

CHAPTER

31

**INDICATING/
RECORDING
SYSTEMS**



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
31-EFFECTIVE PAGES			31-09-00			31-11-11		
1 thru 5	SEP 05/2018		401	Jan 05/2015		101	Jan 05/2015	
6	BLANK		402	Jan 05/2015		102	Jan 05/2015	
31-CONTENTS			403	Jan 05/2015		103	Jan 05/2015	
1	Jan 05/2015		404	Jan 05/2015		104	BLANK	
2	Jan 05/2018		405	Jan 05/2015		31-11-16		
3	Jan 05/2015		406	Jan 05/2015		101	Jan 05/2015	
4	May 05/2017		407	Jan 05/2015		102	Jan 05/2015	
5	May 05/2017		408	Jan 05/2015		31-11-21		
6	Jan 05/2018		409	Jan 05/2015		101	Jan 05/2015	
7	Sep 05/2017		410	BLANK		102	Jan 05/2015	
8	May 05/2017		31-09-00			31-11-26		
9	May 05/2017		501	Jan 05/2017		101	Jan 05/2015	
10	Jan 05/2018		502	May 05/2018		102	Jan 05/2015	
11	Jan 05/2018		503	May 05/2017		103	Jan 05/2015	
12	Sep 05/2017		504	May 05/2017		104	BLANK	
13	May 05/2017		31-09-01			31-11-31		
14	May 05/2017		401	May 05/2015		101	Jan 05/2015	
31-00-00			402	Jan 05/2015		102	Jan 05/2015	
901	Jan 05/2015		403	Sep 05/2017		31-11-36		
902	Jan 05/2015		404	Jan 05/2015		101	Jan 05/2015	
903	Jan 05/2015		405	Sep 05/2017		102	May 05/2016	
904	Jan 05/2015		406	Jan 05/2015		103	May 05/2016	
905	Jan 05/2015		407	Jan 05/2015		104	BLANK	
906	Jan 05/2015		408	BLANK		31-11-41		
907	Jan 05/2015		31-09-02			101	Jan 05/2015	
908	Jan 05/2015		201	Sep 05/2017		102	Jan 05/2015	
909	Jan 05/2015		202	Jul 25/2018		103	Jan 05/2015	
910	Jan 05/2015		203	May 05/2018		104	BLANK	
911	Jan 05/2018		204	Sep 05/2017		31-12-11		
912	Jan 05/2018		31-09-02			101	Jan 05/2015	
913	Jan 05/2018		401	Sep 05/2017		102	Jan 05/2015	
914	Jan 05/2018		402	Jan 05/2015		103	Jan 05/2015	
915	Jan 05/2018		403	Jan 05/2015		104	BLANK	
916	BLANK		404	Sep 05/2017		31-12-16		
			405	Sep 05/2017		101	Jan 05/2015	
			406	Sep 05/2017		102	Jan 05/2015	

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

31-EFFECTIVE PAGES



**777-200/300
AIRCRAFT MAINTENANCE MANUAL**

**CHAPTER 31
INDICATING/RECORDING SYSTEMS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
31-13-20			31-31-09			31-33-01		
101	Jan 05/2015		201	May 05/2015		401	Sep 05/2017	
102	Jan 05/2015		202	Jan 05/2015		402	Sep 05/2016	
31-15-11			203	Sep 05/2016		403	Sep 05/2016	
101	Jan 05/2015		204	Sep 05/2017		404	Sep 05/2016	
102	May 05/2016		205	Sep 05/2017		405	Sep 05/2016	
103	Jul 25/2018		206	Sep 05/2016		406	Sep 05/2017	
104	BLANK		207	Sep 05/2017		407	Sep 05/2017	
31-25-00			208	Sep 05/2017		408	Sep 05/2017	
501	Jan 05/2015		209	Sep 05/2016		409	Sep 05/2016	
502	Jan 05/2015		210	May 05/2017		410	Sep 05/2016	
31-31-00			211	Sep 05/2016		31-35-00		
501	Jan 05/2015		212	May 05/2017		201	May 05/2018	
502	May 05/2017		213	May 05/2017		202	May 05/2018	
503	May 05/2017		214	May 05/2017		203	May 05/2018	
504	May 05/2017		215	May 05/2017		204	BLANK	
505	May 05/2017		216	Jan 05/2018		31-35-00		
506	BLANK		31-33-00			501	Jan 05/2018	
31-31-01			201	Sep 05/2017		502	Jan 05/2018	
201	Sep 05/2017		202	Sep 05/2017		31-35-02		
202	Sep 05/2017		203	Sep 05/2017		201	Jan 05/2017	
203	Sep 05/2017		204	May 05/2016		202	Jan 05/2017	
204	May 05/2018		205	May 05/2016		203	Jan 05/2017	
205	Sep 05/2017		206	May 05/2016		204	Sep 05/2017	
206	Jul 25/2018		31-33-00			205	Jan 05/2017	
207	Sep 05/2017		501	Jan 05/2015		206	Jan 05/2017	
208	Sep 05/2017		502	Jan 05/2015		207	Jan 05/2017	
209	May 05/2018		503	May 05/2016		208	Jan 05/2017	
210	BLANK		504	BLANK		209	Jan 05/2017	
31-31-01			31-33-01			210	Jan 05/2017	
401	Sep 05/2017		201	Sep 05/2017		211	Sep 05/2017	
402	Jan 05/2015		202	Sep 05/2017		212	Jan 05/2017	
403	Jan 05/2015		203	Sep 05/2017		213	Jan 05/2017	
404	Sep 05/2017		204	May 05/2018		214	Jan 05/2017	
405	May 05/2015		205	May 05/2018		31-35-02		
406	BLANK		206	May 05/2018		401	Sep 05/2017	
						402	Jan 05/2015	

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

31-EFFECTIVE PAGES



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
31-35-02 (cont)			31-41-04			31-41-11 (cont)		
403	Sep 05/2017		201	Jan 05/2018		204	May 05/2017	
404	Jan 05/2017		202	Jan 05/2018		205	Sep 05/2017	
405	Jan 05/2017		203	May 05/2018		206	BLANK	
406	Jan 05/2017		204	Jan 05/2018		31-41-11		
31-41-00			205	Jan 05/2018		401	May 05/2015	
201	May 05/2018		206	BLANK		402	Jan 05/2015	
202	Sep 05/2017		31-41-04			403	Jan 05/2015	
203	Sep 05/2017		401	May 05/2015		404	Jan 05/2016	
204	Jan 05/2015		402	Jan 05/2015		405	Jan 05/2018	
205	Jan 05/2015		403	Jan 05/2015		406	Jan 05/2018	
206	Sep 05/2017		404	Jan 05/2016		31-41-21		
207	Sep 05/2017		405	Jan 05/2018		201	Jan 05/2015	
208	BLANK		406	Jan 05/2018		202	Jan 05/2015	
31-41-00			31-41-05			203	Jan 05/2018	
501	May 05/2018		201	Jan 05/2018		204	Jan 05/2018	
502	Jan 05/2018		202	Jan 05/2018		31-41-21		
503	Jan 05/2018		203	May 05/2018		401	Sep 05/2017	
504	Jan 05/2018		204	Jan 05/2018		402	Jan 05/2015	
31-41-00			205	Jan 05/2018		403	Jan 05/2018	
601	May 05/2015		206	Jan 05/2018		404	Jan 05/2015	
602	BLANK		31-41-05			405	Jan 05/2015	
31-41-02			401	May 05/2015		406	Jan 05/2015	
201	Jan 05/2017		402	Jan 05/2015		407	May 05/2018	
202	May 05/2015		403	Jan 05/2015		408	Sep 05/2017	
203	May 05/2018		404	May 05/2018		409	May 05/2017	
204	May 05/2018		405	May 05/2018		410	May 05/2017	
205	Sep 05/2017		406	May 05/2018		411	May 05/2017	
206	BLANK		31-41-06			412	May 05/2017	
31-41-02			401	May 05/2015		413	May 05/2017	
401	May 05/2015		402	Jan 05/2015		414	May 05/2017	
402	Jan 05/2015		403	Jan 05/2015		415	May 05/2017	
403	Jan 05/2015		404	Jan 05/2016		416	May 05/2017	
404	Jan 05/2018		31-41-11			417	Sep 05/2017	
405	Jan 05/2018		201	Jan 05/2018		418	Jan 05/2018	
406	BLANK		202	Sep 05/2017				
			203	May 05/2018				

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

31-EFFECTIVE PAGES



**777-200/300
AIRCRAFT MAINTENANCE MANUAL**

**CHAPTER 31
INDICATING/RECORDING SYSTEMS**

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
31-51-00			31-61-00 (cont)			31-61-00 (cont)		
501	May 05/2015		209	Jan 05/2018		504	Jan 05/2015	
502	Jan 05/2015		210	Jan 05/2018		505	Jan 05/2015	
503	Jan 05/2015		211	Jan 05/2018		506	Jan 05/2015	
504	Jan 05/2015		212	Jan 05/2018		507	Jan 05/2015	
505	Sep 05/2017		213	Jan 05/2018		508	Jan 05/2015	
506	Sep 05/2017		214	Jan 05/2018		509	Jan 05/2015	
507	Sep 05/2017		215	Jan 05/2018		510	Jan 05/2015	
508	May 05/2015		216	Jan 05/2018		511	Jan 05/2015	
31-51-01			217	Jan 05/2018		512	May 05/2016	
201	Sep 05/2017		218	Jan 05/2018		513	Jan 05/2015	
202	May 05/2018		219	Jan 05/2018		514	Jan 05/2015	
203	Sep 05/2017		220	Jan 05/2018		515	Jan 05/2015	
204	BLANK		221	Jan 05/2018		516	Jan 05/2015	
31-51-01			222	Jan 05/2018		517	Jan 05/2015	
401	May 05/2015		223	Jan 05/2018		518	Jan 05/2015	
402	Sep 05/2017		224	Jan 05/2018		519	May 05/2016	
403	Jan 05/2015		225	Jan 05/2018		520	Jan 05/2015	
404	Jan 05/2015		226	Jan 05/2018		31-61-00		
405	May 05/2015		227	Jan 05/2018		601	May 05/2015	
406	Sep 05/2017		228	Jan 05/2018		602	May 05/2015	
407	Sep 05/2017		229	Jan 05/2018		603	May 05/2015	
408	Sep 05/2017		230	Jan 05/2018		604	May 05/2015	
31-51-02			231	Jan 05/2018		605	Jan 05/2015	
401	Jan 05/2015		232	Jan 05/2018		606	May 05/2015	
402	Jan 05/2015		233	Jan 05/2018		607	May 05/2015	
403	Jan 05/2015		234	Jan 05/2018		608	Jan 05/2015	
404	Jan 05/2015		235	Jan 05/2018		609	Jan 05/2015	
31-61-00			236	Jan 05/2018		610	Jan 05/2015	
201	Jan 05/2015		237	Jan 05/2018		31-61-01		
202	Jan 05/2018		238	Jan 05/2018		401	Sep 05/2017	
203	Jan 05/2018		239	Jan 05/2018		402	Sep 05/2017	
204	Jan 05/2018		240	Jan 05/2018		403	Jan 05/2015	
205	Jan 05/2018		31-61-00			404	May 05/2015	
206	Jan 05/2018		501	Jan 05/2015		405	Sep 05/2017	
207	Jan 05/2018		502	Jan 05/2015		406	Sep 05/2017	
208	Jan 05/2018		503	Jan 05/2015				

