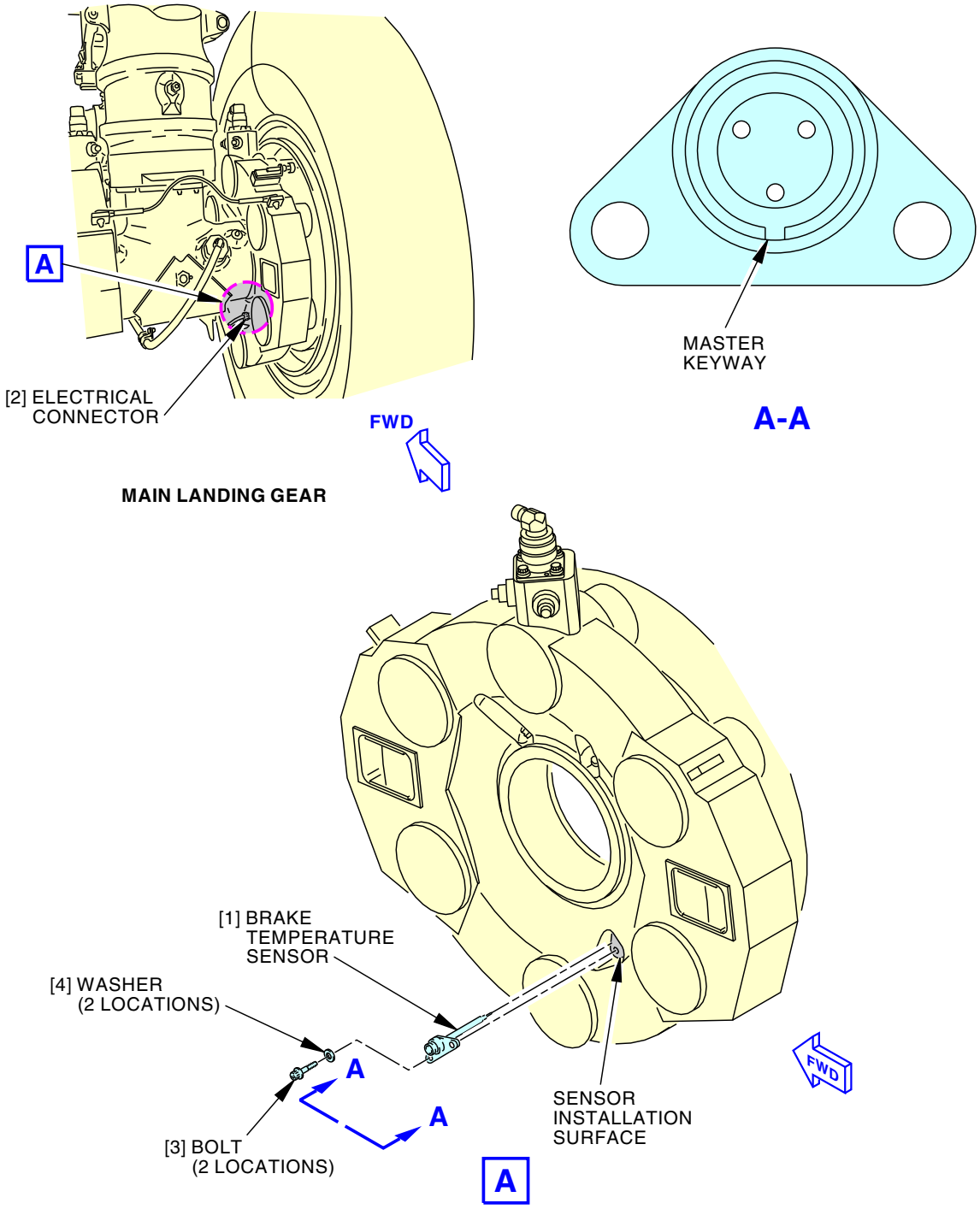
- Main Landing Gear Brake Removal, TASK 32-41-41-000-801
- Main Landing Gear Brake Installation, TASK 32-41-41-400-801.

NOTE: The conduit bracket at the bottom of the shock strut can interfere with the removal or installation of the brake temperature sensor.

**END OF TASK**



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**Brake Temperature Sensor Installation**
**Figure 401/32-46-21-990-801**



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**TASK 32-46-21-400-801**

## 3. Brake Temperature Sensor Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 32-41-41-000-801 | Main Landing Gear Brake Removal (P/B 401) |
| 32-41-41-400-801 | Main Landing Gear Brake Installation (P/B 401) |
| 32-46-00-730-801 | Tire and Brake Monitoring System - System Test (P/B 501) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Brake temperature sensor | 32-46-21-01-010 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 212 | Flight Compartment - Right |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### E. Brake Temperature Sensor Installation

**SUBTASK 32-46-21-010-001**

(1) If it is necessary, remove and discard the screws and washers from the holes where the brake temperature sensor [1] will be installed.

NOTE: New brake assembly may be equipped with screws and washers that protect the holes where the brake temperature sensor is installed from the water, dirt, and moisture ingestion.

**SUBTASK 32-46-21-420-002**

(2) Install the brake temperature sensor [1] into its position in the brake.

(a) If the brake temperature sensor [1] cannot be installed, do these tasks:

- Main Landing Gear Brake Removal, TASK 32-41-41-000-801
- Main Landing Gear Brake Installation, TASK 32-41-41-400-801.

NOTE: The conduit bracket at the bottom of the shock strut can interfere with the removal and installation of the brake temperature sensor.

**SUBTASK 32-46-21-420-003**

(3) Install the bolts [3] and washers [4] that hold the brake temperature sensor [1] to the brake.

(a) Tighten the bolts [3] to 65 in-lb (7 N·m) - 100 in-lb (11 N·m).

**SUBTASK 32-46-21-420-004**

(4) Install MS20995C32 lockwire, G01048, on the bolts [3] with double twist method.

**SUBTASK 32-46-21-420-005**

(5) Connect the electrical connector [2] to the brake temperature sensor [1].



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**F. Brake Temperature Sensor Installation Test**

**SUBTASK 32-46-21-860-001**

(1) Do this task: Tire and Brake Monitoring System - System Test, TASK 32-46-00-730-801.

**——— END OF TASK ———**



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## TIRE AND BRAKE MONITORING UNIT - REMOVAL/ INSTALLATION

### 1. General

A. This procedure contains these tasks:

(1) Removal of the tire and brake monitoring unit

(2) Installation of the tire and brake monitoring unit.

B. The tire and brake monitoring unit is located in the electronic equipment rack, E1-3, which is located on the left side of the main equipment center.

**TASK 32-46-31-000-801**

### 2. Tire and Brake Monitoring Unit Removal

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 20-10-07-000-801 | E/E Box Removal (P/B 401) |
| 20-40-12-000-802 | ESDS Handling for Metal Encased Unit Removal (P/B 201) |
| 20-40-12-400-803 | Conductive Dust Cap and Connector Cover Installation (P/B 201) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |

**C. Access Panels**

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

**D. Tire and Brake Monitoring Unit (TBMU) Removal**

SUBTASK 32-46-31-040-001

(1) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 15 | C01094 | LANDING GEAR BRAKE TEMP MONITOR |

SUBTASK 32-46-31-420-001

(2) Do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-40-12-000-802.

SUBTASK 32-46-31-420-002

(3) Get access to the main equipment center:

(a) Open this access door:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-46-31-420-003

(4) Remove the tire and brake monitoring unit [1] from the electrical equipment rack E1-3 (TASK 20-10-07-000-801).

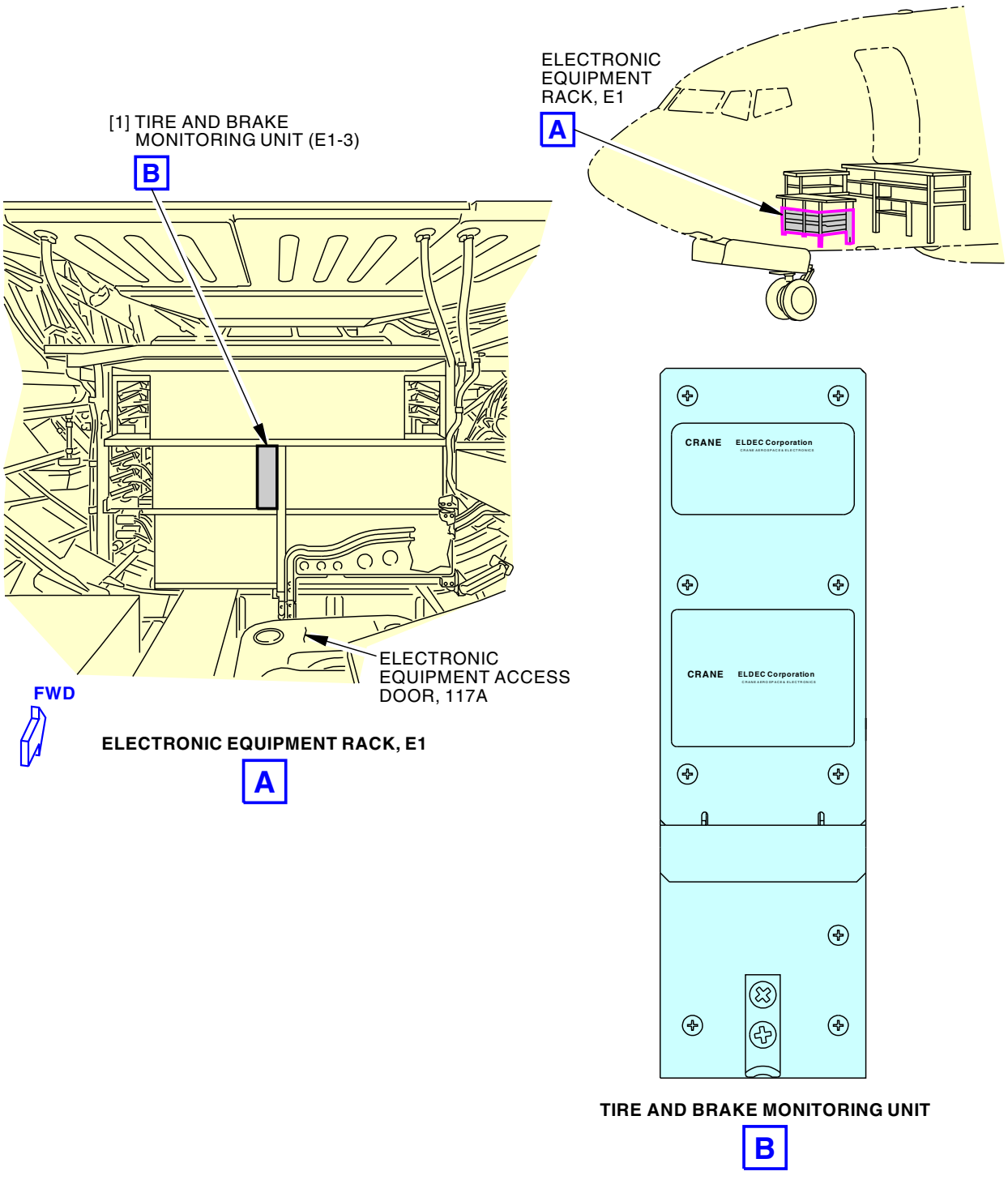
SUBTASK 32-46-31-420-004

(5) Do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-40-12-400-803.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Tire and Brake Monitoring System**
**Figure 401/32-46-31-990-801**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-46-31-400-801**

**3. Tire and Brake Monitoring Unit Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 20-10-07-400-801 | E/E Box Installation (P/B 401) |
| 20-40-12-000-803 | Conductive Dust Cap and Connector Cover Removal (P/B 201) |
| 20-40-12-400-802 | ESDS Handling for Metal Encased Unit Installation (P/B 201) |
| 32-46-00-730-801 | Tire and Brake Monitoring System - System Test (P/B 501) |

**B. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Tire and brake monitoring unit | 32-46-31-01-010 | SIA ALL |

**C. Location Zones**

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |

**D. Access Panels**

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

**E. Tire and Brake Monitoring Unit (TBMU) Installation**

SUBTASK 32-46-31-840-001

(1) Do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-40-12-400-802.

SUBTASK 32-46-31-840-002

(2) Do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-40-12-000-803.

SUBTASK 32-46-31-420-005

(3) Install the tire and brake monitoring unit [1] in the E1-3 electrical equipment rack (TASK 20-10-07-400-801).

**F. Tire and Brake Monitoring Unit Installation Test**

SUBTASK 32-46-31-420-007

(1) Close this access door:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-46-31-440-001

(2) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| E | 15 | C01094 | LANDING GEAR BRAKE TEMP MONITOR |

SUBTASK 32-46-31-730-002

(3) When you apply power, make sure that the Crew Alert BRAKE TEMP light illuminates for approximately 2 seconds, and then goes off.

(a) Wait a minimum of 15 seconds.

NOTE: When you apply power, the TBMU performs an internal check and system check which takes 5-15 seconds.



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SUBTASK 32-46-31-710-001

(4) Do this task: Tire and Brake Monitoring System - System Test, TASK 32-46-00-730-801.

——— END OF TASK ———



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## NOSE WHEEL STEERING SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This procedure contains these tasks:

(1) A general check of the nose wheel steering system adjustment

(2) An adjustment check of the rudder pedal interconnect mechanism

(3) An adjustment of the rudder pedal interconnect mechanism

(4) An adjustment check of the nose wheel steering system

(5) An adjustment of the nose wheel steering system

(6) An adjustment of the nose wheel steering system (adjusting steering metering valve input rod method)

(7) A test of the nose wheel steering system (airplane on ground)

(8) A test of the nose wheel steering system (airplane on jacks).

B. Make sure that you do the two parts of the nose wheel steering system adjustment in the correct sequence. The first part is an adjustment of the interconnect mechanism for the rudder pedals that includes the nose gear piston position (NGPP) cable loop. The second part is an adjustment of the cable loop for the nose wheel steering (NWS) and rudder input. In general, it is necessary to adjust the cables when the rig loads disagree with the loads given in Table 501 by more than 15 lb (7 kg)/-5 lb (-2 kg).

C. Hydraulic pressure to the nose wheel steering system is necessary for this adjustment procedure.

D. The rig load of the cables change with the ambient temperature given in Table 501.

E. Use the shock strut centering cam to get the centered position for the nose gear. Manual aid can be necessary to make sure that the cam is correctly centered.

F. When you adjust the cables to the correct rig loads, make sure that you can engage all the rig pins in their rig pin holes. Make sure that you can remove the rig pins freely, without binding.

**TASK 32-51-00-820-801**

### 2. General Check of the Nose Wheel Steering System Adjustment

(Figure 501)

#### A. General

(1) This procedure gives instructions to do a general check of the nose wheel steering system adjustment. If the cable tension is within limits, the rig pin fit is good, and the system test is satisfactory, then the nose wheel steering system is fully operable.

#### B. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |



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## C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| STD-5505 | Spring Scale |

## D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

## E. Access Panels

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

## F. Prepare for the General Check of the Nose Wheel Steering System Adjustment

SUBTASK 32-51-00-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-51-00-860-001

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-010-001

(3) Open the access panels to get access to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-020-801).


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(a) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

## G. General Check of the Nose Wheel Steering System Adjustment

SUBTASK 32-51-00-820-001

(1) Make sure that the tension in the NGPPA and NGPPB cables is such that the load necessary to deflect the cable 0.50 ±0.05 in. (12.70 ±1.27 mm) downward at the turnbuckle is 19 ±3 lbf (85 ±14 N) (as measured with a spring scale, STD-5505).

SUBTASK 32-51-00-820-002

(2) Make sure that the tension in the NWS-A and NWS-B cables is in tolerance (Table 501).

SUBTASK 32-51-00-480-002

(3) Install these rig pins, from rigging pin kit, SPL-1585:

(a) Rig pin NS2 in the Captain's control wheel drum.

(b) Rig pin NS10 in the First Officer's control wheel drum.

(c) Rig pin NS1 in the interconnect quadrant.

(d) Rig pin NS5 in the interconnect eccentric drum:

1) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

2) Make sure that the interconnect eccentric drum rig pin hole and bracket rig pin slot line up.

3) Install rig pin NS5.

(e) Rig pin R3 in the rudder forward quadrant.

(f) Rig pin NS4 in the summing mechanism bracket at the steering metering valve.

SUBTASK 32-51-00-820-003

(4) Make sure that all the rig pins have a free fit.

NOTE: The rig pins have a free fit if you can install or remove them with two fingers. Some resistance is permitted.

SUBTASK 32-51-00-080-001

(5) Remove all the rig pins.

SUBTASK 32-51-00-080-002

(6) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 32-51-00-730-001

(7) With the control wheel in the center position, make sure that the steering angle is 0 ±1.5 degrees on the decal that is on the nose gear shock strut.

NOTE: If the decal is not on the nose gear shock strut, then use the illustration in Figure 501 to make a decal with tape.

SUBTASK 32-51-00-210-001

(8) Examine all of the adjustable rod ends to make sure that there is correct thread engagement.

(a) Make sure that the end of the rod end covers a minimum of 50 percent of the inspection hole.



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SUBTASK 32-51-00-210-002

(9) After the cables are adjusted, the cable cannot touch the pulley or quadrant flanges for the full travel of the cables.

(a) Make sure that the cables do not rub on the sides of the pulleys or quadrant.

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-00-410-001

(1) Close the access panels to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-420-801).

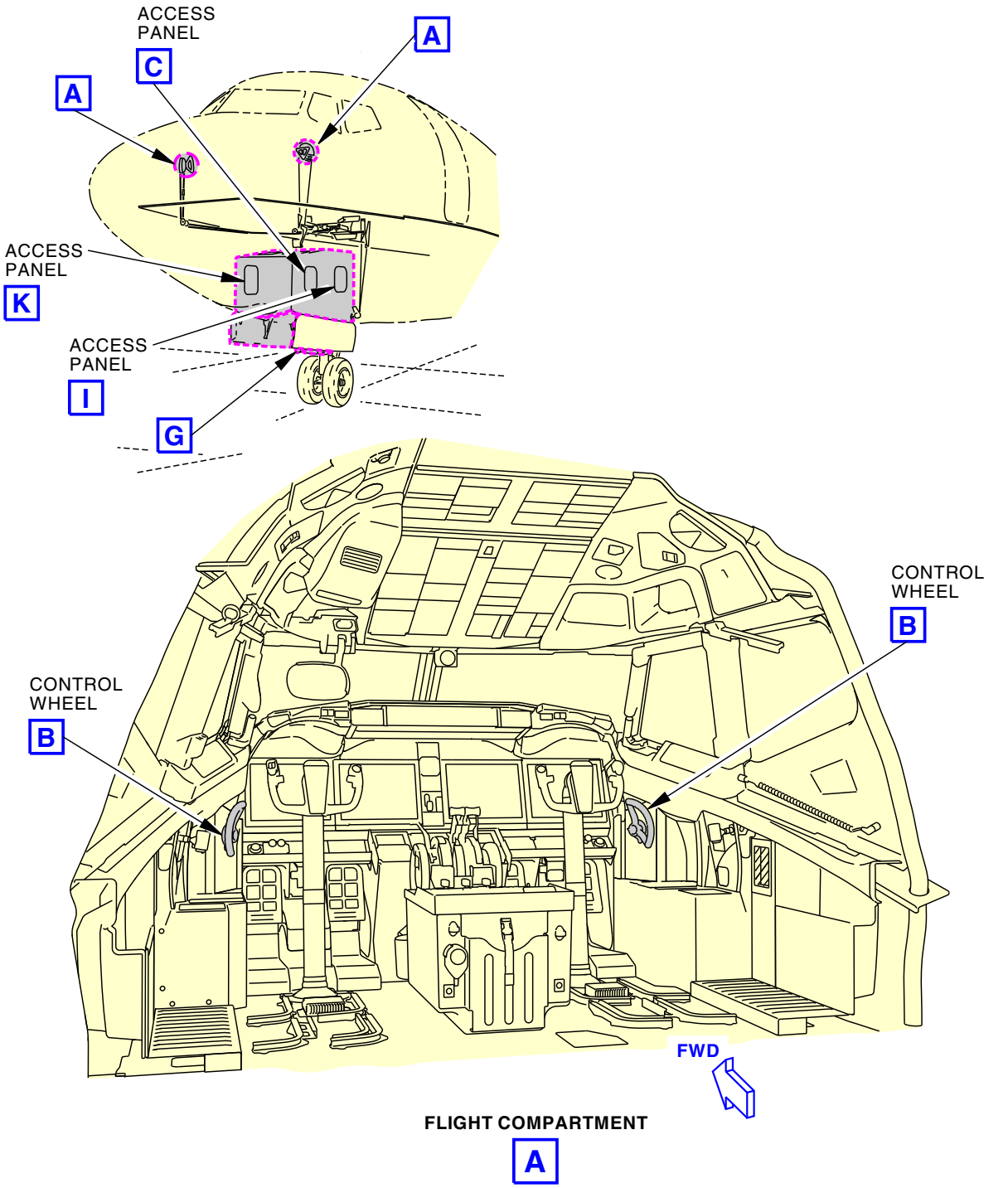
(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

——— END OF TASK ———



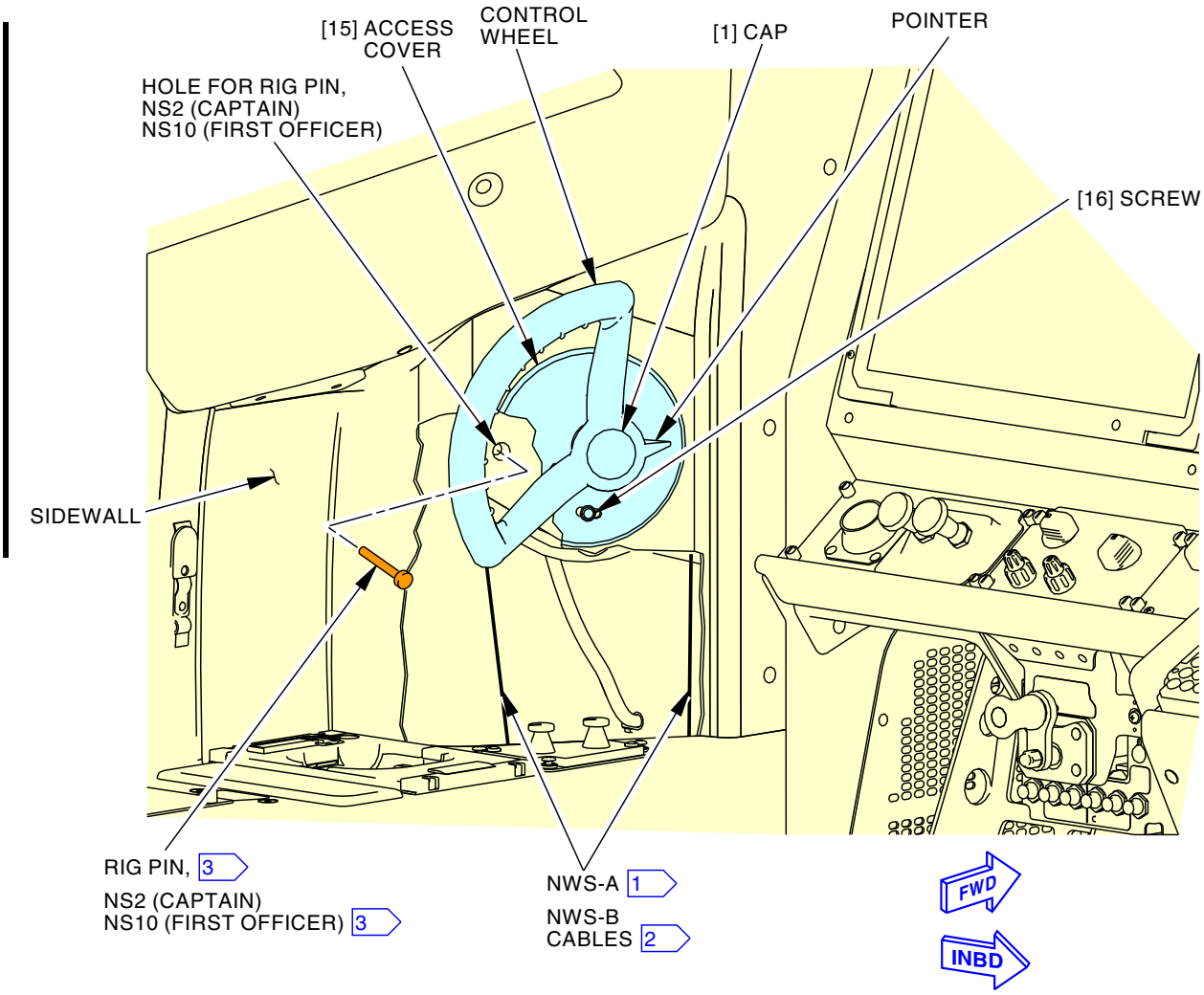
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Wheel Steering System Adjustment**
**Figure 501/32-51-00-990-804 (Sheet 1 of 9)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**CAPTAIN'S CONTROL WHEEL**
**(FIRST OFFICER'S CONTROL WHEEL IS EQUIVALENT)**

**B**

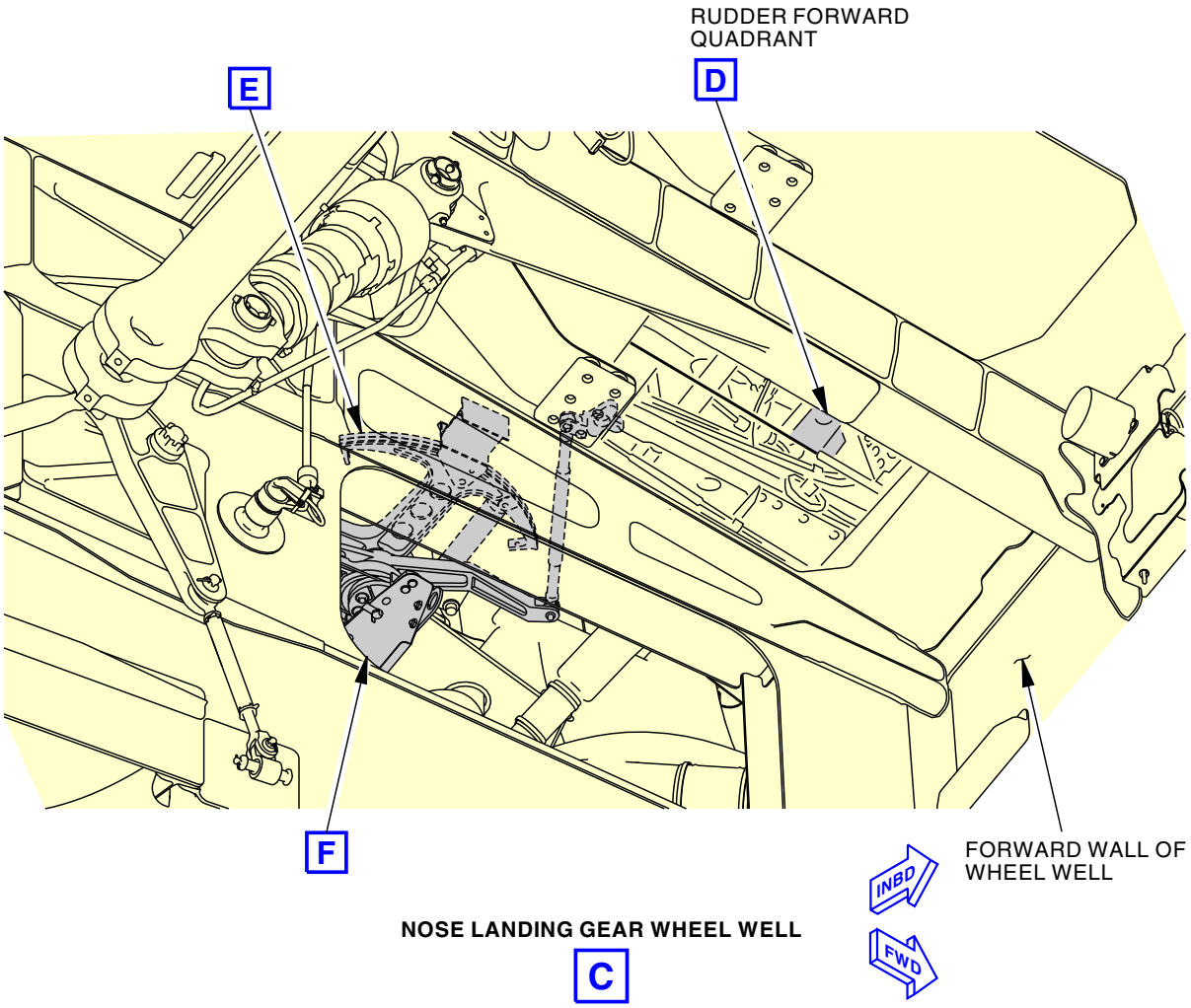
1. NWS-A CABLE IS INSTALLED FORWARD FOR CAPTAIN'S CONTROL WHEEL
2. NWS-B CABLE IS INSTALLED FORWARD FOR FIRST OFFICER'S CONTROL WHEEL
3. NS2 AND NS10 RIG PINS ARE THE SAME PART NUMBER IN THE KIT

2550174 S0000607369_V2

**Nose Wheel Steering System Adjustment**
**Figure 501/32-51-00-990-804 (Sheet 2 of 9)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

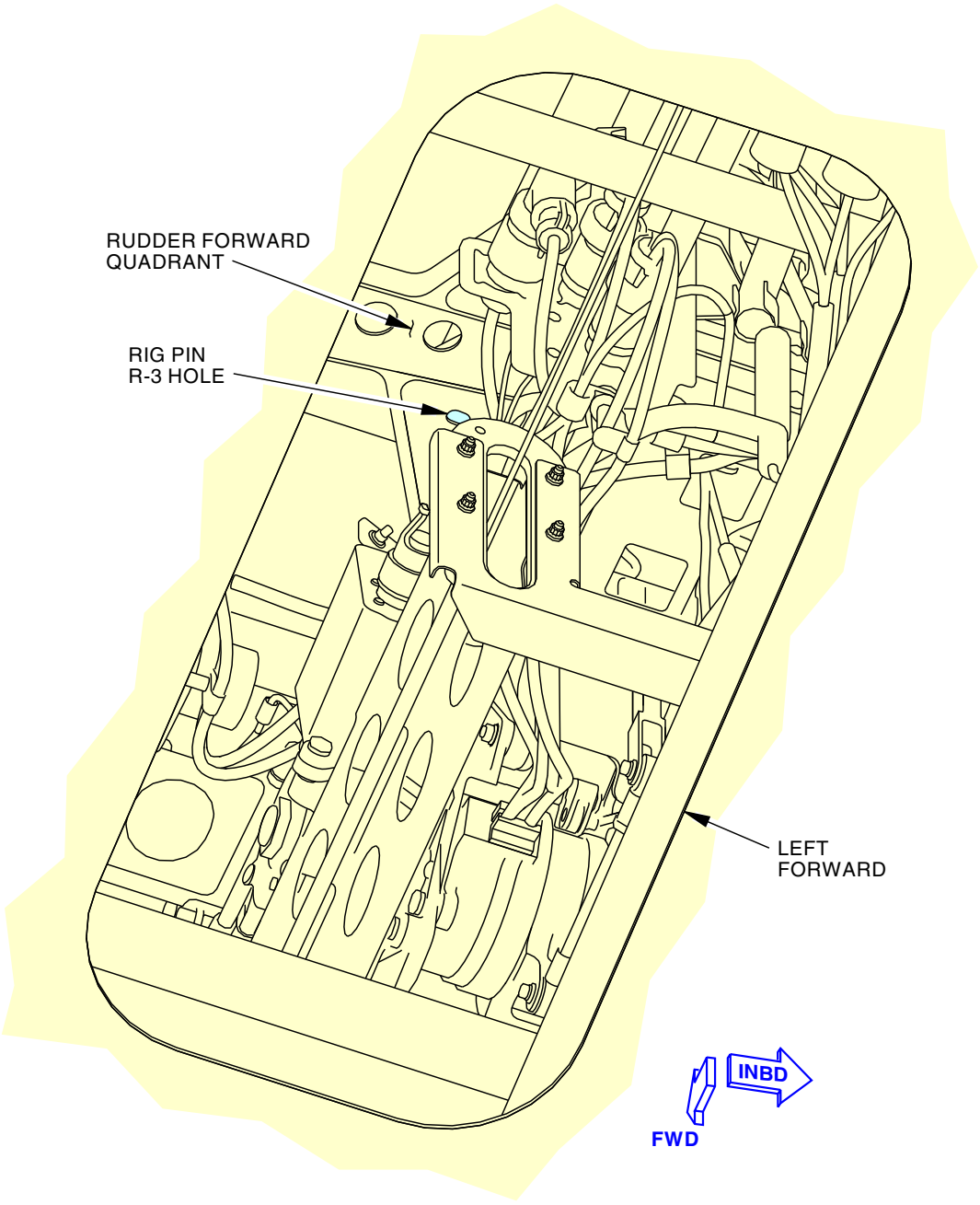



2414457 S00061535224_V2

**Nose Wheel Steering System Adjustment**
**Figure 501/32-51-00-990-804 (Sheet 3 of 9)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**CAPTAIN'S RUDDER FORWARD QUADRANT**

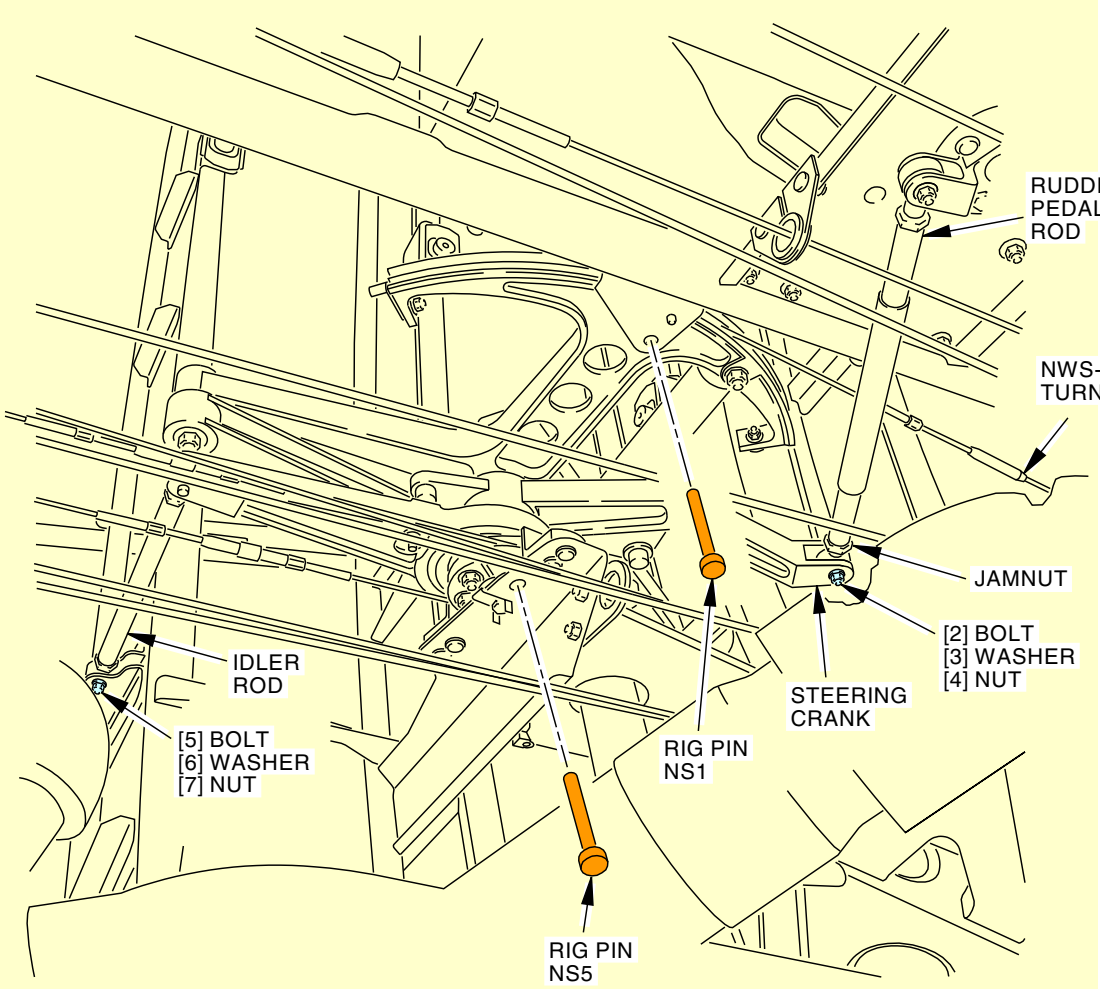
**D**

2414458 S00061535225_V3

**Nose Wheel Steering System Adjustment**
**Figure 501/32-51-00-990-804 (Sheet 4 of 9)**



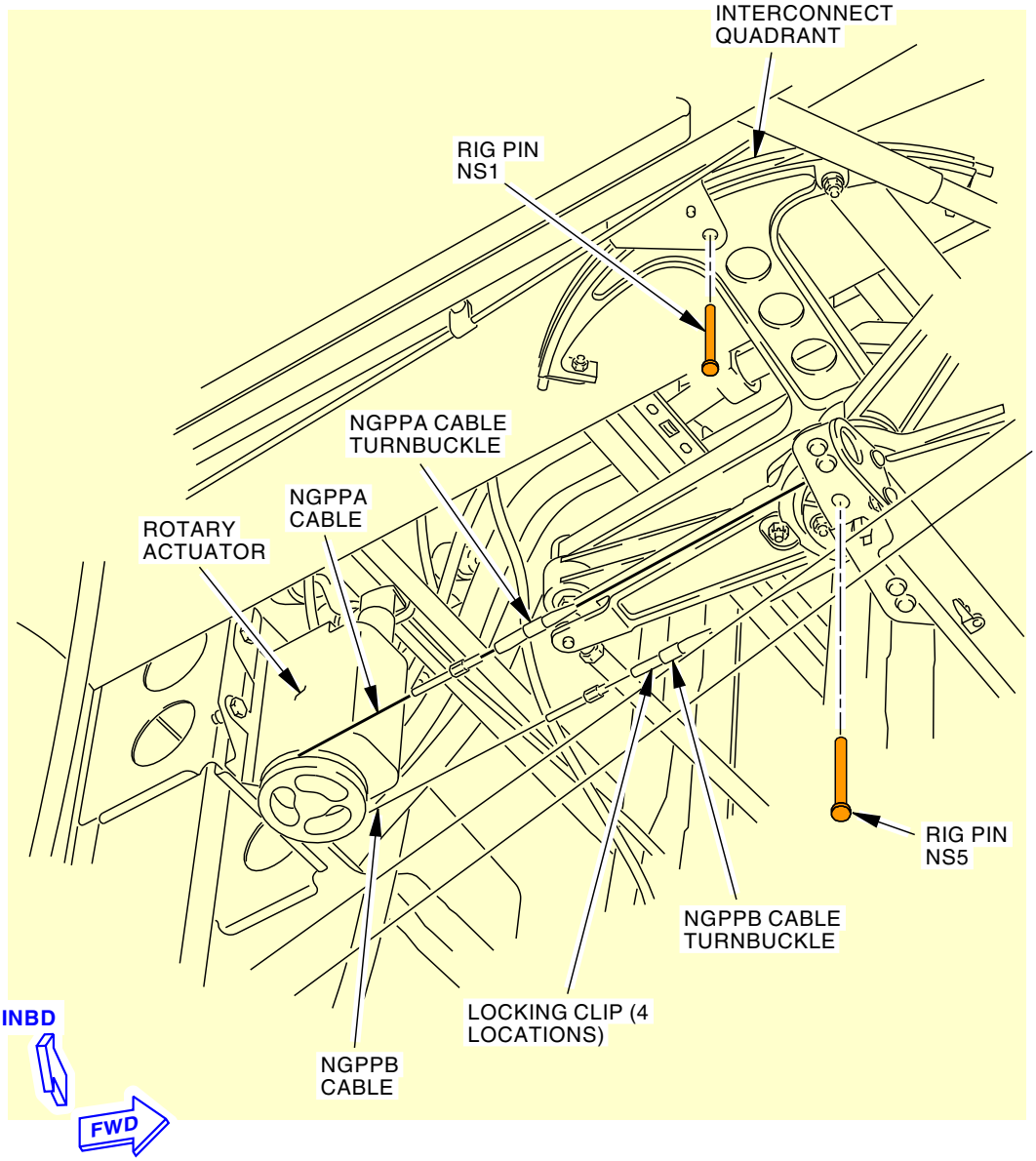
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Wheel Steering System Adjustment**
**Figure 501/32-51-00-990-804 (Sheet 5 of 9)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**RUDDER PEDAL STEERING INTERCONNECT MECHANISM AND ROTARY ACTUATOR**

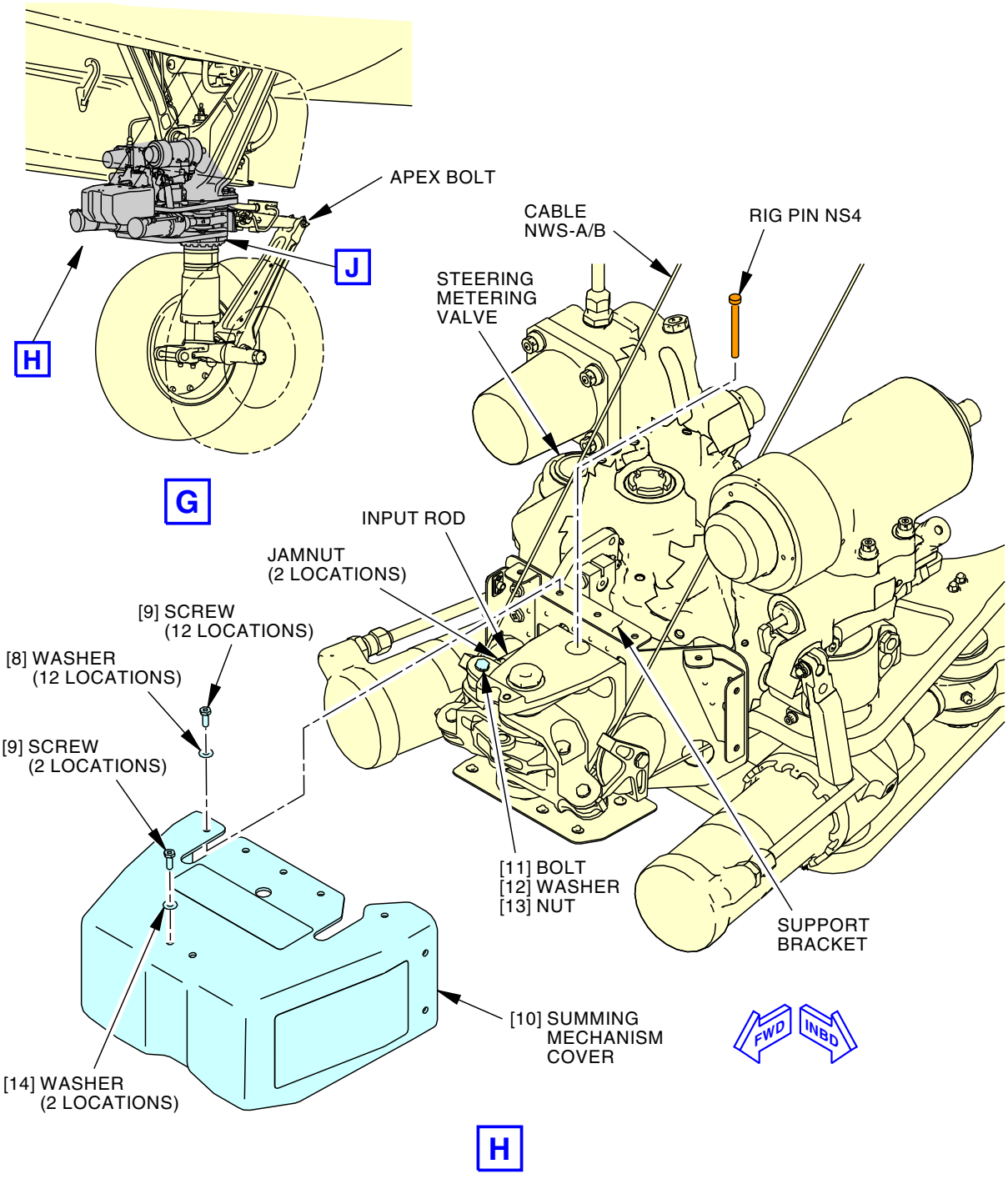
**F**

2414460 S00061535227_V1

**Nose Wheel Steering System Adjustment**
**Figure 501/32-51-00-990-804 (Sheet 6 of 9)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

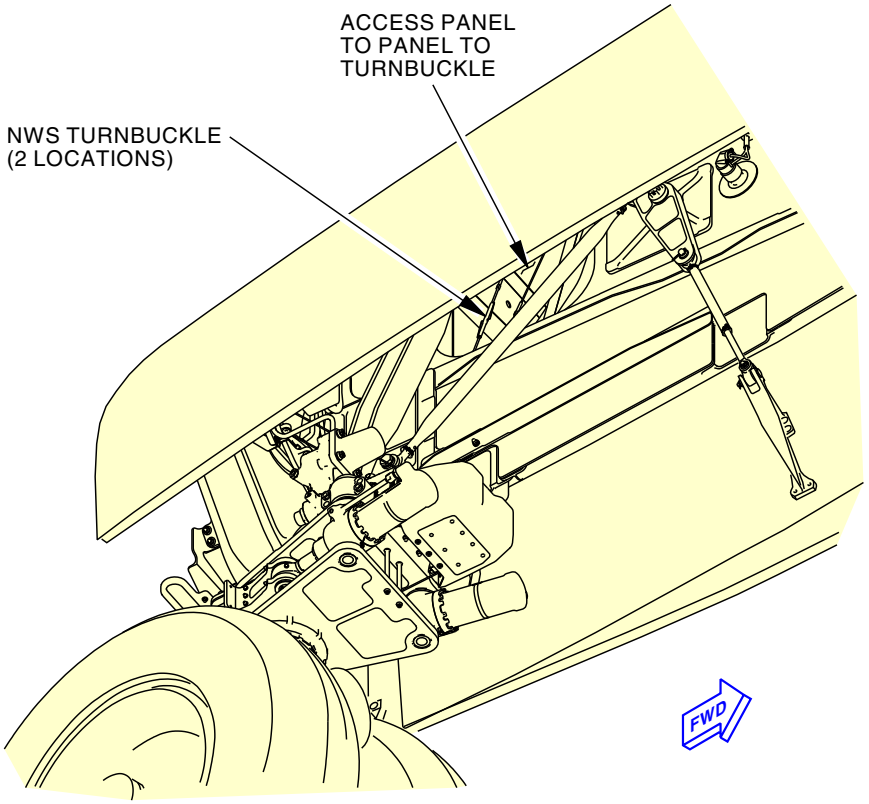



2414461 S00061535228_V3

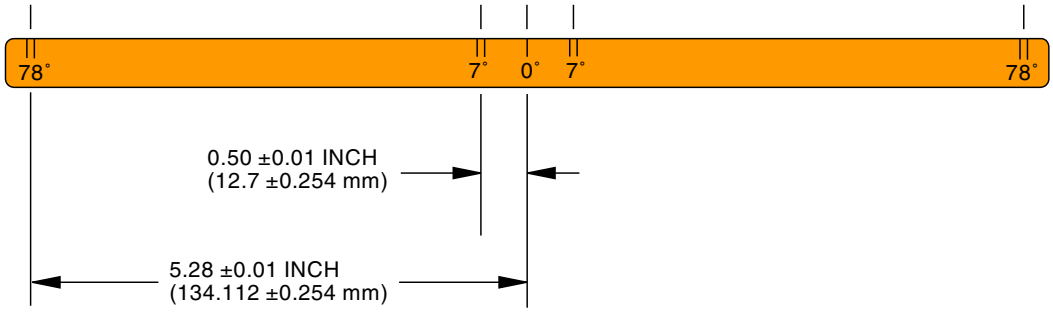
**Nose Wheel Steering System Adjustment**
**Figure 501/32-51-00-990-804 (Sheet 7 of 9)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




I




**STEERING ANGLE TAPE**

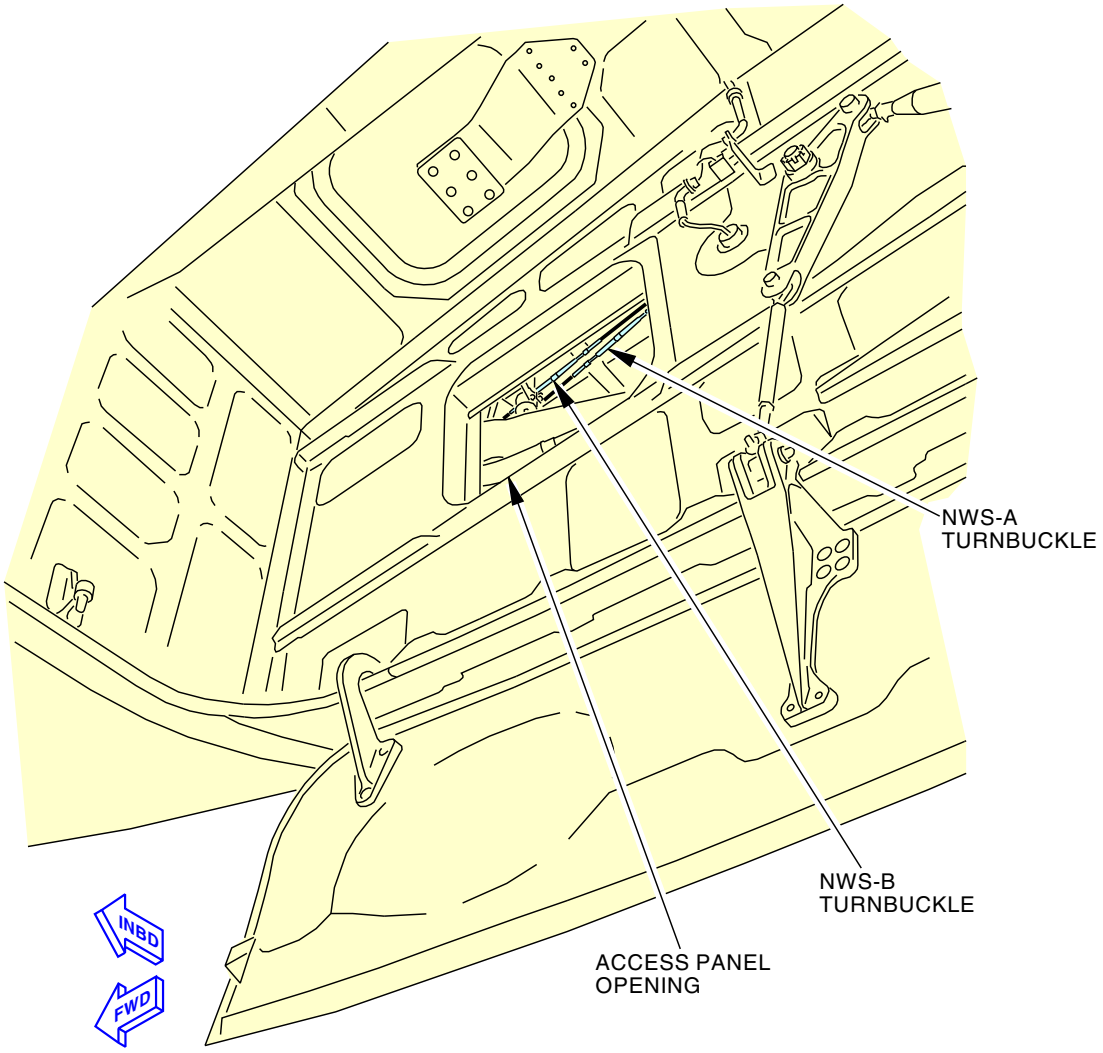
J

2414462 S00061535229_V1

**Nose Wheel Steering System Adjustment**
**Figure 501/32-51-00-990-804 (Sheet 8 of 9)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**NOSE LANDING GEAR WHEEL WELL**

**K**

2550171 S0000607371_V1

**Nose Wheel Steering System Adjustment**
**Figure 501/32-51-00-990-804 (Sheet 9 of 9)**



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**TASK 32-51-00-820-802**

## 3. Rudder Pedal Interconnect Mechanism Adjustment Check

(Figure 501)

### A. General

(1) This procedure gives instructions to do an adjustment check of the rudder pedal interconnect mechanism.

### B. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-2529 | Gauge - Force, Push/Pull/Spring Scale, 50 Pound Capacity<br>Part #: FDIX 50 Supplier: 0BFD9<br>Opt Part #: FDI 50 Supplier: 0BFD9<br>Opt Part #: FDV 50 Supplier: 0BFD9 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### E. Access Panels

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |



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## F. Prepare to Do the Adjustment Check

SUBTASK 32-51-00-480-003

> **WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: TASK 32-00-01-480-801.

SUBTASK 32-51-00-860-003

> **WARNING** REMOVE HYDRAULIC POWER FOR THE NOSE WHEEL STEERING BEFORE YOU DO THE CHECK. HYDRAULIC POWER CAN CAUSE THE NOSE WHEELS TO MOVE. INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-010-002

(3) Open the access panels to get access to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-020-801).

(a) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

## G. Rudder Pedal Interconnect Mechanism Adjustment Check

SUBTASK 32-51-00-820-004

(1) Make sure that the conditions of this check are satisfactory.

(a) If they are not, do this task: Rudder Pedal Interconnect Mechanism Adjustment, TASK 32-51-00-820-803.

SUBTASK 32-51-00-820-005

(2) Make sure that you can install the rig pin NS1, from rigging pin kit, SPL-1585, in the interconnect quadrant.

NOTE: The rig pins have a free fit if you can install or remove them with two fingers. Some resistance is permitted.

SUBTASK 32-51-00-820-006

(3) Make sure that you can install the rig pin NS5, from rigging pin kit, SPL-1585, in the interconnect eccentric drum:

NOTE: The rig pins have a free fit if you can install or remove them with two fingers. Some resistance is permitted.

(a) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

(b) Make sure that the interconnect eccentric drum rig pin hole and bracket rig pin slot line up.

(c) Install rig pin NS5.



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SUBTASK 32-51-00-080-003

(4) Remove the rig pins NS1 and NS5.

SUBTASK 32-51-00-840-001

(5) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 32-51-00-820-007

(6) Make sure that the tension in the NGPPA cable and NGPPB cable is such that the load necessary to move the cable 0.50 ±0.05 in. (12.70 ±1.27 mm) at the turnbuckle is 19 ±3 lbf (85 ±14 N) (as measured with a spring gauge, COM-2529).

(a) If you cannot get the correct tension, make sure that the cable terminal ends are started equally into the threads of the turnbuckle barrel.

SUBTASK 32-51-00-210-003

(7) Examine all of the adjustable rod ends to make sure that there is correct thread engagement.

(a) Make sure that the end of the rod end covers a minimum of 50 percent of the inspection hole.

SUBTASK 32-51-00-210-004

(8) After the cables are adjusted, make sure that the cable does not touch the pulley or quadrant flanges for the full travel of the cables.

(a) Make sure that the cables do not rub on the sides of the pulleys or quadrant.

### H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-00-410-002

(1) Close the access panels to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-420-801).

(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

——— END OF TASK ———

**TASK 32-51-00-820-803**

## 4. Rudder Pedal Interconnect Mechanism Adjustment

(Figure 501)

### A. General

(1) This procedure gives instructions to do the adjustment of the rudder pedal interconnect mechanism.

### B. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |



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(Continued)

| Reference | Title |
|---|---|
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| STD-5505 | Spring Scale |

### D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### E. Access Panels

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

### F. Prepare for the Rudder Pedal Interconnect Mechanism Adjustment

**SUBTASK 32-51-00-480-004**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-51-00-580-001**

(2) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

**SUBTASK 32-51-00-860-004**

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-51-00-860-005

(4) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

SUBTASK 32-51-00-860-006

**WARNING** USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Move the towing lever to the tow position and install the NLG towing lever pin, SPL-1499.

SUBTASK 32-51-00-820-008

(6) Make sure that the nose wheels are in the center position.

NOTE: The inner cylinder centering cam will put the nose wheels in the center position when the airplane is lifted on jacks. Manual aid may be necessary to make sure the nose gear and cam is in the center position.

SUBTASK 32-51-00-010-003

(7) Open the access panels to get access to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-020-801).

(a) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

## G. Rudder Pedal Interconnect Mechanism Adjustment

SUBTASK 32-51-00-020-001

(1) Remove the turnbuckle locking clips from the turnbuckles on the NGPPA and NGPPB cables.

SUBTASK 32-51-00-020-002

(2) Remove the nut [7], washer [6], and bolt [5] to disconnect the idler rod on the rudder pedal interconnect mechanism from the structure.

SUBTASK 32-51-00-220-001

(3) Make sure that the rotary actuator is turned in the counterclockwise direction with the index marks aligned to show that it is in the air mode.

SUBTASK 32-51-00-480-005

(4) Install the rig pins NS1 and NS5:

(a) Install the rig pin NS1, from rigging pin kit, SPL-1585.

(b) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

1) Make sure that the interconnect eccentric drum rig pin hole and bracket rig pin slot line up.

(c) Install rig pin NS5.



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SUBTASK 32-51-00-820-009

(5) Adjust the length of the idler rod, if necessary. Make sure that you attach the bolt [5] freely when you install it through the rod end and the structure.

(a) Install the bolt [5], washer [6], and nut [7] to attach the idler rod to the structure.

SUBTASK 32-51-00-080-004

(6) Make sure that you attach the rig pin NS1 freely.

SUBTASK 32-51-00-080-005

(7) Remove rig pin NS1.

SUBTASK 32-51-00-820-010

(8) Adjust the tension in the NGPPA and NGPPB cables until the load necessary to move the cable 0.50 ±0.05 in. (12.70 ±1.27 mm) downward at the turnbuckle is 19 ±3 lbf (85 ±14 N) (as measured with a spring scale, STD-5505).

NOTE: It is not necessary to use the temperature because the NGPPA cable and NGPPB cable are very short.

SUBTASK 32-51-00-080-006

(9) Remove the rig pin NS5.

SUBTASK 32-51-00-710-001

(10) Operate the rotary actuator five times from the air mode (TASK 32-09-00-860-801), back to the ground mode (TASK 32-09-00-860-802), and back again.

(a) Make sure that the rotary actuator changes from the air mode to the ground mode, and back again each time.

SUBTASK 32-51-00-210-005

(11) Make sure that you attach the rig pin NS5 freely:

(a) Do this task: Put the Airplane in the Air Mode, TASK 32-09-00-860-801.

(b) Make sure that the interconnect eccentric drum rig pin hole and bracket rig pin slot line up.

(c) Make sure that you can remove and install the rig pin NS5 freely.

SUBTASK 32-51-00-820-011

(12) Make sure that the tension in the NGPPA cable and NGPPB cable is such that the load necessary to move the cable 0.50 ±0.05 in. (12.70 ±1.27 mm) at the turnbuckle is 19 ±3 lbf (85 ±14 N) (as measured with a spring scale).

(a) If necessary, adjust the cable turnbuckles until the rig pin NS5 is free and the tension in the cables is correct.

SUBTASK 32-51-00-420-001

(13) Install the turnbuckle locking clips on the turnbuckles for the NGPPA cable and NGPPB cable.

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-00-410-003

(1) Close the access panels to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-420-801).

(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |



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(Continued)

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-00-860-007

(2) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

——— END OF TASK ———

TASK 32-51-00-820-804

## 5. Nose Wheel Steering System Adjustment Check

(Figure 501)

### A. General

(1) This procedure gives instructions to do an adjustment check of the nose wheel steering system.

### B. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 24-22-00-860-801 | Supply Electrical Power (P/B 201) |
| 24-22-00-860-802 | Remove Electrical Power (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |



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## E. Access Panels

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

## F. Prepare for the Adjustment Check

SUBTASK 32-51-00-480-006

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: TASK 32-00-01-480-801.

SUBTASK 32-51-00-010-004

(2) Open the access panels to get access to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-020-801).

(a) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-00-580-002

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(3) Lift the airplane on jacks, until the nose gear shock strut is fully extended and the wheels do not touch the ground (TASK 07-10-01-580-801).

SUBTASK 32-51-00-860-008

(4) Do this task: Supply Electrical Power, TASK 24-22-00-860-801.

SUBTASK 32-51-00-860-009

(5) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-860-010

(6) Make sure that the control lever for the landing gear is in the DN position.

SUBTASK 32-51-00-860-011

(7) Make sure that the NOSE WHEEL STEERING ALTERNATE switch is in the NORM position.



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SUBTASK 32-51-00-860-012

(8) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

## G. Nose Wheel Steering System Adjustment Check

SUBTASK 32-51-00-820-012

(1) Make sure that the conditions of this adjustment check are satisfactory.

(a) If they are not, do this task: Nose Wheel Steering System Adjustment, TASK 32-51-00-820-805.

SUBTASK 32-51-00-730-002

(2) Make sure that the steering angle is 0 ±1.5 degrees on the decal that is on the nose gear shock strut.

NOTE: The inner cylinder centering cam will put the nose wheels in the center position when the airplane is lifted on jacks. Manual aid may be necessary to make sure the nose gear and cam is in the center position.

(a) If the decal is not on the nose gear shock strut, then use Figure 501 to make a decal with tape.

SUBTASK 32-51-00-860-013

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-51-00-730-003

(4) Make sure that the nose gear stays centered.

NOTE: If the nose gear moves when the hydraulic system is pressurized, the nose gear steering is not adjusted correctly. There is a disagreement between the steering system and the mechanical centerline position of the nose gear centering cams.

SUBTASK 32-51-00-820-013

(5) Make sure that the tension in the cables NWS-A and NWS-B is in tolerance (Table 501).

SUBTASK 32-51-00-010-005

(6) Remove the screws [9], washers [8], washers [14], and the summing mechanism cover [10].

SUBTASK 32-51-00-010-021

(7) Do these steps that follow to get access to the Captain's and First Officer's rig pin hole for the control wheels:

(a) Remove the screw [16] from the access cover [15].

(b) Turn the access cover [15] counterclockwise to get access to the rig pin hole.



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SUBTASK 32-51-00-480-007

(8) Make sure that you can install these rig pins, from rigging pin kit, SPL-1585:

NOTE: The steering system has a 1 - 2 degree dead band in the center position.

(a) Rig pin NS2 in the Captain's control wheel drum.

(b) Rig pin NS10 in the First Officer's control wheel drum.

(c) Rig pin NS1 in the interconnect quadrant.

(d) Rig pin R3 in the rudder forward quadrant.

(e) Rig pin NS4 in the summing mechanism bracket at the steering metering valve.

SUBTASK 32-51-00-820-014

(9) Make sure that all the rig pins have a free fit.

NOTE: The rig pins have a free fit if you can install or remove them with two fingers. Some resistance is permitted.

SUBTASK 32-51-00-080-007

(10) Remove all the rig pins.

SUBTASK 32-51-00-410-023

(11) Do these steps that follow to cover the Captain's and First Officer's rig pin hole for the control wheels:

(a) Turn the access cover [15] clockwise.

1) Make sure that the pointer on the Captain's and First Officer's control wheels are within the CENTER band on the access cover [15] marker.

(b) Install the screw [16] to attach the access cover [15].

## H. Travel Operation of the Nose Wheel to the Center with the Hydraulic Power On Check

SUBTASK 32-51-00-860-014

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-51-00-480-008

(2) Make sure that the greased plates are under the nose wheels.

NOTE: Plates made of steel are recommended. Plates made of a soft material, such as aluminum, can be destroyed by the test.

SUBTASK 32-51-00-580-003

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.



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**(CAUTION PRECEDES)**

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(3) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**SUBTASK 32-51-00-730-004**

(4) Make sure that the Captain's control wheel operates correctly:

(a) Turn the Captain's control wheel to operate the nose wheel steering through at least 6 complete cycles, and make sure that it operates freely and smoothly.

NOTE: One cycle of the system is from center to full right, then to full left, then back to center.

(b) Make sure that there is no leakage of hydraulic fluid from the nose gear steering tubing and fittings from the landing gear selector valve to the valves on the steering actuators.

(c) Turn the nose wheels with the Captain's control wheel from the center position to the LEFT (CCW) stop position.

1) Make sure that the steering angle is 78 ±2 degrees on the decal that is on the nose gear shock strut.

(d) Release the Captain's control wheel and let it return to the center position.

1) Make sure that the steering angle is at 0 ±1.5 degrees.

(e) Turn the nose wheels with the Captain's control wheel from the center position to the RIGHT (CW) stop position.

1) Make sure that the steering angle is 78 ±2 degrees on the decal that is on the nose gear shock strut.

(f) Release the Captain's control wheel and let it return to the center position.

1) Make sure that the steering angle is at 0 ±1.5 degrees.

**SUBTASK 32-51-00-730-031**

(5) Do the steps that follow to make sure that the First Officer's control wheel operates correctly:

(a) Turn the First Officer's control wheel to operate the nose wheel steering through at least 6 complete cycles, and make sure that it operates freely and smoothly.

NOTE: One cycle of the system is from center to full right, then to full left, then back to center.

(b) Turn the nose wheels with the First Officer's control wheel from the center position to the LEFT (CCW) stop position.

1) Make sure that the steering angle is 78 ±2 degrees on the decal that is on the nose gear shock strut.

(c) Release the First Officer's control wheel and let it return to the center position.

1) Make sure that the steering angle is at 0 ±1.5 degrees.

(d) Turn the nose wheels with the First Officer's control wheel from the center position to the RIGHT (CW) stop position.

1) Make sure that the steering angle is 78 ±2 degrees on the decal that is on the nose gear shock strut.

(e) Release the First Officer's control wheel and let it return to the center position.



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1) Make sure that the steering angle is at 0 ±1.5 degrees.

SUBTASK 32-51-00-210-006

(6) Examine all of the adjustable rod ends to make sure that there is correct thread engagement.

(a) Make sure that the end of the rod end covers a minimum of 50 percent of the inspection hole.

SUBTASK 32-51-00-210-007

(7) After the cables are adjusted, make sure that the cable does not touch the pulley or quadrant flanges for the full travel of the cables.

(a) Make sure that the cables do not rub on the sides of the pulleys or quadrant.

SUBTASK 32-51-00-410-004

(8) Install the summing mechanism cover [10] with screws [9], washers [8], and washers [14].

**I. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-51-00-860-015

(1) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-580-014

(2) Lift the airplane on jacks, until the nose gear shock strut is fully extended and the wheels do not touch the ground (TASK 07-10-01-580-801).

SUBTASK 32-51-00-020-005

(3) Remove the greased plates from under the nose wheels.

SUBTASK 32-51-00-580-015

(4) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

SUBTASK 32-51-00-860-016

(5) Do this task: Remove Electrical Power, TASK 24-22-00-860-802.

SUBTASK 32-51-00-410-005

(6) Close the access panels to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-420-801).

(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

**——— END OF TASK ———**

**TASK 32-51-00-820-805**

## 6. Nose Wheel Steering System Adjustment

(Figure 501)

**A. General**

(1) This task gives the instructions to do the adjustment of the nose wheel steering system.

(a) There are three methods to do this task:

1) Method 1: Airplane On Ground/Off Jacks



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a) Method 1 requires removal of the torsion link apex pin to disconnect the steering mechanism from the wheel assembly.

2) Method 2: Airplane On Jacks

a) Method 2 requires the Nose Landing Gear (NLG) to be compressed while the airplane is jacked.

3) Method 3: Airplane On Grease Plate.

a) Method 3 does not need removal of the torsion pin. The grease plate will prevent tire scuffing when the NLG is turned left or right.

(2) When you adjust turnbuckles for the steering cables, make sure that you adjust the Captain's and the First Officer's cables to obtain the correct load.

## B. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 09-10-00-580-801 | Nose Gear Maintenance Towing (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-31-000-803 | Nose Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-21-31-400-803 | Nose Landing Gear Torsion Link Connection (P/B 401) |
| 32-51-11-400-801 | Steering Metering Valve Installation (P/B 401) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

## C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1553 | Tensiometer - Cable, Low Tension (200 lbs and below)<br>Part #: 102-03108 Supplier: 21844<br>Part #: 102-03120 Supplier: 21844<br>Part #: ACM-200 Supplier: 13331<br>Part #: ACX-250-1 Supplier: 13331<br>Part #: T60-1001-C8-1A Supplier: 0N8U4 |
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

## D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |



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(Continued)

| Zone | Area |
|---|---|
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**E. Access Panels**

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

**F. Prepare for the Nose Wheel Steering System Adjustment**

SUBTASK 32-51-00-480-009

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: TASK 32-00-01-480-801.

SUBTASK 32-51-00-860-017

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-010-016

(3) Open the access panels to get access to the nose wheel steering system mechanism and cable turnbuckles.

(a) Open these access panels:

(Nose Wheel Well Access Panels Removal, TASK 53-14-01-020-801)

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-00-580-004

(4) For Method 1, do these steps:

(a) Tow the airplane at least 12.0 ft (3.7 m) in a straight line before it is parked (TASK 09-10-00-580-801).

(b) Remove the clamps, brackets, and conduit that attached to the NLG/Taxi Light.

NOTE: Clamps on torsion links are removed to prevent damage to the conduit.

(c) Disconnect the torsion link apex pin (TASK 32-21-31-000-803).



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SUBTASK 32-51-00-580-016

(5) For Method 2, lift the airplane on jacks until the nose gear shock strut is fully extended and that the wheels do not touch the ground, do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

NOTE: The nose of the airplane is lifted on jacks to find the center position of the nose landing gear and the steering collar. The internal centering cam of the shock strut is used to do this.

SUBTASK 32-51-00-580-017

(6) For Method 3, tow the airplane at least 12.0 ft (3.7 m) in a straight line before it is parked on the grease plate (TASK 09-10-00-580-801).

SUBTASK 32-51-00-860-019

(7) Make sure that the steering angle is 0 ±1.5 degrees on the decal that is on the nose gear shock.

SUBTASK 32-51-00-860-020

(8) Make sure that this circuit breaker is closed:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

SUBTASK 32-51-00-860-021

**WARNING** USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(9) Move the towing lever to the TOW position and install the NLG towing lever pin, SPL-1499.

SUBTASK 32-51-00-820-015

(10) Adjust the cable guard to clear the steering collar pulley by 0.030 ±0.015 in. (0.762 ±0.381 mm).

(a) If it is necessary, loosen the attach bolt and adjust the cable guard in its slotted hole.

SUBTASK 32-51-00-020-003

(11) Remove the nut [4], washer [3], and bolt [2] to disconnect the rudder pedal input rod from the steering crank.

SUBTASK 32-51-00-730-005

(12) Make sure that the steering angle is 0 ±1.5 degrees on the decal that is on the nose gear shock.

NOTE: The inner cylinder centering cam will put the nose wheels in the center position when the airplane is lifted on jacks. Manual assistance may be necessary to make sure that the nose gear and cam is in the center position.

(a) If the decal is not on the nose gear shock strut, use the illustration in Figure 501 to make a decal with tape.

SUBTASK 32-51-00-010-007

(13) Remove the screws [9], washers [8], washers [14], and summing mechanism cover [10].

SUBTASK 32-51-00-010-017

(14) Do the steps that follow to get access to the Captain's and the First Officer's rig pin hole for the control wheels:



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(a) Remove the screw [16] from the access cover [15].

(b) Turn the access cover [15] counterclockwise to get access to the rig pin hole.

## G. Nose Wheel Steering System Adjustment

SUBTASK 32-51-00-820-016

(1) Disconnect the steering valve input rod from the steering metering valve summing mechanism.

SUBTASK 32-51-00-820-025

(2) Install the rig pin NS4 in the summing mechanism bracket at the steering metering valve.

NOTE: This step does a check of the rig pin NS4 against only the centering springs inside the steering valve. A step will follow that does a check of the rig pin against the steering cables. These steps must be done in this order.

(a) If the removed bolt does not fit freely, do these steps to adjust the length of the steering valve input rod such that you can install the bolt freely:

1) Loosen the jamnuts to disengage the locking keys.

2) Adjust the length of the steering valve input rod.

3) Tighten the jamnuts and install safety wire.

4) Make sure that the safety wire tail is on the aft end of the steering valve input rod when installed.

SUBTASK 32-51-00-840-002

(3) Connect the steering valve input rod from the steering metering valve summing mechanism.

SUBTASK 32-51-00-480-010

(4) Install rig pin NS2 from rigging pin kit, SPL-1585, in the Captain's control wheel drum.

SUBTASK 32-51-00-490-001

(5) Install the rig pin NS1 in the interconnect quadrant.

SUBTASK 32-51-00-480-018

(6) Install rig pin NS10 in the First Officer's control wheel drum.

SUBTASK 32-51-00-020-004

(7) Remove the locking clips from the turnbuckles on the NWS-A cable and NWS-B cable.

SUBTASK 32-51-00-820-017

(8) For new cables only, do these steps:

(a) Use the low tension cable tensiometer, COM-1553, to adjust the load on NWS-A cable and NWS-B cable to 85 ±5 lbf (378 ±22 N).

(b) Remove all rig pins.

(c) For Method 1, make sure that the upper torsion link and other components are supported in a way that it does not contact the tires or doors when the system is operated.

**CAUTION** MAKE SURE THAT THE SHOCK STRUT IS COMPRESSED. THE CENTERING CAMS WILL BE ENGAGED IF THE SHOCK STRUT IS NOT COMPRESSED THE MINIMUM AMOUNT. THIS CAN CAUSE DAMAGE TO THE AIRCRAFT.

(d) For Method 2, make sure that the shock strut for the NLG is compressed a minimum of 3.5 in. (88.9 mm).



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(e) For Method 3, make sure that the grease plates are under the nose wheels.

NOTE: Plates made of steel are suggested. Plates made of a soft material such as aluminum can be destroyed by the test.

(f) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(g) Remove the NLG towing lever pin, SPL-1499, and move the towing lever to the "PRESSURE ON" position.

(h) For Method 1, hold the upper torsion link to set airplane nose to ground mode.

NOTE: Be careful to avoid damage to the conduit during operation.

(i) Use the steering tiller to operate the steering system of the nose wheel through 25 cycles (center-full left-full right-center).

**WARNING** USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(j) Move the towing lever to the TOW position and install the NLG towing lever pin, SPL-1499.

(k) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(l) For Method 1, do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

(m) Make sure that the gear is steered to the straight ahead position before rigging.

(n) Install the rigging pins NS1, NS2, NS10, and NS4.

**SUBTASK 32-51-00-820-024**

(9) Adjust the tension of all the segments of the NWS-A cable and NWS-B cable until the rig pins NS1, NS2, NS10, and NS4 fit freely (Table 501).

**Table 501/32-51-00-993-802**

| (FOR NWSA AND NWSB CABLES ON AIRPLANES EQUIPPED WITH RIGHT SIDE NWS) | |
|---|---|
| **TEMPERATURE*[1]** | **RIG LOAD*[2]** |
| 130°F (54°C) | 47 lbf (209 N) |
| 110°F (43°C) | 42 lbf (187 N) |
| 90°F (32°C) | 37 lbf (165 N) |
| 70°F (21°C) | 31 lbf (138 N) |
| 50°F (10°C) | 25 lbf (111 N) |
| 30°F (-1°C) | 20 lbf (89 N) |
| 10°F (-12°C) | 14 lbf (62 N) |
| -10°F (-23°C) | 12.5 lbf (56 N) |
| -30°F (-34°C) | 11.5 lbf (51 N) |
| -40°F (-40°C) | 11 lbf (49 N) |

*[1] Ambient temperatures of airplane within 0 ±5°F (-18 ±3°C). Ambient temperature should be stable for one hour prior to rigging.



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*[2] Cable loads must be within 0 +10 / -0 lbf (0 +44 / -0 N) of table values when the system is being rigged at 10°F (-12°C) or higher. Cable loads must be within 0.0 +1.5 / -0.0 lbf (0.0 +6.7 / -0.0 N) of table values when the system is rigged below 10°F (-12°C). After initial rigging, any deviation from table values 0 +15 / -5 lbf (0 +67 / -22 N) at 10°F (-12°C) or above, or 0.0 ±2.5 lbf (0.0 ±11.1 N) for less than 10°F (-12°C), shall require that the system be re-rigged.

(a) Adjust the Captain's and the First Officer's turnbuckles to adjust the cable tension.

**SUBTASK 32-51-00-820-023**

(10) For used and new cables, do the steps that follow to check the cable temperature compensator:

(a) Make sure that the cable is not visible in the lower inspection hole.

(b) Make sure that the spring is not visible in the upper inspection hole.

(c) Make sure that the inspection holes are only partially blocked by internal parts.

NOTE: Below 10°F (-12.2°C), the upper inspection hole may be completely blocked or the spring can be visible.

**SUBTASK 32-51-00-420-002**

(11) Install rig pin R3 in the rudder forward quadrant.

NOTE: This step is necessary to make sure that rudder system rigging will not affect the steering system rigging. If you are unable to install R3 rig pin, then the rudder system needs to be adjusted to align this rig pin hole to avoid a possible steering problem in the future.

**SUBTASK 32-51-00-820-019**

**CAUTION**

MAKE SURE THE END OF THE INPUT ROD WILL COVER AT LEAST ONE HALF OF THE INSPECTION HOLE. A MINIMUM OF THREE THREADS MUST BE OPEN OUTSIDE THE LOCKNUT ON THE CONTROL ROD AT THE CRANK END. INCORRECT THREAD ENGAGEMENT OF THE INPUT ROD CAN CAUSE AN INTERFERENCE AND A POSSIBLE FAILURE OF THE INPUT ROD CAN OCCUR.

(12) Do the steps below:

(a) Adjust the length of the rudder pedal input rod and make sure that the bolt [2], which attaches the rudder pedal input rod to the steering crank fits freely.

(b) Install the bolt [2], washer [3], and nut [4].

(c) Tighten the jamnut on the rudder pedal input rod.

**SUBTASK 32-51-00-080-008**

(13) Remove all of the rig pins.

**SUBTASK 32-51-00-212-001**

(14) For Method 3, make sure that the grease plates are under the nose wheels.

NOTE: Plates made of steel are recommended. Plates made of a soft material such as aluminum can be destroyed by the test.

**SUBTASK 32-51-00-580-018**

**CAUTION**

MAKE SURE THAT THE SHOCK STRUT IS COMPRESSED. THE CENTERING CAMS WILL BE ENGAGED IF THE SHOCK STRUT IS NOT COMPRESSED THE MINIMUM AMOUNT. THIS CAN CAUSE DAMAGE TO THE AIRCRAFT.

(15) For Method 2, make sure that the shock strut for the NLG is compressed a minimum of 3.5 in. (88.9 mm).



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SUBTASK 32-51-00-860-022

(16) For Method 1, hold the upper torsion link up to set the airplane nose to ground mode.

SUBTASK 32-51-00-860-023

(17) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-51-00-860-024

(18) Remove the NLG towing lever pin, SPL-1499, and let the towing lever move to the "PRESSURE ON" position.

SUBTASK 32-51-00-820-020

(19) Do a check of the steering adjustment.

(a) Use the steering tiller to operate the steering system of the nose wheel full left and full right.

NOTE: The steering system has a 1 - 2 degree dead band in the center position.

NOTE: For Method 1, be careful to avoid damage to the conduit during operation.

(b) If it is not within the dead band, do this task: Rudder Pedal Interconnect Mechanism Adjustment, TASK 32-51-00-820-803.

(c) If it is necessary, adjust the length of the rudder pedal input rod until the steering system returns equally on the two sides of the "0" mark after turns to the right and left.

SUBTASK 32-51-00-420-003

(20) Make sure that the rudder pedal input rod is correctly connected to the steering crank.

NOTE: If you are completing this task as a result of the installation of the steering metering valve (TASK 32-51-11-400-801), the subsequent steps do not apply and it is not necessary that they are completed.

SUBTASK 32-51-00-420-004

(21) Install the locking clips on the turnbuckles of the NWS-A cable and NWS-B cable.

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-00-410-017

(1) For Method 1, do these steps:

(a) Connect the torsion link apex pin (TASK 32-21-31-400-803).

(b) Install the clamps, brackets, and conduit on the Nose Landing Gear/Taxi Light.

NOTE: These components were removed to disconnect the upper torsion link.

SUBTASK 32-51-00-580-019

(2) For Method 2, do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-51-00-580-020

(3) For Method 3, move the airplane off the grease plate.

SUBTASK 32-51-00-410-018

(4) Do the steps that follow to cover the Captain's and the First Officer's rig pin hole for the control wheels:

(a) Turn the access cover [15] clockwise.

1) Make sure that the pointer on the Captain's and First Officer's control wheels are within the CENTER band on the access cover [15] marker.

(b) Install the screw [16] to attach the access cover [15].



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SUBTASK 32-51-00-410-019

(5) Close the access panels to the nose wheel steering system mechanism and cable turnbuckles.

(a) Close these access panels:

(Nose Wheel Well Access Panels Installation, TASK 53-14-01-420-801)

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-00-730-007

(6) Do the system test for the nose wheel steering system (TASK 32-51-00-700-801).

——— END OF TASK ———

**TASK 32-51-00-820-806**

## 7. Nose Wheel Steering System Adjustment (Adjusting Steering Metering Valve Input Rod Method)

(Figure 501)

### A. General

(1) This procedure is to be used only after rigging in accordance with the usual rigging procedure (TASK 32-51-00-820-805).

(2) This task gives a procedure for adjusting the steering system rigging based on the recorded quantity of rudder trim necessary to counteract a steering pulling condition as measured during ground maneuvers.

(3) This is a procedure for adjusting steering system only if necessary to improve steering centering characteristics. Prior to making steering adjustments, pilot evaluation of the rudder trim necessary to center the steering system, must be recorded. Fewer than 2 units of rudder trim is necessary for acceptable centering. One (1) unit of rudder trim is equivalent to ¼ degree of steered angle or 0.02 in. (0.51 mm) on the steering marker. The rudder trim that produces satisfactory centering characteristics is used to readjust the steering control system. Initial rigging requires the steering to center equally about the “0” mark when returning from turns from the right and left. After completion of this procedure, the steering does not have to center equally about the “0” mark.

### B. References

| Reference | Title |
|---|---|
| 12-15-51-780-801 | Landing Gear Tire Pressure Check and Tire Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-31-000-803 | Nose Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-21-31-400-803 | Nose Landing Gear Torsion Link Connection (P/B 401) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.



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| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

**D. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**E. Prepare for the Adjustment**

SUBTASK 32-51-00-480-011

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-51-00-200-001

(2) Make sure that all of the tires are correctly inflated (TASK 12-15-51-780-801).

SUBTASK 32-51-00-000-001

(3) Put the nose landing gear on grease plates or disconnect the nose gear torsion links at the apex bolt for this adjustment procedure (TASK 32-21-31-000-803).

(a) Make sure that you tie up or support the upper torsion link during rigging off jacks at an angle that will not let the torque link touch the tires or doors when the system is operated.

**F. Nose Wheel Steering System Adjustment (Adjusting Steering Metering Valve Input Rod Method)**

SUBTASK 32-51-00-860-025

(1) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-51-00-080-009

(2) Remove the NLG towing lever pin, SPL-1499.

SUBTASK 32-51-00-210-008

(3) Make sure that the rudder trim is set to zero (“0”) (± 1/4°).



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SUBTASK 32-51-00-710-002

(4) With the rudder pedals, cycle the system to the left and right and let it return to center from each direction.

NOTE: Note the relationship on the indicator mark on the back of the steering collar to the zero (“0”) mark on the decal. There will be a difference in this relationship when returning from the left or returning from the right of up to 1 degree, 0.06 in. (1.52 mm) on the decal, due to the dead band in the steering valve.

SUBTASK 32-51-00-860-026

(5) Set the rudder trim (± 1/4°) to the setting the pilot noted for acceptable centering characteristics.

SUBTASK 32-51-00-710-003

(6) With the rudder pedals, cycle the system to the left and right and let it return to center from each direction.

NOTE: Note these relationships of the indicator mark on the back of the steering collar to the zero (“0”) mark on the decal. These are the positions to which the steering must return after adjustments are made.

SUBTASK 32-51-00-860-027

(7) Set the rudder trim back to zero (“0") (± 1/4°).

SUBTASK 32-51-00-860-028

(8) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-860-029

**WARNING** USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(9) Move the towing lever to the TOW position and install the NLG towing lever pin, SPL-1499.

SUBTASK 32-51-00-820-021

(10) Make sure that you can install these rig pins from the rigging pin kit, SPL-1585, and that the rig pins have a free fit:

NOTE: The rig pins must have a free fit when you install or remove them. Some resistance is permitted.

(a) Rig pin NS2 in the Captain's control wheel drum

(b) Rig pin NS4 in the summing mechanism bracket at the steering metering valve.

SUBTASK 32-51-00-000-002

(11) Loosen the jamnuts on the input rod.

SUBTASK 32-51-00-820-022

(12) Based on the setting the pilot noted for acceptable centering characteristics, adjust the length of the input rod to correct the steering pulling condition.

NOTE: Turning the hexagonal barrel between the rod ends in the clockwise direction when facing aft, lengthens the control rod. One complete revolution in the clockwise direction changes the steering angle approximately equivalent to one unit of left rudder trim. One complete revolution in the counterclockwise direction changes the steering angle approximately equivalent to one unit of right rudder trim.



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SUBTASK 32-51-00-420-005

(13) Tighten the jamnuts.

SUBTASK 32-51-00-860-030

(14) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-51-00-860-031

(15) Remove the NLG towing lever pin, SPL-1499, from the towing lever.

SUBTASK 32-51-00-710-004

(16) Cycle the system to the left and right with the rudder pedals and let it return to center from each direction.

SUBTASK 32-51-00-200-002

(17) Compare the centering to what was noted earlier in the task when the rudder was cycled around the trim point the pilot had set.

SUBTASK 32-51-00-860-032

(18) If it is satisfactory, do this task to remove hydraulic system A pressure: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-420-006

(19) Install the safety wire on the input rod.

SUBTASK 32-51-00-200-003

(20) Make sure that the rig pin NS2 in the Captain's control wheel drum does not bind.

NOTE: It is not necessary for rig pin NS4 in the summing mechanism bracket at the steering metering valve to fit freely.

**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-51-00-420-007

(1) If it was disconnected, reconnect the nose gear torsion links at the apex bolt (TASK 32-21-31-400-803).

**——— END OF TASK ———**

**TASK 32-51-00-700-801**

**8. Nose Wheel Steering System Test (Airplane on Ground)**

(Figure 501)

**A. General**

(1) This procedure gives instructions to do a test of the nose wheel steering system while the airplane is on the ground on grease plates.

(2) The test of the nose wheel steering system includes the tests that follow:

(a) A steering centering test to make sure that the steering metering valve is in the null position when the nose gear is mechanically centered

(b) A normal steering response test

(c) A tiller control wheel torque test

(d) A test of the nose gear turn radius and response to full rudder pedal input

(e) A tow test of the nose gear steering to make sure that the nose gear will turn freely with the tow lever in the tow position

(f) A test of the alternate steering system



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(g) An air/ground mode test.

(3) The nose wheel steering system must be adjusted correctly before you do the system test.

**B. References**

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 31-65-00-970-801 | System Maintenance Data Pages Function (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-51-11 P/B 401 | STEERING METERING VALVE - REMOVAL/INSTALLATION |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| SPL-7306 | Extension Bar - NLG Steering<br>Part #: C32020-1 Supplier: 81205<br>Part #: C32020-15 Supplier: 81205 |
| STD-1035 | Wrench - Torque, Dial Type, 0 to 500 in-lbs (0 to 56.5 N·m) |

**D. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 118 | Electrical and Electronics Compartment - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**E. Access Panels**

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 117A | Electronic Equipment Access Door |


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## F. Prepare to Test the Steering System of the Nose Wheel

SUBTASK 32-51-00-860-076

(1) Make sure that you park the airplane on a flat surface with no crosswinds.

NOTE: Crosswinds can caster the nose gear when the hydraulic system is depressurized.

SUBTASK 32-51-00-480-019

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-51-00-610-001

(3) Service the hydraulic system (TASK 12-12-00-610-801).

SUBTASK 32-51-00-580-006

(4) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

SUBTASK 32-51-00-860-034

(5) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-860-035

(6) Make sure that the LANDING GEAR control lever is in the DN position.

SUBTASK 32-51-00-860-036

(7) Make sure that the NOSE WHEEL STEER switch is in the NORM position.

SUBTASK 32-51-00-860-037

(8) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C01355 | LANDING GEAR AIR/GND SYS 2 |
| C | 16 | C01356 | LANDING GEAR AIR/GND SYS 1 |
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

## G. Steering Centering Test

SUBTASK 32-51-00-860-038

(1) Remove the NLG towing lever pin, SPL-1499, from the towing lever and let the lever move to the PRESSURE ON position.

SUBTASK 32-51-00-010-013

(2) To get access to the rudder quadrant, do this step:

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |



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SUBTASK 32-51-00-860-039

(3) Make sure that the rig pin R3, from the rigging pin kit, SPL-1585, fits freely in the rudder quadrant.

NOTE: This will show that the rudder pedals are in the neutral position.

SUBTASK 32-51-00-730-009

(4) Make sure that the steering angle is 0 ±1.5 degrees on the decal that is on the nose gear shock.

NOTE: The inner cylinder centering cam will put the nose wheels in the center position when the airplane is lifted on jacks. Manual aid may be necessary to make sure the nose gear and cam is in the center position.

(a) If the decal is not on the nose gear shock strut, then make a decal with tape (Figure 501).

SUBTASK 32-51-00-860-040

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-51-00-730-010

(6) Make sure that the nose gear stays centered.

NOTE: If the nose gear moves when the hydraulic system is pressurized, the nose gear steering is not adjusted correctly. There is a disagreement between the steering system and the mechanical centerline position of the nose gear centering cams.

SUBTASK 32-51-00-860-041

(7) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

## H. Do the Test of the Normal Steering Response

SUBTASK 32-51-00-480-013

(1) Make sure that the greased plates are under the nose wheels.

SUBTASK 32-51-00-580-010

(2) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-51-00-860-042

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.



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SUBTASK 32-51-00-860-058

(4) Make sure that one or more main landing gear is in ground mode.

NOTE: The air/ground system needs two inputs to transition into the ground mode.

(a) On the MAX Display System (MDS), go to the 32 PSEU display in the MAINT DATA PGS (TASK 31-65-00-970-801).

1) Make sure that the AIR/GND STATE value for the LEFT GEAR or RIGHT GEAR is NEAR.

SUBTASK 32-51-00-730-011

(5) Make sure that the Captain's tiller control wheel operates correctly:

(a) Turn the Captain's tiller control wheel to operate the nose wheel steering through a minimum of 6 full cycles. Make sure that it operates freely and smoothly.

NOTE: One cycle of the system is from center to full right, then to full left, then back to center.

(b) Make sure that there is no leakage of hydraulic fluid from the nose gear steering tubing and fittings from the landing gear selector valve to the valves on the steering actuators.

(c) Turn the nose wheels with the Captain's tiller control wheel from the CENTER position to the LEFT (CCW) stop position.

1) Make sure that the steering angle is 78 ±1 degrees on the decal that is on the nose gear shock strut.