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

31-EFFECTIVE PAGES



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

Subject/Page	Date	COC	Subject/Page	Date	COC	Subject/Page	Date	COC
31-61-01			31-61-07			31-61-21 (cont)		
701	Sep 05/2017		401	May 05/2015		208	Sep 05/2017	
702	Sep 05/2017		402	Sep 05/2017		209	Sep 05/2017	
703	Sep 05/2017		403	Jan 05/2015		210	May 05/2018	
704	Sep 05/2017		404	Sep 05/2017		211	Sep 05/2017	
705	Sep 05/2017		405	Sep 05/2017		212	Jan 05/2015	
706	BLANK		406	Jan 05/2015		213	Jan 05/2015	
31-61-02			31-61-07			214	May 05/2018	
401	Sep 05/2017		701	Sep 05/2017		215	May 05/2018	
402	Jan 05/2015		702	Sep 05/2017		216	May 05/2018	
403	Sep 05/2017		31-61-08			217	May 05/2018	
404	Sep 05/2017		401	Jan 05/2015		218	May 05/2018	
31-61-03			402	Jan 05/2015		31-61-21		
401	Sep 05/2017		403	Jan 05/2015		501	Jan 05/2015	
402	Jan 05/2015		404	Jan 05/2015		502	Jan 05/2015	
403	Sep 05/2017		31-61-10			503	Jan 05/2015	
404	May 05/2015		201	Jan 05/2015		504	Jan 05/2015	
31-61-04			202	BLANK		505	Sep 05/2017	
401	Sep 05/2017		31-61-11			506	Sep 05/2017	
402	Jan 05/2015		401	Jan 05/2015		507	Sep 05/2017	
403	Sep 05/2017		402	Sep 05/2017		508	Jan 05/2015	
404	Sep 05/2017		403	Jan 05/2015		509	Jan 05/2015	
405	May 05/2015		404	Jan 05/2015		510	BLANK	
406	BLANK		405	Jan 05/2015		31-61-22		
31-61-05			406	Sep 05/2017		401	Jan 05/2015	
401	Sep 05/2017		407	Sep 05/2017		402	Sep 05/2017	
402	Jan 05/2017		408	Sep 05/2017		403	Jan 05/2015	
403	Sep 05/2017		409	Jan 05/2015		404	Sep 05/2017	
404	Sep 05/2017		410	Jan 05/2015		405	Jan 05/2015	
31-61-06			31-61-21			406	BLANK	
401	Sep 05/2017		201	May 05/2018				
402	Jan 05/2015		202	Sep 05/2017				
403	Sep 05/2017		203	Jan 05/2015				
404	Jan 05/2015		204	Jan 05/2015				
405	Jan 05/2015		205	May 05/2018				
406	BLANK		206	Jan 05/2018				
			207	Sep 05/2017				

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

31-EFFECTIVE PAGES



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	<u>CHAPTER SECTION</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>INDICATING AND RECORDING SYSTEMS - DDG MAINTENANCE PROCEDURES</u>	<u>31-00-00</u>		901	ARO ALL
DDG 31-09-02 Preparation - Systems Cardfiles Power Supplies Inoperative TASK 31-00-00-040-801			901	ARO ALL
DDG 31-09-02 Restoration - System Cardfiles Power Supplies Inoperative TASK 31-00-00-440-801			902	ARO ALL
DDG 31-35-01 Preparation - Quick Access Recorder Inoperative (EASA) TASK 31-00-00-040-815			903	ARO ALL
DDG 31-35-01 Restoration - Quick Access Recorder Inoperative (EASA) TASK 31-00-00-440-813			904	ARO ALL
DDG 31-51-04 Preparation - Warning Electronics System Channels Inoperative TASK 31-00-00-040-811			904	ARO ALL
DDG 31-51-04 Restoration - Warning Electronics System Channels Inoperative TASK 31-00-00-440-807			905	ARO ALL
DDG 31-61-04 Preparation - Display Select Panel (DSP) Inoperative TASK 31-00-00-040-803			906	ARO ALL
DDG 31-61-04 Restoration - Display Select Panel (DSP) Inoperative TASK 31-00-00-440-803			907	ARO ALL
DDG 31-61-05 Preparation - EICAS Status Messages Inoperative TASK 31-00-00-040-814			908	ARO ALL
DDG 31-61-05 Restoration - EICAS Status Messages Inoperative TASK 31-00-00-440-812			908	ARO ALL
DDG 31-61-06 Preparation - Inboard Display Selector Position Inoperative TASK 31-00-00-040-812			908	ARO ALL
DDG 31-61-06 Restoration - Inboard Display Selector Position Inoperative TASK 31-00-00-440-810			910	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
DDG 31-61-07 Preparation - Electronic Checklist (ECL) Inoperative TASK 31-00-00-040-806			910	ARO ALL
DDG 31-61-07 Restoration - Electronic Checklist (ECL) Inoperative TASK 31-00-00-440-809			911	ARO ALL
DDG 31-61-08 Preparation - EFIS Control Panel Inoperative TASK 31-00-00-040-804			912	ARO ALL
DDG 31-61-08 Restoration - EFIS Control Panel Inoperative TASK 31-00-00-440-804			913	ARO ALL
DDG 31-61-09 Preparation - Source Select Switch Inoperative TASK 31-00-00-040-805			913	ARO ALL
DDG 31-61-09 Restoration - Source Select Switch Inoperative TASK 31-00-00-440-805			914	ARO ALL
<u>SYSTEMS CARD FILES - REMOVAL/INSTALLATION</u>	31-09-00		401	ARO ALL
Systems Card Files Removal TASK 31-09-00-000-801			401	ARO ALL
Systems Card Files Installation TASK 31-09-00-400-801			406	ARO ALL
<u>SYSTEMS CARDFILES - ADJUSTMENT/TEST</u>	31-09-00		501	ARO ALL
Systems Cardfile - Operational Test TASK 31-09-00-710-801			501	ARO ALL
<u>SYSTEMS CARDFILE POWER SUPPLY - REMOVAL/INSTALLATION</u>	31-09-01		401	ARO ALL
Card File Power Supply (CFPS) Removal TASK 31-09-01-000-801			401	ARO ALL
Card File Power Supply (CFPS) Installation TASK 31-09-01-400-801			405	ARO ALL
<u>ARINC SIGNAL GATEWAY (ASG) CARD - MAINTENANCE PRACTICES</u>	31-09-02		201	ARO ALL
ASG Software Installation TASK 31-09-02-400-801			201	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>ARINC SIGNAL GATEWAY (ASG) CARD - REMOVAL/INSTALLATION</u>	31-09-02		401	ARO ALL
ARINC Signal Gateway (ASG) Card Removal TASK 31-09-02-000-801			401	ARO ALL
ARINC Signal Gateway (ASG) Card Installation TASK 31-09-02-400-802			404	ARO ALL
<u>LEFT FORWARD PANEL - COMPONENT LOCATION</u>	31-11-11		101	ARO ALL
<u>CENTER FORWARD PANEL - COMPONENT LOCATION</u>	31-11-16		101	ARO ALL
<u>GLARESHIELD PANEL - COMPONENT LOCATION</u>	31-11-21		101	ARO ALL
<u>RIGHT FORWARD PANEL - COMPONENT LOCATION</u>	31-11-26		101	ARO ALL
<u>FORWARD AISLE STAND PANEL - COMPONENT LOCATION</u>	31-11-31		101	ARO ALL
<u>AFT AISLE STAND PANEL - COMPONENT LOCATION</u>	31-11-36		101	ARO ALL
<u>CONTROL STAND - COMPONENT LOCATION</u>	31-11-41		101	ARO ALL
<u>OVERHEAD PANEL - COMPONENT LOCATION</u>	31-12-11		101	ARO ALL
<u>OVERHEAD MAINTENANCE PANEL - COMPONENT LOCATION</u>	31-12-16		101	ARO ALL
<u>LEFT AND RIGHT SIDEWALL PANELS - COMPONENT LOCATION</u>	31-13-20		101	ARO ALL
<u>OBSERVERS PANELS - COMPONENT LOCATION</u>	31-15-11		101	ARO ALL
<u>CLOCKS - ADJUSTMENT/TEST</u>	31-25-00		501	ARO ALL
Clocks - System Test TASK 31-25-00-730-802			501	ARO ALL
<u>FLIGHT DATA RECORDER SYSTEM (FDRS) - ADJUSTMENT/TEST</u>	31-31-00		501	ARO ALL
Flight Data Recorder System - Operational Test TASK 31-31-00-710-801			501	ARO ALL
Flight Data Recorder System - System Test TASK 31-31-00-730-801			502	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

SUBJECT	CHAPTER SECTION	CONF	PAGE	EFFECT
<u>FLIGHT DATA RECORDER (FDR) - MAINTENANCE PRACTICES</u>	<u>31-31-01</u>		201	ARO ALL
Flight Data Recorder - Deactivation TASK 31-31-01-040-801			201	ARO ALL
Flight Data Recorder - Activation TASK 31-31-01-440-801			202	ARO ALL
Make a Copy of the Data from the Honeywell HFR5-D SSFDR with the Flight Data Recorder Download Unit TASK 31-31-01-970-808			203	ARO ALL
Make a Copy of the FDR data with the Hand Held Multipurpose Interface (HHMPI) TASK 31-31-01-970-809			205	ARO ALL
Download the Flight Data Recorder (FDR) data via the ONS TASK 31-31-01-970-810			208	ARO 016-999
<u>FLIGHT DATA RECORDER (FDR) - REMOVAL/INSTALLATION</u>	<u>31-31-01</u>		401	ARO ALL
Flight Data Recorder Removal TASK 31-31-01-000-801			401	ARO ALL
Flight Data Recorder Installation TASK 31-31-01-400-801			404	ARO ALL
<u>UNDERWATER LOCATOR BEACON - MAINTENANCE PRACTICES</u>	<u>31-31-09</u>		201	ARO ALL
Underwater Locator Beacon Removal TASK 31-31-09-000-801			201	ARO ALL
Underwater Locator Beacon Date Check TASK 31-31-09-200-802			203	ARO ALL
Dukane Underwater Locator Beacon Battery - Replacement TASK 31-31-09-960-801			203	ARO ALL
Teledyne Benthos Underwater Locator Beacon Battery - Replacement TASK 31-31-09-960-802			207	ARO ALL
Underwater Locator Beacon Test with a 42A12 Test Set TASK 31-31-09-700-801			210	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
Underwater Locator Beacon Test with a PL1 Test Set TASK 31-31-09-700-802			211	ARO ALL
Underwater Locator Beacon Test with a PL3 Test Set TASK 31-31-09-700-804			211	ARO ALL
Underwater Locator Beacon Test with an ATS-260 Test Set TASK 31-31-09-700-803			212	ARO ALL
Underwater Locator Beacon Test with a TS100 Test Set TASK 31-31-09-700-809			213	ARO ALL
Underwater Locator Beacon Test with a TS200 Test Set TASK 31-31-09-700-806			214	ARO ALL
Underwater Locator Beacon Installation TASK 31-31-09-400-801			215	ARO ALL
<u>FLIGHT COMPARTMENT PRINTING - MAINTENANCE PRACTICES</u>	31-33-00		201	ARO ALL
Flight Compartment Printer Paper Replacement TASK 31-33-00-960-802			201	ARO ALL
<u>FLIGHT COMPARTMENT PRINTING - ADJUSTMENT/TEST</u>	31-33-00		501	ARO ALL
Flight Compartment Printing - Operational Test TASK 31-33-00-710-801			501	ARO ALL
Flight Compartment Printing - System Test TASK 31-33-00-730-801			502	ARO ALL
<u>FLIGHT COMPARTMENT PRINTER - MAINTENANCE PRACTICES</u>	31-33-01		201	ARO ALL
Flight Compartment Printer - Deactivation TASK 31-33-01-040-801			201	ARO ALL
Flight Compartment Printer - Activation TASK 31-33-01-440-801			202	ARO ALL
Flight Compartment Printer Software Installation TASK 31-33-01-400-802			203	ARO 001-014

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

		CHAPTER		
		SECTION		
<u>SUBJECT</u>	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>FLIGHT COMPARTMENT PRINTER -</u>	31-33-01		401	ARO ALL
<u>REMOVAL/INSTALLATION</u>				
Flight Compartment Printer Removal			401	ARO ALL
TASK 31-33-01-000-801				
Flight Compartment Printer Installation			405	ARO ALL
TASK 31-33-01-400-801				
<u>AIRPLANE CONDITION MONITORING SYSTEM</u>	31-35-00		201	ARO ALL
<u>(ACMS) - MAINTENANCE PRACTICES</u>				
How to Get AIMS BITE History Data			201	ARO ALL
TASK 31-35-00-740-801				
<u>AIRPLANE CONDITION MONITORING SYSTEM</u>	31-35-00		501	ARO ALL
<u>(ACMS) - ADJUSTMENT/TEST</u>				
Airplane Condition Monitoring System -			501	ARO ALL
Operational Test				
TASK 31-35-00-710-801				
Airplane Condition Monitoring System - System			501	ARO ALL
Test				
TASK 31-35-00-730-801				
<u>QUICK ACCESS RECORDER - MAINTENANCE</u>	31-35-02		201	ARO ALL
<u>PRACTICES</u>				
WGL-QAR Recording Media Removal			201	ARO ALL
TASK 31-35-02-000-805				
WGL-QAR Recording Media Installation			202	ARO ALL
TASK 31-35-02-400-805				
WGL-QAR Software Installation			203	ARO ALL
TASK 31-35-02-470-804				
WGL-QAR Software Installation			206	ARO 011-999 POST
TASK 31-35-02-400-806				SB2243800-31-27;
				AIRPLANES WITH
				TELEDYNE
				2243800-362/-364
WGL-QAR Verify and Set the bipolar_rate			212	ARO 001-010; AIRPLANES
Parameter to AUTO				WITH TELEDYNE
TASK 31-35-02-800-801				2243800-61/-73/-79/-81

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

SUBJECT	CHAPTER SECTION	CONF	PAGE	EFFECT
<u>QUICK ACCESS RECORDER - REMOVAL/INSTALLATION</u>	<u>31-35-02</u>		401	ARO ALL
Quick Access Recorder (QAR) Removal TASK 31-35-02-000-803			401	ARO ALL
Quick Access Recorder (QAR) Installation TASK 31-35-02-400-803			403	ARO ALL
<u>AIRPLANE INFORMATION MANAGEMENT SYSTEM (AIMS) - MAINTENANCE PRACTICES</u>	<u>31-41-00</u>		201	ARO ALL
AIMS LRM Removal TASK 31-41-00-000-801			201	ARO ALL
AIMS LRM Installation TASK 31-41-00-400-801			206	ARO ALL
<u>AIRPLANE INFORMATION MANAGEMENT SYSTEM (AIMS) - ADJUSTMENT/TEST</u>	<u>31-41-00</u>		501	ARO ALL
Airplane Information Management System (AIMS) - Operational Test TASK 31-41-00-710-801			501	ARO ALL
Airplane Information Management System (AIMS) - System Test TASK 31-41-00-730-801			503	ARO ALL
<u>AIRPLANE INFORMATION MANAGEMENT SYSTEM - INSPECTION/CHECK</u>	<u>31-41-00</u>		601	ARO ALL
AIMS Loss of LRM Redundancy - Check TASK 31-41-00-710-803			601	ARO ALL
<u>CORE PROCESSOR MODULE/GRAPHICS GENERATOR - MAINTENANCE PRACTICES</u>	<u>31-41-02</u>		201	ARO ALL
Core Processor Module/GG Software Installation TASK 31-41-02-420-804			201	ARO ALL
<u>CORE PROCESSOR MODULE/GRAPHICS GENERATOR - REMOVAL/INSTALLATION</u>	<u>31-41-02</u>		401	ARO ALL
Core Processor Module/Graphics Generator (CPM/GG) Removal TASK 31-41-02-000-801			401	ARO ALL
Core Processor Module/Graphics Generator (CPM/GG) Installation TASK 31-41-02-400-801			404	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	CHAPTER SECTION <u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>CORE PROCESSOR MODULE/COMMUNICATION - MAINTENANCE PRACTICES</u>	31-41-04		201	ARO ALL
Core Processor Module/COMM Software Installation TASK 31-41-04-420-804			201	ARO ALL
<u>CORE PROCESSOR MODULE/COMMUNICATION - REMOVAL/INSTALLATION</u>	31-41-04		401	ARO ALL
Core Processor Module/Communication (CPM/Comm) Removal TASK 31-41-04-000-802			401	ARO ALL
Core Processor Module/Communication (CPM/Comm) Installation TASK 31-41-04-400-802			404	ARO ALL
<u>CORE PROCESSOR MODULE/STANDARD - MAINTENANCE PRACTICES</u>	31-41-05		201	ARO ALL
Core Processor Module/Standard Software Installation TASK 31-41-05-420-801			201	ARO ALL
<u>CORE PROCESSOR MODULE/STD - REMOVAL/INSTALLATION</u>	31-41-05		401	ARO ALL
Core Processor Module/STD Removal TASK 31-41-05-000-801			401	ARO ALL
Core Processor Module/STD Installation TASK 31-41-05-400-801			404	ARO ALL
<u>POWER CONDITIONING MODULE - REMOVAL/INSTALLATION</u>	31-41-06		401	ARO ALL
Power conditioning Module (PCM) Removal TASK 31-41-06-000-801			401	ARO ALL
Power Conditioning Module (PCM) Installation TASK 31-41-06-400-801			404	ARO ALL
<u>INPUT/OUTPUT MODULE - MAINTENANCE PRACTICES</u>	31-41-11		201	ARO ALL
Input/Output Module (IOM) Software Installation TASK 31-41-11-420-806			201	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>INPUT/OUTPUT MODULE - REMOVAL/INSTALLATION</u>	31-41-11		401	ARO ALL
Input/Output Module (IOM) Removal TASK 31-41-11-000-801			401	ARO ALL
Input/Output Module (IOM) Installation TASK 31-41-11-400-801			404	ARO ALL
<u>AIMS CABINET - MAINTENANCE PRACTICES</u>	31-41-21		201	ARO ALL
AIMS Cabinet Batch Software Installation TASK 31-41-21-470-801			201	ARO ALL
Nuisance Display of Data Load Option Box after AIMS Power-up - Troubleshooting TASK 31-41-21-470-802			203	ARO ALL
<u>AIMS CABINET - REMOVAL/INSTALLATION</u>	31-41-21		401	ARO ALL
AIMS Cabinet Removal TASK 31-41-21-000-802			401	ARO ALL
AIMS Cabinet Installation TASK 31-41-21-400-801			407	ARO ALL
<u>WARNING ELECTRONIC SYSTEM - ADJUSTMENT/TEST</u>	31-51-00		501	ARO ALL
Warning Electronic System - System Test TASK 31-51-00-730-801			501	ARO ALL
Fire/Ovht Warning Signals Test TASK 31-51-00-710-801			506	ARO ALL
<u>WARNING ELECTRONIC UNIT (WEU) - MAINTENANCE PRACTICES</u>	31-51-01		201	ARO ALL
Warning Electronic Unit Software Installation TASK 31-51-01-400-802			201	ARO ALL
<u>WARNING ELECTRONIC UNIT - REMOVAL/INSTALLATION</u>	31-51-01		401	ARO ALL
Warning Electronic Unit Removal TASK 31-51-01-000-801			401	ARO ALL
Warning Electronic Unit Installation TASK 31-51-01-400-801			405	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>WARNING SPEAKER - REMOVAL/INSTALLATION</u>	31-51-02		401	ARO ALL
Warning Speaker Removal TASK 31-51-02-000-801			401	ARO ALL
Warning Speaker Installation TASK 31-51-02-400-801			403	ARO ALL
<u>PRIMARY DISPLAY SYSTEM - MAINTENANCE PRACTICES</u>	31-61-00		201	ARO ALL
Using the Cursor Control Device TASK 31-61-00-800-801			201	ARO ALL
Showing Alert Messages TASK 31-61-00-800-814			206	ARO ALL
Showing Status Messages TASK 31-61-00-800-813			208	ARO ALL
Erasing a EICAS Status Message Latched by AIMS TASK 31-61-00-800-802			210	ARO ALL
Showing Scheduled Maintenance Tasks TASK 31-61-00-800-815			213	ARO ALL
Erasing a Scheduled Maintenance Task TASK 31-61-00-800-803			214	ARO ALL
Showing a System Synoptic Page TASK 31-61-00-800-816			215	ARO ALL
Showing a Maintenance Page TASK 31-61-00-800-804			216	ARO ALL
Showing a Snapshot TASK 31-61-00-800-805			219	ARO ALL
Erasing a Snapshot with the Page Menu TASK 31-61-00-800-806			223	ARO ALL
Making a Snapshot of a Maintenance Page with the Page Menu TASK 31-61-00-800-807			226	ARO ALL
Printing a Maintenance Page or Snapshot with the Page Menu TASK 31-61-00-800-808			227	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
Sending a Maintenance Page or a Snapshot with the Page Menu TASK 31-61-00-800-809			228	ARO ALL
Erasing a Snapshot with the Erase Selection Menu TASK 31-61-00-800-810			230	ARO ALL
Printing a Maintenance Page or a Snapshot with the Print Selection Menu TASK 31-61-00-800-811			233	ARO ALL
Sending a Maintenance Page or a Snapshot with the Datalink Selection Menu TASK 31-61-00-800-812			236	ARO ALL
How to Use the Electronic Checklist TASK 31-61-00-800-817			239	ARO ALL
<u>PRIMARY DISPLAY SYSTEM - ADJUSTMENT/TEST</u>	31-61-00		501	ARO ALL
Primary Display System - Operational Test TASK 31-61-00-710-801			501	ARO ALL
Primary Display System - System Test TASK 31-61-00-730-801			507	ARO ALL
<u>PRIMARY DISPLAY SYSTEM - INSPECTION/CHECK</u>	31-61-00		601	ARO ALL
Display Units - Check TASK 31-61-00-710-810			601	ARO ALL
Inboard Display Select Switches - Check TASK 31-61-00-710-806			601	ARO ALL
Instrument Source Select Switches - Check TASK 31-61-00-710-807			602	ARO ALL
Display Control Switches - Check TASK 31-61-00-710-808			606	ARO ALL
Coaxial Coupler - Check TASK 31-61-00-710-809			607	ARO ALL
<u>DISPLAY UNIT - REMOVAL/INSTALLATION</u>	31-61-01		401	ARO ALL
Display Unit Removal TASK 31-61-01-000-801			401	ARO ALL
Display Unit Installation TASK 31-61-01-400-801			404	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	CHAPTER SECTION	<u>SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
<u>DISPLAY UNIT - CLEANING/PAINTING</u>		31-61-01		701	ARO ALL
Display Surface Cleaning TASK 31-61-01-100-801				701	ARO ALL
Display Unit Light Sensor Cleaning TASK 31-61-01-100-802				704	ARO ALL
Display Unit Cooling Air Inlet Screen Cleaning TASK 31-61-01-100-803				705	ARO ALL
<u>EFIS CONTROL PANEL - REMOVAL/INSTALLATION</u>	31-61-02			401	ARO ALL
EFIS Control Panel Removal TASK 31-61-02-000-801				401	ARO ALL
EFIS Control Panel Installation TASK 31-61-02-400-801				403	ARO ALL
<u>DISPLAY SELECT PANEL - REMOVAL/INSTALLATION</u>	31-61-03			401	ARO ALL
Display Select Panel Removal TASK 31-61-03-000-801				401	ARO ALL
Display Select Panel Installation TASK 31-61-03-400-801				403	ARO ALL
<u>CENTER DISPLAY CONTROL PANEL - REMOVAL/INSTALLATION</u>	31-61-04			401	ARO ALL
Center Display Control Panel Removal TASK 31-61-04-000-801				401	ARO ALL
Center Display Control Panel Installation TASK 31-61-04-400-801				403	ARO ALL
<u>INSTRUMENT SOURCE SELECT PANEL - REMOVAL/INSTALLATION</u>	31-61-05			401	ARO ALL
Instrument Source Select Panel Removal TASK 31-61-05-000-801				401	ARO ALL
Instrument Source Select Panel Installation TASK 31-61-05-400-801				403	ARO ALL
<u>DISPLAY SWITCHING PANEL - REMOVAL/INSTALLATION</u>	31-61-06			401	ARO ALL
Display Switching Panel Removal TASK 31-61-06-000-801				401	ARO ALL