(d) Release the Captain's tiller control wheel and let it return to the CENTER position.

1) Make sure that the steering angle is at 0 ±1.5 degrees.

(e) Turn the nose wheels with the Captain's tiller control wheel from the CENTER position to the RIGHT (CW) stop position.

1) Make sure that the steering angle is 78 ±1 degrees on the decal that is on the nose gear shock strut.

(f) Release the Captain's tiller control wheel and let it return to the CENTER position.

1) Make sure that the steering angle is at 0 ±1.5 degrees.

SUBTASK 32-51-00-730-032

(6) Do the steps that follow to make sure that the First Officer's tiller control wheel operates correctly:

(a) Turn the First Officer's tiller control wheel to operate the nose wheel steering through a minimum of 6 full cycles.

NOTE: One cycle of the system is from center to full right, then to full left, then back to center.

1) Make sure that the tiller control wheel operates freely and smoothly.

(b) Turn the nose wheels with the First Officer's tiller control wheel from the CENTER position to the LEFT (CCW) stop position.

1) Make sure that the steering angle is 78 ±1 degrees on the decal that is on the nose gear shock strut.

(c) Release the First Officer's tiller control wheel and let it return to the CENTER position.

1) Make sure that the steering angle is at 0 ±1.5 degree.

(d) Turn the nose wheels with the First Officer's tiller control wheel from the CENTER position to the RIGHT (CW) stop position.



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1) Make sure that the steering angle is 78 ±1 degrees on the decal that is on the nose gear shock strut.

(e) Release the First Officer's tiller control wheel and let it return to the CENTER position.

1) Make sure that the steering angle is at 0 ±1.5 degree.

## I. Do the Test for Tiller Control Wheel Torque

SUBTASK 32-51-00-010-009

(1) Remove the cap [1] from the center of the tiller control wheel.

SUBTASK 32-51-00-480-014

(2) Install a dial type torque wrench, STD-1035, on the center of the tiller control wheel.

SUBTASK 32-51-00-730-012

(3) Measure the torque that is necessary to turn the tiller control wheel:

(a) Use the dial type torque wrench, STD-1035, to turn the tiller control wheel LEFT (CCW, 78 degrees). Stop just before you touch the tiller control wheel stop.

(b) Make sure that the torque is in the limit of 60 ±15 in-lb (7 ±2 N·m).

(c) Let the tiller control wheel move back to the CENTER (neutral) position.

(d) Use the dial type torque wrench, STD-1035, to turn the tiller control wheel RIGHT (CW, 78 degrees). Stop just before you touch the tiller control wheel stop.

(e) Make sure that the torque is in the limit of 60 ±15 in-lb (7 ±2 N·m).

(f) Let the tiller control wheel move back to the CENTER (neutral) position.

SUBTASK 32-51-00-080-010

(4) Remove the dial type torque wrench, STD-1035, from the tiller control wheel.

SUBTASK 32-51-00-080-011

(5) Install the cap [1] on the tiller control wheel.

## J. Do the Test of Nose Gear Turn Radius and Response to Full Rudder Pedal Input

SUBTASK 32-51-00-710-005

**WARNING**

BEFORE YOU MOVE THE RUDDER PEDALS, MAKE SURE THAT THE AREA AROUND THE RUDDER IS CLEAR OF ALL PERSONS AND EQUIPMENT. THIS WILL PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Push the Captain's left rudder pedal fully.

(a) Make sure that the steering angle is 7 +1/-2 degrees left turn, on the decal that is on the nose gear shock strut.

SUBTASK 32-51-00-730-016

(2) Release the rudder pedals.

(a) Make sure that the steering angle is at the center, 0 ±1.5 degrees, on the decal that is on the nose gear shock strut.

SUBTASK 32-51-00-730-017

**WARNING**

BEFORE YOU MOVE THE RUDDER PEDALS, MAKE SURE THAT THE AREA AROUND THE RUDDER IS CLEAR OF ALL PERSONS AND EQUIPMENT. THIS WILL PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(3) Push the Captain's right rudder pedal fully.



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(a) Make sure that the steering angle is 7 +1/-2 degrees right turn, on the decal that is on the nose gear shock strut.

SUBTASK 32-51-00-730-018

(4) Release the rudder pedals.

(a) Make sure that the steering angle is at the center, 0 ±1.5 degrees, on the decal that is on the nose gear shock strut.

## K. Do the Nose Gear Steering Tow Test

SUBTASK 32-51-00-860-043

**WARNING** USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Move the towing lever to the "TOW" position and install the NLG towing lever pin, SPL-1499.

SUBTASK 32-51-00-860-044

(2) Remove the apex pin from the torsion links.

SUBTASK 32-51-00-730-019

(3) Install the extension bar, SPL-7306, on the nose landing gear.

(4) Move the steering system manually with the upper torsion link, approximately 10 degrees to the left and right. Return it to the center position.

(a) If the towing valve does not remove pressure from the steering valve. Replace the steering valve, (PAGEBLOCK 32-51-11/401).

NOTE: If the towing valve does not remove pressure from the steering valve, you cannot move the steering system manually with the upper torsion link.

SUBTASK 32-51-00-080-012

**WARNING** MAKE SURE THAT THE NOSE WHEEL STEERING SYSTEM IS IN THE CENTER POSITION. WHEN HYDRAULIC POWER IS ON AND THE TOWING LEVER LOCKPIN IS REMOVED, THE STEERING COLLAR AND TOP TORSION LINK WILL TURN QUICKLY TO CENTER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Remove the extension bar, SPL-7306, from the nose landing gear.

SUBTASK 32-51-00-080-013

(6) Remove the NLG towing lever pin, SPL-1499, from the towing lever. Let the lever move to the PRESSURE ON position.

SUBTASK 32-51-00-860-045

(7) Install the apex pin in the torsion links.

SUBTASK 32-51-00-730-020

(8) Make sure that the steering system operates normally with the tiller control wheel.

## L. Do the Test of the Alternate Steering System

SUBTASK 32-51-00-860-046

(1) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-51-00-010-019

(2) To get access to the P92 panel, open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-51-00-860-047

**WARNING**

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

**WARNING**

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(3) Open this circuit breaker and install safety tag:

**Power Distribution Panel Number 2, P92**

| Row | Col | Number | Name |
|---|---|---|---|
| F | 2 | C01449 | STANDBY HYDRAULIC PUMP |

SUBTASK 32-51-00-860-048

(4) Make sure that the hydraulic system B reservoir is full (TASK 12-12-00-610-801).

SUBTASK 32-51-00-860-049

(5) For hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-51-00-860-050

(6) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

SUBTASK 32-51-00-730-021

(7) On the P2 panel, put the NOSE WHEEL STEER switch to the ALT position.

SUBTASK 32-51-00-730-022

(8) Make sure that the steering system moves correctly with the tiller control wheel.

SUBTASK 32-51-00-730-023

(9) On the P2 panel, put the NOSE WHEEL STEER switch to the NORM position.

SUBTASK 32-51-00-730-024

(10) Make sure that the steering system does not move with the tiller control wheel.



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**M. Do the Test of Air/Ground Mode and Normal Steering Response**

SUBTASK 32-51-00-580-007

(1) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

SUBTASK 32-51-00-730-025

(2) With the nose gear shock strut fully extended, make sure that the steering rotary actuator is in the air mode:

(a) Make sure that the index marks on the rotary actuator pulley and the housing are aligned.

(b) Make sure that the pulley on the rotary actuator is turned fully in the counterclockwise direction.

SUBTASK 32-51-00-730-026

(3) With the airplane on jacks (TASK 07-10-03-580-803), use the nose gear axle jack to compress the nose gear shock strut 2.00 ±0.10 in. (50.80 ±2.54 mm).

NOTE: The dimensions given in this test are all measured from the bottom of the inner diameter of the outer cylinder.

NOTE: The nose gear axle jack is necessary only for testing while the airplane is jacked.

(a) Make sure that the rotary actuator stays in air mode.

SUBTASK 32-51-00-730-027

(4) Continue to compress the nose gear shock strut until the rotary actuator changes to the ground mode.

SUBTASK 32-51-00-730-028

(5) Extend the nose gear shock strut back to 2.00 ±0.10 in. (50.80 ±2.54 mm) of compression.

(a) Make sure that the rotary actuator moves back to the air mode in 8 seconds or less.

SUBTASK 32-51-00-730-029

(6) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-51-00-730-030

(7) Make sure that the rotary actuator changes to the ground mode.

**N. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-51-00-860-051

(1) For hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-860-052

(2) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

SUBTASK 32-51-00-410-007

(3) Install the summing mechanism cover [10] with screws [9], washers [8], and washers [14].



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SUBTASK 32-51-00-410-013

(4) Close this access panel:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-00-860-054

**WARNING**

USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Move the towing lever to the TOW position and install the NLG towing lever pin, SPL-1499.

SUBTASK 32-51-00-860-055

**WARNING**

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

**WARNING**

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(6) Remove the safety tag and close this circuit breaker:

**Power Distribution Panel Number 2, P92**

| Row | Col | Number | Name |
|---|---|---|---|
| F | 2 | C01449 | STANDBY HYDRAULIC PUMP |

SUBTASK 32-51-00-410-021

(7) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-51-00-580-008

(8) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

SUBTASK 32-51-00-080-014

(9) Remove the greased plates from under the nose wheels.

SUBTASK 32-51-00-580-009

(10) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

**END OF TASK**



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**TASK 32-51-00-700-802**

## 9. Nose Wheel Steering System Test (Airplane on Jacks)

(Figure 501)

### A. General

(1) This procedure gives steps to do a test of the nose wheel steering system while the airplane is on jacks.

(2) The test of the nose wheel steering system includes the tests that follow:

(a) A steering centering test to make sure that the steering metering valve is in the null position when the nose gear is mechanically centered

(b) A normal steering response test

(c) A tiller control wheel torque test

(d) A test of the nose gear turn radius and response to full rudder pedal input

(e) A tow test of the nose gear steering to make sure that the nose gear will turn freely with the tow lever in the tow position

(f) A test of the alternate steering system

(g) An air/ground mode test.

(3) You must correctly adjust the nose wheel steering system before you do the system test.

### B. References

| Reference | Title |
|---|---|
| 07-10-03-580-803 | Lift the Nose Landing Gear Axle With Axle Jacks-Handling (P/B 201) |
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-12-00-610-801 | Hydraulic Reservoir Servicing (P/B 301) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 31-65-00-970-801 | System Maintenance Data Pages Function (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-31-000-803 | Nose Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-21-31-400-803 | Nose Landing Gear Torsion Link Connection (P/B 401) |
| 32-51-11 P/B 401 | STEERING METERING VALVE - REMOVAL/INSTALLATION |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |



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(Continued)

| Reference | Description |
|---|---|
| SPL-7306 | Extension Bar - NLG Steering<br>Part #: C32020-1 Supplier: 81205<br>Part #: C32020-15 Supplier: 81205 |
| STD-1035 | Wrench - Torque, Dial Type, 0 to 500 in-lbs (0 to 56.5 N·m) |

**D. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 118 | Electrical and Electronics Compartment - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**E. Access Panels**

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 117A | Electronic Equipment Access Door |

**F. Prepare to Test the Steering System of the Nose Wheel**

SUBTASK 32-51-00-860-077

(1) Make sure that you park the airplane on a flat surface with no crosswinds.

NOTE: Crosswinds can caster the nose gear when the hydraulic system is depressurized.

SUBTASK 32-51-00-480-020

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-51-00-610-002

(3) Service the hydraulic system (TASK 12-12-00-610-801).

SUBTASK 32-51-00-580-011

(4) Do this task: Lift the Airplane Nose with the Nose Jack at Jack Point D, TASK 07-10-21-580-801.

SUBTASK 32-51-00-730-033

(5) Make sure that the torsion links are connected at the apex.



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SUBTASK 32-51-00-860-059

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(6) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-860-060

(7) On the P2 panel, make sure that the LANDING GEAR control lever is in the DN position.

SUBTASK 32-51-00-860-061

(8) Make sure that the NOSE WHEEL STEER switch is in the NORM position.

## G. Do the Steering Centering Test

SUBTASK 32-51-00-860-062

(1) Remove the NLG towing lever pin, SPL-1499, from the towing lever and let the lever move to the PRESSURE ON position.

SUBTASK 32-51-00-010-014

(2) To get access to the rudder quadrant, do this step:

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-00-860-063

(3) Make sure that the rig pin R3, from the rigging pin kit, SPL-1585, fits freely in the rudder quadrant.

NOTE: This will show that the rudder pedals are in the neutral position.

SUBTASK 32-51-00-730-034

(4) Make sure that the steering angle is 0 ±1.5 degrees on the decal that is on the nose gear shock.

NOTE: The inner cylinder centering cam will put the nose wheels in the center position when the airplane is lifted on jacks. Manual assistance may be necessary to make sure that the nose gear and cam is in the center position.

(a) If the decal is not on the nose gear shock strut, then make a decal with tape (Figure 501).

SUBTASK 32-51-00-860-064

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(5) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.



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SUBTASK 32-51-00-730-035

(6) Make sure that the nose gear stays centered.

NOTE: If the nose gear moves when the hydraulic system is pressurized, the nose gear steering is not adjusted correctly. There is a disagreement between the steering system and the mechanical centerline position of the nose gear centering cams.

SUBTASK 32-51-00-860-065

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

## H. Do the Test of the Normal Steering Response

SUBTASK 32-51-00-480-021

(1) Disconnect the torsion link apex joint (TASK 32-21-31-000-803).

(a) Put the airplane in ground mode.

(b) Attach the torsion link assembly to avoid damage during the operation.

SUBTASK 32-51-00-860-066

**WARNING**

MAKE SURE THAT PERSONS AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES BEFORE YOU SUPPLY HYDRAULIC POWER. THE AILERONS, RUDDER, ELEVATORS, FLAPS, SLATS, SPOILERS, LANDING GEAR, AND THRUST REVERSERS CAN MOVE QUICKLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-51-00-210-010

(3) Make sure that one or more main landing gear is in ground mode.

NOTE: The air/ground system needs two inputs to transition into the ground mode.

(a) On the MAX Display System (MDS), go to the 32 PSEU display in the MAINT DATA PGS (TASK 31-65-00-970-801).

1) Make sure that the AIR/GND STATE value for the LEFT GEAR or RIGHT GEAR is NEAR.

SUBTASK 32-51-00-730-036

(4) Make sure that the Captain's tiller control wheel operates correctly:

(a) Turn the Captain's tiller control wheel to operate the nose wheel steering through a minimum of 6 full cycles. Make sure that it operates freely and smoothly.

NOTE: One cycle of the system is from center to full right, then to full left, then back to center.

1) Make sure that the tiller control wheel operates freely and smoothly.



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(b) Make sure that there is no leakage of hydraulic fluid from the nose gear steering tubing and fittings from the landing gear selector valve to the valves on the steering actuators.

(c) Turn the nose wheels with the Captain's tiller control wheel from the CENTER position to the LEFT (CCW) stop position.

1) Make sure that the steering angle is 78 ±2 degrees on the decal that is on the nose gear shock strut.

(d) Release the Captain's tiller control wheel and let it return to the CENTER position.

1) Make sure that the steering angle is at 0 ±1.5 degrees.

(e) Turn the nose wheels with the Captain's tiller control wheel from the CENTER position to the RIGHT (CW) stop position.

1) Make sure that the steering angle is 78 ±2 degrees on the decal that is on the nose gear shock strut.

(f) Release the Captain's tiller control wheel and let it return to the CENTER position.

1) Make sure that the steering angle is at 0 ±1.5 degrees.

**SUBTASK 32-51-00-730-037**

(5) Do the steps that follow to make sure that the First Officer's tiller control wheel operates correctly:

(a) Turn the First Officer's tiller control wheel to operate the nose wheel steering through a minimum of 6 full cycles.

NOTE: One cycle of the system is from center to full right, then to full left, then back to center.

1) Make sure that the tiller control wheel operates freely and smoothly.

(b) Turn the nose wheels with the First Officer's tiller control wheel from the CENTER position to the LEFT (CCW) stop position.

1) Make sure that the steering angle is 78 ±2 degrees on the decal that is on the nose gear shock strut.

(c) Release the First Officer's tiller control wheel and let it return to the CENTER position.

1) Make sure that the steering angle is at 0 ±1.5 degree.

(d) Turn the nose wheels with the First Officer's tiller control wheel from the CENTER position to the RIGHT (CW) stop position.

1) Make sure that the steering angle is 78 ±2 degrees on the decal that is on the nose gear shock strut.

(e) Release the First Officer's tiller control wheel and let it return to the CENTER position.

1) Make sure that the steering angle is at 0 ±1.5 degree.

## I. Do the Test for Tiller Control Wheel Torque

**SUBTASK 32-51-00-010-015**

(1) Remove the cap [1] from the center of the tiller control wheel.

**SUBTASK 32-51-00-480-022**

(2) Install a dial type torque wrench, STD-1035, on the center of the tiller control wheel.

**SUBTASK 32-51-00-730-038**

(3) Measure the torque that is necessary to turn the tiller control wheel:

(a) Use the dial type torque wrench, STD-1035, to turn the tiller control wheel LEFT (CCW, 78 degrees) and stop just before you touch the tiller control wheel stop.



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(b) Make sure that the torque is in the limit of 60 ±15 in-lb (7 ±2 N·m).

(c) Let the tiller control wheel move back to the CENTER (neutral) position.

(d) Use the dial type torque wrench, STD-1035, to turn the tiller control wheel RIGHT (CW, 78 degrees). Stop just before you touch the tiller control wheel stop.

(e) Make sure that the torque is in the limit of 60 ±15 in-lb (7 ±2 N·m).

(f) Let the tiller control wheel move back to the CENTER (neutral) position.

SUBTASK 32-51-00-080-015

(4) Remove the dial type torque wrench, STD-1035, from the tiller control wheel.

SUBTASK 32-51-00-410-011

(5) Install the cap [1] on the tiller control wheel.

## J. Do the Test of Nose Gear Turn Radius and Response to Full Rudder Pedal Input

SUBTASK 32-51-00-480-023

(1) Make sure that the airplane nose gear is in ground mode.

NOTE: The air/ground system needs two inputs to transition into the ground mode. Both of the nose gear sensors are in ground mode by installing actuator (target) on ground proximity sensor or holding the upper torsion link in the ground position.

(a) Make sure that a minimum of one of the main gears is in ground mode.

**WARNING**

BEFORE YOU MOVE THE RUDDER PEDALS, MAKE SURE THAT THE AREA AROUND THE RUDDER IS CLEAR OF ALL PERSONS AND EQUIPMENT. THIS WILL PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Push the Captain's left rudder pedal fully.

(a) Make sure that the steering angle is 7 +1/-2 degrees left turn, on the decal that is on the nose gear shock strut.

SUBTASK 32-51-00-730-039

(3) Release the rudder pedals.

(a) Make sure that the steering angle is at the center, 0 ±1.5 degrees, on the decal that is on the nose gear shock strut.

SUBTASK 32-51-00-730-040

**WARNING**

BEFORE YOU MOVE THE RUDDER PEDALS, MAKE SURE THAT THE AREA AROUND THE RUDDER IS CLEAR OF ALL PERSONS AND EQUIPMENT. THIS WILL PREVENT INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(4) Push the Captain's right rudder pedal fully.

(a) Make sure that the steering angle is 7 +1/-2 degrees right turn, on the decal that is on the nose gear shock strut.

SUBTASK 32-51-00-730-041

(5) Release the rudder pedals.

(a) Make sure that the steering angle is at the center, 0 ±1.5 degrees, on the decal that is on the nose gear shock strut.



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## K. Do the Nose Gear Steering Tow Test

SUBTASK 32-51-00-860-067

**WARNING** USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(1) Move the towing lever to the "TOW" position and install the NLG towing lever pin, SPL-1499.

SUBTASK 32-51-00-730-042

(2) Install the extension bar, SPL-7306, on the nose landing gear.

SUBTASK 32-51-00-730-054

(3) Move the steering system manually with the upper torsion link, approximately 10 degrees to the left and right. Then return it to the center position.

(a) If the towing valve does not remove pressure from the steering valve, replace the steering valve, (PAGEBLOCK 32-51-11/401)

NOTE: If the towing valve does not remove pressure from the steering valve, you cannot move the steering system manually with the upper torsion link.

SUBTASK 32-51-00-730-043

**WARNING** MAKE SURE THAT THE NOSE WHEEL STEERING SYSTEM IS IN THE CENTER POSITION. WHEN HYDRAULIC POWER IS ON AND THE TOWING LEVER LOCKPIN IS REMOVED, THE STEERING COLLAR AND TOP TORSION LINK WILL TURN QUICKLY TO CENTER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(4) Remove the extension bar, SPL-7306, from the nose landing gear.

SUBTASK 32-51-00-080-016

(5) Remove the NLG towing lever pin, SPL-1499, from the towing lever. Let the lever move to the PRESSURE ON position.

SUBTASK 32-51-00-730-044

(6) Make sure that the steering system operates normally with the tiller control wheel.

## L. Do the Test of the Alternate Steering System

SUBTASK 32-51-00-860-068

(1) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-010-018

(2) To get access to the P92 panel, open this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-51-00-860-069

**WARNING** WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.



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**(WARNING PRECEDES)**

**WARNING**

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(3) Open this circuit breaker and install safety tag:

**Power Distribution Panel Number 2, P92**

| Row | Col | Number | Name |
|---|---|---|---|
| F | 2 | C01449 | STANDBY HYDRAULIC PUMP |

SUBTASK 32-51-00-610-003

(4) Make sure that the hydraulic system B reservoir is full (TASK 12-12-00-610-801).

SUBTASK 32-51-00-860-070

(5) For hydraulic system B, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-51-00-860-071

(6) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

SUBTASK 32-51-00-730-045

(7) On the P1 captain's panel, put the NOSE WHEEL STEER switch to the ALT position.

SUBTASK 32-51-00-730-046

(8) Make sure that the steering system moves correctly with the tiller control wheel.

SUBTASK 32-51-00-730-047

(9) On the P1 captain's panel, put the NOSE WHEEL STEER switch to the NORM position.

SUBTASK 32-51-00-730-048

(10) Make sure that the steering system does not move with the tiller control wheel.

## M. Do the Test of Air/Ground Mode and Normal Steering Response

SUBTASK 32-51-00-480-024

(1) Connect the torsion link apex pin (TASK 32-21-31-400-803).

SUBTASK 32-51-00-730-049

(2) With the nose gear shock strut fully extended, make sure that the steering rotary actuator is in the air mode:

(a) Make sure that the index marks on the rotary actuator pulley and the housing are aligned.

(b) Make sure that the pulley on the rotary actuator is turned fully in the counterclockwise direction.



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SUBTASK 32-51-00-730-050

(3) With the airplane on jacks (TASK 07-10-03-580-803), use the nose gear axle jack to compress the nose gear shock strut 2.00 ±0.10 in. (50.80 ±2.54 mm). Make sure that the rotary actuator stays in the air mode.

NOTE: The dimensions given in this test are all measured from the bottom of the inner diameter of the outer cylinder.

NOTE: The nose gear axle jack is necessary only for testing while the airplane is jacked.

SUBTASK 32-51-00-730-051

(4) Continue to compress the nose gear shock strut until the rotary actuator changes to the ground mode.

SUBTASK 32-51-00-730-052

(5) Extend the nose gear shock strut back to 2.00 ±0.10 in. (50.80 ±2.54 mm) of compression. Make sure that the rotary actuator moves back to the air mode in 8 seconds or less.

SUBTASK 32-51-00-580-012

(6) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-51-00-730-053

(7) Make sure that the rotary actuator changes to the ground mode.

## N. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-00-860-072

(1) For hydraulic system B, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-00-860-073

(2) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

SUBTASK 32-51-00-410-012

(3) Install the summing mechanism cover [10] with screws [9], washers [8], and washers [14].

SUBTASK 32-51-00-410-014

(4) Close this access panel:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-00-860-074

**WARNING** USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Move the towing lever to the TOW position and install the NLG towing lever pin, SPL-1499.



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SUBTASK 32-51-00-860-075

**WARNING**

WHEN YOU OPEN THE P91 AND P92 PANELS, MAKE SURE THAT THE OUTER DOOR STAYS AS OPEN AS POSSIBLE. IF THE OUTER DOOR TURNS IN, THE ATTACHED DOOR COMPONENTS COULD TOUCH THE INNER DOOR COMPONENTS. THIS CAN CAUSE AN ARC CONDITION WHEN YOU SUPPLY POWER. IF YOU DO NOT OBEY, DAMAGE TO EQUIPMENT AND INJURY TO PERSONNEL CAN OCCUR.

**WARNING**

DO NOT TOUCH THE CONDUCTORS IN THE P91 AND P92 PANELS. BE CAREFUL WHEN YOU GET ACCESS TO THE CIRCUIT BREAKERS ON THE INNER SIDE OF THE P91 AND P92 PANELS (ROW F). IF IT IS POSSIBLE, REMOVE AIRPLANE ELECTRICAL POWER FIRST. THE P91 AND P92 PANELS HAVE HIGH VOLTAGES AND CURRENTS. ELECTRICAL VOLTAGE AND CURRENT CAN KILL YOU OR CAUSE INJURIES.

(6) Remove the safety tag and close this circuit breaker:

**Power Distribution Panel Number 2, P92**

| Row | Col | Number | Name |
|---|---|---|---|
| F | 2 | C01449 | STANDBY HYDRAULIC PUMP |

SUBTASK 32-51-00-410-020

(7) Close this access panel:

| Number | Name/Location |
|---|---|
| 117A | Electronic Equipment Access Door |

SUBTASK 32-51-00-080-017

(8) If used, remove the actuator (target) from the proximity sensor.

SUBTASK 32-51-00-580-013

(9) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

**END OF TASK**



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## NOSE WHEEL STEERING SYSTEM - INSPECTION/CHECK

### 1. General

A. This task has the data for a detailed visual inspection of the nose wheel steering system mechanism.

**TASK 32-51-00-200-801**

### 2. Nose Wheel Steering System Mechanism Inspection

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**C. Access Panels**

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

**D. Prepare for the Inspection**

**SUBTASK 32-51-00-480-017**

**WARNING** MAKE SURE THE LANDING GEAR DOWNLOCK PINS ARE INSTALLED. THIS WILL PREVENT ACCIDENTAL RETRACTION OF THE LANDING GEAR, INJURY TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.



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SUBTASK 32-51-00-860-057

**WARNING** REMOVE HYDRAULIC POWER FOR THE NOSE WHEEL STEERING BEFORE YOU DO THE CHECK. HYDRAULIC POWER CAN CAUSE THE NOSE WHEELS TO MOVE. INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT CAN OCCUR.

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

## E. Nose Wheel Steering System Mechanism Inspection

SUBTASK 32-51-00-010-010

(1) Open the access panels to get access to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-020-801).

(a) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-00-010-011

(2) Remove the Map/Chart Light Control Module.

NOTE: It may be necessary to use an inspection mirror to do the inspection through the Map/Chart Light Control Module opening.

SUBTASK 32-51-00-010-012

(3) Remove the screws [1], washers [2], washers [3], and summing mechanism cover [4].

SUBTASK 32-51-00-210-009

(4) Do a detailed visual inspection of the mechanical control path for the nose wheel steering system mechanism.

## F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-00-410-008

(1) Install the summing mechanism cover [4] with the washers [2], washers [3], and screws [1].

SUBTASK 32-51-00-410-009

(2) Close the access panels to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-420-801).

(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

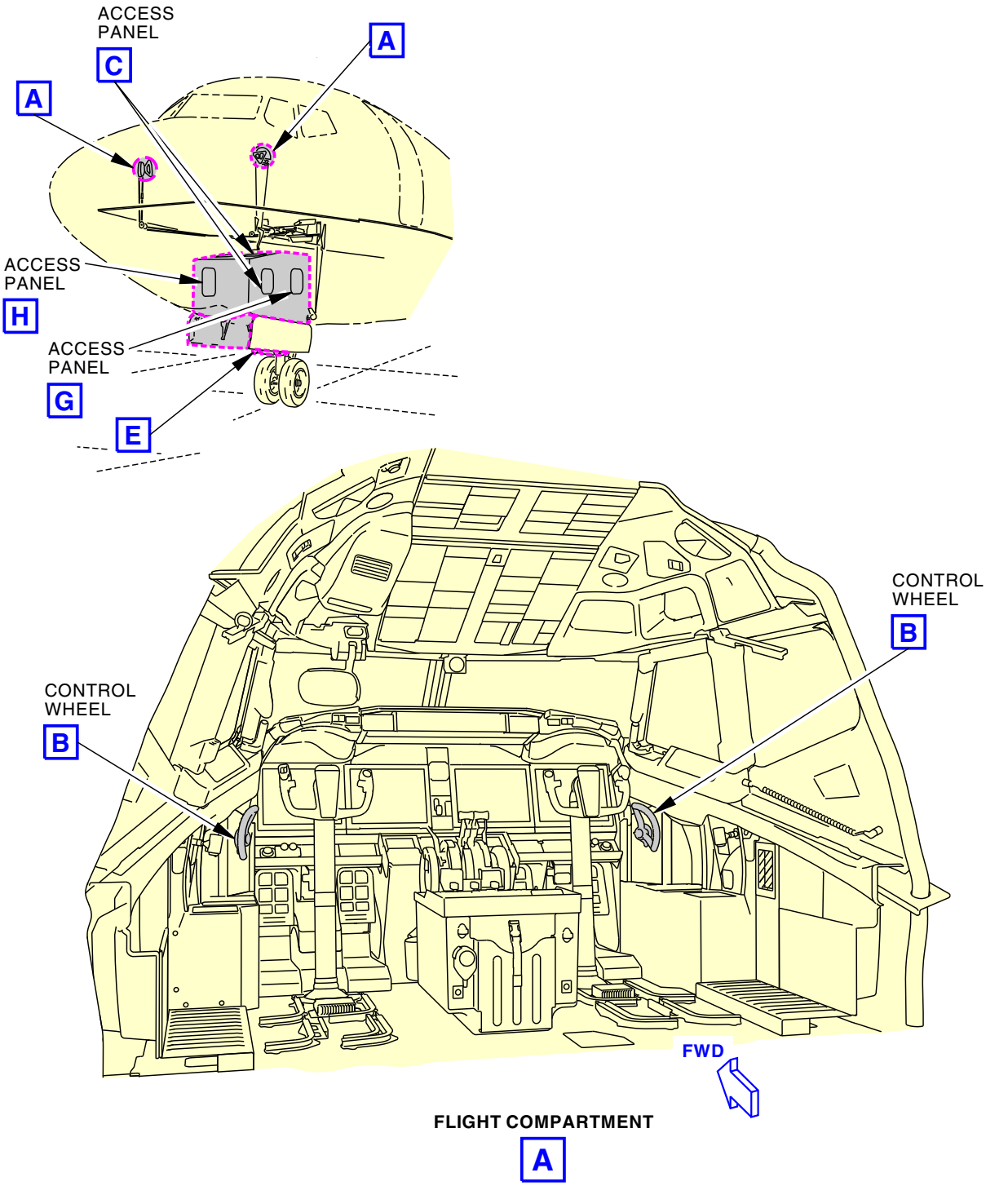
SUBTASK 32-51-00-410-010

(3) Install the Map/Chart Light Control Module.

**END OF TASK**



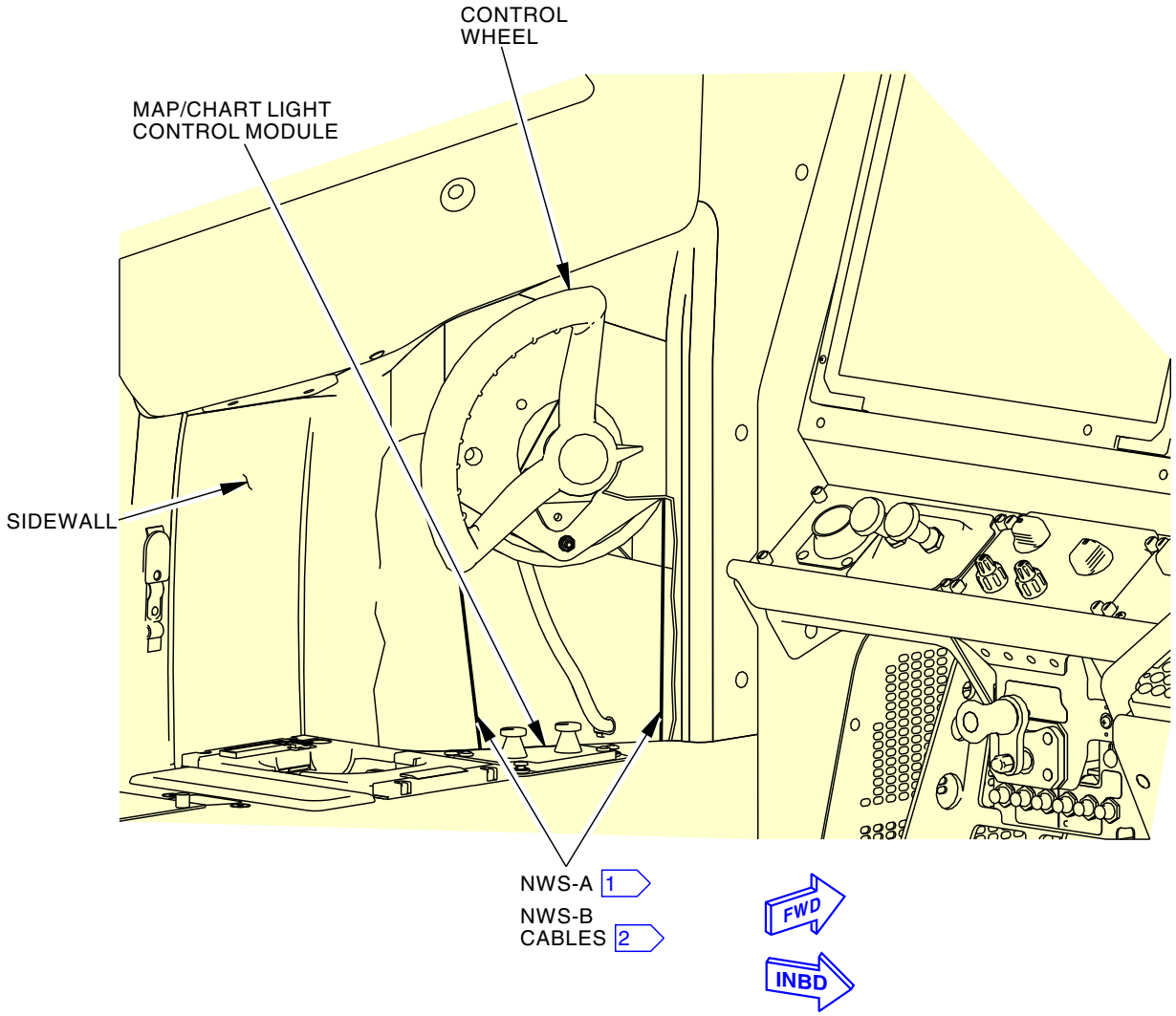
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**Nose Wheel Steering System Mechanism Inspection**
**Figure 601/32-51-00-990-803 (Sheet 1 of 7)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**CAPTAIN'S CONTROL WHEEL**
**(FIRST OFFICER'S CONTROL WHEEL IS EQUIVALENT)**

**B**

1 NWS-A CABLE IS INSTALLED FORWARD FOR CAPTAIN'S CONTROL WHEEL.

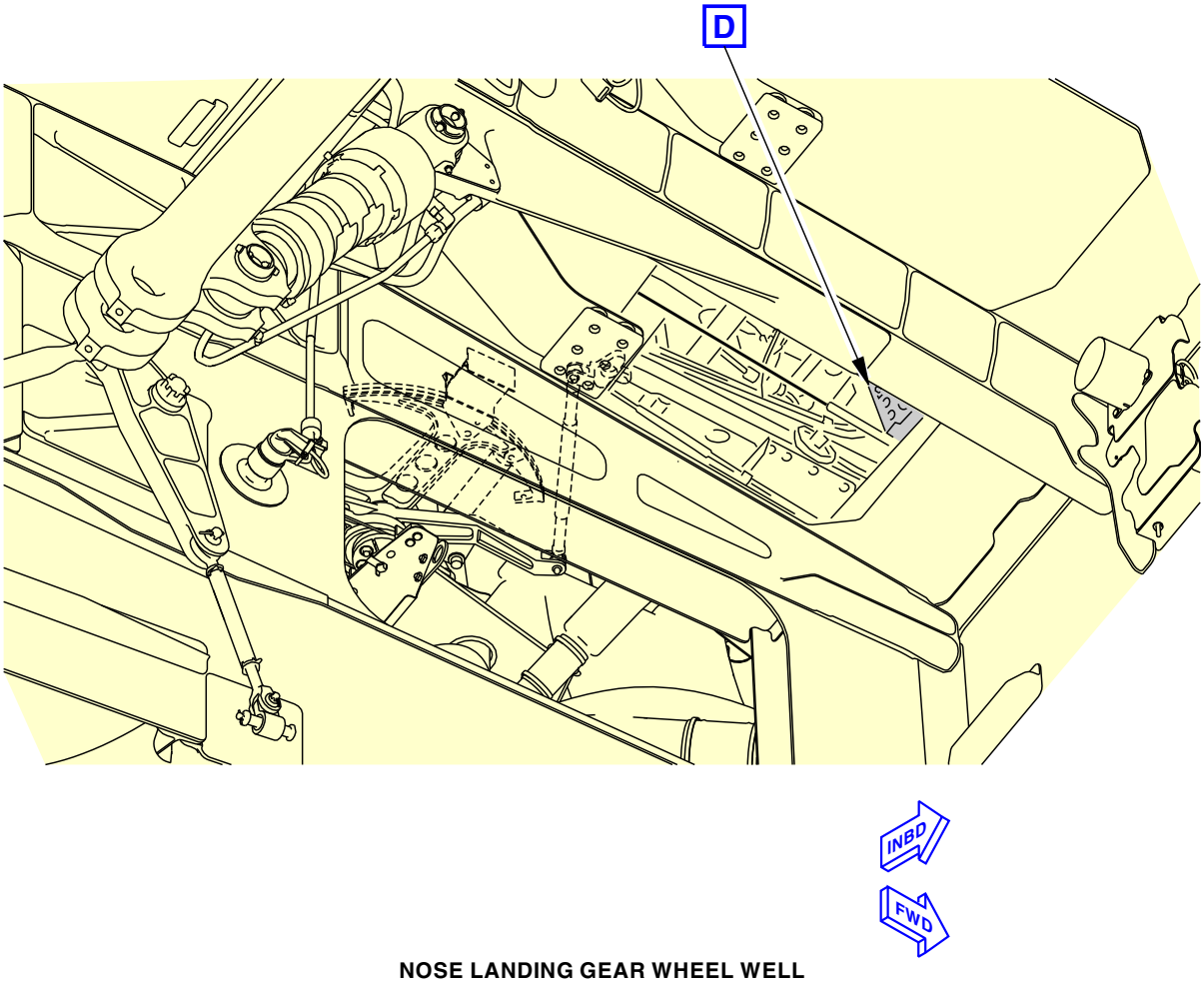
2 NWS-B CABLE IS INSTALLED FORWARD FOR FIRST OFFICER'S CONTROL WHEEL.

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**Nose Wheel Steering System Mechanism Inspection**
**Figure 601/32-51-00-990-803 (Sheet 2 of 7)**



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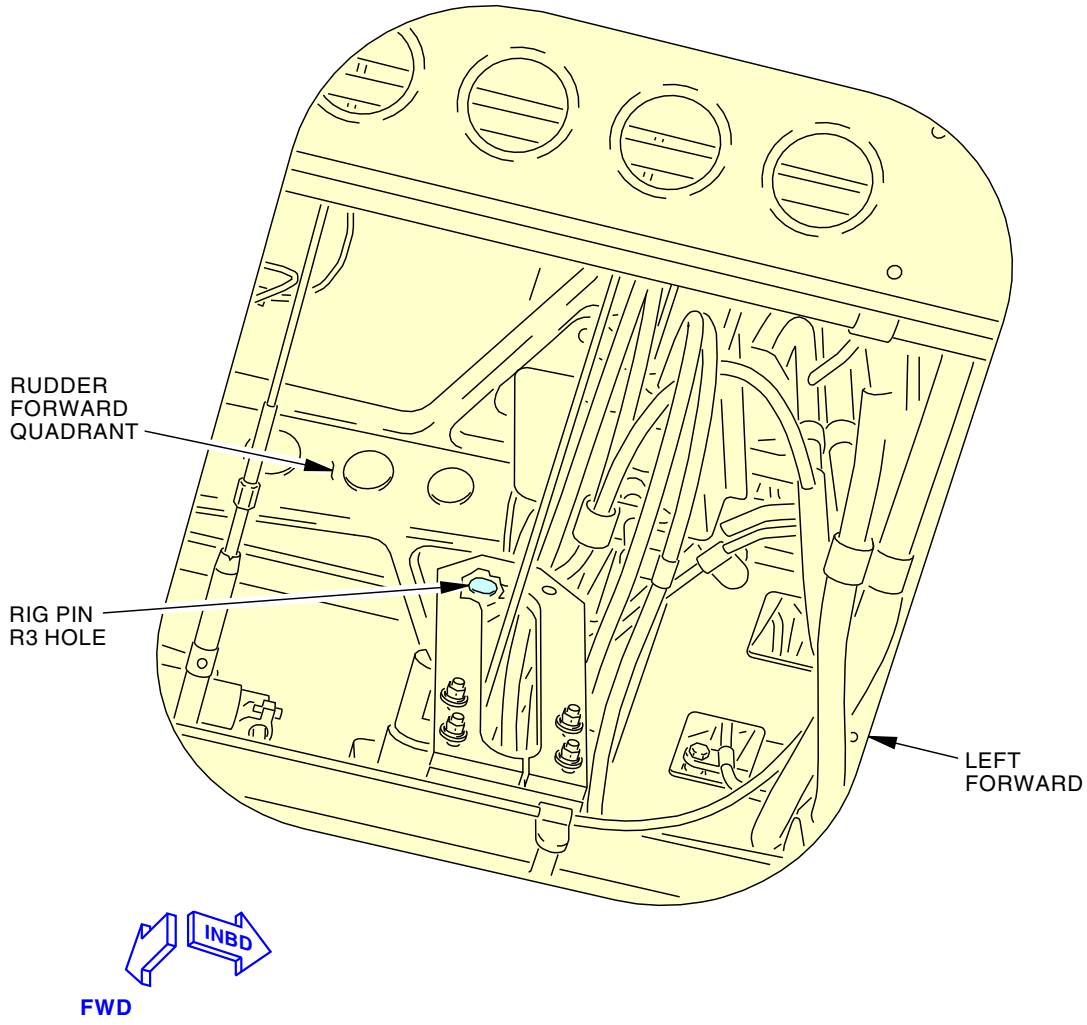



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**Nose Wheel Steering System Mechanism Inspection**
**Figure 601/32-51-00-990-803 (Sheet 3 of 7)**



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**CAPTAIN'S RUDDER FORWARD QUADRANT**

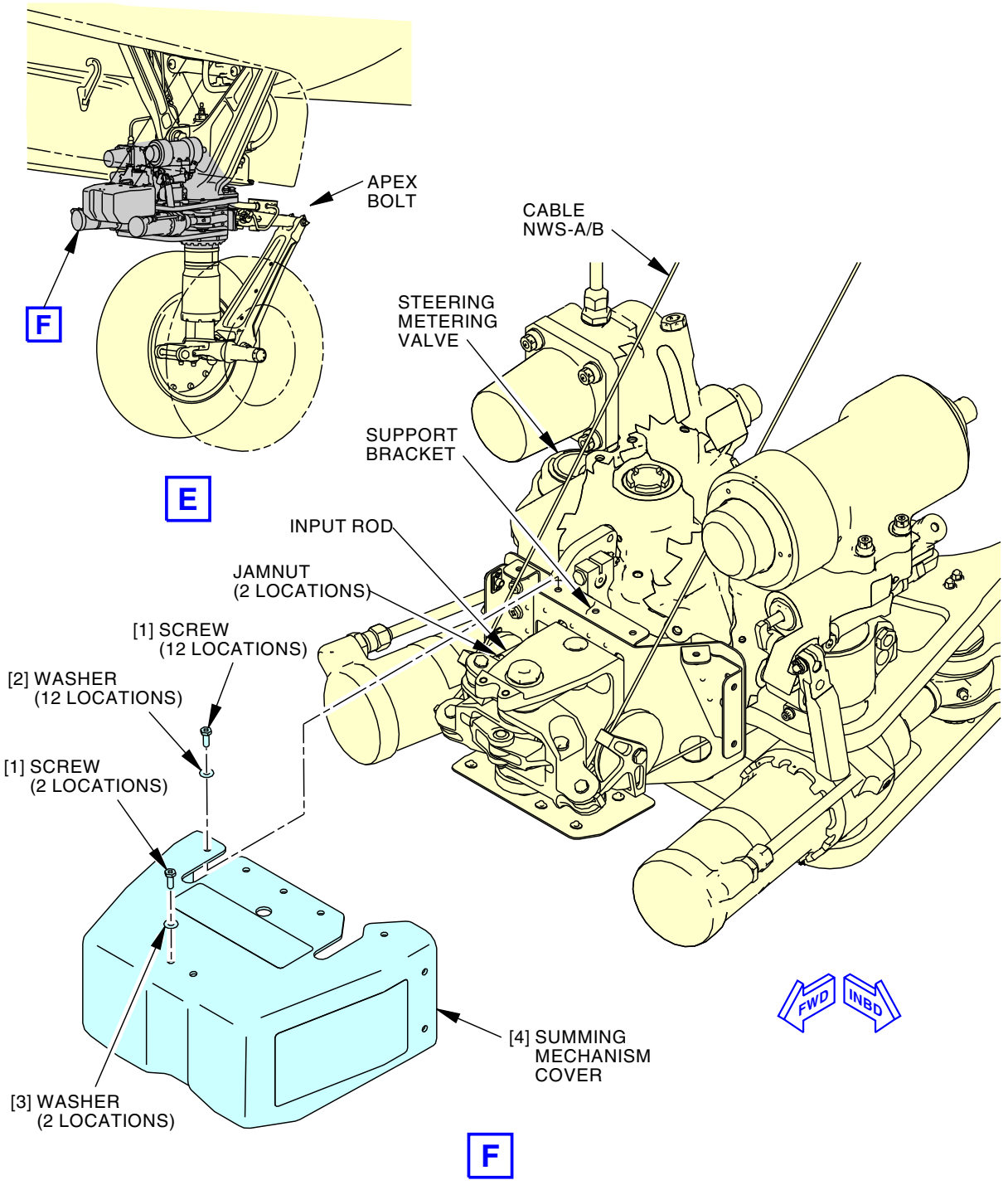
**D**

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**Nose Wheel Steering System Mechanism Inspection**
**Figure 601/32-51-00-990-803 (Sheet 4 of 7)**



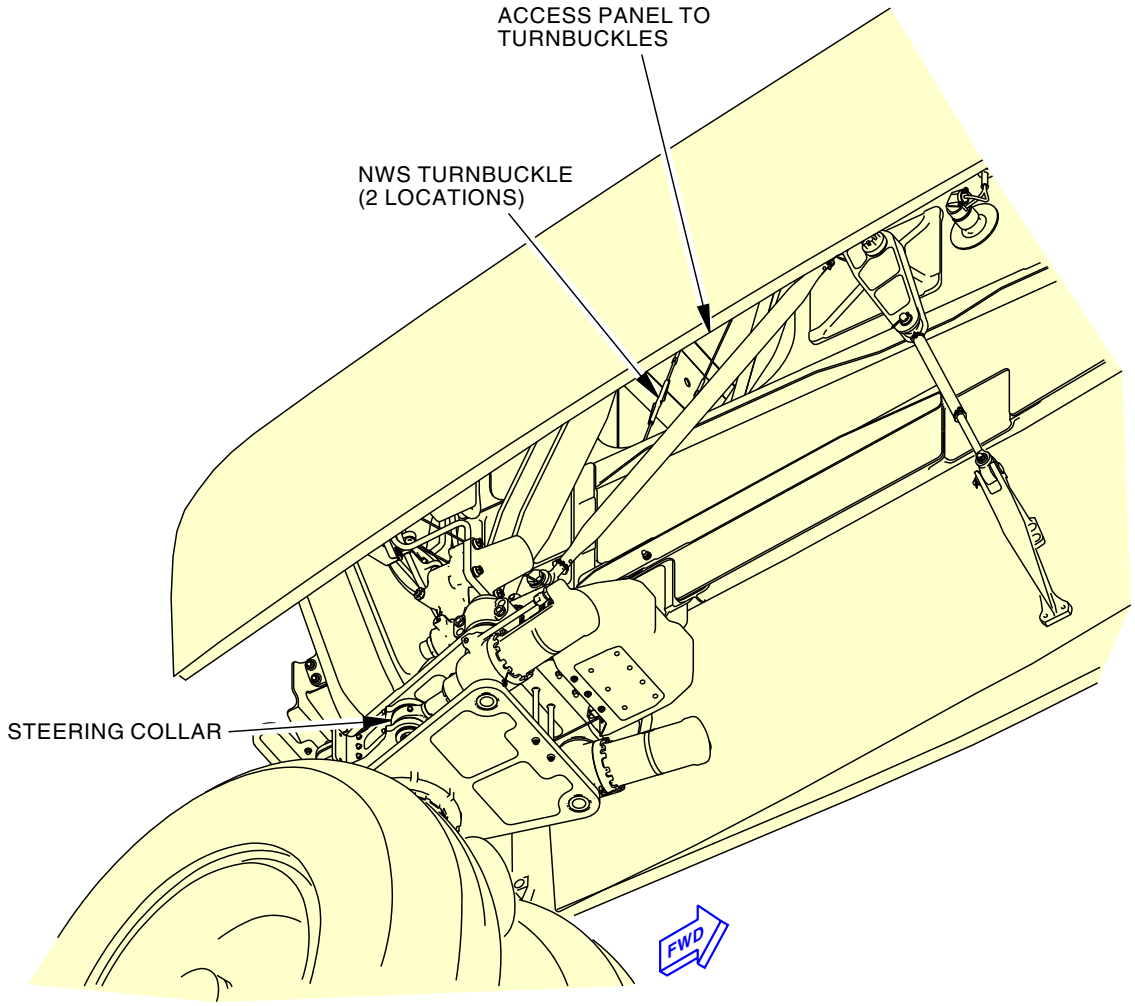
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Wheel Steering System Mechanism Inspection**
**Figure 601/32-51-00-990-803 (Sheet 5 of 7)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



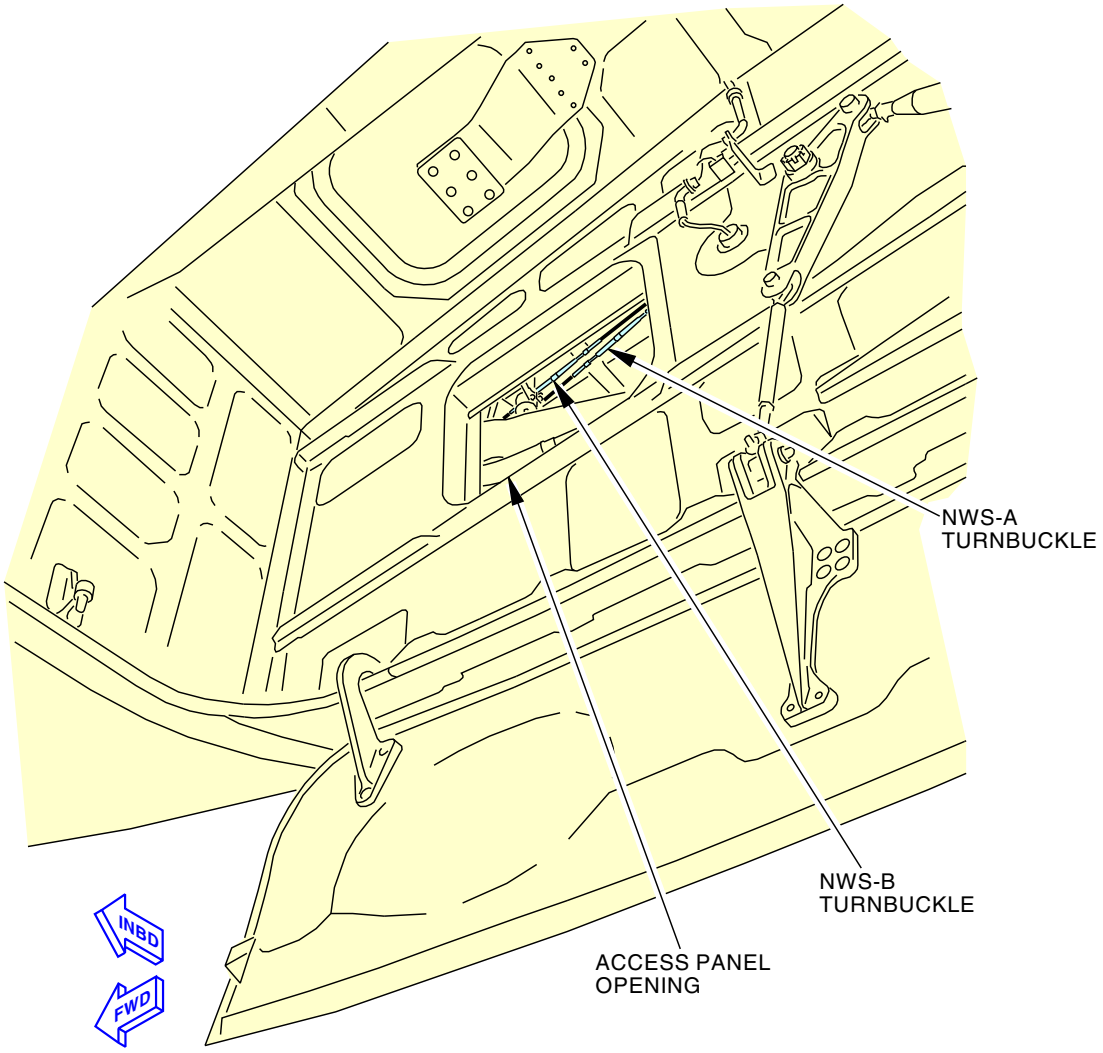

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**Nose Wheel Steering System Mechanism Inspection**
**Figure 601/32-51-00-990-803 (Sheet 6 of 7)**



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**NOSE LANDING GEAR WHEEL WELL**

H

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**Nose Wheel Steering System Mechanism Inspection**
**Figure 601/32-51-00-990-803 (Sheet 7 of 7)**



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# NOSE WHEEL STEERING - MAINTENANCE PRACTICES

## 1. General

A. This procedure gives instructions to clean the nose wheel steering towing lever [1], crank [2], and plunger [3].

**TASK 32-51-11-100-801**

## 2. Clean the Exterior Surfaces of the Towing Lever Assembly

### A. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| B00130 | Alcohol - Isopropyl | TT-I-735 |
| G00034 | Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze) | AMS3819 Class 1 Grade A or B Form 1 (Supersede BMS15-5 CL A) |

### D. Prepare for Cleaning

**SUBTASK 32-51-11-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlocks are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

### E. Clean the Exterior Surfaces of the Towing Lever Assembly

**SUBTASK 32-51-11-100-001**

**CAUTION** DO NOT TRY TO DISASSEMBLE THE TOWING LEVER PLUNGER TO CLEAN IT. DAMAGE TO INTERNAL COMPONENTS WILL OCCUR.

(1) Use a clean cotton wiper, G00034, moistened in alcohol, B00130, to clean the towing lever [1], crank [2] and plunger [3] to remove dirt, grease and grime.

NOTE: alcohol, B00130, is the most effective cleaner that will not damage the valve seals and finishes.

(a) If it is necessary, disassemble the crank [2] and towing lever [1]:


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1) Remove the nut, washer and bolt from the crank [2] and remove the towing lever [1].
2) Remove the crank [2] and cup washer (if installed), from the valve housing.
3) Clean the bushings in the valve housing and the area between them.
4) Install the crank [2] into the valve housing.
5) Install the cup washer (if installed) and towing lever [1] onto the crank [2] splines.
   a) Orient the splines so that the bolt can be installed though the hole in the towing lever [1].
   b) Use a rig pin, from the rigging pin kit, SPL-1585, to line up the holes in the manifold and crank [2].
6) Install the bolt with washer under head through the towing lever [1] and crank [2].
7) Install the remaining washer onto the bolt, then install the nut.
   a) Install a rig pin, from the rigging pin kit, SPL-1585, to hold the towing lever [1] in position.
8) Tighten the nut to 42.5 ±2.5 in-lb (4.8 ±0.3 N·m), as necessary to line up the slot in the nut with the hole in the bolt.
9) Install the cotter pin.

**SUBTASK 32-51-11-212-001**

(2) Do a check of the operation of the towing lever [1] and plunger [3].

NOTE: Lubrication of the towing lever [1] or plunger [3] is not recommended as this will attract dirt and grime.

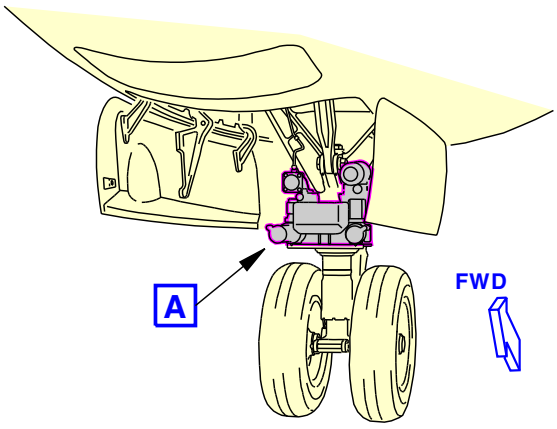
(a) Make sure the towing lever [1] and plunger [3] return to the normal position when released.

(b) Make sure there is no external leakage or evidence of instability, sticking or binding of the towing lever [1].

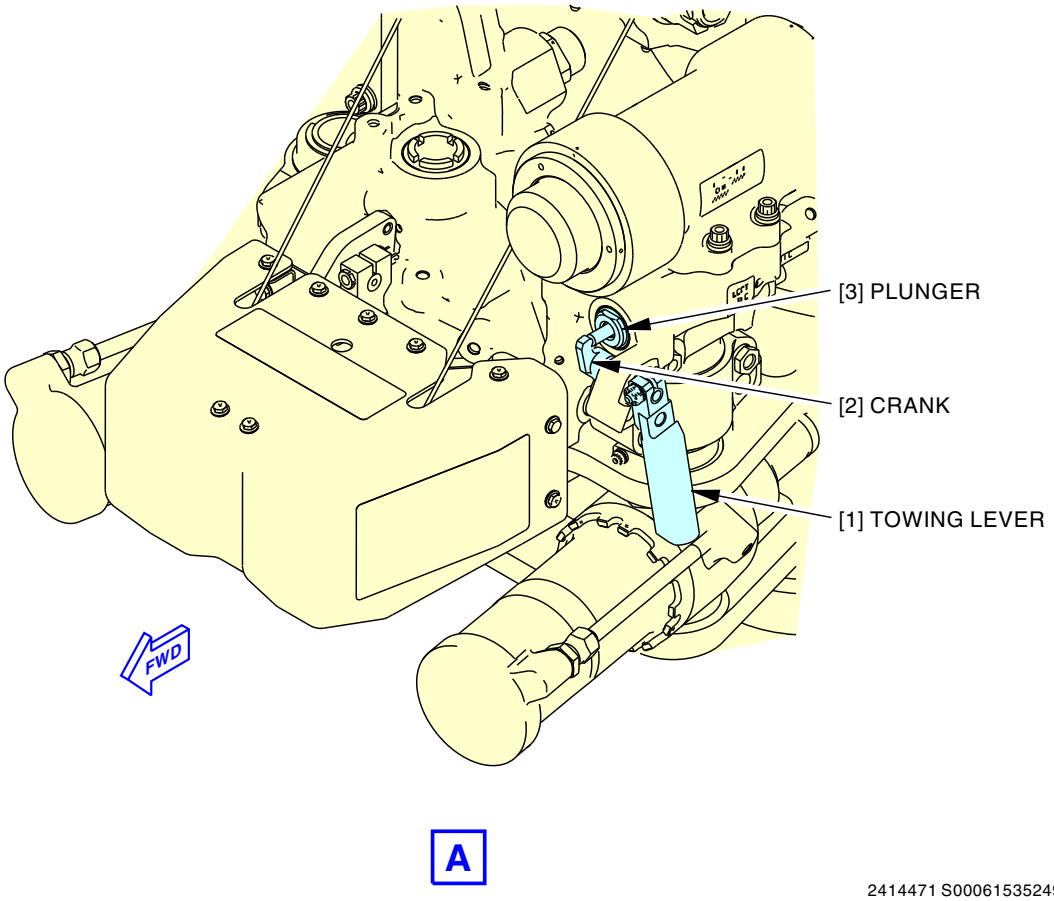
**——— END OF TASK ———**



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NOSE LANDING GEAR




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**Nose Wheel Steering System - Towing Lever Assembly**
**Figure 201/32-51-11-990-801**



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## STEERING METERING VALVE - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the steering metering valve

(2) An installation of the steering metering valve.

**TASK 32-51-11-000-801**

### 2. Steering Metering Valve Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 20-10-20-800-801 | Cap and Plug Hydraulic Fittings (P/B 201) |
| 29-09-00-860-802 | Hydraulic Reservoirs Depressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

#### D. Prepare for the Removal

**SUBTASK 32-51-11-480-002**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-51-11-860-001**

(2) Make sure that the wheels of the nose landing gear are in the centered position.

**SUBTASK 32-51-11-480-003**

(3) Install this rig pin from the rigging pin kit, SPL-1585:



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(a) Rig pin 4 in the summing mechanism.

SUBTASK 32-51-11-860-002

(4) Remove the pressure from hydraulic system A (TASK 29-11-00-860-805).

SUBTASK 32-51-11-860-011

(5) For hydraulic system A, do this task: Hydraulic Reservoirs Depressurization, TASK 29-09-00-860-802.

SUBTASK 32-51-11-860-003

(6) Move the towing lever, on the forward side of the nose landing gear, to the TOW position.

SUBTASK 32-51-11-860-004

**WARNING** ONLY USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(7) Install the NLG towing lever pin, SPL-1499, through the towing lever.

NOTE: You use the NLG Towing Lever Lock Pin to hold the towing lever in the TOW position.

## E. Steering Metering Valve Removal

SUBTASK 32-51-11-020-020

(1) Disconnect the lower nose gear door actuating rod from the left nose gear door center hinge.

NOTE: This will allow the door to swing outboard and provide clearance to remove the steering valve.

SUBTASK 32-51-11-010-002

(2) Remove the screws [4], washers [5], and washers [37] that hold the summing mechanism cover [10] to the summing mechanism bracket.

SUBTASK 32-51-11-010-003

(3) Remove the screws [9] and washers [5] that hold the support bracket to the steering metering valve [7].

SUBTASK 32-51-11-020-002

(4) Remove the nut [23], washer [5], bushing [24], and bolt [25] to disconnect the link assembly [6] from the input lever on the steering metering valve [7].

SUBTASK 32-51-11-020-003

(5) Disconnect and remove the hydraulic lines [11] from the steering metering valve [7] and swivel at the right gear trunnion.

SUBTASK 32-51-11-480-004

(6) Install caps/plugs, STD-14686, on the hydraulic lines [11], swivel, and ports on the steering metering valve [7] (TASK 20-10-20-800-801).

SUBTASK 32-51-11-020-004

(7) Remove the lockwire from the bolts [20].

SUBTASK 32-51-11-020-005

(8) Remove the bolts [20] and washers [18] that hold the steering metering valve [7] to the top and bottom support plates.

SUBTASK 32-51-11-020-006

(9) Remove the nuts [14], washers [15], washers [18], and bolts [19] that hold the steering metering valve [7] to the top support plate.



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SUBTASK 32-51-11-020-007

**CAUTION**

THE STEERING METERING VALVE IS TOP HEAVY. THE VALVE WILL FLIP OUT OF YOUR HOLD. BE CAREFUL NOT TO DROP AND DAMAGE THE STEERING METERING VALVE.

(10) Remove the nuts [16], bolts [22], washers [21], and clamps [17] that attach the swivel valves to the steering actuator trunnions.

(a) Make sure that the area around and in the trunnions is clean before the hydraulic ports are open to prevent contamination.

NOTE: The hydraulic ports will be open when you remove the steering metering valve from the actuator trunnions.

(b) Lift off the steering metering valve [7].

1) Pass the valve under the steering cables to the left side of the aircraft.

(c) Be careful when you remove the steering metering valve [7] to prevent contamination of the open hydraulic ports.

(d) Install lockwire in the top of the swivel valves to keep them in the steering metering valve [7].

**CAUTION**

DO NOT REMOVE THE SWIVEL VALVES FROM THE STEERING METERING VALVE. IF YOU DO NOT OBEY, DAMAGE TO THE MATING SURFACES OF THE SWIVEL VALVES AND THE STEERING METERING VALVE CAN OCCUR.

1) Do not remove the swivel valves from the steering metering valve [7].

SUBTASK 32-51-11-480-005

(11) Install caps/plugs, STD-14686, in the open hydraulic ports for the swivel valves (that are part of the steering metering valve [7]) and actuator trunnions (TASK 20-10-20-800-801).

SUBTASK 32-51-11-020-008

(12) Remove the union [12] and packings [13] from the steering metering valve [7].

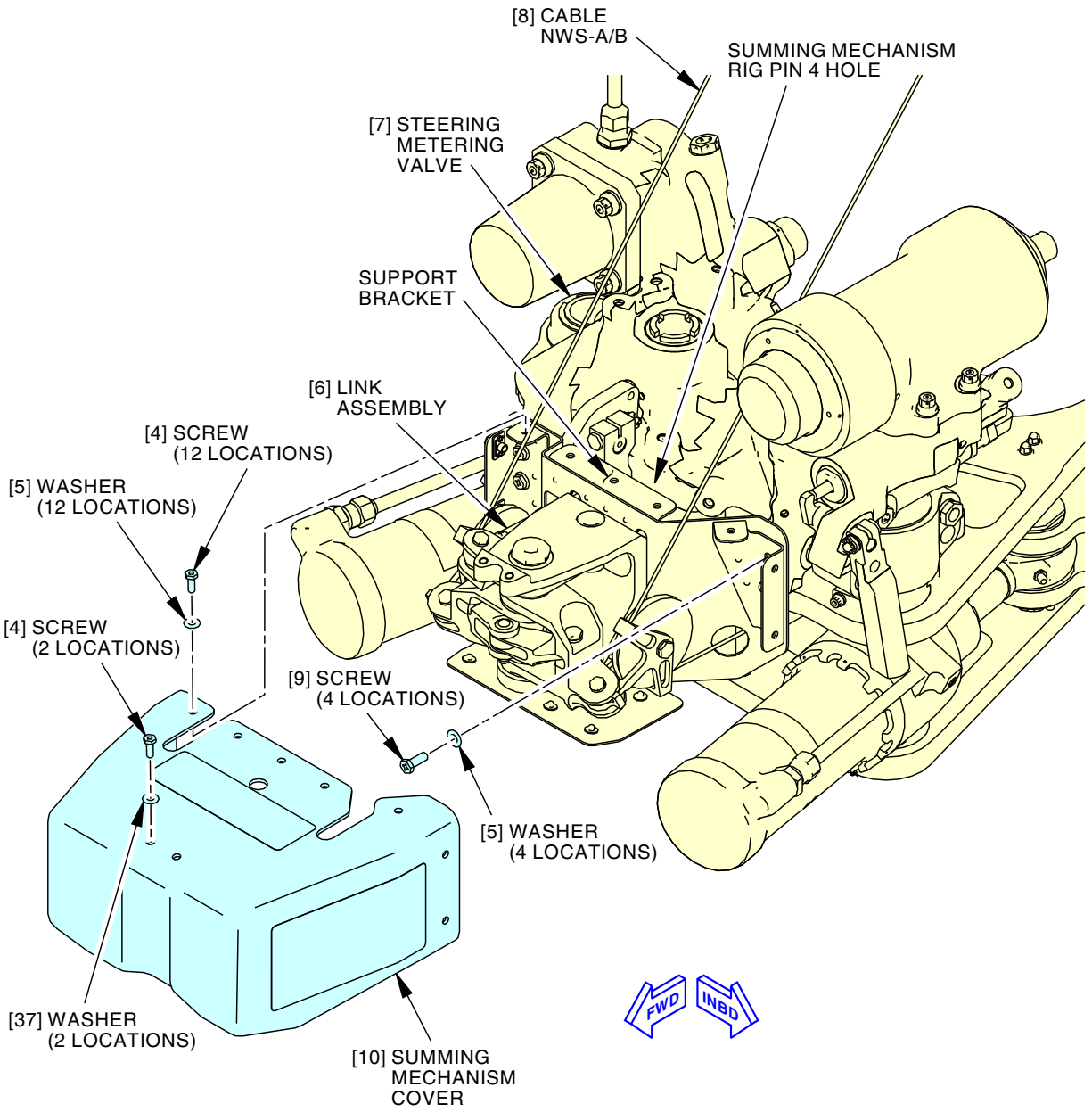
SUBTASK 32-51-11-480-006

(13) Install caps/plugs, STD-14686, in the ports (TASK 20-10-20-800-801).

**END OF TASK**



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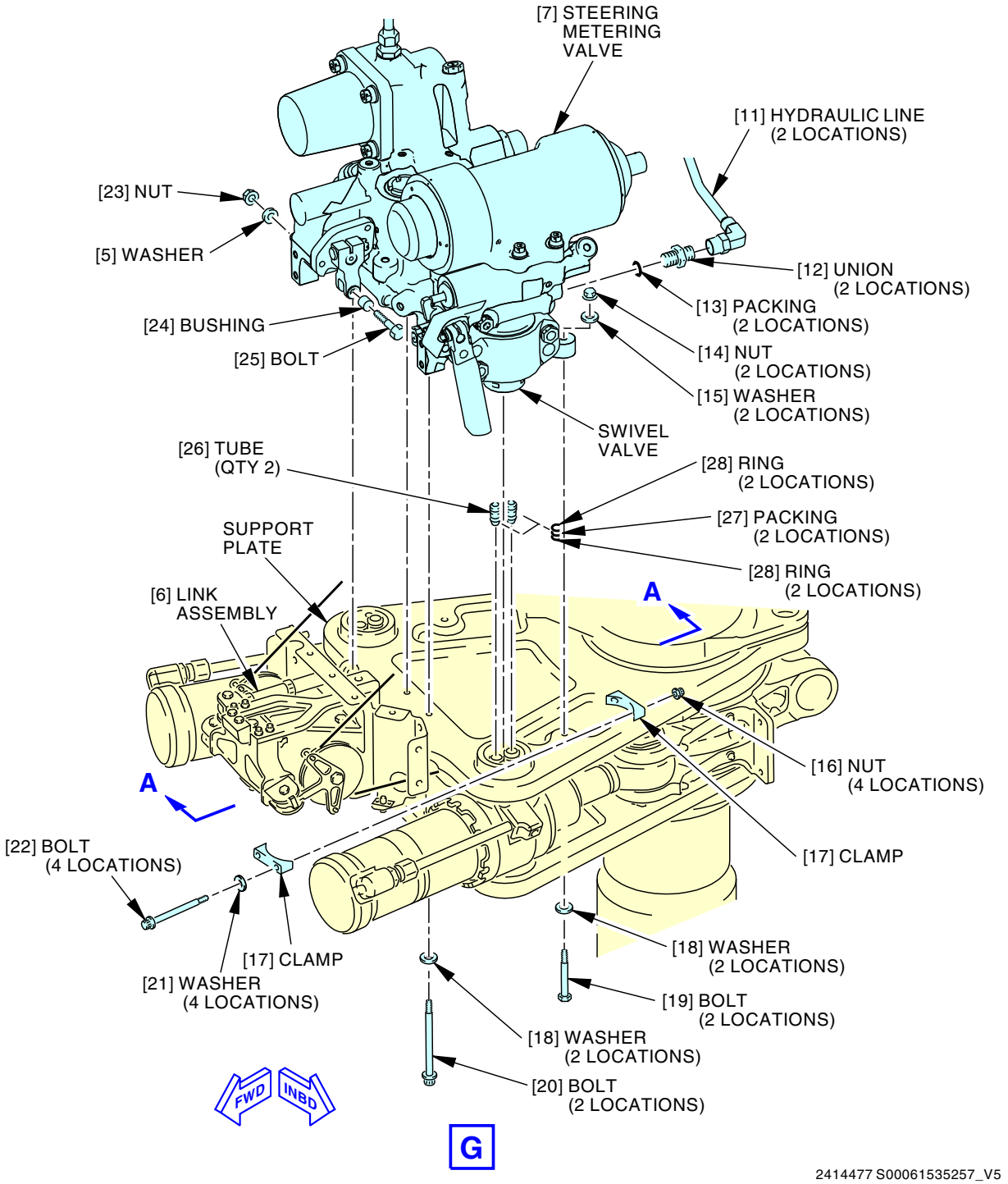



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**Steering Metering Valve Installation**
**Figure 401/32-51-11-990-802 (Sheet 1 of 3)**



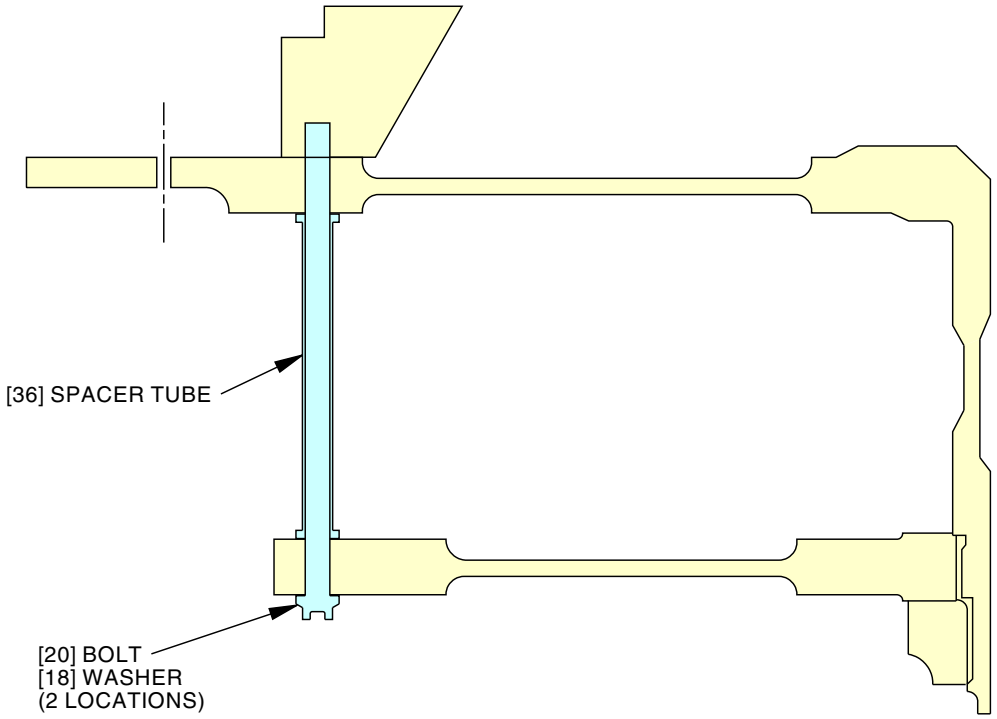
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Steering Metering Valve Installation**
**Figure 401/32-51-11-990-802 (Sheet 2 of 3)**



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**Steering Metering Valve Installation**
**Figure 401/32-51-11-990-802 (Sheet 3 of 3)**



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**TASK 32-51-11-400-801**

## 3. Steering Metering Valve Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 20-10-20-800-801 | Cap and Plug Hydraulic Fittings (P/B 201) |
| 20-10-44-400-801 | Lockwire, Cotter Pins, and Lockrings - Installation (P/B 401) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G02166 | Lockwire - MS20995NC20, Monel - 0.020 Inch (0.508 mm) Diameter | NASM20995 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 7 | Steering metering valve | 32-51-11-01-070 | SIA ALL |
| 13 | Packing | 32-51-11-01-065 | SIA ALL |
| 27 | Packing | 32-51-51-01-105 | SIA ALL |
| 28 | Ring | 32-51-51-01-175 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### F. Steering Metering Valve Installation

**SUBTASK 32-51-11-600-001**

**CAUTION**

THE STEERING METERING VALVE IS TOP HEAVY. THE VALVE WILL FLIP OUT OF YOUR HOLD. BE CAREFUL NOT TO DROP AND DAMAGE THE STEERING METERING VALVE.

(1) Do these steps to prepare the steering metering valve [7] for installation:



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(a) Lubricate the new packings [13] and unions [12] with hydraulic fluid, D00153.

(b) Install the new packings [13] and unions [12] in the steering metering valve [7].

(c) Apply hydraulic fluid, D00153, to the transfer tubes in the actuator trunnions.

(d) Install the new rings [28] and new packing [27] on both of the tubes [26] between the steering metering valve [7] and steering cylinders.

SUBTASK 32-51-11-620-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(2) Apply corrosion inhibiting material, G50136, to the faying surfaces of all four mounting feet on the steering metering valve [7].

SUBTASK 32-51-11-620-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(3) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

(a) The shank of the bolts [19]

(b) The shank, threads, and thread reliefs of the bolts [20]

(c) The threads of the nuts [14]

(d) The faces of the washers [15] and washers [18].

SUBTASK 32-51-11-420-019

(4) Install the metering valve.

(a) The valve can be installed by passing it below the steering cables from the left side of the aircraft.

SUBTASK 32-51-11-020-009

**CAUTION**

MAKE SURE THAT THE OFFSET HOLE PATTERN IN THE SWIVEL VALVES FOR THE VALVE ASSEMBLY ARE CORRECTLY ALIGNED WITH THE MATING HOLE PATTERN IN THE ACTUATOR TRUNNION. IF YOU DO NOT OBEY, IT IS POSSIBLE THAT THE STEERING SYSTEM WILL NOT OPERATE CORRECTLY AND YOU CAN CAUSE DAMAGE TO THE STEERING SYSTEM.

(5) Put the swivel valves for the steering metering valve [7] into the steering actuator trunnions.

(a) Make sure that the offset hole pattern in the swivel valves is aligned with the mating hole pattern in the left and right trunnions.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-51-11-420-001

(6) Install the clamps [17], washers [21], bolts [22], and nuts [16] to attach the steering metering valve [7] to the actuator trunnions.

(a) Remove the lockwire from the swivel valves, if it is installed.

SUBTASK 32-51-11-420-002

(7) Install the bolts [19], washers [15], washers [18], and nuts [14] to attach the steering metering valve [7] to the top support plate.

SUBTASK 32-51-11-420-003

(8) Install the bolts [20], spacer tubes [36], and washers [18] to attach the steering metering valve [7] to the top and bottom support plates.

(a) Make sure that the spacer tubes [36] have been installed.

SUBTASK 32-51-11-420-020

(9) Install MS20995NC20 lockwire, G02166, between the bolts [20] (TASK 20-10-44-400-801).

SUBTASK 32-51-11-420-004

(10) Install the screws [9] and washers [5] that hold the support bracket to the steering metering valve [7].

SUBTASK 32-51-11-480-007

(11) Make sure that the rig pin from the rigging pin kit, SPL-1585, is installed.

(a) Rig pin 4 in the summing mechanism.

SUBTASK 32-51-11-420-005

(12) Install the bushing [24], bolt [25], washer [5], and nut [23] to attach the link assembly [6] to the input lever on the steering metering valve [7].

(a) Adjust the link assembly [6] until you can easily install the bolt [25].

(b) Remove the rig pin 4 from the summing mechanism.

SUBTASK 32-51-11-080-001

(13) Remove the caps/plugs, STD-14686, from the hydraulic lines [11] and ports on the steering metering valve [7] (TASK 20-10-20-800-801).

SUBTASK 32-51-11-420-006

(14) Connect the hydraulic lines [11] to the steering metering valve [7].

(a) Tighten the B-nuts on hydraulic lines [11] to 265 ±9 in-lb (30 ±1 N·m).

## G. Steering Metering Valve Installation Test

SUBTASK 32-51-11-420-008

(1) Do these procedures in this task to do a test of the nose wheel steering system: Nose Wheel Steering System Test (Airplane on Ground), TASK 32-51-00-700-801

- General
- Prepare to Test the Steering System of the Nose Wheel
- Do the Test of the Normal Steering Response
- Do the Test for Control Wheel Torque
- Do the Test of Nose Gear Turn Radius and Response to Full Rudder Pedal Input
- Do the Nose Gear Steering Tow Test
- Put the Airplane Back to Its Usual Condition.

(a) Make sure that there is no leakage.



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## H. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-51-11-420-009**

(1) Put the summing mechanism cover [10] in its position.

(a) Install the screws [4], washers [5], and washers [37].

**——— END OF TASK ———**



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## RUDDER PEDAL STEERING MECHANISM - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the interconnect spring for the rudder pedal steering mechanism.

(2) Installation of the interconnect spring for the rudder pedal steering mechanism.

(3) Removal of the rudder pedal steering mechanism and the nose gear position cables .

(4) Installation of the rudder pedal steering mechanism and the nose gear position cables.

(5) Visual inspection of the rudder pedal steering mechanism.

**TASK 32-51-21-000-801**

### 2. Interconnect Spring Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |

#### C. Access Panels

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

#### D. Prepare for the Removal

**SUBTASK 32-51-21-480-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-51-21-860-001**

(2) Make sure the wheels of the nose landing gear are in the centered position.

**SUBTASK 32-51-21-860-002**

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

#### E. Interconnect Spring Removal

**SUBTASK 32-51-21-010-001**

(1) Open the access panels on the left sidewall and the top of the nose wheel well to get access to the rudder pedal steering mechanism [1] and cable turnbuckles (Figure 401).



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SUBTASK 32-51-21-010-002

(2) Open the access panels to get access to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-020-801).

(a) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-21-020-001

(3) Remove the spring [23].

(a) Remove the two bolts [24], washers [25], spacers [26], washers [27] and nuts [28] to disconnect the spring [23] (Figure 401).

——— END OF TASK ———

**TASK 32-51-21-400-801**

## 3. Interconnect Spring Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

### B. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 23 | Spring | 32-51-21-01-175 | SIA ALL |

### C. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

### E. Interconnect Spring Installation

SUBTASK 32-51-21-420-001

(1) Install the spring [23].

(a) Install the two bolts [24], washers [25], spacers [26], washers [27] and nuts [28] to reconnect the spring [23] (Figure 401).

### F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-21-410-001

(1) Close the access panels in the wheel well that you opened to get access to the rudder pedal steering mechanism [1] and turnbuckles (Figure 401).

SUBTASK 32-51-21-410-002

(2) Close the access panels to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-420-801).



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(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

END OF TASK

TASK 32-51-21-000-802

## 4. Rudder Pedal Steering Mechanism Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |

### B. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

### D. Prepare for the Removal

SUBTASK 32-51-21-480-002

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-51-21-860-003

(2) Make sure the wheels of the nose landing gear are in the centered position.

SUBTASK 32-51-21-860-004

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

### E. Rudder Pedal Steering Mechanism Removal

SUBTASK 32-51-21-010-003

(1) Open the access panels to get access to the rudder pedal steering mechanism [1] and cable turnbuckles (TASK 53-14-01-020-801).



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(a) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-21-020-002

(2) Remove the clips from the turnbuckles.

SUBTASK 32-51-21-020-003

(3) Loosen the NWS-A cable, the cable NGPP-A [19], and the cable NGPP-B [20] at the turnbuckles.

SUBTASK 32-51-21-020-004

(4) Remove the nut [10], washer [11], and bolt [12] to disconnect the idler rod at the structure.

SUBTASK 32-51-21-020-005

(5) Remove the nuts [2], washers [3], and screws [5] on the ends of the quadrant for the rudder pedal steering mechanism [1].

SUBTASK 32-51-21-480-003

(6) Remove the end plates [4] from the cable ends on the quadrant to disconnect the NWS-A cable.

SUBTASK 32-51-21-020-006

(7) Disconnect the cable NGPP-A [19] and the cable NGPP-B [20] at the turnbuckles.

SUBTASK 32-51-21-020-007

(8) Remove the lockwire, shaft [15], washers [14], and bolts [13] to disconnect the rudder pedal steering mechanism [1] from the rudder pedal jack shaft assembly.

SUBTASK 32-51-21-020-008

(9) Remove the nut [9] and washer [8] from the bolt [6] on the upper support bracket.

SUBTASK 32-51-21-020-009

(10) Hold the bolt [6], straighten the tabs on the retainer [7], and remove the bolt [6].

SUBTASK 32-51-21-000-001

(11) Remove the rudder pedal steering mechanism [1] complete with the cable NGPP-A [19] and the cable NGPP-B [20].

SUBTASK 32-51-21-020-010

(12) Remove and discard the retainer [7].

SUBTASK 32-51-21-020-011

(13) Remove the cable NGPP-A [19] and the cable NGPP-B [20] from the eccentric [18] on the rudder pedal steering mechanism [1]:

(a) Remove the nut [21] and washer [22] from the shaft [15].

(b) Move the shaft [15] out far enough to get access to the bolt [16] and nut [17].

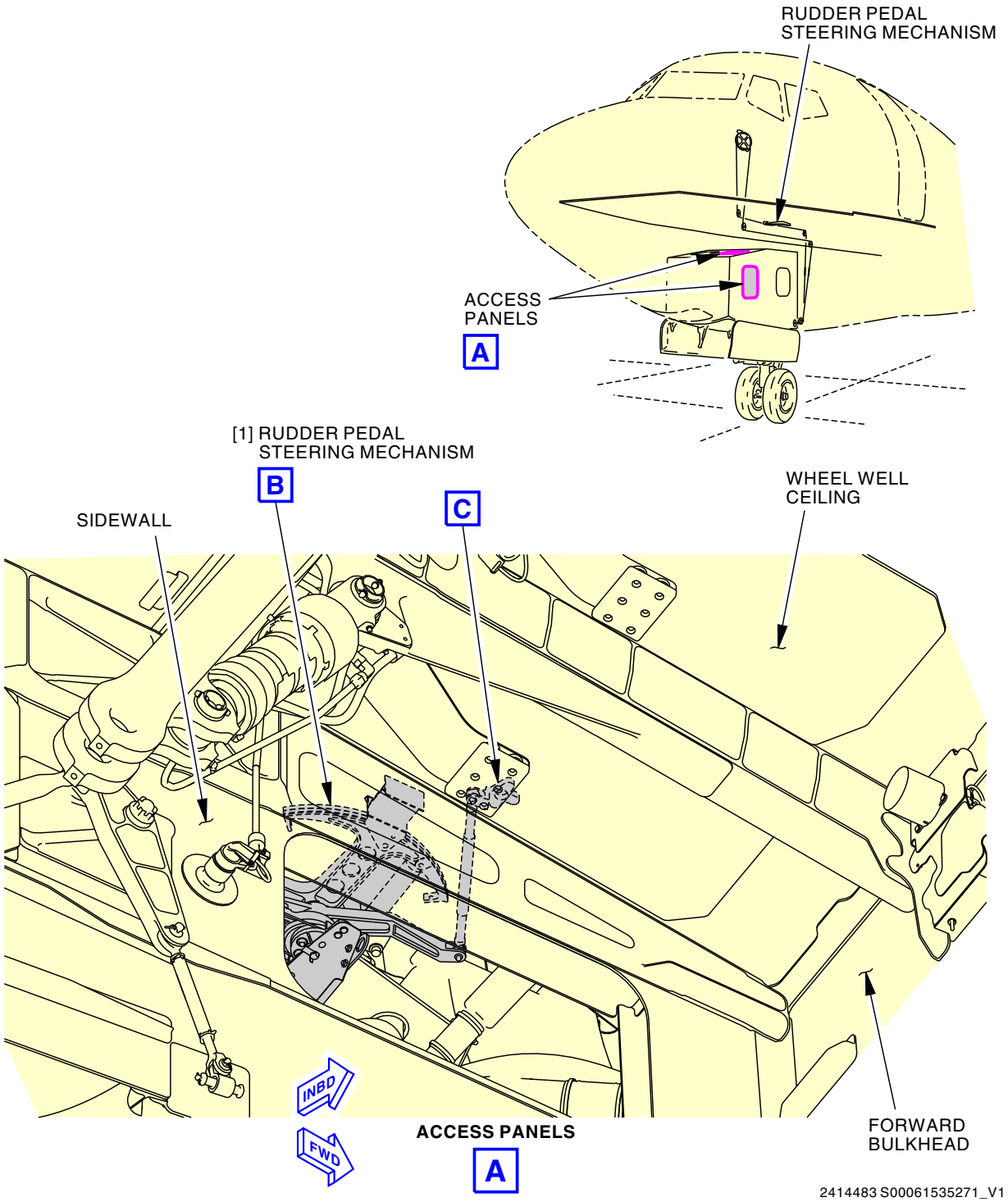
(c) Remove the nut [17] and bolt [16].

(d) Move the eccentric [18] out and remove the cable NGPP-A [19] and the cable NGPP-B [20].