31-CONTENTS



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CHAPTER 31
INDICATING/RECORDING SYSTEMS

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
Display Switching Panel Installation TASK 31-61-06-400-801			403	ARO ALL
<u>CURSOR CONTROL DEVICE - REMOVAL/INSTALLATION</u>	31-61-07		401	ARO ALL
Cursor Control Device Removal TASK 31-61-07-000-801			401	ARO ALL
Cursor Control Device Installation TASK 31-61-07-400-801			404	ARO ALL
<u>CURSOR CONTROL DEVICE - CLEANING/PAINTING</u>	31-61-07		701	ARO ALL
Touch Pad Surface Cleaning TASK 31-61-07-100-801			701	ARO ALL
<u>REMOTE LIGHT SENSOR - REMOVAL/INSTALLATION</u>	31-61-08		401	ARO ALL
Remote Light Sensor Removal TASK 31-61-08-000-801			401	ARO ALL
Remote Light Sensor Installation TASK 31-61-08-400-801			403	ARO ALL
<u>PRIMARY DISPLAY SYSTEM SOFTWARE INSTALLATION - MAINTENANCE PRACTICES</u>	31-61-10		201	ARO ALL
Primary Display System Software Installation TASK 31-61-10-400-801			201	ARO ALL
<u>COAXIAL COUPLER - REMOVAL/INSTALLATION</u>	31-61-11		401	ARO ALL
Coaxial Coupler Removal TASK 31-61-11-000-801			401	ARO ALL
Coaxial Coupler Installation TASK 31-61-11-400-801			405	ARO ALL
<u>GROUND MANEUVER CAMERA SYSTEM - MAINTENANCE PRACTICES</u>	31-61-21		201	ARO ALL
Nose Gear Taxi Camera Removal TASK 31-61-21-000-801			201	ARO ALL
Nose Gear Taxi Camera Installation TASK 31-61-21-400-801			205	ARO ALL
Main Gear Taxi Camera Removal TASK 31-61-21-000-802			210	ARO ALL

31-CONTENTS



**777-200/300
AIRCRAFT MAINTENANCE MANUAL**

**CHAPTER 31
INDICATING/RECORDING SYSTEMS**

<u>SUBJECT</u>	<u>CHAPTER SECTION SUBJECT</u>	<u>CONF</u>	<u>PAGE</u>	<u>EFFECT</u>
Main Gear Taxi Camera Installation TASK 31-61-21-400-802			214	ARO ALL
<u>GROUND MANEUVER CAMERA SYSTEM - ADJUSTMENT/TEST</u>	31-61-21		501	ARO ALL
Ground Maneuver Camera System - System Test TASK 31-61-21-730-801			501	ARO ALL
Ground Maneuver Camera System - Alignment TASK 31-61-21-730-802			504	ARO ALL
<u>TAXI CAMERA INTERFACE UNIT - REMOVAL/INSTALLATION</u>	31-61-22		401	ARO ALL
Taxi Camera Interface Unit Removal TASK 31-61-22-000-801			401	ARO ALL
Taxi Camera Interface Unit Installation TASK 31-61-22-400-801			404	ARO ALL

31-CONTENTS



777-200/300 AIRCRAFT MAINTENANCE MANUAL

INDICATING AND RECORDING SYSTEMS - 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 certain systems/components 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 indicating and recording systems:
 - (1) DDG 31-09-02 Preparation - Systems Cardfiles Power Supplies Inoperative
 - (2) DDG 31-09-02 Restoration - Systems Cardfiles Power Supplies Inoperative
 - (3) DDG 31-35-01 Preparation - Quick Access Recorder Inoperative
 - (4) DDG 31-35-01 Restoration - Quick Access Recorder Inoperative
 - (5) DDG 31-51-04 Preparation - Warning Electronics System Channels Inoperative
 - (6) DDG 31-51-04 Restoration - Warning Electronics System Channels Inoperative
 - (7) DDG 31-61-04 Preparation - Display Select Panel (DSP) Inoperative
 - (8) DDG 31-61-04 Restoration - Display Select Panel (DSP) Inoperative
 - (9) DDG 31-61-05 Preparation - EICAS Status Messages Inoperative
 - (10) DDG 31-61-05 Restoration - EICAS Status Messages Inoperative
 - (11) DDG 31-61-06 Preparation - Inboard Display Selector Position Inoperative
 - (12) DDG 31-61-06 Restoration - Inboard Display Selector Position Inoperative
 - (13) DDG 31-61-07 Preparation - Electronic Checklist (ECL) Inoperative
 - (14) DDG 31-61-07 Restoration - Electronic Checklist (ECL) Inoperative
 - (15) DDG 31-61-08 Preparation - EFIS Control Panels Inoperative
 - (16) DDG 31-61-08 Restoration - EFIS Control Panels Inoperative
 - (17) DDG 31-61-09 Preparation - Instrument Source Selectors Inoperative
 - (18) DDG 31-61-09 Restoration - Instrument Source Selectors Inoperative

TASK 31-00-00-040-801

2. DDG 31-09-02 Preparation - Systems Cardfiles Power Supplies Inoperative

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with systems cardfiles power supplies that do not operate.
- (2) The power supply preregulator cards and the linear monitors are interchangeable.
- (3) The left system cardfiles can have one power supply that does not operate.
- (4) The right system cardfiles can have one power supply that does not operate.
 - (a) If power supply 1 does not operate, the left Air/Ground system must operate correctly.
- (5) EICAS Status Messages
 - (a) LSCF PWR SUPPLY 1
 - (b) LSCF PWR SUPPLY 2
 - (c) RSCF PWR SUPPLY 1
 - (d) RSCF PWR SUPPLY 2

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 901
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Deactivation of the left system cardfile power supplies

SUBTASK 31-00-00-865-001

- (1) For an inoperative left systems cardfile power supply 1, open and collar P310 panel LSCF PS 1 circuit breaker.

Standby Power Management Panel, P310

Row	Col	Number	Name
J	1	C31634	LSCF PS 1

SUBTASK 31-00-00-865-002

- (2) For an inoperative left systems cardfile power supply 2, open and collar P310 panel LSCF PS 2 circuit breaker.

Standby Power Management Panel, P310

Row	Col	Number	Name
C	6	C31637	LSCF PS 2

D. Deactivation of the right system cardfile power supplies

SUBTASK 31-00-00-865-003

- (1) For an inoperative right systems cardfile power supply 1, open and collar P310 panel RSCF PS 1 circuit breaker.

Standby Power Management Panel, P310

Row	Col	Number	Name
J	2	C31638	RSCF PS 1

SUBTASK 31-00-00-865-004

- (2) For inoperative right systems cardfile power supply 2, open and collar P210 panel RSCF PS 2 circuit breaker.

Right Power Management Panel, P210

Row	Col	Number	Name
L	14	C31641	RSCF PS 2

————— END OF TASK —————

TASK 31-00-00-440-801

3. DDG 31-09-02 Restoration - System Cardfiles Power Supplies Inoperative

A. General

- (1) This task puts the airplane back to its usual condition after operation with systems cardfiles power supplies that do not operate.

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 902
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

B. Reactivation of the Left System Cardfile Power Supplies

SUBTASK 31-00-00-865-006

- (1) For the left systems cardfile power supply 1, remove the collar from the P310 panel and close LSCF PS1 circuit breaker.

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	1	C31634	LSCF PS 1

SUBTASK 31-00-00-865-005

- (2) For the left systems cardfile power supply 2, remove the collar from the P310 panel and close LSCF PS2 circuit breaker.

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2

C. Reactivate the right system cardfile power supplies

SUBTASK 31-00-00-865-007

- (1) For the right systems cardfile power supply 1, remove the collar from the P310 panel and close RSCF PS1 circuit breaker.

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

SUBTASK 31-00-00-865-008

- (2) For the right systems cardfile power supply 2, remove the collar from the P210 panel and close RSCF PS2 circuit breaker.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

————— END OF TASK —————

TASK 31-00-00-040-815

4. DDG 31-35-01 Preparation - Quick Access Recorder Inoperative (EASA)

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with the Quick Access Recorder inoperative.
 - (a) This procedure is only for aircraft using the EASA MMEL. DDG Maintenance procedures with no regulatory authority identification in the procedure title apply to both FAA and EASA MMELs.
 - (b) The Quick Access Recorder may be inoperative when used for flight data monitoring (FDM) purposes provided alternate procedures are established and used.

B. Procedure

SUBTASK 31-00-00-800-002

- (1) Alternate procedures must be established and used.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 903
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-00-00-440-813

5. DDG 31-35-01 Restoration - Quick Access Recorder Inoperative (EASA)

A. General

- (1) This task puts the airplane back to its usual condition after operation with a airborne printer (flight deck) inoperative.
- (2) To put the airplane to usual condition, replace the inoperative Quick Access Recorder.

B. References

Reference	Title
31-35-02 P/B 401	QUICK ACCESS RECORDER - REMOVAL/INSTALLATION

C. Procedure

SUBTASK 31-00-00-900-002

- (1) Do the task: QUICK ACCESS RECORDER - REMOVAL/INSTALLATION, PAGEBLOCK 31-35-02/401

————— END OF TASK —————

TASK 31-00-00-040-811

6. DDG 31-51-04 Preparation - Warning Electronics System Channels Inoperative

A. General

- (1) This task gives the maintenance steps which prepare the airplane for flight with one warning electronics system channel that is inoperative or disconnected.
- (2) The airplane can be dispatched with one channel that does not operate if you do the steps that follow:
 - (a) Make sure that both stabilizer position and green band indicators operate normally.
 - (b) Make sure that SPEED LIM flag does not display next to the airspeed indication on the PFD displays.
- (3) EICAS Status Messages
 - (a) WEU CHANNEL L1
 - (b) WEU CHANNEL L2
 - (c) WEU CHANNEL R1
 - (d) WEU CHANNEL R2

B. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right

C. Deactivation of an inoperative WEU channel

SUBTASK 31-00-00-710-022

- (1) Check the EICAS messages to make sure that no more than one WEU channel does not operate.