**END OF TASK**



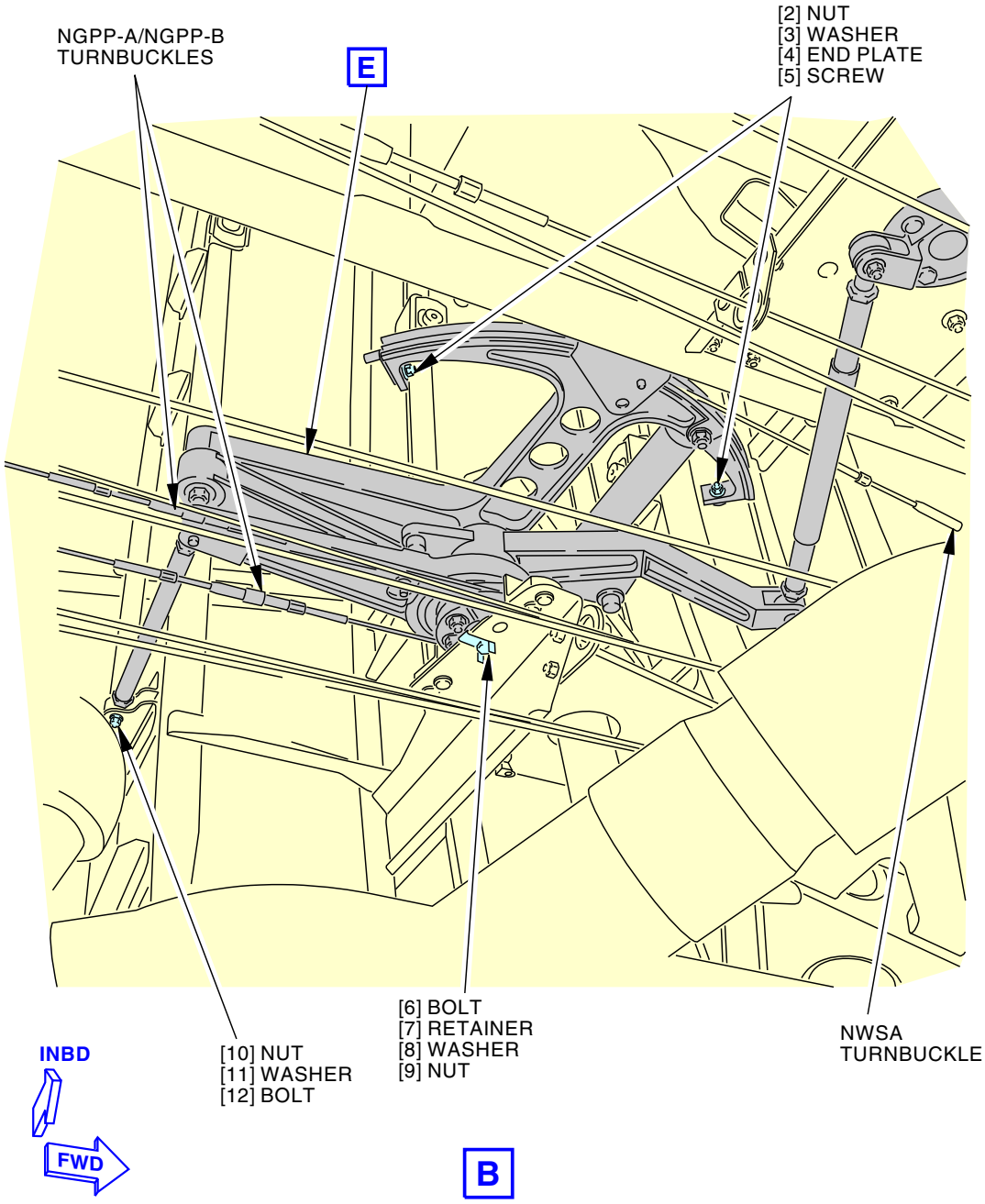
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Rudder Pedal Steering Mechanism**
**Figure 401/32-51-21-990-801 (Sheet 1 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

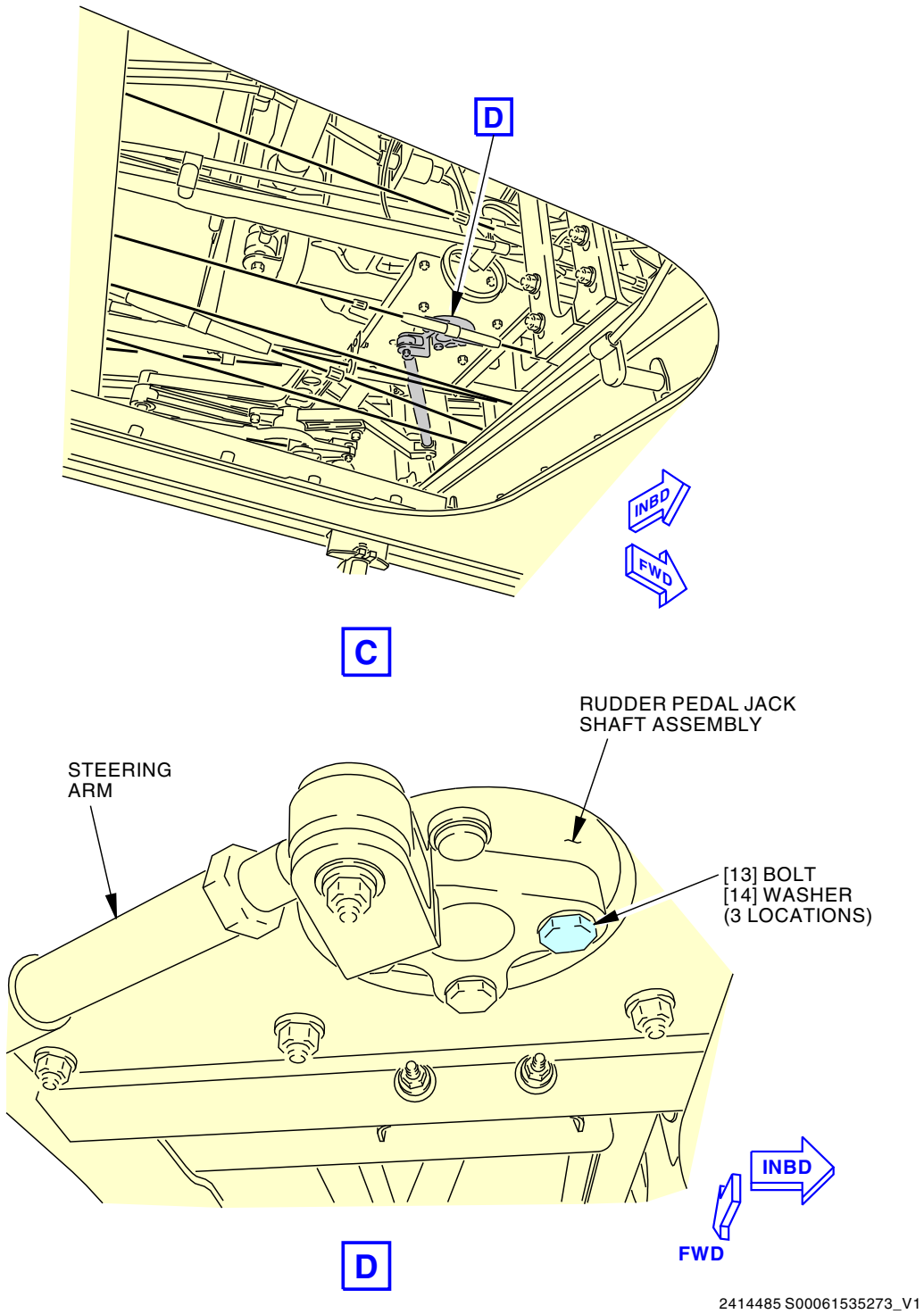



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**Rudder Pedal Steering Mechanism**
**Figure 401/32-51-21-990-801 (Sheet 2 of 4)**



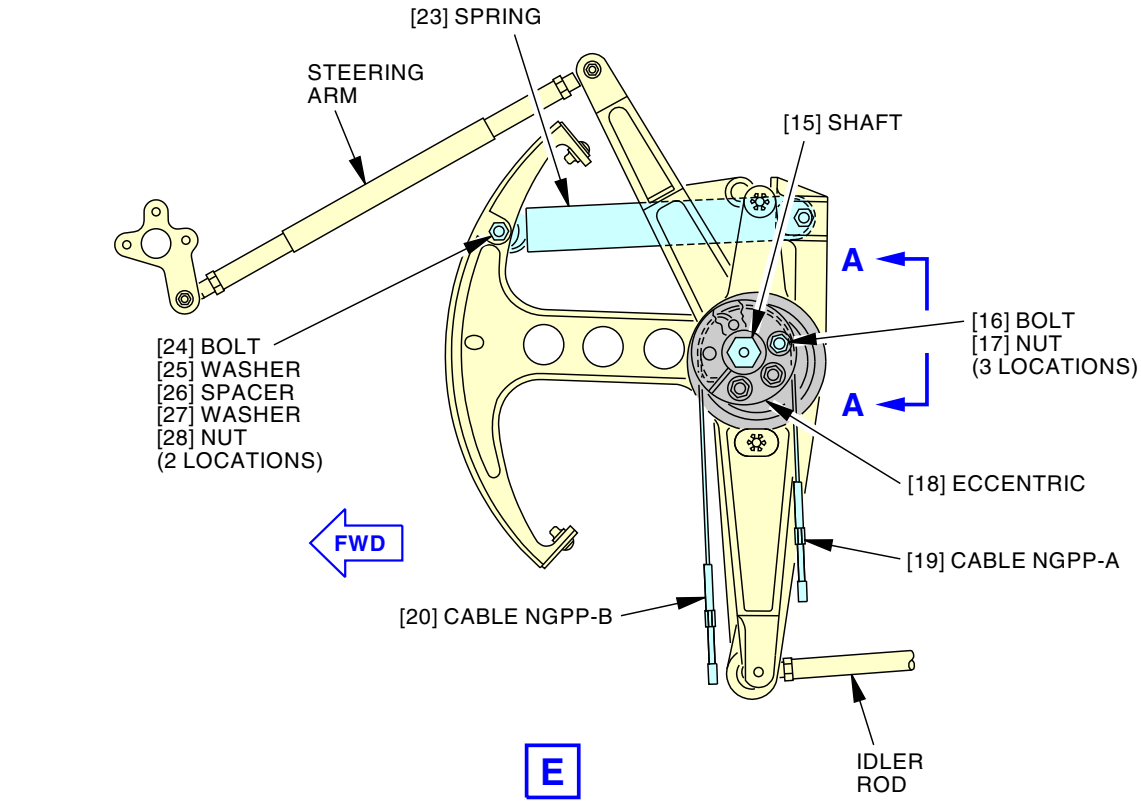
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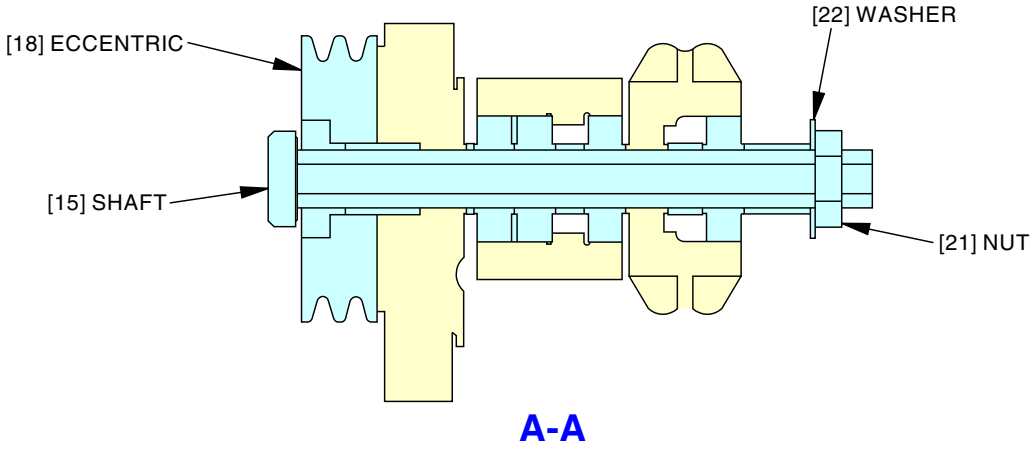



**Rudder Pedal Steering Mechanism**
**Figure 401/32-51-21-990-801 (Sheet 3 of 4)**



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**Rudder Pedal Steering Mechanism**
**Figure 401/32-51-21-990-801 (Sheet 4 of 4)**



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**TASK 32-51-21-400-802**

## 5. Rudder Pedal Steering Mechanism Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |
| 32-51-00-820-803 | Rudder Pedal Interconnect Mechanism Adjustment (P/B 501) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

### B. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Rudder pedal steering mechanism | 32-51-21-01-170 | SIA ALL |
| 7 | Retainer | 32-51-21-01-030 | SIA ALL |

### C. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

### E. Rudder Pedal Steering Mechanism Installation

**SUBTASK 32-51-21-420-002**

(1) Install the cable NGPP-A [19] and cable NGPP-B [20] on the eccentric [18] on the rudder pedal steering mechanism [1]:

(a) Move the eccentric [18] out and install the cable NGPP-A [19] and cable NGPP-B [20].

(b) Move the eccentric [18] into its position and install the nuts [17] and bolts [16].

(c) Install the shaft [15].

(d) Install the washer [22] and nut [21] on the shaft [15].

1) Tighten the nut [21] to 100 in-lb (11.3 N·m) above the run-on torque.

**SUBTASK 32-51-21-420-003**

(2) Install a new retainer [7].

**SUBTASK 32-51-21-420-004**

(3) Put the rudder pedal steering mechanism [1], complete with the cable NGPP-A [19] and cable NGPP-B [20], in position.

(a) Make sure that there is clearance between the clutch crank and the end of the bolt that holds the rudder pedal steering quadrant to the clutch arm.

**SUBTASK 32-51-21-420-005**

(4) Install the bolt [6], washer [8], and nut [9] through the rudder pedal steering mechanism [1] and the upper support bracket.



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(a) Tighten the nut [9] to approximately 65 in-lb (7.3 N·m) above the run-on torque.

SUBTASK 32-51-21-420-006

(5) Bend the tabs on the retainer [7] to hold the bolt [6].

SUBTASK 32-51-21-420-007

(6) Put the cable NGPP-A [19] and cable NGPP-B [20] through the fairleads and connect them at the turnbuckles.

SUBTASK 32-51-21-420-008

(7) Put the NWS-A cable in the end plates [4] and install the screws [5], washers [3], and nuts [2] to attach the cable ends to the quadrant.

SUBTASK 32-51-21-420-009

(8) Install the bolt [12], washer [11], and nut [10] to attach the idler rod to the structure.

SUBTASK 32-51-21-420-010

(9) Install the bolts [13] and washers [14] to attach the steering arm to the rudder pedal jack shaft assembly.

SUBTASK 32-51-21-420-011

(10) Install lockwire on the bolt [13].

SUBTASK 32-51-21-820-001

(11) Tighten the NWS-A cable, cable NGPP-A [19], and cable NGPP-B [20] and adjust the tension (TASK 32-51-00-820-803).

SUBTASK 32-51-21-420-012

(12) Install the clips on the turnbuckles.

**F. Rudder Pedal Steering Mechanism Installation Test**

SUBTASK 32-51-21-700-001

(1) Do a test of the steering system of the nose wheel (TASK 32-51-00-700-801).

**G. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-51-21-410-003

(1) Close the access panels to the rudder pedal steering mechanism [1] and cable turnbuckles (TASK 53-14-01-420-801).

(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

——— END OF TASK ———

**TASK 32-51-21-000-803**

## 6. Rudder Pedal Steering Mechanism Visual Inspection

(Figure 402, Figure 403)

NOTE: This procedure is a scheduled maintenance task.

**A. References**

| Reference | Title |
|---|---|
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |



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**B. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**C. Access Panels**

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

**D. Steering Mechanism Inspection**

**SUBTASK 32-51-21-010-004**

(1) Open the access panels on the left sidewall and the top of the nose wheel well to get access to the rudder pedal steering mechanism and cable turnbuckles (TASK 53-14-01-020-801).

(a) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

**SUBTASK 32-51-21-210-001**

(2) Do a detail visual inspection of the rotary actuator and mechanical control path for the rudder pedal steering mechanism.

**SUBTASK 32-51-21-211-001**

(3) Do a visual inspection to make sure that nut, that supplies retention of the rudder pedal steering mechanism to the upper support bracket, is seated correctly.

NOTE: A small telescoping mirror will be necessary to view this area via the forward EE bay

**SUBTASK 32-51-21-410-004**

(4) Close the access panels to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-420-801).

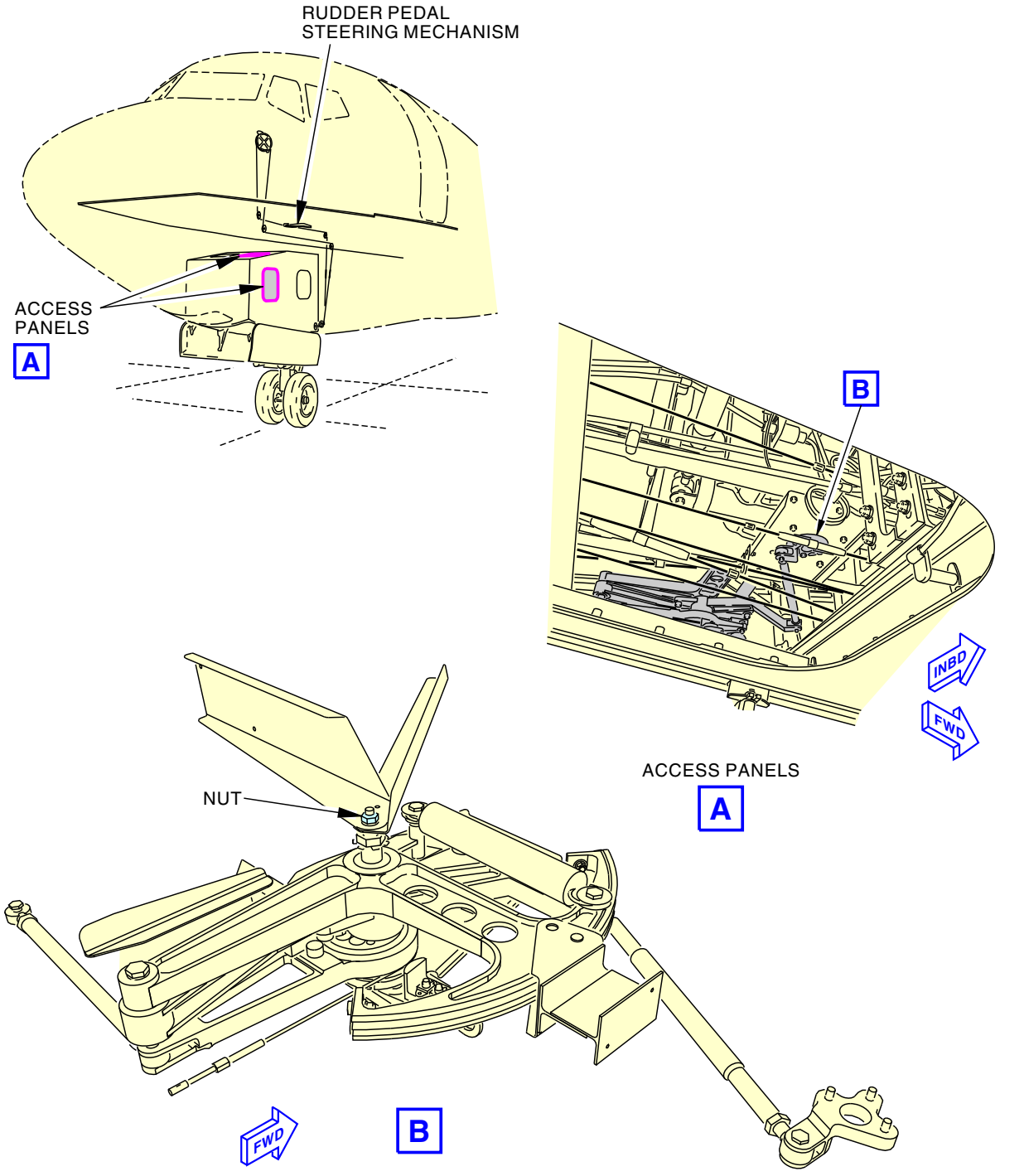
(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AC | Fwd Nose Wheel Well Upper Access Panel |
| 113AW | Forward Nose Wheel Well Panel |

**END OF TASK**



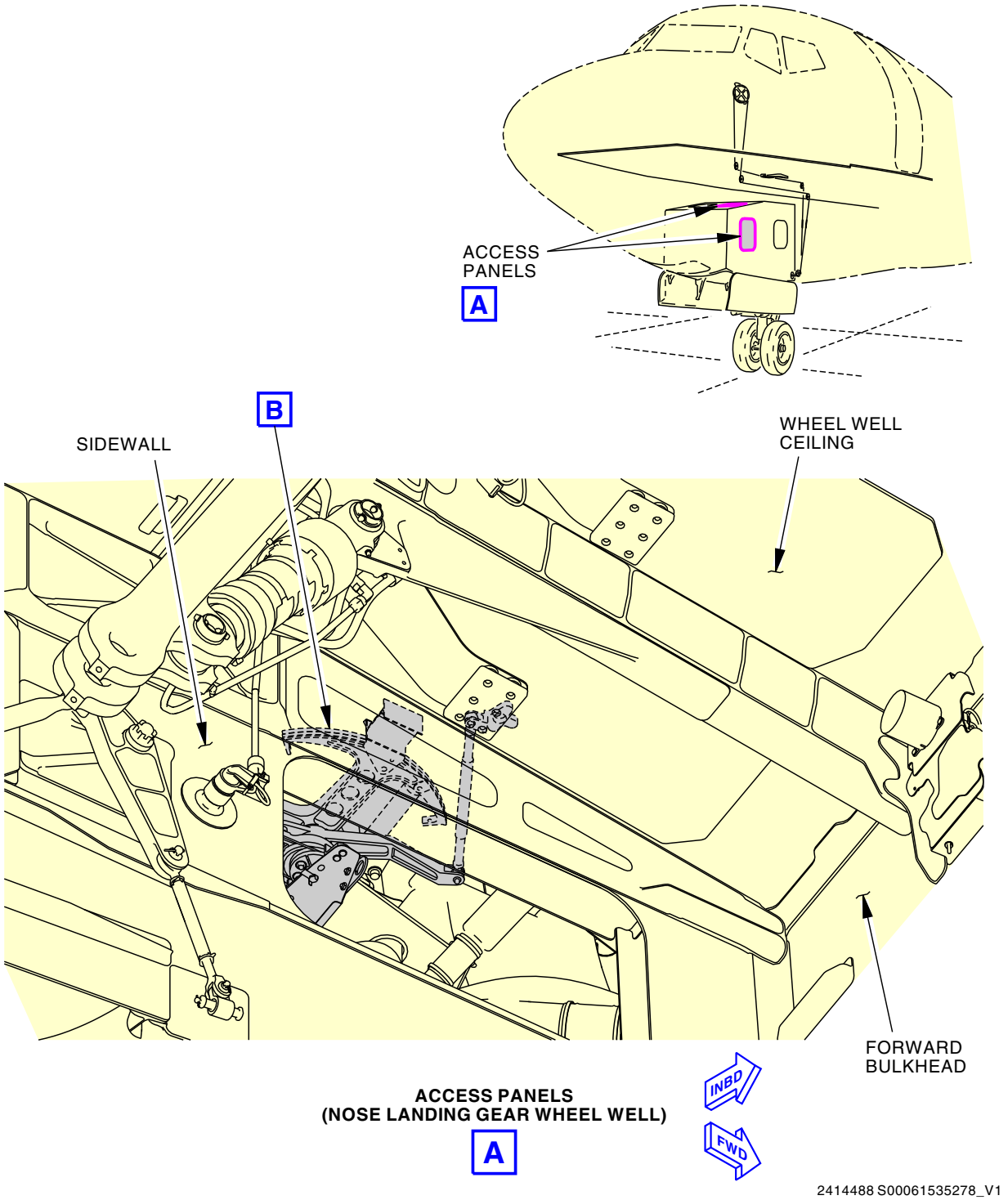
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**Rudder Pedal Steering Retainer Nut Inspection**
**Figure 402/32-51-21-990-802**



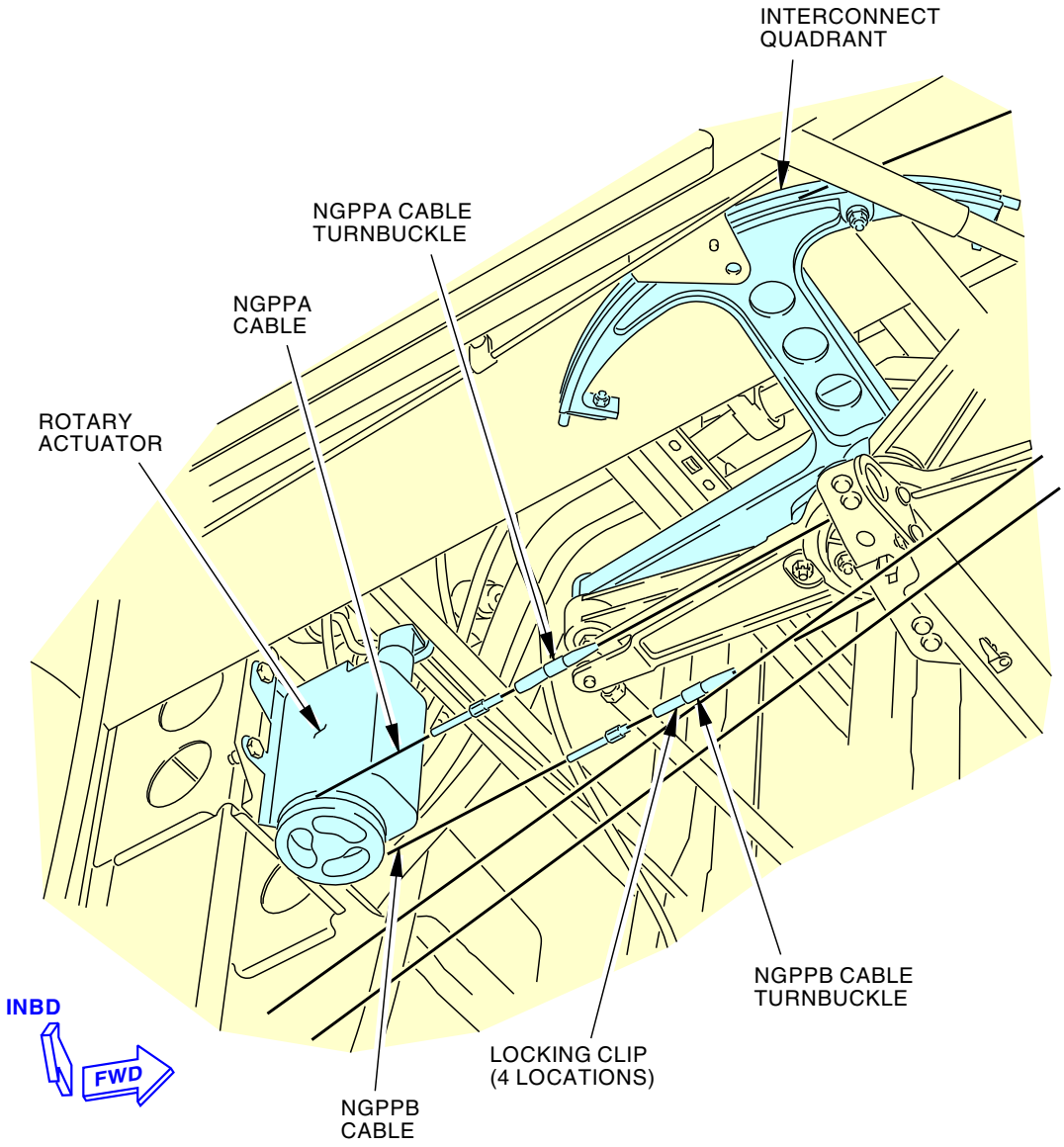
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**Rudder Pedal Steering Mechanism Control Path Inspection**
**Figure 403/32-51-21-990-803 (Sheet 1 of 2)**



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**Rudder Pedal Steering Mechanism Control Path Inspection**
**Figure 403/32-51-21-990-803 (Sheet 2 of 2)**



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## STEERING SYSTEM CABLES - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the position cables for the nose gear steering, referred to as NGPP-A cable and NGPP-B cable

(2) Installation of the position cables for the nose gear steering

(3) A removal of the steering system cables for the nose gear, referred to as NWS-A(A) cable, NWS-A(C) cable, NWS-A(B) cable, NWS-A(D) cable, NWS-B(B) cable, NWS-B cable, NWS-B(A) cable, and NWS-A/B cable

(4) Installation of the steering system cables for the nose gear.

B. The position cables have four segments. This procedure can replace two of the segments attached to the rotary actuator pulley. You must use the procedure: RUDDER PEDAL STEERING MECHANISM - REMOVAL/INSTALLATION, PAGEBLOCK 32-51-21/401, to replace the two segments attached to the drum on the rudder pedal steering mechanism.

C. The steering system cables have eight segments. This procedure can replace one or all of the segments. The steering cables (referred to as NWS-A(A) cable, NWS-A(C), NWS-B cable, and NWS-B(A) cable are attached to the drum that is part of the control wheel assembly. You must remove the control wheel and the drum to replace the steering cables.

**TASK 32-51-31-000-801**

### 2. Nose Wheel Steering Position Cables Removal

(Figure 401)

#### A. General

(1) This task gives instructions to remove the nose wheel steering position cables.

#### B. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 20-10-91-000-801 | Control Cables Removal (P/B 401) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## D. Access Panels

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

## E. Prepare for Removal

SUBTASK 32-51-31-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: TASK 32-00-01-480-801.

SUBTASK 32-51-31-860-001

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-31-580-001

(3) Lift the nose of the airplane with jacks until the nose gear tires are clear of the ground (TASK 07-10-21-580-801).

SUBTASK 32-51-31-010-001

(4) Remove the forward access panel from the left sidewall of the nose wheel well to get access to the turnbuckles [2] of the NGPP-A cable [4] and NGPP-B cable [3] (TASK 53-14-01-020-801).

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-31-860-004

(5) Make sure that the airplane is in AIR mode (TASK 32-09-00-860-801).

NOTE: The rig pin NS5 cannot be installed unless the rotary actuator is in AIR mode.

SUBTASK 32-51-31-480-002

(6) Install the rig pin NS5 in the drum on the interconnect quadrant.

## F. Nose Wheel Steering Position Cables Removal

SUBTASK 32-51-31-010-002

(1) Remove the NGPP-B cable [3] and NGPP-A cable [4] (TASK 20-10-91-000-801).

(a) Remove the clips [1] from the turnbuckles [2].

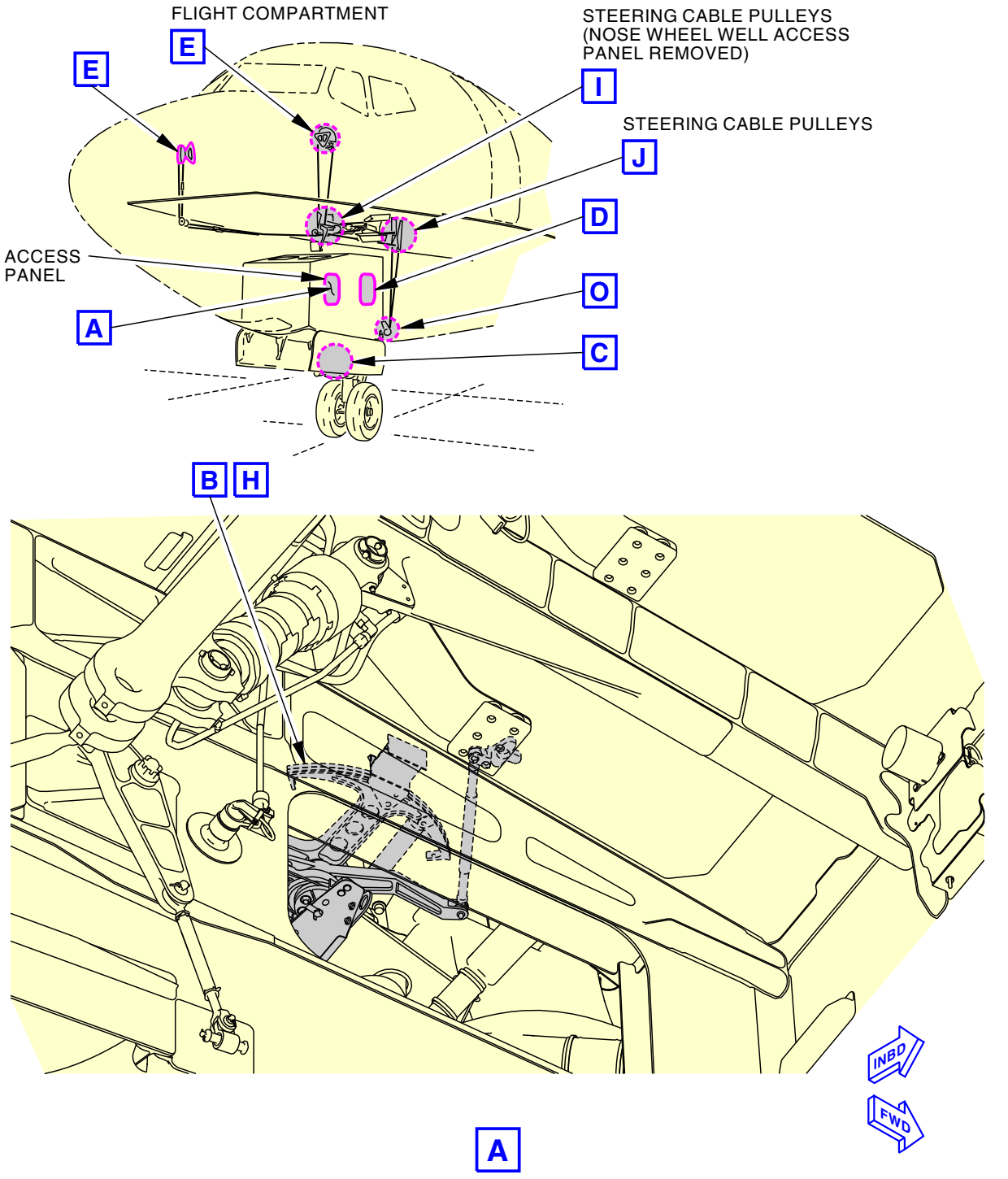
(b) Disconnect the NGPP-B cable [3] and NGPP-A cable [4] at the turnbuckles [2].

(c) Remove the pins [5] to disconnect the NGPP-B cable [3] and NGPP-A cable [4] from the rotary actuator pulley.

**END OF TASK**



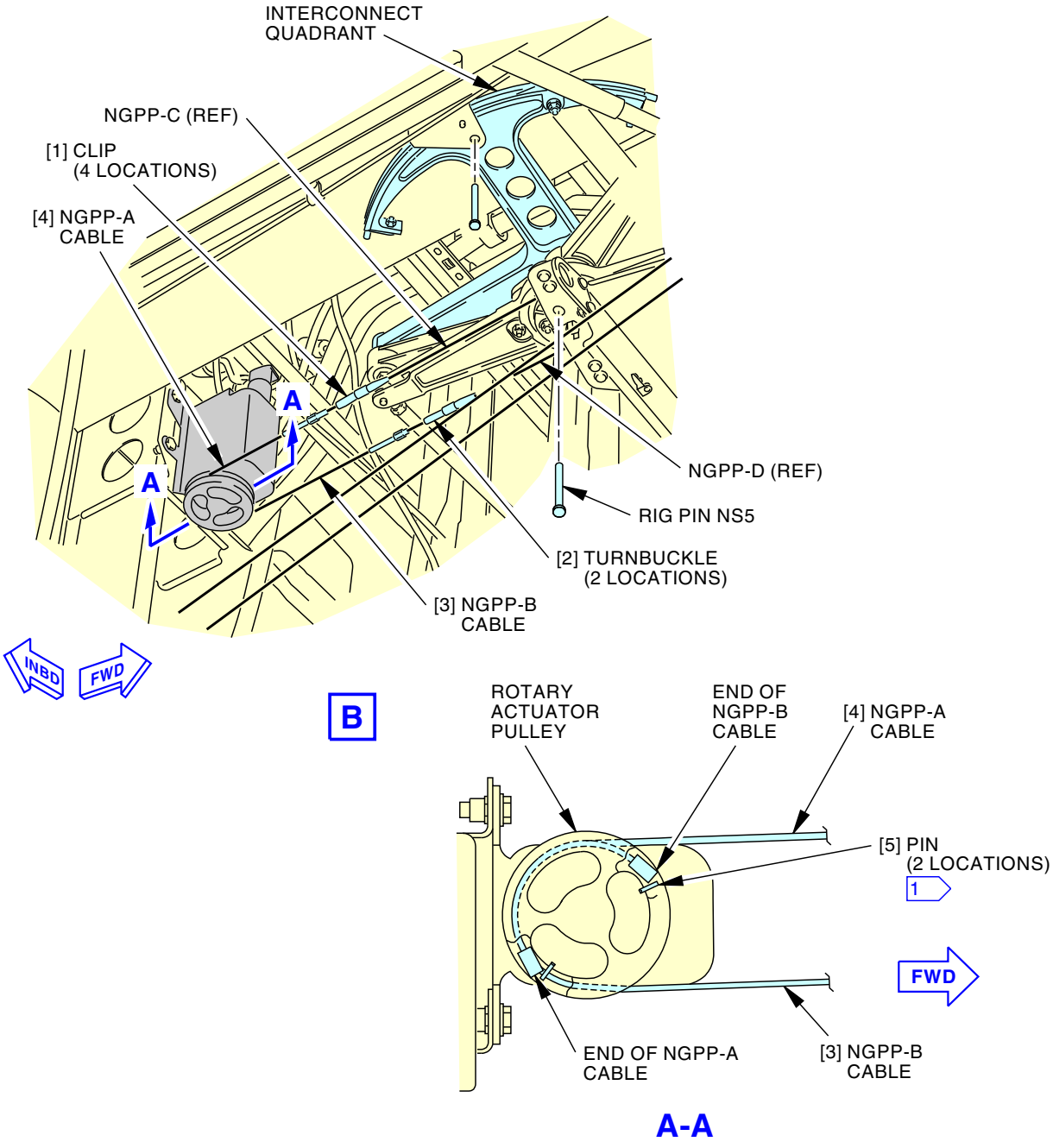
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**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 1 of 11)**



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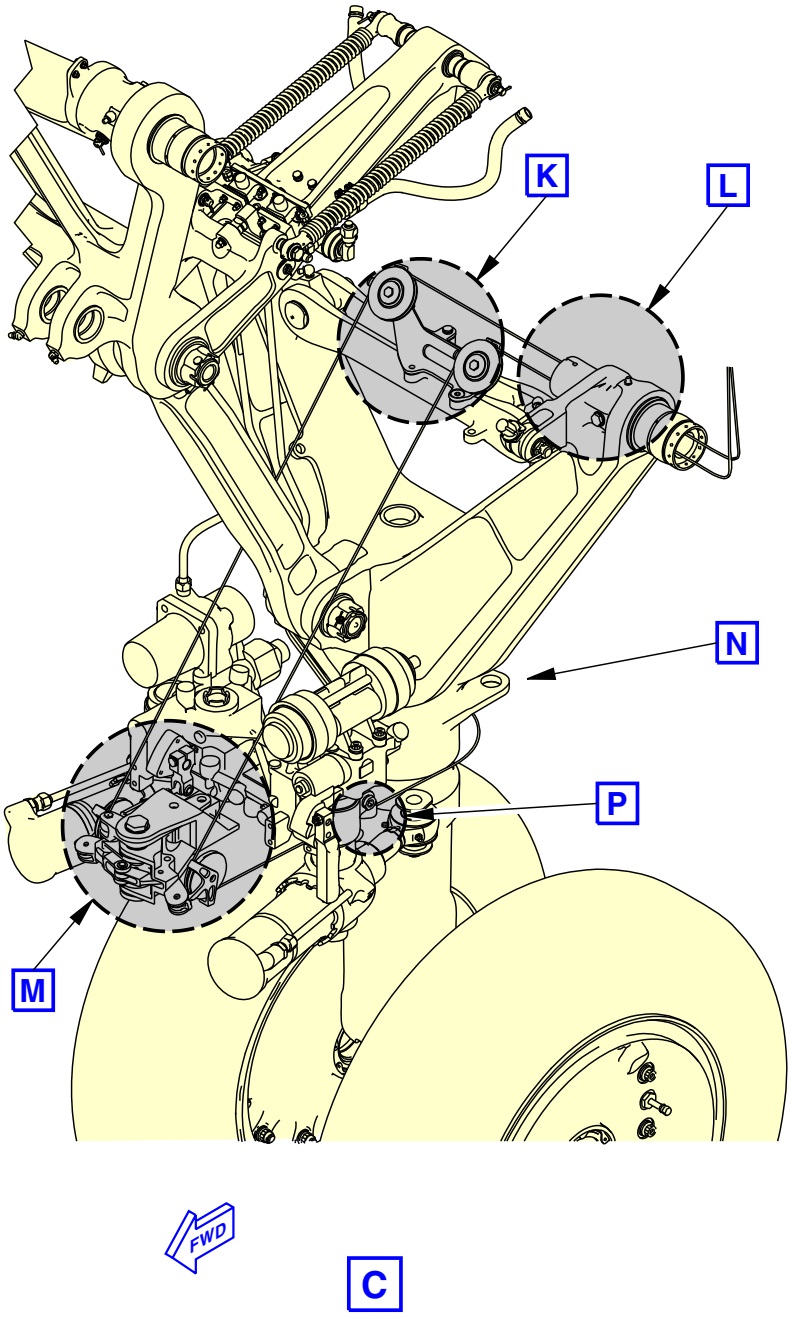

1 **CAUTION:**
MAKE SURE THE ENDS OF THE PINS [5] DO NOT TOUCH THE HOUSING OF THE ROTARY ACTUATOR AFTER INSTALLATION. IF THE PINS TOUCH THE HOUSING, DAMAGE TO EQUIPMENT CAN OCCUR.

2411042 S00061526781_V3

**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 2 of 11)**



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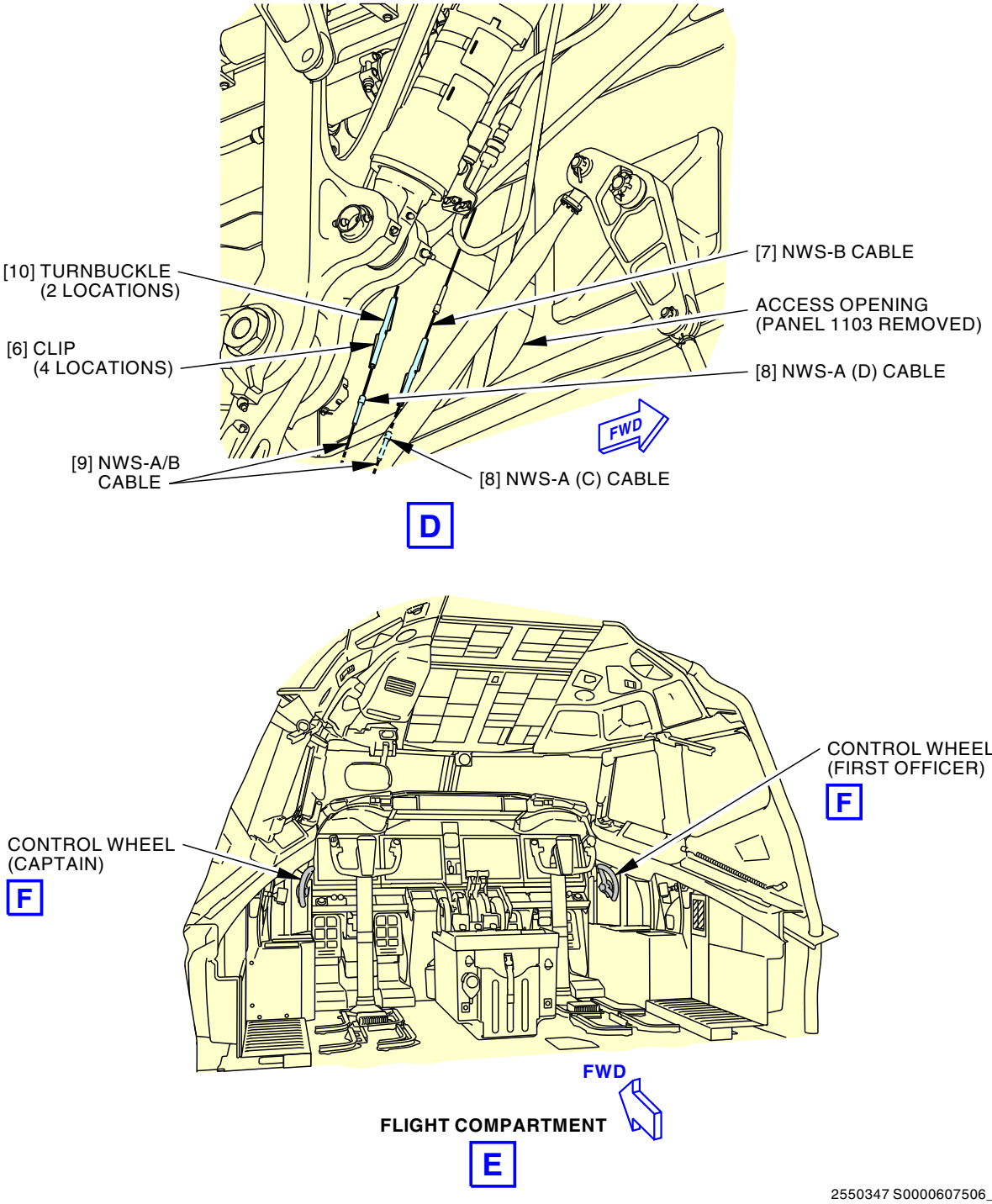



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**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 3 of 11)**



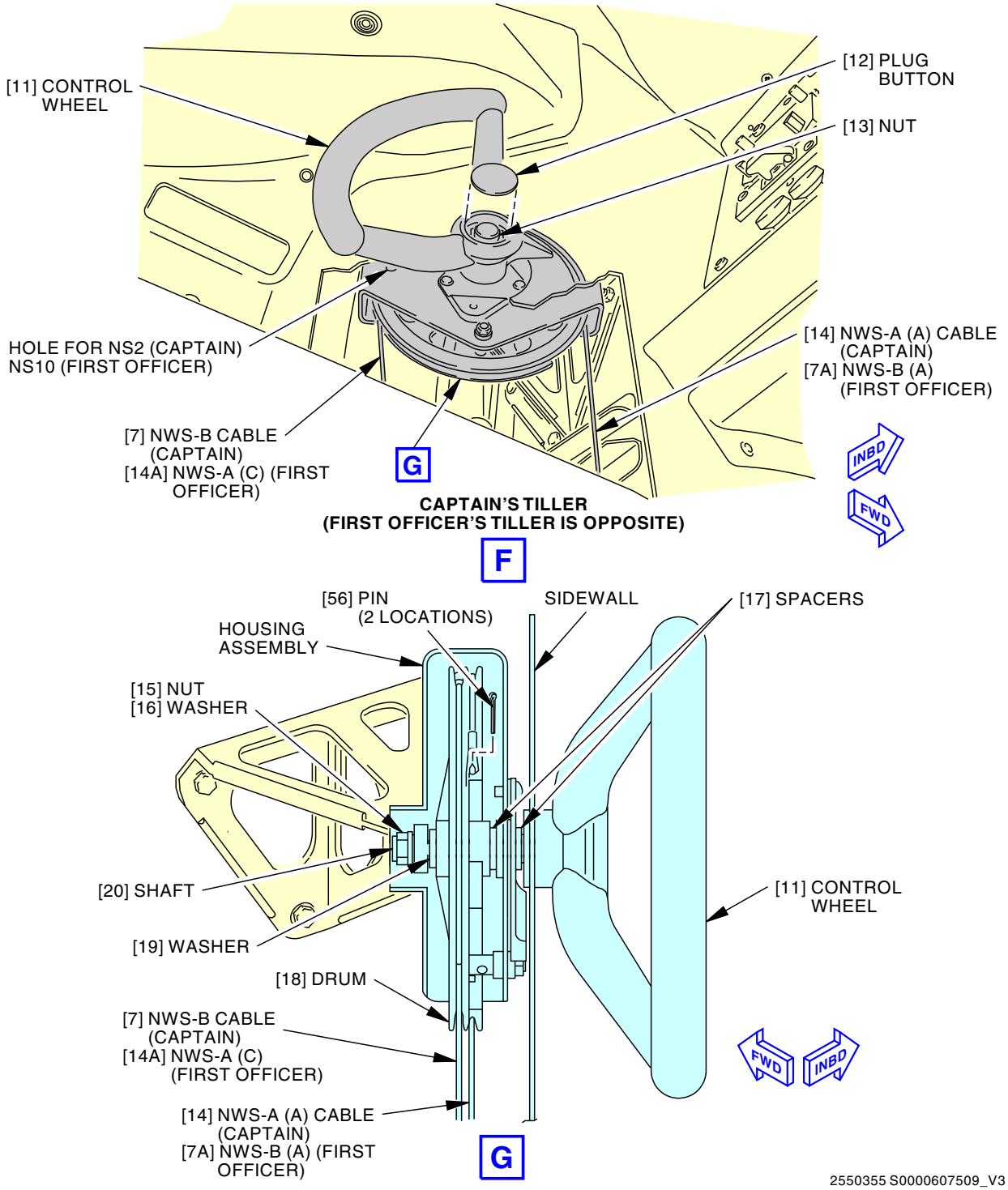
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 4 of 11)**



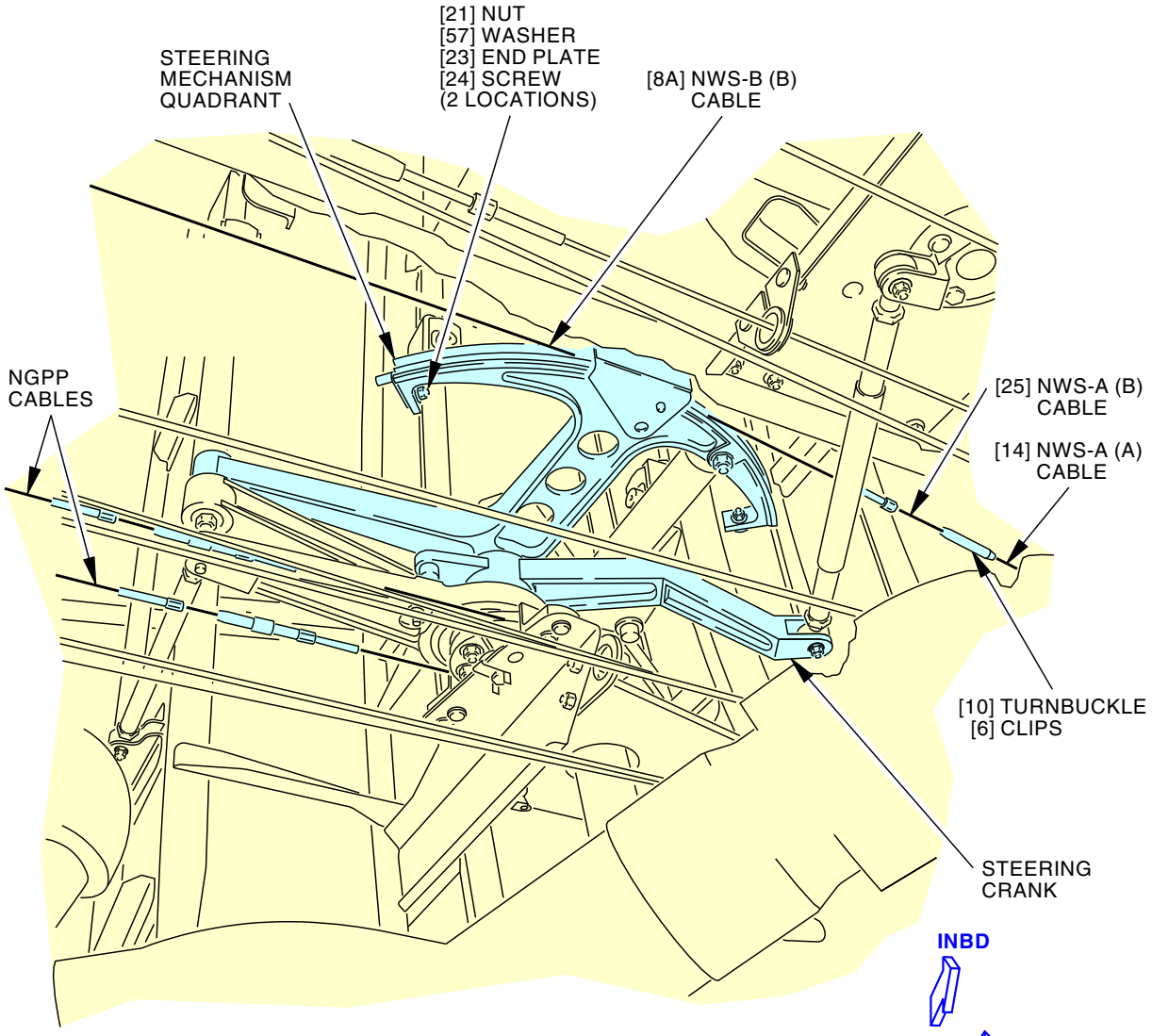
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 5 of 11)**



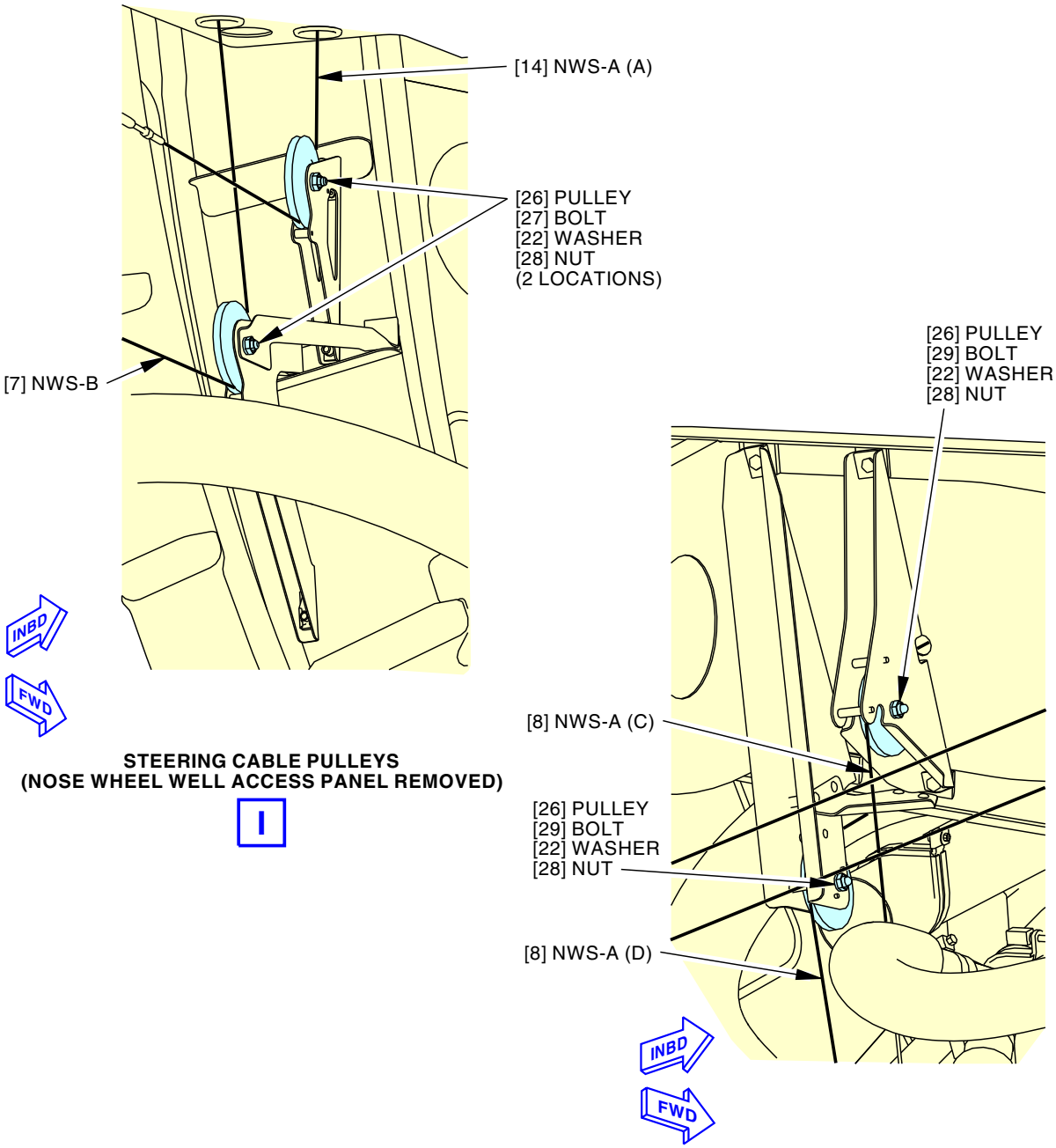
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 6 of 11)**



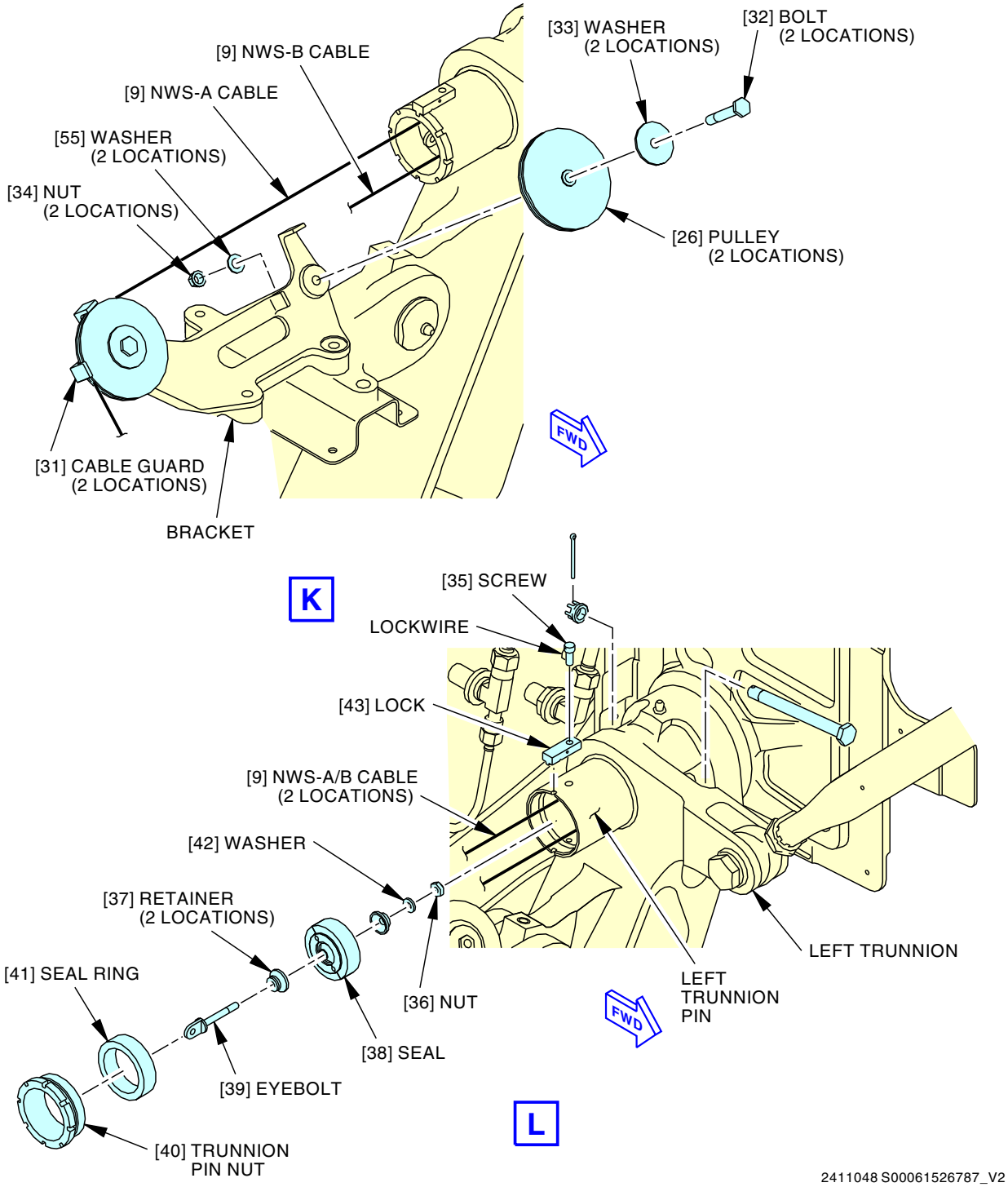
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 7 of 11)**



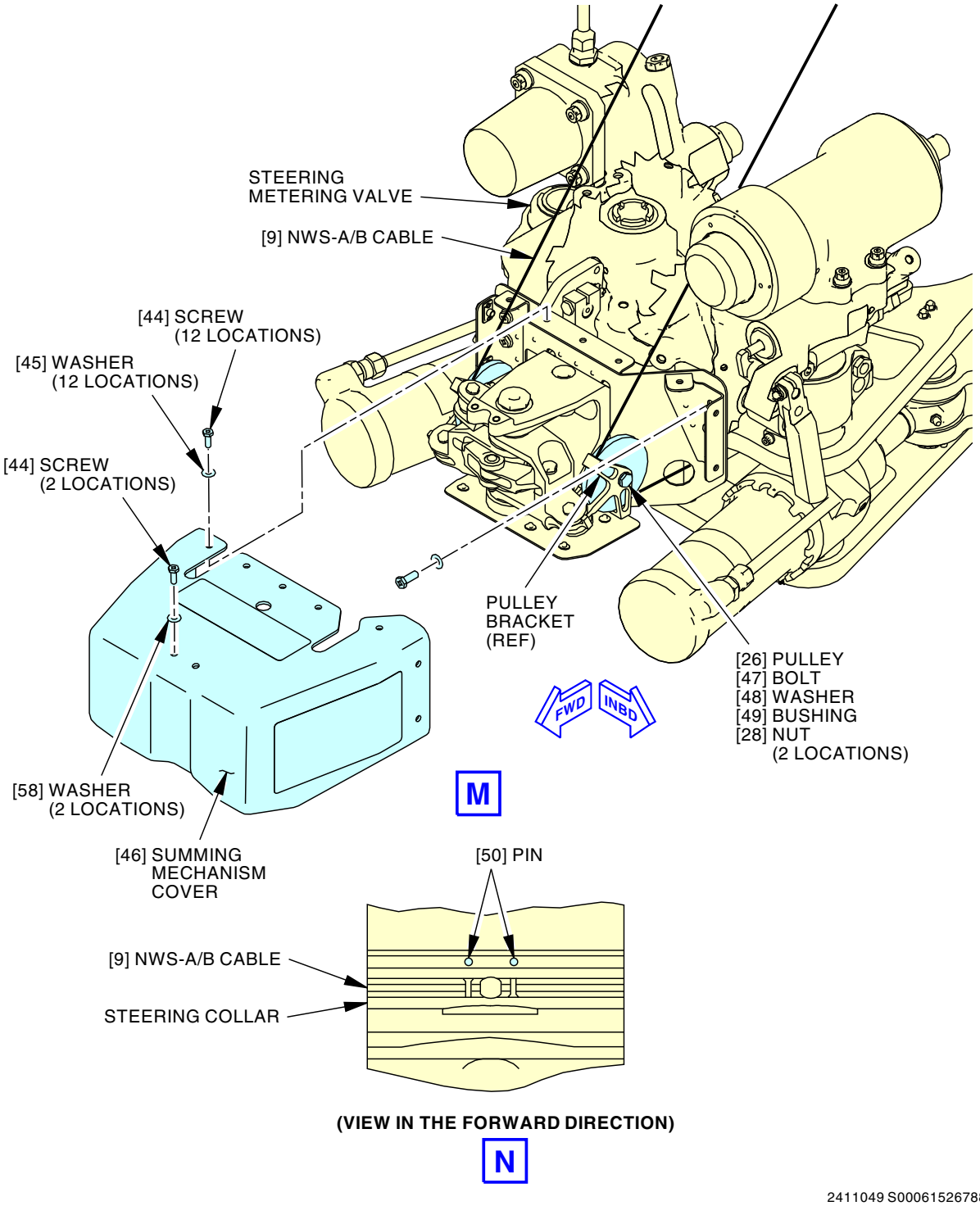
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**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 8 of 11)**



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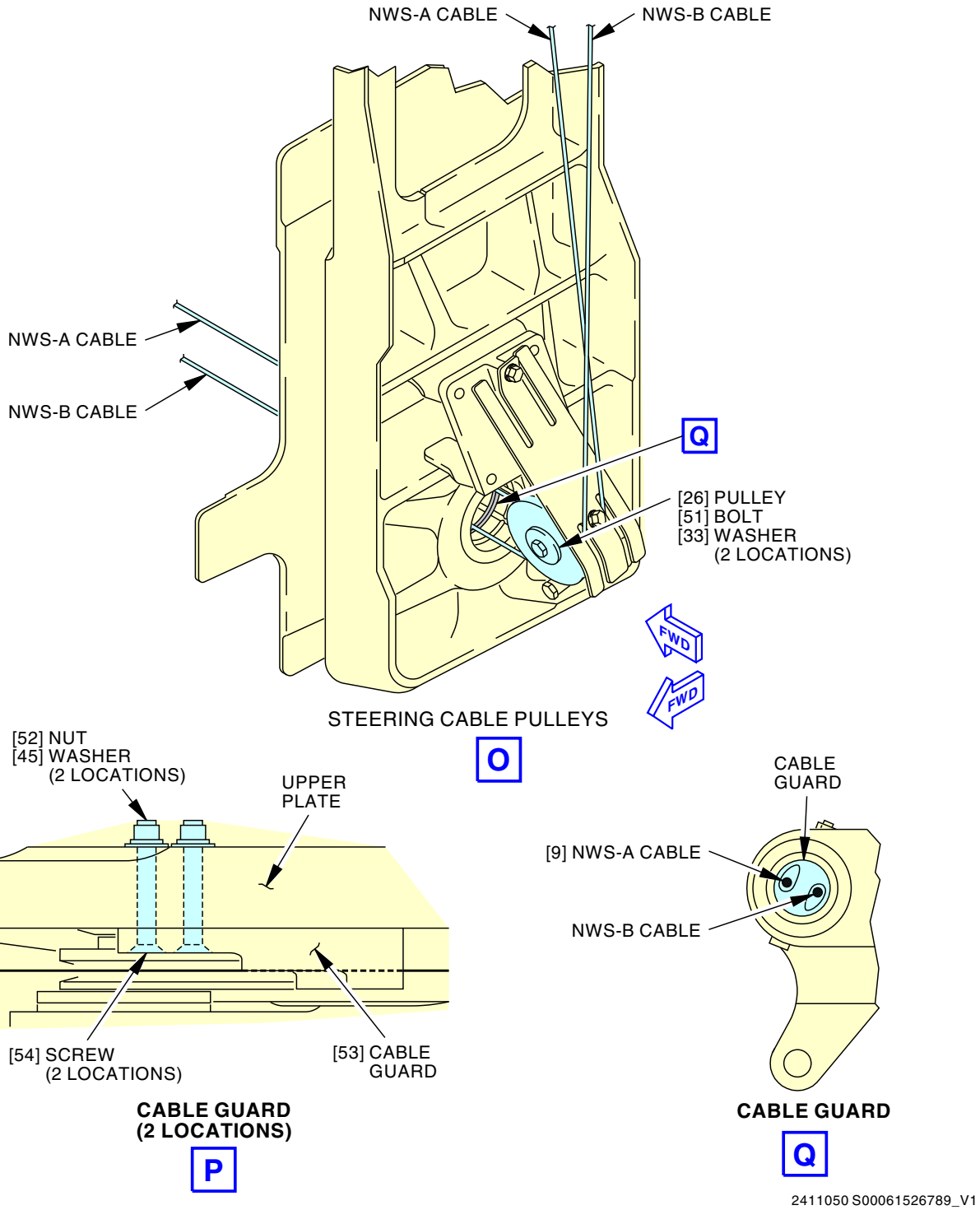



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**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 9 of 11)**



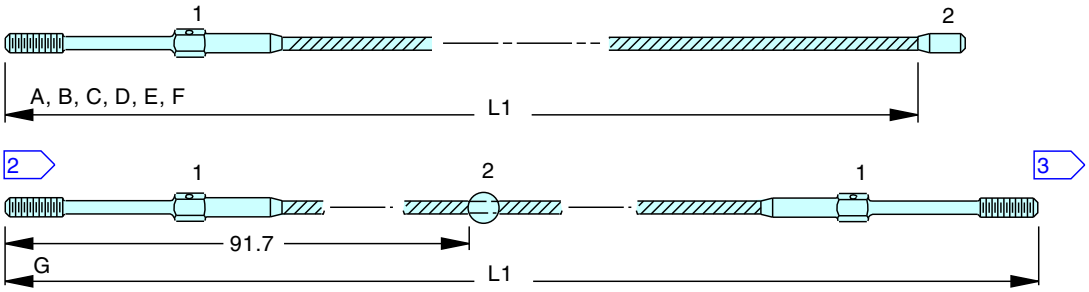
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 10 of 11)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




| CABLE REFERENCE | FUNCTION | NUMBER REQUIRED | LENGTH INCHES 1 | | FITTINGS 1 | |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| A 5 | NWSA (A) | 1 | L1 | 52.3 | MS21260L3LH | BACT14A3 |
| B 5 | NWSA (B) | 1 | L1 | 16.8 | MS21260L3RH | BACT14A3 |
| C 5 | NGPPB | 1 | L1 | 11.6 | MS21260S3LH | BACT14A3 |
| D 5 | NGPPA | 1 | L1 | 11.2 | MS21260S3RH | BACT14A3 |
| E 5 | NWSB (B) | 1 | L1 | 97.7 | MS21260L3RH | BACT14A3 |
| F 5 | NWSB | 1 | L1 | 127.2 | MS21260L3LH | BACT14A3 |
| G 4 | NWSA/B | 1 | L1 | 190.2 | MS21260L3RH/LH | BACT14B3 |
| A 5 | NWSB (A) | 1 | L1 | 62.6 | MS21260L3LH | BACT14A3 |
| - | NWSA (C) | 1 | 65.68 (REF) | | - | - |
| F 5 | NWSA (D) | 1 | L1 | 111.5 | MS21260L3LH | BACT14A3 |

1 REFERENCE ONLY. REFER TO CURRENT IPC FOR SPECIFIC PART NUMBER, LENGTH, MATERIAL AND END FITTING ASSEMBLY FABRICATION TENSIONING LOADS, AND TOLERANCES.

2 THIS END TAKES A RIGHT HAND THREADED FITTING.

3 THIS END TAKES A LEFT HAND THREADED FITTING.

4 CABLE MATERIAL: 3/32 CRES 7X7 PER BMS7-265, TYPE 1, COMPOSITION B.

5 CABLE MATERIAL: 3/32 TIN OVER ZINC CARBON STEEL, 7X7 PER BMS 7-265, TYPE 1, COMPOSITION A.

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**Steering System Cables Installation**
**Figure 401/32-51-31-990-805 (Sheet 11 of 11)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-51-31-400-801**

## 3. Nose Gear Steering Position Cables Installation

(Figure 401)

### A. General

(1) This task gives instructions to install nose gear steering position cables.

### B. References

| Reference | Title |
|---|---|
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 20-10-91-400-801 | Control Cables Installation (P/B 401) |
| 32-51-00-820-802 | Rudder Pedal Interconnect Mechanism Adjustment Check (P/B 501) |
| 32-51-00-820-803 | Rudder Pedal Interconnect Mechanism Adjustment (P/B 501) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| C00308 | Compound - Corrosion Preventive, Petrolatum Hot Application | MIL-C-11796 |
| C00528 | Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film) | MIL-C-11796 Class III |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | NGPP-B cable | 32-51-31-04-030 | SIA ALL |
| 4 | NGPP-A cable | 32-51-31-04-035 | SIA ALL |
| 5 | Pin | 32-51-31-04-005 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### F. Access Panels

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

### G. Nose Gear Steering Position Cables Installation

**SUBTASK 32-51-31-420-001**

(1) Install the NGPP-B cable [3] and the NGPP-A cable [4] (TASK 20-10-91-400-801).

NOTE: The cable length and fittings are shown in (Figure 401).

(a) Apply a thin layer of corrosion preventive compound, C00308, or compound, C00528, to the threads on the internal and external surfaces of the mating adjustable parts on the turnbuckles [2].



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-51-31-420-002

(2) Connect the NGPP-A cable [4] and the NGPP-B cable [3] to the rotary actuator pulley.

**CAUTION**

DO NOT LET THE ENDS OF THE PINS TOUCH THE HOUSING OF THE ACTUATOR WHEN THE CABLES ARE INSTALLED. DAMAGE TO THE ROTARY ACTUATOR CAN OCCUR.

(a) Install the pins [5] in the rotary actuator pulley.

SUBTASK 32-51-31-420-003

(3) Connect the NGPP-A cable [4] and the NGPP-B cable [3] at the turnbuckles [2].

SUBTASK 32-51-31-820-001

(4) Adjust the NGPP-A cable [4] and the NGPP-B cable [3] (TASK 32-51-00-820-802).

SUBTASK 32-51-31-820-002

(5) Do the adjustment for the rudder pedal interconnect mechanism (TASK 32-51-00-820-803).

SUBTASK 32-51-31-420-004

(6) Install the clips [1] on the turnbuckles [2].

### H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-31-580-002

(1) Lower the nose of the airplane and remove the jacks (TASK 07-10-21-580-802).

SUBTASK 32-51-31-410-001

(2) Install the forward access panel on the left sidewall of the nose wheel (TASK 53-14-01-420-801).

(a) Close this access panel:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-31-080-001

(3) Remove the rig pin NS5 from the drum on the interconnect quadrant.

**END OF TASK**

**TASK 32-51-31-000-802**

## 4. Nose Gear Steering System Cables Removal

(Figure 401)

### A. General

(1) This task gives instructions to remove nose gear steering system cables.

### B. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 25-11-22-000-801 | Flight Compartment Forward Side Panel Removal (P/B 401) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-51-00-820-801 | General Check of the Nose Wheel Steering System Adjustment (P/B 501) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |



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## C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1821 | Adjustable Spanner Wrench (0.75 to 2.00 Inch Dia. Retainer, 0.12 x 0.12 Key Arm)<br>Part #: F72959-40 Supplier: 81205<br>Opt Part #: F72959-4 Supplier: 81205 |

## D. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

## E. Access Panels

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

## F. Prepare for the Removal

**SUBTASK 32-51-31-480-003**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-51-31-860-002**

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-51-31-480-007**

(3) Install the rig pin NS10 in the drum for the first officer's control wheel (TASK 32-51-00-820-801).


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SUBTASK 32-51-31-580-003

(4) If it is necessary, lift the airplane with jacks, until the nose gear shock strut is fully extended and wheels do not touch the ground (TASK 07-10-21-580-801).

NOTE: The nose of the airplane is lifted with jacks to find the center position of the nose landing gear and steering collar. The internal centering cam of the shock strut is used to find the center position of the nose landing gear and steering collar. If the jacks are not available you can use grease plates under the nose wheels to put the nose gear and steering collar in the center position.

NOTE: To put the nose landing gear and steering collar in the center position without jacks, tow the airplane a minimum of 12 ft (4 m) in a straight line before it is parked.

SUBTASK 32-51-31-480-004

(5) Install the rig pin NS2 in the drum for the captain's control wheel (TASK 32-51-00-820-801).

NOTE: Once the nose is lifted off the ground, the shock strut centering cams center the gear to let you insert rig pin NS2.

SUBTASK 32-51-31-010-003

(6) Remove the forward access panel from the left sidewall of the nose wheel well to get access to the turnbuckle [10] of the NWS-A(A) cable [14] and NWS-A(B) cable [25] (TASK 53-14-01-020-801).

(a) Remove this access panel:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-31-010-007

(7) Remove the forward access panel from the right sidewall of the nose wheel well to get access to the turnbuckle [10] of the NWS-A(C) cable [14A], NWS-B(A) cable [7A], NWS-A(D) cable [8], and NWS-B(B) cable [8A] (TASK 53-14-01-020-801).

(a) Remove this access panel:

| Number | Name/Location |
|---|---|
| 114AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-31-010-008

(8) Remove the aft access panel from the left sidewall of the nose wheel well to get access to the turnbuckles [2] for the NWS-B cable [7], NWS-A(D) cable [8], and NWS-A/B cable [9] (TASK 53-14-01-020-801).

(a) Remove this access panel:

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |

## G. Nose Gear Steering System Cables Removal

SUBTASK 32-51-31-020-004

(1) Remove the NWS-B(A) cable [7A], NWS-A(D) cable [8], NWS-B(B) cable [8A], NWS-A(A) cable [14], NWS-A(C) cable [14A], and NWS-A(B) cable [25].

(a) Remove the clips [6] from the turnbuckles [10].

(b) Disconnect the NWS-B(A) cable [7A], NWS-A(D) cable [8], NWS-B(B) cable [8A], NWS-A(A) cable [14], NWS-A(C) cable [14A], and NWS-A(B) cable [25] at the turnbuckles [10].



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(c) Do these steps to disconnect the NWS-A(A) cable [14], NWS-A(C) cable [14A], and NWS-B(A) cable [7A] from the drum [18]:

1) Remove the plug button [12] from the control wheel [11].
2) Remove the nut [13] that holds the control wheel [11] to the tiller assembly.
3) Remove the control wheel [11].
4) Remove the sidewall to get access to the drum [18] on the tiller assembly (TASK 25-11-22-000-801).
5) Remove the nut [15] and washer [16] from the shaft [20].
6) Remove the shaft [20], washer [19], and spacers [17].
7) Remove the drum [18].
8) Remove the pin [56] from the drum [18].

(d) Remove the nut [28], washer [22], bolt [27], and pulley [26] from the bracket.

(e) Remove the NWS-A(A) cable [14], NWS-A(C) cable [14A], and NWS-B(A) cable [7A].

(f) Remove the nuts [21], washer [57], end plates [23], and screws [24] that attach the NWS-A(B) cable [25] and NWS-B(B) cable [8A] to the quadrant for the steering mechanism.

(g) Remove the NWS-A(B) cable [25].

(h) Remove the nut [28], washer [22], bolt [29], and pulley [26] from the bracket.

(i) Remove the NWS-A(D) cable [8] and NWS-B(B) cable [8A].

**SUBTASK 32-51-31-020-002**

(2) Remove the NWS-B cable [7].

(a) Remove the clips [6] from the turnbuckles [10] (View D, Figure 401).

(b) Disconnect the NWS-B cable [7] and NWS-A/B cable [9] at the turnbuckle [10].

(c) Do these steps to disconnect the NWS-B cable [7] at the drum [18] (View G, Figure 401):

1) Remove the plug button [12] from the control wheel [11] (View F, Figure 401).
2) Remove the nut [13] that holds the control wheel [11] to the tiller assembly.
3) Remove the control wheel [11].
4) Remove the sidewall to get access to the drum [18] (TASK 25-11-22-000-801).
5) Remove the nut [15] and washer [16] from the shaft [20] (View G, Figure 401).
6) Remove the shaft [20], washer [19], and spacers [17].
7) Remove the drum [18].
8) Remove the pin [56] from the drum [18].

(d) Remove the nut [28], washer [22], bolt [27], and pulley [26] from the bracket.

(e) Remove the nut [28], washer [22], bolt [30], and pulley [26] from the bracket.

(f) Remove the NWS-B cable [7].

**SUBTASK 32-51-31-020-003**

(3) Remove the NWS-A/B cable [9].

(a) Remove the screws [44], washers [45], washers [58], and summing mechanism cover [46] (View M, Figure 401).

(b) Remove the pins [50] from the steering collar (View N, Figure 401).



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(c) Remove the nuts [52], washers [45], and screws [54] to remove the cable guard [53] (View P, Figure 401).

(d) Remove the nuts [34], washers [55], washers [33], bolts [32], cable guards [31], and pulleys [26] from their brackets (View K, Figure 401).

(e) Remove the bolts [51], washers [33], and pulleys [26] from the bracket behind the trunnion (View O, Figure 401).

(f) Remove the nuts [28], bolts [47], washers [48], bushings [49], and pulleys [26] from the pulley brackets on the summing mechanism (View M, Figure 401).

(g) Remove the seal [38] from the left trunnion of the nose gear.

1) Remove the lockwire from the screw [35] and lock [43] (View L, Figure 401).

2) Remove the screw [35] that holds the lock [43] to the left trunnion pin.

3) Remove the lock [43] from the left trunnion pin.

4) Use a spanner wrench, SPL-1821, to remove the trunnion pin nut [40] from the left trunnion pin.

5) Pull the seal ring [41] and seal [38] from the left trunnion pin.

a) If it is difficult to pull the seal [38], hold the eyebolt [39] and pull the seal [38] out of the left trunnion pin.

6) Remove the nut [36], washer [42], and inboard retainer [37] from the eyebolt [39].

7) Remove the eyebolt [39] from the left trunnion pin.

8) Remove the outboard retainer [37] from the eyebolt [39].

9) Separate the segments of the seal [38] from the NWS-A/B cable [9].

10) Pull the NWS-A/B cable [9] through the trunnion pin nut [40], seal ring [41], and left trunnion pin.

(h) Remove the NWS-A/B cable [9].

**END OF TASK**

**TASK 32-51-31-400-802**

## 5. Nose Gear Steering System Cables Installation

(Figure 401)

### A. General

(1) This task gives instructions to install nose gear steering system cables.

### B. References

| Reference | Title |
|---|---|
| 20-10-91-400-801 | Control Cables Installation (P/B 401) |
| 20-20-31-200-801 | Inspection of the Control Cable Wire Rope (P/B 601) |
| 25-11-22-400-801 | Flight Compartment Forward Side Panel Installation (P/B 401) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-51-00-820-801 | General Check of the Nose Wheel Steering System Adjustment (P/B 501) |
| 32-51-00-820-802 | Rudder Pedal Interconnect Mechanism Adjustment Check (P/B 501) |
| 32-51-00-820-805 | Nose Wheel Steering System Adjustment (P/B 501) |


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(Continued)

| Reference | Title |
|---|---|
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

**C. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1821 | Adjustable Spanner Wrench (0.75 to 2.00 Inch Dia. Retainer, 0.12 x 0.12 Key Arm)<br>Part #: F72959-40 Supplier: 81205<br>Opt Part #: F72959-4 Supplier: 81205 |

**D. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| C00308 | Compound - Corrosion Preventive, Petrolatum Hot Application | MIL-C-11796 |
| C00528 | Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film) | MIL-C-11796 Class III |
| G01048 | Lockwire - MS20995C32, Corrosion Resistant Steel - 0.032 Inch (0.8128 mm) Diameter | NASM20995 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**E. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 7 | NWS-B cable | 32-51-31-01-015 | SIA ALL |
| 7A | NWS-B(A) cable | 32-51-31-04-045 | SIA ALL |
| 8 | NWS-A(D) cable | 32-51-31-04-050 | SIA ALL |
| 8A | NWS-B(B) cable | 32-51-31-04-050 | SIA ALL |
| 9 | NWS-A/B cable | 32-51-31-04-045 | SIA ALL |
| | | 32-51-31-04-050 | SIA ALL |
| 14 | NWS-A(A) cable | 32-51-31-01-010 | SIA ALL |
| 14A | NWS-A(C) cable | 32-51-31-04-050 | SIA ALL |
| 25 | NWS-A(B) cable | 32-51-31-04-045 | SIA ALL |
| | | 32-51-31-04-050 | SIA ALL |
| 56 | Pin | 32-51-41-02-045 | SIA ALL |

**F. Location Zones**

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |



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(Continued)

| Zone | Area |
|---|---|
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**G. Access Panels**

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

**H. Prepare for the Installation**

SUBTASK 32-51-31-480-005

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed in the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-51-31-860-003

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-31-480-006

(3) Make sure that the rig pin NS2 is in the drum for the captain's control wheel (TASK 32-51-00-820-801).

SUBTASK 32-51-31-480-008

(4) Make sure that the rig pin NS10 is in the drum for the first officer's control wheel (TASK 32-51-00-820-801).

**I. Nose Gear Steering System Cables Installation**

**CAUTION** MAKE SURE THAT THE STEERING CABLES ARE IN THE GROOVES OF THE PULLEYS WHEN YOU ASSEMBLE THEM. CABLES THAT ARE NOT IN THE CABLE GUARDS CAN CAUSE DAMAGE.

**CAUTION** DO NOT APPLY SOLVENTS, GREASE, OR OIL TO STAINLESS STEEL CONTROL CABLES. THESE MATERIALS CAN COLLECT CONTAMINATION THAT CAN CAUSE DAMAGE TO THE INTERNAL SURFACES OF THE CRES CABLE STRANDS. THIS CAN DECREASE THE SERVICE LIFE OF THE CABLE.

SUBTASK 32-51-31-420-009

**CAUTION** MAKE SURE THAT THE STEERING CABLES ARE IN THE GROOVES OF THE PULLEYS WHEN YOU ASSEMBLE THEM. CABLES THAT ARE NOT IN THE CABLE GUARDS CAN CAUSE DAMAGE.



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**(CAUTION PRECEDES)**

**CAUTION**

DO NOT APPLY SOLVENTS, GREASE, OR OIL TO STAINLESS STEEL CONTROL CABLES. THESE MATERIALS CAN COLLECT CONTAMINATION THAT CAN CAUSE DAMAGE TO THE INTERNAL SURFACES OF THE CRES CABLE STRANDS. THIS CAN DECREASE THE SERVICE LIFE OF THE CABLE.

(1) Install the NWS-B(A) cable [7A], NWS-A(D) cable [8], NWS-B(B) cable [8A], NWS-A(A) cable [14], NWS-A(C) cable [14A], and NWS-A(B) cable [25] (TASK 20-10-91-400-801).

NOTE: Cable length and fittings are shown in Figure 401.

(a) Apply a thin layer of corrosion preventive compound, C00308, or compound, C00528, to the threads on the internal and external surfaces of the mating adjustable parts on the turnbuckles [10].

(b) Do these steps to install the NWS-B(A) cable [7A], NWS-A(A) cable [14], and NWS-A(C) cable [14A] on the drum [18]:

1) Put the end of the NWS-A(A) cable [14] in the groove on the drum [18].

2) Put the end of the NWS-B(A) cable [7A] and NWS-A(C) cable [14A] in the groove on the drum [18].

3) Install the new pin [56] in the drum [18].

4) Install the drum [18] on the steering tiller assembly.

5) Install the shaft [20], washer [19], and spacers [17].

a) Install the shaft [20] with the missing tooth aligned in the drum [18].

6) Install the nut [15] and washer [16] on the shaft [20].

7) Install the control wheel [11].

8) Install the nut [13] that holds the control wheel [11] to the tiller assembly.

9) Tighten the nut [13] to 100 in-lb (11.3 N·m) - 150 in-lb (16.9 N·m) above the running torque.

10) Install the plug button [12] on the control wheel [11].

11) Install the sidewall you removed to get access to the drum [18] on the tiller assembly (TASK 25-11-22-400-801).

(c) Connect the NWS-A(A) cable [14], NWS-B(A) cable [7A], and NWS-A(C) cable [14A] to the pulley [26].

(d) Install the bolt [27], washer [22], nut [28], and pulley [26] on the bracket.

(e) Install the NWS-A(B) cable [25].

(f) Connect the NWS-B(B) cable [8A] and NWS-A(B) cable [25] to the quadrant for the steering mechanism.

1) Install the end plates [23], screws [24], washers [57], and nuts [21].

(g) Install the NWS-A(D) cable [8] in the groove of the pulley [26].

(h) Install the bolt [29], washer [22], nut [28], and pulley [26], on the bracket.

(i) Connect the NWS-A(A) cable [14] and NWS-A(B) cable [25] at the turnbuckles [10].

(j) Connect the NWS-B(A) cable [7A] and NWS-B(B) cable [8A] at the turnbuckles [10].

(k) Connect the NWS-A(C) cable [14A] and NWS-A(D) cable [8] at the turnbuckles [10].



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SUBTASK 32-51-31-420-006

(2) Install the NWS-B cable [7] (TASK 20-10-91-400-801).

NOTE: Cable length and fittings, are shown in Figure 401.

(a) Apply a thin layer of corrosion preventive compound, C00308, or compound, C00528, to the threads on the internal and external surfaces of the mating adjustable parts on the turnbuckles [10].

(b) Do these steps to install the NWS-B cable [7] on the drum [18]:

1) Put the end of NWS-B cable [7] in the groove on the drum [18].
2) Install the new pin [56] in the drum [18].
3) Install the drum [18] in the steering tiller assembly.
4) Install the shaft [20], washer [19], and spacers [17].
   a) Install the shaft [20] with the missing tooth aligned in the drum [18].
5) Install the nut [15] and washer [16] on the shaft [20].
6) Install the control wheel [11].
7) Install the nut [13] that holds the control wheel [11] to the tiller assembly.
8) Tighten the nut [13] ] to 100 in-lb (11.3 N·m) - 150 in-lb (16.9 N·m) above the running torque.
9) Install the plug button [12] on the control wheel [11].
10) Install the sidewall you removed to get access to the drum [18] on the tiller assembly (TASK 25-11-22-400-801).

(c) Put the NWS-B cable [7] in the groove of the pulleys [26].

(d) Install the bolt [27], washer [22], nut [28], and pulley [26] on the bracket.

(e) Install the bolt [30], washer [22], nut [28], and pulley [26] on the bracket.

SUBTASK 32-51-31-420-007

(3) Install the NWS-A/B cable [9] (TASK 20-10-91-400-801).

NOTE: Cable length and fittings are shown in Figure 401.

(a) Apply a thin layer of corrosion preventive compound, C00308, or compound, C00528, to the threads on the internal and external surfaces of the mating adjustable parts on the turnbuckles [10].

(b) Install the seal [38] and NWS-A/B cable [9] through the left trunnion of the nose gear.

1) Install the NWS-A/B cable [9] through the trunnion pin nut [40], seal ring [41], left trunnion pin, pulleys [26] outside the left trunnion, pulley brackets on the summing mechanism, and around the steering collar.
   a) Make sure that the ends of the NWS-A/B cable [9] are 1 in. (25 mm) or less apart when they are pulled tight where they come out of the left trunnion pin.
2) Install the segments of the seal [38] on the NWS-A/B cable [9].
3) Install the outboard retainer [37] on the eyebolt [39].
4) Install the inboard retainer [37], washer [42], and nut [36] on the eyebolt [39].
   a) Make sure that one NWS-A/B cable [9] goes over the trunnion pin bolt and one goes under the trunnion pin bolt where the NWS-A/B cables [9] go through the left trunnion.
5) Tighten the nut [36] sufficiently to clamp the seal [38].



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6) Loosen the nut [36] approximately 1/4 turn until you can turn the eyebolt [39] with your fingers.

7) Put the seal [38] into the left trunnion pin until it touches the stop.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

8) Apply corrosion inhibiting material, G50136, to the threads of the trunnion pin nut [40], seal ring [41], and seal [38].

9) Put the seal ring [41] and seal [38] into the left trunnion pin.

10) Use the spanner wrench, SPL-1821, to install the trunnion pin nut [40] on the left trunnion pin.

11) Tighten the trunnion pin nut [40] to 125 ±25 in-lb (14 ±3 N·m), then loosen the trunnion pin nut [40] to align the slots on the trunnion pin nut [40] with the bolt holes.

12) Install the lock [43] on the left trunnion pin.

13) Install the screw [35] to hold the lock [43] on the left trunnion pin.

14) Install MS20995C32 lockwire, G01048, on the screw [35] and lock [43].

(c) Install the pin [50] on the steering collar.

(d) For the pulleys [26] on the top of the outer cylinder, do these steps:

1) Put the NWS-A/B cable [9] in the groove on the pulleys [26].

2) Install the pulleys [26], cable guards [31], bolts [32], washers [55], washers [33], and nuts [34] on their brackets on the top of the outer cylinder.

(e) For the pulleys [26] on the bracket behind the trunnion, do these steps:

1) Put the NWS-A/B cable [9] in the groove on the pulleys [26].

2) Install the pulleys [26], bolts [51], and washers [33] on the bracket behind the trunnion.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

a) Install the bolts [51] with corrosion inhibiting material, G50136.

b) Tighten the bolts [51] to 27.5 ±2.5 in-lb (3.1 ±0.3 N·m).

(f) For the pulleys [26] on the summing mechanism do these steps:

1) Put the NWS-A/B cable [9] in the groove on the pulleys [26].



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2) Install the nuts [28], bolts [47], washers [48], bushings [49], and pulleys [26] on the pulley brackets on the summing mechanism.

a) Tighten the nuts [28] to 50 in-lb (5.6 N·m) - 75 in-lb (8.5 N·m) above run-on torque.

(g) Install the nuts [52], washers [45], and screws [54] to attach the cable guard [53] to the upper plate.

1) Install the cable guard [53] there is 0.032 +0.013 / -0.017 in. (0.813 +0.330 / -0.432 mm) clearance with the steering collar.

2) Tighten the nuts [52] to 22.5 ±2.5 in-lb (2.5 ±0.3 N·m).

(h) Connect the NWS-A(D) cable [8], NWS-B cable [7], and NWS-A/B cable [9] at the turnbuckles [10].

**SUBTASK 32-51-31-200-001**

(4) Do this task: Inspection of the Control Cable Wire Rope, TASK 20-20-31-200-801.

## J. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-51-31-210-001**

(1) Visually examine the steering cables.

(a) Make sure that the cables are routed correctly around the pulleys and are not outside the cable guards.

**SUBTASK 32-51-31-820-003**

(2) Do the adjustment for the rudder pedal interconnect mechanism (TASK 32-51-00-820-802).

**SUBTASK 32-51-31-820-004**

(3) Do the adjustment for the nose wheel steering system (TASK 32-51-00-820-805).

**SUBTASK 32-51-31-420-008**

(4) Install the clips [6] on the turnbuckles [10].

**SUBTASK 32-51-31-410-002**

(5) Install the summing mechanism cover [46].

(a) Install the screws [44], washer [45], and washers [58].

**SUBTASK 32-51-31-410-004**

(6) Close the access panels to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-420-801).

(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

**——— END OF TASK ———**



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## STEERING SYSTEM CABLES - INSPECTION/CHECK

### 1. General

A. This procedure has a task to do an inspection of the nose gear steering system cable. There are no steps for access, removal, or installation of the cables. Refer to the procedure: STEERING SYSTEM CABLES - REMOVAL/INSTALLATION, PAGEBLOCK 32-51-31/401, for procedures to do these steps.

**TASK 32-51-31-220-801**

### 2. Nose Gear Steering System Cables Inspection

#### A. References

| Reference | Title |
|---|---|
| 12-26-00-600-801 | Control Cable Lubrication (P/B 301) |
| 20-20-31-200-801 | Inspection of the Control Cable Wire Rope (P/B 601) |
| 20-20-31-200-802 | Inspection of the Control Cable Fittings (P/B 601) |
| 20-20-31-200-803 | Inspection of Pulleys (P/B 601) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-51-31-000-802 | Nose Gear Steering System Cables Removal (P/B 401) |
| 32-51-31-990-805 | Figure: Steering System Cables Installation (P/B 401) |
| 32-51-52-020-801 | Summing Mechanism Removal (Without Using Cable Clamp Assembly) (P/B 401) |
| 32-51-52-420-801 | Summing Mechanism Installation (Without Using Cable Clamp Assembly) (P/B 401) |
| 32-51-52-990-801 | Figure: Nose Landing Gear Steering Summing Mechanism Installation (P/B 401) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 112 | Area Forward of Nose Landing Gear Wheel Well |
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |

#### C. Prepare for the Inspection

**SUBTASK 32-51-31-840-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed for the nose and main landing gear, do this task: TASK 32-00-01-480-801.

**SUBTASK 32-51-31-010-005**

(2) Do the steps to remove the summing mechanism cover for the nose landing gear steering as shown in this task: (TASK 32-51-52-020-801), (Figure 32-51-52-990-801).


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## D. Nose Gear Steering System Cables Inspection

SUBTASK 32-51-31-210-002

| | |
|---|---|
| **CAUTION** | DO NOT APPLY SOLVENTS, GREASE, OR OIL TO STAINLESS STEEL CONTROL CABLES. THESE MATERIALS CAN COLLECT CONTAMINATION THAT CAN CAUSE DAMAGE TO THE INTERNAL SURFACES OF THE CRES CABLE STRANDS. THIS CAN DECREASE THE SERVICE LIFE OF THE CABLE. |

(1) Examine the interior of the left side trunnion pin, the area around the pressure seal, the steering cable and cable guard for grease and dirt.

(a) If dirt or grease is found, do this task: Control Cable Lubrication, TASK 12-26-00-600-801.

SUBTASK 32-51-31-210-003

(2) Examine the steering cables for correct routing, broken wires, fraying and corrosion (TASK 20-20-31-200-801).

NOTE: In order to examine the part of the cables in the trunnion pin, it will be necessary to turn the wheels fully in both directions.

(a) Refer to the task: Nose Gear Steering System Cables Removal, TASK 32-51-31-000-802, Figure 32-51-31-990-805, to find where the cables run.

SUBTASK 32-51-31-210-004

(3) Examine the control cable fittings and cable seals for these conditions: deterioration; out-of-round wear; mounting rings that are not secure (TASK 20-20-31-200-802).

(a) Refer to the task: Nose Gear Steering System Cables Removal, TASK 32-51-31-000-802, Figure 32-51-31-990-805, to find where the cable fittings and seals are located.

(b) Remove all grease that you find on the pressure seals.

SUBTASK 32-51-31-210-005

(4) Examine the cable pulley brackets, pulleys and fairleads for these conditions: cracks; distortion; loose mounting, cracks or misalignment (TASK 20-20-31-200-803).

(a) Refer to the task: Nose Gear Steering System Cables Removal, TASK 32-51-31-000-802, Figure 32-51-31-990-805, to find where the cable brackets, pulleys and fairleads are located.

## E. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-31-010-006

(1) Do the steps to install the summing mechanism cover for the nose landing gear steering as shown in the task: (TASK 32-51-52-420-801), (Figure 32-51-52-990-801).

**END OF TASK**



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## NOSE LANDING GEAR CONTROL WHEEL AND TILLER ASSEMBLY - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) A removal of the nose landing gear steering control wheel

(2) An installation of the nose landing gear steering control wheel

(3) A removal of the nose landing gear tiller assembly

(4) An installation of the nose landing gear tiller assembly.

**TASK 32-51-41-000-801**

### 2. Nose Landing Gear Steering Control Wheel Removal

(Figure 401)

#### A. General

(1) This task includes the steps to remove the control wheel.

#### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 211 | Flight Compartment - Left |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### D. Prepare for the Removal

**SUBTASK 32-51-41-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

#### E. Nose Landing Gear Steering Control Wheel Removal

**SUBTASK 32-51-41-020-001**

(1) Remove the control wheel [7] from the tiller assembly [13].

(a) Remove the plug button [1] from the control wheel [7].

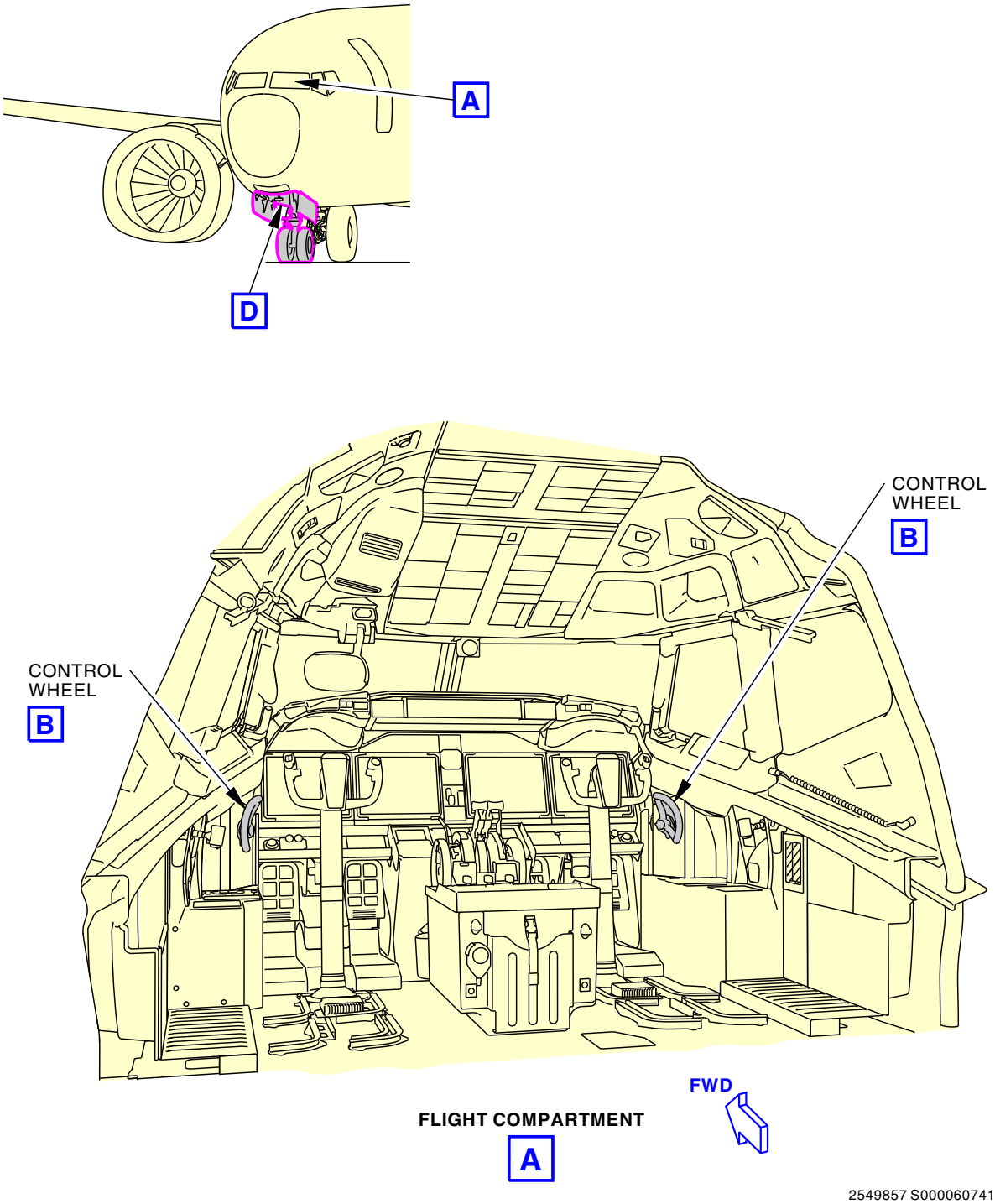
(b) Remove the nut [2] and washer [19] that attach the control wheel [7] to the tiller assembly [13].

(c) Remove the control wheel [7] from the airplane.

**END OF TASK**



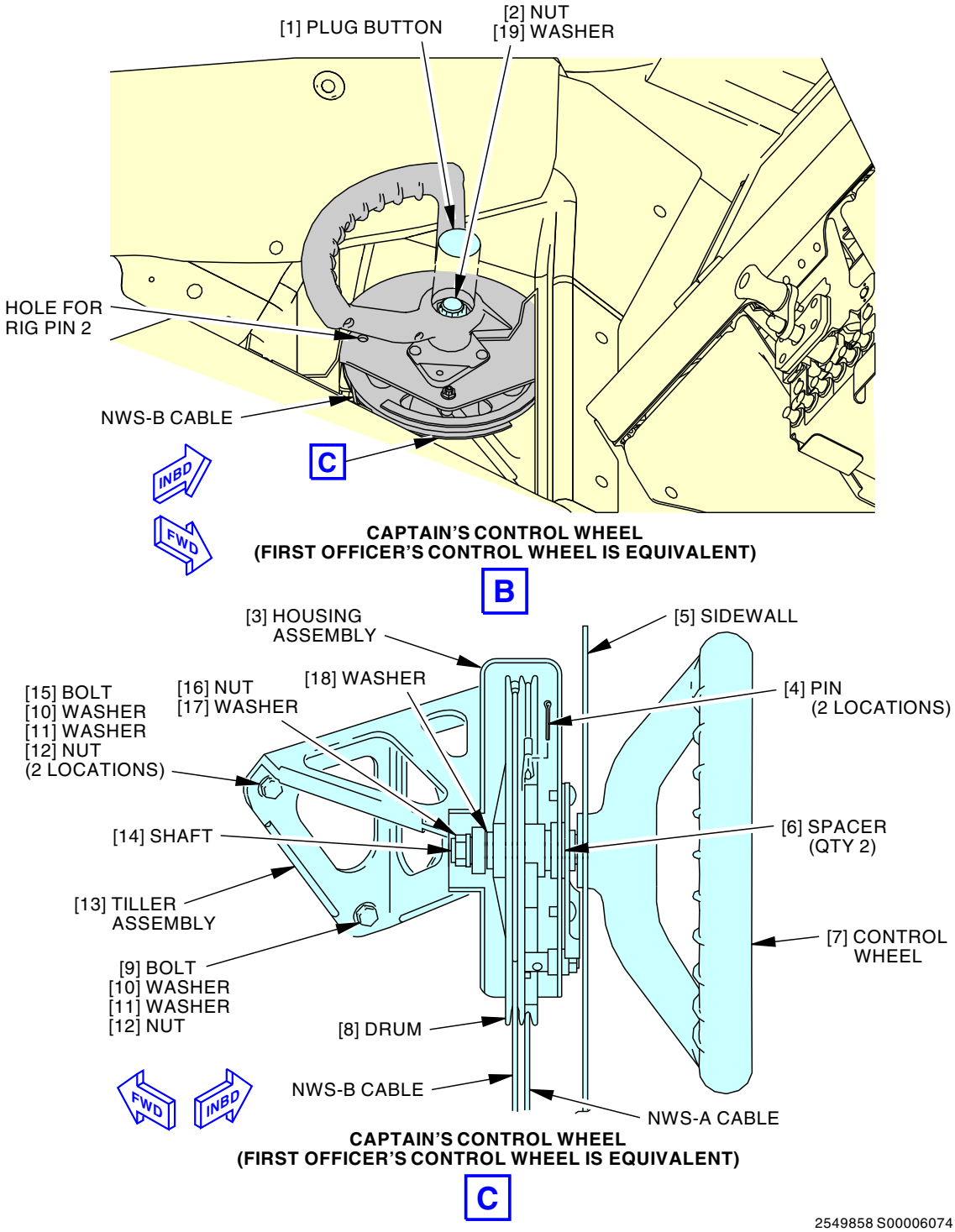
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**Nose Landing Gear Steering Control Wheel and Tiller Installation**
**Figure 401/32-51-41-990-801 (Sheet 1 of 3)**



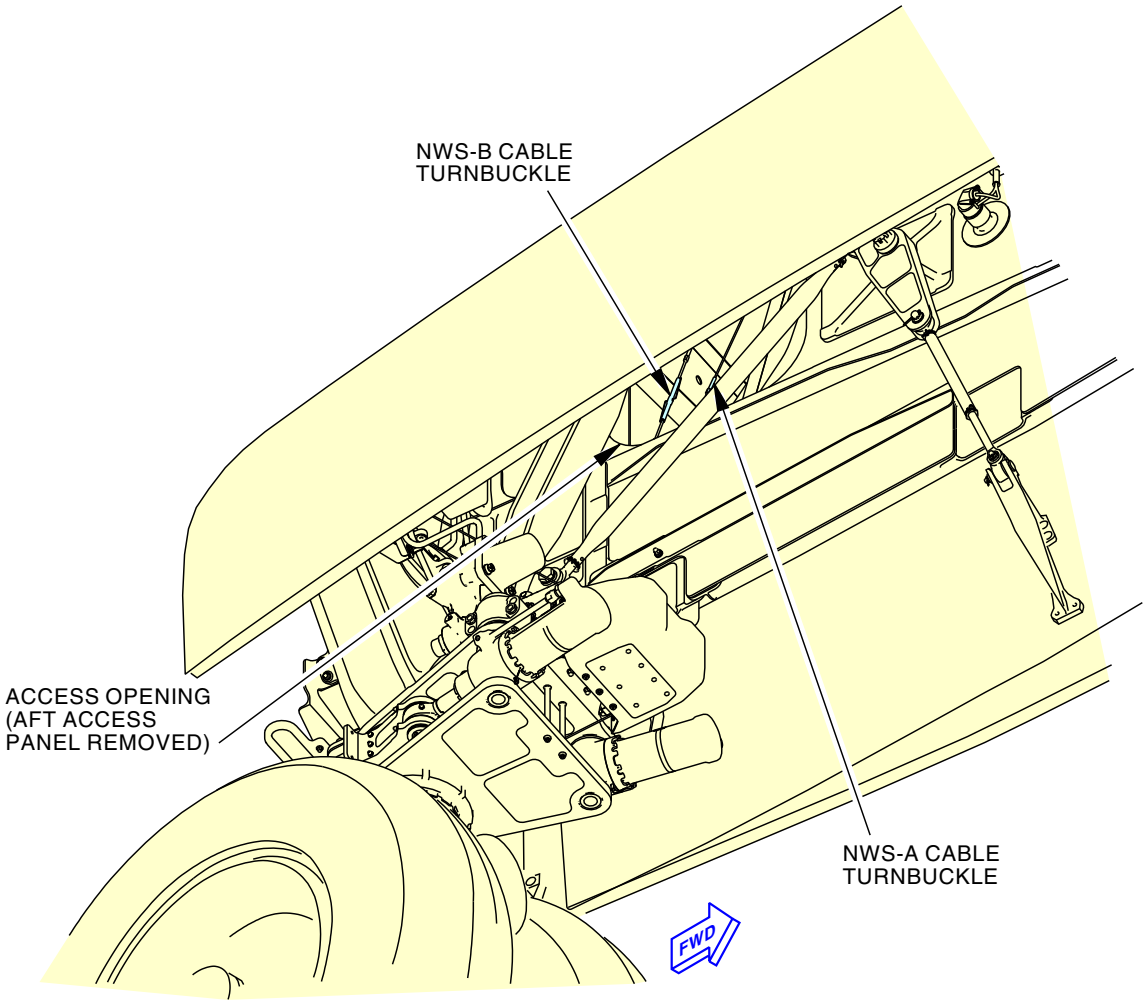
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**Nose Landing Gear Steering Control Wheel and Tiller Installation**
**Figure 401/32-51-41-990-801 (Sheet 2 of 3)**



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D

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**Nose Landing Gear Steering Control Wheel and Tiller Installation**
**Figure 401/32-51-41-990-801 (Sheet 3 of 3)**



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**TASK 32-51-41-400-801**

## 3. Nose Landing Gear Steering Control Wheel Installation

(Figure 401)

### A. General

(1) This task includes the steps to install the control wheel.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |
| 32-51-00-820-805 | Nose Wheel Steering System Adjustment (P/B 501) |

### C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### D. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A50060 | Adhesive - Low Odor, Synthetic Rubber Cement | BMS5-30 Type III |

### E. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 7 | Control wheel | 32-51-41-02-030 | SIA ALL |

### F. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 211 | Flight Compartment - Left |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### G. Prepare for the Installation

**SUBTASK 32-51-41-480-002**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

### H. Nose Landing Gear Control Wheel Installation

**SUBTASK 32-51-41-420-001**

(1) Install the control wheel [7] on the tiller assembly [13].



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(a) Install rig pin NS2, from rigging pin kit, SPL-1585, in the captain's control wheel drum or rig pin NS10 in the first officer's control wheel drum.

(b) Put the control wheel [7] in its position for attachment to the tiller assembly [13].

NOTE: With the rig pin NS2 installed, the arrow on the control wheel must align with the arrow on the sidewall when you install the control wheel.

(c) Install the nut [2] and washer [19] that attach the control wheel [7] to the tiller assembly [13].

(d) Tighten the nut [2] to 125 ±25 in-lb (14.1 ±2.8 N·m) above the run on torque value.

(e) Install the plug button [1] on the control wheel [7].

1) Apply three drops of adhesive, A50060, evenly spaced to the underside of the plug button [1].

2) Hold the plug button [1] in position with low adhesive masking tape.

**SUBTASK 32-51-41-480-003**

(2) Remove the rig pin from the control wheel drum.

**I. Nose Landing Gear Control Wheel Installation Test**

**SUBTASK 32-51-41-820-001**

(1) Adjust the steering system on the nose wheel (TASK 32-51-00-820-805).

NOTE: It is not necessary to do the adjustment and system test of the nose wheel steering system if no other part has been disturbed.

**SUBTASK 32-51-41-820-002**

(2) Do a test of the steering system on the nose wheel (TASK 32-51-00-700-801).

**J. Put the Airplane Back to Its Usual Condition**

**SUBTASK 32-51-41-410-001**

(1) Install the aft access panel in the wheel well for the nose landing gear.

**——— END OF TASK ———**

**TASK 32-51-41-000-802**

## 4. Nose Landing Gear Tiller Assembly Removal

(Figure 401)

**A. General**

(1) This procedure gives instructions to remove the tiller assembly [13].

**B. References**

| Reference | Title |
|---|---|
| 25-11-22-000-801 | Flight Compartment Forward Side Panel Removal (P/B 401) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 211 | Flight Compartment - Left |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |



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**D. Prepare for the Removal**

SUBTASK 32-51-41-480-004

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-51-41-010-001

(2) Remove the aft access panel from the wheel well for the nose landing gear to get access to the turnbuckles for the NWS-A cable and the NWS-B cable.

SUBTASK 32-51-41-020-002

(3) Remove the control wheel [7] (TASK 32-51-41-000-801).

SUBTASK 32-51-41-020-003

(4) Remove the sidewall [5] to get access to the tiller assembly [13] (TASK 25-11-22-000-801).

**E. Nose Landing Gear Tiller Assembly Removal**

SUBTASK 32-51-41-020-004

(1) Disconnect the NWS-A cable and the NWS-B cable from the drum [8]:

(a) Remove the nut [16] and washer [17].

(b) Loosen the tension at the turnbuckles for the NWS-A cable and the NWS-B cable.

(c) Remove the shaft [14], washer [18], and spacers [6].

(d) Remove the drum [8] from the housing assembly [3].

(e) Remove the pins [4] that hold the cable ends to the drum [8].

(f) Attach identification tags on the NWS-A cable and the NWS-B cable.

(g) Isolate the NWS-A cable and the NWS-B from the tiller assembly [13].

SUBTASK 32-51-41-020-005

(2) Remove the tiller assembly [13]:

(a) Remove the nuts [12] and washers [11] from the bolt [9] and bolts [15].

(b) Remove the bolt [9] and bolts [15] that attach the tiller assembly [13] to the mating structure.

(c) Remove the washers [10] from the bolt [9] and bolts [15].

(d) Remove the tiller assembly [13] from the airplane.

**——— END OF TASK ———**

**TASK 32-51-41-400-802**

**5. Nose Landing Gear Tiller Assembly Installation**

(Figure 401)

**A. General**

(1) This procedure gives instructions to install the tiller assembly [13]y.



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**B. References**

| Reference | Title |
|---|---|
| 25-11-22-400-801 | Flight Compartment Forward Side Panel Installation (P/B 401) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| D00013 | Grease - Aircraft And Instrument Grease | MIL-PRF-23827 (NATO G-354) (Supersedes MIL-G-23827) |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 13 | Tiller assembly | 32-51-41-02-040 | SIA ALL |
| | | 32-51-41-03-040 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 211 | Flight Compartment - Left |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

**F. Prepare for the Installation**

SUBTASK 32-51-41-480-005

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on all the landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**G. Nose Landing Gear Tiller Assembly Installation**

SUBTASK 32-51-41-420-002

(1) Install the tiller assembly [13]:

(a) Put the tiller assembly [13] in its position for attachment to the mating structure.

(b) Align the holes in the tiller assembly [13] with the holes in the mating structure.

(c) Install the washers [10] on the bolt [9] and bolts [15].

(d) Put the inboard bolt [15] through the hole in the mating structure and the hole in the tiller assembly [13].

(e) Put the outboard bolt [9] and bolt [15] through the holes in the tiller assembly [13] and the holes in the mating structure.

(f) Install the washers [11] and nuts [12] on the bolt [9] and bolts [15].

(g) Apply sealant, A00247, around the area of the bolt [9] and bolts [15] to seal them.


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SUBTASK 32-51-41-420-003

(2) Connect the NWS-A cable and the NWS-B cable to the drum [8]:

(a) Put the cable fairleads of the NWS-A cable and the NWS-B cable in their position for attachment to the drum [8].

(b) Install the pins [4] to hold the cable ends to the drum [8].

(c) Remove the identification tags attached to the NWS-A cable and the NWS-B cable.

(d) Apply grease, D00013, to the bearings in the housing assembly [3].

(e) Install the drum [8] in the housing assembly [3].

(f) Install the shaft [14], spacers [6], and washer [18].

1) Install the shaft [14] with the missing tooth aligned in the drum [8].

(g) Install the washer [17] and nut [16].

(h) Tighten the nut [16].

## H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-41-410-002

(1) Install the sidewall [5] (TASK 25-11-22-400-801).

SUBTASK 32-51-41-420-004

(2) Install the control wheel [7] (TASK 32-51-41-400-801).

**END OF TASK**



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## NOSE GEAR STEERING ACTUATOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the nose gear steering actuator

(2) Installation of the nose gear steering actuator.

(3) Removal of the nose gear hydraulic swivel.

(4) Installation of the nose gear hydraulic swivel.

B. There are two identical nose gear steering actuators installed on the nose landing gear, just above the wheels.

C. The nose gear steering actuator weighs 22 lb (10 kg) when it is filled with hydraulic fluid.

**TASK 32-51-51-000-801**

### 2. Nose Gear Steering Actuator Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-31-000-803 | Nose Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1901 | Wrench - Spanner, Steering Collar Retainer, Nose Landing Gear<br>Part #: C32040-6 Supplier: 81205<br>Opt Part #: C32040-1 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

#### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |



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## D. Prepare for the Removal

SUBTASK 32-51-51-860-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-51-51-860-002

(2) If the wheels of the nose landing gear are not in the centered position, do this task: Nose Wheel Steering System Test (Airplane on Ground), TASK 32-51-00-700-801.

SUBTASK 32-51-51-860-003

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-51-860-004

(4) Move the towing lever, on the forward side of the nose landing gear, to the TOW position.

SUBTASK 32-51-51-860-005

**WARNING** ONLY USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Install the NLG towing lever pin, SPL-1499, through the towing lever.

NOTE: You use the NLG towing lever pin, SPL-1499, to hold the towing lever in the TOW position.

## E. Nose Gear Steering Actuator Removal

(Figure 401)

SUBTASK 32-51-51-020-001

(1) Disconnect the torsion links at the apex joint (TASK 32-21-31-000-803).

SUBTASK 32-51-51-980-001

(2) Turn the steering collar far enough to permit access to the rod end of the actuator assembly [3] that you will remove.

SUBTASK 32-51-51-020-002

(3) Remove the cotter pin [6], nut [5], washer [4], bushings [2], anti-rotation washer [22] [22] (not on all airplanes), and pin [1] to disconnect the rod end of the actuator assembly [3] from the steering collar.

SUBTASK 32-51-51-020-003

(4) Remove the lockwire from the bolts [9] that attach the upper sleeve and the lower steering plate [18].

SUBTASK 32-51-51-020-004

(5) Remove the bolts [9], washers [7], and standoffs [8] that hold the two front feet of the metering valve assembly to the upper sleeve and lower steering plate [18].



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SUBTASK 32-51-51-020-005

(6) Remove the nuts [13], bolts [11], washers [12], and clamps [10] that attach the trunnion of the actuator assembly [3] to the bushed hole in the upper steering sleeve and the steering valve swivel.

NOTE: The hydraulic ports will be open when you remove the trunnion of the actuator assembly [3] from the steering valve swivel.

(a) Make sure the area around trunnion is clean before the hydraulic ports are open to atmosphere, to prevent contamination.

SUBTASK 32-51-51-020-006

(7) Remove the lockwire from the bolts [14].

SUBTASK 32-51-51-020-007

(8) Remove the bolts [14], washers [15], and lock tab [16] from the steering collar retainer nut [17].

SUBTASK 32-51-51-800-001

(9) Hold thelower steering plate [18] in its position while you loosen the steering collar retainer nut [17] with a spanner wrench, SPL-1901, and lower it down the outer cylinder.

SUBTASK 32-51-51-010-001

(10) Hold the actuator assembly [3] in its position and lower the lower steering plate [18] down the outer cylinder.

SUBTASK 32-51-51-020-008

(11) Remove the actuator assembly [3] from the cavity in the steering valve swivel and the bushed hole in the upper steering sleeve.

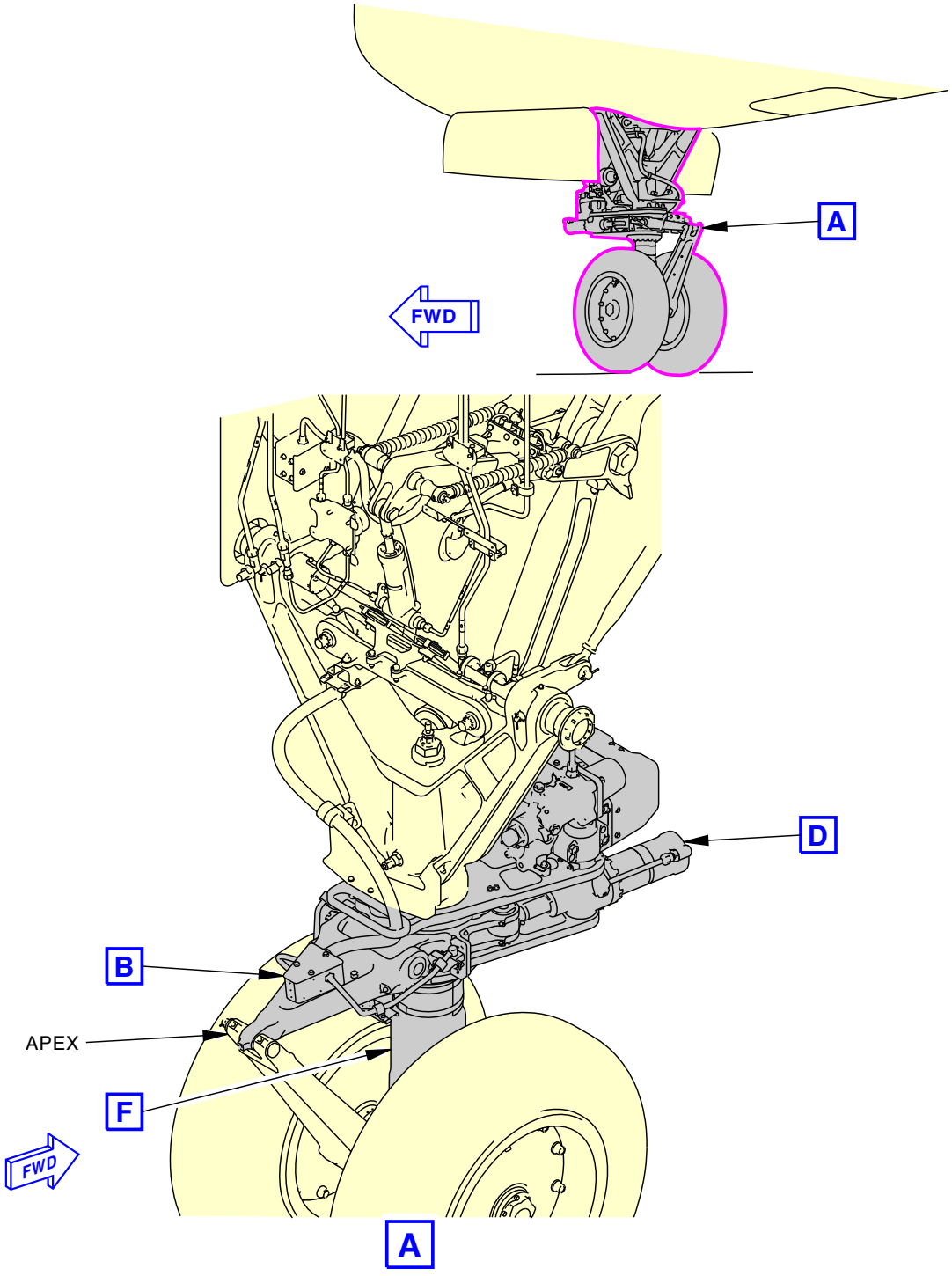
SUBTASK 32-51-51-480-001

(12) Install caps/plugs, STD-14686, in the open hydraulic ports of the steering valve swivel and the trunnion of the actuator assembly [3].

——— END OF TASK ———



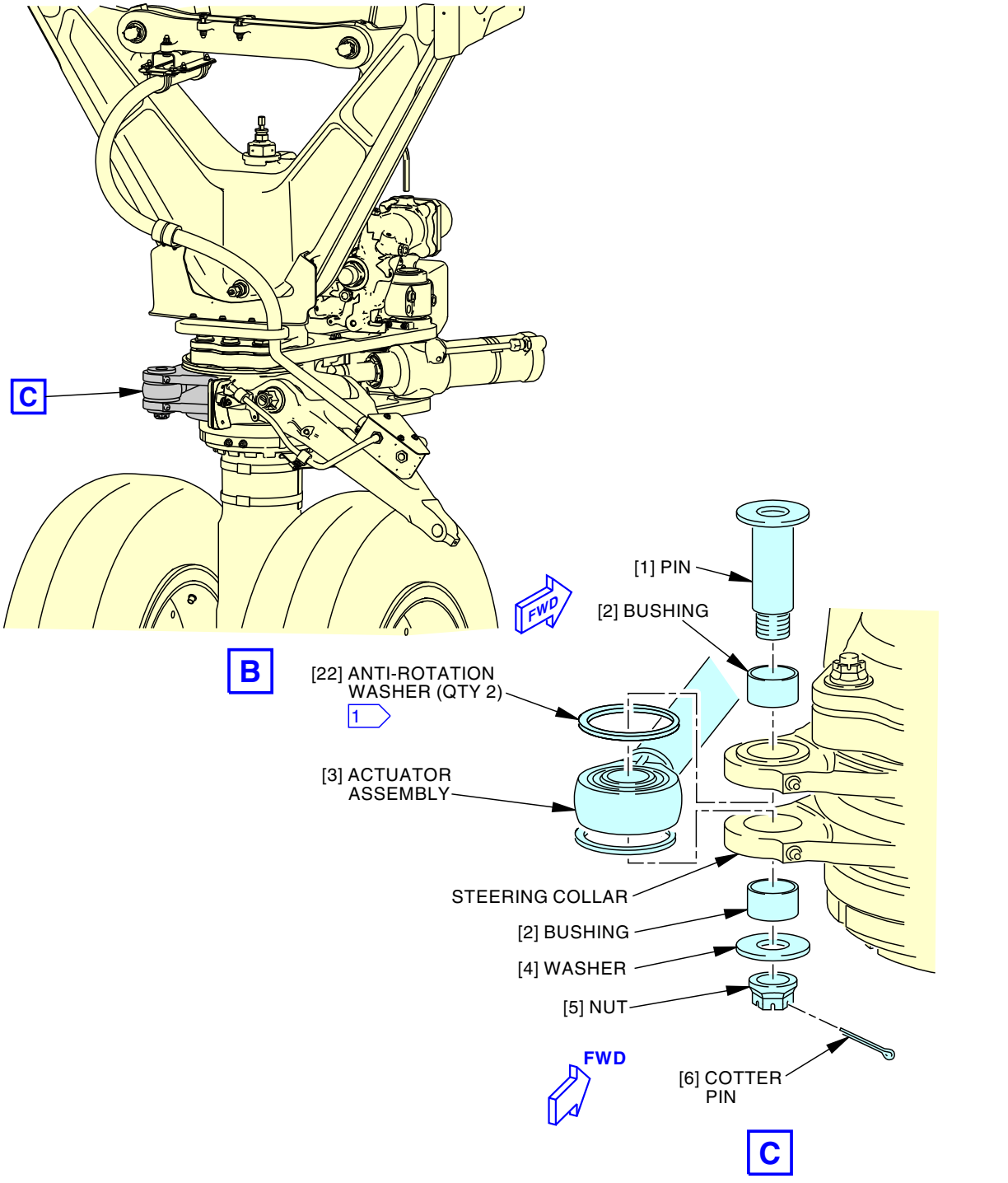
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**Nose Gear Steering Actuator Installation**
**Figure 401/32-51-51-990-801 (Sheet 1 of 5)**



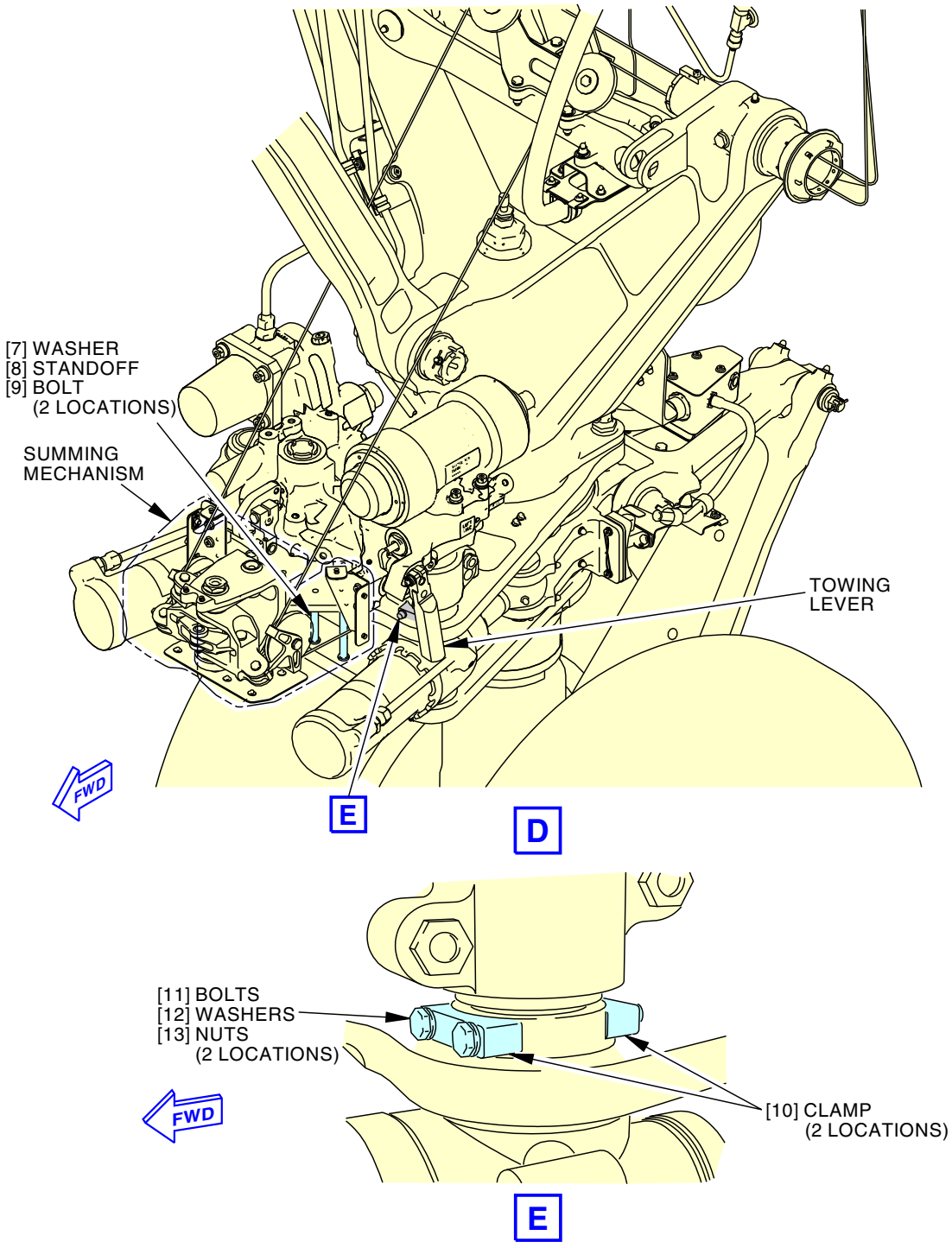
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**Nose Gear Steering Actuator Installation**
**Figure 401/32-51-51-990-801 (Sheet 2 of 5)**



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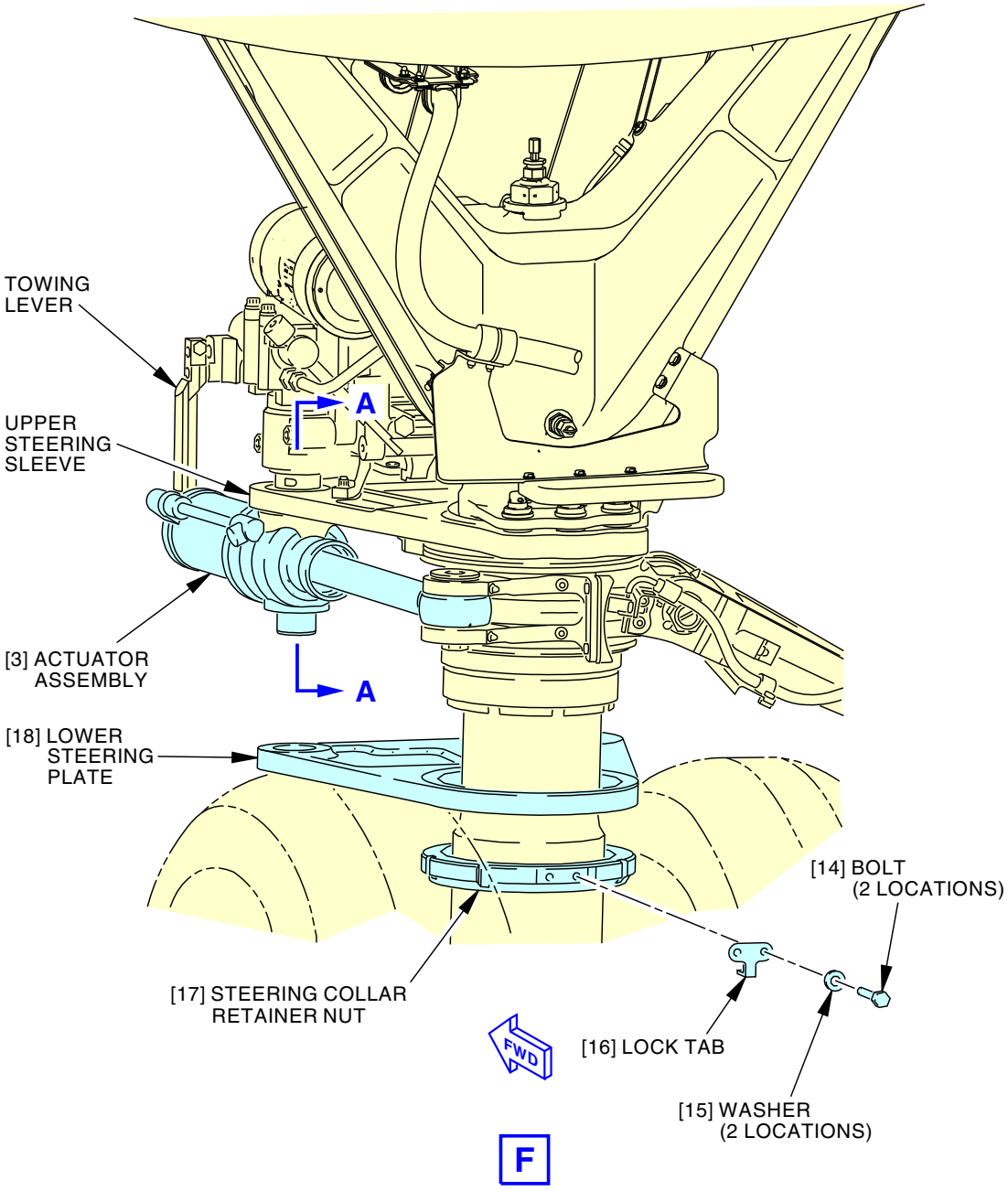



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**Nose Gear Steering Actuator Installation**
**Figure 401/32-51-51-990-801 (Sheet 3 of 5)**



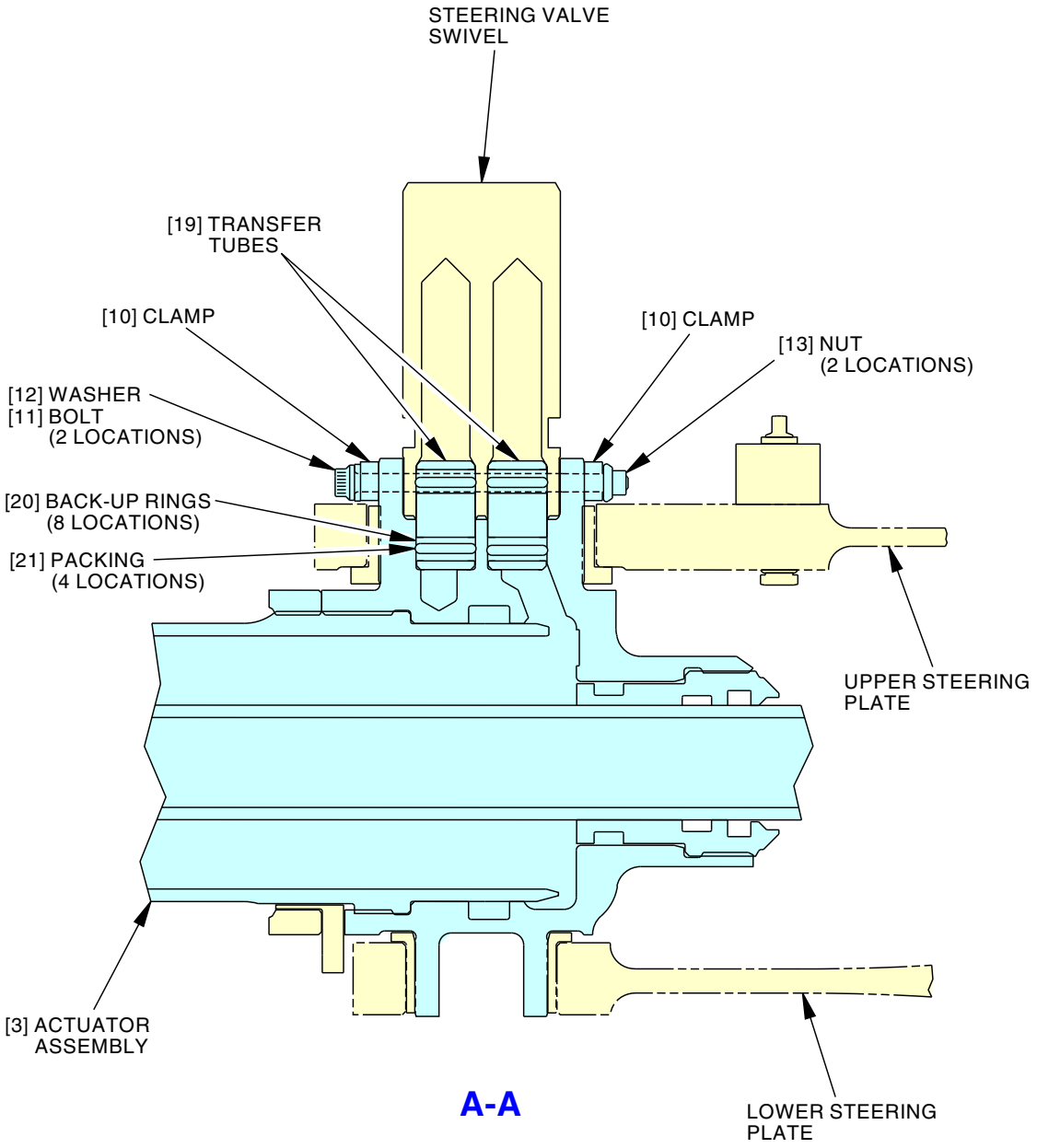
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**Nose Gear Steering Actuator Installation**
**Figure 401/32-51-51-990-801 (Sheet 4 of 5)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2414497 S00061535304_V2

**Nose Gear Steering Actuator Installation**
**Figure 401/32-51-51-990-801 (Sheet 5 of 5)**



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**TASK 32-51-51-400-801**

**3. Nose Gear Steering Actuator Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-21-31-400-803 | Nose Landing Gear Torsion Link Connection (P/B 401) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1901 | Wrench - Spanner, Steering Collar Retainer, Nose Landing Gear<br>Part #: C32040-6 Supplier: 81205<br>Opt Part #: C32040-1 Supplier: 81205 |
| STD-14686 | Fittings - Hydraulic, Caps/Plugs (ref. AMM 20-10-XX) |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00153 | Fluid - Hydraulic Fluid, Fire Resistant (Interchangeable And Intermixable With BMS 3-11 Type V) | BMS3-11 Type IV |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Actuator assembly | 32-51-51-01-005 | SIA ALL |
| 6 | Cotter pin | 32-51-51-01-215 | SIA ALL |
| 21 | Packing | 32-51-51-01-175 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**F. Prepare for Installation**

(Figure 401)

**SUBTASK 32-51-51-860-006**

(1) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.



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SUBTASK 32-51-51-080-001

(2) Remove the caps/plugs, STD-14686, from the open hydraulic ports of the steering valve swivel and the trunnion of the actuator assembly [3].

(a) Make sure the area around the trunnion and the steering valve is clean.

NOTE: When the hydraulic ports are open you can contaminate the trunnion of the actuator assembly [3] and the cavity on the steering valve swivel.

SUBTASK 32-51-51-600-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(3) Do these steps to prepare the actuator assembly [3] for installation:

(a) Fill the actuator assembly [3] with hydraulic fluid, D00153, until it is full.

(b) Apply hydraulic fluid, D00153, to the transfer tubes [19], back-up rings [20], and new packings [21] in the trunnion of the actuator assembly [3].

(c) Apply a thin layer of corrosion inhibiting material, G50136, to the threads, thread reliefs, and mating surfaces of the steering collar retainer nut [17].

(d) Apply a thin layer of corrosion inhibiting material, G50136, to the threads, thread reliefs, and mating surfaces of the nut [5], nuts [13], bushings [2], pin [1]], bolts [9], bolts [11], bolts [14], and standoffs [8].

## G. Nose Gear Steering Actuator Installation

(Figure 401)

SUBTASK 32-51-51-420-001

(1) Put the trunnion of the actuator assembly [3] into the bushed hole in the upper steering sleeve and the cavity of the steering valve swivel.

NOTE: The left hand actuator should be installed on the left side and the right hand actuator should be installed on the right side. ( See Figure 401).

(a) Be careful to align the transfer tubes [19] as you lift the actuator assembly [3] into position.

(b) Hold the actuator assembly [3] after the trunnion shoulder is in full contact with the flange of the bushing in the upper steering sleeve.

SUBTASK 32-51-51-410-001

(2) Hold the actuator assembly [3] in its position and raise the lower steering plate [18] up the outer cylinder.

(a) Put the lower trunnion of the actuator assembly [3] into the hole in the lower steering plate [18].

SUBTASK 32-51-51-420-002

(3) Hold the lower steering plate [18] in its position and move the steering collar retainer nut [17] up the outer cylinder to install it on the threads below the lower steering plate [18].

(a) Tighten the steering collar retainer nut [17] to 62.5 ±12.5 ft-lb (84.7 ±17.0 N·m) with a spanner wrench, SPL-1901.



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(b) If it is necessary, loosen the steering collar retainer nut [17] a minimum amount to install the lock tab [16], washers [15], and bolts [14].

(c) Install lockwire on the bolt [14].

SUBTASK 32-51-51-420-003

(4) Install the clamps [10], bolts [11], washers [12], and nuts [13] that attach the trunnion of the actuator assembly [3] to the steering valve swivel.

SUBTASK 32-51-51-020-009

(5) Install the standoffs [8], bolts [9], and washers [7] that hold the upper sleeve and the lower steering plate [18].

(a) Install lockwire on the bolt [9].

SUBTASK 32-51-51-980-002

(6) Turn the steering collar far enough to permit access to the rod end of the actuator assembly [3] that you will install.

SUBTASK 32-51-51-420-004

(7) Install the anti-rotation washers [22], bushings [2], pin [1], washer [4], and nut [5] to connect the rod end of the actuator assembly [3] to the steering collar.

(a) Tighten the nut [5] to 54 ±4 ft-lb (73 ±6 N·m).

(b) If it is necessary, loosen the nut [5] to the nearest castellation to align the hole in the pin [1].

(c) Install the cotter pin [6].

1) Make sure the ends of the new cotter pin [6] are not closer than 0.10 in. (2.54 mm) to the steering collar when they are bent.

SUBTASK 32-51-51-420-005

(8) Connect the torsion links at the apex join (TASK 32-21-31-400-803).

SUBTASK 32-51-51-860-007

(9) Remove the NLG towing lever pin, SPL-1499, from the towing lever.

**H. Nose Gear Steering Actuator Installation Test**

SUBTASK 32-51-51-710-001

(1) To do a test on the steering system of the nose wheel, do the parts of this task applicable to the normal steering response test: Nose Wheel Steering System Test (Airplane on Ground), TASK 32-51-00-700-801

(a) Examine for leaks.

(b) Make sure that there is no leakage.

**——— END OF TASK ———**

**TASK 32-51-51-000-802**

## 4. Nose Gear Hydraulic Swivel Removal

(Figure 402)

**A. References**

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |



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## B. Location Zones

| Zone | Area |
|---|---|
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

## C. General

SUBTASK 32-51-51-000-001

(1) This task contains steps to replace either the entire swivel assembly or the individual swivels from the assembly.

## D. Prepare for Removal

SUBTASK 32-51-51-940-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801

(2) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

## E. Nose Gear Hydraulic Swivel Removal (Individual Swivels)

SUBTASK 32-51-51-020-010

(1) Remove the hydraulic lines [33] from the swivel [30].

(2) Remove the band clamps [34] from the swivel [30].

(3) Remove the swivel [32] from the swivel assembly.

## F. Nose Gear Hydraulic Swivel (Assembly) Removal

SUBTASK 32-51-51-020-011

(1) Remove the hydraulic lines [33] from the swivel [30].

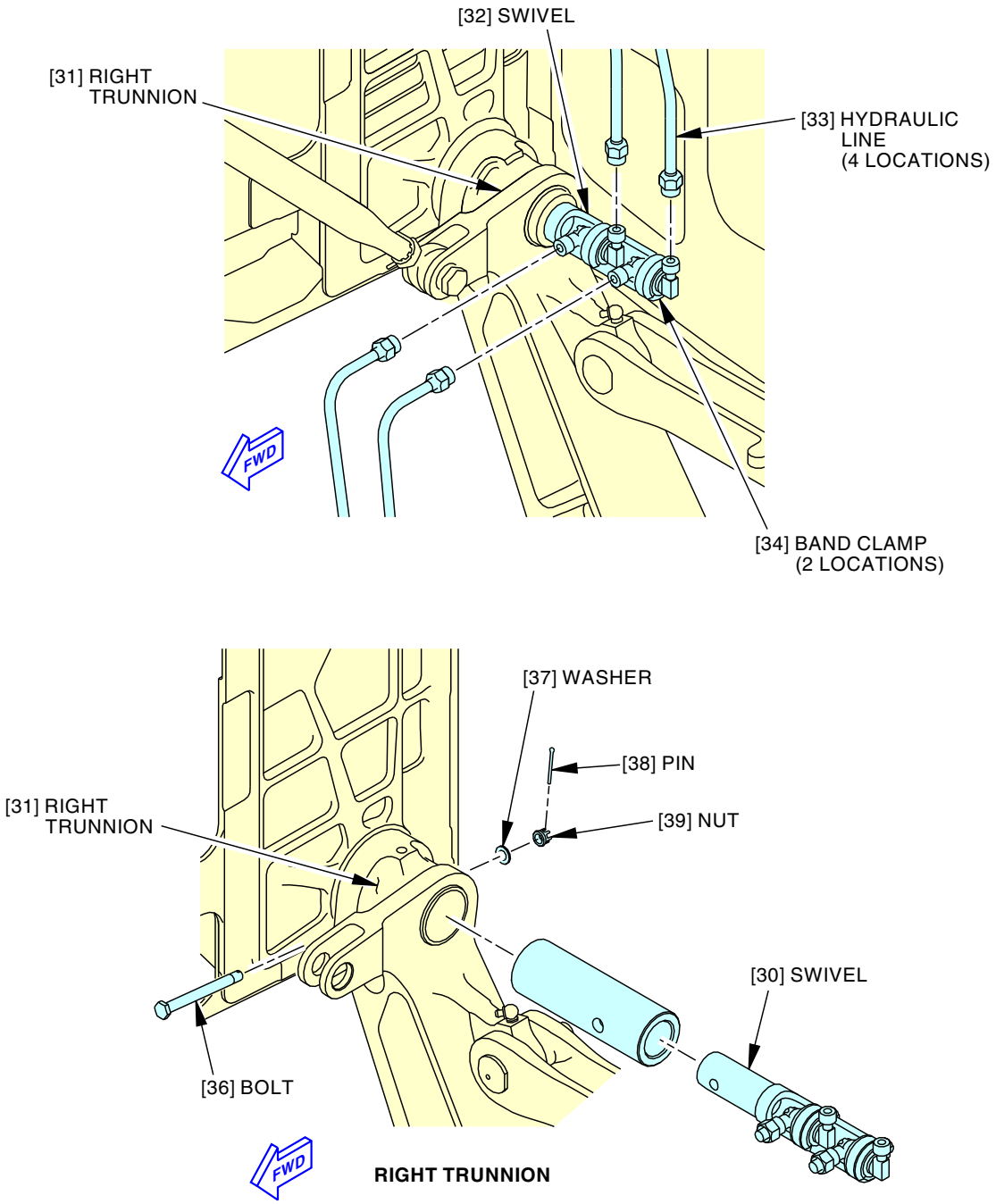
(2) Remove the pin [38], nut [39], washer [37], and bolt [36] from the right trunnion [31].

(3) Remove the swivel [30].

**END OF TASK**



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**Nose Landing Gear Hydraulic Swivel**
**Figure 402/32-51-51-990-802**



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**TASK 32-51-51-400-802**

## 5. Nose Gear Hydraulic Swivel Installation

(Figure 402)

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D50180 | Grease - Aircraft General Purpose (AeroShell Grease 33) | BMS3-33, MIL-PRF-23827 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 30 | Swivel | 32-51-51-02-020 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### E. Nose Gear Hydraulic Swivel (Assembly) Installation.

SUBTASK 32-51-51-640-001

(1) Lubricate the inner diameter of the right trunnion [31] pin and the outer diameter of the swivel [30] bracket with AeroShell Grease 33, D50180.

SUBTASK 32-51-51-420-006

(2) Put the swivel [30] bracket in the right trunnion [31] pin and align the hole for the bolt [36].

SUBTASK 32-51-51-420-007

(3) Install the bolt [36].

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin coat of corrosion inhibiting material, G50136, to the shank and threads of the bolt [36].

(b) Install the bolt [36], washer [37], and nut [39].

(c) Tighten the nut [39] to 20 in-lb (2.3 N·m)-24 in-lb (2.7 N·m) above run-on torque and loosen to align the nearest castellation.

(d) Install the pin [38].

SUBTASK 32-51-51-420-008

(4) Connect the hydraulic lines [33].

(a) Tighten the B-nuts on the hydraulic lines [33] to 270 ±14 in-lb (31 ±2 N·m).



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### F. Nose Gear Hydraulic Swivel Installation

**SUBTASK 32-51-51-420-009**

(1) Install swivel [32] in the swivel assembly.

(a) Put the swivel [32] in the swivel assembly.

(b) Install the band clamp [34].

(2) Connect the hydraulic lines [33].

### G. Nose Gear Hydraulic Swivel Installation Test

**SUBTASK 32-51-51-710-002**

(1) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(a) Apply the hydraulic pressure for two minutes and make sure there are no leaks.

### H. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-51-51-040-001**

(1) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805, if hydraulic power is not necessary.

**——— END OF TASK ———**



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## NOSE GEAR STEERING ACTUATOR - INSPECTION/CHECK

### 1. General

A. This procedure has this tasks:

(1) Nose Gear Steering Actuator Rod End Detailed Inspection

B. There are two identical steering actuators installed on the nose landing gear, just above the wheels.

**TASK 32-51-51-200-801**

### 2. Nose Gear Steering Actuator Rod End Detailed Inspection

NOTE: This procedure is a scheduled maintenance task.

#### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-31-000-803 | Nose Landing Gear Torsion Link Disconnection (P/B 401) |
| 32-21-31-400-803 | Nose Landing Gear Torsion Link Connection (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

#### D. Prepare for the Detailed Inspection

**SUBTASK 32-51-51-860-008**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

(a) Make sure the wheels of the nose landing gear are in the centered position.

(b) Depressurize hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

(c) Move the towing lever, on the forward side of the nose landing gear, to the TOW position.


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**WARNING** ONLY USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(d) Install the NLG towing lever pin, SPL-1499 through the towing lever.

NOTE: You use the NLG Towing Lever Lock Pin to hold the towing lever in the TOW position.

## E. Actuator Rod End Detailed Inspection

**SUBTASK 32-51-51-020-012**

(1) If necessary, disconnect the torsion links at the apex joint (TASK 32-21-31-000-803).

**SUBTASK 32-51-51-980-003**

(2) Turn the steering collar far enough to permit visual access to the rod end that you will inspect.

**SUBTASK 32-51-51-020-013**

(3) Do an external, non-disassembled, detailed inspection of the nut, washer, bushings, and pin that attach the rod end to the steering collar.

(a) Make sure the rod end is secure and that there is no damage.

(b) Make sure there is no excessive or unusual movement in the rod end bushings and the rod end pin.

**SUBTASK 32-51-51-420-010**

(4) If necessary, connect the torsion links at the apex joint (TASK 32-21-31-400-803).

**SUBTASK 32-51-51-860-009**

(5) Remove the NLG towing lever pin, SPL-1499 from the towing lever.

**——— END OF TASK ———**



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## NOSE LANDING GEAR STEERING SUMMING MECHANISM - REMOVAL/INSTALLATION

### 1. General

A. This procedure has four tasks:

(1) Removal of the summing mechanism for the steering system for the nose landing gear (without using cable clamp assembly).

(2) Installation of the summing mechanism for the steering system for the nose landing gear (without using cable clamp assembly).

(3) Removal of the summing mechanism for the steering system for the nose landing gear (using cable clamp assembly).

(4) Installation of the summing mechanism for the steering system for the nose landing gear (using cable clamp assembly).

**TASK 32-51-52-020-801**

### 2. Summing Mechanism Removal (Without Using Cable Clamp Assembly)

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-51-00-820-801 | General Check of the Nose Wheel Steering System Adjustment (P/B 501) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

#### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

#### D. Access Panels

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |



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## E. Prepare for the Removal

SUBTASK 32-51-52-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-51-52-860-001

(2) Make sure that the wheels of the nose landing gear are in the centered position.

SUBTASK 32-51-52-010-001

(3) Remove the aft access panel from the left sidewall of the nose wheel well to get access to the turnbuckles [3] for the NWS-A cable [1] and NWS-B cable [2] (TASK 53-14-01-020-801).

(a) Open these access panels:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-52-480-002

(4) Install these rig pins from the rigging pin kit, SPL-1585 (TASK 32-51-00-820-801):

(a) The rig pin in the Captain's steering tiller.

(b) The rig pin in the First Officer's steering tiller.

(c) The rig pin in the rudder pedal interconnect quadrant.

SUBTASK 32-51-52-860-002

(5) Remove the pressure from hydraulic system A (TASK 29-11-00-860-805).

SUBTASK 32-51-52-860-003

(6) Move the towing lever, on the forward side of the nose landing gear, to the TOW position.

SUBTASK 32-51-52-860-004

**WARNING** ONLY USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(7) Install the NLG towing lever pin, SPL-1499, through the towing lever.

NOTE: You use the NLG Towing Lever Lock Pin to hold the towing lever in the TOW position.

## F. Steering Summing Mechanism Removal

SUBTASK 32-51-52-010-002

(1) Remove the screws [5], washers [6], and washers [7] that hold the summing mechanism cover [10] to the support bracket.

SUBTASK 32-51-52-020-001

(2) Remove the clips [4] from the turnbuckles [3].

SUBTASK 32-51-52-020-002

(3) Loosen the NWS-A cable [1] and NWS-B cable [2] at the turnbuckles [3].



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SUBTASK 32-51-52-020-003

(4) Remove the nuts [24], bolts [21], washers [22], bushings [23], and pulley [20] from the pulley brackets on the summing mechanism assembly [11].

SUBTASK 32-51-52-020-004

(5) Remove the nut [15], washer [14], bushing [13], and bolt [12] to disconnect the link assembly [16] from the summing mechanism assembly [11].

SUBTASK 32-51-52-020-005

(6) Remove the nuts [19], washers [28], bolts [17], and washers [18] to disconnect the summing mechanism assembly [11] from the bracket assembly.

SUBTASK 32-51-52-000-001

(7) Remove the summing mechanism assembly [11].

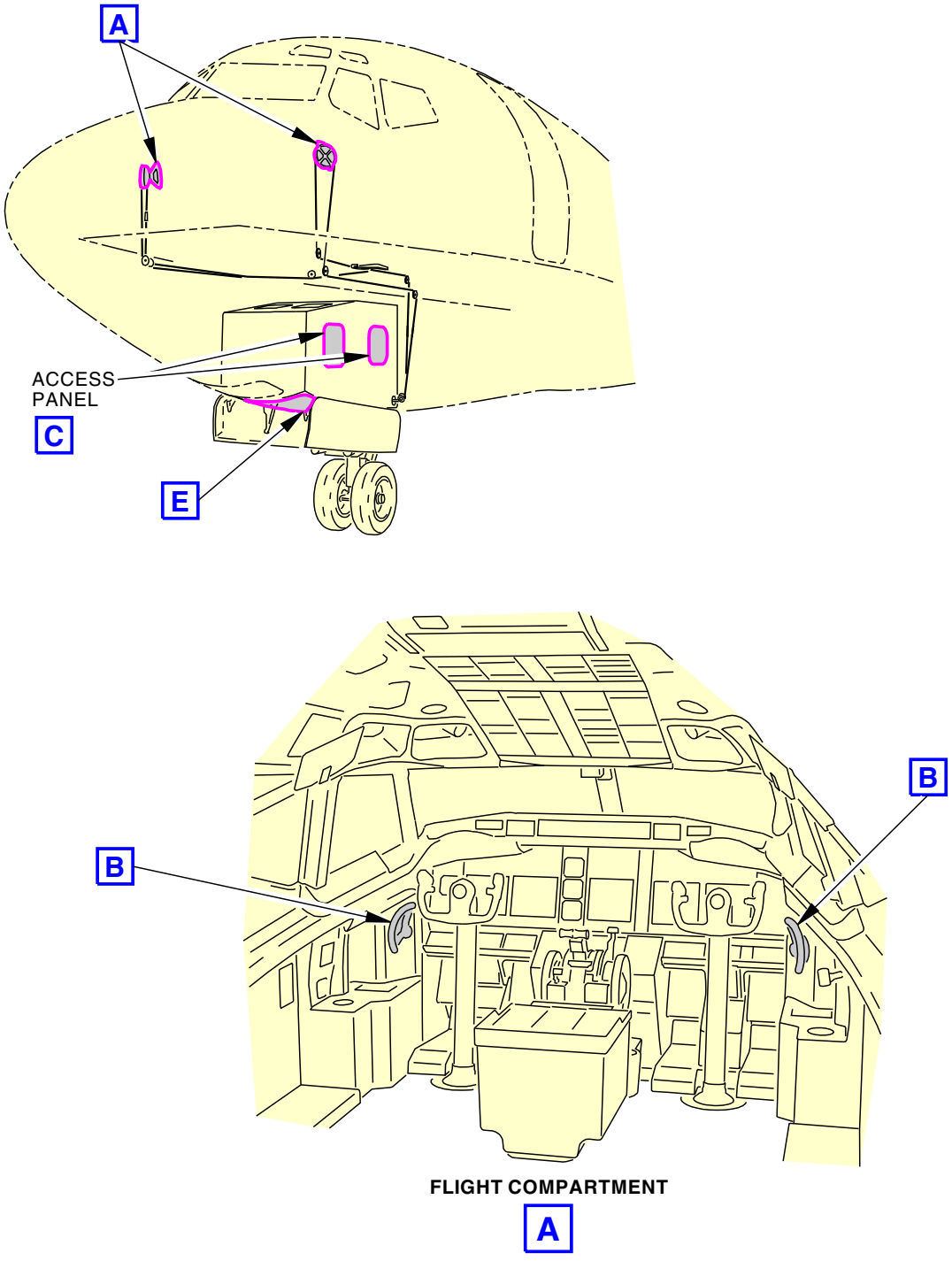
SUBTASK 32-51-52-020-006

(8) If it is necessary to remove the pulley bracket assembly from the summing mechanism assembly [11], remove the nuts [27], bushings [26], bolt [25], and washers [14].

——— END OF TASK ———



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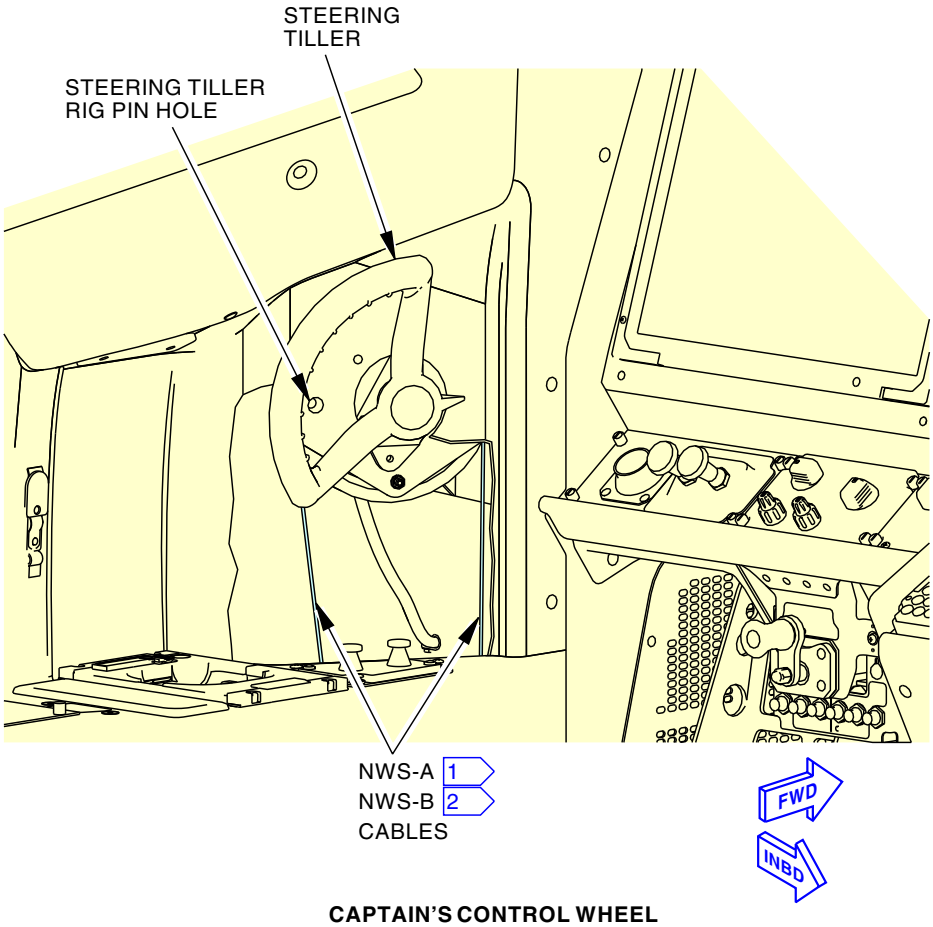



2550363 S0000607543_V1

**Nose Landing Gear Steering Summing Mechanism Installation**
**Figure 401/32-51-52-990-801 (Sheet 1 of 6)**



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**CAPTAIN'S CONTROL WHEEL**
**(FIRST OFFICER'S CONTROL WHEEL IS EQUIVALENT)**

**B**

1 NWSA CABLE IS INSTALLED FORWARD FOR CAPTAIN'S CONTROL WHEEL.

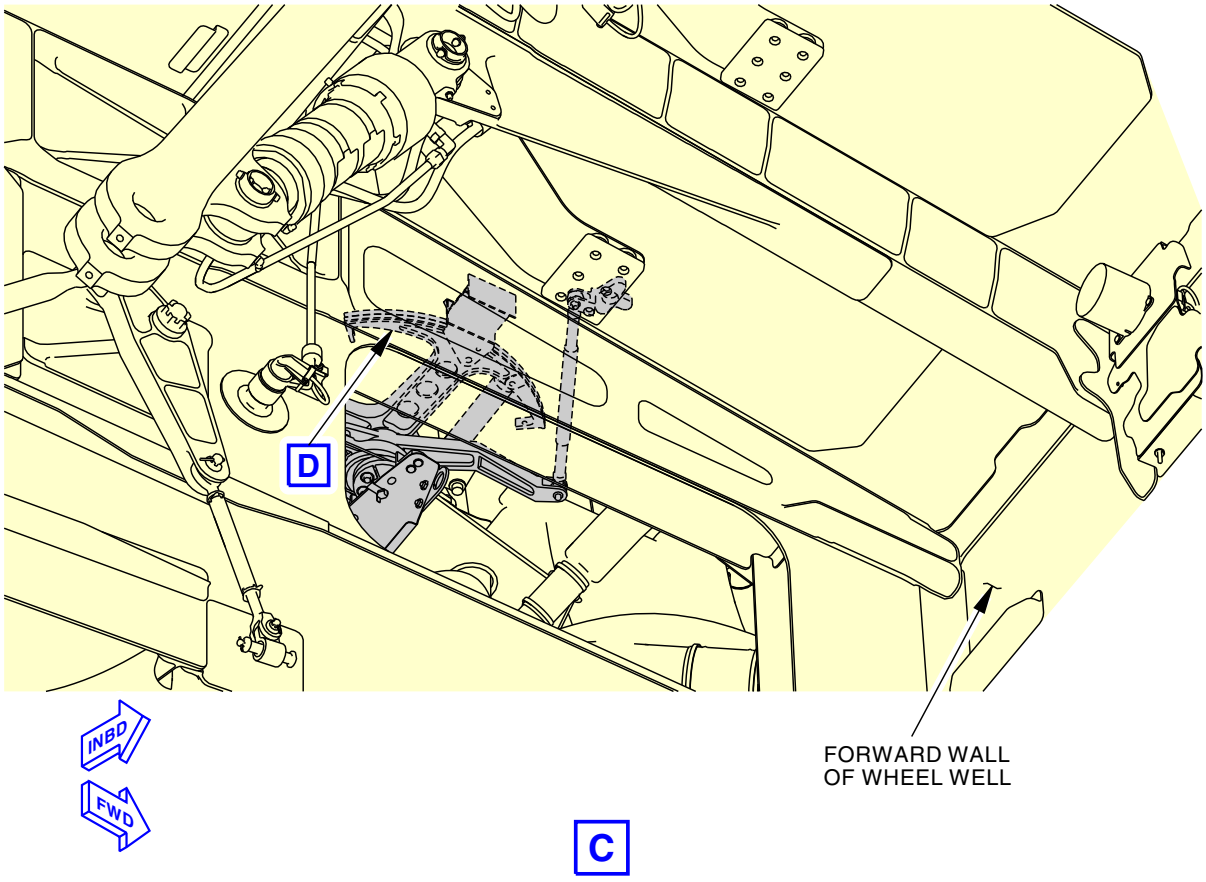
2 NWSB CABLE IS INSTALLED FORWARD FOR FIRST OFFICER'S CONTROL WHEEL.

2550365 S0000607544_V1

**Nose Landing Gear Steering Summing Mechanism Installation**
**Figure 401/32-51-52-990-801 (Sheet 2 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

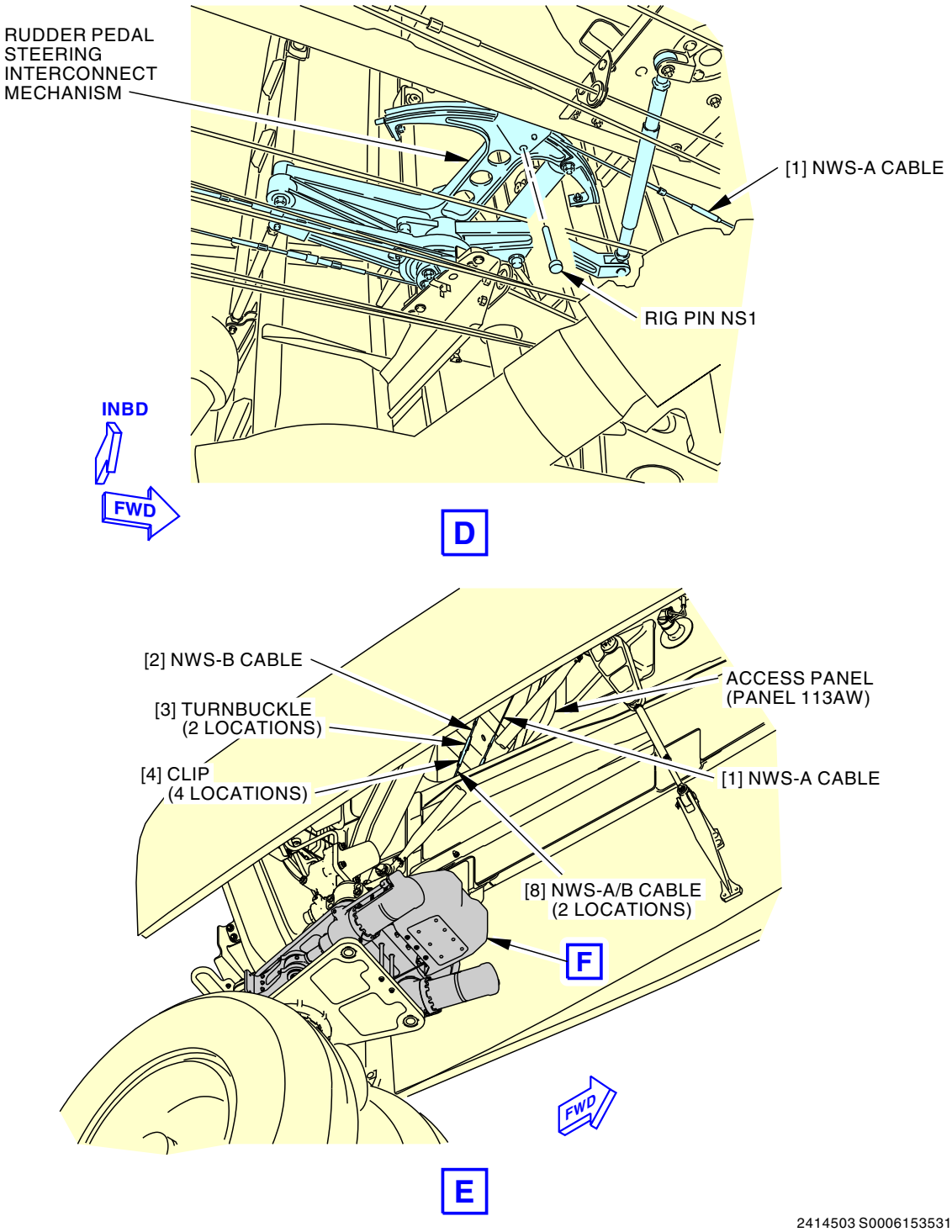



2414502 S00061535318_V1

**Nose Landing Gear Steering Summing Mechanism Installation**
**Figure 401/32-51-52-990-801 (Sheet 3 of 6)**



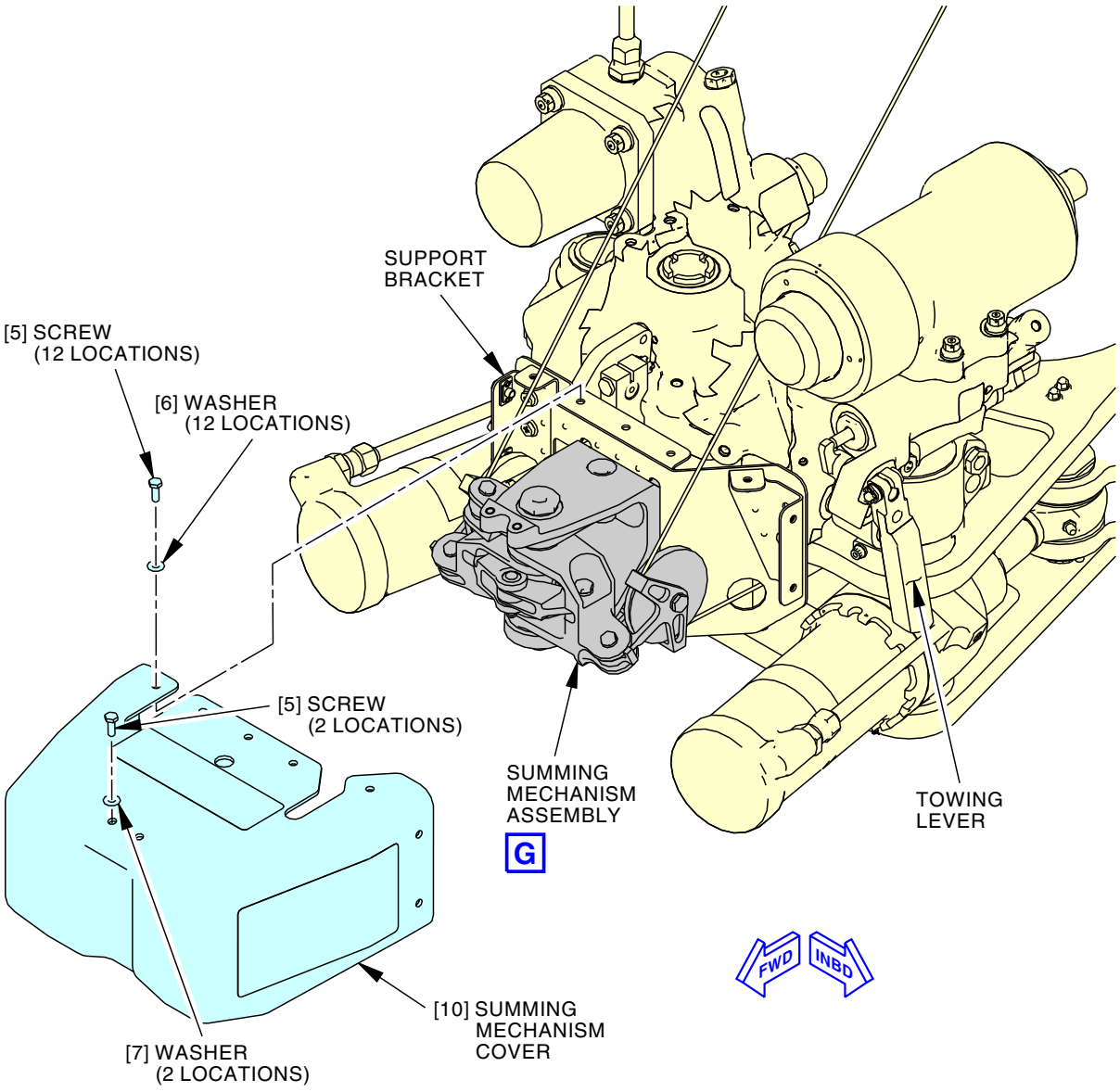
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Steering Summing Mechanism Installation**
**Figure 401/32-51-52-990-801 (Sheet 4 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

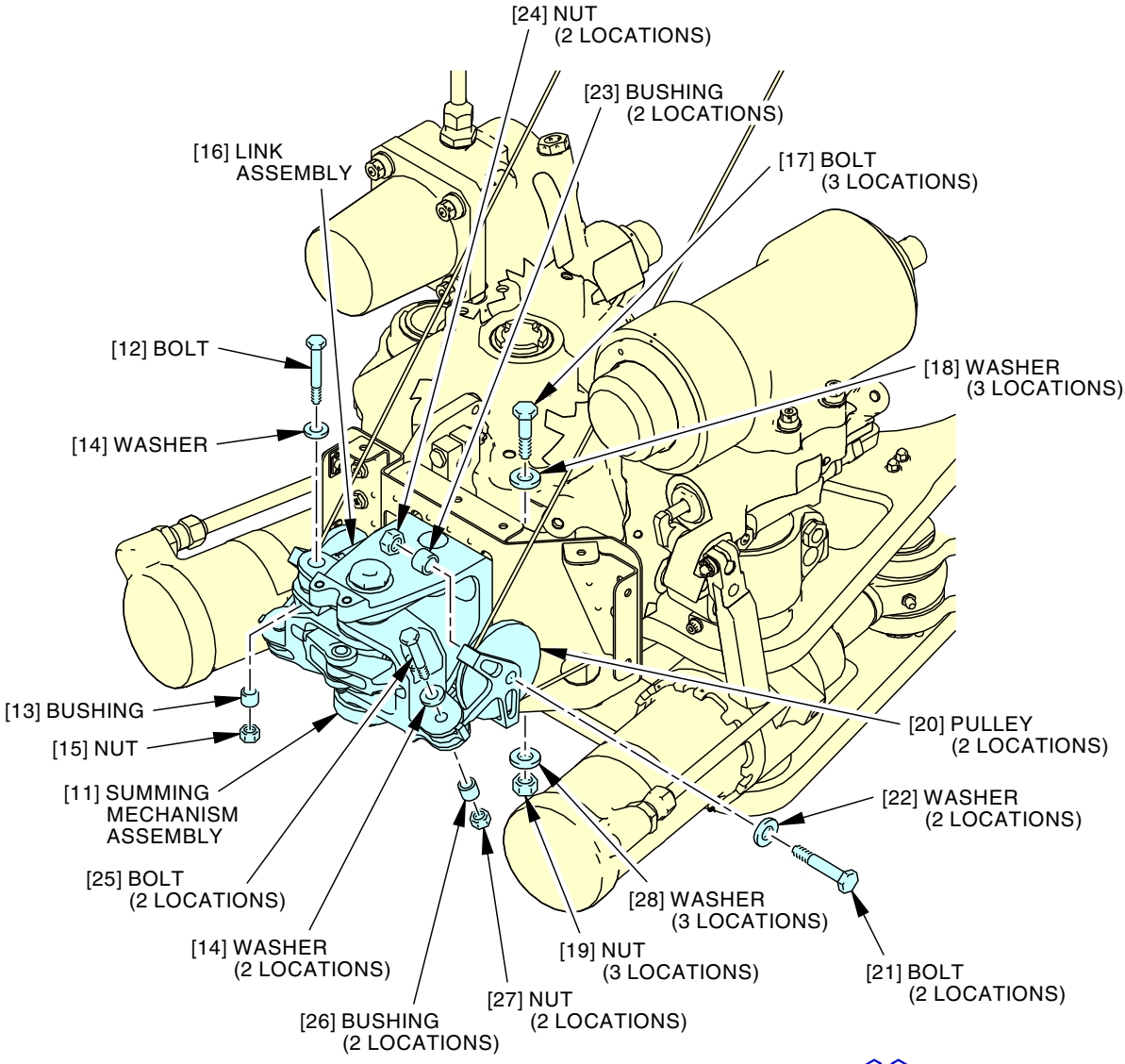



2414504 S00061535320_V3

**Nose Landing Gear Steering Summing Mechanism Installation**
**Figure 401/32-51-52-990-801 (Sheet 5 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




2414505 S00061535321_V3

**Nose Landing Gear Steering Summing Mechanism Installation**
**Figure 401/32-51-52-990-801 (Sheet 6 of 6)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-51-52-420-801**

**3. Summing Mechanism Installation (Without Using Cable Clamp Assembly)**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |
| 32-51-00-820-805 | Nose Wheel Steering System Adjustment (P/B 501) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

**C. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 11 | Summing mechanism assembly | 32-51-52-01-175 | SIA ALL |

**D. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**E. Access Panels**

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |

**F. Summing Mechanism Installation**

**SUBTASK 32-51-52-210-001**

(1) Make sure that the wheels of the nose landing gear are in the centered position (Figure 401).

NOTE: The graduated scales on the steering collar and arrows on the lower plate show the angular position of the wheels when the torsion links are connected.

**SUBTASK 32-51-52-400-001**

(2) Attach the summing mechanism assembly [11] to the bracket assembly:

(a) Align the summing mechanism assembly [11] with the steering plate.

(b) Align the link assembly [16] with the summing mechanism assembly [11].

(c) Install the bolts [17], washers [18], washers [28], and nuts [19] to connect the summing mechanism assembly [11] to the bracket assembly.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-51-52-420-001

(3) If it is necessary, install the pulley bracket assembly:

(a) Put the pulley bracket assembly in its location.

(b) Install the bushings [26], washers [14], bolts [25], and nuts [27].

(c) Tighten the bolts [25] to 20 in-lb (2 N·m) - 25 in-lb (3 N·m) above the run-on torque.

SUBTASK 32-51-52-420-002

(4) Install the pulleys [20] on the pulley bracket assembly:

(a) Thread the cable over the pulley [20].

(b) Install the bushings [23].

(c) Align the pulleys [20] with the pulley bracket assembly.

(d) Install the bolts [21], washers [22], and nuts [24].

(e) Tighten the bolts [21] to 50 in-lb (6 N·m) - 75 in-lb (8 N·m) above the run-on torque.

SUBTASK 32-51-52-480-003

**WARNING** ONLY USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Make sure that the NLG towing lever pin, SPL-1499, is installed through the towing lever.

SUBTASK 32-51-52-480-004

(6) Make sure that these rig pins from the rigging pin kit, SPL-1585, are installed:

(a) The rig pin in the Captain's steering tiller.

(b) The rig pin in the First Officer's steering tiller.

(c) The rig pin in the rudder pedal interconnect quadrant.

(d) Install the rig pin to the summing mechanism.

SUBTASK 32-51-52-420-003

(7) Install the bushing [13], bolt [12], washer [14], and nut [15] to connect the link assembly [16] to the summing mechanism assembly [11].

(a) Adjust the link assembly [16] until you can easily install the rig pin in the summing mechanism rig pin hole.

SUBTASK 32-51-52-420-004

(8) Tighten the NWS-A cable [1] and NWS-B cable [2] at the turnbuckles [3] and adjust the tension (TASK 32-51-00-820-805).

SUBTASK 32-51-52-420-005

(9) Install the clips [4] on the turnbuckles [3].

SUBTASK 32-51-52-080-001

(10) Remove these rig pins:

(a) The rig pin in the Captain's steering tiller.

(b) The rig pin in the First Officer's steering tiller.

(c) The rig pin in the rudder pedal interconnect quadrant.

(d) Remove the rig pin from the summing mechanism.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

### G. Summing Mechanism Installation Test

SUBTASK 32-51-52-710-001

(1) Do a test on the steering system of the nose wheel (TASK 32-51-00-700-801).

### H. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-52-410-001

(1) Close the access panels to the nose wheel steering system mechanism and turnbuckles [3] (TASK 53-14-01-420-801).

(a) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 113BW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-52-420-006

(2) Put the summing mechanism cover [10] in position and install the screws [5], washers [6], and washers [7].

——— END OF TASK ———

TASK 32-51-52-020-802

## 4. Summing Mechanism Removal (Using Cable Clamp Assembly)

(Figure 402, Figure 403)

### A. References

| Reference | Title |
|---|---|
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-13966 | Clamp Assy - Steering Cables, NLG<br>Part #: C32055-18 Supplier: 81205 |

### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## D. Prepare for the Removal

SUBTASK 32-51-52-480-005

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-51-52-860-005

(2) Make sure that the wheels of the nose landing gear are in the centered position.

SUBTASK 32-51-52-860-006

(3) Remove the pressure from hydraulic system A (TASK 29-11-00-860-805).

SUBTASK 32-51-52-860-007

(4) Move the towing lever, on the forward side of the nose landing gear, to the TOW position.