NOTE: The warning electronic system (WES) consists of four warning electronic unit (WEU) channels.

SUBTASK 31-00-00-710-023

- (2) Deactivate the inoperative WEU channel

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 904
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-00-00-865-009

- (3) For WEU CHANNEL L1, open and collar ELMS P310 Panel WARNING ELECTRONIC - L1 circuit breaker.

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1

NOTE: STALL WARNING SYS L and WARNING SPEAKER L status messages will be displayed. The airplane must also be dispatched using MMEL items 27-32-01 and 31-51-03.

For WEU CHANNEL L2, open and collar ELMS P310 Panel WARNING ELECTRONIC - L2 circuit breaker.

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	9	C31655	WEU L2

NOTE: STALL WARNING SYS L status message will be displayed. The airplane must also be dispatched using MMEL items 27-32-01.

For WEU CHANNEL R1, open and collar ELMS P210 Panel WARNING ELECTRONIC - R1 circuit breaker.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1

NOTE: STALL WARNING SYS R and WARNING SPEAKER R status messages will be displayed. The airplane must also be dispatched using MMEL items 27-32-01 and 31-51-03.

For WEU CHANNEL R2, open and collar ELMS P210 Panel WARNING ELECTRONIC - R2 circuit breaker.

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	14	C31654	WEU R2

NOTE: STALL WARNING SYS R status message will be displayed. The airplane must also be dispatched using MMEL items 27-32-01.

SUBTASK 31-00-00-710-025

- (4) Put a DO NOT CLOSE tag on the circuit breaker for the inoperative WEU channel that does not operate.

————— END OF TASK —————

TASK 31-00-00-440-807

7. DDG 31-51-04 Restoration - Warning Electronics System Channels Inoperative

A. References

<u>Reference</u>	<u>Title</u>
31-51-01-000-801	Warning Electronic Unit Removal (P/B 401)
31-51-01-400-801	Warning Electronic Unit Installation (P/B 401)

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 905
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

B. Reactivation of an inoperative WEU channel

SUBTASK 31-00-00-960-005

- (1) Replace the applicable warning electronic unit
 - (a) These are the tasks:
Warning Electronic Unit Removal, TASK 31-51-01-000-801,
Warning Electronic Unit Installation, TASK 31-51-01-400-801.

————— END OF TASK —————

TASK 31-00-00-040-803

8. DDG 31-61-04 Preparation - Display Select Panel (DSP) Inoperative

A. General

- (1) This task gives the maintenance steps which make sure the airplane can be released for flight with the display select panel (DSP) inoperative.
- (2) The DSP panel may be inoperative provided the left and the right control display units (CDU) display select panel backup feature is verified to operate normally.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Make sure the left and right CDU DSP backup features operate normally

SUBTASK 31-00-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-00-00-710-003

- (2) Do these steps on the left control display unit (CDU) to make sure the display select panel backup feature operates normally for the left CDU:
 - (a) Push the MENU key to show the CDU menu.
NOTE: The MENU page shows on the CDU.
 - (b) Push the key adjacent to DSP CTL OFF<->ON>.
 - 1) Make sure ON shows in green.
 - (c) Push the key adjacent to DSP>.
NOTE: The DISPLAY MODES page shows on the CDU.
 - (d) Push the key adjacent to SYNOPTICS>.
NOTE: The DISPLAY SYNOPTICS page shows on the CDU.
 - (e) Push the key adjacent to DOOR>.
 - 1) Make sure the DOOR synoptics page shows on the lower center display unit (DU).
 - (f) Push the MENU key on the CDU to show the MENU page.
 - (g) Push the key adjacent to DSP CTL OFF<->ON>.
 - 1) Make sure OFF shows in green.

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 906
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-00-00-710-004

- (3) Do these steps on the right control display unit (CDU) to make sure the display select panel backup feature operates normally for the right CDU:
- (a) Push the MENU key to show the CDU menu.
NOTE: The control display unit MENU page shows on the CDU.
 - (b) Push the key adjacent to DSP CTL OFF<->ON>.
 - 1) Make sure ON shows in green.
 - (c) Push the key adjacent to DSP>.
NOTE: The DISPLAY MODES page shows on the CDU.
 - (d) Push the key adjacent to SYNOPTICS>.
NOTE: The DISPLAY SYNOPTICS page shows on the CDU.
 - (e) Push the key adjacent to GEAR>.
 - 1) Make sure the GEAR synoptics page shows on the lower center display unit (DU).
 - (f) Push the MENU key on the CDU to show the MENU.
 - (g) Push the key adjacent to DSP CTL OFF<->ON>.
 - 1) Make sure OFF shows in green.

————— END OF TASK —————

TASK 31-00-00-440-803

9. DDG 31-61-04 Restoration - Display Select Panel (DSP) Inoperative

A. General

- (1) This task puts the airplane back to its usual condition after operation with the display select panel (DSP) inoperative.

B. References

Reference	Title
31-61-03-000-801	Display Select Panel Removal (P/B 401)
31-61-03-400-801	Display Select Panel Installation (P/B 401)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Replacement of an inoperative display select panel

SUBTASK 31-00-00-960-002

- (1) Replace the inoperative display select panel.
- These are the tasks:
- Display Select Panel Removal, TASK 31-61-03-000-801,
Display Select Panel Installation, TASK 31-61-03-400-801.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 907
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-00-00-040-814

10. DDG 31-61-05 Preparation - EICAS Status Messages Inoperative

A. General

- (1) This task gives the maintenance steps which make sure the airplane can be released for flight with some EICAS status messages inoperative.
- (2) Inoperative EICAS status messages are erroneous (nuisance) status messages. They provide false annunciations on the working condition of a specific system. If the system can be verified to operate normally, the airplane can be released for flight.

NOTE: If the EICAS status message FLIGHT CONTROL SYS is determined to be inoperative, there is no acceptable procedure available to make sure that the Flight Control system operate normally. In this case, the airplane can not fly.

B. Procedure

SUBTASK 31-00-00-710-026

- (1) Verify that the equipment associated with the EICAS status message operates normally.
 - (a) Do the operational test for the associated system.
 - (b) Make sure that the system operates correctly.

————— END OF TASK —————

TASK 31-00-00-440-812

11. DDG 31-61-05 Restoration - EICAS Status Messages Inoperative

A. General:

- (1) No Maintenance action is required.

NOTE: Nuisance status EICAS messages should be reviewed and fixed by Boeing Design Engineers.

————— END OF TASK —————

TASK 31-00-00-040-812

12. DDG 31-61-06 Preparation - Inboard Display Selector Position Inoperative

A. General

- (1) This task gives maintenance steps to prepare the airplane for flight with an inoperative position on the inboard display (INBOARD DSPL) selector.
- (2) One of the position may be inoperative provided:
 - (a) The lower center display unit operates correctly.
 - (b) The remaining positions operate correctly on the related selector.
 - (c) Alternate procedures are used when required.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 908
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

D. Make sure that the inboard display (INBOARD DSPL) selector with the inoperative position operates correctly in the remaining positions.

SUBTASK 31-00-00-861-001

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 31-00-00-860-015

- (2) Do these steps to make sure that the PFD position operates correctly:
- (a) Position the INBOARD DSPL selector with the inoperative position to PFD.
 - (b) Verify the associated side's inboard displays the PFD and the outboard display blanks.
 - (c) On the glareshield panel (P55), use the Display Select Panel (DSP) to select the inboard display unit associated with the inoperative INBOARD DSPL selector (L INBD or R INBD).
 - (d) On the DSP, verify that no other DSP selections will overwrite the PFD displayed on the inboard display.

SUBTASK 31-00-00-860-016

- (3) Do these steps to make sure that the MFD position operates correctly:
- (a) Position INBOARD DSPL selector with the inoperative position to MFD.
 - (b) On the glareshield panel (P55), use the Display Select Panel (DSP) to select the inboard display unit associated with the inoperative INBOARD DSPL selector (L INBD or R INBD).
 - (c) On the DSP, select the NAV position.
 - 1) Ensure the navigation display (ND) format appears on the associated inboard display unit.
 - 2)) Use the EFIS Control Panel to adjust the range and modes on the ND to confirm the associated inboard display unit is properly responding to the EFIS CONTROL PANEL.
 - (d) On the DSP, one at a time, select the COMM and CHKL, and at least two synoptic formats. As each DSP selection is made, ensure the selected format appears on the associated inboard display unit.

SUBTASK 31-00-00-860-017

- (4) Do these steps to make sure that the NAV position operates correctly:
- (a) Position INBOARD DSPL selector with the inoperative position to NAV.
 - (b) Ensure the ND format appears on the associated inboard display unit.
 - (c) Use the EFIS Control Panel to adjust the range and modes on the ND to confirm the associated inboard display unit is properly responding to the EFIS CONTROL PANEL.
 - (d) On the DSP, select any format other than NAV and ensure that the associated inboard display unit remains in the ND format.

SUBTASK 31-00-00-860-018

- (5) Do these steps to make sure that the EICAS position operates correctly:
- (a) Position the INBOARD DSPL selector with the inoperative position to EICAS.
 - (b) Verify the associated side's inboard displays EICAS and the upper center display blanks.
 - (c) On the glareshield panel (P55), use the Display Select Panel (DSP) to select the inboard display unit associated with the inoperative INBOARD DSPL selector (L INBD or R INBD).

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 909
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (d) Verify that display selections made from the DSP do not overwrite the EICAS, except ENG, FUEL and AIR displays.

————— **END OF TASK** —————

TASK 31-00-00-440-810

13. DDG 31-61-06 Restoration - Inboard Display Selector Position Inoperative

A. General

- (1) This task puts the airplane back to its usual condition after operation with INBOARD DSPLY selector position inoperative.

B. References

Reference	Title
31-61-06-000-801	Display Switching Panel Removal (P/B 401)
31-61-06-400-801	Display Switching Panel Installation (P/B 401)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Replacement of the Display Switching Panel with an INBOARD DSPLY selector inoperative.

SUBTASK 31-00-00-960-006

- (1) Replace the Display Switching Panel with an INBOARD DSPLY selector inoperative:
- These are the tasks:
- Display Switching Panel Removal, TASK 31-61-06-000-801.
- Display Switching Panel Installation, TASK 31-61-06-400-801

————— **END OF TASK** —————

TASK 31-00-00-040-806

14. DDG 31-61-07 Preparation - Electronic Checklist (ECL) Inoperative

A. General

- (1) This task gives the steps to disable the electronic checklist if it is enabled.
- (2) If the electronic checklist is disabled, unavailable, or failed (inoperative), then you must use the paper copy of the checklist until the electronic checklist is enabled.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Deactivation of the Electronic Checklist

SUBTASK 31-00-00-860-011

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 910
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-00-00-860-012

- (2) Push the LWR CTR switch on the display select panel.