SUBTASK 32-51-52-860-008

**WARNING** ONLY USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Install the NLG towing lever pin, SPL-1499, through the towing lever.

NOTE: You use the NLG Towing Lever Lock Pin to hold the towing lever in the TOW position.

## E. Steering Summing Mechanism Removal

SUBTASK 32-51-52-010-003

(1) Remove the screws [5], washers [6], and washers [7] that hold the summing mechanism cover [10] to the support bracket.

SUBTASK 32-51-52-020-007

(2) Use the cable clamp, SPL-13966, to remove the tension in NWS-A cable [1] and NWS-B cable [2] between the trunnion and link assembly (Figure 403).

NOTE: You may need to remove one of the slider bolts in order to install the base plate over the NWS-A cable [1] and NWS-B cable [2].

(a) Put the base plate in position against the trunnion, with NWS-A cable [1] and NWS-B cable [2] positioned in the base plate grooves.

NOTE: Use the lock-trunnion nut to align the base plate into position.

(b) Tighten the clamp bolts evenly between 70 in-lb (8 N·m) to 80 in-lb (9 N·m) onto the clamp plate.

(c) Turn only the tension bolt until the clamp carrier contacts the head of the slider bolts.

1) Make sure that you do not exceed a maximum of 0.10 in. (2.54 mm) of cable stretch.

SUBTASK 32-51-52-020-008

(3) Remove the nuts [24], bolts [21], washers [22], bushing [23], and pulleys [20] from the pulley brackets on the summing mechanism assembly [11].



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SUBTASK 32-51-52-020-009

(4) Remove the nut [15], washer [14], bushing [13], and bolt [12] to disconnect the link assembly [16] from the summing mechanism assembly [11].

SUBTASK 32-51-52-020-010

(5) Remove the nuts [19], washers [28], bolts [17], and washers [18] to disconnect the summing mechanism assembly [11] from the bracket assembly.

SUBTASK 32-51-52-000-002

(6) Remove the summing mechanism assembly [11].

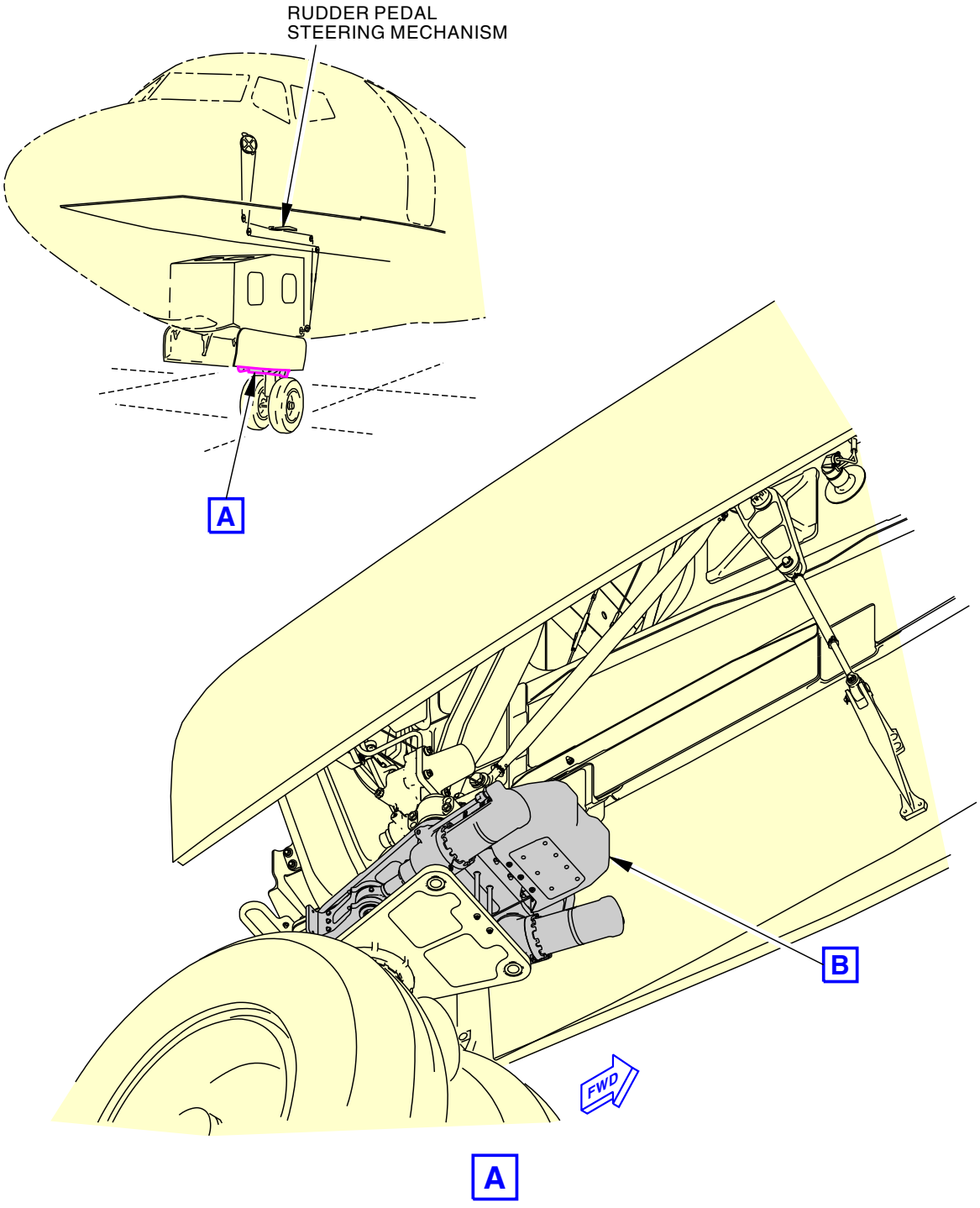
SUBTASK 32-51-52-020-011

(7) If it is necessary to remove the pulley bracket assembly from the summing mechanism assembly [11], remove the nuts [27], bushings [26], bolts [25], and washers [14].

——— END OF TASK ———



ECCN 9E991 BOEING PROPRIETARY - See title page for details

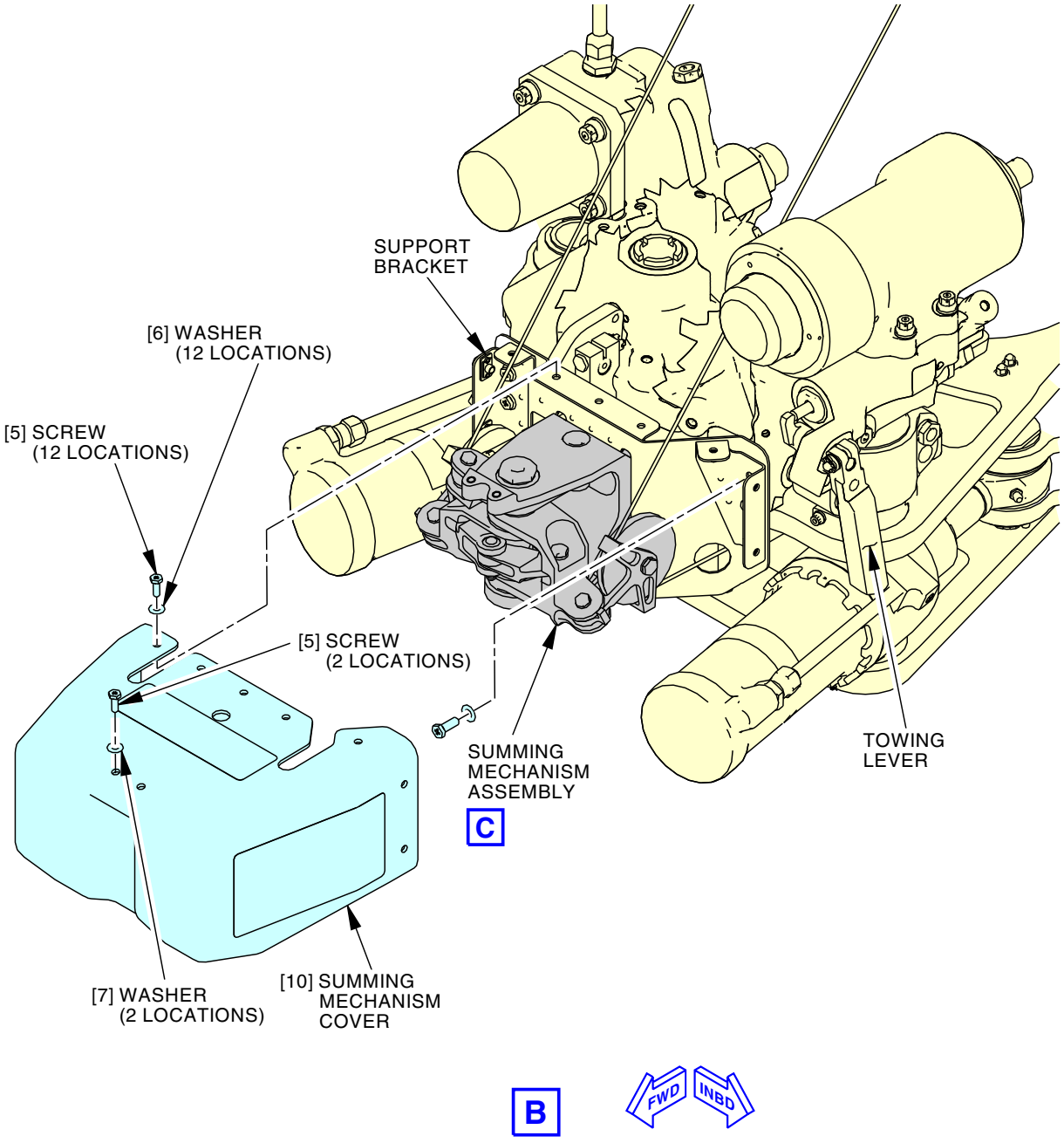



2414506 S00061535324_V1

**Nose Landing Gear Steering Summing Mechanism Installation**
**Figure 402/32-51-52-990-802 (Sheet 1 of 3)**



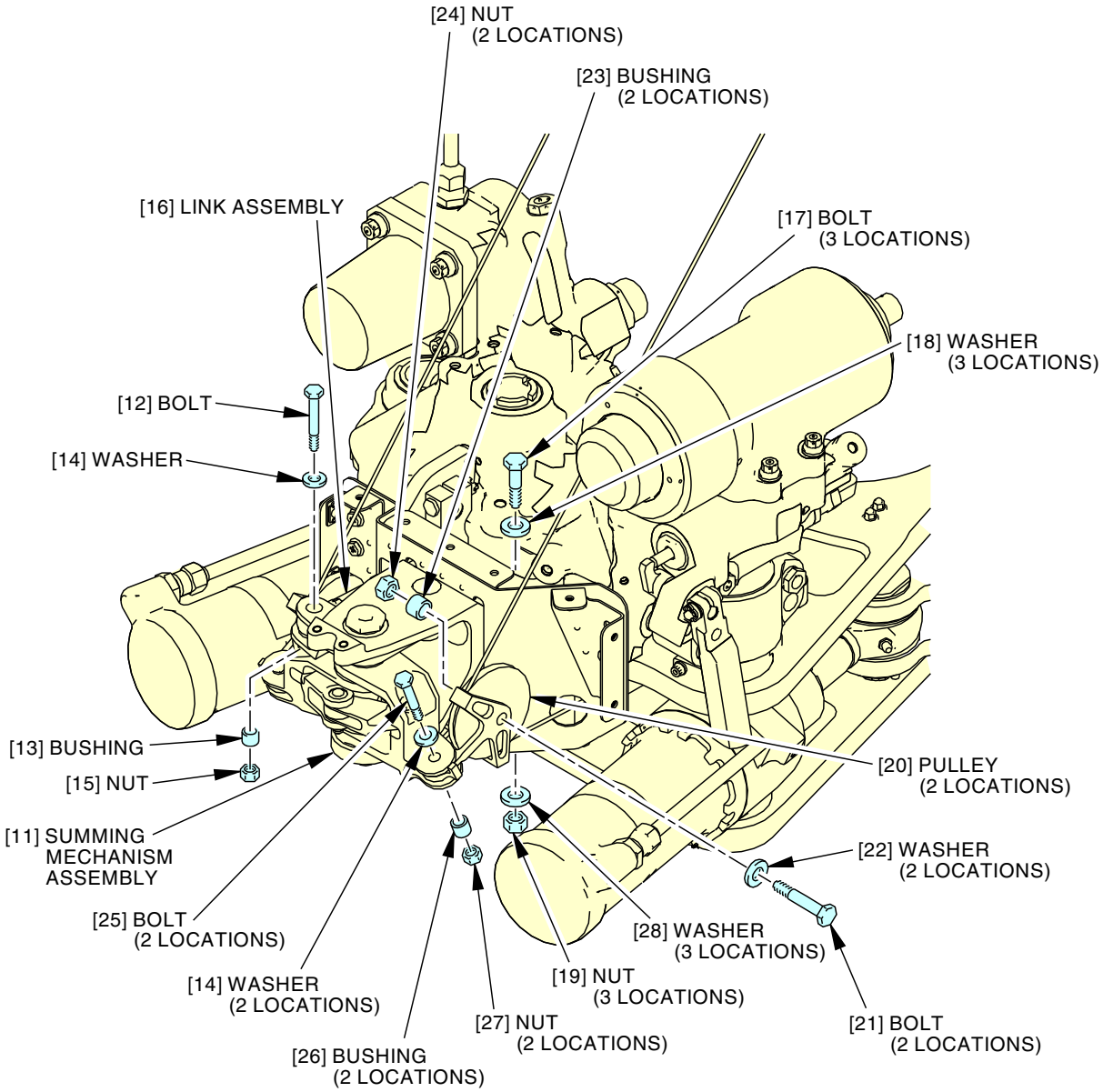
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Steering Summing Mechanism Installation**
**Figure 402/32-51-52-990-802 (Sheet 2 of 3)**



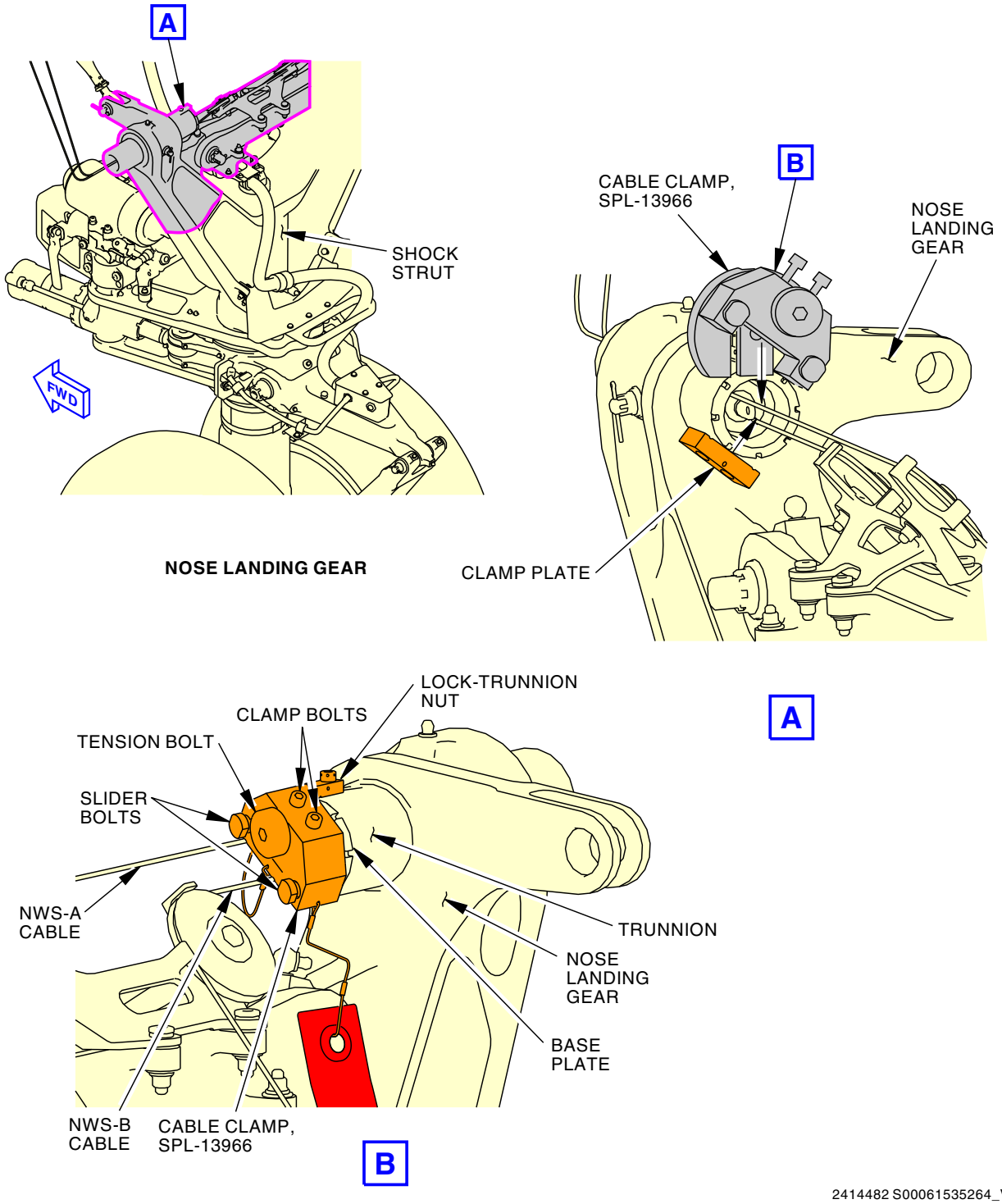
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Steering Summing Mechanism Installation**
**Figure 402/32-51-52-990-802 (Sheet 3 of 3)**



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**Steering Cables Clamp Assembly**
**Figure 403/32-51-52-990-803**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-51-52-420-802**

## 5. Summing Mechanism Installation (Using Cable Clamp Assembly)

(Figure 402, Figure 403)

### A. References

| Reference | Title |
|---|---|
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1499 | Pin - Lock, NLG Towing Lever<br>Part #: A09003-2 Supplier: 81205<br>Opt Part #: A09003-1 Supplier: 81205 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| SPL-13966 | Clamp Assy - Steering Cables, NLG<br>Part #: C32055-18 Supplier: 81205 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 11 | Summing mechanism assembly | 32-51-52-01-175 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

### E. Summing Mechanism Installation

**SUBTASK 32-51-52-210-002**

(1) Make sure that the wheels of the nose landing gear are in the centered position (Figure 401).

NOTE: The graduated scales on the steering collar and arrows on the lower plate show the angular position of the wheels when the torsion links are connected.

**SUBTASK 32-51-52-400-002**

(2) Attach the summing mechanism assembly [11] to the bracket assembly:

(a) Align the summing mechanism assembly [11] with the steering plate.

(b) Align the link assembly [16] with the summing mechanism assembly [11].

(c) Install the bolts [17], washers [18], washers [28], and nuts [19] to connect the summing mechanism assembly [11] to the bracket assembly.

**SUBTASK 32-51-52-420-007**

(3) If it is necessary, install the pulley bracket assembly:

(a) Put the pulley bracket assembly in its location.

(b) Install the bushings [26], washers [14], bolts [25], and nuts [27].

(c) Tighten the bolts [25] to 20 in-lb (2 N·m) - 25 in-lb (3 N·m) above the run-on torque.


ECCN 9E991 BOEING PROPRIETARY - See title page for details

SUBTASK 32-51-52-420-008

(4) Install the pulleys [20] on the pulley bracket assembly:

(a) Thread the cable over the pulley [20].

(b) Install the bushings [23].

(c) Align the pulleys [20] with the pulley bracket assembly.

(d) Install the bolts [21], washers [22], and nuts [24].

(e) Tighten the bolts [21] to 50 in-lb (6 N·m) - 75 in-lb (8 N·m) above the run-on torque.

SUBTASK 32-51-52-480-006

**WARNING** ONLY USE THE CORRECT PIN FOR THE AIRPLANE MODEL. IF YOU USE AN INCORRECT PIN, THE HYDRAULIC STEERING CAN OPERATE. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(5) Make sure that the NLG towing lever pin, SPL-1499, is installed through the towing lever.

SUBTASK 32-51-52-480-007

(6) Install the rig pin NS4 to the summing mechanism.

SUBTASK 32-51-52-420-009

(7) Install the bolt [12], bushing [13], washer [14], and nut [15] to connect the link assembly [16] to the summing mechanism assembly [11].

(a) Adjust the link assembly [16] until you can easily install the rig pin NS4 from the rigging pin kit, SPL-1585, in the summing mechanism rig pin hole.

(b) Remove the rig pin NS4 from the summing mechanism.

(c) Remove the NLG towing lever pin, SPL-1499, from the towing lever.

SUBTASK 32-51-52-080-002

(8) Remove the cable clamp, SPL-13966.

## F. Summing Mechanism Installation Test

SUBTASK 32-51-52-710-002

(1) Do a test on the steering system of the nose wheel (TASK 32-51-00-700-801).

## G. Put the Airplane Back to Its Usual Condition

SUBTASK 32-51-52-420-010

(1) Put the summing mechanism cover [10] in position and install the screws [5], washers [6], and washers [7].

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## STEERING COLLAR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has these tasks:

(1) Removal of the steering collar (without using cable clamp assembly)

(2) Installation of the steering collar (without using cable clamp assembly)

(3) Removal of the steering collar (using cable clamp assembly)

(4) Installation of the steering collar (using cable clamp assembly)

(5) Removal of the upper steering sleeve

(6) Installation of the upper steering sleeve.

**TASK 32-51-61-000-801**

### 2. Steering Collar Removal (Without Using Cable Clamp Assembly)

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-24-000-801 | NLG Inner Cylinder Removal (P/B 401) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| SPL-1901 | Wrench - Spanner, Steering Collar Retainer, Nose Landing Gear<br>Part #: C32040-6 Supplier: 81205<br>Opt Part #: C32040-1 Supplier: 81205 |
| STD-837 | String |

#### C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

#### D. Access Panels

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |


ECCN 9E991 BOEING PROPRIETARY - See title page for details

## E. Prepare for the Removal

SUBTASK 32-51-61-480-001

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-51-61-860-001

(2) Make sure the wheels of the nose landing gear are in the centered position.

SUBTASK 32-51-61-860-002

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-61-860-003

(4) Move the towing lever, on the forward side of the nose landing gear, to the TOW position.

SUBTASK 32-51-61-860-004

(5) Install the rigging pin kit, SPL-1585, through the towing lever.

NOTE: You use the NLG Towing Lever Lock Pin to hold the towing lever in the TOW position.

SUBTASK 32-51-61-410-001

(6) Open the access panels to get access to the nose wheel steering system mechanism and cable turnbuckles.

(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-61-480-002

(7) Install these rig pins from the rigging pin kit, SPL-1585:

(a) Rig pin in the nose wheel steering tiller

(b) Rig pin in the rudder pedal interconnect quadrant

(c) Rig pin in the summing mechanism.

SUBTASK 32-51-61-020-001

(8) Remove the clips [34] from the turnbuckles [36]t.

SUBTASK 32-51-61-020-002

(9) Loosen the NWS-A/B cable [35] at the turnbuckles [36].

SUBTASK 32-51-61-020-003

(10) Remove the pins [37] to disconnect the NWS-A/B cable [35] from the steering collar [5].



ECCN 9E991 BOEING PROPRIETARY - See title page for details

## F. Steering Collar Removal

(Figure 401)

SUBTASK 32-51-61-680-001

**WARNING**

MAKE SURE THAT YOU DEFLATE THE SHOCK STRUT FULLY BEFORE YOU LOOSEN THE VALVE BODY. THE AIR PRESSURE CAN BLOWOUT THE VALVE BODY WHICH CAN CAUSE INJURY TO PERSONS. MAKE SURE THAT NO PERSONS OR EQUIPMENT ARE BELOW THE AIRPLANE WHILE THE AIRPLANE DESCENDS.

(1) Deflate the shock strut for the nose gear (TASK 12-15-41-610-802).

(a) Remove the valve cap from the charging valve at the top of the shock strut.

(b) Loosen the outer hexnut two turns maximum.

1) Deflate the shock strut slowly to prevent loss of fluid through the air valve.

NOTE: The fluid from the shock strut will begin to foam as soon as the pressure drops to ambient.

SUBTASK 32-51-61-580-001

(2) Lift the nose of the airplane until the shock strut is extended approximately 10 in. (254 mm) (TASK 07-10-21-580-801).

SUBTASK 32-51-61-020-004

(3) Disconnect the box assembly [1] from the upper torsion link [13]:

NOTE: Disconnect the box assembly [1] with the electrical conduits attached.

(a) Remove the nuts [33] and washer [32] from the bolts [30].

(b) Remove the bolts [30] and washers [31] ] from the upper torsion link [13].

SUBTASK 32-51-61-020-005

(4) Remove the clamps [23] that hold the electrical conduits [20] to the bracket [24]:

(a) Remove the screws [21] that hold the clamps [23] to the bracket [24].

(b) Remove the clamps [23] and the nut clips [22] from the bracket [24].

SUBTASK 32-51-61-020-006

(5) Disconnect the sensor brackets [15] from the upper torsion link [13]:

(a) Disconnect the sensor brackets [15] with the sensors [14] and the electrical conduits [20] attached.

(b) Remove the nuts [19] and washers [18] from the bolts [16].

(c) Remove the bolts [16] that hold the sensor brackets [15] to the upper torsion link [13].

(d) Remove the washers [17] from the bolts [16].

(e) Isolate the sensor brackets [15] from the upper torsion link [13].

1) If it is necessary, use a string, STD-837, to hold the sensor brackets [15] and attach the string, STD-837, over the top of the outer cylinder [60].

SUBTASK 32-51-61-020-007

(6) Disconnect the upper torsion link [13] from the steering collar [5] and attach it the inner cylinder of the shock strut.

(a) Remove the pin [3], nut [2], and washer [4] from the torsion link pin [6].

(b) Remove the torsion link pin [6] to disconnect the upper torsion link [13] from the steering collar [5].



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SUBTASK 32-51-61-010-001

(7) Do this task: NLG Inner Cylinder Removal, TASK 32-21-24-000-801.

SUBTASK 32-51-61-980-001

(8) Turn the steering collar [5] far enough to permit access to the rod end of the actuator assemblies [47].

SUBTASK 32-51-61-020-008

(9) Remove the cotter pin [50], nut [49], washer [48], bushings [46], anti-rotation washers [65] (not on all airplanes), and pin [45] to disconnect the rod end of the actuator assemblies [47] from the steering collar [5].

SUBTASK 32-51-61-020-009

(10) Remove the bolts [53], washers [51], and standoffs [52] that hold the two front feet of the metering valve assembly to the upper steering sleeve [59] and lower steering plate [54].

SUBTASK 32-51-61-020-010

(11) Remove the bolts [55], washers [56], and lock tab [57] from the steering collar retainer nut [58].

SUBTASK 32-51-61-800-001

(12) Hold the lower steering plate [54] in its position.

SUBTASK 32-51-61-020-011

(13) Loosen the steering collar retainer nut [58] and remove it from the outer cylinder [60] with a spanner wrench, SPL-1901.

SUBTASK 32-51-61-800-002

(14) Hold the steering collar [5] in its position.

SUBTASK 32-51-61-010-002

(15) Remove the lower steering plate [54] from the outer cylinder [60].

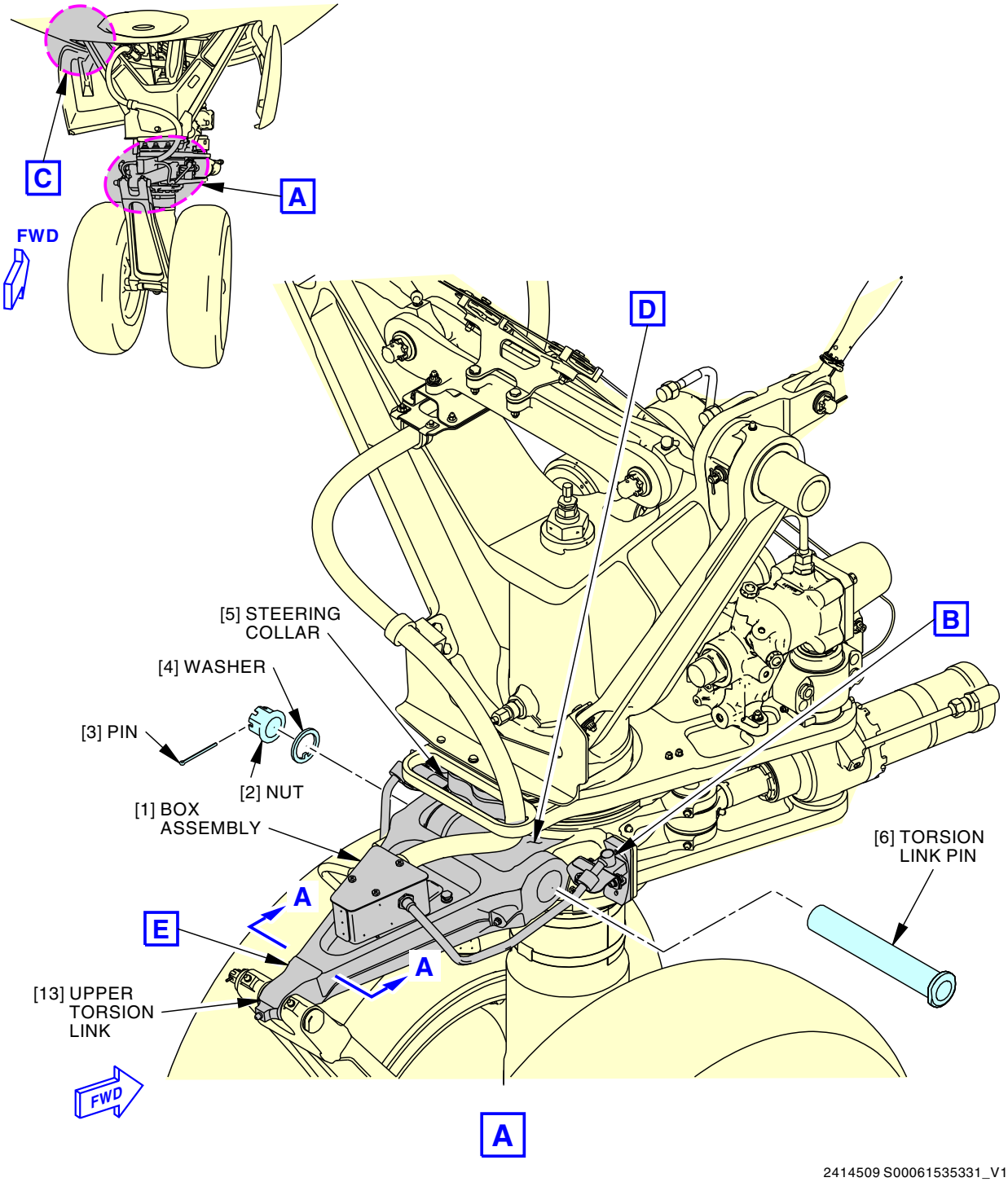
SUBTASK 32-51-61-020-012

(16) Remove the steering collar [5] from the outer cylinder [60].

——— END OF TASK ———



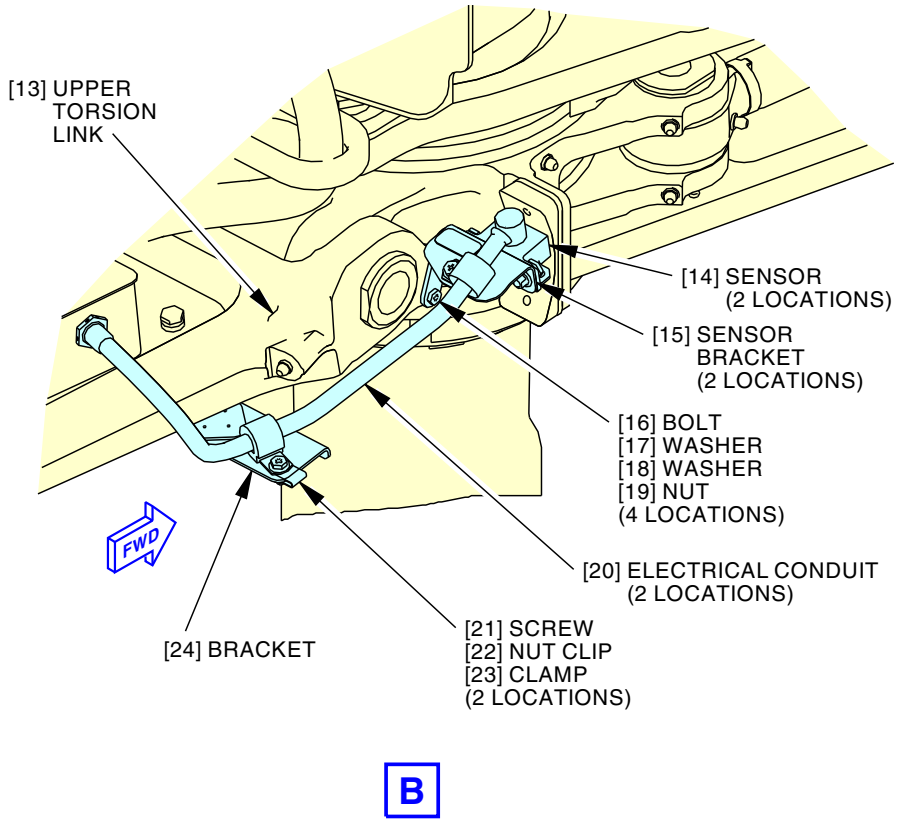
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 1 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

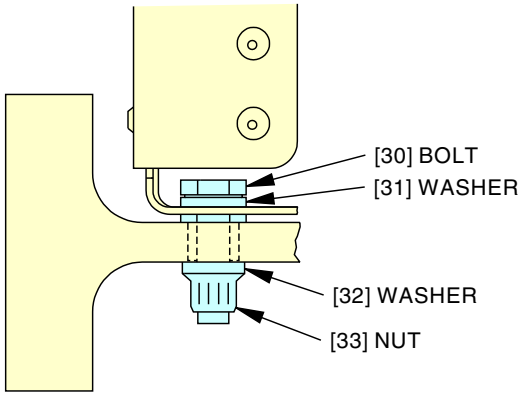



2414510 S00061535332_V1

**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 2 of 10)**

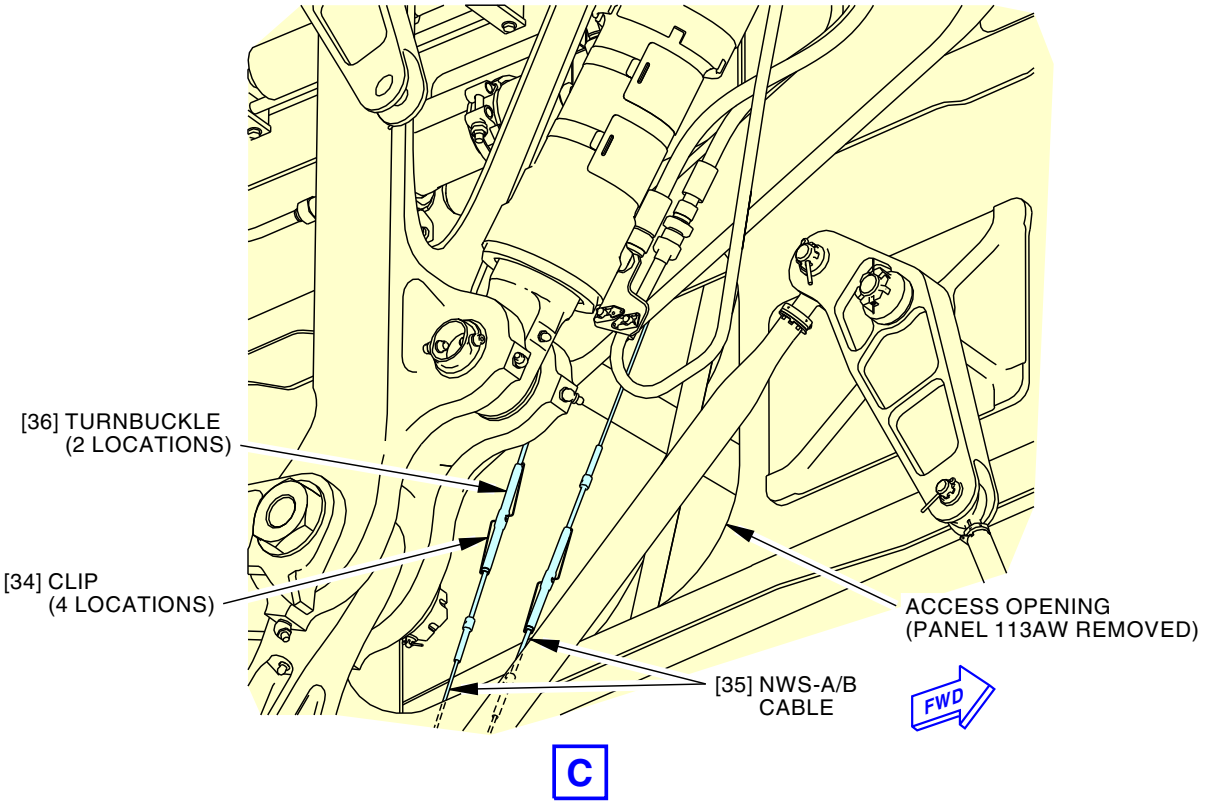


ECCN 9E991 BOEING PROPRIETARY - See title page for details




**(VIEW IN THE FORWARD DIRECTION)**

**A-A**

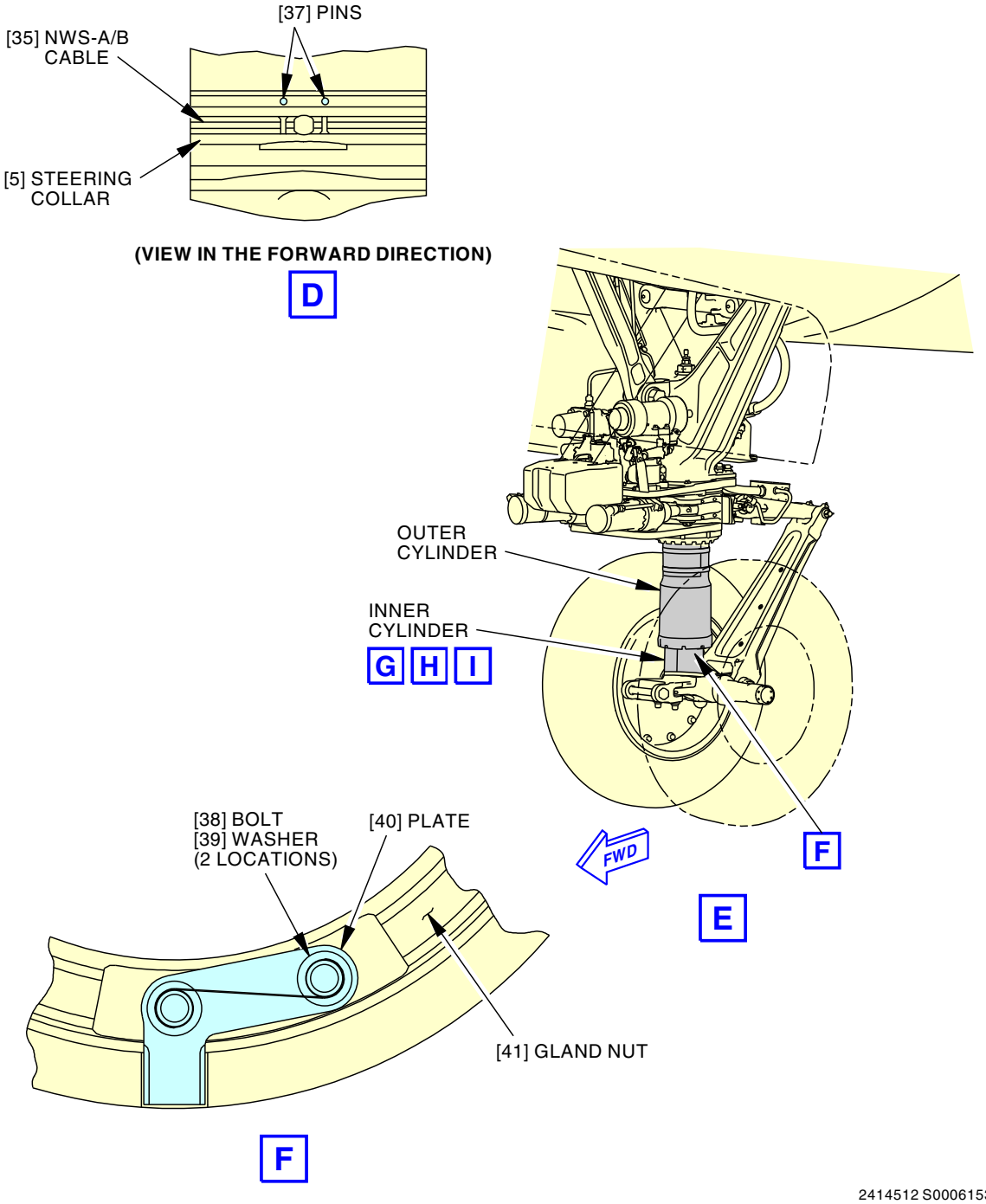



2414511 S00061535333_V2

**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 3 of 10)**



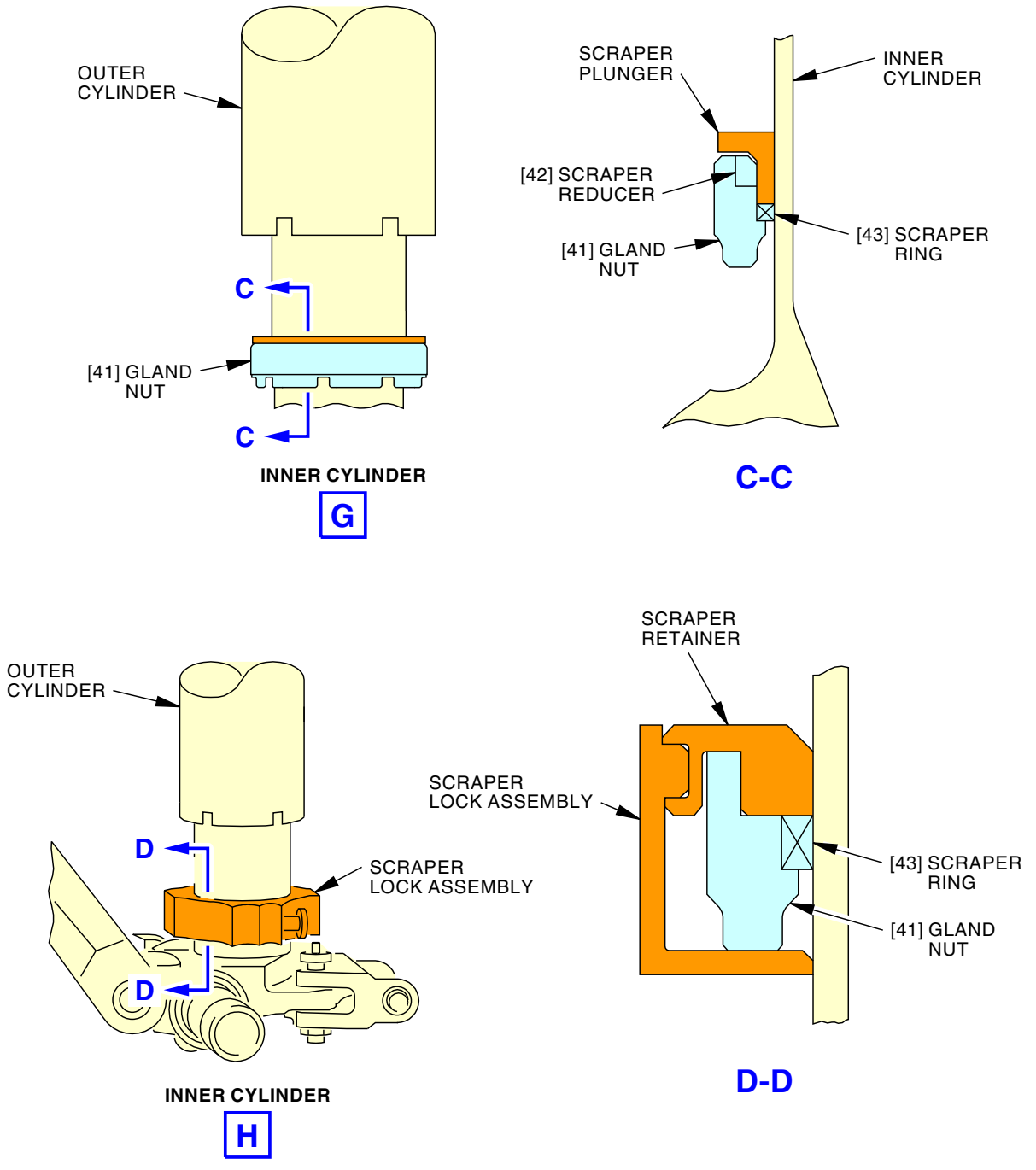
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 4 of 10)**



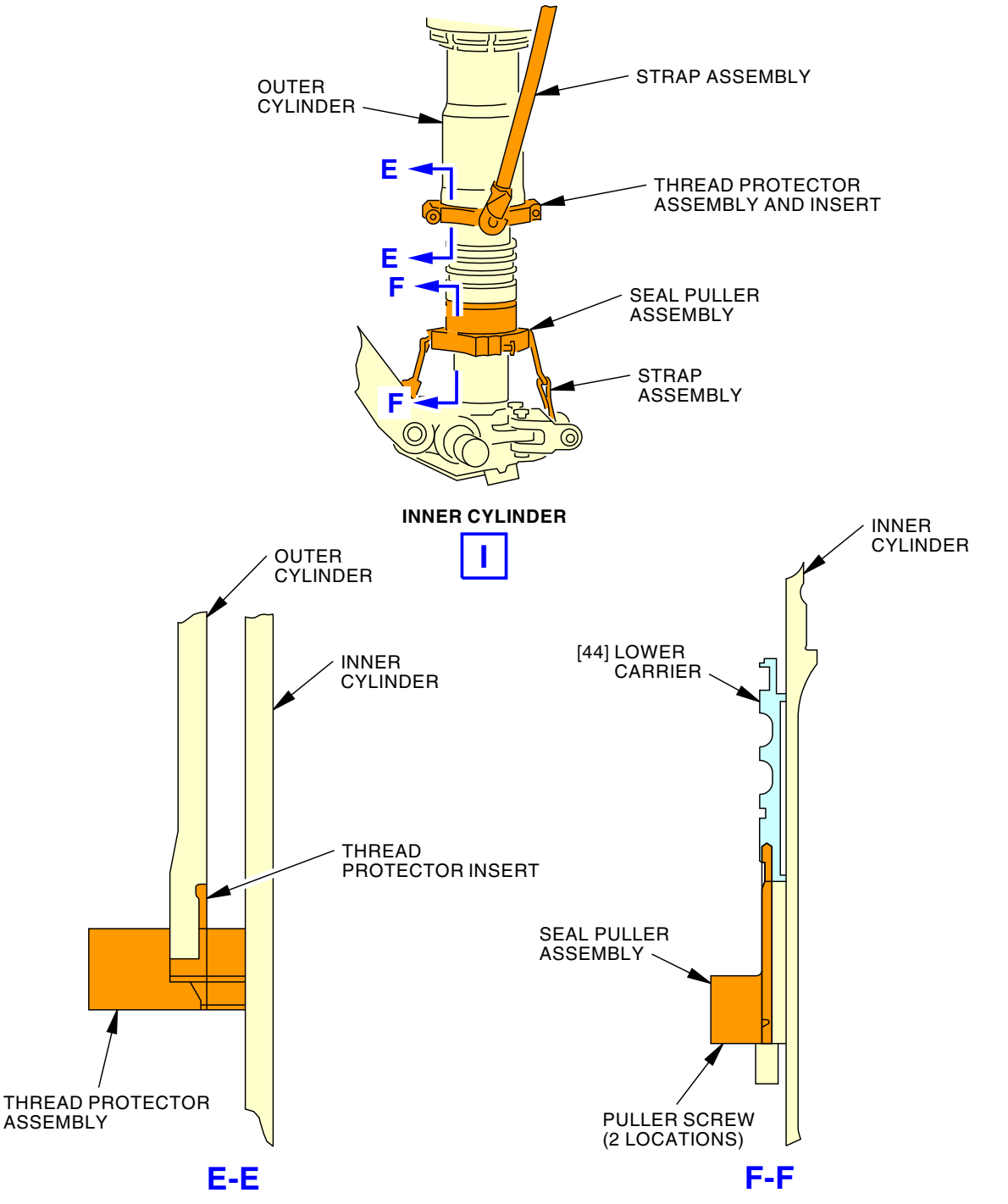
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**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 5 of 10)**



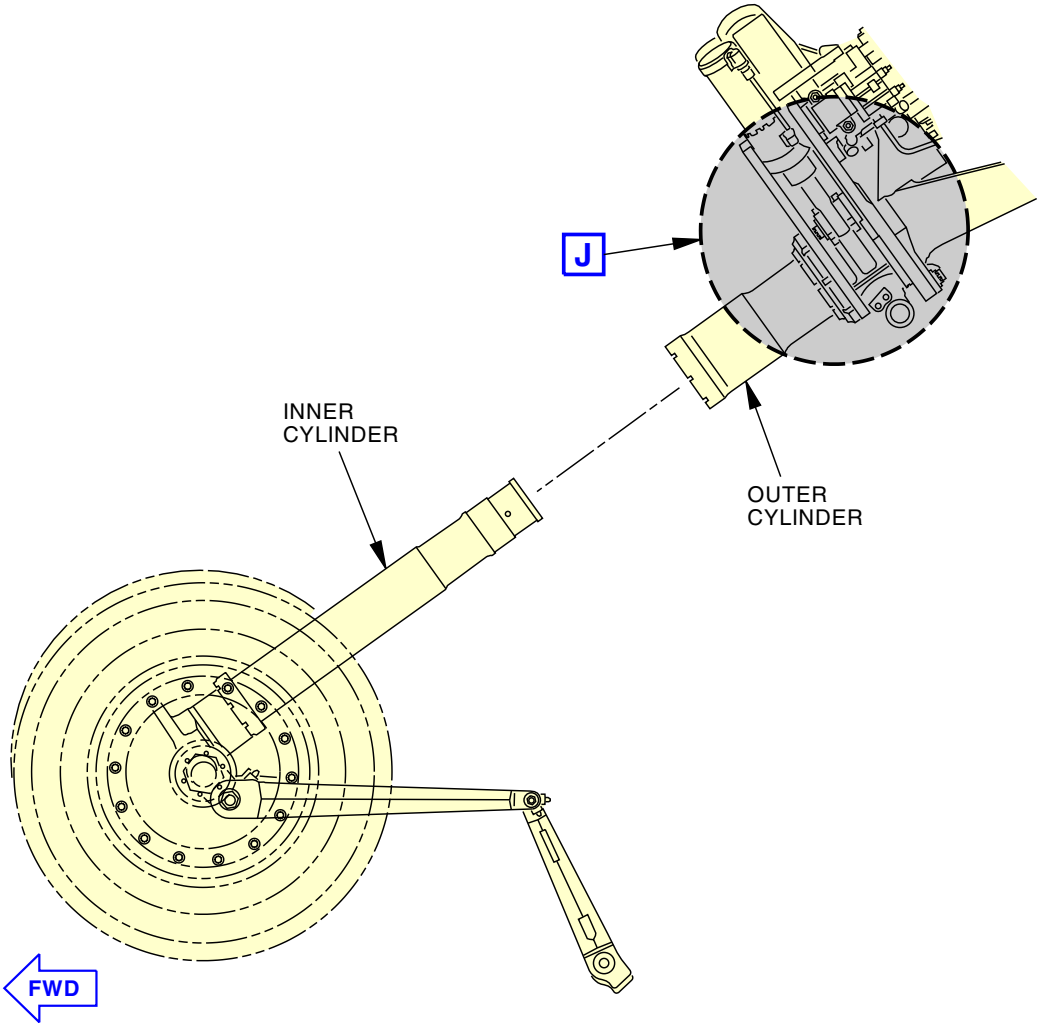
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**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 6 of 10)**



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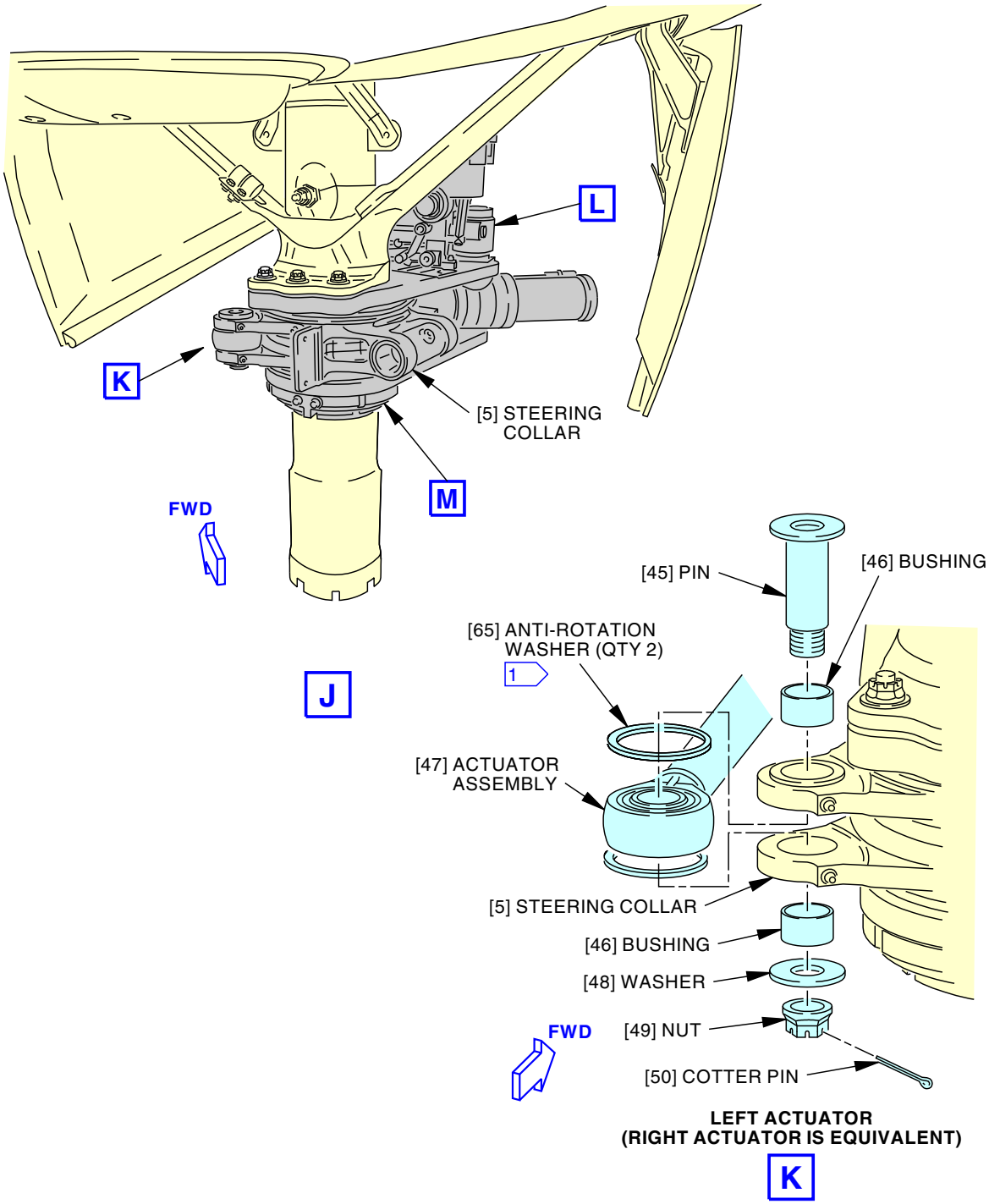

**INNER CYLINDER REMOVAL**

2414515 S00061535337_V1

**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 7 of 10)**



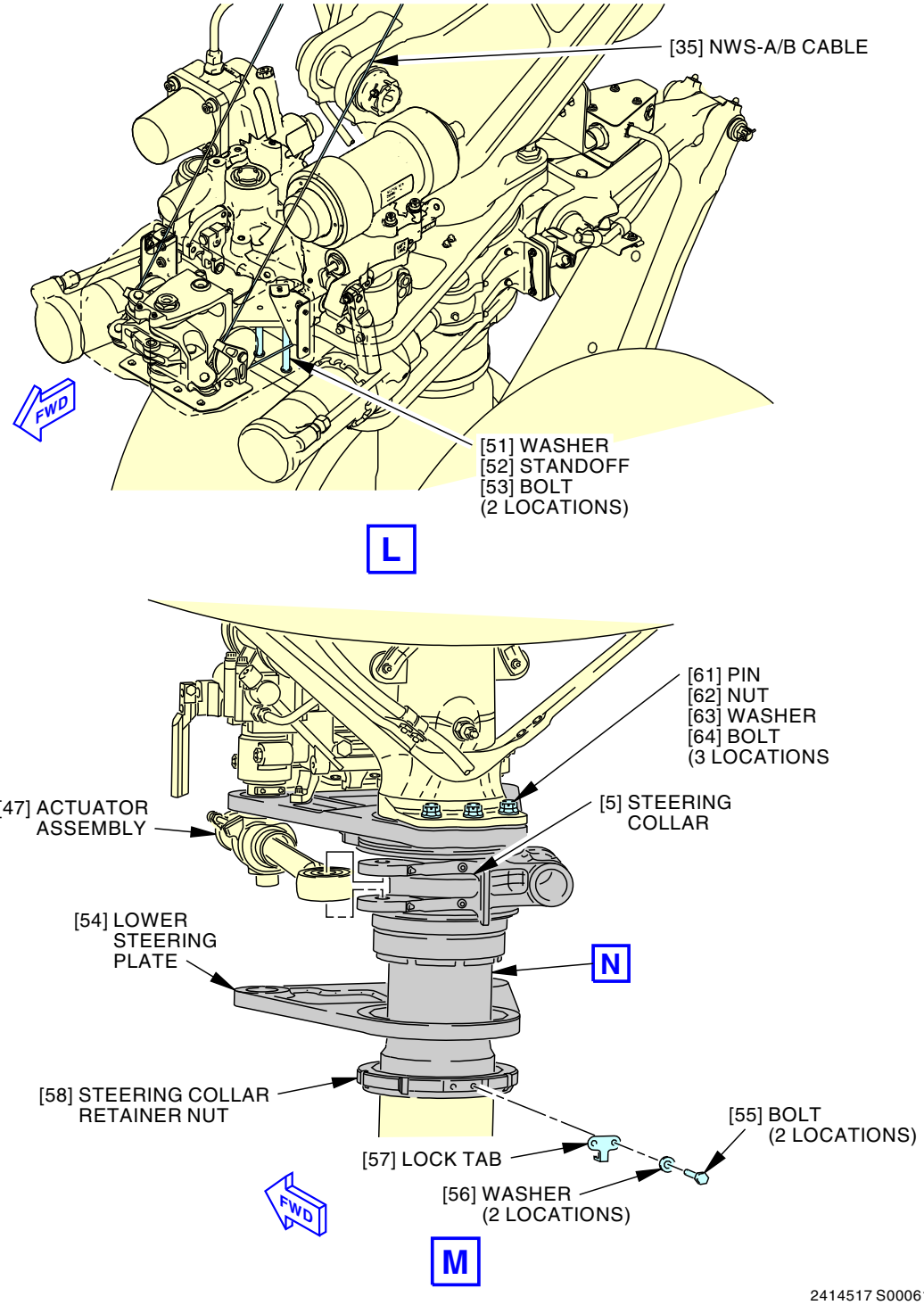
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 8 of 10)**



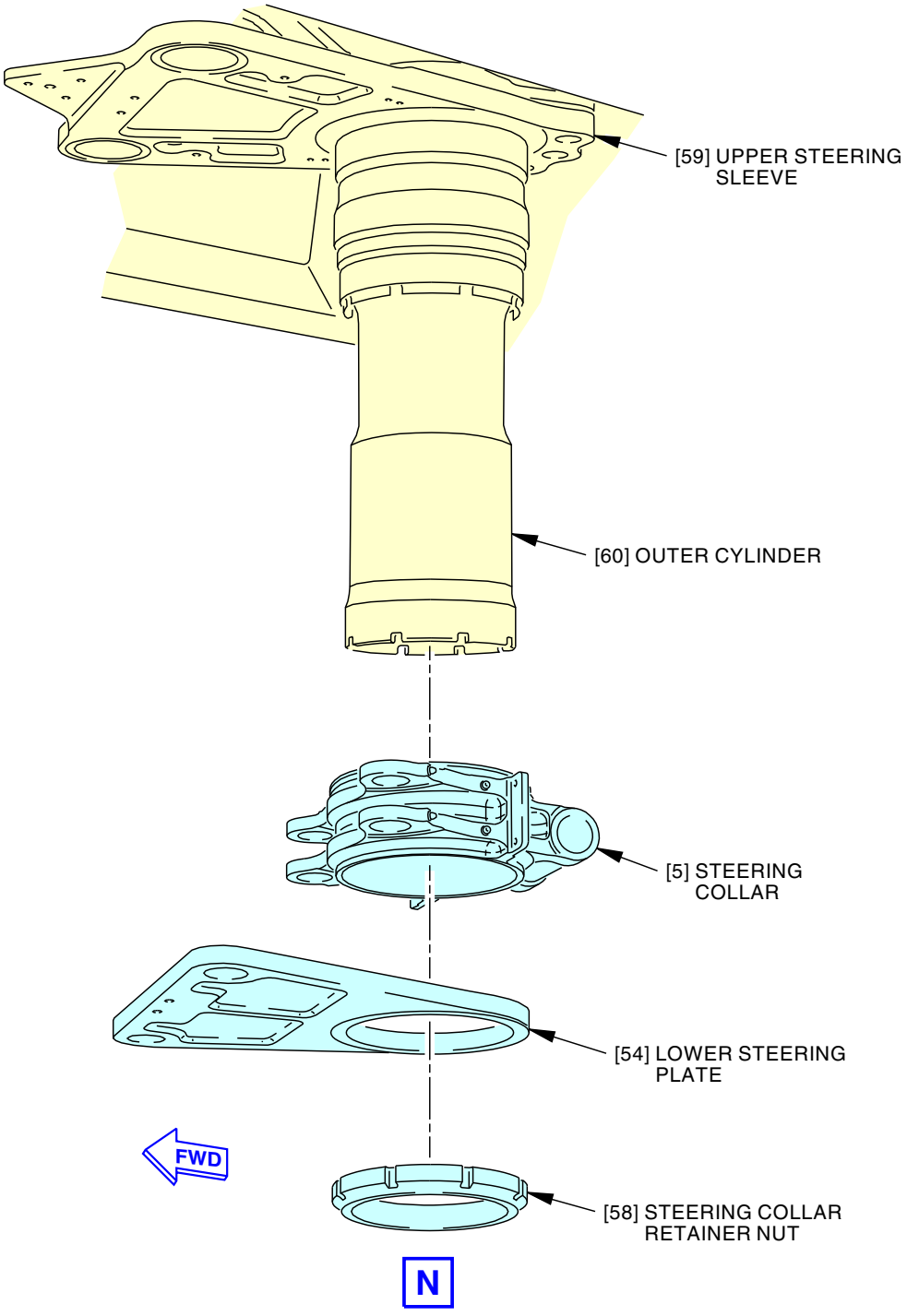
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 9 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 401/32-51-61-990-801 (Sheet 10 of 10)**



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**TASK 32-51-61-400-801**

**3. Steering Collar Installation (Without Using Cable Clamp Assembly)**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 12-21-21-640-802 | Nose Landing Gear Lower End Components Servicing (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-21-24-400-801 | NLG Inner Cylinder Installation (P/B 401) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |
| 32-51-31-400-802 | Nose Gear Steering System Cables Installation (P/B 401) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| SPL-1901 | Wrench - Spanner, Steering Collar Retainer, Nose Landing Gear<br>Part #: C32040-6 Supplier: 81205<br>Opt Part #: C32040-1 Supplier: 81205 |
| STD-837 | String |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Steering collar | 32-51-61-01-070 | SIA ALL |
| 50 | Cotter pin | 32-51-51-01-215 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**F. Access Panels**

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |



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## G. Steering Collar Installation

NOTE: Make sure that you install the matching steering collar [5] for the steering sleeve installed. Steering collar assembly part number 162A1404-7 can be installed with a steering sleeve assembly part number 162A1405-11 or 162A1405-15 and only steering collar assembly part number 162A1420-2 can be installed with steering sleeve assembly part number 162A1421-3.

SUBTASK 32-51-61-860-005

(1) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-61-600-001

(2) Apply a thin layer of grease, D00633, to the bushing faces and grooves on the steering collar [5].

SUBTASK 32-51-61-420-001

(3) Install the steering collar [5] on the outer cylinder [60].

SUBTASK 32-51-61-420-002

(4) Install the lower steering plate [54] on the outer cylinder [60] and hold it in position.

SUBTASK 32-51-61-600-002

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Apply a thin layer of corrosion inhibiting material, G50136, to the threads, thread reliefs, and mating surfaces of the steering collar retainer nut [58].

SUBTASK 32-51-61-420-003

(6) Move the steering collar retainer nut [58] up the outer cylinder [60] and install it below the lower steering plate [54].

(a) Tighten the steering collar retainer nut [58] to 62.5 ±12.5 ft-lb (84.7 ±17.0 N·m) with a spanner wrench, SPL-1901.

(b) If it is necessary, loosen the steering collar retainer nut [58] a minimum quantity to install the lock tab [57], washers [56], and bolts [55].

SUBTASK 32-51-61-020-013

(7) Install the standoffs [52], bolts [53], and washers [51] that hold the metering valve assembly to the upper steering sleeve [59] and lower steering plate [54].

SUBTASK 32-51-61-980-002

(8) Turn the steering collar [5] far enough to permit access to the rod end of the actuator assembly [47] that you will install.

SUBTASK 32-51-61-420-004

(9) Install the bushings [46], anti-rotation washers [65] (not on all airplanes), pin [45], washer [48], and nut [49] to connect the rod end of the actuator assembly [47] to the steering collar [5].

(a) Make sure that the flange bushing [46] is positioned face-up in the direction towards the actuator assembly [47].

(b) Tighten the nut [49] to 54 ±4 ft-lb (73 ±6 N·m).



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(c) If it is necessary, loosen the nut [49] to align the castellations on the nut [49] with the hole on the pin [45].

(d) Install the new cotter pin [50].

SUBTASK 32-51-61-410-002

(10) Do this task: NLG Inner Cylinder Installation, TASK 32-21-24-400-801.

SUBTASK 32-51-61-420-005

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(11) Connect the upper torsion link [13] to the steering collar [5]:

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The chrome surface on the shank of the torsion link pin [6].

2) The threads of the nut [2].

3) The faces of the washer [4].

4) The mating surfaces of the upper torsion link [13] and the steering collar [5].

(b) Remove all unwanted corrosion inhibiting material, G50136.

(c) Put the upper torsion link [13] in its position on the steering collar [5].

(d) Put the torsion link pin [6] through the upper torsion link [13] and the steering collar [5].

(e) Apply a thin layer of the corrosion inhibiting material, G50136, to the threads and thread reliefs of the torsion link pin [6].

(f) Install the washer [4] and nut [2] on the torsion link pin [6].

(g) Tighten the nut [2] 275 ±25 in-lb (31 ±3 N·m) more than the run-on torque.

(h) If it is necessary, loosen the nut [2] to the nearest castellation to align the holes for the torsion link pin [6].

(i) Install the pin [3] in the torsion link pin [6].

SUBTASK 32-51-61-020-014

(12) Connect the sensor brackets [15] to the upper torsion link [13]:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the bolts [16]

2) The threads of the nuts [19]

3) The faces of the washers [17] and washers [18].



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(b) Remove all unwanted corrosion inhibiting material, G50136.

(c) If a string, STD-837, is attached to the sensor brackets [15]], and the outer cylinder [60], remove the string, STD-837.

(d) Put the sensor brackets [15] in their position on the upper torsion link [13].

(e) Install the washers [17] on the bolts [16].

(f) Put the bolts [16] through the upper torsion link [13] and the sensor brackets [15].

(g) Install the washer [18] and nuts [19] on the bolts [16]

(h) Tighten the nuts [19].

SUBTASK 32-51-61-020-015

(13) Connect the box assembly [1] to the upper torsion link [13]:

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and shank of the bolts [30]

2) The threads of the nuts [33]

3) The faces of the washers [31] and washers [32].

(b) Remove all unwanted corrosion inhibiting material, G50136.

(c) If a string, STD-837, is attached to the box assembly [1], and the outer cylinder [60], remove the string, STD-837.

(d) Put the box assembly [1] in its position on the upper torsion link [13].

(e) Install the washers [31] on the bolts [30].

(f) Put the bolts [30] through the bracket for the box assembly [1] and the upper torsion link [13].

(g) Install the washers [32], and the nuts [33] on the bolts [30].

SUBTASK 32-51-61-410-003

(14) Reconnect the NWS-A/B cable [35] to the steering collar [5] (TASK 32-51-31-400-802).

SUBTASK 32-51-61-980-003

(15) Move the inner cylinder from the fully extended to the fully compressed position.

(a) Make sure the total travel is 15.50 in. (393.70 mm).

SUBTASK 32-51-61-080-001

(16) Remove these rig pins from the rigging pin kit, SPL-1585:

(a) Rig pin in the nose wheel steering tiller

(b) Rig pin in the rudder pedal interconnect quadrant

(c) Rig pin in the summing mechanism.

SUBTASK 32-51-61-860-006

(17) Remove the rigging pin kit, SPL-1585, from the towing lever.



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**H. Steering Collar Installation Test**

SUBTASK 32-51-61-610-001

(1) Service the shock strut for the nose gear (TASK 12-15-41-610-802).

SUBTASK 32-51-61-710-001

(2) To do a test on the steering system of the nose wheel, do the applicable procedures in this task: Nose Wheel Steering System Test (Airplane on Ground), TASK 32-51-00-700-801.

Do these procedures:

- General
- Prepare to Test Steering System of the Nose Wheel
- Do the Test of the Normal Steering Response
- Do the Test of Nose Gear Turn Radius and Response to Full Rudder Pedal Input
- Put the Airplane Back to Its Usual Condition

(a) Make sure that there is no leakage.

**I. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-51-61-410-004

(1) Close the access panel to the nose wheel steering system mechanism and cable turnbuckles (TASK 53-14-01-420-801).

(a) Close this access panel:

| Number | Name/Location |
|---|---|
| 113BW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-61-580-002

(2) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-51-61-640-001

(3) Lubricate the lube fittings on the upper torsion link [13] and the steering collar [5] (TASK 12-21-21-640-802).

END OF TASK

**TASK 32-51-61-000-802**

**4. Steering Collar Removal (Using Cable Clamp Assembly)**

(Figure 402)
(Figure 403)

**A. References**

| Reference | Title |
|---|---|
| 07-10-21-580-801 | Lift the Airplane Nose with the Nose Jack at Jack Point D (P/B 201) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-21-24-000-801 | NLG Inner Cylinder Removal (P/B 401) |


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## B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| SPL-1901 | Wrench - Spanner, Steering Collar Retainer, Nose Landing Gear<br>Part #: C32040-6 Supplier: 81205<br>Opt Part #: C32040-1 Supplier: 81205 |
| SPL-13966 | Clamp Assy - Steering Cables, NLG<br>Part #: C32055-18 Supplier: 81205 |
| STD-837 | String |

## C. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

## D. Prepare for the Removal

SUBTASK 32-51-61-480-003

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED IN ALL OF THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed in the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

SUBTASK 32-51-61-860-007

(2) Make sure the wheels of the nose landing gear are in the centered position.

SUBTASK 32-51-61-860-008

(3) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-61-860-009

(4) Move the towing lever, on the forward side of the nose landing gear, to the TOW position.

SUBTASK 32-51-61-860-010

(5) Install the rigging pin kit, SPL-1585, through the towing lever.

NOTE: You use the NLG Towing Lever Lock Pin to hold the towing lever in the TOW position.

SUBTASK 32-51-61-480-004

(6) Install this rig pin from the rigging pin kit, SPL-1585:

(a) Rig pin NS4 in the summing mechanism.



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SUBTASK 32-51-61-020-016

(7) Use the cable clamp, SPL-13966, to remove the tension in steering cables NWS-A and NWS-B between the trunnion and the link assembly (Figure 403).

NOTE: You may need to remove one of the slider bolts in order to install the base plate over the cables.

(a) Put the base plate in position against the trunnion, with the steering cables positioned in the base plate grooves.

NOTE: Use the Lock-Trunnion Nut to align the base plate into position.

(b) Tighten the clamp bolts evenly between 70 in-lb (8 N·m) to 80 in-lb (9 N·m) onto the clamp plate.

(c) Turn only the tension bolt until the clamp carrier contacts the head of the slider bolts.

NOTE: Make sure you do not exceed a maximum of 0.10 in. (0.25 cm) of cable stretch.

SUBTASK 32-51-61-020-017

(8) Remove the pins [37] to disconnect the NWS-A/B cable [35] from the steering collar [5].

## E. Steering Collar Removal

(Figure 402)

SUBTASK 32-51-61-680-002

**WARNING** DO NOT REMOVE THE VALVE BODY UNTIL YOU DEFLATE THE SHOCK STRUT FULLY. THE AIR PRESSURE CAN BLOW THE VALVE BODY OUT AND CAUSE INJURIES TO PERSONNEL.

(1) Deflate the shock strut for the nose gear (TASK 12-15-41-610-802).

(a) Remove the valve cap from the charging valve at the top of the shock strut.

(b) Loosen the outer hexnut two turns maximum.

1) Deflate the shock strut slowly to prevent loss of fluid through the air valve.

NOTE: The fluid from the shock strut will begin to foam as soon as the pressure drops to ambient.

SUBTASK 32-51-61-580-003

(2) Lift the nose of the airplane until the shock strut is extended approximately 10 in. (254 mm) (TASK 07-10-21-580-801).

SUBTASK 32-51-61-020-018

(3) Disconnect the box assembly [1] from the upper torsion link [13]:

NOTE: Disconnect the box assembly [1] with the electrical conduits attached.

(a) Remove the nuts [33] and washers [32] from the bolts [30].

(b) Remove the bolts [30] and washers [31] from the upper torsion link [13].

SUBTASK 32-51-61-020-019

(4) Remove the clamps [23] that hold the electrical conduits [20] to the bracket [24]:

(a) Remove the screws [21] that hold the clamps [23] to the bracket [24].

(b) Remove the clamps [23] and nut clips [22] from the bracket [24].

SUBTASK 32-51-61-020-020

(5) Disconnect the sensor brackets [15] from the upper torsion link [13]:



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(a) Disconnect the sensor brackets [15] with the sensors [14] and electrical conduits [20] attached.

(b) Remove the nuts [19] and washers [18] from the bolts [16].

(c) Remove the bolts [16] that hold the sensor brackets [15] to the upper torsion link [13].

(d) Remove the washers [17] from the bolts [16].

(e) Isolate the sensor brackets [15] from the upper torsion link [13].

1) If it is necessary, use a string, STD-837, to hold the sensor brackets [15] and attach the string, STD-837, over the top of the outer cylinder [60].

**SUBTASK 32-51-61-800-003**

(6) Attach the electrical conduit [20] and box assembly [1] to the outer cylinder [60] so that it is not in the way.

**SUBTASK 32-51-61-020-021**

(7) Disconnect the upper torsion link [13] from the steering collar [5] and attach it the inner cylinder of the shock strut.

(a) Remove the pin [3], nut [2], and washer [4] from the torsion link pin [6].

(b) Remove the torsion link pin [6] to disconnect the upper torsion link [13] from the steering collar [5].

**SUBTASK 32-51-61-010-003**

(8) Do this task: NLG Inner Cylinder Removal, TASK 32-21-24-000-801.

**SUBTASK 32-51-61-980-004**

(9) Turn the steering collar [5] far enough to permit access to the rod end of the actuator assembly [47].

**SUBTASK 32-51-61-020-022**

(10) Remove the cotter pin [50], nut [49], washer [48], bushings [46], anti-rotation washers [65] (not on all airplanes), and pin [45] to disconnect the rod end of the actuator assembly [47] from the steering collar [5].

**SUBTASK 32-51-61-020-023**

(11) Remove the bolts [53], washers [51], and standoffs [52] that hold the two front feet of the metering valve assembly to the upper steering sleeve [59] and lower steering plate [54].

**SUBTASK 32-51-61-020-024**

(12) Remove the bolts [55], washers [56], and lock tab [57] from the steering collar retainer nut [58].

**SUBTASK 32-51-61-800-004**

(13) Hold the lower steering plate [54] in its position.

**SUBTASK 32-51-61-020-025**

(14) Loosen the steering collar retainer nut [58] and remove it from the outer cylinder [60] with a spanner wrench, SPL-1901.

**SUBTASK 32-51-61-800-005**

(15) Hold the steering collar [5] in its position.

**SUBTASK 32-51-61-010-004**

(16) Remove the lower steering plate [54] from the outer cylinder [60].

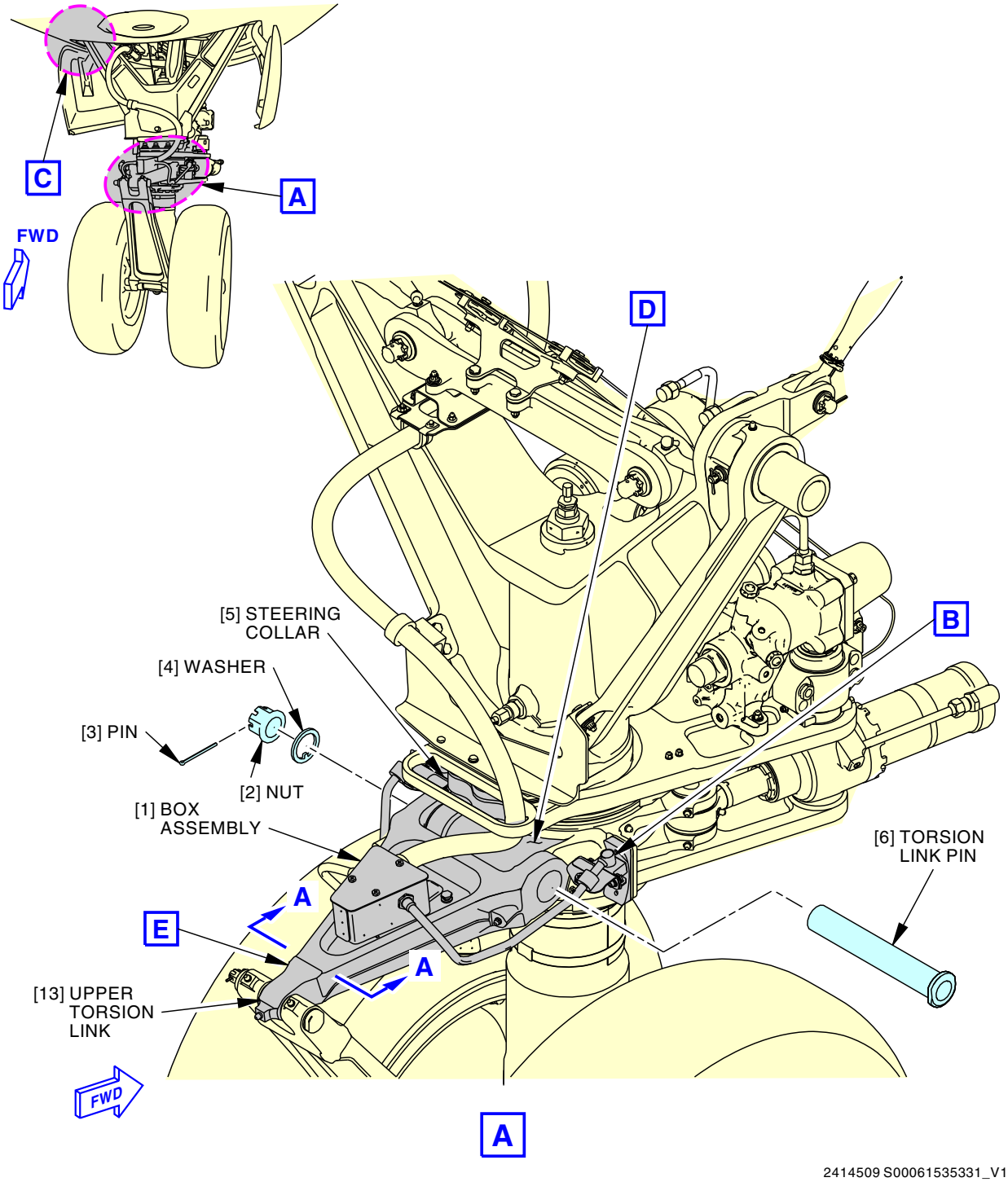
**SUBTASK 32-51-61-020-026**

(17) Remove the steering collar [5] from the outer cylinder [60].

**END OF TASK**



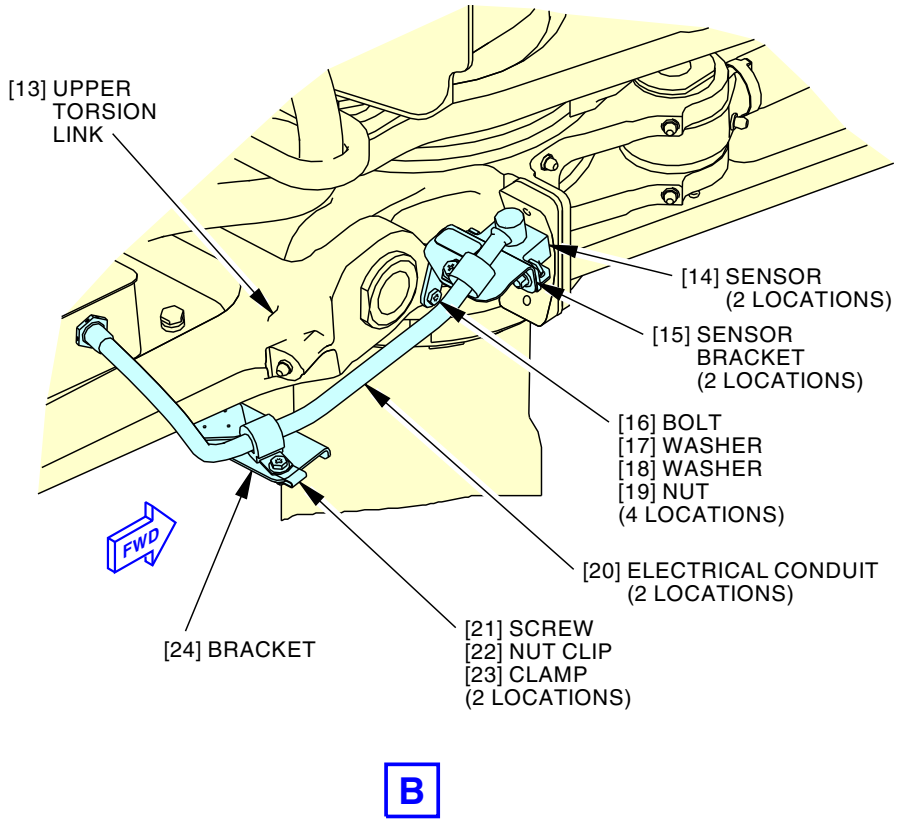
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**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 1 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

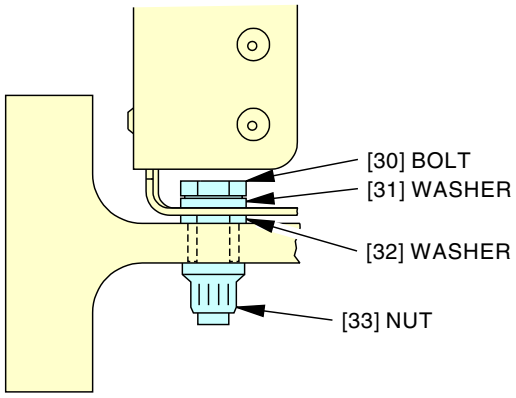



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**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 2 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**(VIEW IN THE FORWARD DIRECTION)**

**A-A**

(NOT USED)

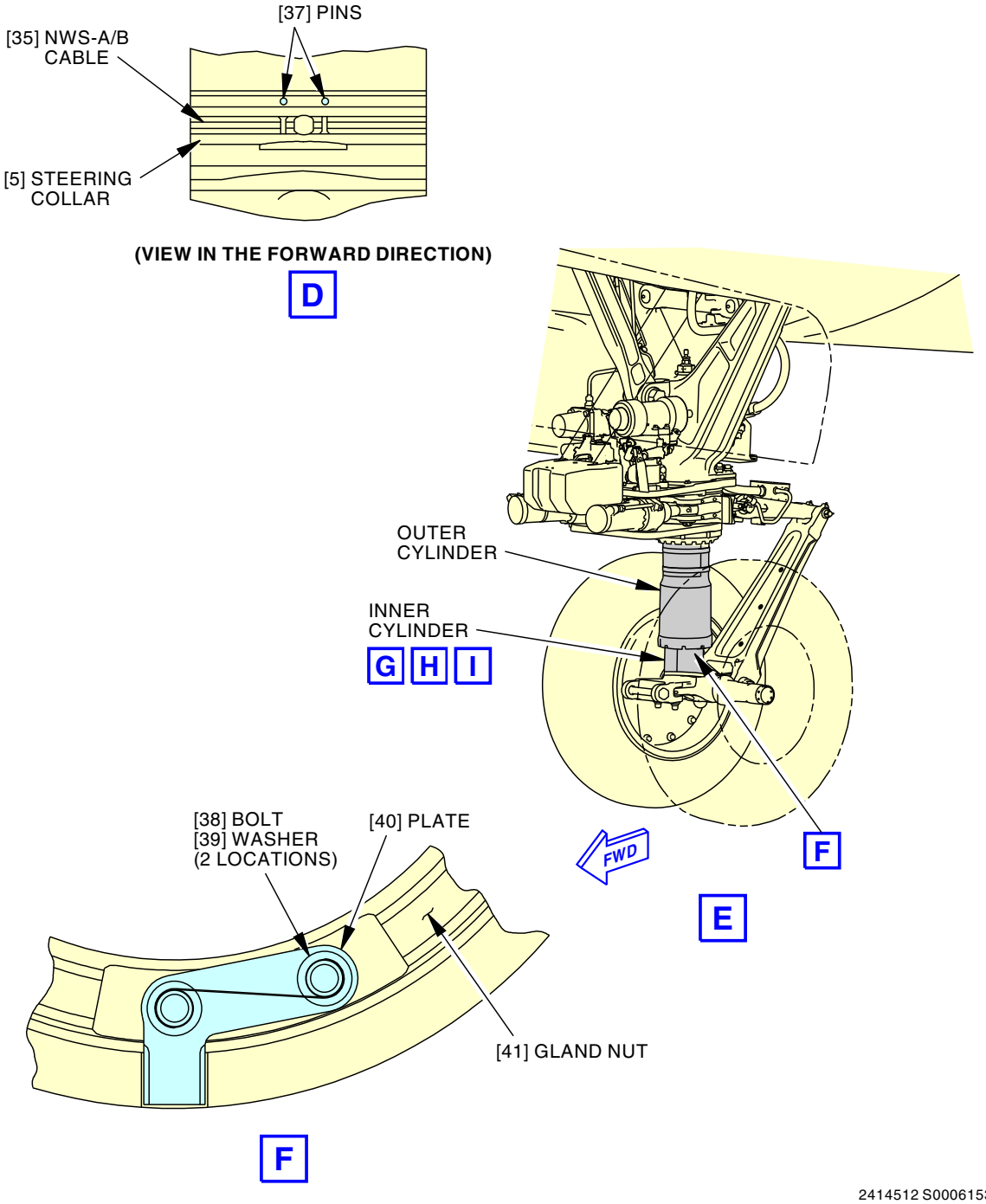
C

2414520 S00061535344_V1

**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 3 of 10)**



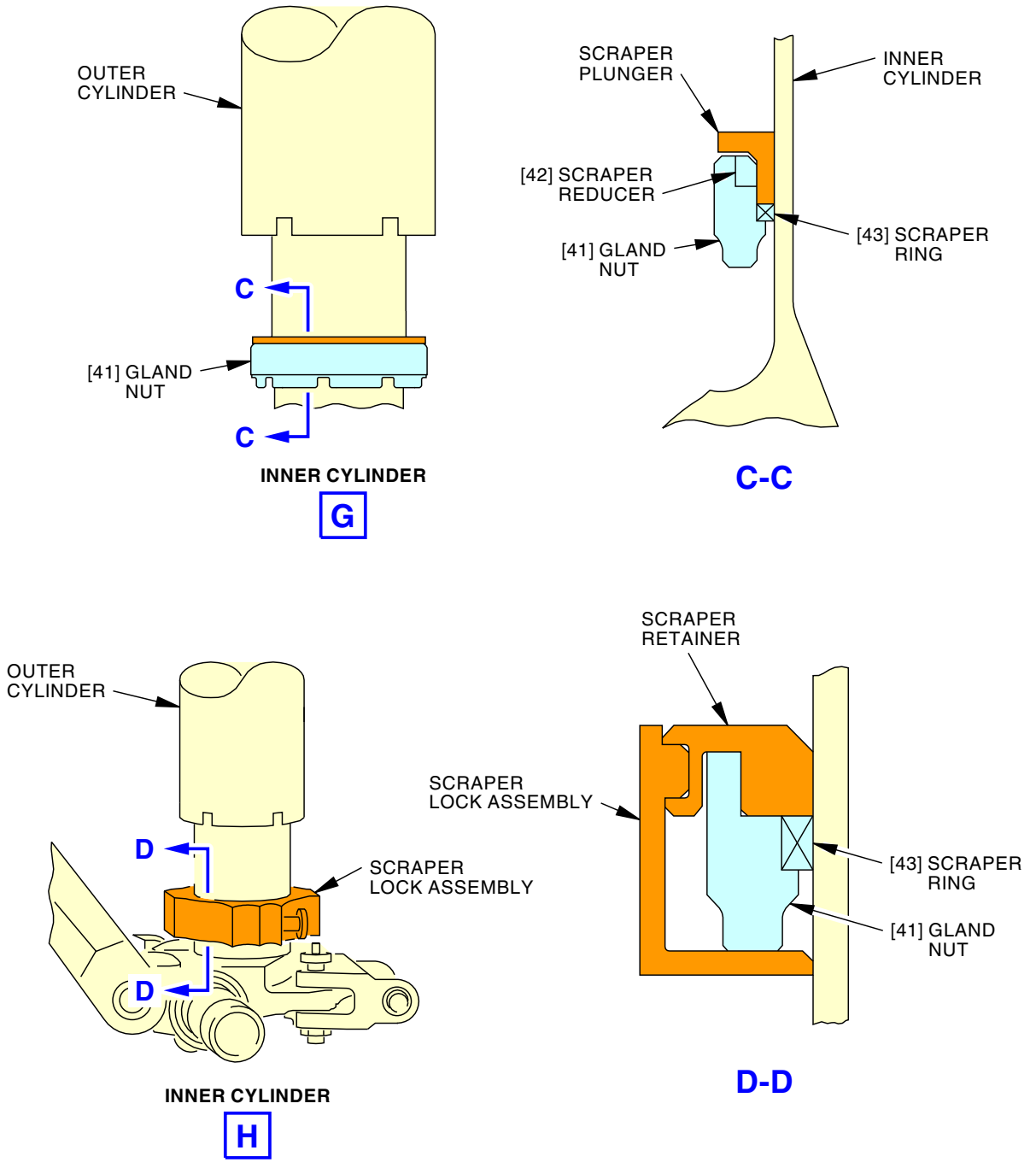
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 4 of 10)**



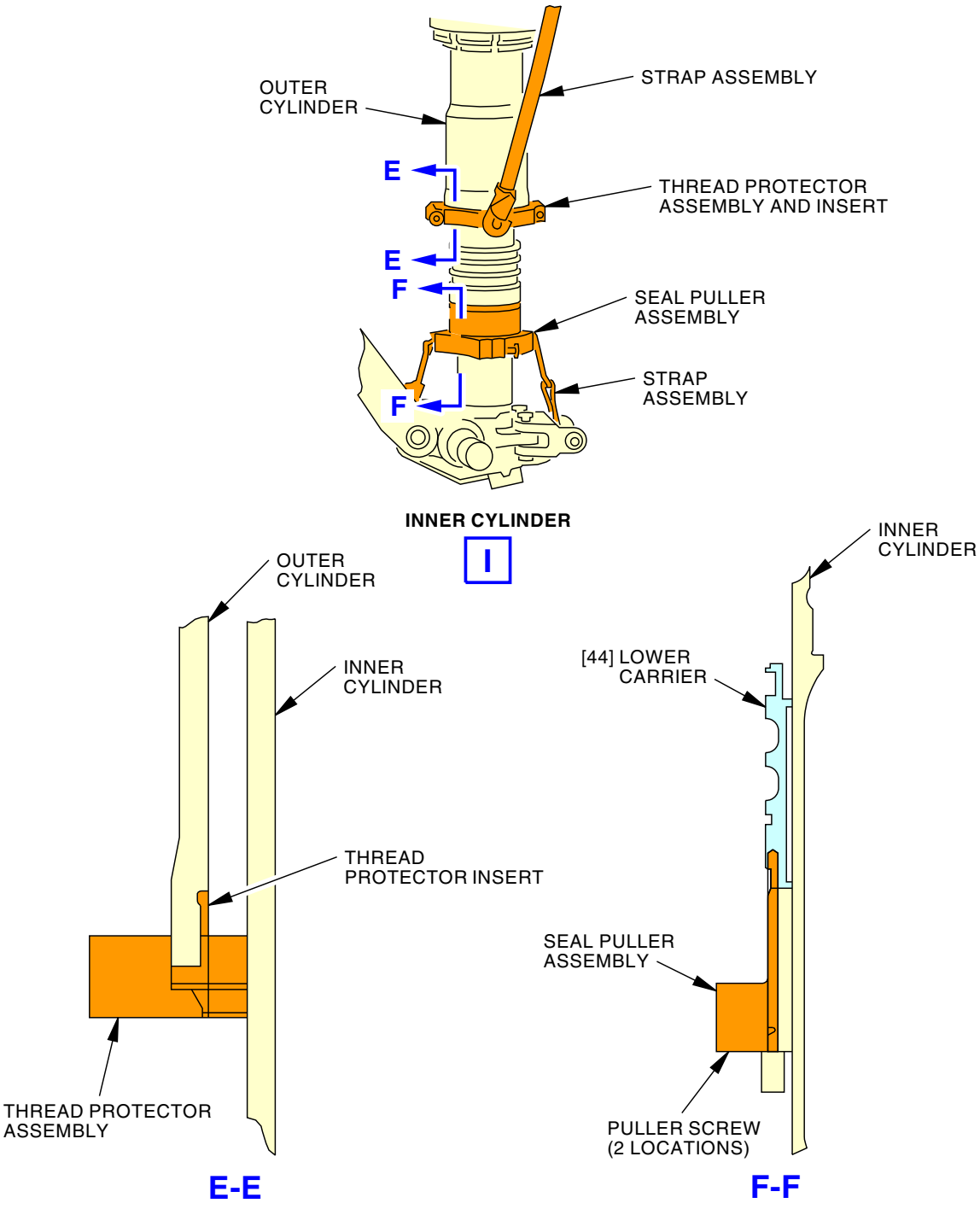
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 5 of 10)**



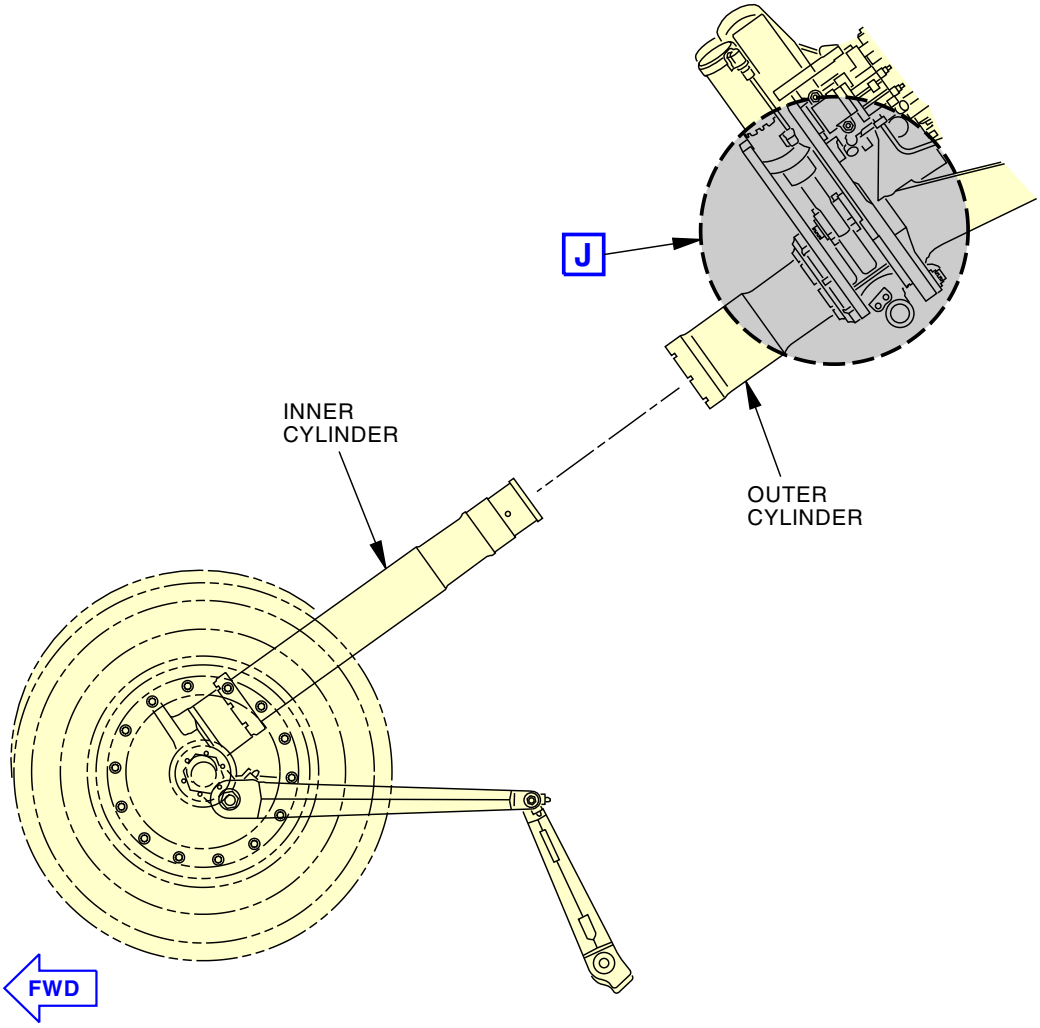
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**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 6 of 10)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



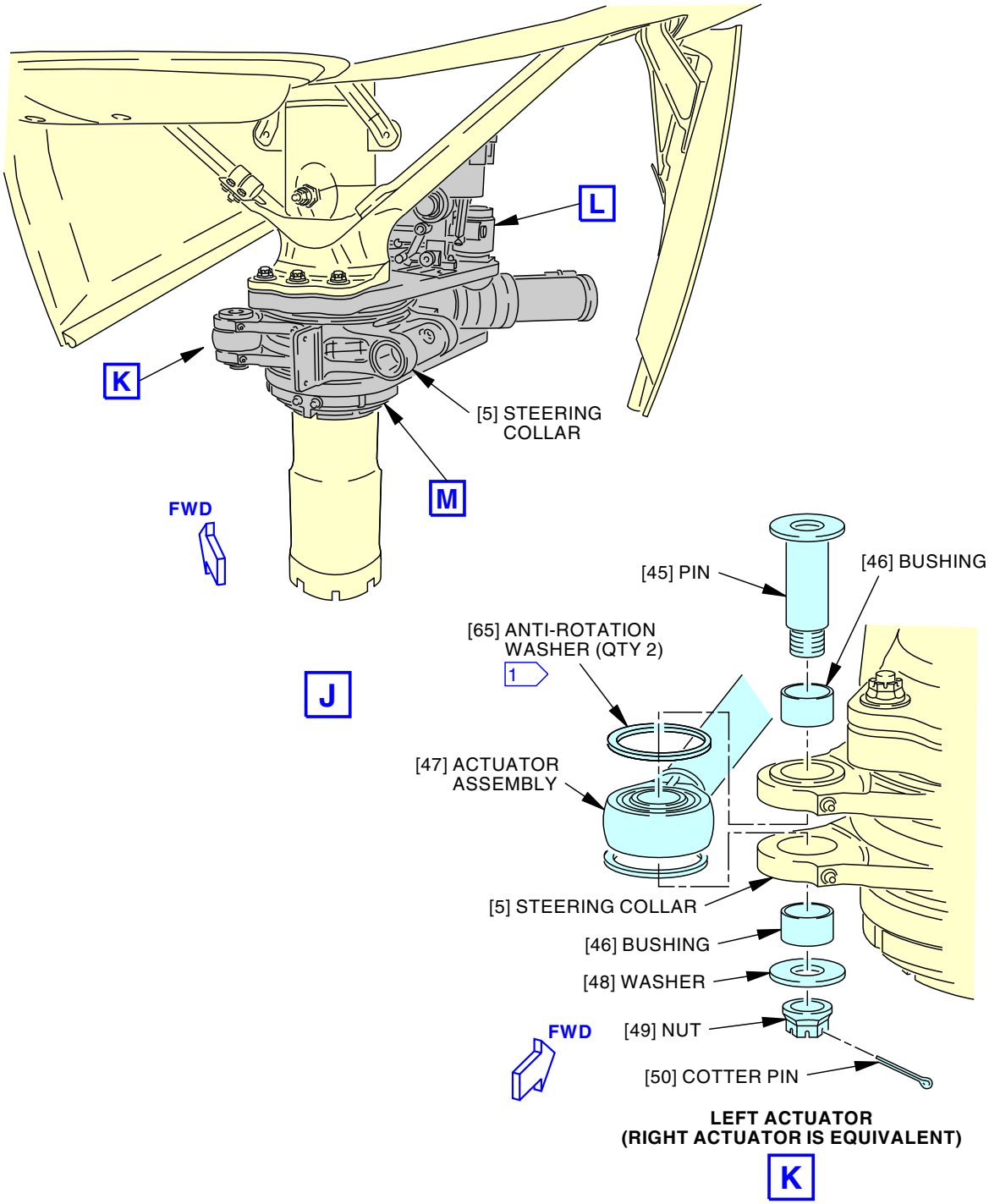

**INNER CYLINDER REMOVAL**

2414515 S00061535337_V1

**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 7 of 10)**



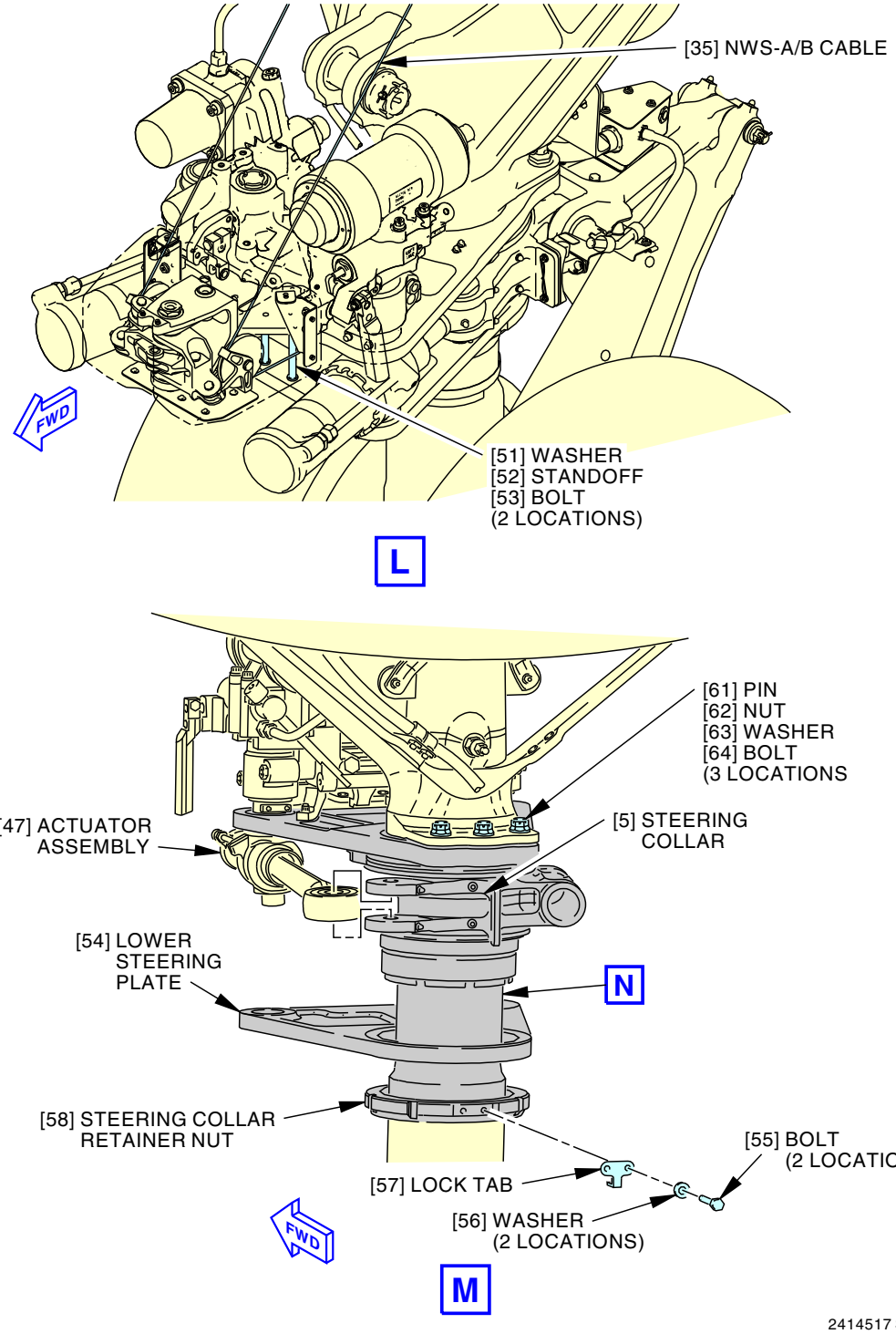
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 8 of 10)**



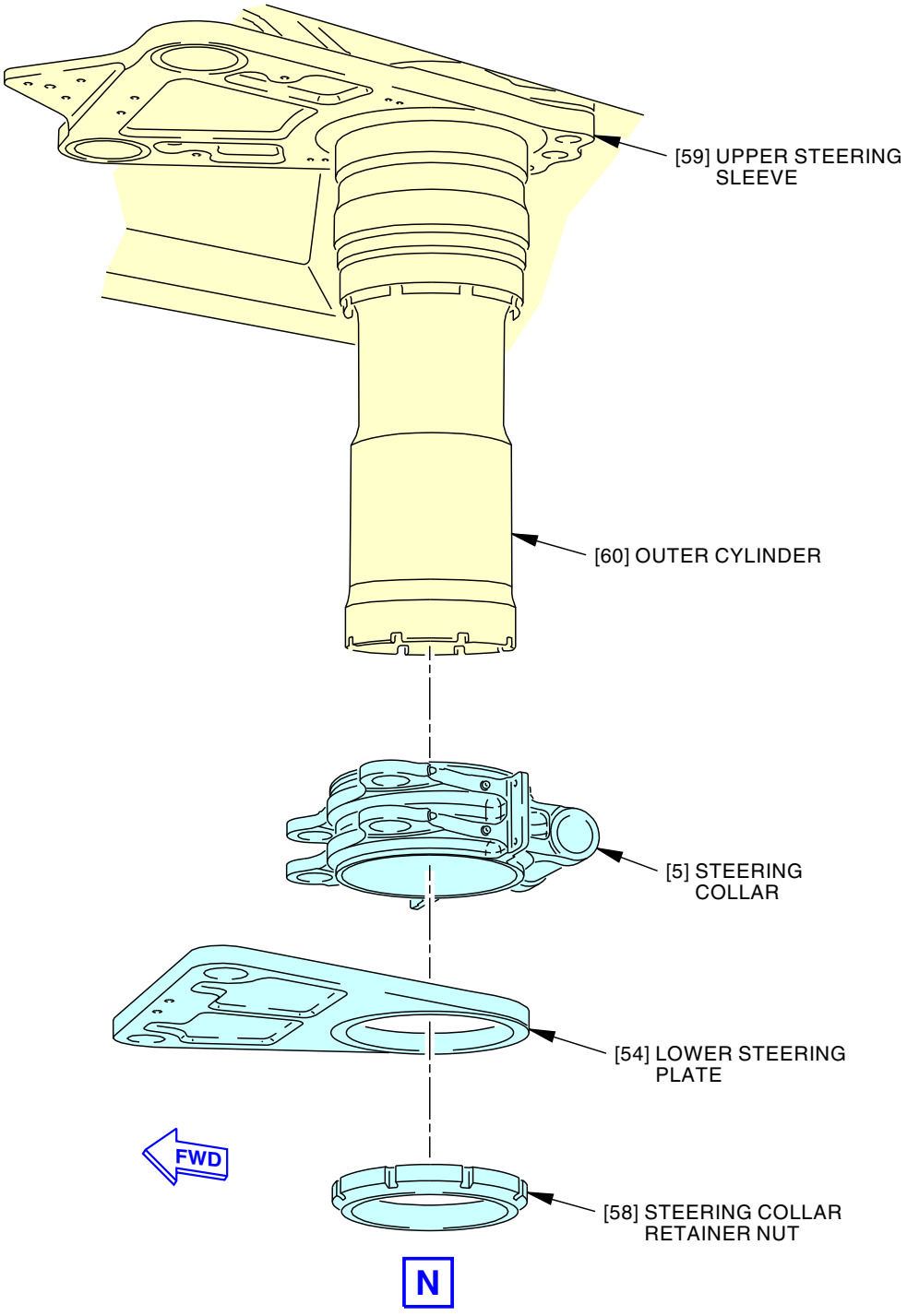
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 9 of 10)**



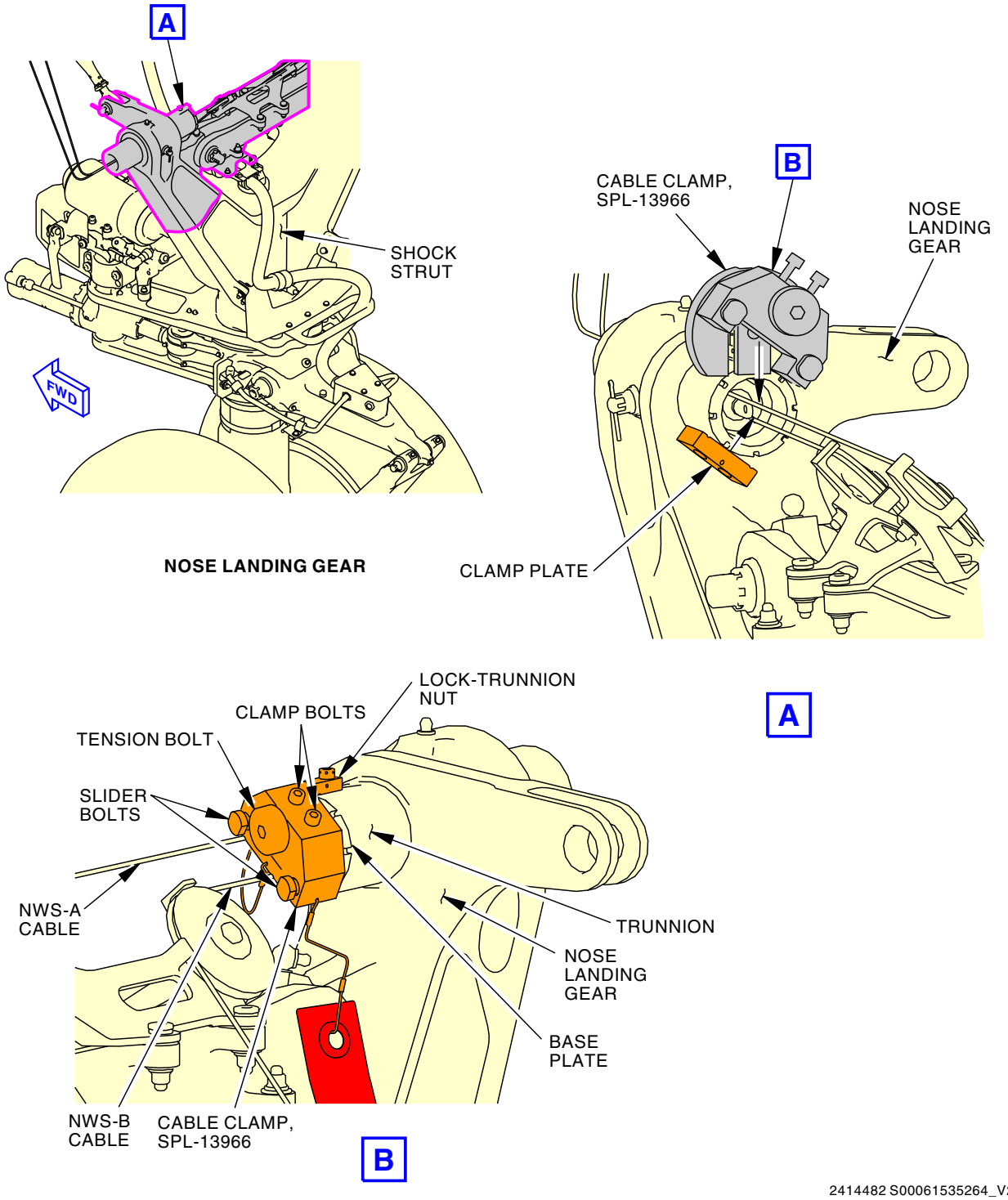
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Gear Steering Collar Installation**
**Figure 402/32-51-61-990-802 (Sheet 10 of 10)**



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**Steering Cables Clamp Assembly**
**Figure 403/32-51-61-990-803**



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**TASK 32-51-61-400-802**

## 5. Steering Collar Installation (Using Cable Clamp Assembly)

(Figure 402,
Figure 403)

### A. References

| Reference | Title |
|---|---|
| 07-10-21-580-802 | Lower the Airplane Nose, Jack Point D (P/B 201) |
| 12-15-41-610-802 | Nose Landing Gear Shock Strut Servicing, Airplane on the Ground (P/B 301) |
| 12-21-21-640-802 | Nose Landing Gear Lower End Components Servicing (P/B 301) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-21-24-400-801 | NLG Inner Cylinder Installation (P/B 401) |
| 32-51-00-700-801 | Nose Wheel Steering System Test (Airplane on Ground) (P/B 501) |
| 32-51-31-400-802 | Nose Gear Steering System Cables Installation (P/B 401) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |
| SPL-1901 | Wrench - Spanner, Steering Collar Retainer, Nose Landing Gear<br>Part #: C32040-6 Supplier: 81205<br>Opt Part #: C32040-1 Supplier: 81205 |
| SPL-13966 | Clamp Assy - Steering Cables, NLG<br>Part #: C32055-18 Supplier: 81205 |
| STD-837 | String |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Steering collar | 32-51-61-01-070 | SIA ALL |
| 50 | Cotter pin | 32-51-51-01-215 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |



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## F. Steering Collar Installation

NOTE: Make sure that you install the matching steering collar [5] for the steering sleeve installed. Steering collar assembly part number 162A1404-7 can be installed with a steering sleeve assembly part number 162A1405-11 or 162A1405-15 and only steering collar assembly part number 162A1420-2 can be installed with steering sleeve assembly part number 162A1421-3.

SUBTASK 32-51-61-860-011

(1) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

SUBTASK 32-51-61-600-003

(2) Apply a thin layer of grease, D00633 to the bushing faces and grooves on the steering collar [5].

SUBTASK 32-51-61-420-006

(3) Install the steering collar [5] on the outer cylinder [60]o.

SUBTASK 32-51-61-420-007

(4) Install the lower steering plate [54] on the outer cylinder [60] and hold it in position.

SUBTASK 32-51-61-600-004

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Apply a thin layer of corrosion inhibiting material, G50136, to the threads, thread reliefs, and mating surfaces of the steering collar retainer nut [58].

SUBTASK 32-51-61-420-008

(6) Move the steering collar retainer nut [58] up the outer cylinder [60] and install it below the lower steering plate [54].

(a) Tighten the steering collar retainer nut [58] 62.5 ±12.5 ft-lb (85 ±17 N·m) with a spanner wrench, SPL-1901.

(b) If it is necessary, loosen the steering collar retainer nut [58] a minimum amount to install the lock tab [57], washers [56], and bolts [55].

SUBTASK 32-51-61-020-027

(7) Install the standoffs [52], bolts [53], and washers [51] that hold the metering valve assembly to the upper steering sleeve [59] and lower steering plate [54].

SUBTASK 32-51-61-980-005

(8) Turn the steering collar [5] far enough to permit access to the rod end of the actuator assembly [47] that you will install.

SUBTASK 32-51-61-420-009

(9) Install the bushings [46], anti-rotation washers [65] (not on all airplanes), pin [45], washer [48], and nut [49] to connect the rod end of the actuator assembly [47] to the steering collar [5].

(a) Make sure that the flange bushing [46] is put in the face-up in the direction, towards the actuator assembly [47].

(b) Tighten the nut [49] to 54 ±4 ft-lb (73 ±6 N·m).



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(c) If it is necessary, loosen the nut [49] to align the castellations on the nut [49] with the hole on the pin [45].

(d) Install the new cotter pin [50].

SUBTASK 32-51-61-410-005

(10) Do this task: NLG Inner Cylinder Installation, TASK 32-21-24-400-801.

SUBTASK 32-51-61-420-010

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(11) Connect the upper torsion link [13] to the steering collar [5]:

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The chrome surface on the shank of the torsion link pin [6].

2) The threads of the nut [2].

3) The faces of the washer [4].

4) The mating surfaces of the upper torsion link [13] and the steering collar [5].

(b) Remove all unwanted corrosion inhibiting material, G50136.

(c) Put the upper torsion link [13] in its position on the steering collar [5].

(d) Put the torsion link pin [6] through the upper torsion link [13] and the steering collar [5].

(e) Apply a thin layer of the corrosion inhibiting material, G50136, to the threads and thread reliefs of the torsion link pin [6].

(f) Install the washer [4] and nut [2] on the torsion link pin [6].

(g) Tighten the nut [2] to 275 ±25 in-lb (31 ±3 N·m) more than the run-on torque.

(h) If it is necessary, loosen the nut [2] to the nearest castellation to align the holes for the torsion link pin [6].

(i) Install the pin [3] in the torsion link pin [6].

SUBTASK 32-51-61-020-028

(12) Connect the sensor brackets [15] to the upper torsion link [13]:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and thread reliefs of the bolts [16]

2) The threads of the nuts [19]

3) The faces of the washers [17] and washers [18].



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(b) Remove all unwanted corrosion inhibiting material, G50136.

(c) If a string, STD-837, is attached to the sensor brackets [15] and the outer cylinder [60], remove the string, STD-837.

(d) Put the sensor brackets [15] in their position on the upper torsion link [13].

(e) Install the washers [17] on the bolts [16].

(f) Put the bolts [16] through the upper torsion link [13] and the sensor brackets [15].

(g) Install the washers [18] and the nuts [19] on the bolts [16].

(h) Tighten the nuts [19].

SUBTASK 32-51-61-020-029

(13) Connect the box assembly [1] to the upper torsion link [13]:

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to these items:

1) The threads and shank of the bolts [30]]

2) The threads of the nuts [33]

3) The faces of the washers [31] and washers [32].

(b) Remove all unwanted corrosion inhibiting material, G50136.

(c) If a string, STD-837, is attached to the box assembly [1], and the outer cylinder [60], remove the string, STD-837.

(d) Put the box assembly [1] in its position on the upper torsion link [13].

(e) Install the washer [31] on the bolts [30]].

(f) Put the bolts [30] through the bracket for the box assembly [1] and the upper torsion link [13].

(g) Install the washers [32] and nuts [33] on the bolts [30].

SUBTASK 32-51-61-410-006

(14) Reconnect the NWS-A/B cable [35] to the steering collar [5] (TASK 32-51-31-400-802).

SUBTASK 32-51-61-080-002

(15) Remove the cable clamp, SPL-13966.

SUBTASK 32-51-61-980-006

(16) Move the inner cylinder from the fully extended to the fully compressed position.

(a) Make sure that the total travel is 15.50 in. (393.70 mm).

SUBTASK 32-51-61-080-003

(17) Remove rip pin NS4 from the summing mechanism.

SUBTASK 32-51-61-860-012

(18) Remove the rigging pin kit, SPL-1585, from the towing lever.



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**G. Steering Collar Installation Test**

SUBTASK 32-51-61-610-002

(1) Service the shock strut for the nose gear (TASK 12-15-41-610-802).

SUBTASK 32-51-61-710-002

(2) To do a test on the steering system of the nose wheel, do the applicable procedures in this task: Nose Wheel Steering System Test (Airplane on Ground), TASK 32-51-00-700-801.

Do these procedures

- General
- Prepare to Test Steering system of the Nose Wheel Well
- Do the Test of the Normal Steering Response
- Do the Test of Nose Gear Turn Radius and Response to Full Rudder Pedal Input
- Put the Airplane Back to Its Usual Condition

(a) Make sure that there is no leakage.

**H. Put the Airplane Back to Its Usual Condition**

SUBTASK 32-51-61-580-004

(1) Do this task: Lower the Airplane Nose, Jack Point D, TASK 07-10-21-580-802.

SUBTASK 32-51-61-640-002

(2) Lubricate the lube fittings on the upper torsion link [13] and the steering collar [5] (TASK 12-21-21-640-802).

——— END OF TASK ———

**TASK 32-51-61-000-803**

## 6. Upper Steering Sleeve Removal

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 32-51-11-000-801 | Steering Metering Valve Removal (P/B 401) |
| 32-51-51-000-801 | Nose Gear Steering Actuator Removal (P/B 401) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

**C. Prepare for the Removal**

SUBTASK 32-51-61-010-005

(1) Remove the steering metering valve (TASK 32-51-11-000-801).

SUBTASK 32-51-61-010-006

(2) Remove the two actuator assemblies [47] from the upper steering sleeve [59] (TASK 32-51-51-000-801).

SUBTASK 32-51-61-010-007

(3) Remove the steering collar [5] (TASK 32-51-61-000-801 or TASK 32-51-61-000-802).



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**D. Upper Steering Sleeve Removal**

(Figure 401)

SUBTASK 32-51-61-010-008

(1) Scrape carefully, to remove the fillet seal of sealant from the upper steering sleeve [59] and the outer cylinder [60].

SUBTASK 32-51-61-010-009

(2) Remove the pins [61], nuts [62], washers [63], and bolts [64] from the upper steering sleeve [59] and outer cylinder [60].

NOTE: You may have to remove sealant from the pins [61], nuts [62] and pins [61] to remove the bolts [64].

SUBTASK 32-51-61-010-010

(3) Remove, by lowering, the upper steering sleeve [59] from the outer cylinder [60].

SUBTASK 32-51-61-010-011

(4) Remove all remaining sealant or grease from the upper steering sleeve [59] and from the outer cylinder [60].

**END OF TASK**

**TASK 32-51-61-400-803**

## 7. Upper Steering Sleeve Installation

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 32-51-11-400-801 | Steering Metering Valve Installation (P/B 401) |
| 32-51-51-400-801 | Nose Gear Steering Actuator Installation (P/B 401) |

**B. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00226 | Compound - Tamper-Proof Putty | BMS8-45 |
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| A02315 | Sealant - Low Density, Synthetic Rubber. 2 Part | BMS5-142 Type II |
| C50075 | Coating - Protective Enamel (BAC 707 Gray Color) | BMS10-60 Type II |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

**C. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Steering collar | 32-51-61-01-070 | SIA ALL |
| 61 | Pin | 32-51-61-01-015 | SIA ALL |

**D. Location Zones**

| Zone | Area |
|---|---|
| 113 | Area Above and Outboard of Nose Landing Gear Wheel Well - Left |
| 114 | Area Above and Outboard of Nose Landing Gear Wheel Well - Right |



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(Continued)

| Zone | Area |
|---|---|
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |

## E. Upper Steering Sleeve Installation

SUBTASK 32-51-61-410-007

(1) Apply grease, D00633, to the chrome-plated (lube fitting) part of the outer cylinder [60].

SUBTASK 32-51-61-410-008

(2) Install the upper steering sleeve [59] on the outer cylinder [60] until the bushings of the upper steering sleeve [59] and outer cylinder [60] align.

SUBTASK 32-51-61-410-009

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(3) Apply a thin layer of corrosion inhibiting material, G50136, to the shanks, thread reliefs, and threads of the bolts [64] and faces of the washers [63].

(a) Remove all unwanted corrosion inhibiting compound.

SUBTASK 32-51-61-410-010

(4) Install the bolts [64], washers [63] and nut [62] through the upper steering sleeve [59] into the outer cylinder [60].

SUBTASK 32-51-61-410-011

(5) Tighten the nuts [62] to 160 in-lb (18 N·m) to 190 in-lb (21 N·m) above the run-on torque.

(a) If it is necessary, loosen each nut [62] to the nearest castellation to align the holes of the pins [61].

SUBTASK 32-51-61-410-012

(6) Install the pins [61] and apply compound, A00226, to fully cover the nuts [62], washers [63] and pins [61].

NOTE: The compound, A00226, for is for protection. If it is tampered, it causes the seal to break.

SUBTASK 32-51-61-410-013

(7) Fill the space between the outer cylinder [60] and upper steering sleeve [59] with sealant, A00247.

(a) Fillet seal around the outer cylinder [60] and upper steering sleeve [59].

(b) Apply coating, C50075, to the sealant and the area around the sealant.

SUBTASK 32-51-61-410-014

(8) Apply a cap seal of sealant, A02315, or sealant, A00247, to the bolts [64], washers [63], nuts [62], and new pins [61] such that the entire end of the assembly, above the flange, is covered with sealant.

NOTE: The purpose of the sealant is to prevent the adjacent conduit from catching on the attachment bolt assembly during nose gear steering activities.



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(a) Form the sealant as flat and smooth as possible to let the conduit easily pass over the bolt assembly.

(b) No bumps, ridges or sharp edges more than 0.50 in. (12.70 mm) are permitted.

**F. Put the Airplane Back to Its Usual Condition**

**SUBTASK 32-51-61-410-015**

(1) Install the steering collar [5] (TASK 32-51-61-400-801, or TASK 32-51-61-400-802).

**SUBTASK 32-51-61-010-012**

(2) Install the two actuator assemblies [47] to the upper steering sleeve [59] (TASK 32-51-51-400-801).

**SUBTASK 32-51-61-410-016**

(3) Install the steering metering valve (TASK 32-51-11-400-801).

**——— END OF TASK ———**



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# RUDDER PEDAL STEERING ROTARY ACTUATOR - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) Removal of the rotary actuator for the rudder pedal steering

(2) Installation of the rotary actuator for the rudder pedal steering.

**TASK 32-51-81-000-801**

## 2. Rudder Pedal Steering Rotary Actuator Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 53-14-01-020-801 | Nose Wheel Well Access Panels Removal (P/B 401) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### C. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 117 | Electrical and Electronics Compartment - Left |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

### E. Prepare for the Removal

**SUBTASK 32-51-81-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-51-81-480-002**

(2) Make sure the tires of landing gear have chocks installed around them (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-51-81-010-001**

(3) Remove the forward access panel from the nose wheel well to get access to the turnbuckles of the NGPP-A and NGPP-B cables, and the rotary actuator [3] (TASK 53-14-01-020-801).


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(a) Open this access panel:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

SUBTASK 32-51-81-860-001

(4) Open this circuit breaker and install safety tag:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

## F. Rudder Pedal Steering Rotary Actuator Removal

SUBTASK 32-51-81-020-001

(1) Disconnect the NGPP-A and NGPP-B cables:

(a) Remove the locking clips from the turnbuckles of the NGPP-A and NGPP-B cables.

(b) Loosen the tension at the turnbuckles of the NGPP-A and NGPP-B cables.

(c) Remove the pins [4] that hold the ends of the NGPP-A and NGPP-B cables on each side of the pulley of the rotary actuator [3].

(d) Remove the NGPP-A and NGPP-B cables from the pulley of the rotary actuator [3].

SUBTASK 32-51-81-480-003

(2) Install these rig pins:

(a) Rig pin NS 1, from rigging pin kit, SPL-1585, in the interconnect quadrant [2]

(b) Rig pin NS 5 in the interconnect eccentric drum [1]:

1) Turn the interconnect eccentric drum [1] by hand.

2) Make sure the hole for rig pin NS 5 and the bracket rig pin slot line up.

3) Install rig pin NS 5.

SUBTASK 32-51-81-020-002

(3) Disconnect the electrical connnector [5] from the top of the rotary actuator [3].

SUBTASK 32-51-81-020-003

(4) Remove the rotary actuator [3]:

(a) Remove the bolts [6] and washers [7] that hold the rotary actuator [3] to the support bracket.

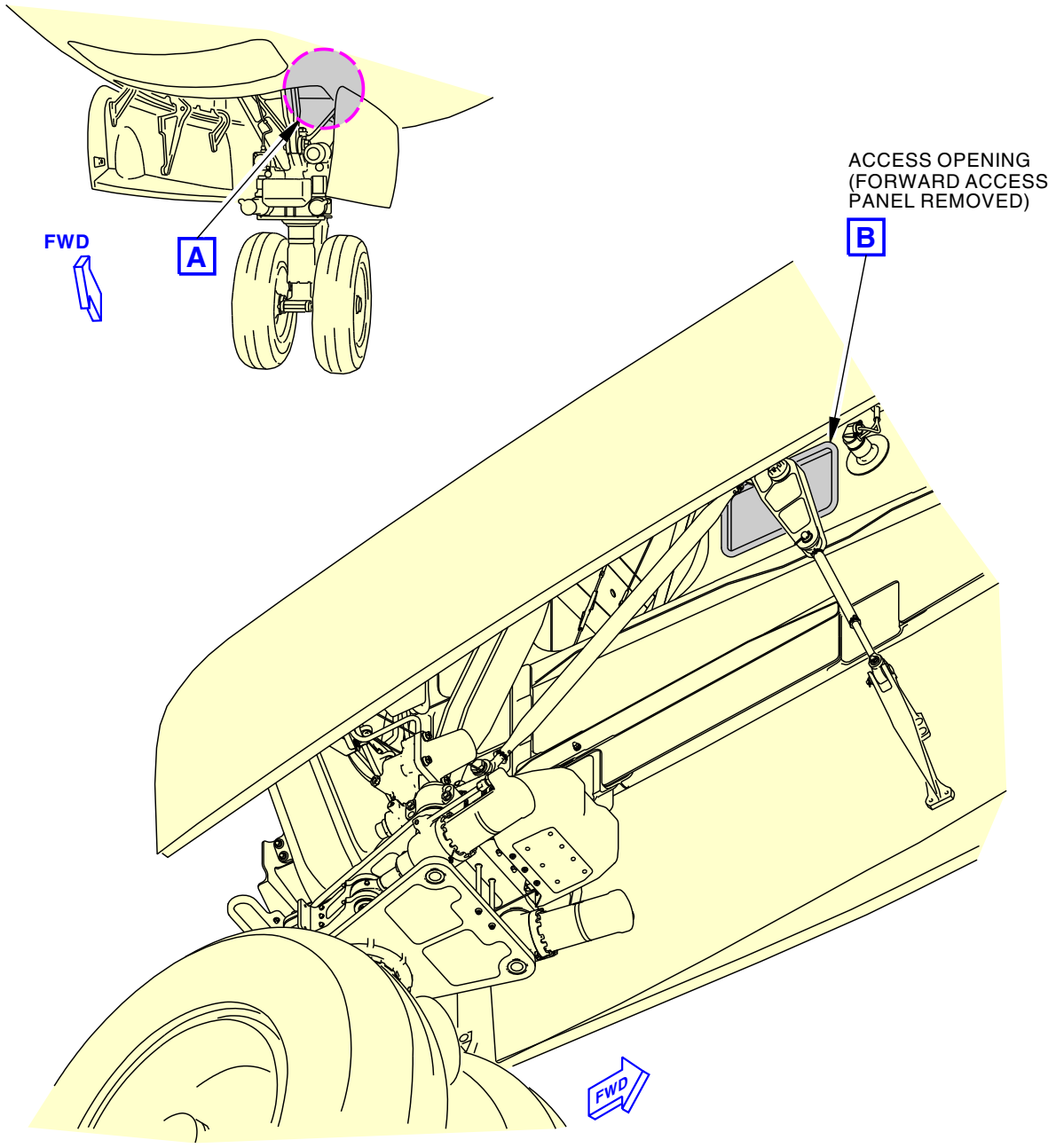
(b) Remove the washers [7] from the bolts [6].

(c) Remove the rotary actuator [3] from the airplane.

**——— END OF TASK ———**



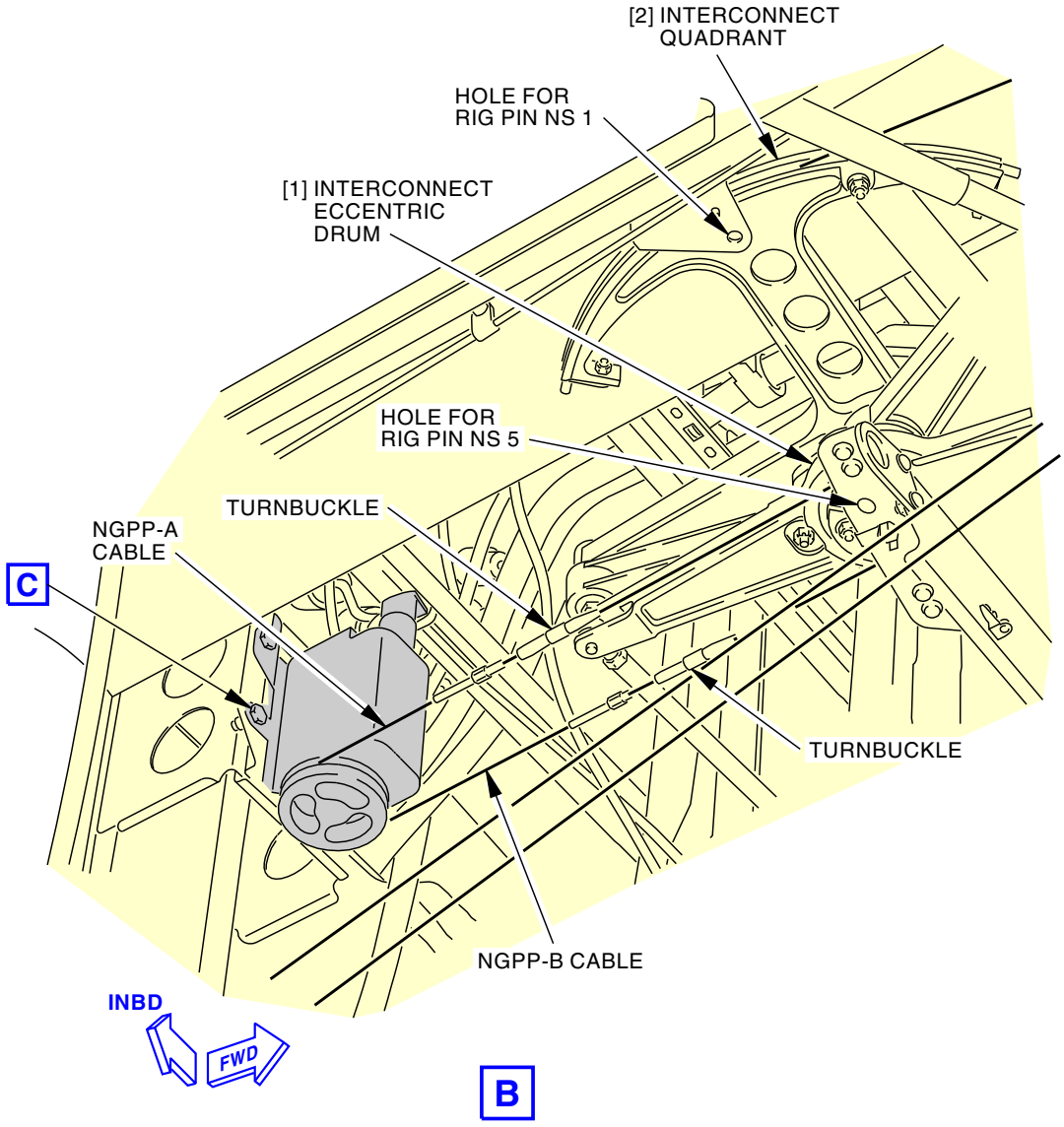
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Rudder Pedal Steering Rotary Actuator Installation**
**Figure 401/32-51-81-990-801 (Sheet 1 of 3)**



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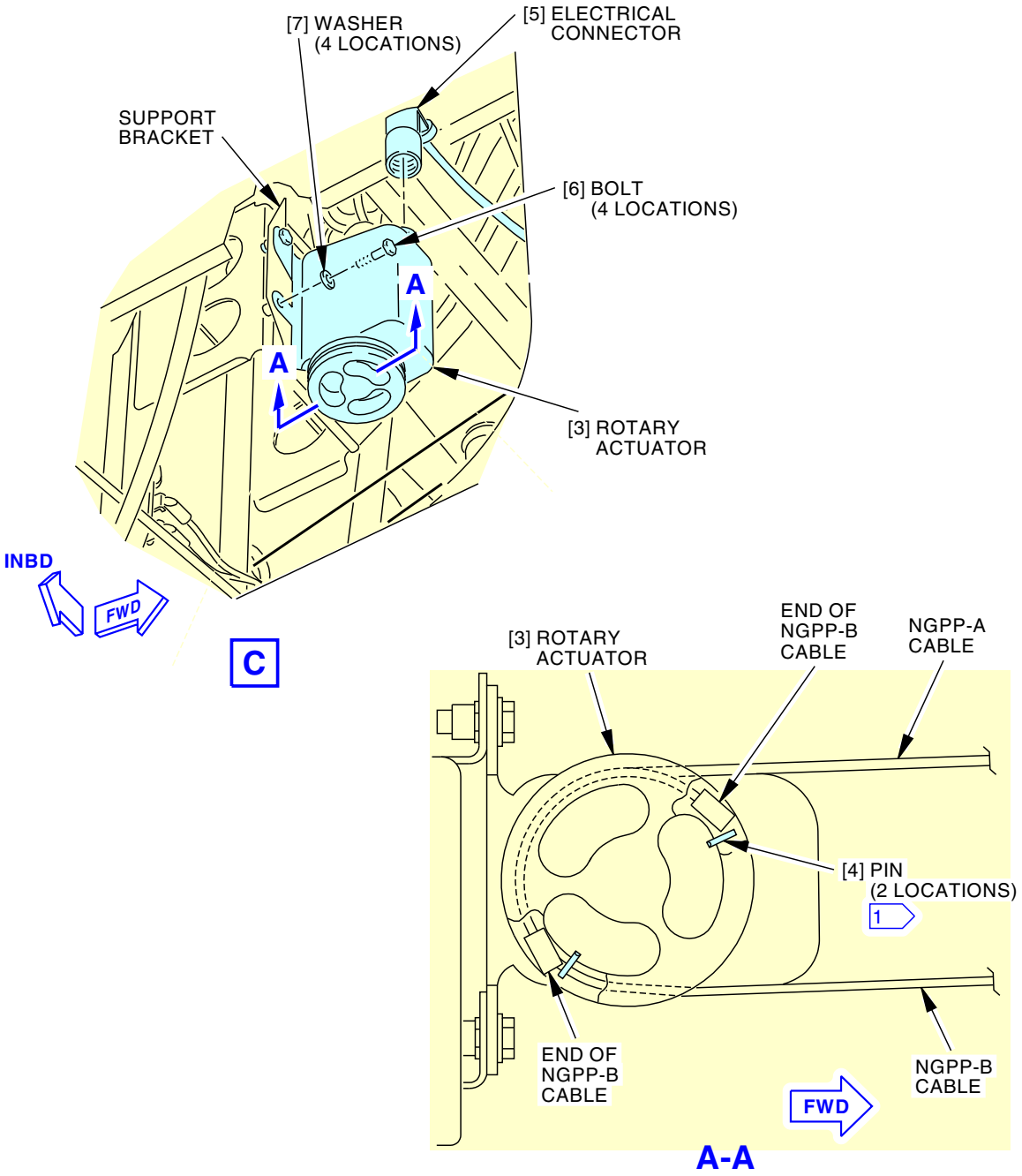



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**Rudder Pedal Steering Rotary Actuator Installation**
**Figure 401/32-51-81-990-801 (Sheet 2 of 3)**



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1 CAUTION: MAKE SURE THE ENDS OF THE PINS [4] DO NOT TOUCH THE HOUSING OF THE ACTUATOR [3] IF THE PINS [4] TOUCH THE HOUSING, DAMAGE TO EQUIPMENT CAN OCCUR.

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**Rudder Pedal Steering Rotary Actuator Installation**
**Figure 401/32-51-81-990-801 (Sheet 3 of 3)**



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**TASK 32-51-81-400-801**

## 3. Rudder Pedal Steering Rotary Actuator Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 05-51-91-790-801 | Cabin Pressure Leak Test (P/B 201) |
| 20-10-34-120-801 | Hand Clean Metal Surfaces with Abrasives (P/B 701) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-00-860-802 | Return the Airplane to the Ground Mode (P/B 201) |
| 32-51-00-820-803 | Rudder Pedal Interconnect Mechanism Adjustment (P/B 501) |
| 51-21-41-370-801 | Apply Bonderite M-CR 1001 Aero Solution (P/B 701) |
| 53-14-01-420-801 | Nose Wheel Well Access Panels Installation (P/B 401) |
| SWPM 20-20-00 | ELECTRICAL BONDING PROCESSES |
| SWPM 20-60-03 | Special Protection of Electrical Connectors |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-1550 | Bonding Meter - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550).<br>Part #: 620LK Supplier: 1CRL2<br>Part #: M1 Supplier: 3AD17<br>Part #: M1B Supplier: 3AD17<br>Part #: T477W (C15292) Supplier: 06659 |
| SPL-1585 | Kit - Rigging Pin<br>Part #: F70207-151 Supplier: 81205 |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| C00064 | Coating - Aluminum Chemical Conversion | BAC5719 Type II Class A (MIL-DTL-5541 Class 1A) |
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |
| G50171 | Compound - Corrosion Inhibiting Compound, Interior Application - D5026NS or ZC-026 | |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Rotary actuator | 32-51-81-02-005 | SIA ALL |
| 4 | Pin | 32-51-31-04-005 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |



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(Continued)

| Zone | Area |
|---|---|
| 117 | Electrical and Electronics Compartment - Left |

**F. Access Panels**

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |

**G. Prepare for the Installation**

SUBTASK 32-51-81-100-001

(1) Do these steps to supply a good electrical bond between the support bracket and the rotary actuator [3]:

(a) Fully clean the mating surfaces of the support bracket and the rotary actuator [3] (TASK 20-10-34-120-801).

(b) Chemically prepare the mating surfaces of the support bracket and the rotary actuator [3] with the coating, C00064 (TASK 51-21-41-370-801).

**H. Rudder Pedal Steering Rotary Actuator Installation**

SUBTASK 32-51-81-420-001

(1) Install the rotary actuator [3]:

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply a thin layer of the corrosion inhibiting material, G50136, to all the areas of the fastener holes in the support bracket.

(b) Put the rotary actuator [3] in its position for attachment to the support bracket.

(c) Align the holes in the rotary actuator [3] to the holes in the support bracket.

(d) Install the bolts [6] and washers [7] that attach the rotary actuator [3] to the support bracket.

SUBTASK 32-51-81-760-001

(2) Measure the resistance between the rotary actuator [3] and the support bracket with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00).

(a) Make sure the resistance is less than 0.0025 ohm (2.5 milliohms).

SUBTASK 32-51-81-410-001

(3) Before you connect the electrical connnector [5] at the top of the rotary actuator [3], examine the electrical connnector [5] for corrosion.



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**WARNING**

DO THE STEPS BELOW IF THE AIRPLANE OPERATES WHERE DEICING FLUID THAT CONTAINS POTASSIUM FORMATE OR POTASSIUM ACETATE IS USED. ALSO, DO THE STEPS FOR ALL AIRPLANES THAT YOU FOUND CORROSION IN THE ELECTRICAL CONNECTORS IN THE MAIN WHEEL WELL. THE ELECTRICAL CONNECTORS ARE IN A SYSTEM THAT IS NECESSARY FOR SAFE FLIGHT.

(a) If there was corrosion, refer to (SWPM 20-60-03) to correct the problem.

(b) Apply the D5026NS or ZC-026 compound, G50171, to the electrical connnector [5] (SWPM 20-60-03).

(4) Connect the electrical connnector [5] at the top of the rotary actuator [3].

SUBTASK 32-51-81-410-002

(5) Remove the safety tag and close this circuit breaker:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 17 | C01027 | LANDING GEAR NOSE GEAR STEER |

SUBTASK 32-51-81-860-002

(6) Put airplane into the air mode (TASK 32-09-00-860-801).

SUBTASK 32-51-81-210-001

(7) Make sure marks align on rotary actuator [3].

SUBTASK 32-51-81-420-002

(8) Connect the NGPP-A and NGPP-B cables:

(a) Put the ends of NGPP-A and NGPP-B cables in their position for connection to the pulley of the rotary actuator [3].

**CAUTION**

DO NOT LET THE ENDS OF THE PINS TOUCH THE HOUSING OF THE ACTUATOR WHEN THE CABLES ARE INSTALLED. DAMAGE TO THE ROTARY ACTUATOR CAN OCCUR.

(b) Install the new pins [4] to hold the ends of the NGPP-A and NGPP-B cables on each side of the pulley of the rotary actuator [3].

SUBTASK 32-51-81-820-001

(9) Adjust the NGPP-A and NGPP-B cables (TASK 32-51-00-820-803).

SUBTASK 32-51-81-080-001

(10) Remove rig pin NS 1, from rigging pin kit, SPL-1585, from the interconnect quadrant [2].

SUBTASK 32-51-81-080-002

(11) Remove rig pin NS 5, from rigging pin kit, SPL-1585, from the interconnect eccentric drum [1].

SUBTASK 32-51-81-840-001

(12) Do this task: Return the Airplane to the Ground Mode, TASK 32-09-00-860-802.

SUBTASK 32-51-81-480-004

(13) Install the locking clips on the turnbuckles of NGPP-A and NGPP-B cables.

SUBTASK 32-51-81-410-003

(14) Install the forward access panel in the nose wheel well (TASK 53-14-01-420-801).



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(a) Close this access panel:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Wall Panel |

SUBTASK 32-51-81-860-003

(15) Do this task: Cabin Pressure Leak Test, TASK 05-51-91-790-801.

——— END OF TASK ———



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## LANDING GEAR POSITION INDICATING AND WARNING SYSTEM - ADJUSTMENT/TEST

### 1. General

A. This task does a test of the position indication and warning system for the landing gear. It is necessary to lift the airplane on jacks to let the landing gear retract and extend.

**TASK 32-61-00-710-801**

### 2. Landing Gear Position Indicating and Warning System Test

(Figure 501)

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 24-22-00-860-803 | Supply External Power (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-09-10-740-801 | Proximity Switch Electronics Unit - Operational Test (P/B 501) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 713 | Nose Landing Gear |
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### C. Prepare for the Test

**SUBTASK 32-61-00-860-001**

(1) Do this task: Supply External Power, TASK 24-22-00-860-803.

**SUBTASK 32-61-00-860-002**

(2) Make sure that the hydraulic systems A and B are not pressurized (TASK 29-11-00-860-805).

**SUBTASK 32-61-00-580-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(3) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).


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SUBTASK 32-61-00-860-003

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(4) Prepare the safety-sensitive systems for air mode simulation (TASK 32-09-00-860-801).

SUBTASK 32-61-00-580-002

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(5) Do this task: Lift the Airplane on Jacks, TASK 07-10-01-580-801.

SUBTASK 32-61-00-860-004

**WARNING** MAKE SURE THAT YOU OPEN THE CIRCUIT BREAKER FOR THE WEATHER RADAR SYSTEM. THE FORWARD MOVEMENT OF A THRUST LEVER CAN CAUSE THE AUTOMATIC OPERATION OF THE SYSTEM. THE OPERATION OF THIS SYSTEM CAN CAUSE SERIOUS INJURY TO PERSONS AND DAMAGE TO EQUIPMENT IN THE AREA OF THE NOSE RADOME.

(6) Move the engine thrust levers to the full forward position.

NOTE: Levers in the advanced position prevent the landing gear warning (red) lights from remaining on after gear is up and locked.

## D. Indicator Lights Test

SUBTASK 32-61-00-860-005

(1) Put the landing gear control lever in the DN position.

(a) Make sure that the green landing gear indicator lights above the landing gear lever and on the overhead panel are on for each gear.

NOTE: Auxiliary landing gear position indicator lights are located on the P5 aft overhead panel.

SUBTASK 32-61-00-860-007

(2) Put the LIGHTS test switch on the P2 panel in the DIM position.

(a) Make sure that the green indicator lights go dim.

## E. Nose Landing Gear and Indication Test

SUBTASK 32-61-00-860-008

(1) Do these steps to raise the nose landing gear.

(a) Move the landing gear lever to the DN position.

(b) Remove the downlock pin from the nose landing gear only (TASK 32-00-01-080-801).



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**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(c) Make sure that all persons and equipment are clear of the landing gear area.

(d) Do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

(e) Move the landing gear lever to the UP position.

SUBTASK 32-61-00-210-001

(2) Look at the landing gear indicator lights.

(a) Make sure that the green indicator lights for the nose landing gear go off when the lock braces unlock.

(b) Make sure that the red warning lights for the nose landing gear go off when the gear retracts to the up and locked position.

(c) Make sure that the green indicator lights for the main landing gear stay on.

NOTE: The green down-and-locked lights for the gears that have the downlock pins installed can stay on or can go off depending on the rigging and tolerances.

(d) Make sure that the red warning lights for the main landing gear go on.

SUBTASK 32-61-00-860-009

(3) Lower the nose landing gear.

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE LANDING GEAR AREA. THE LANDING GEAR WILL EXTEND WHEN THE LANDING GEAR CONTROL LEVER IS PUT IN THE DN POSITION. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT.

(a) Make sure that all persons and equipment are clear of the landing gear area.

(b) Move the landing gear lever to the DN position.

SUBTASK 32-61-00-580-003

(4) Install the downlock pin on the nose landing gear (TASK 32-00-01-480-801).

## F. Left Main Landing Gear and Indication Test

SUBTASK 32-61-00-860-010

(1) Do these steps to raise the left main landing gear.

(a) Remove the downlock pin from the left main landing gear (TASK 32-00-01-080-801).

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE LANDING GEAR AREA. THE LANDING GEAR WILL RETRACT WHEN THE LANDING GEAR CONTROL LEVER IS PUT IN THE UP POSITION. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT.

(b) Make sure that all persons and equipment are clear of the landing gear area.

(c) Move the landing gear lever to the UP position.

SUBTASK 32-61-00-210-002

(2) Look at the landing gear indicator lights.



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(a) Make sure that the green indicator lights for the left main landing gear go off when the lock braces unlock.

(b) Make sure that the red warning lights for the left main landing gear go off when the gears retract to the up and locked position.

(c) Make sure that the green indicator lights for the nose and right main landing gear stay on.

NOTE: The green down-and-locked lights for the gears that have the downlock pins installed can stay on or can go off depending on the rigging and tolerances.

(d) Make sure that the red warning lights for the nose and right main landing gear go on.

SUBTASK 32-61-00-860-011

(3) Lower the left main landing gear.

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE LANDING GEAR AREA. THE LANDING GEAR WILL EXTEND WHEN THE LANDING GEAR CONTROL LEVER IS PUT IN THE DN POSITION. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT.

(a) Make sure that all persons and equipment are clear of the landing gear area.

(b) Move the landing gear lever to the DN position.

SUBTASK 32-61-00-580-004

(4) Install the downlock pin on the left main landing gear (TASK 32-00-01-480-801).

## G. Right Main Landing Gear and Indication Test

SUBTASK 32-61-00-860-012

(1) Do these steps to raise the right main landing gear.

(a) Remove the downlock pin from the right main landing gear (TASK 32-00-01-080-801).

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE LANDING GEAR AREA. THE LANDING GEAR WILL RETRACT WHEN THE LANDING GEAR CONTROL LEVER IS PUT IN THE UP POSITION. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT.

(b) Make sure that all persons and equipment are clear of the landing gear area.

(c) Move the landing gear lever to the UP position

SUBTASK 32-61-00-210-003

(2) Look at the landing gear indicator lights.

(a) Make sure that the green indicator lights for the right main landing gear go off when the lock braces unlock.

(b) Make sure that the red warning lights for the right main landing gear go off when the gears retract to the up and locked position.

(c) Make sure that the green indicator lights for the nose and left main landing gear stay on.

NOTE: The green down-and-locked lights for the gears that have the downlock pins installed can stay on or can go off depending on the rigging and tolerances.

(d) Make sure that the red warning lights for the nose and left main landing gear go on.

SUBTASK 32-61-00-860-013

(3) Lower the right main landing gear.



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE LANDING GEAR AREA. THE LANDING GEAR WILL EXTEND WHEN THE LANDING GEAR CONTROL LEVER IS PUT IN THE DN POSITION. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT.

(a) Make sure that all persons and equipment are clear of the landing gear area.

(b) Move the landing gear lever to the DN position.

SUBTASK 32-61-00-580-005

(4) Install the downlock pin on the right main landing gear (TASK 32-00-01-480-801).

## H. All Landing Gear and Indication Test

SUBTASK 32-61-00-860-014

(1) Do these steps to raise all the landing gear:

(a) Remove the downlock pins from the landing gear (TASK 32-00-01-080-801).

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE LANDING GEAR AREA. THE LANDING GEAR WILL RETRACT WHEN THE LANDING GEAR CONTROL LEVER IS PUT IN THE UP POSITION. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT.

(b) Make sure that all persons and equipment are clear of the landing gear area.

(c) Move the landing gear lever to the UP position.

SUBTASK 32-61-00-210-004

(2) Look at the landing gear indicator lights.

(a) Make sure that all the green indicator lights for the landing gear go off when the lock braces unlock.

(b) Make sure that the red warning lights for all the landing gear go off when the gears retract to the up and locked position.

SUBTASK 32-61-00-730-001

(3) Put the LIGHTS test switch, on panel P2, in the TEST position.

(a) Make sure that the green and red lights for the landing gear come on.

SUBTASK 32-61-00-730-002

(4) Release the LIGHTS test switch.

(a) Make sure that the green and red lights for the landing gear go off.

SUBTASK 32-61-00-860-016

(5) Lower the landing gear.

**WARNING** KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE LANDING GEAR AREA. THE LANDING GEAR WILL EXTEND WHEN THE LANDING GEAR CONTROL LEVER IS PUT IN THE DN POSITION. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO THE EQUIPMENT.

(a) Make sure that all persons and equipment are clear of the landing gear area.

(b) Move the control lever for the landing gear to the DN position.

(c) Make sure that all three red warning lights above the gear lever come on while the gear moves to the down position.



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(d) Look for these indications when the landing gear goes to the down and locked position:

1) Make sure that the red warning lights go off.

2) Make sure that the green indicator lights above the gear lever and overhead on the P5 panel come on.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-61-00-580-006**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-00-860-017**

(2) If hydraulic power is not necessary, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**SUBTASK 32-61-00-860-018**

(3) Move the engine thrust levers to the idle position.

**SUBTASK 32-61-00-860-019**

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(4) Do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

**SUBTASK 32-61-00-740-001**

(5) Do a check of the PSEU for stored faults using the SELF-TEST (TASK 32-09-10-740-801).

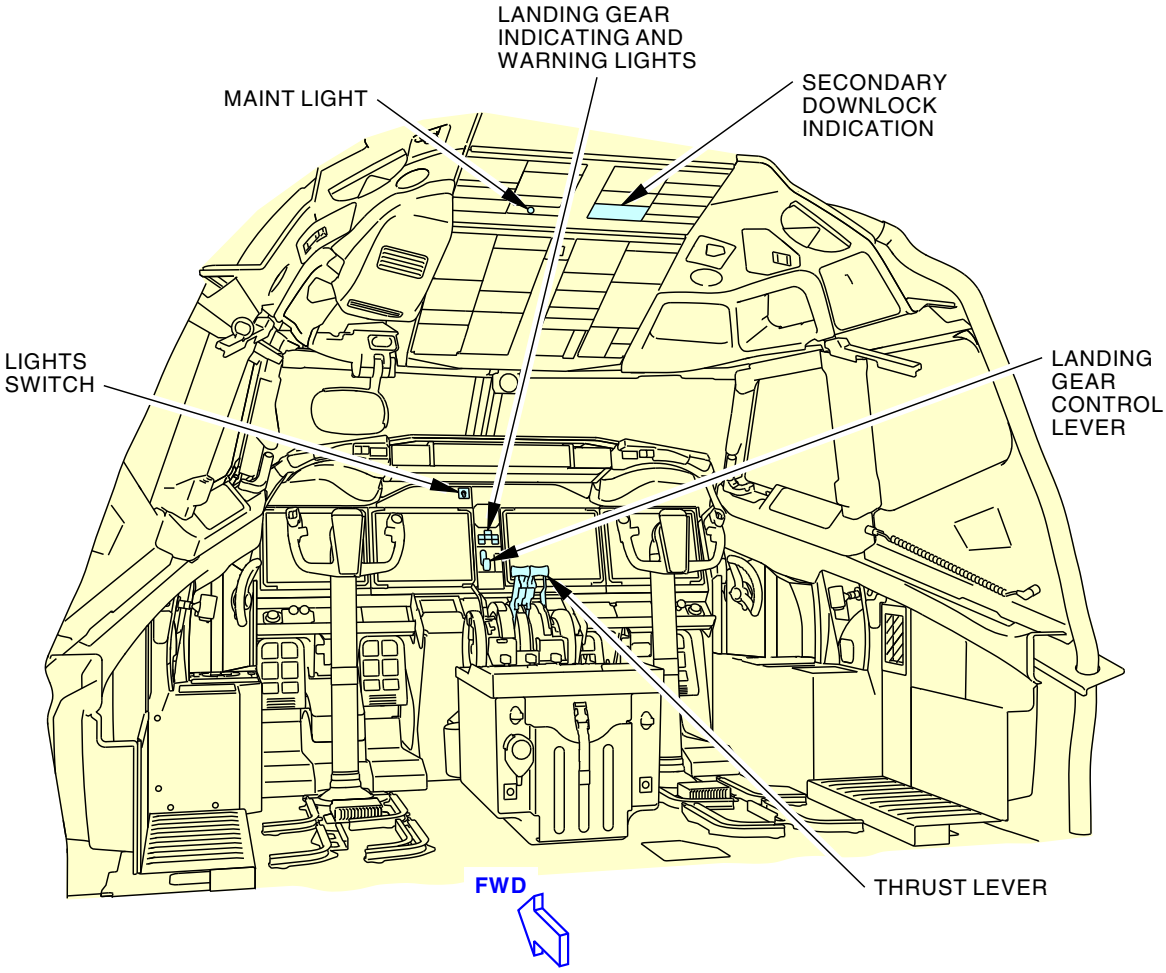
**SUBTASK 32-61-00-860-020**

(6) Put the safety-sensitive systems back to their initial conditions (TASK 32-09-00-840-802).

**END OF TASK**



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**FLIGHT COMPARTMENT**

2414526 S00061535363_V1

**Landing Gear Position Indicating and Warning Test**
**Figure 501/32-61-00-990-801**



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# MAIN LANDING GEAR UPLOCK SENSOR - REMOVAL/INSTALLATION

## 1. General

A. This procedure has two tasks:

(1) Removal of the main landing gear uplock sensor

(2) Installation of the main landing gear uplock sensor.

B. The procedures for the left and right installations are similar.

**TASK 32-61-21-020-801**

## 2. Main Landing Gear Uplock Sensor Removal

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-801 | Prepare to Put the Airplane in the Air Mode (P/B 201) |
| SWPM 20-30-12 | Assembly of Splices |

### B. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### C. Prepare for the Removal

**SUBTASK 32-61-21-480-001**

**WARNING** MAKE SURE THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR COULD RETRACT AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

(1) If the downlock pins are not installed on the nose and main landing gear, do this task: Landing Gear Downlock Pins Installation, TASK 32-00-01-480-801.

**SUBTASK 32-61-21-480-002**

(2) Make sure chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

**SUBTASK 32-61-21-840-001**

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Do this task: Prepare to Put the Airplane in the Air Mode, TASK 32-09-00-840-801.

**SUBTASK 32-61-21-860-001**

(4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |



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## D. Main Landing Gear Uplock Sensor Removal

**SUBTASK 32-61-21-020-001**

(1) Remove the sensor wires including the splices (SWPM 20-30-12).

**SUBTASK 32-61-21-020-002**

(2) Do these steps to remove the sensor [5]:

(a) Remove the nuts [4], washers [2], washers [3] and bolts [1] that attach the sensor [5] to the mounting bracket.

(b) Remove the sensor [5] from the mounting bracket.

**SUBTASK 32-61-21-210-001**

(3) Examine the sensor [5] and adjacent areas for signs of damage.

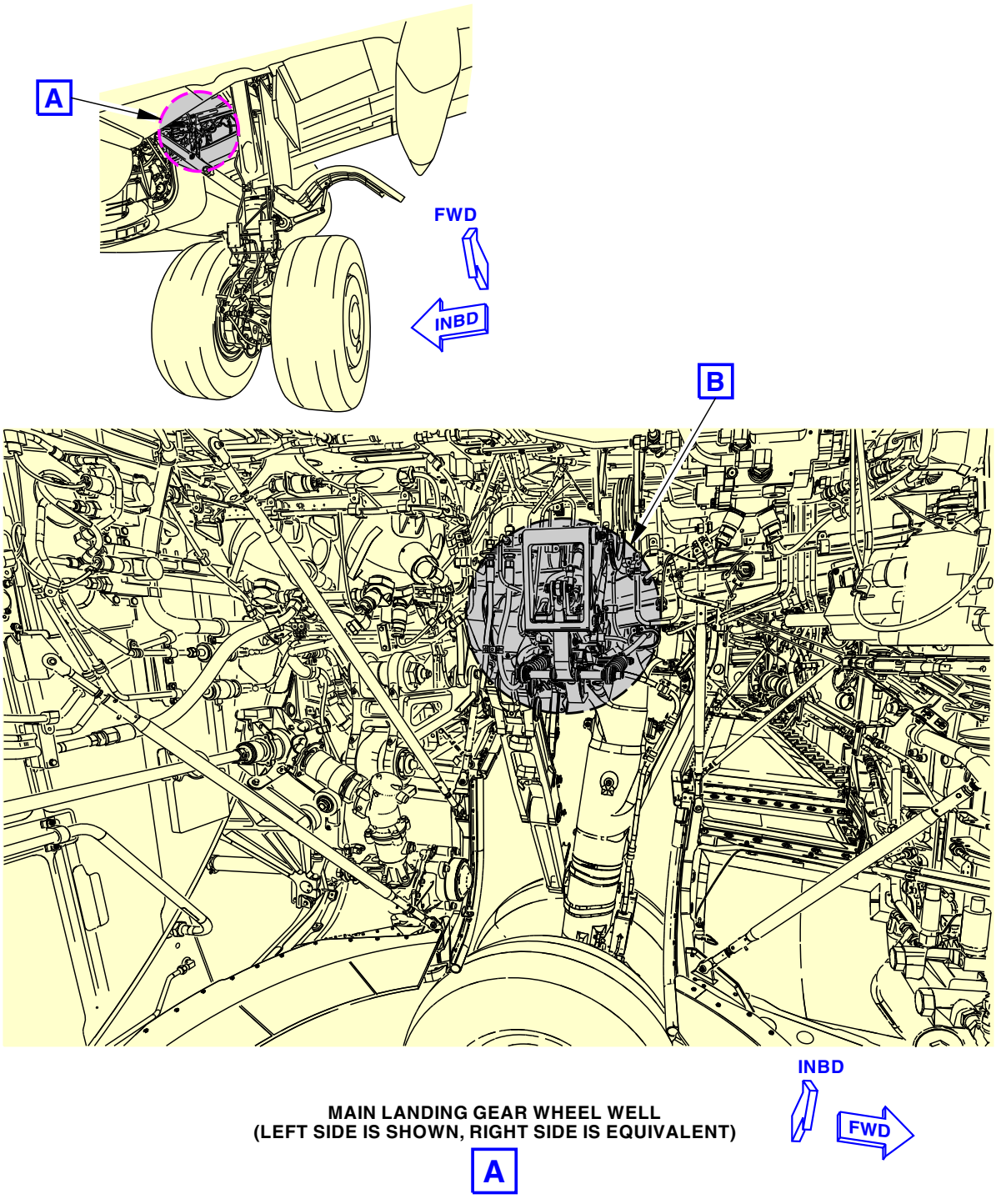
NOTE: Damage to the sensor [5] can be an indication of an incorrect clearance between the sensor [5] and the target.

(a) If you find damage, make a note of the damage for the installation procedure.

**——— END OF TASK ———**



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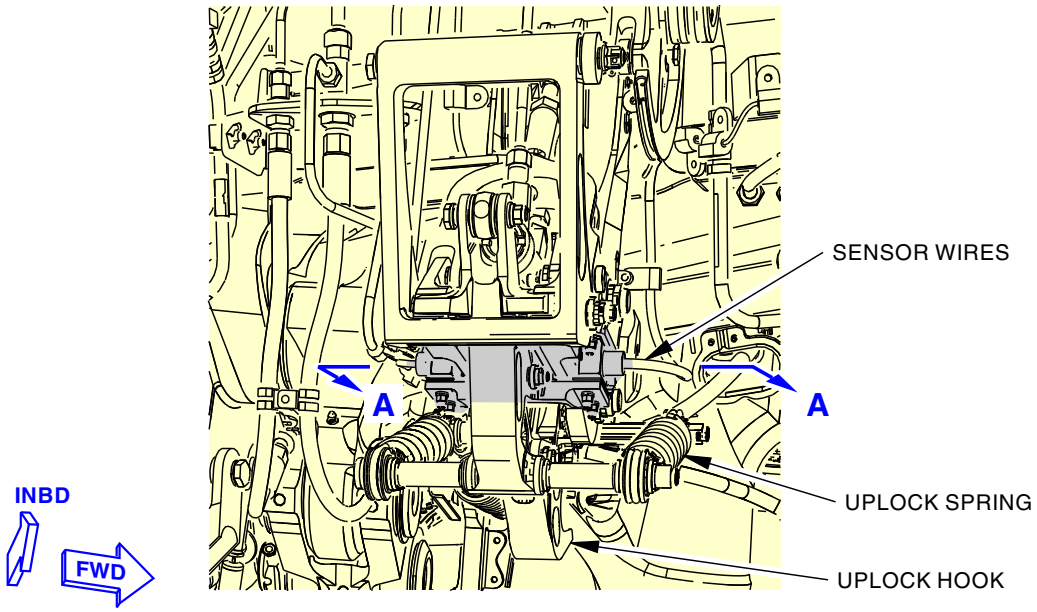

MAIN LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)

2414527 S00061535367_V1

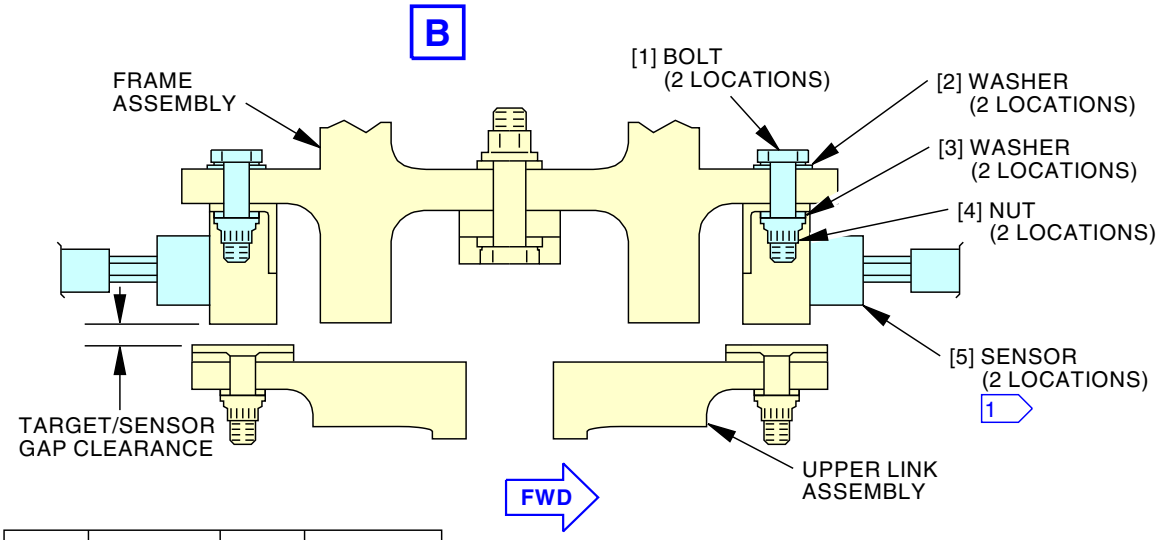
**Main Landing Gear Uplock Sensor Installation**
**Figure 401/32-61-21-990-801 (Sheet 1 of 2)**



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**LEFT MAIN LANDING GEAR UPLOCK**
**(RIGHT MAIN LANDING GEAR UPLOCK IS EQUIVALENT)**




1

| ITEM | SENSOR NO. | MLG | LOCATION |
|---|---|---|---|
| [5] | S0072 | L | FWD |
| [5] | S0074 | R | FWD |
| [5] | S1016 | L | AFT |
| [5] | S1017 | R | AFT |

**UP-AND-LOCKED SENSORS**
**A-A**

2414529 S00061535369_V4

**Main Landing Gear Uplock Sensor Installation**
**Figure 401/32-61-21-990-801 (Sheet 2 of 2)**



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**TASK 32-61-21-400-801**

## 3. Main Landing Gear Uplock Sensor Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-61-21-400-802 | Main Landing Gear Uplock Sensor Clearance Measurement (Airplane on Jacks) (P/B 501) |
| 32-61-21-400-803 | Main Landing Gear Uplock Sensor Clearance Measurement (Airplane not on Jacks) (P/B 501) |
| 32-61-21-710-801 | Main Landing Gear Up-and-Locked Sensor Operational Test (P/B 501) |
| SWPM 20-30-12 | Assembly of Splices |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Sensor | 32-61-21-01-040 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### E. Prepare for the Installation

**SUBTASK 32-61-21-580-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-21-480-003**

(2) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).



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SUBTASK 32-61-21-860-002

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Prepare the safety-sensitive systems for air mode simulation (TASK 32-09-00-860-801).

SUBTASK 32-61-21-860-003

(4) Make sure that these circuit breakers are open and have safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

## F. Main Landing Gear Uplock Sensor Installation

SUBTASK 32-61-21-410-001

(1) Fay seal the bottom of the sensor with sealant, A00247.

SUBTASK 32-61-21-420-001

(2) Install the sensor [5]:

(a) Position the sensor [5] on the bracket.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(b) Apply a thin coat of Cor-Ban 27L Compound, G50237, to thread reliefs, threads, and washer faces before the assemble.

(c) Install the bolts [1], washers [2], washers [3], and nuts [4].

NOTE: Use CRES washers below nuts with titanium sensors. Use cad-plated washers below bolt heads.

SUBTASK 32-61-21-420-002

(3) Connect the sensor leads to the airplane:

(a) If it is necessary, cut the sensor leads to the correct length.

(b) Connect the leads with splices (SWPM 20-30-12).

SUBTASK 32-61-21-960-001

(4) If damage to the sensor [5] or the adjacent area during the removal procedure was found, do these steps:

(a) Repair or replace all damaged components or areas.

NOTE: Damage to the sensor, the target, or the adjacent areas may be an indication of an incorrect sensor clearance.

(b) Measure the sensor [5] clearance, do the applicable task:

- Main Landing Gear Uplock Sensor Clearance Measurement (Airplane not on Jacks), TASK 32-61-21-400-803



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- Main Landing Gear Uplock Sensor Clearance Measurement (Airplane on Jacks), TASK 32-61-21-400-802.

**G. Main Landing Gear Uplock Sensor Installation Test**

SUBTASK 32-61-21-220-005

(1) Do the applicable task:

- Main Landing Gear Uplock Sensor Clearance Measurement (Airplane not on Jacks), TASK 32-61-21-400-803
- Main Landing Gear Uplock Sensor Clearance Measurement (Airplane on Jacks), TASK 32-61-21-400-802.

SUBTASK 32-61-21-860-022

(2) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

SUBTASK 32-61-21-860-023

(3) Do this task: Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802.

SUBTASK 32-61-21-740-004

(4) Do this task: Main Landing Gear Up-and-Locked Sensor Operational Test, TASK 32-61-21-710-801.

**END OF TASK**



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## MAIN LANDING GEAR UPLOCK SENSOR - ADJUSTMENT/TEST

### 1. General

A. This procedure has four tasks:

(1) Main landing gear uplock sensor clearance measurement (Airplane on Jacks)

(2) Main landing gear uplock sensor clearance measurement (Airplane not on Jacks)

(3) Main landing gear uplock sensor clearance adjustment

(4) Main landing gear up-and-lock sensor operational test.

B. The procedures for the left and right installations are similar.

**TASK 32-61-21-400-802**

### 2. Main Landing Gear Uplock Sensor Clearance Measurement (Airplane on Jacks)

#### A. References

| Reference | Title |
|---|---|
| 07-10-01-580-801 | Lift the Airplane on Jacks (P/B 201) |
| 07-10-01-580-802 | Lower the Airplane off Jacks (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-080-801 | Landing Gear Downlock Pins Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G02020 | Clay, Modeling | |

#### C. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

#### D. Main Landing Gear Uplock Sensor Clearance Measurement

**SUBTASK 32-61-21-580-002**

**CAUTION** MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION** MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(1) Lift the airplane on jacks (TASK 07-10-01-580-801).

**SUBTASK 32-61-21-480-004**

(2) Attach some clay, G02020, to the face of the sensor.

**SUBTASK 32-61-21-860-004**

(3) Do these steps to raise the main landing gear:


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(a) For the landing gear that the sensor is attached to, do this task: Landing Gear Downlock Pins Removal, TASK 32-00-01-080-801.

NOTE: Refer to Figure 501 for the sensor location.

**WARNING**

KEEP PERSONNEL AND EQUIPMENT AWAY FROM THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU SUPPLY HYDRAULIC POWER. THIS CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

(b) Supply hydraulic power to operate the landing gear (TASK 29-11-00-860-801).

(c) Put the landing gear lever in the UP position.

**SUBTASK 32-61-21-860-005**

(4) Put the landing gear lever in the DN position after the main landing gear has retracted fully.

**SUBTASK 32-61-21-580-003**

**WARNING**

MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(5) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-21-220-001**

(6) Measure the compressed thickness of clay, G02020.

**SUBTASK 32-61-21-820-001**

(7) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Main Landing Gear Uplock Sensor Clearance Adjustment, TASK 32-61-21-820-801.

NOTE: Write down the measured clearance so you will know what adjustments must be made.

**SUBTASK 32-61-21-840-002**

**CAUTION**

MAKE SURE THAT YOU RELEASE THE PARKING BRAKE BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT OBEY, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

**CAUTION**

MAKE SURE THAT YOU REMOVE THE WHEEL CHOCKS BEFORE YOU LIFT OR LOWER THE AIRPLANE WITH JACKS. IF YOU DO NOT REMOVE BLOCKAGES AROUND THE MAIN LANDING GEAR, DAMAGE TO THE AIRPLANE AND EQUIPMENT CAN OCCUR.

(8) If the sensor clearance is acceptable, do this task: Lower the Airplane off Jacks, TASK 07-10-01-580-802.

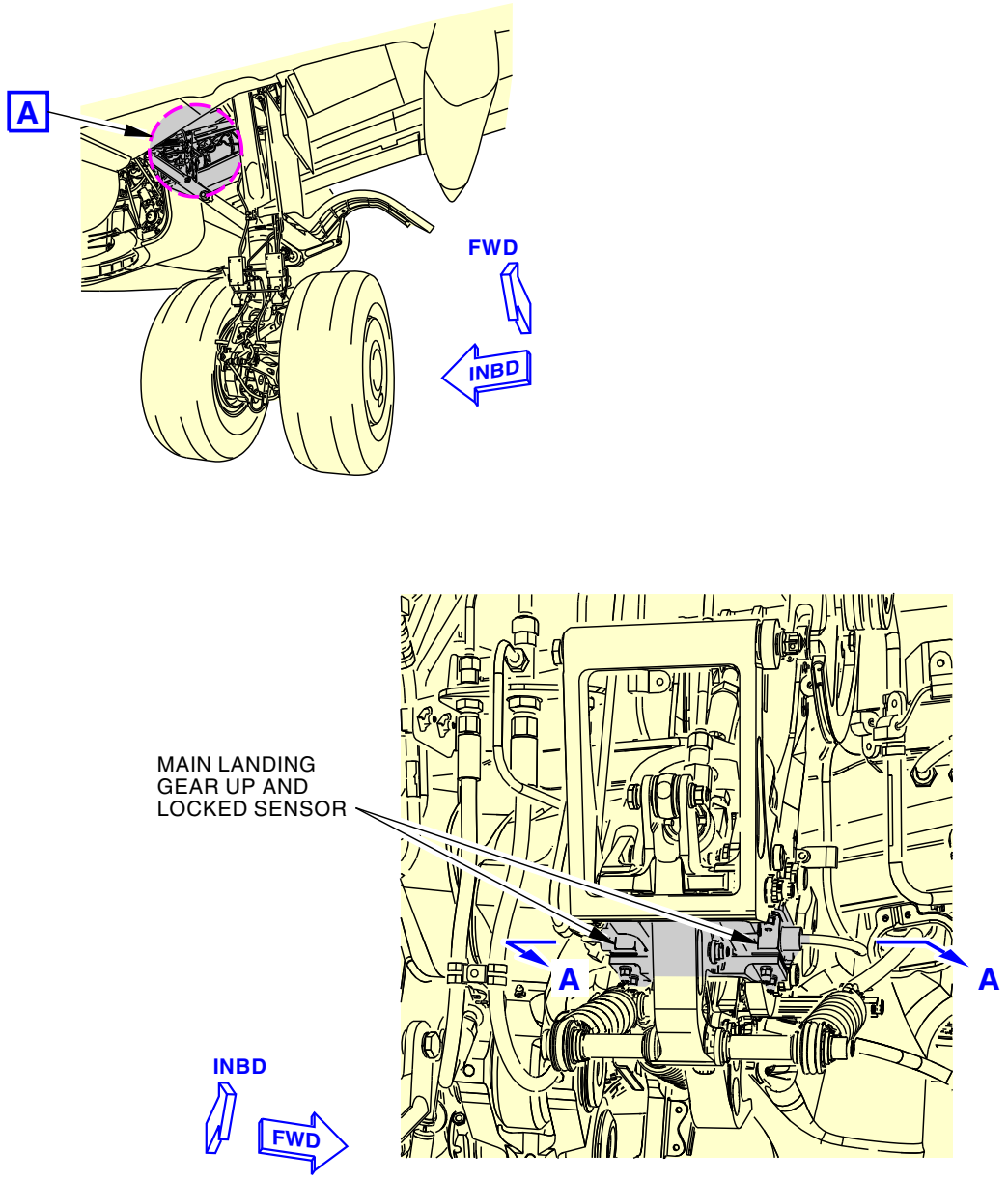
**SUBTASK 32-61-21-860-006**

(9) If the hydraulic power is not necessary, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**LEFT MAIN LANDING GEAR UPLOCK**
**(RIGHT MAIN LANDING GEAR UPLOCK IS EQUIVALENT)**

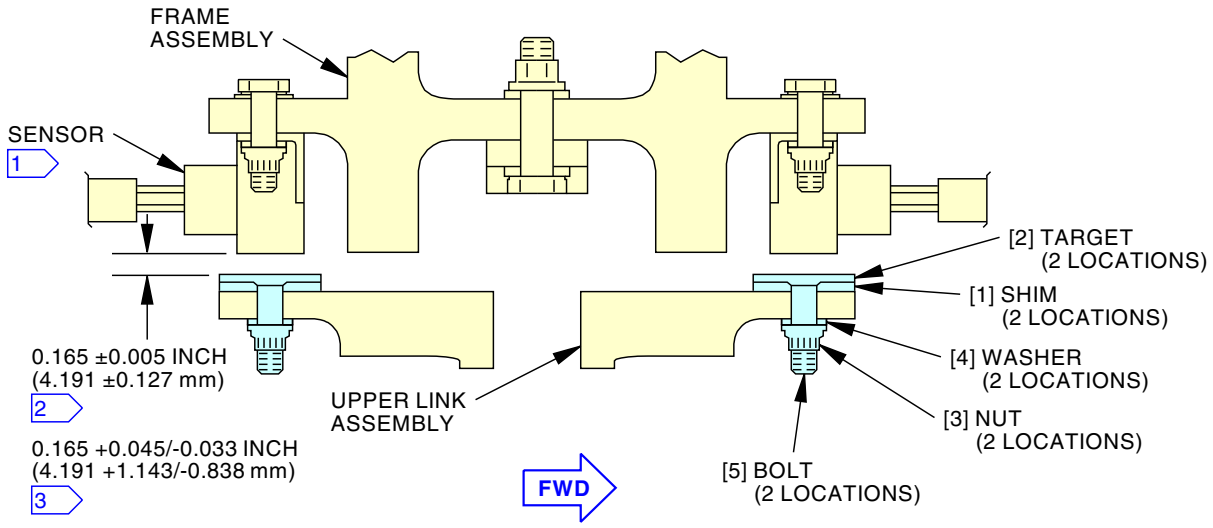
**A**

2414531 S00061535374_V1

**Main Landing Gear UpLock Sensor Adjustment**
**Figure 501/32-61-21-990-802 (Sheet 1 of 3)**



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**UP-AND-LOCKED SENSORS**

**A-A**

1

| SYSTEM NO. | SENSOR NO. | MLG | LOCATION |
|---|---|---|---|
| 1 | S0072 | L | FWD |
| 2 | S1016 | L | AFT |
| 1 | S0074 | R | FWD |
| 2 | S1017 | R | AFT |

2 PHYSICAL GAP TOLERANCE

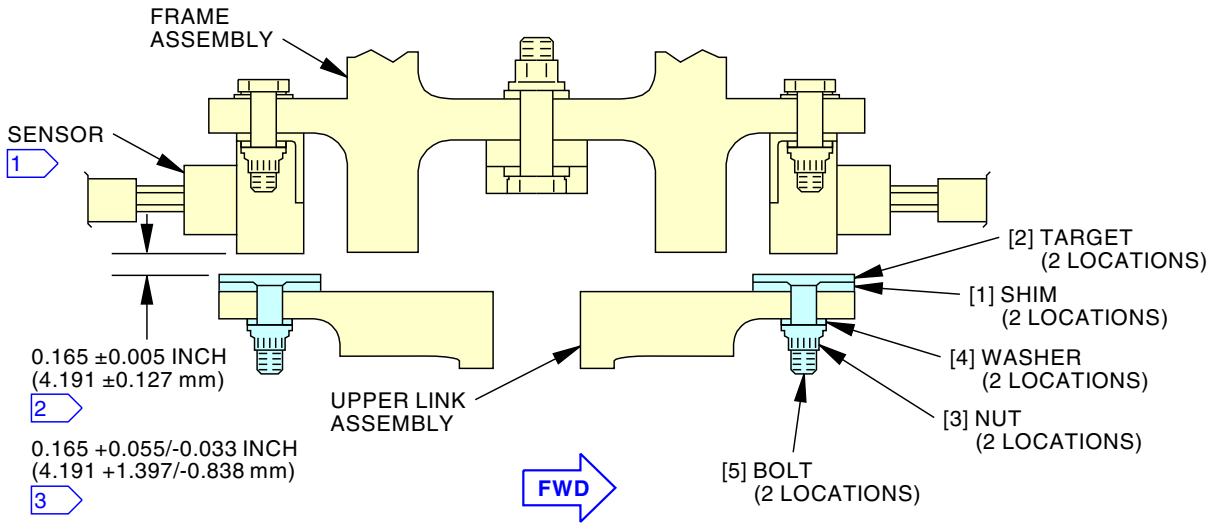
3 PSEU TOLERANCE

2414533 S00061535376_V5

**Main Landing Gear UpLock Sensor Adjustment**
**Figure 501/32-61-21-990-802 (Sheet 2 of 3)**



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**UP-AND-LOCKED SENSORS**

**A-A**

1

| SYSTEM NO. | SENSOR NO. | MLG | LOCATION |
|---|---|---|---|
| 1 | S0072 | L | FWD |
| 2 | S1016 | L | AFT |
| 1 | S0074 | R | FWD |
| 2 | S1017 | R | AFT |

2 PHYSICAL GAP TOLERANCE

3 PSEU TOLERANCE

2972002 S0000750772_V1

**Main Landing Gear UpLock Sensor Adjustment**
**Figure 501/32-61-21-990-802 (Sheet 3 of 3)**



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**TASK 32-61-21-400-803**

## 3. Main Landing Gear Uplock Sensor Clearance Measurement (Airplane not on Jacks)

### A. References

| Reference | Title |
|---|---|
| 24-22-00-860-801 | Supply Electrical Power (P/B 201) |
| 29-11-00-860-801 | Hydraulic System A or B Pressurization (P/B 201) |
| 29-11-00-860-805 | Hydraulic System A or B Power Removal (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-4896 | Adapter Assembly - Uplock, MLG<br>Part #: C32048-1 Supplier: 81205 |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G02020 | Clay, Modeling | |

### D. Location Zones

| Zone | Area |
|---|---|
| 133 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Left |
| 134 | Main Landing Gear Wheel Well, Body Station 663.75 to Body Station 727.00 - Right |
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### E. Prepare for the Measurement

**SUBTASK 32-61-21-860-007**

(1) Make sure that these circuit breakers are open and have safety tags:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |



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SUBTASK 32-61-21-580-004

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(2) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-61-21-860-008

(3) Make sure that the control lever for the landing gear is in the DN position.