SUBTASK 31-00-00-710-009

- (3) Do these steps to disable the electronic checklist:
 - (a) Push the MENU key on the CDU to show the CDU menu.
NOTE: The MENU page shows on the CDU.
 - (b) Push the key adjacent to MAINT INFO DISPLAY on the CDU.
 - (c) Use a cursor control device to make these selections on the lower center display unit.
 - 1) Select MAINT DATA PGS.
 - 2) Use the scroll bar to find 31 MAINTENANCE TASK.
 - 3) Select SHOW DISPLAY.
 - 4) Select DISABLED adjacent to CHECKLIST FUNCTION STATUS.

————— END OF TASK —————

TASK 31-00-00-440-809

15. DDG 31-61-07 Restoration - Electronic Checklist (ECL) Inoperative

A. General

- (1) This task gives the steps to enable the electronic checklist if it is disabled.
- (2) If the checklist system failed or the check list is not available, reload the checklist software, do this task: Core Processor Module/GG Software Installation, TASK 31-41-02-420-804.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-02-420-804	Core Processor Module/GG Software Installation (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Reactivation of the Electronic Checklist

SUBTASK 31-00-00-860-013

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-00-00-860-014

- (2) Push the LWR CTR switch on the display select panel.

SUBTASK 31-00-00-710-010

- (3) Do these steps to enable the electronic checklist:
 - (a) Push the MENU key on the CDU to show the CDU menu.
NOTE: The MENU page shows on the CDU.
 - (b) Push the key adjacent to MAINT INFO DISPLAY on the CDU.
 - (c) Use a cursor control device to make these selections on the lower center display unit.
 - 1) Select MAINT DATA PGS.
 - 2) Use the scroll bar to find 31 MAINTENANCE TASK.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-00-00

Page 911
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 3) Select SHOW DISPLAY.
- 4) Select ENABLED adjacent to CHECKLIST FUNCTION STATUS.

———— **END OF TASK** ————

TASK 31-00-00-040-804

16. DDG 31-61-08 Preparation - EFIS Control Panel Inoperative

A. General

- (1) This task gives the maintenance steps which make sure the airplane can be released for flight with an EFIS control panel inoperative.
- (2) One EFIS control panel may be inoperative provided the onside control display unit (CDU) EFIS control panel backup feature is verified to operate normally.
- (3) EICAS Status Messages
 - (a) EFIS CONTROL PNL L
 - (b) EFIS CONTROL PNL R

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Verification of the left and right CDU EFIS control backup feature

SUBTASK 31-00-00-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-00-00-860-004

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

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	4	C31621	EFIS CTRL SWITCH L
D	17	C31622	EFIS CTRL SWITCH R

SUBTASK 31-00-00-860-005

- (3) Set the left(right) INBOARD DSPL switch to NAV.

SUBTASK 31-00-00-710-005

- (4) Do these steps on the left(right) control display unit (CDU) to make sure the CDU can be used as a backup EFIS control panel:
 - (a) Push the MENU key to show the CDU menu.
NOTE: The MENU page shows on the CDU.
 - (b) Push the key adjacent to EFIS CTL OFF<->ON>.
 - 1) Make sure ON shows in green.
 - (c) Push the key adjacent to EFIS>.
NOTE: The EFIS CONTROL page shows on the CDU.
 - (d) Push the key adjacent to PLN>.

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 912
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 1) Make sure the plan format shows on the left(right) inboard display unit (DU).
- (e) Push the MENU key on the CDU to show the CDU menu.
- (f) Push the key adjacent to EFIS CTL OFF<->ON>.
 - 1) Make sure OFF shows in green.

SUBTASK 31-00-00-860-006

- (5) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

SUBTASK 31-00-00-860-007

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

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	4	C31621	EFIS CTRL SWITCH L
D	17	C31622	EFIS CTRL SWITCH R

————— END OF TASK —————

TASK 31-00-00-440-804

17. DDG 31-61-08 Restoration - EFIS Control Panel Inoperative

A. General

- (1) This task puts the airplane back to its usual condition after operation with an EFIS control panel inoperative.

B. References

Reference	Title
31-61-02-000-801	EFIS Control Panel Removal (P/B 401)
31-61-02-400-801	EFIS Control Panel Installation (P/B 401)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Replacement of an inoperative EFIS control panel

SUBTASK 31-00-00-960-003

- (1) Replace the inoperative EFIS control panel.
These are the tasks:
EFIS Control Panel Removal, TASK 31-61-02-000-801,
EFIS Control Panel Installation, TASK 31-61-02-400-801.

————— END OF TASK —————

TASK 31-00-00-040-805

18. DDG 31-61-09 Preparation - Source Select Switch Inoperative

A. General

- (1) This task gives the maintenance steps which make sure the airplane can be released for flight with AIR DATA/ATT source selector switches that do not operate.
- (2) The airplane can be dispatched with NAV and DSP CTRL switches that do not operate if their applicable switches are not moved in flight.

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 913
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (3) There are two AIR DATA/ATT source select switches. The AIR DATA/ATT switch for the left display units are on the left instrument source select panel (P1-1). The AIR DATA/ATT switch for the right display units are on the right instrument source select panel (P3-1).
- (4) The airplane can be dispatched with one AIR DATA/ATT source select switch that does not operate if you do the steps that follow:
 - (a) Make sure the applicable display units operate from their selected sources.
 - (b) Make sure the applicable switch is not moved in flight.
- (5) The airplane can be dispatched with two AIR DATA/ATT switches that do not operate if you do the steps that follow:
 - (a) Make sure one AIR DATA/ATT switch is in the normal position.
 - (b) Make sure the applicable display units operate from selected sources.
 - (c) Make sure the applicable switches are not moved in flight.
- (6) If AIMS Input/Output Module (IOM) #4 in the left AIMS cabinet does not operate and you set the left AIR DATA/ATT switch to the ALTN position, failure flags will show on the left PFD for attitude, airspeed and altitude.
- (7) If IOM #2 in the right AIMS cabinet does not operate and you set the right AIR DATA/ATT switch to the ALTN position, an attitude fail flag will show on the right PFD.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Procedure

SUBTASK 31-00-00-860-009

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-00-00-710-006

- (2) Make sure the display units operate from the selected sources:
 - (a) Set the two AIR DATA/ATT switches to off (normal position - switch out).
 - (b) Make sure that the EICAS advisory message ALTN ATTITUDE does not show.

————— END OF TASK —————

TASK 31-00-00-440-805

19. DDG 31-61-09 Restoration - Source Select Switch Inoperative

A. General

- (1) This task puts the airplane back to its usual condition after operation with an AIR DATA/ATT source select switch inoperative.

B. References

Reference	Title
31-61-05-000-801	Instrument Source Select Panel Removal (P/B 401)
31-61-05-400-801	Instrument Source Select Panel Installation (P/B 401)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

EFFECTIVITY
ARO ALL

31-00-00

D633W101-ARO

Page 914
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

D. Procedure

SUBTASK 31-00-00-960-004

- (1) Replace the inoperative instrument source select panel.

These are the tasks:

Instrument Source Select Panel Removal, TASK 31-61-05-000-801,

Instrument Source Select Panel Installation, TASK 31-61-05-400-801.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-00-00

Page 915
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

SYSTEMS CARD FILES - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the systems card files.
 - (2) An installation of the systems card files, which includes an installation test.
- B. There are two systems card files on the airplane. Both chassis are in the area outboard of the nose landing gear wheel well.

TASK 31-09-00-000-801

2. Systems Card Files Removal

(Figure 401)

A. **References**

<u>Reference</u>	<u>Title</u>
21-00-10-000-801	ECS Miscellaneous Card (ECSCMC) Removal (P/B 401)
26-11-03-000-801	Engine Fire Detection Card Removal (P/B 401)
26-15-03-000-801	APU Fire Control Card Removal (P/B 401)
26-18-05-000-801	DLODS Control Card Removal (P/B 401)
29-11-50-000-801	Hydraulic Interface Module (HYDIM) Cards Removal (P/B 401)
30-21-01-000-801	Airfoil and Cowl Ice Protection System Control Card - Engine Anti-Ice - Removal (P/B 401)
31-09-01-000-801	Card File Power Supply (CFPS) Removal (P/B 401)
31-09-02-000-801	ARINC Signal Gateway (ASG) Card Removal (P/B 401)
32-09-02-000-801	Weight-on-Wheels (WOW) Card Removal (P/B 201)

B. **Location Zones**

<u>Zone</u>	<u>Area</u>
117	Main Equipment Center, Left
118	Main Equipment Center, Right

C. **Access Panels**

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

D. **Removal Procedure**

SUBTASK 31-09-00-410-002

- (1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

SUBTASK 31-09-00-860-010

- (2) For the left systems card files [6],
Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2
J	1	C31634	LSCF PS 1

EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 401
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (3) For the right systems card files [6],
Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

SUBTASK 31-09-00-020-001

- (4) Remove these cardfiles:

- (a) For the PREREGULATOR (A2) and PREREGULATOR (A19), do this task: Card File Power Supply (CFPS) Removal, TASK 31-09-01-000-801.
- (b) For the LIN/MONITOR (A3) and LIN/MONITOR (A18), do this task: Card File Power Supply (CFPS) Removal, TASK 31-09-01-000-801.
- (c) For the HYDIM (A4) and HYDIM (A17), do this task: Hydraulic Interface Module (HYDIM) Cards Removal, TASK 29-11-50-000-801.
- (d) For the DLODS (A5), do this task: DLODS Control Card Removal, TASK 26-18-05-000-801.
- (e) For the ACIPS (A6), do this task: Airfoil and Cowl Ice Protection System Control Card - Engine Anti-Ice - Removal, TASK 30-21-01-000-801.
- (f) If you will remove the right systems card files (P84), then remove these cardfiles:
 - 1) For the ACIPS-C (A7)), do this task: Airfoil and Cowl Ice Protection System Control Card - Engine Anti-Ice - Removal, TASK 30-21-01-000-801.
 - 2) For the DLODS-C (A8), do this task: DLODS Control Card Removal, TASK 26-18-05-000-801.
- (g) If you will remove the left systems card files (P85), then remove this cardfile:
 - 1) For the FODC-APU (A9), do this task: APU Fire Control Card Removal, TASK 26-15-03-000-801.
- (h) For the FODC (A10), do this task: Engine Fire Detection Card Removal, TASK 26-11-03-000-801.
- (i) For the ASG (A12) and ASG (A15), do this task: ARINC Signal Gateway (ASG) Card Removal, TASK 31-09-02-000-801.
- (j) For the ECS (A14), do this task: ECS Miscellaneous Card (ECSMC) Removal, TASK 21-00-10-000-801.
- (k) For the WOW (A16), do this task: Weight-on-Wheels (WOW) Card Removal, TASK 32-09-02-000-801.

SUBTASK 31-09-00-020-002

- (5) Remove the systems card files:

- (a) Disconnect all the electrical connectors from the systems card files [6].

NOTE: you should label all electrical connectors so that you can re-connect them to the correct locations.

EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 402
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (b) Remove the bolts [1], the nuts [3], and the washers [2] that attach the chassis to the brackets.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

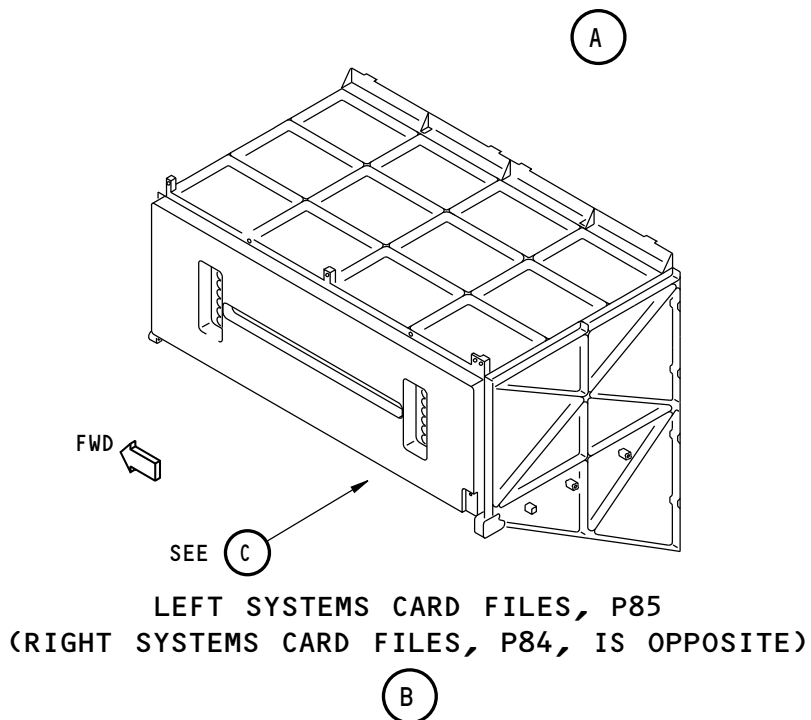
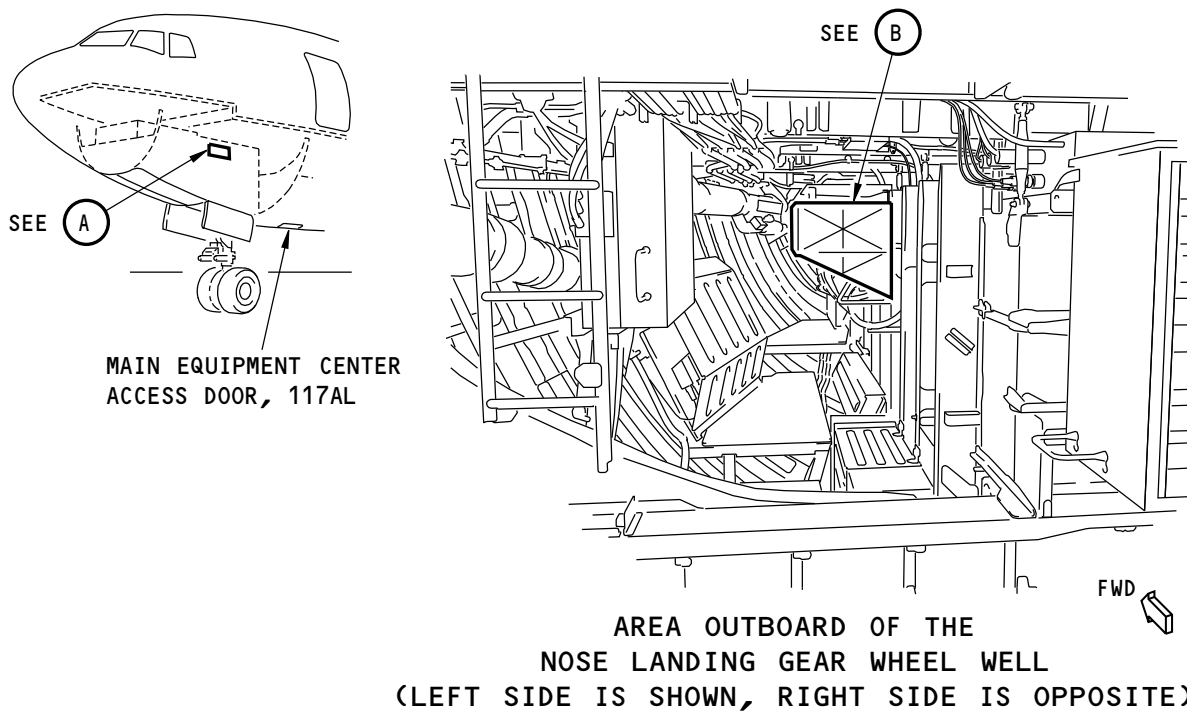
D633W101-ARO

31-09-00

Page 403
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



H19991 S0006416836_V1

Systems Card Files Installation
Figure 401/31-09-00-990-801 (Sheet 1 of 2)

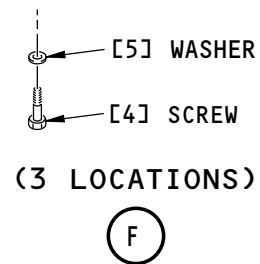
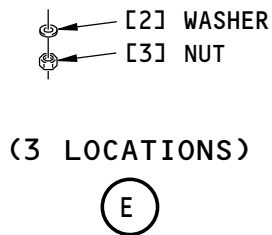
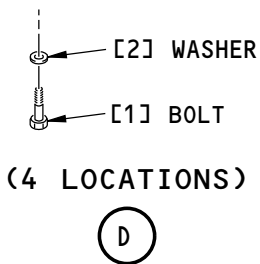
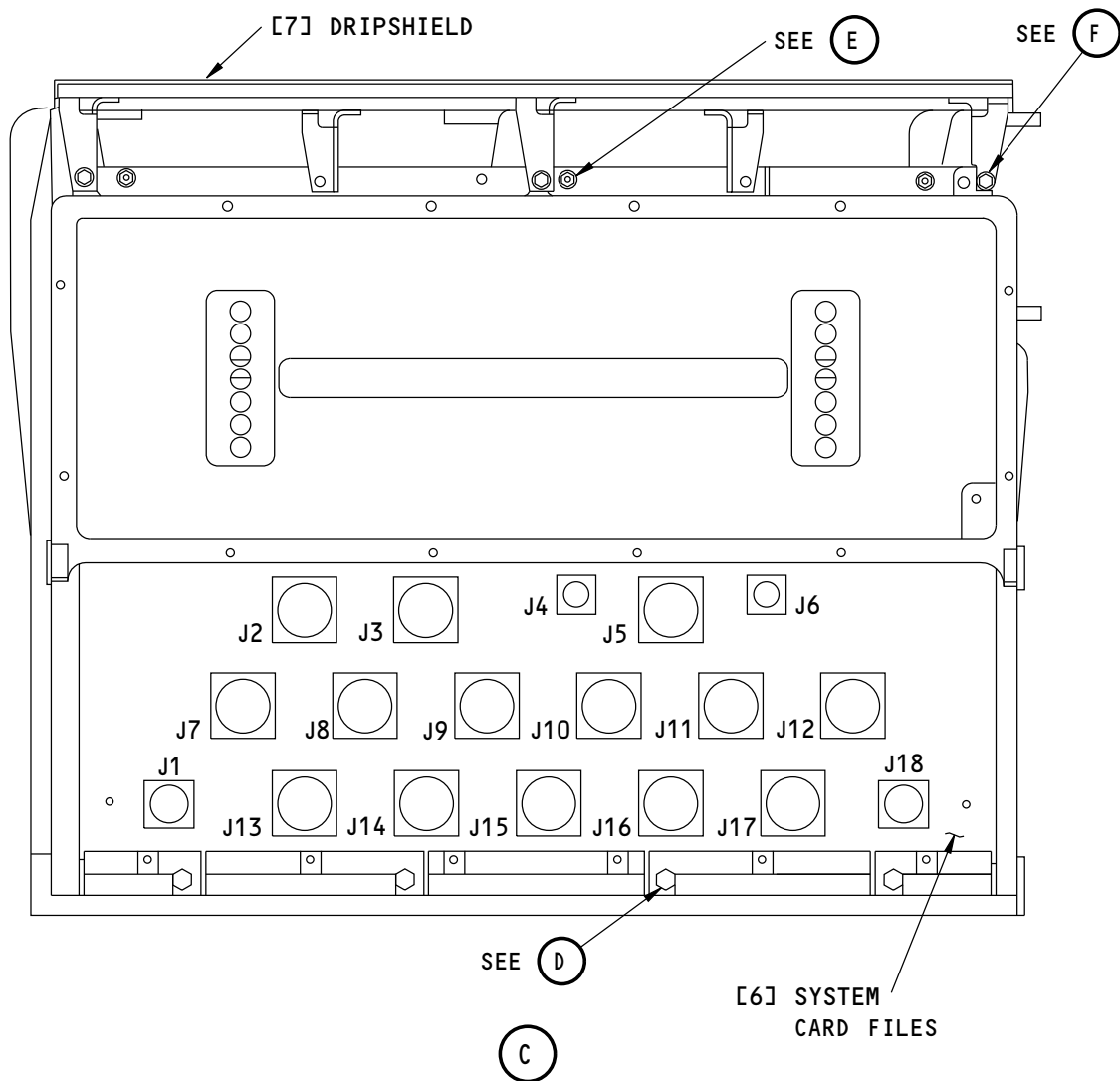
EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 404
Jan 05/2015

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



H17949 S0006416837_V1

**Systems Card Files Installation
Figure 401/31-09-00-990-801 (Sheet 2 of 2)**

EFFECTIVITY
ARO ALL

D633W101-ARO

31-09-00

Page 405
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-09-00-400-801

3. Systems Card Files Installation

(Figure 401)

A. General

- (1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
21-00-10-400-801	ECS Miscellaneous Card (ECSCMC) Installation (P/B 401)
24-22-00-860-805	Supply Electrical Power (P/B 201)
26-11-03-400-801	Engine Fire Detection Card Installation (P/B 401)
26-15-03-400-801	APU Fire Control Card Installation (P/B 401)
26-18-05-400-801	DLODS Control Card Installation (P/B 401)
29-11-50-400-801	Hydraulic Interface Module (HYDIM) Cards Installation (P/B 401)
30-21-01-400-801	Airfoil and Cowl Ice Protection System Control Card - Engine Anti-Ice - Installation (P/B 401)
31-09-01-400-801	Card File Power Supply (CFPS) Installation (P/B 401)
31-09-02-400-802	ARINC Signal Gateway (ASG) Card Installation (P/B 401)
32-09-02-400-801	Weight-on-Wheels (WOW) Card Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Installation Procedure

SUBTASK 31-09-00-860-011

- (1) For the left systems card files [6],
Make sure that these circuit breakers are open:

Standby Power Management Panel, P310

Row	Col	Number	Name
C	6	C31637	LSCF PS 2
J	1	C31634	LSCF PS 1

- (2) For the right systems card files [6],

EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 406
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Make sure that these circuit breakers are open:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

SUBTASK 31-09-00-420-001

- (3) Install the systems card files:
- (a) Align the systems card files [6] with the mounting brackets.
 - (b) Install the bolts [1], the nuts [3], and the washers [2] that attach the chassis to the brackets.
 - (c) Re-connect all the electrical connectors to the chassis.

SUBTASK 31-09-00-420-002

- (4) Install the dripshield:
- (a) Align the dripshield [7] onto the systems card files [6].
 - (b) Install the screws [4] and the washers [2] that attach the dripshield to the brackets of the systems card files.

SUBTASK 31-09-00-020-003

- (5) Install these cardfiles:

NOTE: Do not do the installation test for each cardfile installed at this time. The test will be done after all the cardfiles have been installed.