## F. Main Landing Gear Up-and-Locked Sensor Clearance Measurement

**WARNING** MAKE SURE THAT THERE IS NO PRESSURE IN THE HYDRAULIC SYSTEM. PRESSURE IN THE HYDRAULIC SYSTEM CAN MOVE THE CONTROL SURFACES, CABLES, LANDING GEARS, AND LANDING GEAR DOORS QUICKLY. THEIR MOVEMENT CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

SUBTASK 32-61-21-860-009

(1) Insert the MLG uplock adapter assembly, SPL-4896, in the MLG Uplock hook.

SUBTASK 32-61-21-860-010

(2) Attach a square drive torque wrench or breaker bar to the MLG uplock adapter assembly and turn the MLG Uplock hook until it turns to the latched position.

SUBTASK 32-61-21-220-002

(3) Measure the sensor gap using a feeler gage.

NOTE: You can do the alternate methods below to measure the sensor gap.

SUBTASK 32-61-21-820-002

(4) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Main Landing Gear Uplock Sensor Clearance Adjustment, TASK 32-61-21-820-801.

NOTE: Write down the measured clearance so you will know what adjustments must be made.

## G. Main Landing Gear Up-and-Locked Sensor Clearance Measurement (Alternate Method)

SUBTASK 32-61-21-200-001

(1) Do this check of the main landing gear uplock sensor:

(a) If it is necessary, supply electrical power (TASK 24-22-00-860-801).

(b) Do this task: Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802.

(c) Use the Multi Function Display to check for the clearance of the Uplock sensor.

1) Set the GND TESTS Switch, on the P61-4 panel, to Enable position.

2) Select SYS on the MFD Multi Function Display panel.

3) Do these steps to start the check:

a) Select MAINT.

b) Select MAINT DATA PGS.

c) Select 32 Proximity Switch Electronics.

d) Select DISPLAY.



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4) Make sure that the MFD shows the sensor name and rigging gap.

NOTE: See the table in Figure 501 for the sensor identification and location.

5) Make sure that the MFD shows the sensor clearance or the acceptable rigging gap range within tolerance.

NOTE: For a description of the sensor clearance display see Figure 501.

NOTE: 1 MIL equals 1/1000th of an inch.

6) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Main Landing Gear Uplock Sensor Clearance Adjustment, TASK 32-61-21-820-801.

## H. Main Landing Gear Up-and-Locked Sensor Clearance Measurement (Alternate Method)

**SUBTASK 32-61-21-480-005**

(1) Attach some clay, G02020, to the face of the sensor.

NOTE: Refer to Figure 501 for the sensor location.

**SUBTASK 32-61-21-860-011**

(2) Rotate the uplock hook into the closed position with the MLG uplock adapter assembly, SPL-4896.

**SUBTASK 32-61-21-860-012**

(3) Rotate the uplock hook into the open position with the MLG uplock adapter assembly, SPL-4896.

**SUBTASK 32-61-21-220-003**

(4) Measure the compressed thickness of the clay, G02020.

**SUBTASK 32-61-21-820-003**

(5) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Main Landing Gear Uplock Sensor Clearance Adjustment, TASK 32-61-21-820-801.

NOTE: Write down the measured clearance so you will know what adjustments must be made.

## I. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-61-21-860-013**

(1) Remove the MLG uplock adapter assembly, SPL-4896.

NOTE: It is unnecessary to move the MLG Uplock hook to the unlatched position. When the hydraulic system is energized, the MLG Uplock hook will move automatically to the unlatched position.

**SUBTASK 32-61-21-865-001**

(2) Make sure that these circuit breakers are closed:

**F/O Electrical System Panel, P6-2**

| Row | Col | Number | Name |
|---|---|---|---|
| C | 15 | C00799 | HYD SYS LDG GR SYS XFR VALVE SEC |
| C | 16 | C00781 | HYD SYS LDG GR SYS XFR VALVE PRI |

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 18 | C00451 | LANDING GEAR AURAL WARN |



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SUBTASK 32-61-21-860-014

(3) For hydraulic system A, do this task: Hydraulic System A or B Pressurization, TASK 29-11-00-860-801.

SUBTASK 32-61-21-860-015

(4) Put the control lever for the landing gear in the DN position.

SUBTASK 32-61-21-860-016

(5) For hydraulic system A, do this task: Hydraulic System A or B Power Removal, TASK 29-11-00-860-805.

——— END OF TASK ———

**TASK 32-61-21-820-801**

## 4. Main Landing Gear Uplock Sensor Clearance Adjustment

(Figure 501)

### A. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

### B. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### C. Main Landing Gear Uplock Sensor Clearance Adjustment

SUBTASK 32-61-21-820-004

(1) Adjust the sensor clearance.

(a) Remove the nuts [3], washers [4], and bolts [5] which hold the target [2] in position.

(b) Remove the targets [2] and shims [1].

(c) Clean the shims [1] and mounting surfaces.

(d) Adjust the shims [1] thickness as required to get the necessary sensor to target clearance, do one of the steps that follow:

1) Remove the laminations from the existing shims [1].

2) Apply additional shims [1].

a) If it is necessary, remove the laminations from the new shims [1].

3) Replace the existing shims [1] with the new shims [1] and adjust the thickness.

a) If it is necessary, remove the laminations from the new shims [1].



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**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(e) Apply a thin coat of Cor-Ban 27L Compound, G50237, to the thread reliefs, threads, and washer faces prior to assembly.

1) Wipe off the excess.

(f) Put the shims [1] and targets [2] in position on the mounting bracket.

(g) Install the bolts [5], nuts [3], and washers [4] which hold the shim [1] stack.

**SUBTASK 32-61-21-220-004**

(2) Measure the sensor clearance and compare to the requirement (TASK 32-61-21-400-802 or TASK 32-61-21-400-803).

(a) If the sensor clearance is not correct, do the steps to adjust the sensor clearance again.

**SUBTASK 32-61-21-390-001**

(3) Seal the shim [1] stack.

(a) Clean the shims [1].

(b) Apply sealant, A00247, on the shim [1] surfaces.

**——— END OF TASK ———**

**TASK 32-61-21-710-801**

## 5. Main Landing Gear Up-and-Locked Sensor Operational Test

### A. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| SPL-4896 | Adapter Assembly - Uplock, MLG<br>Part #: C32048-1 Supplier: 81205 |

### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |



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## D. Prepare for Operational Test

SUBTASK 32-61-21-010-001

(1) Open this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |

SUBTASK 32-61-21-860-018

(2) For the operational test, do these steps:

**WARNING** MAKE SURE THAT THERE IS NO PRESSURE IN THE HYDRAULIC SYSTEM. PRESSURE IN THE HYDRAULIC SYSTEM CAN MOVE THE CONTROL SURFACES, CABLES, LANDING GEARS, AND LANDING GEAR DOORS QUICKLY. THEIR MOVEMENT CAN CAUSE INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT.

(a) Insert the MLG uplock adapter assembly, SPL-4896, in the Main Landing Gear (MLG) Uplock hook.

(b) Attach a square drive torque wrench or breaker bar to the MLG uplock adapter assembly and turn the MLG Uplock hook until it turns to the latched position.

## E. Main Landing Gear Up-and-Locked Sensor Operational Test

SUBTASK 32-61-21-740-002

(1) Use the Multi Function Display (MFD) to test the MLG Up-and-Locked sensor.

(a) Set the GND TESTS Switch on the P61-4 panel to Enable position.

(b) Select SYS on the MFD panel.

(c) Do these steps to start the test:

1) Select MAINT
2) Select MAINT DATA PGS
3) Select 32 PSEU
4) Select DISPLAY.

(d) Make sure that the MFD shows the sensor name and rigging gap.

NOTE: See the table in Figure 501 for the sensor identification and location.

(e) Make sure that the MFD shows the sensor clearance or the acceptable rigging gap range within tolerance.

NOTE: For a description of the sensor clearance display, see Figure 501.

NOTE: 1 MIL equals 1/1000th of an inch.

(f) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Main Landing Gear Uplock Sensor Clearance Adjustment, TASK 32-61-21-820-801.

## F. Put the Airplane Back to Its Usual Condition

SUBTASK 32-61-21-740-003

(1) Set the GND TESTS switch on the P61-4 Panel to the NORM position.

SUBTASK 32-61-21-840-003

(2) Close this access panel:

| Number | Name/Location |
|---|---|
| 112A | Forward Access Door |



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SUBTASK 32-61-21-860-019

(3) Remove the MLG uplock adapter assembly, SPL-4896.

NOTE: It is unnecessary to move the MLG Uplock hook to the unlatched position. When the hydraulic system is energized, the MLG Uplock hook will move automatically to the unlatched position.

——— END OF TASK ———



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## MAIN LANDING GEAR DOWN-AND-LOCKED SENSOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has two tasks:

(1) Main landing gear down-and-locked sensor removal

(2) Main landing gear down-and-locked sensor installation.

B. The procedures for the left and right installations are similar.

**TASK 32-61-31-020-801**

### 2. Main Landing Gear Down-and-Locked Sensor Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

#### C. Prepare for the Removal

**SUBTASK 32-61-31-580-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-31-480-001**

(2) Make sure chocks are installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

**SUBTASK 32-61-31-860-001**

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Prepare the safety-sensitive systems for air mode simulation (TASK 32-09-00-860-801).

**SUBTASK 32-61-31-860-002**

(4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |



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## D. Main Landing Gear Down-and-Locked Sensor Removal

**SUBTASK 32-61-31-020-001**

(1) Remove the sensor connector from the airplane connector.

**SUBTASK 32-61-31-020-002**

(2) Remove the sensor contact pins from the connector.

**SUBTASK 32-61-31-480-002**

(3) Tie a string at least 8 ft (2.4 m) long to the sensor wires.

NOTE: This string will be used to pull wire of the new sensor through the conduit. The string can be tied to the landing gear structure to make sure that the string is not pulled through the conduit.

**SUBTASK 32-61-31-020-003**

(4) Remove the sensor [4]:

(a) Remove the bolts [1], nuts [2], washers [3], and washers [5] that attach the sensor [4] to the side strut assembly.

(b) Remove the sensor [4] from the side strut assembly.

1) Make sure you do not pull the string through the conduit.

(c) Remove the string from the sensor [4].

**SUBTASK 32-61-31-210-001**

(5) Examine the sensor [4], the side strut assembly, and adjacent areas for signs of damage.

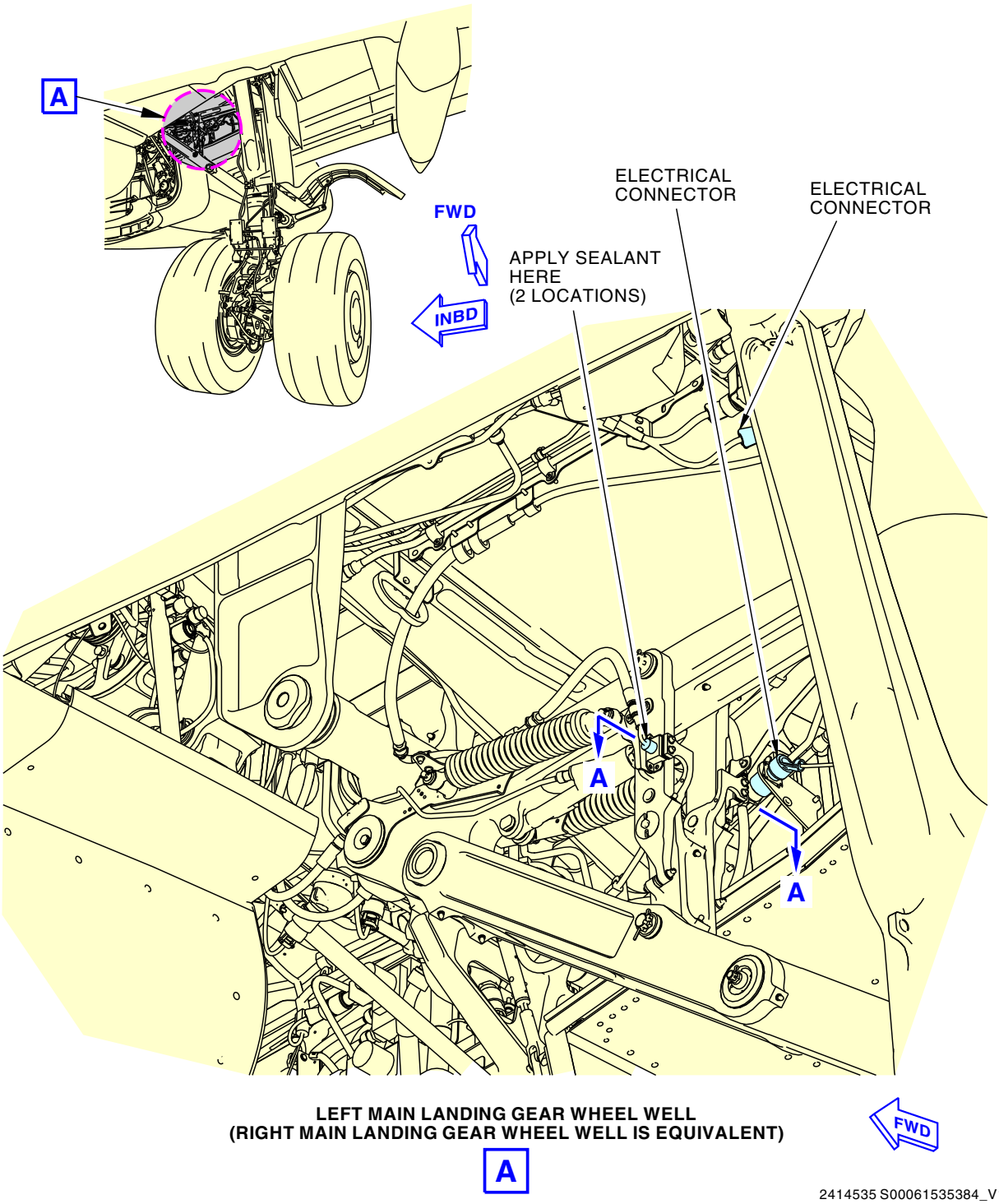
NOTE: Damage to the sensor may be an indication of an incorrect clearance between the sensor and the target.

(a) If you find damage, make a note of the damage for the installation procedure.

**——— END OF TASK ———**



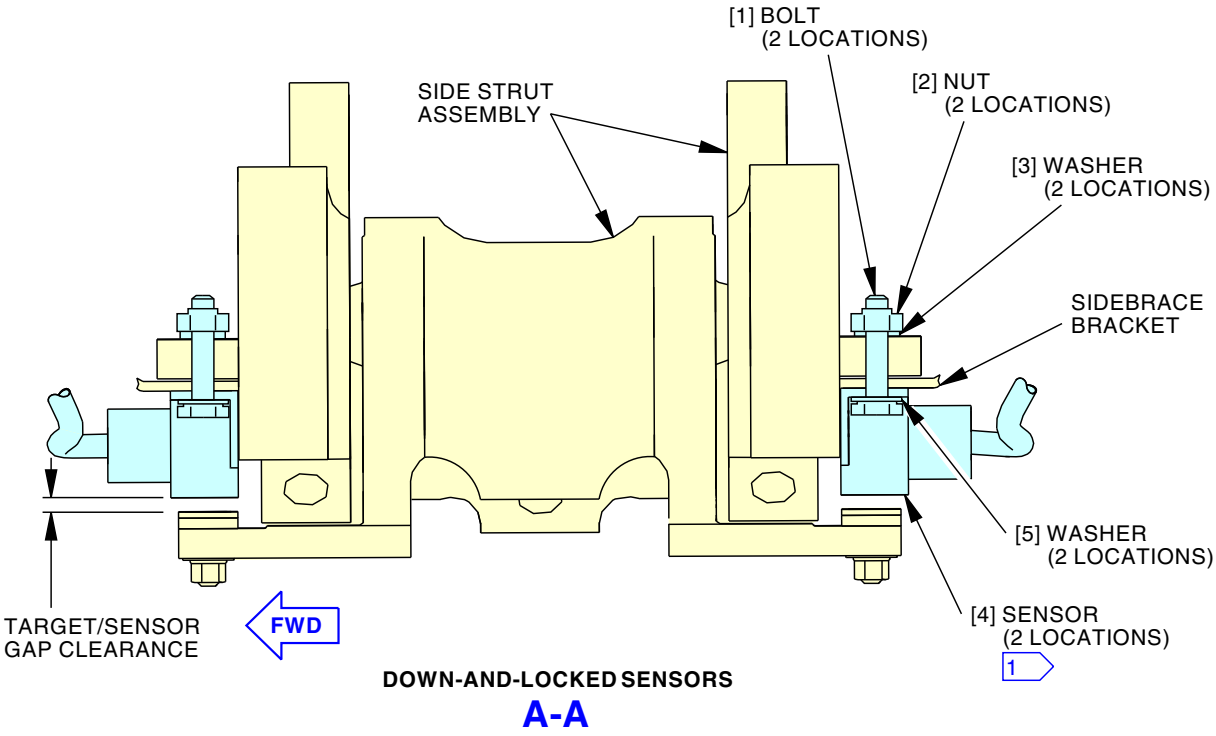
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Main Landing Gear Down-and-Locked Sensor Installation**
**Figure 401/32-61-31-990-801 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**DOWN-AND-LOCKED SENSORS**

**A-A**

1

| ITEM | SENSOR NO. | MLG | LOCATION |
|---|---|---|---|
| [4] | S0071 | L | FWD |
| [4] | S0073 | R | FWD |
| [4] | S0301 | R | AFT |
| [4] | S0302 | L | AFT |

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**Main Landing Gear Down-and-Locked Sensor Installation**
**Figure 401/32-61-31-990-801 (Sheet 2 of 2)**



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**TASK 32-61-31-400-801**

## 3. Main Landing Gear Down-and-Locked Sensor Installation

(Figure 401)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-61-31-220-801 | Main Landing Gear Down-and-Locked Sensor Clearance Measurement (P/B 501) |
| 32-61-31-710-801 | Main Landing Gear Down-and-Locked Sensor Operational Test (P/B 501) |
| SWPM Ch 20 | Standard Wiring Practices Manual |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Sensor | 32-61-31-01-165 | SIA ALL |
| | | 32-61-31-01-230 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### E. Prepare for the Installation

**SUBTASK 32-61-31-580-002**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-31-480-003**

(2) Make sure chocks are installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).



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SUBTASK 32-61-31-860-003

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Prepare the safety-sensitive systems for air mode simulation (TASK 32-09-00-860-801).

SUBTASK 32-61-31-860-004

(4) Make sure that these circuit breakers are open and have safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

## F. Main Landing Gear Down-and-Locked Sensor Installation

SUBTASK 32-61-31-420-001

(1) Prepare the replacement sensor [4] for installation on the airplane.

(a) Cut the sensor leads to the correct length:

1) S0071 - #1 L Gear Down & Locked Sensor: 64 in. (1.6 m)
2) S0073 - #1 R Gear Down & Locked Sensor: 64 in. (1.6 m)
3) S0301 - #2 R Gear Down & Locked Sensor: 52 in. (1.3 m)
4) S0302 - #2 L Gear Down & Locked Sensor: 52 in. (1.3 m)

(b) Attach the contact pins to the sensor leads.

NOTE: Refer to SWPM Ch 20, if it is necessary.

SUBTASK 32-61-31-410-001

(2) Fay seal the bottom of the sensor [4] with sealant, A00247.

SUBTASK 32-61-31-420-002

(3) Install the main landing gear down-and-locked sensor [4].

(a) Attach the string to the new sensor leads.

(b) Pull the sensor leads through the conduit.

(c) Position the sensor [4] and the bracket on the side strut assembly.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(d) Apply a thin coat of Cor-Ban 27L Compound, G50237 to thread reliefs, threads, and washer faces prior to assembly.

(e) Install the bolts [1], washers [3], washers [5], and nuts [2].

NOTE: Use CRES washers below bolt heads with titanium sensors. Use cad-plated washers below nuts.

SUBTASK 32-61-31-420-003

(4) Connect the sensor leads to the airplane.



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(a) Insert the connector pins into the connector.

(b) Attach the plug side of the connector to the jack side of the connector at the disconnect bracket.

SUBTASK 32-61-31-350-001

(5) If you found damage to the sensor [4] or the adjacent area during the removal procedure, do these steps:

(a) Repair or replace all damaged components or areas.

NOTE: Damage to the sensor, the target, or the adjacent areas may be an indication of an incorrect sensor clearance.

(b) Measure the sensor [4] clearance. To measure the clearance, do this task: Main Landing Gear Down-and-Locked Sensor Clearance Measurement, TASK 32-61-31-220-801.

## G. Main Landing Gear Down-and-Locked Sensor Installation Test

SUBTASK 32-61-31-220-001

(1) Do this task: Main Landing Gear Down-and-Locked Sensor Clearance Measurement, TASK 32-61-31-220-801.

SUBTASK 32-61-31-860-005

(2) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

SUBTASK 32-61-31-860-006

(3) Do this task: Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802.

SUBTASK 32-61-31-740-001

(4) Do this task: Main Landing Gear Down-and-Locked Sensor Operational Test, TASK 32-61-31-710-801.

——— END OF TASK ———



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## MAIN LANDING GEAR DOWN-AND-LOCKED SENSOR - ADJUSTMENT/TEST

### 1. General

A. This procedure has three tasks:

(1) Main landing gear down-and-locked sensor clearance measurement

(2) Main landing gear down-and-locked sensor clearance adjustment

(3) Main landing gear down-and-locked sensor operational test.

B. The procedures for the left and right installations are similar.

**TASK 32-61-31-220-801**

### 2. Main Landing Gear Down-and-Locked Sensor Clearance Measurement

(Figure 501)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

#### C. Prepare for the Measurement

**SUBTASK 32-61-31-580-003**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-31-480-004**

(2) Make sure that chocks are installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

#### D. Main Landing Gear Down-and-Locked Sensor Clearance Measurement

**SUBTASK 32-61-31-220-002**

(1) Measure the clearance between the sensor [6] and target [1] with a feeler gage.

(a) Make a record of the clearance dimension.

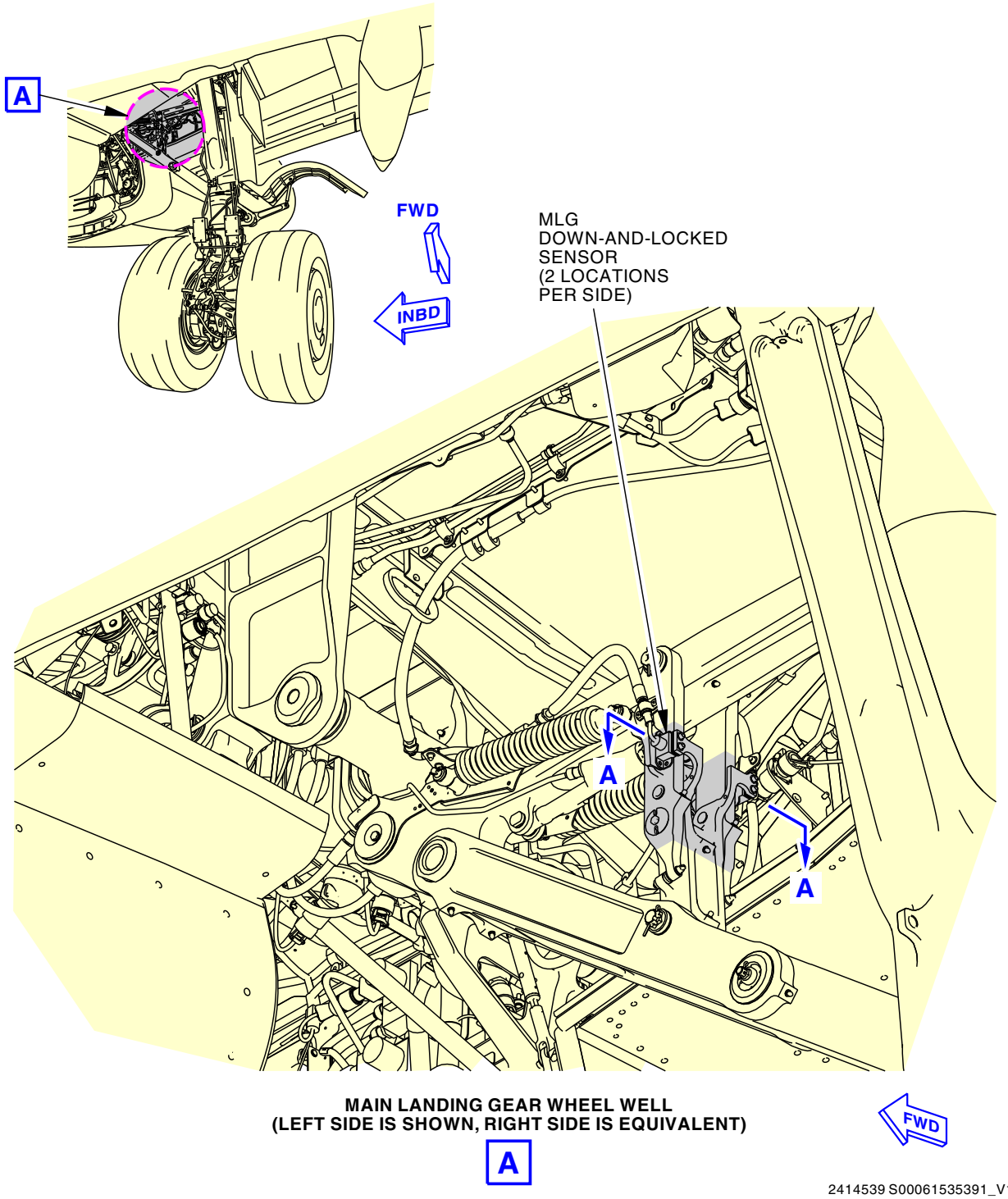
**SUBTASK 32-61-31-820-001**

(2) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Main Landing Gear Down-and-Locked Sensor Clearance Adjustment, TASK 32-61-31-400-802.

**END OF TASK**



ECCN 9E991 BOEING PROPRIETARY - See title page for details



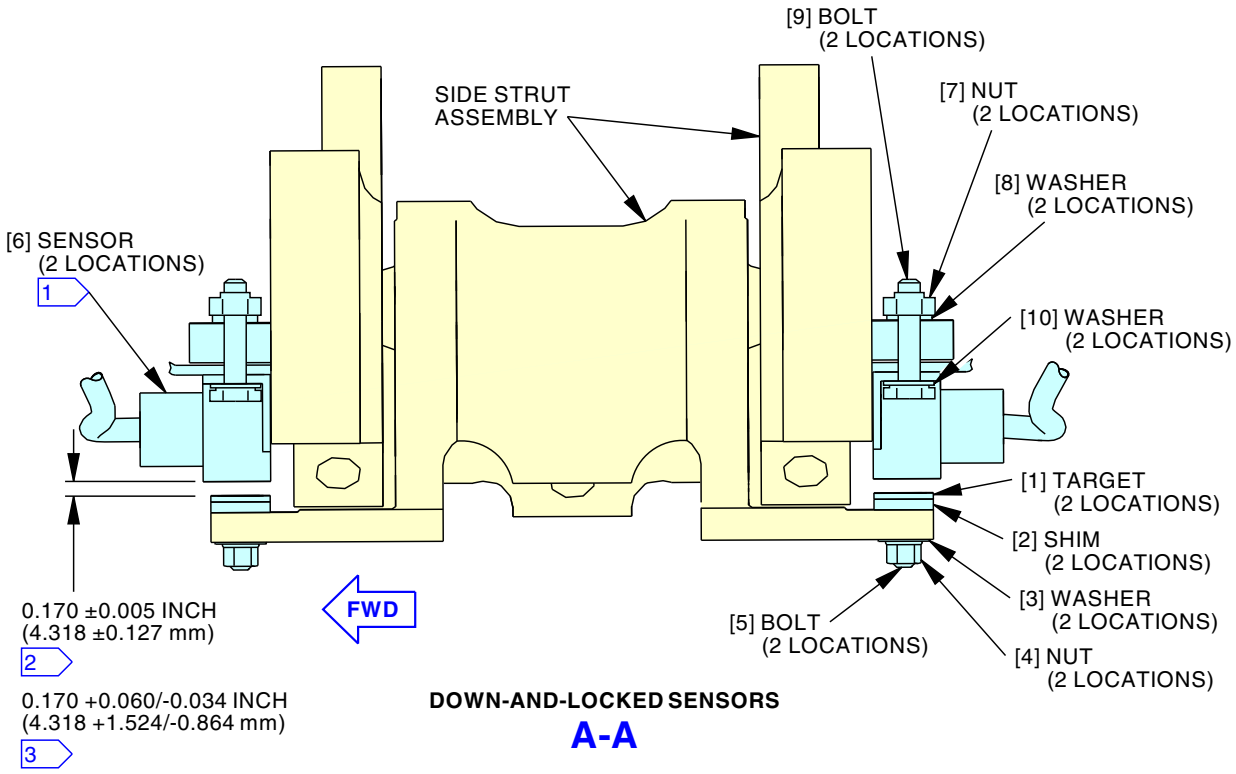

**MAIN LANDING GEAR WHEEL WELL**
**(LEFT SIDE IS SHOWN, RIGHT SIDE IS EQUIVALENT)**

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**Main Landing Gear Down-and-Locked Sensor Adjustment**
**Figure 501/32-61-31-990-802 (Sheet 1 of 3)**



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1

| SYSTEM NO. | SENSOR NO. | MLG | LOCATION | NAME |
|---|---|---|---|---|
| 1 | S0071 | L | FWD | DN & LKD |
| 1 | S0073 | R | FWD | DN & LKD |
| 2 | S0301 | R | AFT | DN & LKD |
| 2 | S0302 | L | AFT | DN & LKD |

2 PHYSICAL GAP TOLERANCE

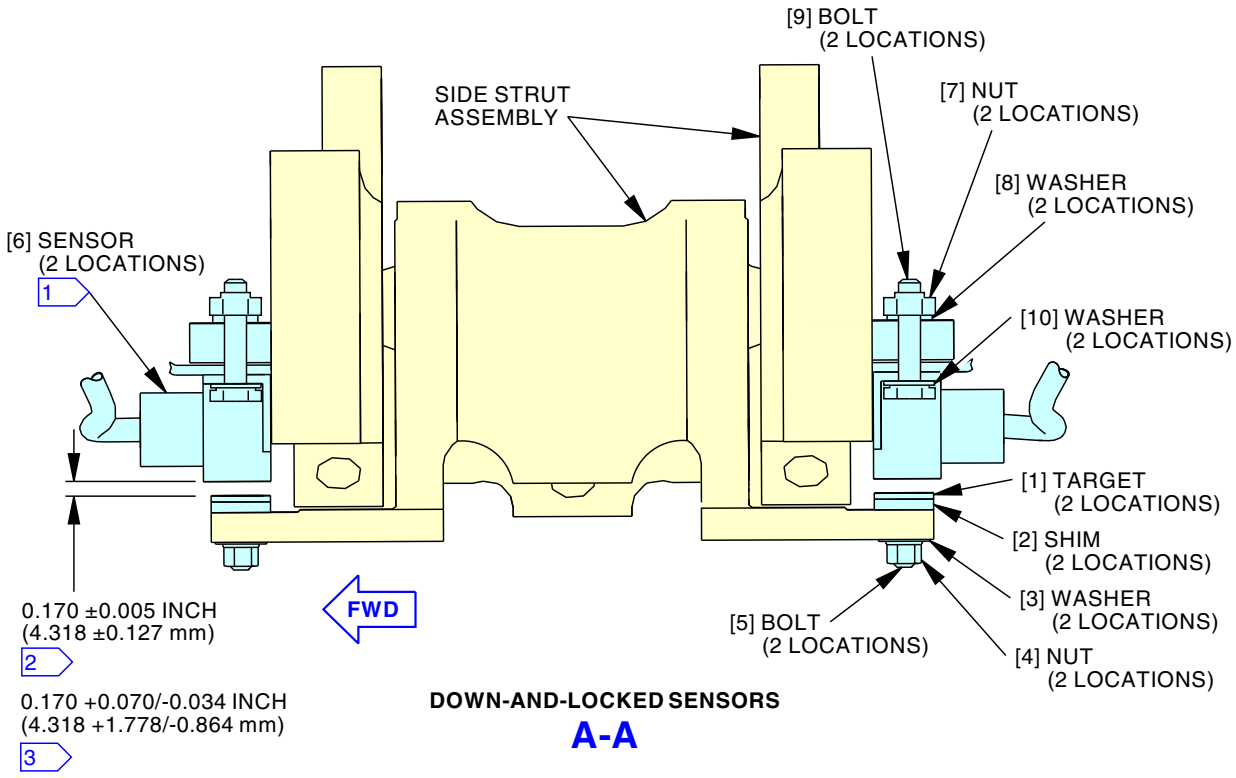
3 PSEU TOLERANCE

2414541 S00061535393_V5

**Main Landing Gear Down-and-Locked Sensor Adjustment**
**Figure 501/32-61-31-990-802 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




1

| SYSTEM NO. | SENSOR NO. | MLG | LOCATION | NAME |
|---|---|---|---|---|
| 1 | S0071 | L | FWD | DN & LKD |
| 1 | S0073 | R | FWD | DN & LKD |
| 2 | S0301 | R | AFT | DN & LKD |
| 2 | S0302 | L | AFT | DN & LKD |

2 PHYSICAL GAP TOLERANCE

3 PSEU TOLERANCE

2972073 S0000750686_V1

**Main Landing Gear Down-and-Locked Sensor Adjustment**
**Figure 501/32-61-31-990-802 (Sheet 3 of 3)**



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**TASK 32-61-31-400-802**

## 3. Main Landing Gear Down-and-Locked Sensor Clearance Adjustment

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| C00259 | Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer | BMS10-11 Type I |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

### C. Location Zones

| Zone | Area |
|---|---|
| 734 | Left Main Landing Gear |
| 744 | Right Main Landing Gear |

### D. Prepare to Adjust the Clearance

**SUBTASK 32-61-31-580-004**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-31-480-005**

(2) Make sure chocks are installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

### E. Adjust the Main Landing Gear Down-and-Locked Sensor Clearance

**SUBTASK 32-61-31-020-004**

(1) Do these steps to move the sensor [6] out of the way.

(a) Remove the nuts [7], washers [8], washers [10], and bolts [9] which secure the sensor [6] to the side strut assembly.

(b) Remove the sensor [6] from the side strut assembly.

**SUBTASK 32-61-31-020-005**

(2) Remove the nuts [4], washers [3], and bolts [5].

**SUBTASK 32-61-31-020-006**

(3) Remove the target [1] and shims [2].

**SUBTASK 32-61-31-110-001**

(4) Clean the shims [2] and mounting surfaces.



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SUBTASK 32-61-31-820-002

(5) Remove or add shims [2] as required to get the necessary clearance.

SUBTASK 32-61-31-620-001

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(6) Apply a thin coat ofCor-Ban 27L Compound, G50237 to the thread reliefs, threads, and washer faces. Wipe off the excess.

SUBTASK 32-61-31-420-004

(7) Assemble the target assembly:

(a) Position the shims [2] and target [1] on the mounting bracket.

(b) Install the bolts [5], washers [3], and nuts [4].

SUBTASK 32-61-31-410-002

(8) Fay seal the bottom of the sensor [6] with sealant, A00247.

SUBTASK 32-61-31-420-005

(9) Do these steps to re-attach the main landing gear down-and-locked sensor to the side strut assembly.

(a) Position the sensor [6] and the bracket on the side strut assembly.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(b) Apply a thin coat of Cor-Ban 27L Compound, G50237 to thread reliefs, threads, and washer faces prior to assembly.

(c) Install the bolts [9], washers [10], washers [8], and nuts [7].

NOTE: Use CRES washers below bolt heads with titanium sensors. Use cad-plated washers below nuts.

SUBTASK 32-61-31-220-003

(10) Measure the sensor clearance and compare the measurement to Figure 501 (TASK 32-61-31-220-801).

(a) If the sensor clearance is not correct, then do the steps to adjust the sensor clearance again.

SUBTASK 32-61-31-390-002

(11) Seal the shim stack.

(a) Clean the shims.

(b) Brush primer, C00259 on the shim surfaces.

(c) Apply sealant, A00247 to the shim surfaces.

**END OF TASK**



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**TASK 32-61-31-710-801**

## 4. Main Landing Gear Down-and-Locked Sensor Operational Test

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### C. Prepare for the Operational Test

**SUBTASK 32-61-31-580-005**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-31-480-006**

(2) Make sure chocks are installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

### D. Main Landing Gear Lock Sensor Operational Test

**SUBTASK 32-61-31-740-002**

(1) Use the Multi Function Display to test the MLG Down-and-Locked Sensor.

(a) Set the GND TESTS Switch on the P61-4 panel to Enable position.

(b) Select SYS on the MFD Multi Function Display panel.

(c) Do these steps to start the test:

1) Select MAINT

2) Select MAINT DATA PGS

3) Select 32 PSEU DISPLAY

(d) Make sure the MFD shows the sensor name and rigging gap.

NOTE: See the table in Figure 501 for the sensor identification and location.

(e) Make sure the MFD shows the sensor clearance or the acceptable rigging gap range within tolerance.

NOTE: For a description of the sensor clearance display see Figure 501.

NOTE: 1 MIL equals 1/1000th of an inch.

(f) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Main Landing Gear Down-and-Locked Sensor Clearance Adjustment, TASK 32-61-31-400-802.



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### E. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-61-31-840-001**

(1) Set the GND TESTS switch on the P61-4 Panel to the NORM position.

**——— END OF TASK ———**



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## NOSE LANDING GEAR LOCK SENSOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has two tasks:

(1) Nose landing gear lock sensor removal.

(2) Nose landing gear lock sensor installation.

B. The procedures for the number 1 and number 2 installations are similar.

**TASK 32-61-41-020-801**

### 2. Nose Landing Gear Lock Sensor Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-4938 | Insertion/Removal - contact (size 16, backshell side)<br>Part #: M81969/1-03 Supplier: 11139<br>Part #: M81969/14-03 Supplier: 11139 |
| STD-837 | String |

#### C. Location Zones

| Zone | Area |
|---|---|
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 713 | Nose Landing Gear |

#### D. Prepare for the Removal

**SUBTASK 32-61-41-580-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-41-480-001**

(2) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).



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SUBTASK 32-61-41-860-001

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Prepare the safety-sensitive systems for air mode simulation (TASK 32-09-00-860-801).

SUBTASK 32-61-41-860-002

(4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

## E. Nose Landing Gear Lock Sensor Removal

SUBTASK 32-61-41-020-001

(1) Disconnect the sensor [4] wires:

(a) Disconnect the plug [8] from the connector on the wheel well wall.

(b) Identify the wires in the plug [8] that go to the sensor [4].

1) Put a label on them or make a drawing to refer to during installation.

(c) Use contact insertion / removal, COM-4938, to remove the wires from the plug [8].

(d) Install a protective cap on the plug [8].

(e) Keep the plug [8] safe for the installation.

(f) Attach a string, STD-837, of appropriate length to the sensor [4] wire.

NOTE: The string, STD-837, will be used to pull the wire of the new sensor through the conduit. You can tie the string, STD-837, to the landing gear structure to make sure that the string, STD-837 is not pulled through the conduit.

SUBTASK 32-61-41-020-002

(2) Remove the sensor [4]:

(a) Remove the nuts [3], washers [2], washers [6], bolts [1], which attach the sensor [4] to the mounting bracket.

(b) Remove the sensor [4] from the mounting bracket.

(c) Pull the sensor [4] wires out of the conduit.

1) For system 2 sensor [4], pull the wires through the junction box [7].

2) Make sure that you do not pull the string through the conduit.

(d) Remove the string from the sensor [4] wires.

(e) Remove the sealant from the conduit end.

SUBTASK 32-61-41-210-001

(3) Examine the sensor [4] and adjacent areas for signs of damage.

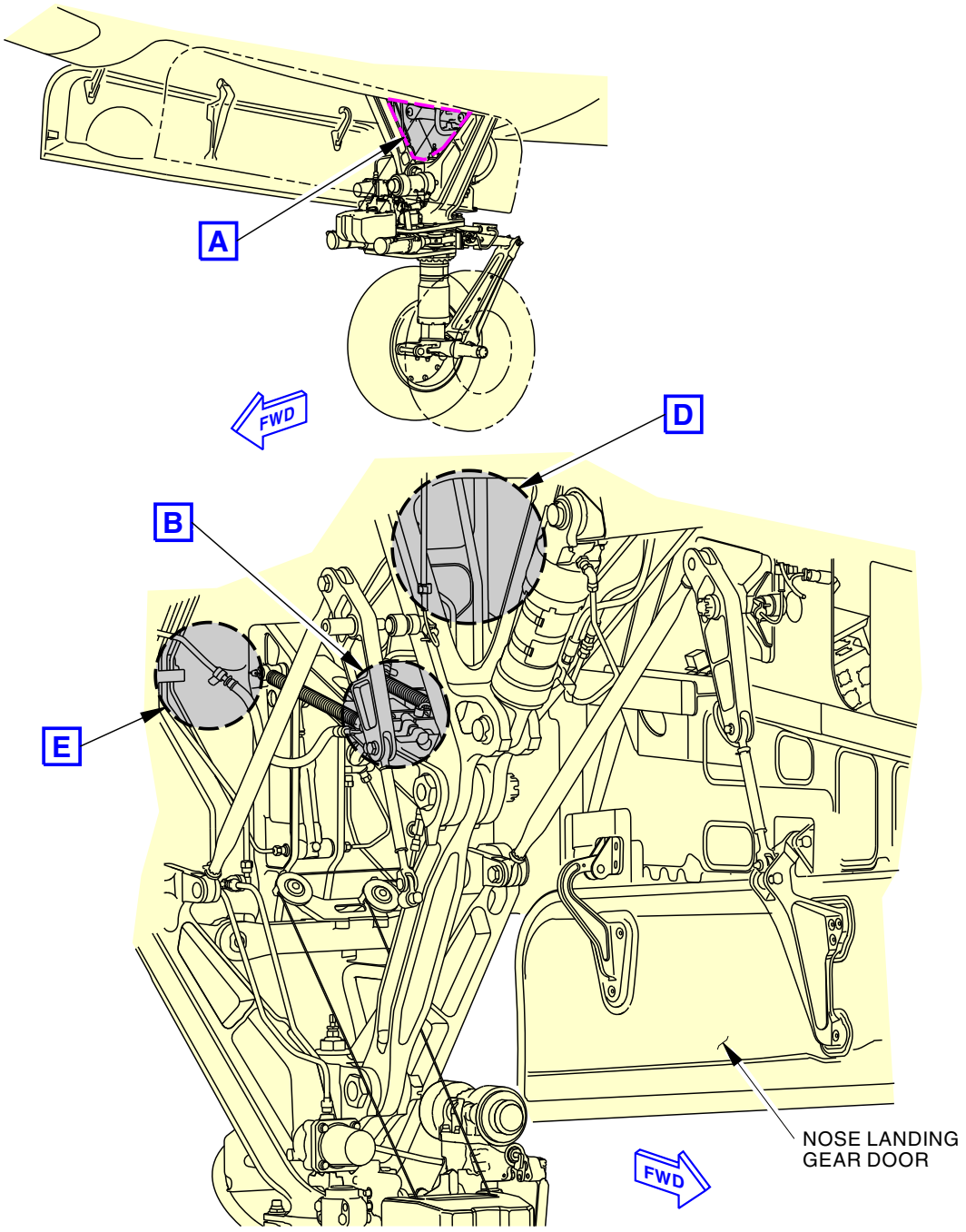
NOTE: Damage to the sensor may be an indication of an incorrect clearance between the sensor and the target.

(a) If you find damage, make a note of the damage for the installation procedure.

END OF TASK



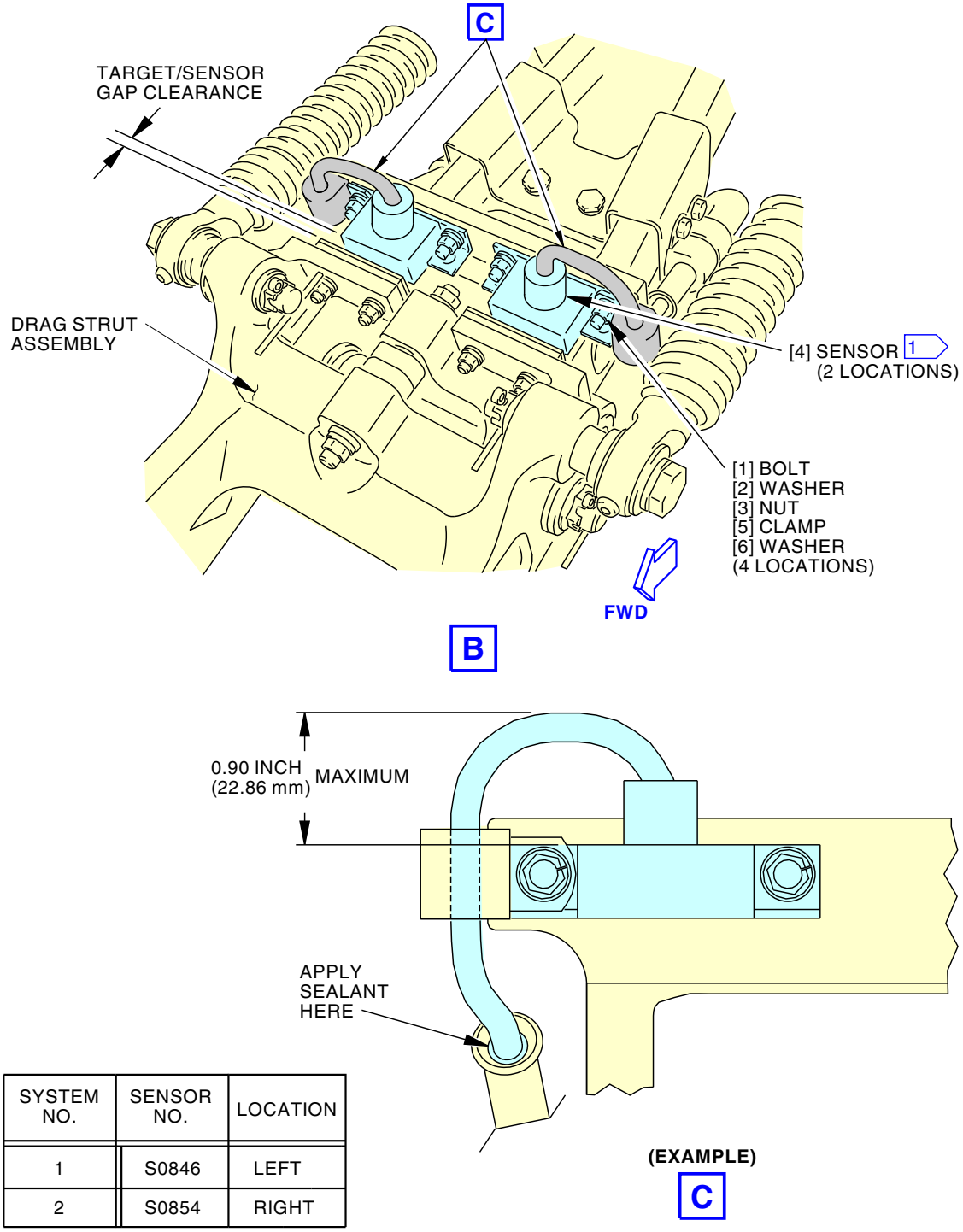
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**Nose Landing Gear Lock Sensor Installation**
**Figure 401/32-61-41-990-801 (Sheet 1 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




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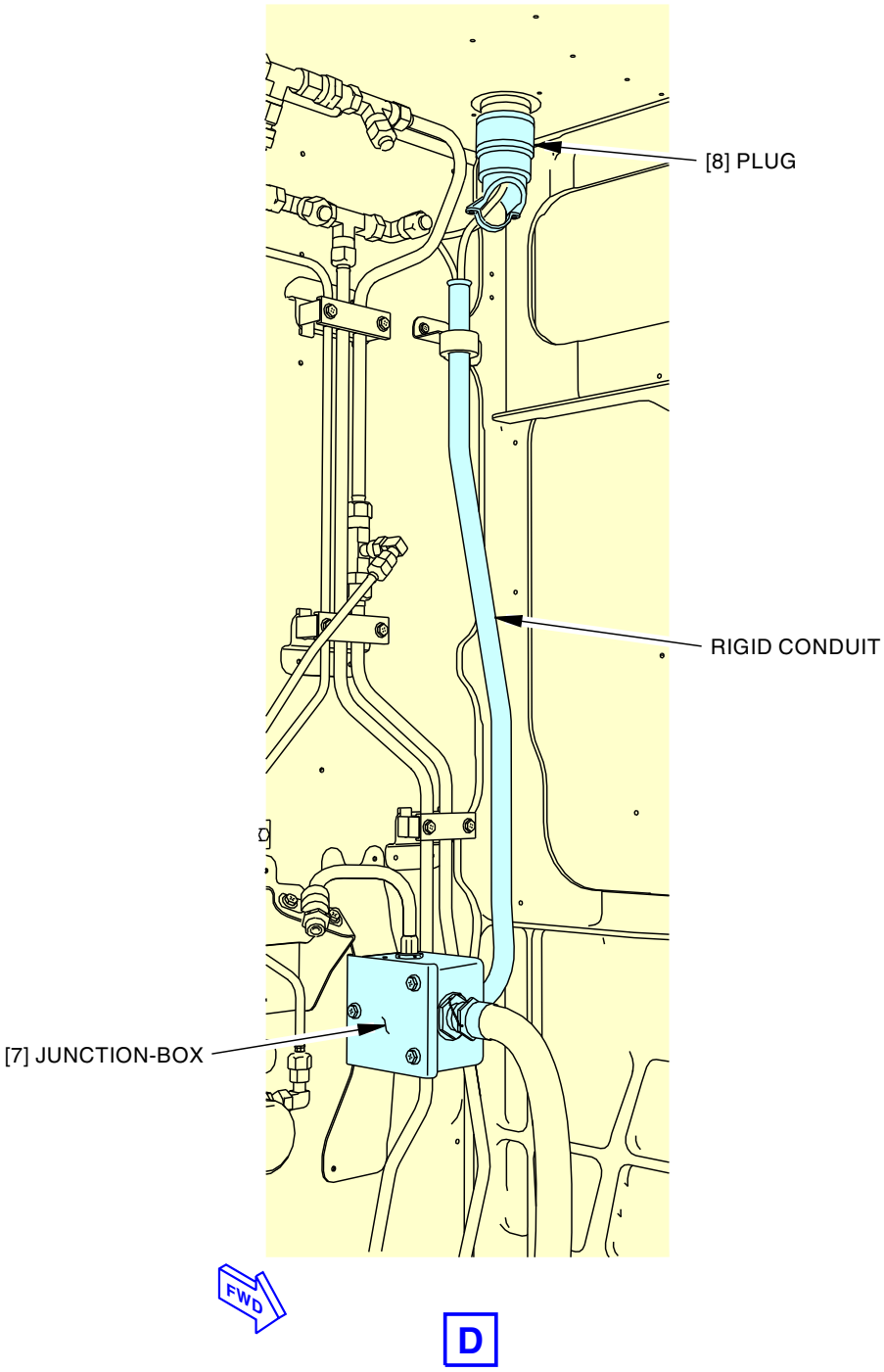
| SYSTEM NO. | SENSOR NO. | LOCATION |
|---|---|---|
| 1 | S0846 | LEFT |
| 2 | S0854 | RIGHT |

2414545 S00061535402_V3

**Nose Landing Gear Lock Sensor Installation**
**Figure 401/32-61-41-990-801 (Sheet 2 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

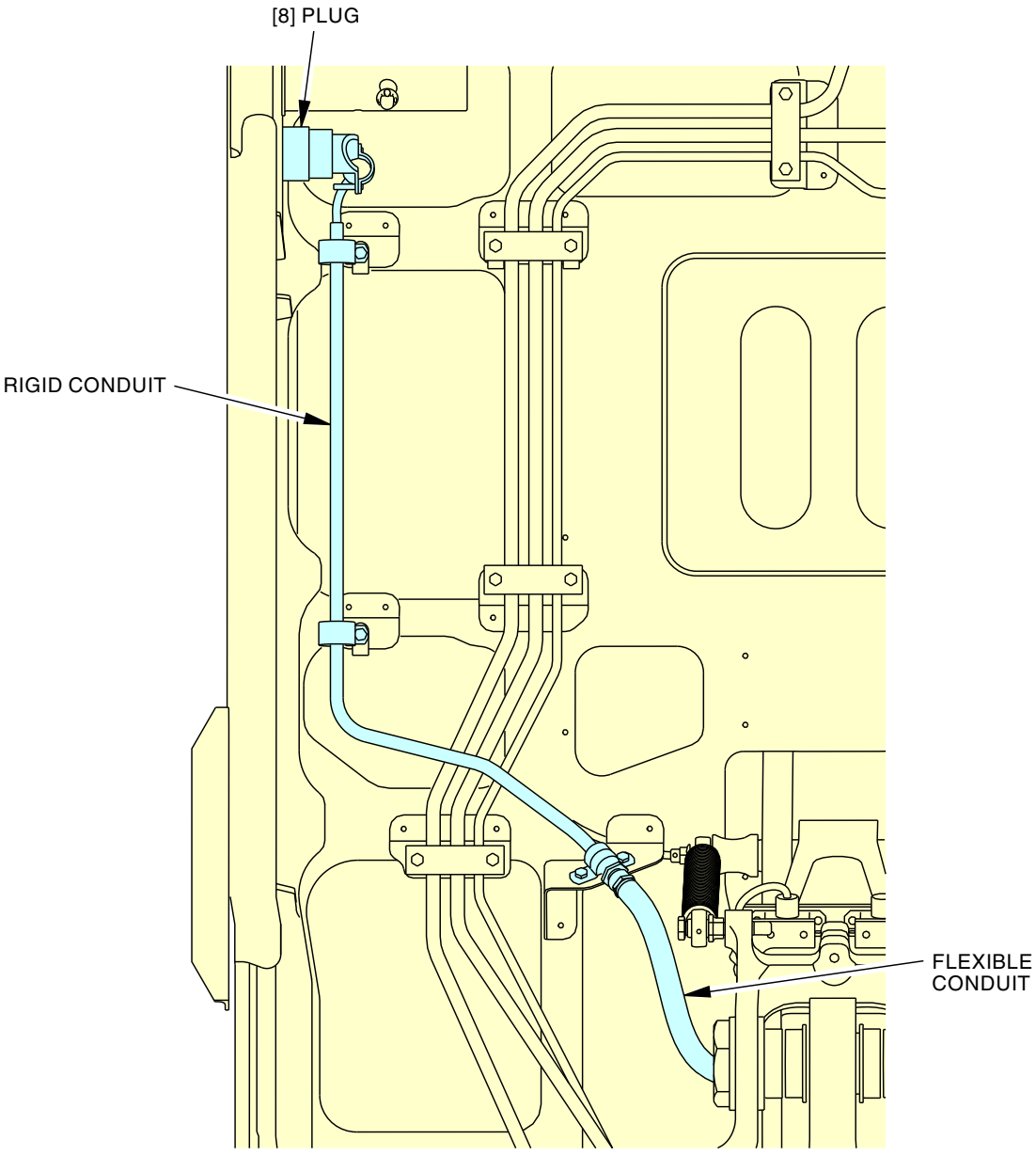



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**Nose Landing Gear Lock Sensor Installation**
**Figure 401/32-61-41-990-801 (Sheet 3 of 4)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**(VIEW IN THE AFT DIRECTION)**

**E**

3031875 S0000802620_V1

**Nose Landing Gear Lock Sensor Installation**
**Figure 401/32-61-41-990-801 (Sheet 4 of 4)**



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**TASK 32-61-41-400-801**

## 3. Nose Landing Gear Lock Sensor Installation

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-840-802 | Return the Airplane Systems Back to Their Normal on Ground Condition (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-61-41-220-801 | Nose Landing Gear Lock Sensor Clearance Measurement (P/B 501) |
| 32-61-41-710-801 | Nose Landing Gear Lock Sensor Operational Test (P/B 501) |
| SWPM 20-83-01/001 | Standard Wiring Practices Manual |

### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-4938 | Insertion/Removal - contact (size 16, backshell side)<br>Part #: M81969/1-03 Supplier: 11139<br>Part #: M81969/14-03 Supplier: 11139 |
| STD-837 | String |

### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00230 | Compound - Electrical Insulating Coating | BMS5-37 |
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

### D. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 4 | Sensor | 32-61-41-01-110 | SIA ALL |

### E. Location Zones

| Zone | Area |
|---|---|
| 731 | Left Main Landing Gear - Outboard Door |
| 741 | Right Main Landing Gear - Outboard Door |

### F. Prepare for the Installation

**SUBTASK 32-61-41-580-002**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).


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SUBTASK 32-61-41-480-003

(2) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-61-41-860-007

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Prepare the safety-sensitive systems for air mode simulation (TASK 32-09-00-860-801).

SUBTASK 32-61-41-860-003

(4) Make sure that these circuit breakers are open and have safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

## G. Nose Landing Gear Lock Sensor Installation

SUBTASK 32-61-41-350-001

(1) Cut the sensor leads to the correct length:

(a) S846 - #1 Nose Landing Gear Lock: 42.5 in. (1.1 m)

(b) S854 - #2 Nose Landing Gear Lock: 37.5 in. (95.3 cm)

SUBTASK 32-61-41-420-001

(2) Attach the contacts to the sensor [4] wires (SWPM 20-83-01/001).

SUBTASK 32-61-41-410-001

(3) Fay seal the bottom of the sensor [4] with sealant, A00247.

SUBTASK 32-61-41-420-002

(4) Install the sensor [4]:

(a) Put the sensor [4] in position on the bracket.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(b) Apply a thin coat of Cor-Ban 27L Compound, G50237 to the thread reliefs, threads, and washer faces.

1) Wipe off the excess.

(c) Install the bolts [1], washers [2], washers [6], and nuts [3].

NOTE: Use Corrosion Resistant Steel (CRES) washers below nuts with titanium sensors [4]. Use cad-plated washers below bolt heads.

SUBTASK 32-61-41-420-003

(5) Attach the sensor [4] wiring to the landing gear structure:

(a) Put the sensor [4] wiring in the clamp [5].

(b) Loosely attach the clamp [5] to the landing gear structure.



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(c) Make sure that the sensor [4] wiring loop is a maximum of 0.9 in. (22.9 mm) as shown in Figure 401.

(d) Tighten the clamp [5].

SUBTASK 32-61-41-410-002

(6) Attach the sensor [4] wires to the airplane:

(a) Attach the string, STD-837, to the sensor wires.

(b) Pull the sensor [4] wires through the conduit.

1) For system 2 sensor [4], pull the wires through the rigid conduit and the junction box [7].

(c) Remove the string, STD-837, from the sensor [4] wires.

(d) Install the sensor [4] contacts into the plug [8]:

1) Remove the protective cap from the plug [8].

2) Use contact insertion / removal, COM-4938, to connect the sensor [4] wires to the plug [8].

a) Use the drawing you made during the removal to connect the correct sensor [4] wire to the correct contact.

(e) Push the plug [8] into the connector on the wheel well wall.

SUBTASK 32-61-41-400-001

(7) If you found damage to the sensor [4] or the adjacent area during the removal procedure, do these steps:

(a) Repair or replace all damaged components or areas.

NOTE: Damage to the sensor, target, or the adjacent areas may be an indication of an incorrect sensor clearance.

(b) Measure the sensor [4] clearance. To measure the clearance, do this task: Nose Landing Gear Lock Sensor Clearance Measurement, TASK 32-61-41-220-801.

## H. Nose Landing Gear Lock Sensor Installation Test

SUBTASK 32-61-41-720-001

(1) Do a post installation check of the nose gear lock sensor [4]:

(a) Do this task: Nose Landing Gear Lock Sensor Clearance Measurement, TASK 32-61-41-220-801.

(b) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

(c) Do this task: Return the Airplane Systems Back to Their Normal on Ground Condition, TASK 32-09-00-840-802.

(d) Do this task: Nose Landing Gear Lock Sensor Operational Test, TASK 32-61-41-710-801.

SUBTASK 32-61-41-390-001

(2) Seal the sensor [4] wires in the conduit end.

(a) Fill the conduit end with compound, A00230.


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(b) Make sure that the sealant enters the conduit so that it is visible through the inspection holes on the conduit.

——— END OF TASK ———



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## NOSE LANDING GEAR LOCK SENSOR - ADJUSTMENT/TEST

### 1. General

A. This procedure has three tasks:

(1) Nose landing gear lock sensor clearance measurement

(2) Nose landing gear lock sensor clearance adjustment

(3) Nose landing gear lock sensor operational test.

B. The installation procedures for the #1 and #2 sensor are similar.

**TASK 32-61-41-220-801**

### 2. Nose Landing Gear Lock Sensor Clearance Measurement

(Figure 501)

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

**B. Location Zones**

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

**C. Prepare for the Measurement**

SUBTASK 32-61-41-580-003

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-61-41-480-005

(2) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

**D. Nose Landing Gear Lock Sensor Clearance Measurement**

SUBTASK 32-61-41-220-001

(1) Measure the clearance between the sensor [6] and target [1] with a feeler gage.

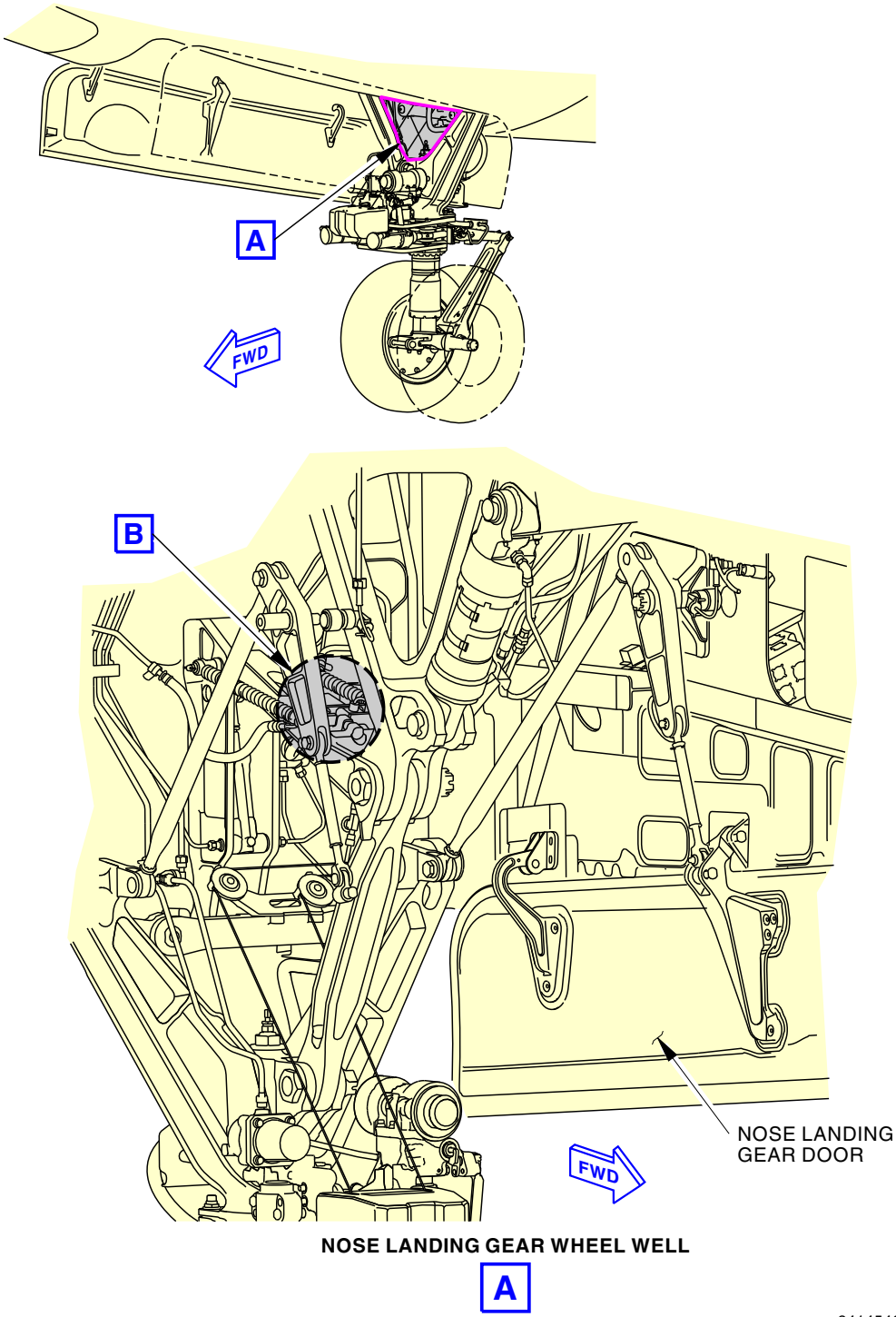
(a) Make a record of the clearance dimension.

SUBTASK 32-61-41-820-001

(2) If the sensor clearance is outside the values shown in Figure 501, do this task: Nose Landing Gear Lock Sensor Clearance Adjustment, TASK 32-61-41-400-802.

**END OF TASK**

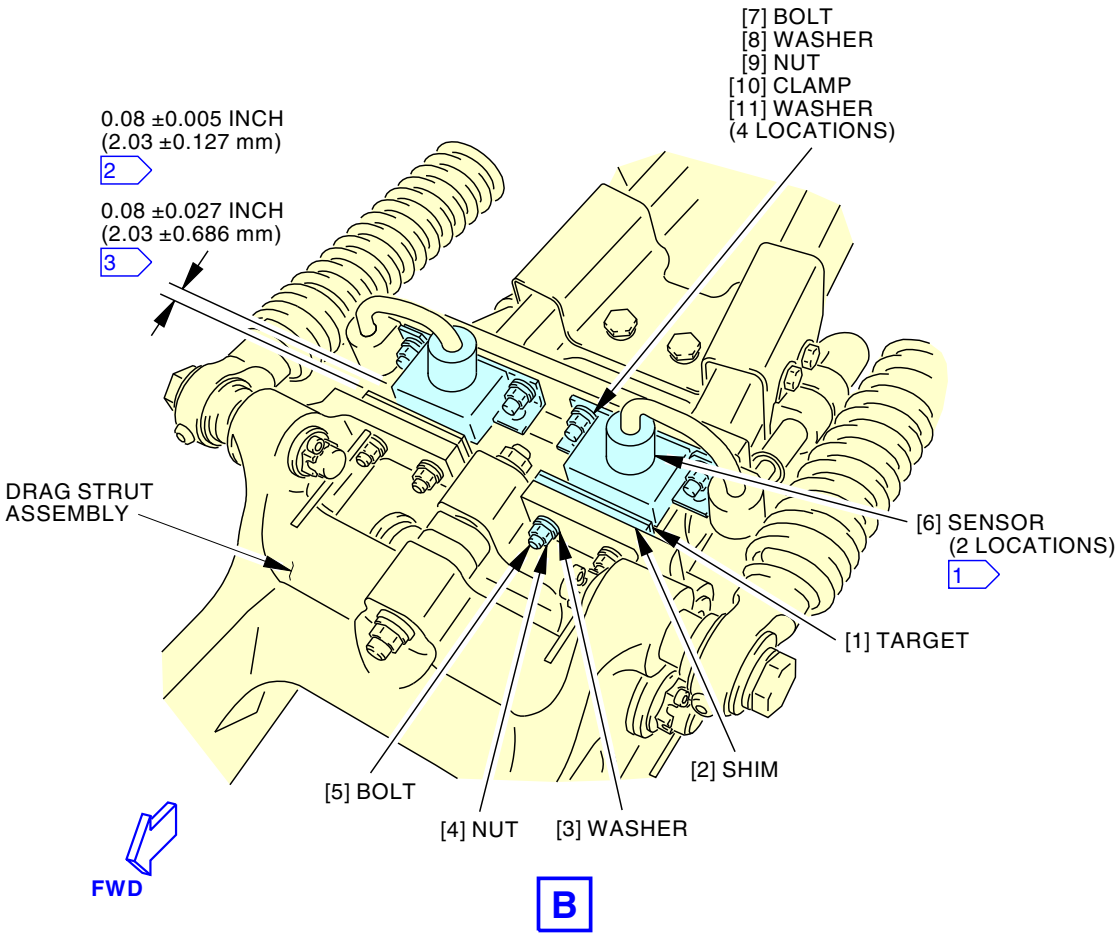

ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Lock Sensor Adjustment**
**Figure 501/32-61-41-990-802 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




1

| SYSTEM NO. | SENSOR NO. | LOCATION | NAME |
|---|---|---|---|
| 1 | S0846 | L | LKD |
| 2 | S0854 | R | LKD |

2 PHYSICAL GAP TOLERANCE

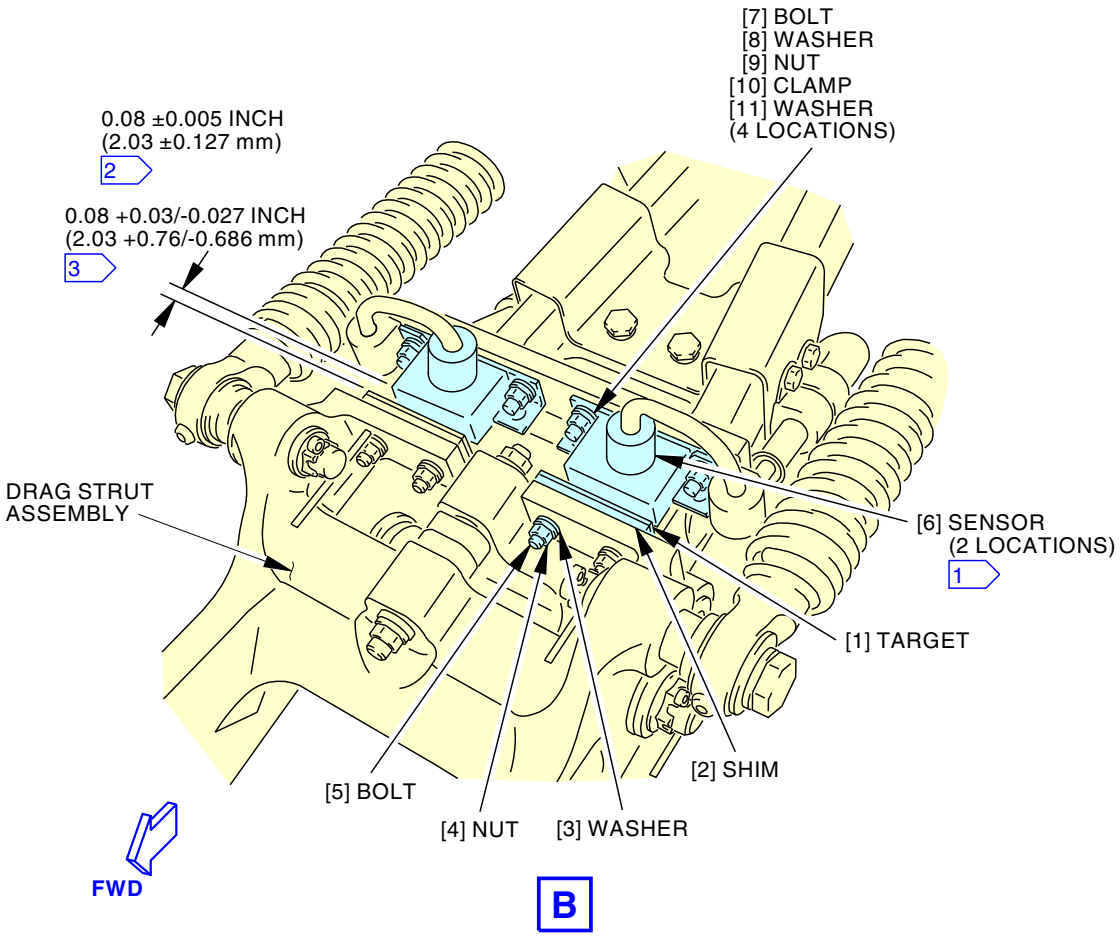
3 PSEU TOLERANCE

2414548 S00061535408_V5

**Nose Landing Gear Lock Sensor Adjustment**
**Figure 501/32-61-41-990-802 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




1

| SYSTEM NO. | SENSOR NO. | LOCATION | NAME |
|---|---|---|---|
| 1 | S0846 | L | LKD |
| 2 | S0854 | R | LKD |

2 PHYSICAL GAP TOLERANCE

3 PSEU TOLERANCE

2972020 S0000750685_V1

**Nose Landing Gear Lock Sensor Adjustment**
**Figure 501/32-61-41-990-802 (Sheet 3 of 3)**



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**TASK 32-61-41-400-802**

## 3. Nose Landing Gear Lock Sensor Clearance Adjustment

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| C00259 | Coating - Chemical And Solvent Resistant Finish, Corrosion Inhibiting Primer | BMS10-11 Type I |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

### C. Location Zones

| Zone | Area |
|---|---|
| 713 | Nose Landing Gear |

### D. Prepare for the Adjustment

SUBTASK 32-61-41-580-004

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-61-41-480-007

(2) Make sure that the chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

### E. Nose Landing Gear Lock Sensor Clearance Adjustment

SUBTASK 32-61-41-020-003

(1) Do these steps to remove the nose landing gear locked sensor [6] from the drag strut:

(a) Remove the bolts [7], washers [8], washers [11], nuts [9], and clamp [10] from the sensor [6].

(b) Move the sensor [6] away from the drag strut.

SUBTASK 32-61-41-020-004

(2) Do these steps to remove the target [1] and shims [2]:

(a) Remove the nuts [4], washers [3], and bolts [5].

(b) Remove the target [1] and shims [2].

SUBTASK 32-61-41-110-001

(3) Clean the shims [2] and mounting surfaces.

SUBTASK 32-61-41-820-002

(4) Do one of the following steps to adjust the shims [2] thickness to get the necessary clearance between the target [1] and sensor [6] (Figure 501):



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(a) Remove the laminations from the existing shims [2].

(b) Apply the new additional shims [2].

1) If it is necessary, remove the laminations from the new shims [2].

(c) Replace the existing shims [2] with the new shims [2].

1) If it is necessary, remove the laminations from the new shims [2].

SUBTASK 32-61-41-620-001

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(5) Apply thin coat of Cor-Ban 27L Compound, G50237, to the thread reliefs, threads, and washer faces.

(a) Wipe off the excess.

SUBTASK 32-61-41-420-004

(6) Do these steps to assemble the target:

(a) Position the shims [2] and target [1] on the mounting bracket.

(b) Install the bolts [5], nuts [4], and washers [3].

SUBTASK 32-61-41-410-003

(7) Fay seal the bottom of the sensor [6] with sealant, A00247.

SUBTASK 32-61-41-420-005

(8) Do these steps to re-install the sensor [6]:

(a) Position the sensor [6] on the mounting bracket.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(b) Apply thin coat of Cor-Ban 27L Compound, G50237, to the thread reliefs, threads, and washer faces.

1) Wipe off the excess.

(c) Attach the sensor to the drag strut with the bolts [7], washers [8], washers [11], nuts [9], and clamp [10] attaching hardware.

NOTE: Use CRES washers below nuts with titanium sensors. Use cad-plated washers below bolt heads.

SUBTASK 32-61-41-220-002

(9) Measure the sensor clearance (TASK 32-61-41-220-801).

(a) Make sure that the clearance is correct (Figure 501).

1) If the sensor clearance is not correct, then do the steps to adjust the sensor clearance again.



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SUBTASK 32-61-41-390-002

(10) Do these steps to seal the shims [2] stack:

(a) Clean the shims [2].

(b) Brush primer, C00259, on the shims [2] surfaces.

(c) Apply sealant, A00247, to the shims [2] surfaces.

——— END OF TASK ———

TASK 32-61-41-710-801

## 4. Nose Landing Gear Lock Sensor Operational Test

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### C. Prepare for the Operational Test

SUBTASK 32-61-41-580-005

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-61-41-480-009

(2) Make sure chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

### D. Nose Landing Gear Lock Sensor Operational Test

SUBTASK 32-61-41-740-001

(1) Use the Multi Function Display to test the Nose Landing Gear Lock Sensor.

(a) Set the GND TESTS Switch on the P61-4 panel to Enable position.

(b) Select SYS on the MFD Multi Function Display panel.

(c) Do these steps to start the test:

1) Select MAINT

2) Select MAINT DATA PGS

3) Select 32 PSEU DISPLAY

(d) Make sure the MFD shows the sensor name and rigging gap.

NOTE: See the table in Figure 501 for the sensor identification and location.



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(e) Make sure the MFD shows the sensor clearance or the acceptable rigging gap range within tolerance.

NOTE: For a description of the sensor clearance display, see Figure 501.

NOTE: 1 MIL equals 1/1000th of an inch.

(f) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Nose Landing Gear Lock Sensor Clearance Adjustment, TASK 32-61-41-400-802.

## E. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-61-41-860-005**

(1) Set the GND TESTS switch on the P61-4 Panel to the NORM position.

**——— END OF TASK ———**



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## NOSE LANDING GEAR DOWN POSITION SENSOR - REMOVAL/INSTALLATION

### 1. General

A. This procedure has two tasks:

(1) Nose landing gear down position sensor removal

(2) Nose landing gear down position sensor installation.

B. The installation procedures for the #1 and #2 sensor are similar.

**TASK 32-61-51-020-801**

### 2. Nose Landing Gear Down Position Sensor Removal

(Figure 401)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |

#### B. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-4938 | Insertion/Removal - contact (size 16, backshell side)<br>Part #: M81969/1-03 Supplier: 11139<br>Part #: M81969/14-03 Supplier: 11139 |
| STD-837 | String |

#### C. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 713 | Nose Landing Gear |

#### D. Access Panels

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

#### E. Prepare for the Removal

**SUBTASK 32-61-51-580-001**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).



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SUBTASK 32-61-51-480-002

(2) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-61-51-860-006

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Prepare the safety-sensitive systems for air mode simulation (TASK 32-09-00-860-801).

SUBTASK 32-61-51-860-001

(4) Open these circuit breakers and install safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

SUBTASK 32-61-51-010-002

(5) To get access to the plug, open these access panels:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

## F. Nose Landing Gear Down Position Sensor Removal

SUBTASK 32-61-51-020-001

(1) Disconnect the sensor wires:

(a) Disconnect the plug [7] from the connector on the outer side of the pressure seal [6].

(b) Identify the wires in the plug [7] that go to the nose landing gear down sensors.

1) Put a label on them or make a drawing to refer to during installation.

(c) Use contact insertion / removal, COM-4938, to remove the wires from the plug [7].

(d) Install a protective cap on the plug.

(e) Keep the plug safe for the installation.

(f) Attach a string, STD-837, of appropriate length to the sensor wire.

NOTE: The string, STD-837, will be used to pull the wire of the new sensor through the conduit. You can tie the string, STD-837, to the landing gear structure to make sure that the string, STD-837, is not pulled through the conduit.

SUBTASK 32-61-51-020-002

(2) Remove the sensor [5]:

(a) Remove the bolts [1], washers [2], washers [4], and nuts [3] that hold the sensor [5] to the mounting bracket.

(b) Remove the sensor [5] from the bracket.

(c) Pull the sensor [5] wires out of the conduit.

(d) Make sure that you do not pull the string, STD-837, through the conduit.

(e) Remove the string, STD-837, from the sensor [5].



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SUBTASK 32-61-51-210-001

(3) Examine the sensor [5] and adjacent areas for signs of damage.

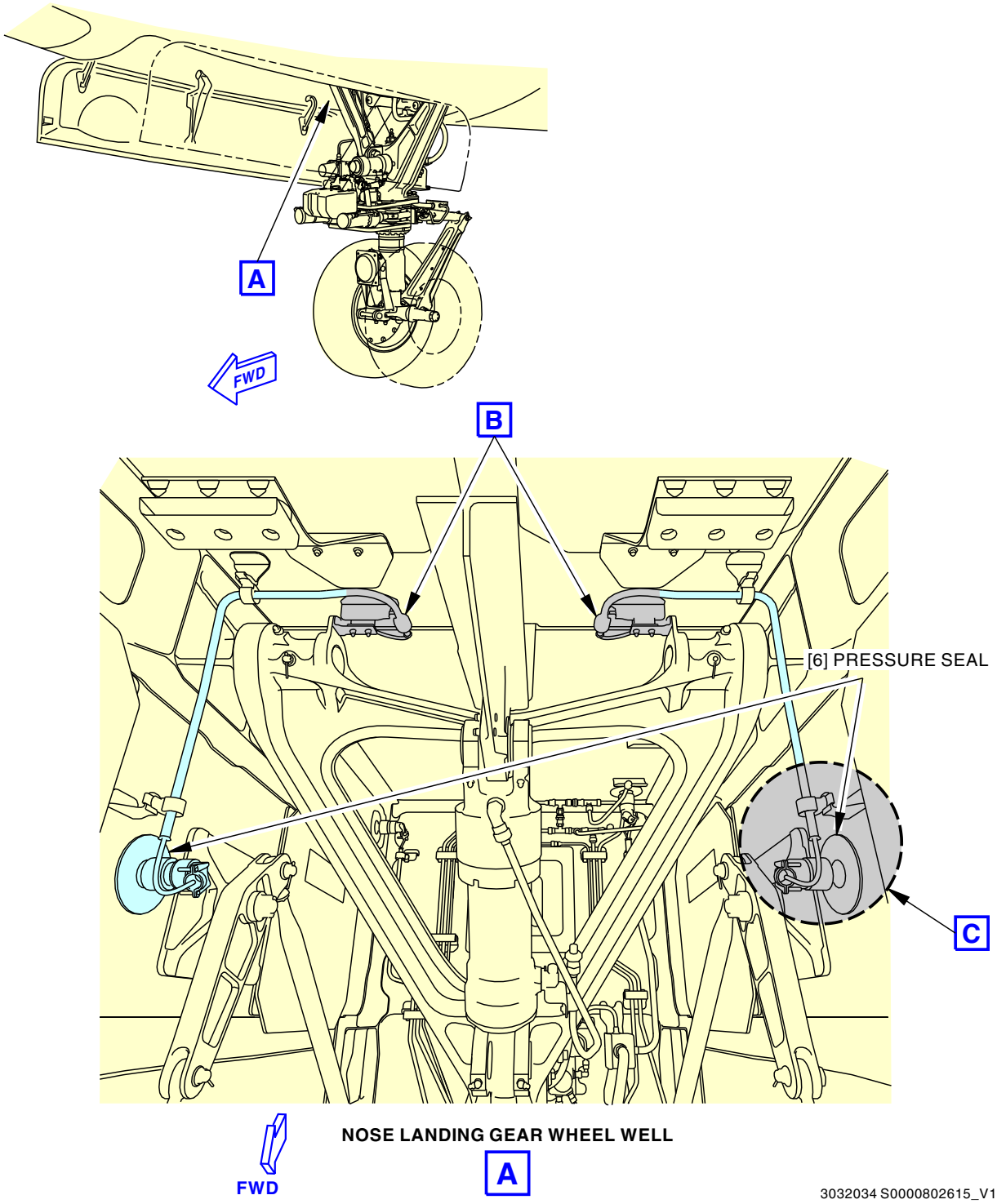
NOTE: Damage to the sensor can be an indication of an incorrect clearance between the sensor and the target.

(a) If you find damage, make a note of the damage for the installation procedure.

——— END OF TASK ———



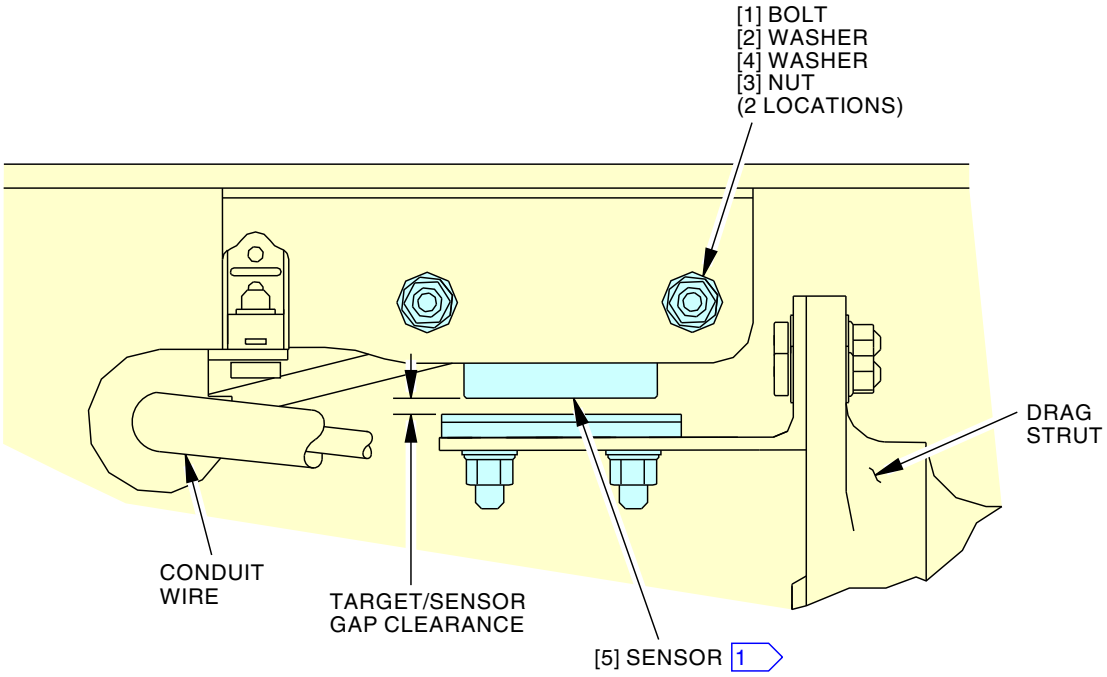
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Down Sensor Installation**
**Figure 401/32-61-51-990-801 (Sheet 1 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**(EXAMPLE)**

**B**

1

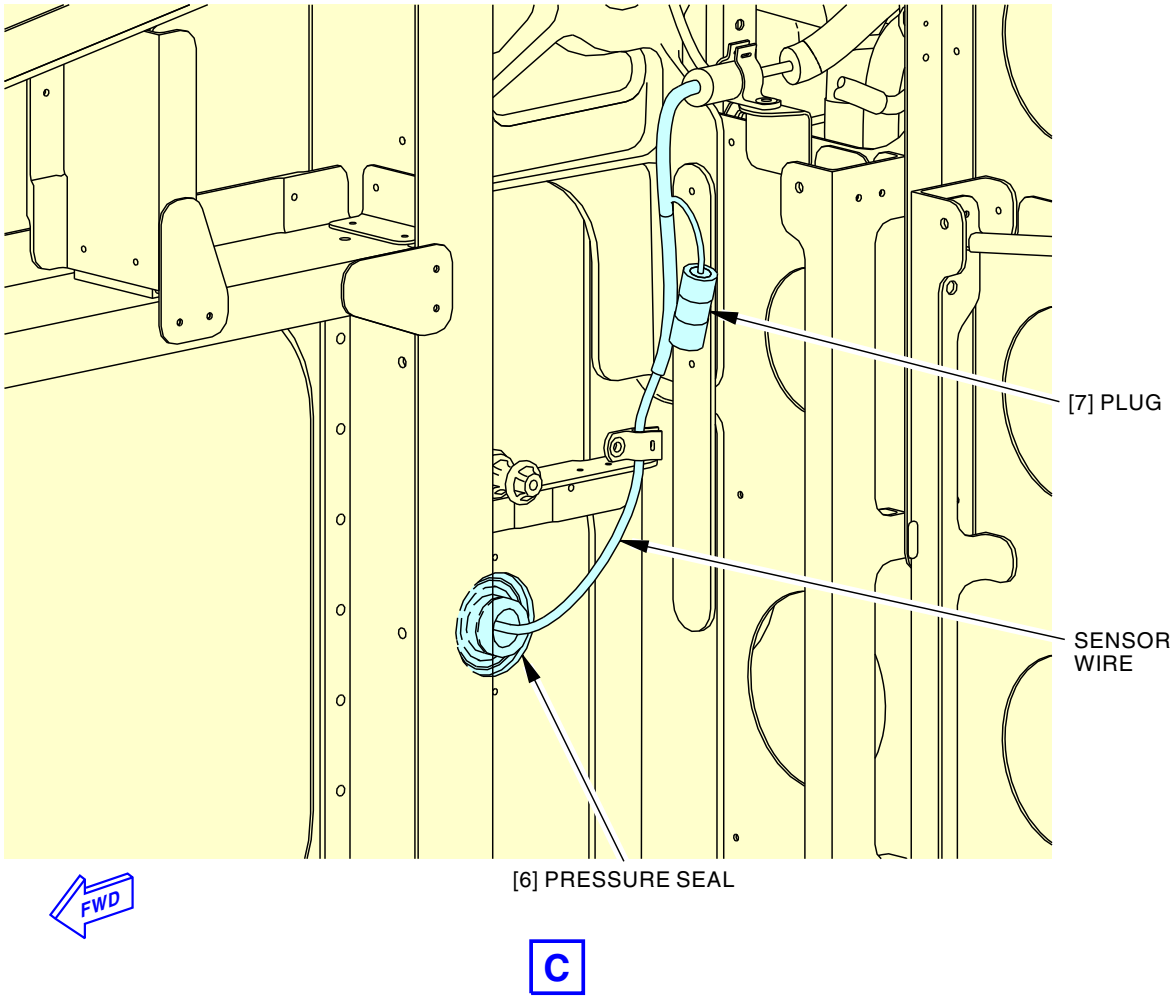
| SYSTEM NO. | SENSOR NO. | LOCATION |
|---|---|---|
| 1 | S0845 | L |
| 2 | S0853 | R |

2414551 S00061535416_V4

**Nose Landing Gear Down Sensor Installation**
**Figure 401/32-61-51-990-801 (Sheet 2 of 3)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




3043678 S0000810664_V1

**Nose Landing Gear Down Sensor Installation**
**Figure 401/32-61-51-990-801 (Sheet 3 of 3)**



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**TASK 32-61-51-400-801**

**3. Nose Landing Gear Down Position Sensor Installation**

(Figure 401)

**A. References**

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-09-00-860-801 | Put the Airplane in the Air Mode (P/B 201) |
| 32-61-51-220-801 | Nose Landing Gear Down Position Sensor Clearance Measurement (P/B 501) |
| 32-61-51-710-801 | Nose Landing Gear Down Position Sensor Operational Test (P/B 501) |
| SWPM 20-10-20 | Standard Wiring Practices Manual |
| SWPM 20-83-01/001 | Standard Wiring Practices Manual |

**B. Tools/Equipment**

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

| Reference | Description |
|---|---|
| COM-4938 | Insertion/Removal - contact (size 16, backshell side)<br>Part #: M81969/1-03 Supplier: 11139<br>Part #: M81969/14-03 Supplier: 11139 |
| STD-837 | String |

**C. Consumable Materials**

| Reference | Description | Specification |
|---|---|---|
| A00230 | Compound - Electrical Insulating Coating | BMS5-37 |
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

**D. Expendables/Parts**

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 5 | Sensor | 32-61-51-01-005 | SIA ALL |

**E. Location Zones**

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 710 | Subzone - Landing Gear: Nose Landing Gear and Landing Gear Doors |
| 713 | Nose Landing Gear |

**F. Access Panels**

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |



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## G. Prepare for the Installation

SUBTASK 32-61-51-580-002

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-61-51-480-004

(2) Make sure that chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

SUBTASK 32-61-51-860-007

**WARNING** OBEY THE PROCEDURE THAT PUTS THE AIRPLANE IN THE AIR MODE. IF YOU DO THE PROCEDURE INCORRECTLY, INJURIES TO PERSONNEL, AND DAMAGE TO EQUIPMENT CAN OCCUR.

(3) Prepare the safety-sensitive systems for air mode simulation (TASK 32-09-00-860-801).

SUBTASK 32-61-51-860-002

(4) Make sure that these circuit breakers are open and have safety tags:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

## H. Nose Landing Gear Down Position Sensor Installation

SUBTASK 32-61-51-410-001

(1) Apply a fay seal to the bottom of the sensor [5] with sealant, A00247.

SUBTASK 32-61-51-420-001

(2) Attach the sensor [5] to the mounting bracket:

(a) Put the sensor [5] in its position on the mounting bracket.

**WARNING** USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(b) Apply a thin coat of Cor-Ban 27L Compound, G50237 to the thread reliefs, threads, and washer faces.

1) Remove all excess material.

(c) Install the washers [2], washers [4], nuts [3], and bolts [1].

NOTE: Use Corrosion Resistant Steel (CRES) washers below bolt heads with titanium sensor.

SUBTASK 32-61-51-410-002

(3) Attach the sensor [5] wires to the airplane:



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(a) Attach the string, STD-837, to the sensor wires.

(b) Pull the wires through the conduit and the pressure seal [6].

(c) Remove the string, STD-837, from the sensor [5] wires.

SUBTASK 32-61-51-350-001

(4) Cut the sensor [5] wires to the correct length.

SUBTASK 32-61-51-420-002

(5) Attach the contacts to the sensor [5] wires (SWPM 20-83-01/001).

SUBTASK 32-61-51-420-003

(6) Install the sensor contacts into the plug [7].

(a) Remove the protective cap from the plug [7].

(b) Use contact insertion / removal, COM-4938, to connect the sensor wire to the plug [7].

1) Use the drawing you made during the removal to connect the correct wires to the contacts.

(c) Push the plug [7] from the sensor wire into the connector on the other side of the pressure seal [6].

SUBTASK 32-61-51-410-007

(7) If necessary, apply the pressure seal [6] again (SWPM 20-10-20).

SUBTASK 32-61-51-400-001

(8) If you found damage to the sensor [5] or the adjacent area during the removal procedure, do these steps:

(a) Repair or replace all damaged components or areas.

NOTE: Damage to the sensor, target, or adjacent areas can be an indication of an incorrect sensor clearance.

(b) Measure the sensor [5] clearance. To measure the clearance, do this task: Nose Landing Gear Down Position Sensor Clearance Measurement, TASK 32-61-51-220-801.

## I. Nose Landing Gear Down Position Sensor Installation Test

SUBTASK 32-61-51-410-008

(1) Close these access panels:

| Number | Name/Location |
|---|---|
| 113AW | Forward Nose Wheel Well Panel |
| 114AW | Forward Nose Wheel Well Panel |

SUBTASK 32-61-51-720-001

(2) Do a post installation check of the nose landing gear down position sensor:

(a) Do this task: Nose Landing Gear Down Position Sensor Clearance Measurement, TASK 32-61-51-220-801.

(b) Remove the safety tags and close these circuit breakers:

**F/O Electrical System Panel, P6-3**

| Row | Col | Number | Name |
|---|---|---|---|
| D | 1 | C01399 | PSEU PRI |
| D | 2 | C01400 | PSEU ALTN |

(c) Do this task: Nose Landing Gear Down Position Sensor Operational Test, TASK 32-61-51-710-801.



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SUBTASK 32-61-51-390-002

(3) Seal the sensor wires in the conduit end.

(a) Fill the conduit end with compound, A00230.

(b) Make sure that the sealant enters the conduit so that it is visible through the inspection holes on the conduit.

——— END OF TASK ———



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## NOSE LANDING GEAR DOWN POSITION SENSOR - ADJUSTMENT/TEST

### 1. General

A. This procedure has three tasks:

(1) Nose landing gear down position sensor clearance measurement

(2) Nose landing gear down position sensor clearance adjustment

(3) Nose landing gear down position sensor operational test.

B. The procedures for both installations are similar.

**TASK 32-61-51-220-801**

### 2. Nose Landing Gear Down Position Sensor Clearance Measurement

(Figure 501)

#### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

#### B. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 713 | Nose Landing Gear |

#### C. Prepare for the Clearance Measurement

**SUBTASK 32-61-51-480-013**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-51-480-006**

(2) Make sure chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

#### D. Measure the Nose Landing Gear Down Position Sensor Clearance Measurement

**SUBTASK 32-61-51-220-001**

(1) Measure the clearance between the sensor and target.

**SUBTASK 32-61-51-820-001**

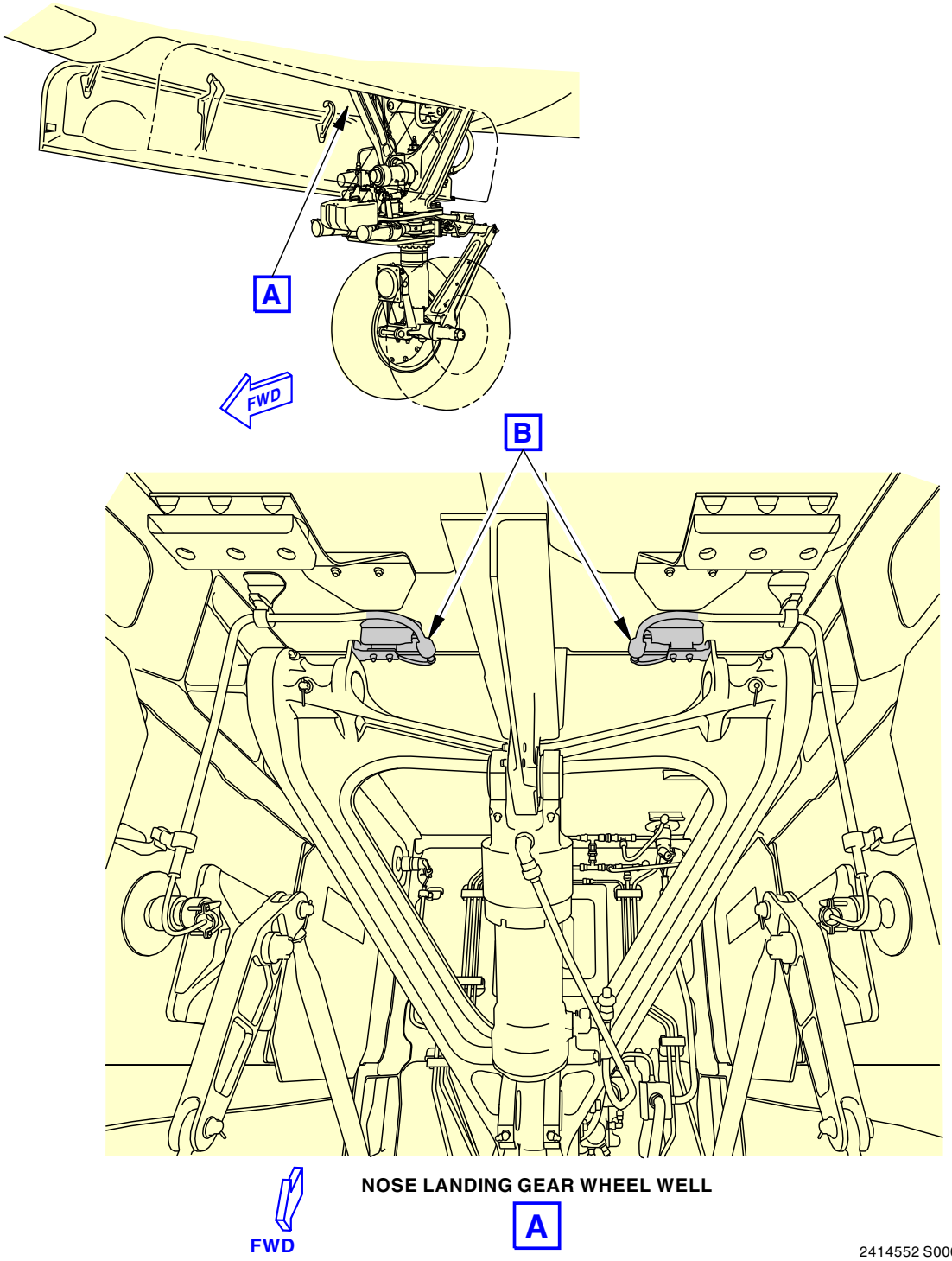
(2) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Nose Landing Gear Down Position Sensor Clearance Adjustment, TASK 32-61-51-400-802.

(a) Make a written record of the measured clearance so you will know what adjustments must be made.

**END OF TASK**



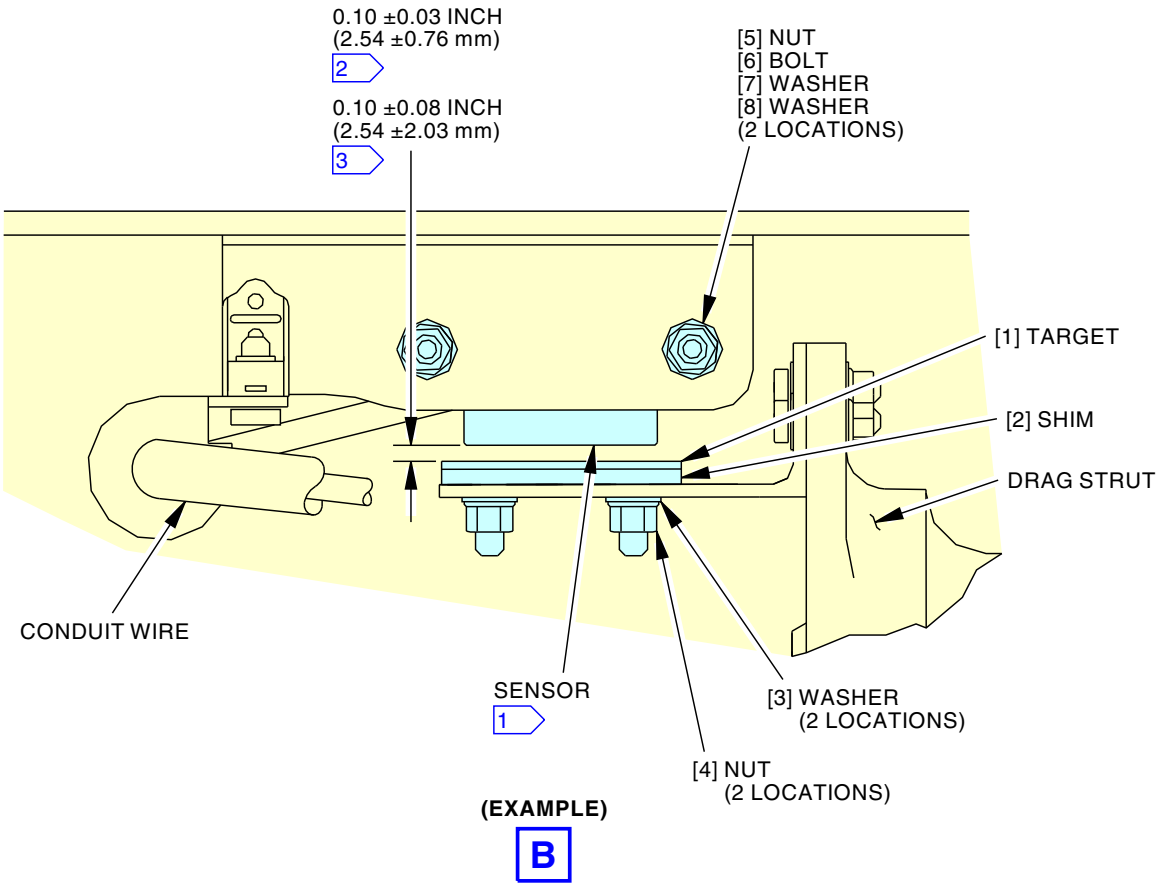
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Nose Landing Gear Down Position Sensor Adjustment**
**Figure 501/32-61-51-990-802 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




1

| SYSTEM NO. | SENSOR NO. | LOCATION | NAME |
|---|---|---|---|
| 1 | S0845 | L | DN |
| 2 | S0853 | R | DN |

2 PHYSICAL GAP TOLERANCE

3 PSEU TOLERANCE

2414554 S00061535422_V4

**Nose Landing Gear Down Position Sensor Adjustment**
**Figure 501/32-61-51-990-802 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-61-51-400-802**

## 3. Nose Landing Gear Down Position Sensor Clearance Adjustment

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

### C. Location Zones

| Zone | Area |
|---|---|
| 115 | Nose Landing Gear Wheel Well - Left |
| 116 | Nose Landing Gear Wheel Well - Right |
| 713 | Nose Landing Gear |

### D. Prepare for the Adjustment

SUBTASK 32-61-51-480-012

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-61-51-480-008

(2) Make sure that chocks are installed at the wheels (CHOCK INSTALLATION, PAGEBLOCK 10-11-05/201).

### E. Nose Landing Gear Down Position Sensor Clearance Adjustment

SUBTASK 32-61-51-010-001

(1) To loosen the sensor from the mounting bracket, remove the nuts [5], bolts [6], washers [7], and washers [8].

SUBTASK 32-61-51-020-003

(2) Remove the nuts [4] and washers [3].

SUBTASK 32-61-51-020-004

(3) Remove the target [1] and shims [2].

SUBTASK 32-61-51-110-001

(4) Clean the shims and mounting surfaces.

SUBTASK 32-61-51-820-002

(5) Adjust the shims [2] thickness as required to get the necessary sensor to target clearance, do one of the steps that follow:

(a) Remove the laminations from the existing shims [2].



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(b) Apply additional shims [2].

1) If it is necessary, remove the laminations from the new shims [2].

(c) Replace the existing shims [2] with the new shims [2] and adjust the thickness.

1) If it is necessary, remove the laminations from the new shims [2].

SUBTASK 32-61-51-620-001

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(6) Apply a thin coat of Cor-Ban 27L Compound, G50237, to the thread reliefs, threads, and washer faces.

(a) Wipe off the excess of compound.

SUBTASK 32-61-51-420-004

(7) Assemble the target assembly.

(a) Position the shims [2] and target [1] on the mounting bracket.

(b) Install the nuts [4] and washers [3].

SUBTASK 32-61-51-410-005

(8) Fay seal the bottom of the sensor with sealant, A00247.

SUBTASK 32-61-51-410-006

(9) Attach the sensor to the mounting bracket.

(a) Put the sensor in its position on the mounting bracket.

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION WHEN YOU USE COR-BAN 27L, G50237. IF IT GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER. GET MEDICAL AID. THIS MATERIAL CONTAINS FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(b) Apply a thin coat of Cor-Ban 27L Compound, G50237, to the thread reliefs, threads, and washer faces.

1) Wipe off the excess of compound.

(c) Install the washers [7], washers [8], nuts [5], and bolts [6].

NOTE: Use CRES washers below bolt heads with titanium sensors. Use cad-plated washers below nuts.

SUBTASK 32-61-51-220-002

(10) Measure the sensor clearance and compare to the requirement (TASK 32-61-51-220-801).

(a) If the sensor clearance is not correct, do the steps to adjust the sensor clearance again.

SUBTASK 32-61-51-390-001

(11) Seal the shim stack.

(a) Clean the shims.

(b) Apply sealant, A00247, to the shim surfaces.

**END OF TASK**



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**TASK 32-61-51-710-801**

## 4. Nose Landing Gear Down Position Sensor Operational Test

(Figure 501)

### A. References

| Reference | Title |
|---|---|
| 10-11-05 P/B 201 | CHOCK INSTALLATION |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### B. Location Zones

| Zone | Area |
|---|---|
| 211 | Flight Compartment - Left |
| 212 | Flight Compartment - Right |

### C. Prepare for the Operational Test

**SUBTASK 32-61-51-480-011**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-61-51-480-010**

(2) Make sure chocks are installed at the wheels (PAGEBLOCK 10-11-05/201).

### D. Nose Landing Gear Down Position Sensor Operational Test

**SUBTASK 32-61-51-740-001**

(1) Use the Multi Function Display to test the Nose Landing Gear Down Position Sensor.

(a) Set the GND TESTS Switch on the P61-4 panel to Enable position.

(b) Select SYS on the MFD Multi Function Display panel.

(c) Do these steps to start the test:

1) Select MAINT

2) Select MAINT DATA PGS

3) Select 32 PSEU DISPLAY

(d) Make sure the MFD shows the sensor name and rigging gap.

NOTE: See the table in Figure 501 for the sensor identification and location.

(e) Make sure the MFD shows the sensor clearance or the acceptable rigging gap range within tolerance.

NOTE: For a description of the sensor clearance display, see Figure 501.

NOTE: 1 MIL equals 1/1000th of an inch.

(f) If the sensor clearance is outside the tolerance shown in Figure 501, do this task: Nose Landing Gear Down Position Sensor Clearance Adjustment, TASK 32-61-51-400-802.



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### E. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-61-51-860-004**

(1) Set the GND TESTS switch on the P61-4 Panel to the NORM position.

**——— END OF TASK ———**



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## TAILSKID ASSEMBLY - MAINTENANCE PRACTICES

### 1. General

A. This procedure has these tasks:

(1) Tailskid Energy Absorber Cartridge Replacement

(2) Tailskid Shoe Replacement

(3) Tailskid Warning Decal Replacement.

**TASK 32-71-00-960-801**

### 2. Tailskid Energy Absorber Cartridge Replacement

(Figure 201)

#### A. General

(1) This procedure has steps to replace the tailskid energy absorber cartridge.

#### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-71-00-000-803 | Tailskid Cartridge Assembly Removal (P/B 401) |
| 32-71-00-400-803 | Tailskid Cartridge Assembly Installation (P/B 401) |
| SRM 51-40-04 | TORQUE VALUES |

#### C. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G50237 | Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L | BMS3-38 |

#### D. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

#### E. Prepare for the Tailskid Energy Absorber Cartridge Replacement

**SUBTASK 32-71-00-480-004**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-71-00-020-014**

(2) Remove the tailskid cartridge assembly, do this task: Tailskid Cartridge Assembly Removal, TASK 32-71-00-000-803.

#### F. Tail Skid Energy Absorber Cartridge Replacement

**SUBTASK 32-71-00-020-002**

(1) Do these steps to remove the energy absorber cartridge [3]:

(a) Remove the bolts [41], washers [42], and nuts [43] that hold the lower end fitting cartridge [5] to the energy absorber cartridge [3].



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(b) Remove the lower end fitting cartridge [5] from the energy absorber cartridge [3].

(c) Remove the bolts [41], washers [42], and nuts [43] that hold the upper end fitting cartridge [6] to the energy absorber cartridge [3].

(d) Remove the upper end fitting cartridge [6] from the energy absorber cartridge [3].

(e) Discard the energy absorber cartridge [3].

**SUBTASK 32-71-00-210-001**

**CAUTION**

DO NOT USE DAMAGED TAIL SKID PARTS. DAMAGE TO THE AIRCRAFT CAN OCCUR.

(2) Do these steps to visually inspect the lower end fitting cartridge [5] and upper end fitting cartridge [6]:

(a) Inspect the lower end fitting cartridge [5], upper end fitting cartridge [6], and upper and lower spherical bearings for damage or excessive wear.

(b) Install the lower end fitting cartridge [5] onto the upper end fitting cartridge [6].

1) Make sure that the two move freely.

**SUBTASK 32-71-00-420-001**

(3) Do these steps to install the new energy absorber cartridge [3]:

(a) Make sure to assemble the upper end fitting cartridge [6] to a new energy absorber cartridge [3].

1) Install bolts [41], washers [42], and nuts [43] wet with Cor-Ban 27L Compound, G50237 and tighten to 24.0 in-lb (2.7 N·m) - 26.0 in-lb (2.9 N·m) per SRM SUBJECT 51-40-04.

(b) Make sure to assemble the lower end fitting cartridge [5] to a new energy absorber cartridge [3].

1) Install bolts [41], washers [42], and nuts [43] wet with Cor-Ban 27L Compound, G50237 and tighten to 24.0 in-lb (2.7 N·m) - 26.0 in-lb (2.9 N·m) per SRM SUBJECT 51-40-04.

## G. Put the Airplane Back to Its Usual Condition

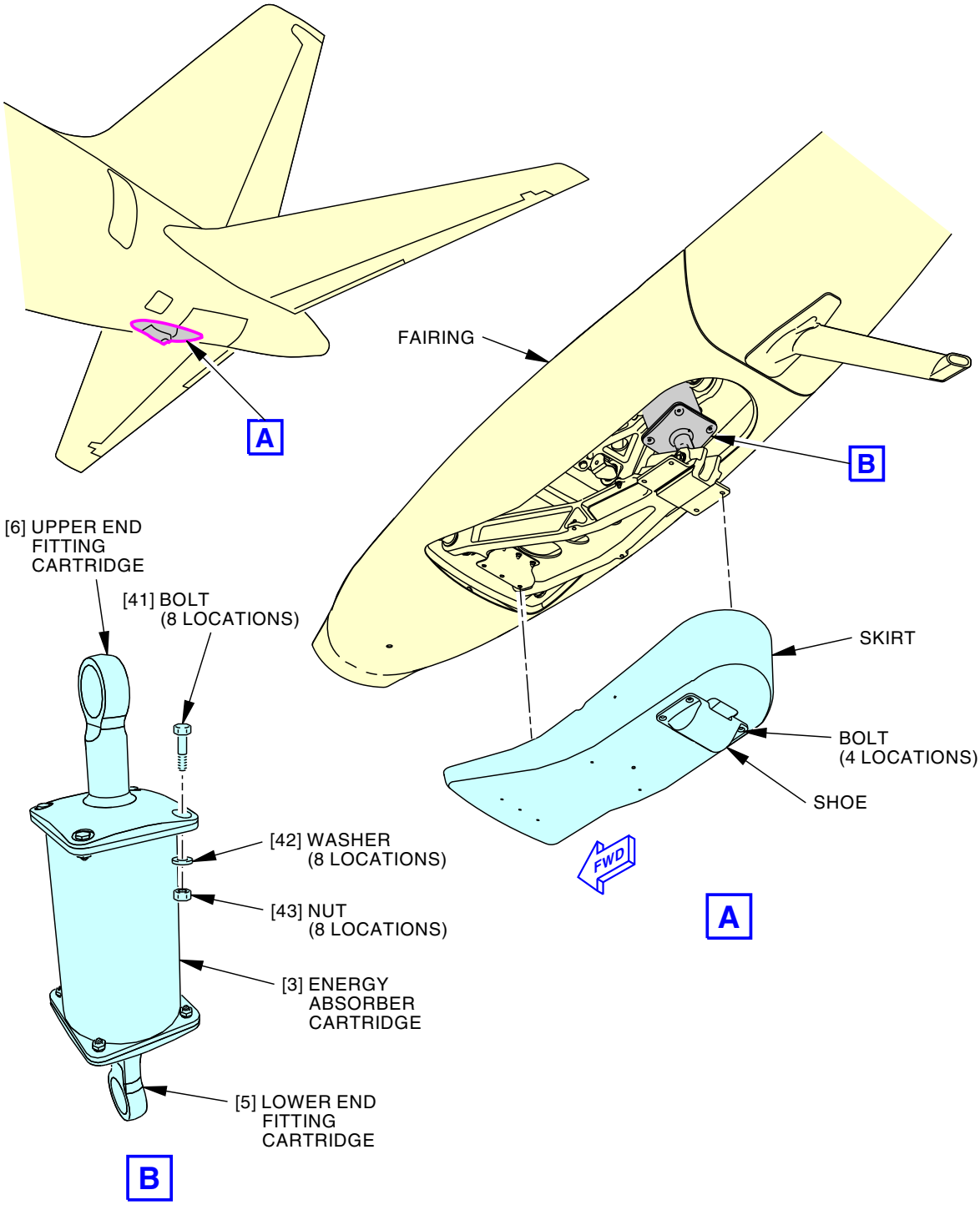
**SUBTASK 32-71-00-420-018**

(1) Install the Tailskid Cartridge Assembly, do this task: (Tailskid Cartridge Assembly Installation, TASK 32-71-00-400-803).

**END OF TASK**



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2522935 S0000592679_V2

**Tailskid Cartridge Assembly Replacement**
**Figure 201/32-71-00-990-808**



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**TASK 32-71-00-960-802**

## 3. Tailskid Shoe Replacement

(Figure 202)

### A. General

(1) This procedure has steps to replace the tailskid shoe.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### D. Prepare for the Tailskid Shoe Replacement

**SUBTASK 32-71-00-480-005**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

### E. Tail Skid Shoe Replacement

**SUBTASK 32-71-00-020-003**

(1) Remove the shoe [9]:

(a) Remove the four bolts [8] from the skirt [1] and drag lever [2].

(b) Discard the shoe [9].

**SUBTASK 32-71-00-420-003**

(2) Install a new shoe [9]:

(a) Put the shoe [9] in position on the skirt [1].

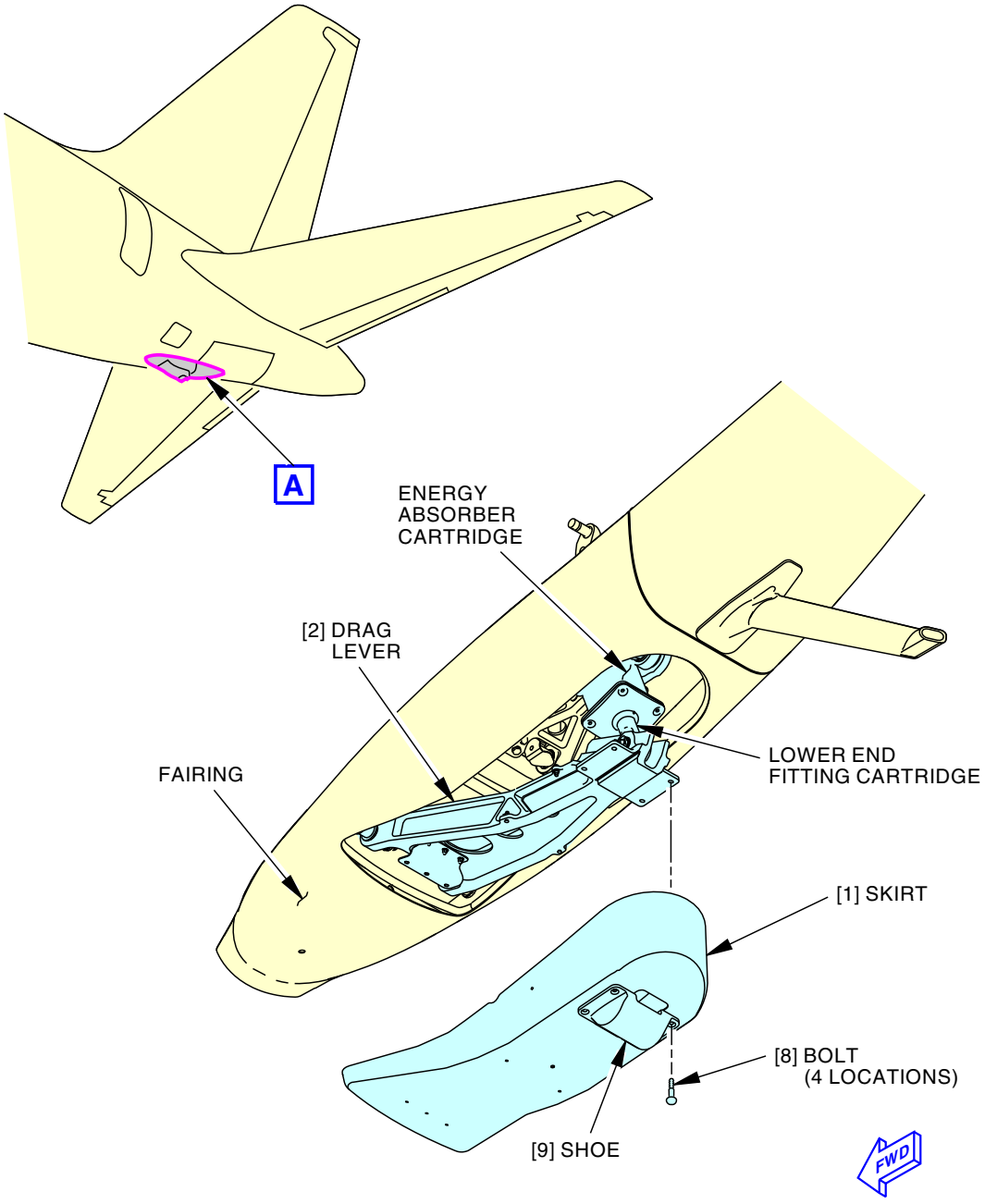
(b) Install four bolts [8] to the skirt [1], drag lever [2] and shoe [9].

(c) Tighten the bolts [8].

**END OF TASK**



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**TAILSKID ASSEMBLY**

**A**

2414556 S00061535431_V3

**Tailskid Shoe Replacement**
**Figure 202/32-71-00-990-802**



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**TASK 32-71-00-960-803**

## 4. Tailskid Warning Decal Replacement

(Figure 203)

### A. General

(1) This task gives instructions to replace the Tailskid Warning Decal.

### B. References

| Reference | Title |
|---|---|
| 20-10-11-400-801 | Pressure-Sensitive Decal Installation (P/B 401) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |

### C. Tailskid Warning Decal Replacement

**SUBTASK 32-71-00-480-031**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-71-00-020-017**

(2) If it is necessary, remove the shoe [9]:

(a) Remove four bolts [8] that hold the shoe [9] to the skirt [1] and the drag lever [2].

(b) Remove the shoe [9] from the skirt [1].

**SUBTASK 32-71-00-020-018**

(3) If it is necessary, remove the skirt [1]:

(a) Remove the screws [7] that hold the skirt [1] to the drag lever [2].

(b) Remove the skirt [1] from the drag lever [2].

**SUBTASK 32-71-00-420-021**

(4) Install a new tailskid warning decal [22] on the aft side of the skirt [1] (TASK 20-10-11-400-801).

(a) Make sure that the upper edge of the tailskid warning decal [22] is in line with the fairing (Figure 203).

**SUBTASK 32-71-00-420-022**

(5) If removed, install the skirt [1]:

(a) Put the skirt [1] in its position on the drag lever [2].

(b) Install the screws [7] that attach the skirt [1] to the drag lever [2].

**SUBTASK 32-71-00-420-023**

(6) If removed, install the shoe [9]:

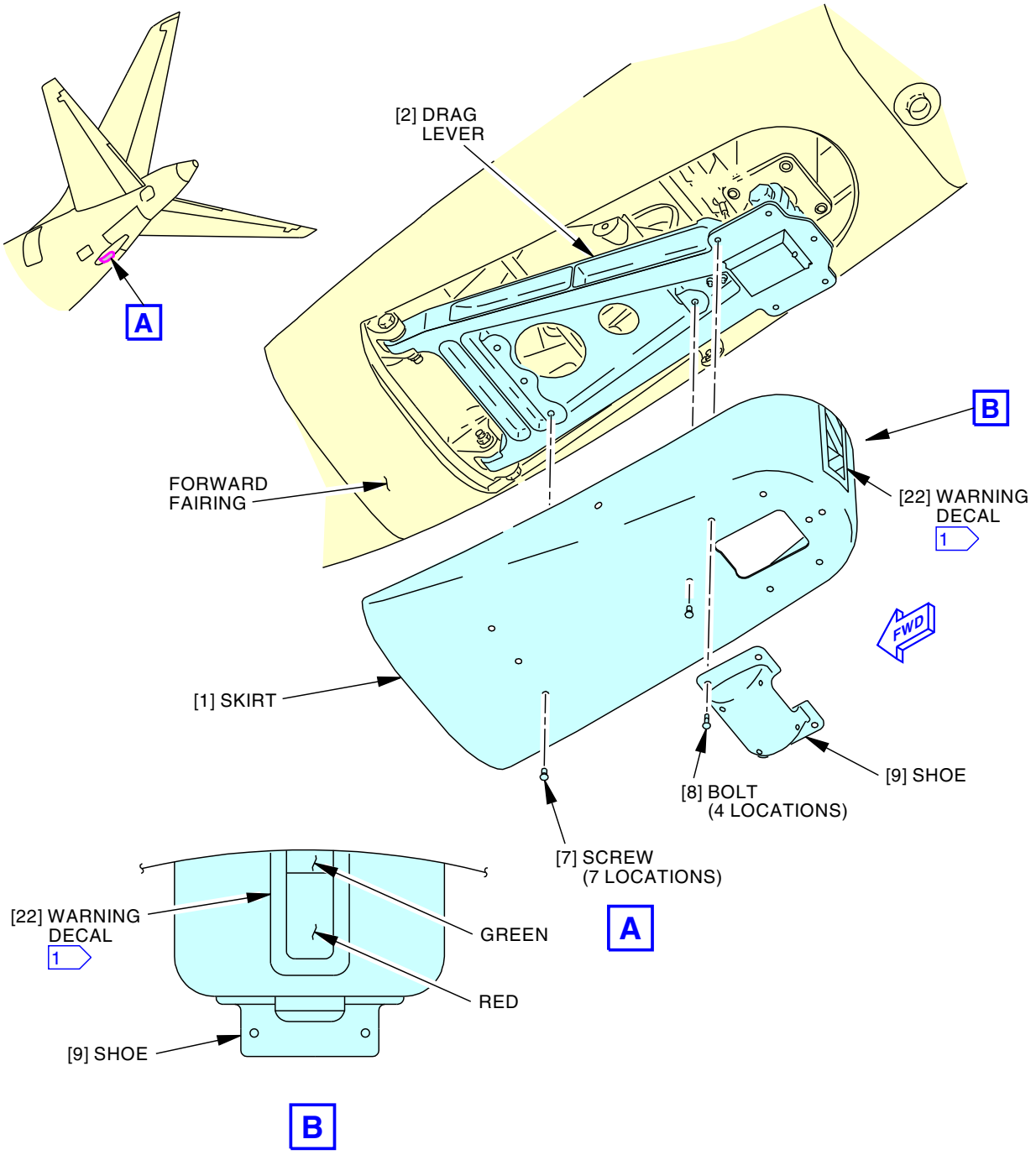
(a) Put the shoe [9] in its position on the skirt [1].

(b) Install the four bolts [8] that attach the shoe [9] to the drag lever [2] and skirt [1].

**END OF TASK**



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**NOTE:**

1 LOCATE GREEN EDGE OF THE DECAL IN LINE WITH FAIRING OML APPROX STA 1088

2554601 S0000608969_V2

**Tailskid Warning Decal Replacement**
**Figure 203/32-71-00-990-814**



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# TAILSKID ASSEMBLY - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) Tailskid Skirt Removal

(2) Tailskid Skirt Installation

(3) Tailskid Drag Lever Removal

(4) Tailskid Drag Lever Installation

(5) Tailskid Cartridge Assembly Removal

(6) Tailskid Cartridge Assembly Installation.

**TASK 32-71-00-000-801**

## 2. Tailskid Skirt Removal

(Figure 401)

### A. General

(1) This procedure has steps to remove the Tailskid Skirt.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-71-00-210-801 | Tailskid Cartridge Assembly Inspection (P/B 601) |
| 32-71-00-211-801 | Tailskid Shoe Inspection (P/B 601) |

### C. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### D. Prepare for the Tailskid Skirt Removal

**SUBTASK 32-71-00-480-006**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-71-00-480-007**

(2) Use a ladder or equivalent to get access to the tailskid assembly.

**SUBTASK 32-71-00-210-002**

(3) Inspect the tailskid shoe (TASK 32-71-00-211-801).

**SUBTASK 32-71-00-210-003**

(4) Inspect the tailskid cartridge assembly (TASK 32-71-00-210-801).

### E. Tailskid Skirt Removal

**SUBTASK 32-71-00-020-004**

(1) Do these steps to remove the skirt [1]:



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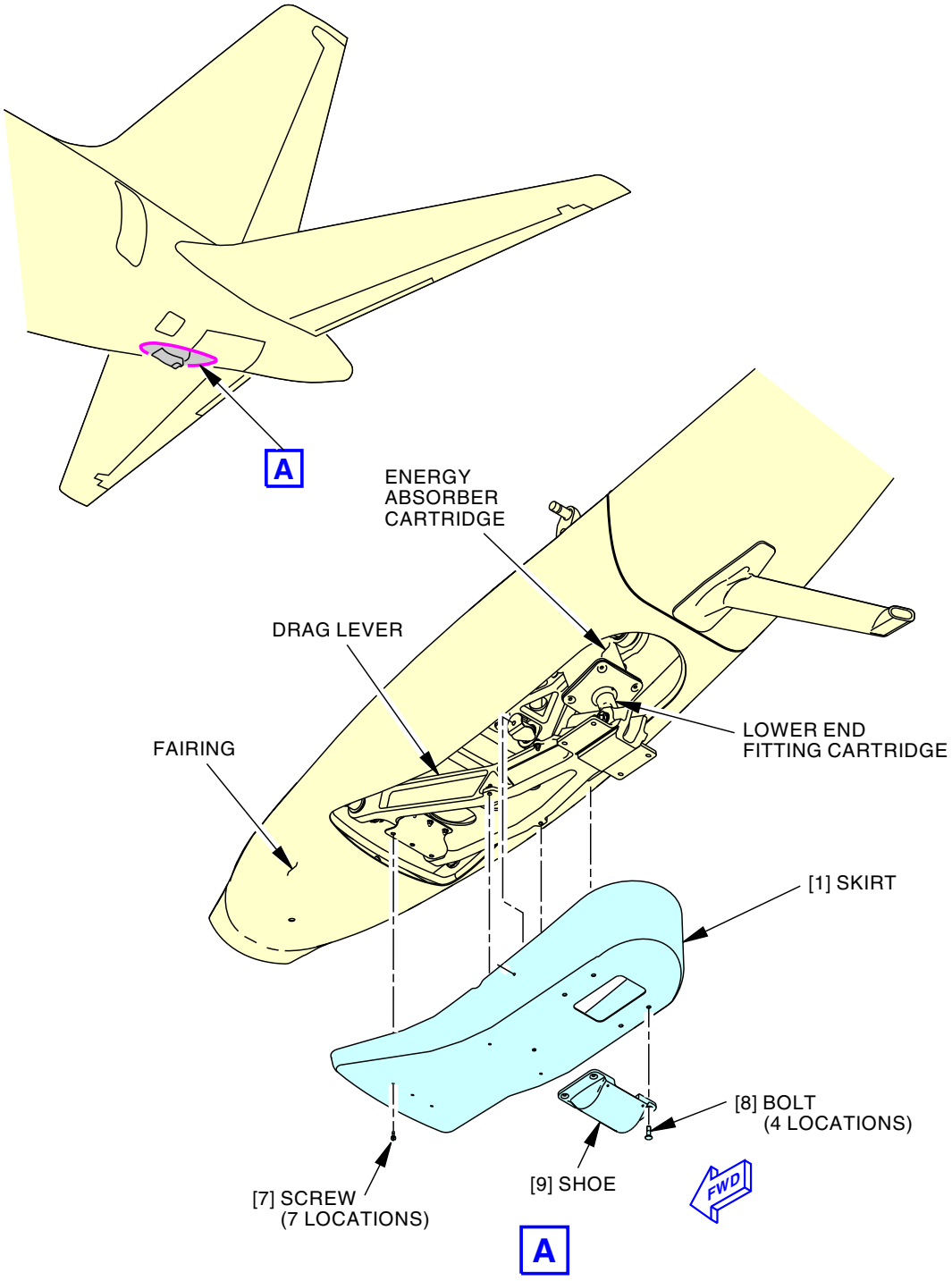
(a) Remove the four bolts [8] from the shoe [9].

(b) Remove the screws [7] from the skirt [1].

——— END OF TASK ———



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2480420 S0000574169_V4

**Tailskid Skirt Installation**
**Figure 401/32-71-00-990-805**



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**TASK 32-71-00-400-801**

## 3. Tailskid Skirt Installation

(Figure 401)

### A. General

(1) This procedure has steps to install the Tailskid Skirt.

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| G50136 | Compound - Corrosion Inhibiting, Non-drying Paste | BMS3-38 |

### C. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 1 | Skirt | 32-71-00-04-235 | SIA ALL |

### D. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### E. Prepare for the Tailskid Skirt Installation

**SUBTASK 32-71-00-480-009**

(1) Use a ladder or equivalent to get access to the tailskid assembly.

**SUBTASK 32-71-00-420-004**

**CAUTION**

BE CAREFUL WHEN INSTALLING THE TAILSKID CARTRIDGE ASSEMBLY TO THE AIRCRAFT. DAMAGE TO THE ASSEMBLY CAN OCCUR.

(2) If necessary, install the tailskid cartridge assembly (TASK 32-71-00-400-803).

**SUBTASK 32-71-00-420-005**

(3) If necessary, install the tailskid drag lever (TASK 32-71-00-400-802).

### F. Tailskid Skirt Installation

**SUBTASK 32-71-00-420-006**

(1) Do these steps to install the skirt [1]:

**WARNING**

USE NITRILE GLOVES FOR SKIN PROTECTION AGAINST CORROSION INHIBITOR MATERIAL, G50136. IF CORROSION INHIBITOR MATERIAL, G50136 GETS ON YOUR SKIN, IMMEDIATELY REMOVE IT WITH WATER. IF THIS MATERIAL GETS IN YOUR EYES, IMMEDIATELY FLUSH YOUR EYES WITH WATER AND GET MEDICAL AID. THIS MATERIAL CONTAINS VERY POISONOUS AND FLAMMABLE AGENTS WHICH CAN CAUSE INJURIES TO PERSONNEL.

(a) Apply corrosion inhibiting material, G50136 to faying surfaces of the skirt [1] and drag lever [2].

(b) Install the screws [7] to hold the skirt [1] to the drag lever [2].

(c) Install the four bolts [8] to the shoe [9], skirt [1], and drag lever [2].

**END OF TASK**



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**TASK 32-71-00-000-802**

## 4. Tailskid Drag Lever Removal

(Figure 402)

### A. General

(1) This procedure has steps to remove the Tailskid Drag Lever.

### B. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### C. Prepare for the Tailskid Drag Lever Removal

**SUBTASK 32-71-00-480-010**

(1) Use a ladder or equivalent to get access to the tailskid assembly.

**SUBTASK 32-71-00-020-005**

(2) Remove the tailskid skirt, do this task: Tailskid Skirt Removal, TASK 32-71-00-000-801.

### D. Tailskid Drag Lever Removal

**SUBTASK 32-71-00-020-015**

(1) Do these steps to remove the fairing [21]:

(a) Remove the screws [22] from the fairing [21].

(b) Remove the fairing [21] from the airplane.

**SIA ALL; AIRPLANES WITH FIXED POSITION TAIL SKID**

**SUBTASK 32-71-00-020-012**

(2) Do these steps to remove the drag lever [2]:

(a) Remove the nut [11], washers [12], and bolt [14].

(b) Disconnect the lower end fitting cartridge [5] from the drag lever [2].

(c) Remove nuts [17], washers [18], and shoulder bolts [20] from the tailskid support structure.

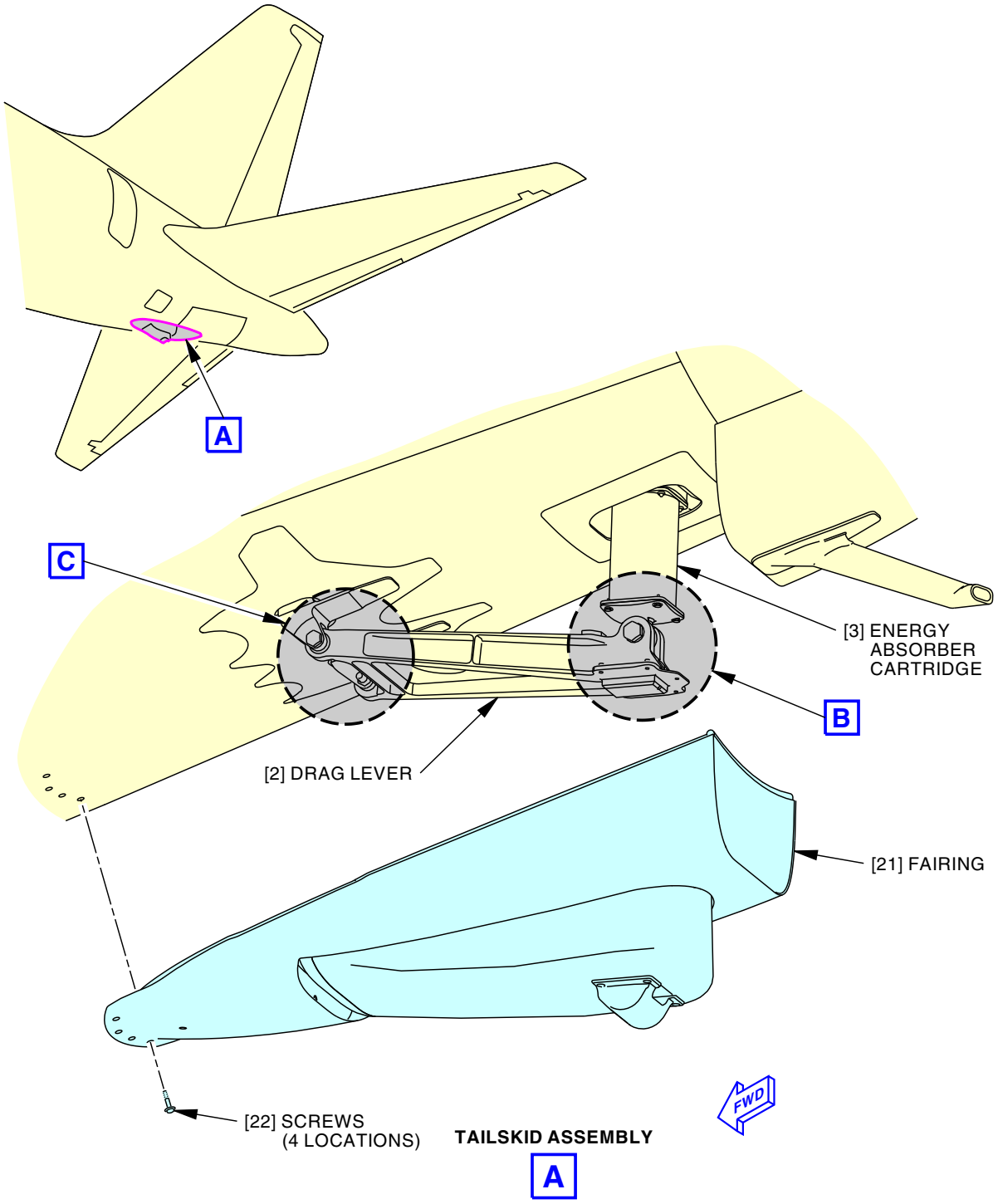
(d) Disconnect the drag lever [2] from the tailskid support structure.

(e) Remove the drag lever [2] from the airplane.

**END OF TASK**



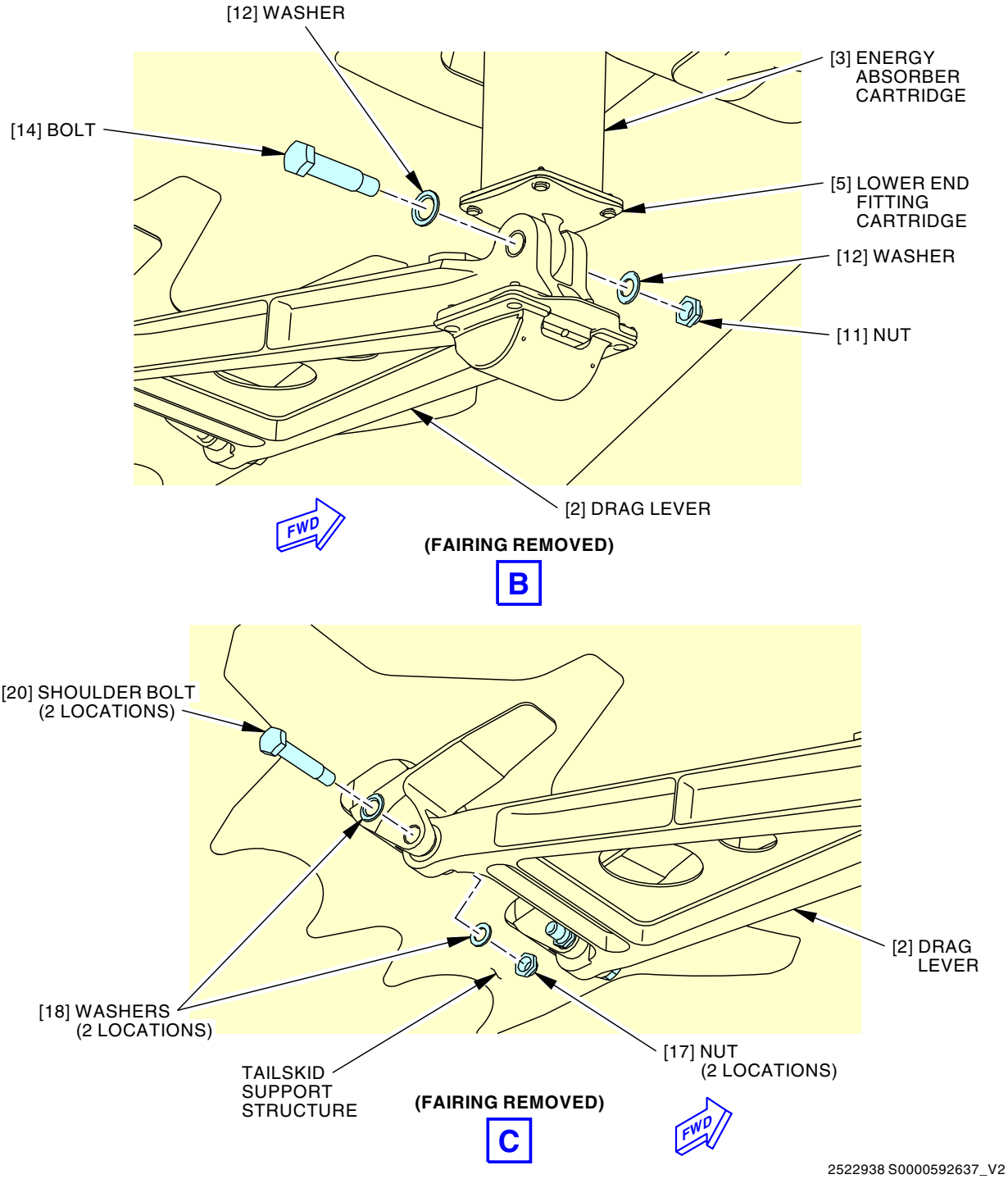
ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Fixed Position Tailskid Drag Lever Installation**
**Figure 402/32-71-00-990-811 (Sheet 1 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details




**Fixed Position Tailskid Drag Lever Installation**
**Figure 402/32-71-00-990-811 (Sheet 2 of 2)**



ECCN 9E991 BOEING PROPRIETARY - See title page for details

**TASK 32-71-00-400-802**

## 5. Tailskid Drag Lever Installation

(Figure 402)

### A. General

(1) This procedure has steps to install the Tailskid Drag Lever.

### B. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 2 | Drag lever | 32-71-00-04-232 | SIA ALL |

### C. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### D. Prepare for the Tailskid Drag Lever Installation

**SUBTASK 32-71-00-480-011**

(1) Use a ladder or equivalent to get access to the tailskid assembly.

**SUBTASK 32-71-00-420-007**

**CAUTION**

BE CAREFUL WHEN INSTALLING THE TAILSKID CARTRIDGE ASSEMBLY TO THE AIRCRAFT. DAMAGE TO THE ASSEMBLY CAN OCCUR.

(2) If it is necessary, install the tailskid cartridge assembly (TASK 32-71-00-400-803).

### E. Tailskid Drag Lever Installation

**SIA ALL; AIRPLANES WITH FIXED POSITION TAIL SKID**

**SUBTASK 32-71-00-420-015**

(1) Do these steps to install the drag lever [2]:

(a) Align the drag lever [2] with the tailskid support structure holes.

(b) Install the shoulder bolts [20], washers [18], and nuts [17] to the tailskid support structure.

(c) Align the lower end fitting cartridge [5] and the drag lever [2] hole.

(d) Install the bolt [14], washers [12], and nut [11].

**SIA ALL**

**SUBTASK 32-71-00-420-019**

(2) Put the fairing [21] in position on the airplane.

**SUBTASK 32-71-00-420-020**

(3) Install the screws [22] to the fairing [21].

### F. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-71-00-420-009**

(1) Install the tailskid skirt, do this task: Tailskid Skirt Installation, TASK 32-71-00-400-801.

**——— END OF TASK ———**



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**TASK 32-71-00-000-803**

## 6. Tailskid Cartridge Assembly Removal

(Figure 403)

### A. General

(1) This procedure has steps to remove the tailskid cartridge assembly (referred to as energy absorber cartridge [3]).

### B. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 311BL | Stabilizer Trim Access Door |

### D. Prepare for the Tailskid Cartridge Assembly Removal

**SUBTASK 32-71-00-480-012**

(1) Use a ladder or equivalent to get access to the tailskid assembly.

**SUBTASK 32-71-00-020-007**

(2) Remove the tailskid skirt (TASK 32-71-00-000-801).

**SUBTASK 32-71-00-020-023**

(3) Remove the screws [22] from the fairing [21].

**SUBTASK 32-71-00-020-024**

(4) Remove the fairing [21] from the airplane.

**SUBTASK 32-71-00-010-003**

(5) Open this access panel:

| Number | Name/Location |
|---|---|
| 311BL | Stabilizer Trim Access Door |

### E. Tailskid Cartridge Assembly Removal

**SIA ALL; AIRPLANES WITH FIXED POSITION TAIL SKID**

**SUBTASK 32-71-00-020-013**

(1) Do these steps to remove the energy absorber cartridge [3]:

(a) Remove the nut [11], washer [12], and bolt [14].

(b) Disconnect the lower end fitting cartridge [5] from the drag lever [2].

(c) Remove the nut [31], washers [32], and bolt [34].

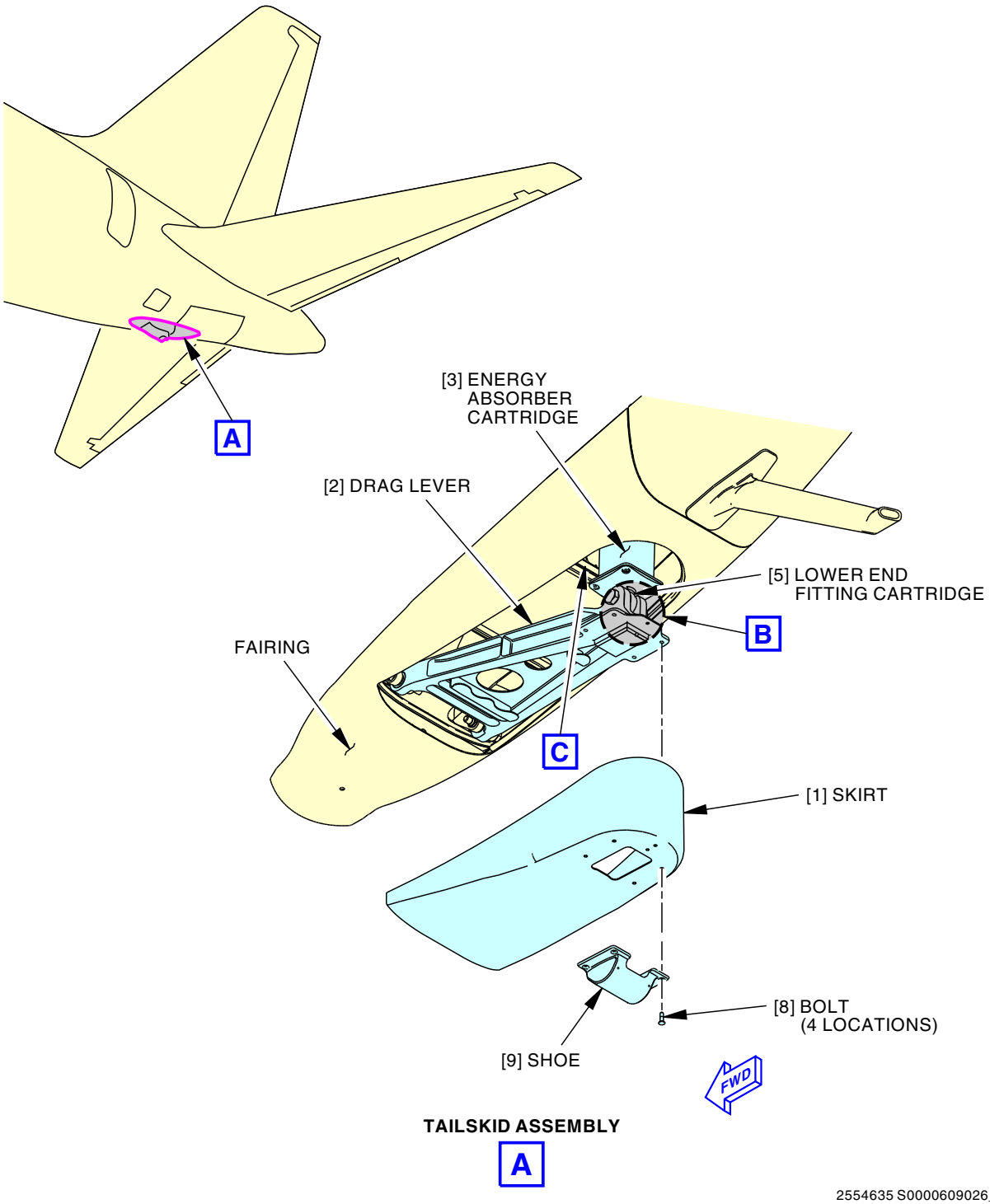
(d) Disconnect the upper end fitting cartridge [6] from the pivot linkage [27].

(e) Remove the energy absorber cartridge [3] from the airplane.

**END OF TASK**



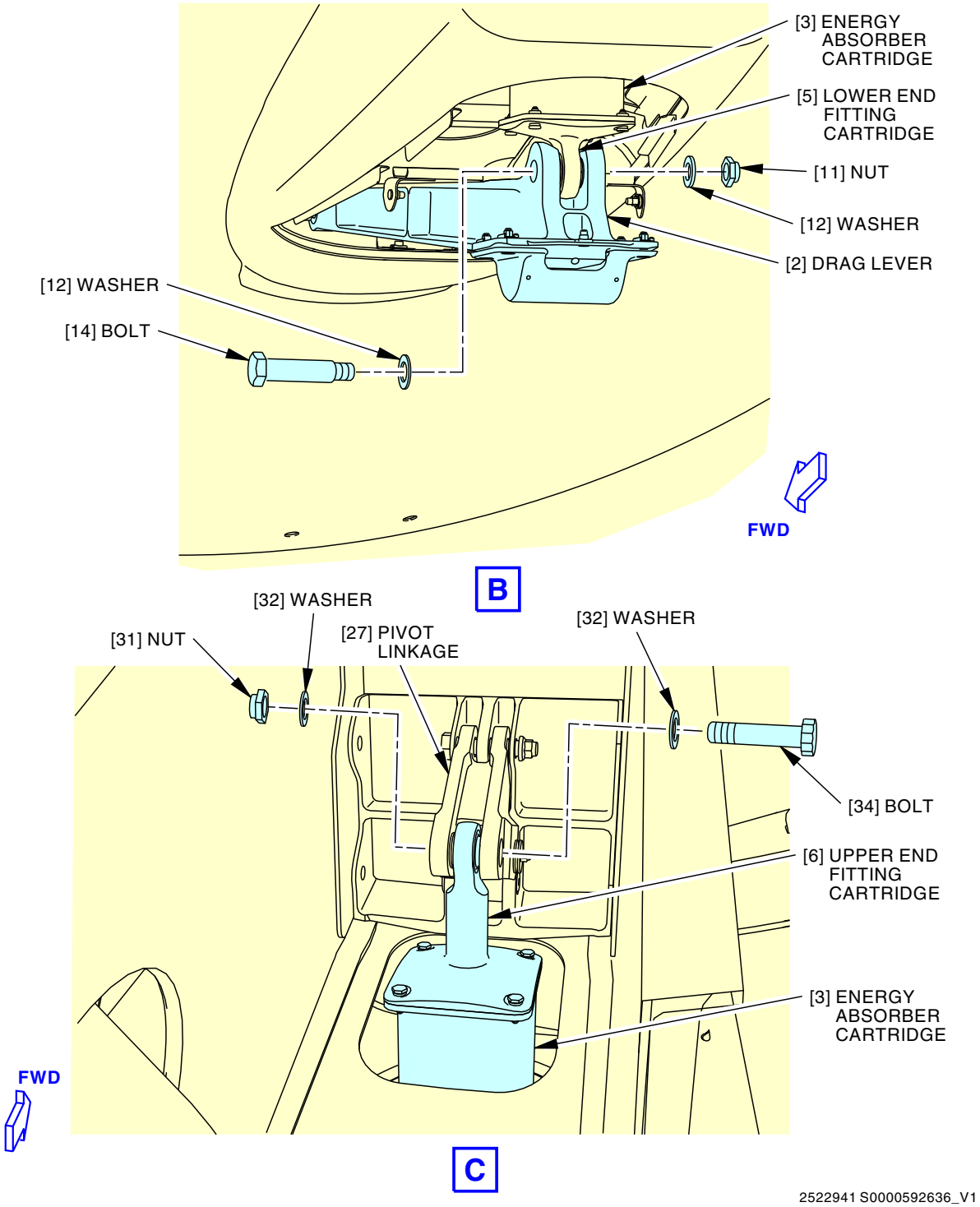
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**Fixed Tail Skid Cartridge Assembly Installation**
**Figure 403/32-71-00-990-812 (Sheet 1 of 2)**



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**Fixed Tail Skid Cartridge Assembly Installation**
**Figure 403/32-71-00-990-812 (Sheet 2 of 2)**



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**TASK 32-71-00-400-803**

## 7. Tailskid Cartridge Assembly Installation

(Figure 403)

### A. General

(1) This procedure has steps to install the tailskid cartridge assembly (referred to as energy absorber cartridge [3]).

### B. Expendables/Parts

| AMM Item | Description | AIPC Reference | AIPC Effectivity |
|---|---|---|---|
| 3 | Energy absorber cartridge | 32-71-00-04-095 | SIA ALL |

### C. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 311BL | Stabilizer Trim Access Door |

### E. Prepare for the Tailskid Cartridge Assembly Installation

**SUBTASK 32-71-00-480-013**

(1) Use a ladder or equivalent to get access to the tailskid assembly.

**SUBTASK 32-71-00-420-013**

(2) If it is necessary, install the tailskid drag lever (TASK 32-71-00-400-802).

### F. Tailskid Cartridge Assembly Installation

**CAUTION**

BEFORE THE PIN IS INSTALLED, MAKE SURE THE LINKAGE ASSEMBLY DOES NOT HIT THE AIRCRAFT. DAMAGE TO THE AIRCRAFT CAN OCCUR.

**SIA ALL; AIRPLANES WITH FIXED POSITION TAIL SKID**

**SUBTASK 32-71-00-420-016**

(1) Do these steps to install the energy absorber cartridge [3]:

(a) Make sure that the energy absorber cartridge [3] is securely assembled, before installing the assembly

(b) Align the upper end fitting cartridge [6] and pivot linkage [27] bolt hole.

(c) Install the bolt [34], washer [32], and nut [31].

(d) Align the lower end fitting cartridge [5] and drag lever [2].

(e) Install the bolt [14], washer [12], and nut [11].

**SIA ALL**

### G. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-71-00-410-003**

(1) Close this access panel:

| Number | Name/Location |
|---|---|
| 311BL | Stabilizer Trim Access Door |



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**SUBTASK 32-71-00-420-024**

(2) Put the fairing [21] in position on the airplane.

**SUBTASK 32-71-00-420-025**

(3) Install the screws [22] to the fairing [21].

**SUBTASK 32-71-00-420-014**

(4) Install the tailskid skirt (TASK 32-71-00-400-801).

**——— END OF TASK ———**



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## TAILSKID - INSPECTION/CHECK

### 1. General

A. Do an inspection of the tailskid assembly after there has been a tail strike.

B. This procedure has these tasks:

(1) Tailskid Cartridge Assembly Inspection

(2) Tailskid Shoe Inspection

C. This task does not remove or install the tail skid assembly.

**TASK 32-71-00-210-801**

### 2. Tailskid Cartridge Assembly Inspection

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

**A. General**

(1) This procedure has steps to inspect the Tailskid Cartridge Assembly.

**B. References**

| Reference | Title |
|---|---|
| 05-51-32-210-801 | Tail Strike Inspection (P/B 201) |
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-71-00-000-803 | Tailskid Cartridge Assembly Removal (P/B 401) |
| 32-71-00-400-803 | Tailskid Cartridge Assembly Installation (P/B 401) |

**C. Location Zones**

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

**D. Prepare for the Tailskid Cartridge Assembly Inspection**

**SUBTASK 32-71-00-480-014**

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

**SUBTASK 32-71-00-410-006**

(2) Do a general visual inspection of the tailskid energy absorber cartridge for evidence of tail strike.

NOTE: The cartridge assembly warning placard must be examined as soon as possible after the tail strike. The tailskid skirt fairing can re-extend due to gravity as time passes, resulting in reading error on the warning placard decal.

NOTE: The tailskid assembly is in normal position if the upper edge of the warning decal [3] is in line with the fairing.

**SUBTASK 32-71-00-480-023**

(3) Use a ladder or equivalent to get access to the tailskid assembly.



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### E. Tailskid Cartridge Assembly Inspection

SUBTASK 32-71-00-210-007

(1) Examine the warning decal [3] on the aft side of the skirt [1]:

(a) If there is evidence of a tail strike or damage to the airplane, do this task: Tail Strike Inspection, TASK 05-51-32-210-801.

(b) If you see the any of the green part of the warning decal [3], then energy absorber cartridge is still acceptable.

(c) If you can not see any of the green part of the warning decal [3], then replace the energy absorber cartridge.

1) Do this task: Tailskid Cartridge Assembly Removal, TASK 32-71-00-000-803.

2) Do this task: Tailskid Cartridge Assembly Installation, TASK 32-71-00-400-803.

——— END OF TASK ———

## TASK 32-71-00-211-801

## 3. Tailskid Shoe Inspection

(Figure 601)

### A. General

(1) This procedure has steps to inspect the Tailskid Shoe.

### B. References

| Reference | Title |
|---|---|
| 32-00-01-480-801 | Landing Gear Downlock Pins Installation (P/B 201) |
| 32-71-00-960-802 | Tailskid Shoe Replacement (P/B 201) |
| 51-21-99-300-802 | Decorative Exterior Paint System Repair (P/B 701) |

### C. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### D. Prepare for the Tailskid Shoe Inspection

SUBTASK 32-71-00-480-015

**WARNING** MAKE SURE THAT THE DOWNLOCK PINS ARE INSTALLED ON ALL THE LANDING GEAR. WITHOUT THE DOWNLOCK PINS, THE LANDING GEAR CAN RETRACT. THIS CAN CAUSE INJURIES TO PERSONS, AND DAMAGE TO EQUIPMENT.

(1) Make sure that the downlock pins are installed on the nose and main landing gear (TASK 32-00-01-480-801).

SUBTASK 32-71-00-480-025

(2) Use a ladder or equivalent to get access to the tailskid assembly.

### E. Tailskid Shoe Inspection

SUBTASK 32-71-00-210-008

(1) Do these steps to inspect the tailskid shoe [2] after a tail strike:

NOTE: The tailskid assembly is in normal position if the upper edge of the warning decal is in line with the fairing.



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(a) Do a check of the tailskid shoe [2] for cracks or chips:

1) If there are cracks in the tailskid shoe [2] or pieces of the tailskid shoe [2] are gone, outboard of the bolt holes, the tailskid shoe [2] is serviceable.

2) If there are cracks that start at the bolt holes, replace the tailskid shoe [2] (TASK 32-71-00-960-802).

(b) If the tailskid shoe [2] is worn to the WEAR DIMPLES, replace the tailskid shoe [2] (TASK 32-71-00-960-802).

(c) Make sure the tail skid shoe [2] is within tolerance and the paint finish on the lower surface of the tail skid shoe [2] has not been gouged or scratched by contact with the runway.

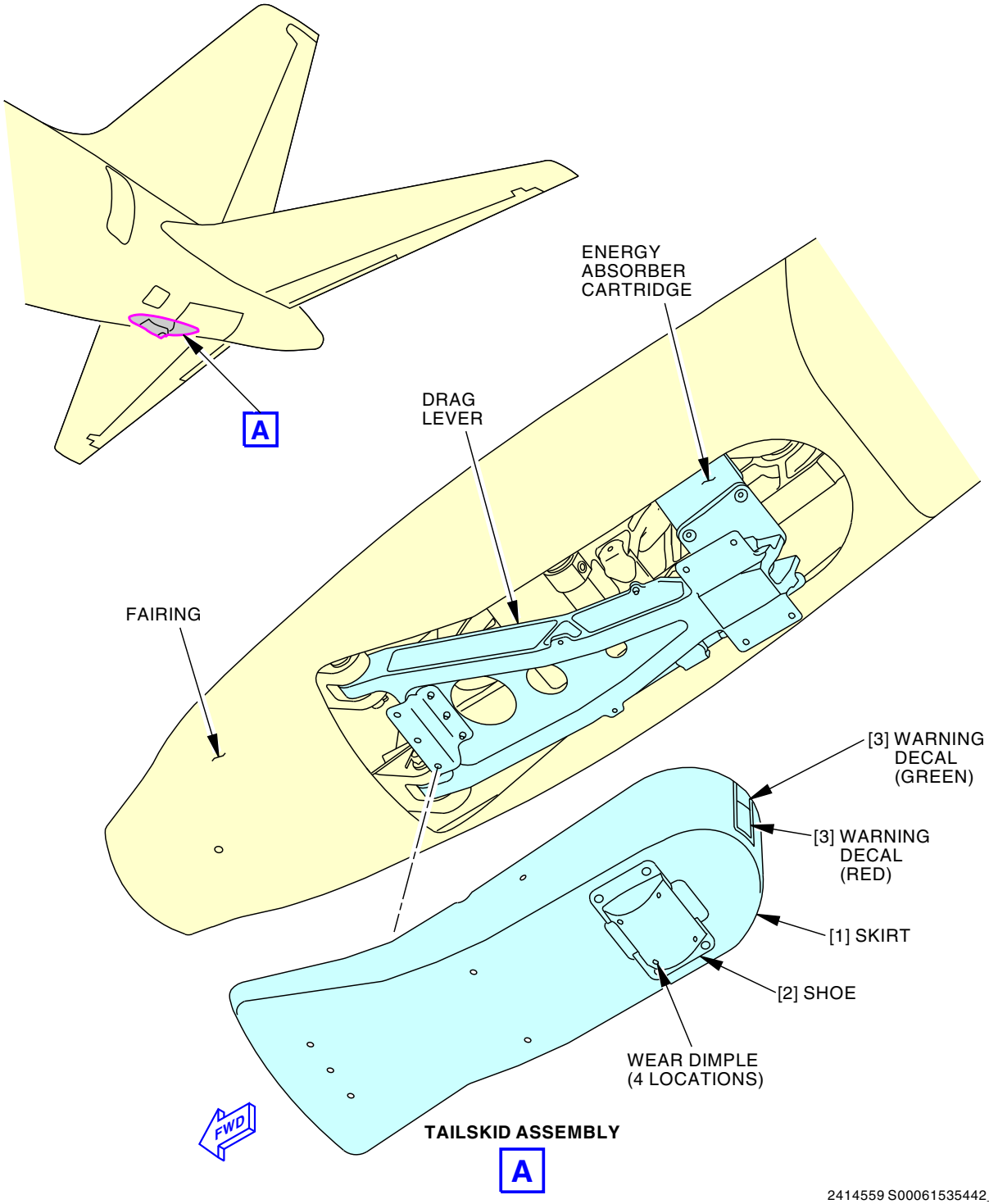
1) To paint the skid shoe [2], do this task: Decorative Exterior Paint System Repair, TASK 51-21-99-300-802.

NOTE: If the tail skid shoe [2] scratch or gouge damage is not painted over, a person may interpret the damage as new and request an unnecessary inspection. The addition of paint can help to determine when new tail strikes have occurred.

**END OF TASK**



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**Tailskid Inspection**
**Figure 601/32-71-00-990-804**



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# TAIL SKID PIVOT LINKAGE - REMOVAL/INSTALLATION

## 1. General

A. This procedure has these tasks:

(1) Tailskid Pivot Linkage Removal

(2) Tailskid Pivot Linkage Installation.

**TASK 32-71-21-000-801**

## 2. Tailskid Pivot Linkage Removal

(Figure 401)

### A. General

(1) This procedure has steps to remove the Tailskid Pivot Linkage (referred to as pivot linkage [1]).

### B. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### C. Access Panels

| Number | Name/Location |
|---|---|
| 311BL | Stabilizer Trim Access Door |

### D. Prepare for the Tailskid Pivot Linkage Removal

**SUBTASK 32-71-21-010-001**

(1) Open this access door for the stabilizer trim:

| Number | Name/Location |
|---|---|
| 311BL | Stabilizer Trim Access Door |

### E. Tailskid Pivot Linkage Removal

**SUBTASK 32-71-21-020-001**

**CAUTION**

REMOVE THE TAILSKID CARTRIDGE ASSEMBLY FROM THE AIRCRAFT. DAMAGE TO THE ASSEMBLY CAN OCCUR.

(1) Disconnect the cartridge assembly [2] from the pivot linkage [1]:

(a) Remove the nut [13] and washer [12] from the bolt [10].

(b) Remove the bolt [10] that holds the female telescope rod side of the cartridge assembly [2] to the pivot linkage [1].

(c) Remove the washer [11] from the bolt [10].

**SUBTASK 32-71-21-020-002**

(2) Remove the pivot linkage [1]:

(a) Remove the nut [4], and the washer [3] from the shoulder bolt [19].

(b) Remove the shoulder bolt [19] to disconnect the pivot linkage [1] from the support fitting.

(c) Remove the nut [9], and the washer [8] from the shoulder bolt [15].

(d) Remove the shoulder bolt [15] from the fuse pin [16].



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(e) If necessary, remove the bushings [17] and washer [14] from the shoulder bolt [15].

NOTE: The bushings [17] are plastic spacers intended to center the bolt in the fuse pin.

(f) Remove the fuse pin [16] to disconnect the pivot linkage [1] from the fuse link [7].

(g) Remove the pivot linkage [1] from the airplane.

**SUBTASK 32-71-21-020-003**

(3) If necessary, remove the fuse link [7]:

(a) Remove the nut [6], and the washer [5] from the shoulder bolt [18].

(b) Remove the shoulder bolt [18] from the shear pin [20].

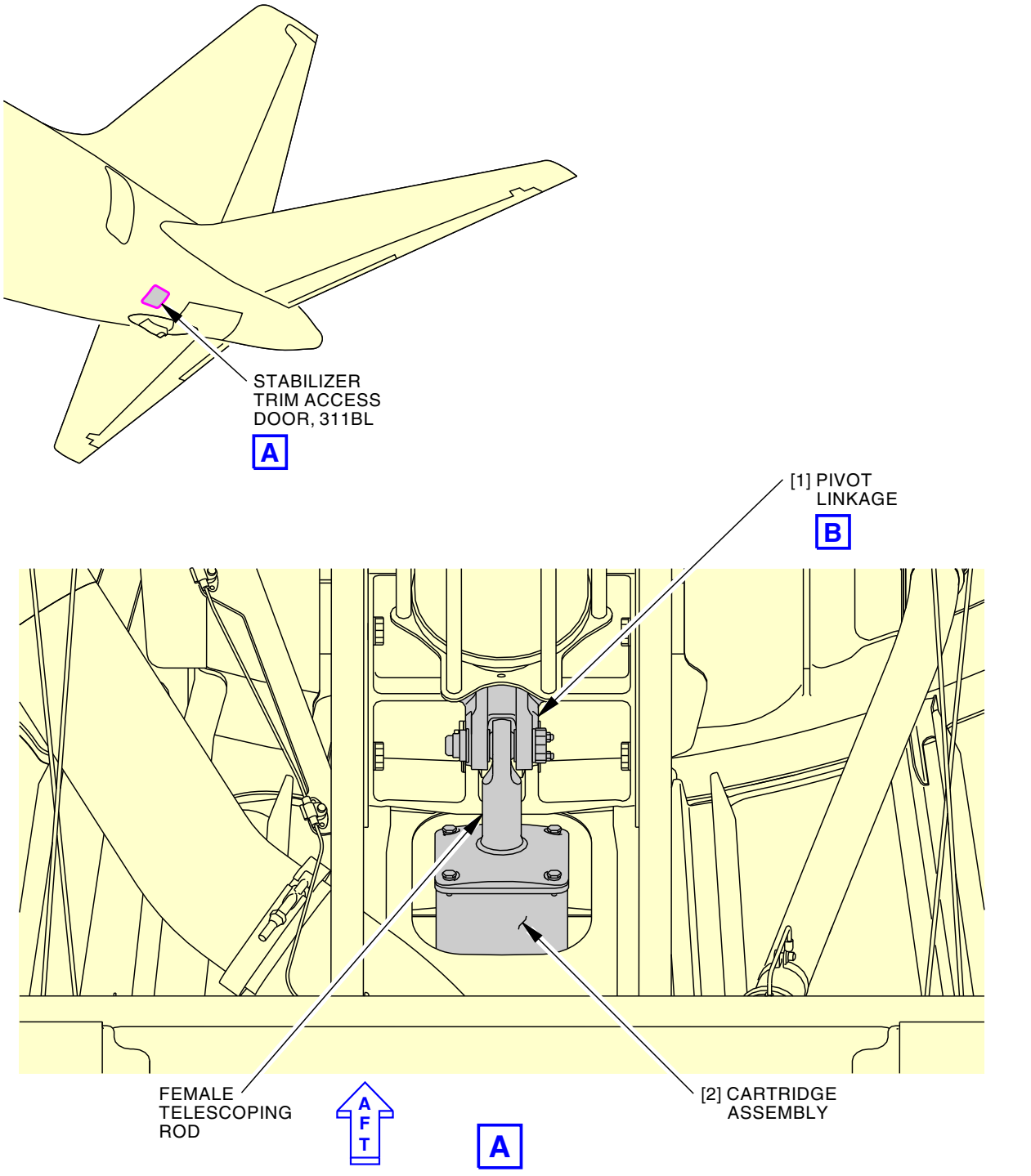
(c) Remove the shear pin [20] to disconnect the fuse link [7] from the support fitting.

(d) Remove the fuse link [7] from the airplane.

**——— END OF TASK ———**



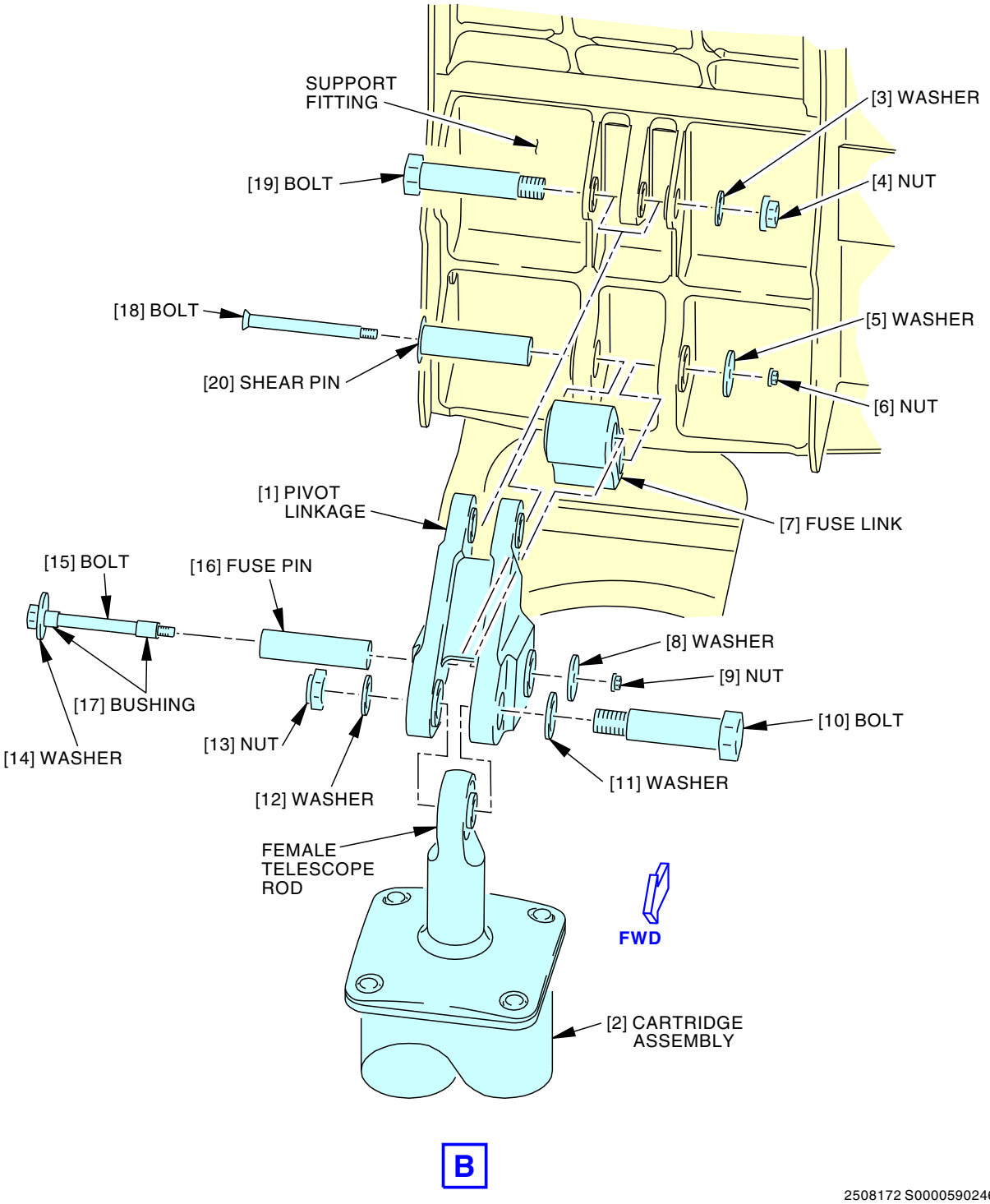
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**Tailskid Pivot Linkage Installation**
**Figure 401/32-71-21-990-803 (Sheet 1 of 2)**



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**Tailskid Pivot Linkage Installation**
**Figure 401/32-71-21-990-803 (Sheet 2 of 2)**



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**TASK 32-71-21-400-801**

## 3. Tailskid Pivot Linkage Installation

(Figure 401)

### A. General

(1) This procedure has steps to install the Tailskid Pivot Linkage (referred to as pivot linkage [1]).

### B. Consumable Materials

| Reference | Description | Specification |
|---|---|---|
| A00247 | Sealant - Pressure And Environmental - Chromate Type | BMS5-95 |
| D00633 | Grease - Aircraft General Purpose | BMS3-33 |

### C. Location Zones

| Zone | Area |
|---|---|
| 311 | Area Aft of Pressure Bulkhead - Left |
| 312 | Area Aft of Pressure Bulkhead - Right |

### D. Access Panels

| Number | Name/Location |
|---|---|
| 311BL | Stabilizer Trim Access Door |

### E. Tailskid Pivot Linkage Installation

**SUBTASK 32-71-21-420-001**

(1) If necessary, install the fuse link [7]:

(a) Put the fuse link [7] in its position on the support fitting.

(b) Align the holes in the fuse link [7] to the holes in the support fitting.

(c) Put the shear pin [20] through the support fitting, and the fuse link [7].

(d) Put the shoulder bolt [18] through shear pin [20].

(e) Install the washer [5], and the nut [6] on the shoulder bolt [18].

(f) Tighten the nut [6] to 20.00 in-lb (2.26 N·m) - 25.00 in-lb (2.82 N·m).

**SUBTASK 32-71-21-420-002**

(2) Install the pivot linkage [1]:

(a) Put the pivot linkage [1] in its position on the support fitting.

(b) Align the upper hole in the pivot linkage [1] to the hole in the support fitting.

(c) Put the shoulder bolt [19] through support fitting, and the pivot linkage [1].

(d) Install the washer [3], and the nut [4] on the shoulder bolt [19].

(e) Tighten the nut [4] to 240.00 in-lb (27.12 N·m) - 300.00 in-lb (33.90 N·m).

(f) Align the lower hole in the pivot linkage [1] to the hole in the fuse link [7].

(g) Put the fuse pin [16] through the pivot linkage [1], and the fuse link [7].

1) Make sure not to damage the dry film lubrication of the surfaces of the fuse pin [16], shear pin [20], and the bolt [19].

2) Install the shear pin [20] last.

NOTE: If there is not sufficient clearance between the fuse link [7] and the support fitting, you can smooth the surface of the fuse link [7]. Make sure there is a finish of 32AA MICROINCHES on the surface.



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(h) If removed from the shoulder bolt [15], install the washer [14] and bushing [17] on the shoulder bolt [15] use wet sealant, A00247.

(i) Apply grease, D00633 to all surfaces of the washer [14] and bushings [17] on the bolt [15], and pack the cavity between bushings.

(j) Put the shoulder bolt [15] through the fuse pin [16].

(k) Install the washer [8], and the nut [9] on the shoulder bolt [15].

(l) Tighten the nut [9].

**SUBTASK 32-71-21-420-003**

**CAUTION**

BE CAREFUL WHEN INSTALLING THE TAILSKID CARTRIDGE ASSEMBLY TO THE AIRCRAFT. DAMAGE TO THE ASSEMBLY CAN OCCUR.

(3) Connect the cartridge assembly [2] to the pivot linkage [1]:

(a) Align the female telescope rod side of the cartridge assembly [2] to the forward hole in the pivot linkage [1].

(b) Install the washer [11] on the bolt [10].

(c) Put the bolt [10] through the pivot linkage [1], and the female telescope rod side of the cartridge assembly [2].

(d) Install the washer [12], and the nut [13] on the bolt [10].

(e) Tighten the nut [13].

## F. Put the Airplane Back to Its Usual Condition

**SUBTASK 32-71-21-410-001**

(1) Close this access door for the stabilizer trim:

| Number | Name/Location |
|---|---|
| 311BL | Stabilizer Trim Access Door |

**——— END OF TASK ———**



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