- (a) For the PREREGULATOR (A2) and PREREGULATOR (A19), do this task: Card File Power Supply (CFPS) Installation, TASK 31-09-01-400-801.
- (b) For the LIN/MONITOR (A3) and LIN/MONITOR (A18), do this task: Card File Power Supply (CFPS) Installation, TASK 31-09-01-400-801.
- (c) For the HYDIM (A4) and HYDIM (A17), do this task: Hydraulic Interface Module (HYDIM) Cards Installation, TASK 29-11-50-400-801.
- (d) For the DLODS (A5), do this task: DLODS Control Card Installation, TASK 26-18-05-400-801.
- (e) For the ACIPS (A6), do this task: Airfoil and Cowl Ice Protection System Control Card - Engine Anti-Ice - Installation, TASK 30-21-01-400-801.
- (f) If you installed the right systems card files (P84), then install these cardfiles:
 - 1) For the ACIPS-C (A7)), do this task: Airfoil and Cowl Ice Protection System Control Card - Engine Anti-Ice - Installation, TASK 30-21-01-400-801.
 - 2) For the DLODS-C (A8), do this task: DLODS Control Card Installation, TASK 26-18-05-400-801.
- (g) If you installed the left systems card files (P85), then install this cardfile:
 - 1) For the FODC-APU (A9), do this task: APU Fire Control Card Installation, TASK 26-15-03-400-801.
- (h) For the FODC (A10), do this task: Engine Fire Detection Card Installation, TASK 26-11-03-400-801.

EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 407
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (i) For the ASG (A12) and ASG (A15), do this task: ARINC Signal Gateway (ASG) Card Installation, TASK 31-09-02-400-802.
- (j) For the ECS (A14), do this task: ECS Miscellaneous Card (ECSCMC) Installation, TASK 21-00-10-400-801.
- (k) For the WOW (A16), do this task: Weight-on-Wheels (WOW) Card Installation, TASK 32-09-02-400-801.

SUBTASK 31-09-00-860-012

- (6) If you installed the left systems card files (P85),
Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2
J	1	C31634	LSCF PS 1

- (7) If you installed the right systems card files (P84),
Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

F. Systems Card Files Installation Test

SUBTASK 31-09-00-860-013

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-09-00-020-004

- (2) Do the installation test for each of the cardfiles for the applicable procedure:

NOTE: Since all the cardfiles have been installed in the previous steps, you need to do the installation tests only for the following procedures.

- (a) For the PREREGULATOR (A2), PREREGULATOR (A19), LIN/MONITOR (A3) and LIN/MONITOR (A18), do this task: Card File Power Supply (CFPS) Installation, TASK 31-09-01-400-801.
- (b) For the ASG (A12) and ASG (A15), do this task: ARINC Signal Gateway (ASG) Card Installation, TASK 31-09-02-400-802.
- (c) For the HYDIM (A4) and HYDIM (A17), do this task: Hydraulic Interface Module (HYDIM) Cards Installation, TASK 29-11-50-400-801.
- (d) For the DLODS (A5), do this task: DLODS Control Card Installation, TASK 26-18-05-400-801.
- (e) For the ACIPS (A6), do this task: Airfoil and Cowl Ice Protection System Control Card - Engine Anti-Ice - Installation, TASK 30-21-01-400-801.
- (f) If you installed the right systems card files (P84), then do these installation tests:
 - 1) For the ACIPS-C (A7)), do this task: Airfoil and Cowl Ice Protection System Control Card - Engine Anti-Ice - Installation, TASK 30-21-01-400-801.

EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 408
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 2) For the DLODS-C (A8), do this task: DLODS Control Card Installation, TASK 26-18-05-400-801.
- (g) If you installed the left systems card files (P85), then do this installation test:
 - 1) For the FODC-APU (A9), do this task: APU Fire Control Card Installation, TASK 26-15-03-400-801.
- (h) For the FODC (A10), do this task: Engine Fire Detection Card Installation, TASK 26-11-03-400-801.
- (i) For the ECS (A14), do this task: ECS Miscellaneous Card (ECSMC) Installation, TASK 21-00-10-400-801.
- (j) For the WOW (A16), do this task: Weight-on-Wheels (WOW) Card Installation, TASK 32-09-02-400-801.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-09-00-410-003

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 409
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL
SYSTEMS CARDFILES - ADJUSTMENT/TEST

1. General

A. This procedure has this task:

(1) An operational test of the right systems cardfiles (RSCF) and the left systems cardfiles (LSCF).

B. This procedure makes sure that each ARINC Signal Gateway (ASG) card transmits data correctly. To test the other cards in the systems cardfiles, see these procedures:

- (1) A2 PSU Preregulator (TASK 31-09-01-400-801)
- (2) A3 PSU Linear/Monitor (TASK 31-09-01-400-801)
- (3) A4 HYDIM (TASK 29-11-50-400-801)
- (4) A5 Duct Leak Detection (TASK 26-18-05-400-801)
- (5) A6 ACIPS (TASK 30-11-02-400-801)
- (6) A7 ACIPS (TASK 30-21-01-400-801)
- (7) A8 Duct Leak Detection (TASK 26-18-05-400-801)
- (8) A10 Overheat Detection (TASK 26-11-03-400-801)
- (9) A12 ARINC Signal Gateway (TASK 31-09-02-400-802)
- (10) A14 ECS (TASK 21-00-10-400-801)
- (11) A15 ARINC Signal Gateway (TASK 31-09-02-400-802)
- (12) A16 Weight on Wheels (TASK 32-09-02-400-801)
- (13) A17 HYDIM (TASK 29-11-50-400-801)
- (14) A18 PSU Linear/Monitor (TASK 31-09-01-400-801)
- (15) A19 PSU Preregulator (TASK 31-09-01-400-801)

TASK 31-09-00-710-801

2. Systems Cardfile - Operational Test

A. General

(1) The operational test makes sure that each ASG card transmits data correctly.

(2) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

(3) A portable maintenance access terminal (PMAT) is necessary for this procedure.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-910-810	How to Operate the MAT in the Flight Compartment (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.

EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 501
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Reference	Description
SPL-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. Prepare for the ASG Communication Test

SUBTASK 31-09-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-09-00-010-001

- (2) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

to get access to the systems cardfiles.

G. RSCF ASG Communication Test

SUBTASK 31-09-00-860-002

- (1) Put all the power control switches on the RSCF power supply cards A03 and A18 to the OFF position.

SUBTASK 31-09-00-710-001

- (2) Use a PMAT to look for maintenance messages on the existing faults display (TASK 45-10-00-910-810):
 - (a) Make these selections on the PMAT:
 - 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) EXISTING FAULTS
 - 4) 31 Cardfile

SUBTASK 31-09-00-710-002

- (3) Make sure that these maintenance messages show on the PMAT:
 - (a) 31-18842
 - (b) 31-18864

SUBTASK 31-09-00-860-003

- (4) Put the S2 power supply switch on A18 to the ON position.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-09-00

Page 502
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-09-00-710-003

- (5) Use a PMAT to look for maintenance messages on the existing faults display (TASK 45-10-00-910-810):
 - (a) Make these selections on the PMAT:
 - 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) EXISTING FAULTS
 - 4) 31 Cardfile

SUBTASK 31-09-00-710-004

- (6) Make sure that these maintenance messages show on the PMAT:
 - (a) 31-18864

SUBTASK 31-09-00-860-004

- (7) Put the S5 power supply switch on A18 to the ON position.

SUBTASK 31-09-00-710-005

- (8) Use a PMAT to look for maintenance messages on the existing faults display (TASK 45-10-00-910-810):
 - (a) Make these selections on the PMAT:
 - 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) EXISTING FAULTS
 - 4) 31 Cardfile

SUBTASK 31-09-00-710-006

- (9) Make sure that these maintenance messages do not show on the PMAT:
 - (a) 31-18842
 - (b) 31-18864

H. LSCF ASG Communication Test

SUBTASK 31-09-00-860-005

- (1) Put all the power control switches on the LSCF power supply cards A03 and A18 to the OFF position.

SUBTASK 31-09-00-710-007

- (2) Use a PMAT to look for maintenance messages on the existing faults display (TASK 45-10-00-910-810):
 - (a) Make these selections on the PMAT:
 - 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) EXISTING FAULTS
 - 4) 31 Cardfile

SUBTASK 31-09-00-710-008

- (3) Make sure that these maintenance messages show on the PMAT:
 - (a) 31-18841
 - (b) 31-18863

EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 503
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-09-00-860-006

- (4) Put the S2 power supply switch on A18 to the ON position.

SUBTASK 31-09-00-710-009

- (5) Use a PMAT to look for maintenance messages on the existing faults display (TASK 45-10-00-910-810):
 - (a) Make these selections on the PMAT:
 - 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) EXISTING FAULTS
 - 4) 31 Cardfile

SUBTASK 31-09-00-710-010

- (6) Make sure that this maintenance message shows on the PMAT:
 - (a) 31-18863

SUBTASK 31-09-00-860-007

- (7) Put the S5 power supply switch on A18 to the ON position.

SUBTASK 31-09-00-710-011

- (8) Use a PMAT to look for maintenance messages on the existing faults display (TASK 45-10-00-910-810):
 - (a) Make these selections on the PMAT:
 - 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) EXISTING FAULTS
 - 4) 31 Cardfile

SUBTASK 31-09-00-710-012

- (9) Make sure that these maintenance messages do not show on the PMAT:
 - (a) 31-18841
 - (b) 31-18863

I. Put the Airplane Back to Its Usual Condition

SUBTASK 31-09-00-860-008

- (1) Put all the power control switches on the RSCF power supply cards A03 and A18 to the ON position.

SUBTASK 31-09-00-860-009

- (2) Put all the power control switches on the LSCF power supply cards A03 and A18 to the ON position.

SUBTASK 31-09-00-410-001

- (3) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-09-00

D633W101-ARO

Page 504
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SYSTEMS CARDFILE POWER SUPPLY - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the systems cardfile power supply (CFPS)
 - (2) An installation of the CFPS.
- B. There are two types of power supply circuit cards in the systems cardfiles:
 - (1) PSU preregulators (A2, A19)
 - (a) There are two PSU preregulators in the right systems cardfile (RSCF) P84, and two in the left systems cardfile (LSCF) P85.
 - (2) PSU linear/monitors (A3, A18)
 - (a) There are two PSU linear/monitors in the RSCF and two in the LSCF.
- C. The systems cardfiles are in the main equipment center.
- D. These removal and installation tasks are the same for all CFPS.

TASK 31-09-01-000-801

2. Card File Power Supply (CFPS) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
20-10-01-000-802	Printed Circuit Card Removal (P/B 401)
20-41-01-000-801	ESDS Handling for Printed Circuit Board Removal (P/B 201)

B. **Location Zones**

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right

C. **Access Panels**

Number	Name/Location
117AL	Main Equipment Center Access Door

D. **Removal Procedure**

SUBTASK 31-09-01-010-002

- (1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

to get access to the systems cardfiles.

SUBTASK 31-09-01-860-001

- (2) For the PSU Preregulator (A2) in the RSCF (P84);
 - (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

EFFECTIVITY
ARO ALL

31-09-01

D633W101-ARO

Page 401
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-09-01-860-002

- (3) For the PSU Linear/monitor (A3) in the RSCF (P84);
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

SUBTASK 31-09-01-860-003

- (4) For the PSU Linear/monitor (A18) in the RSCF (P84);
- (a) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

SUBTASK 31-09-01-860-004

- (5) For the PSU Preregulator (A19) in the RSCF (P84);
- (a) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

SUBTASK 31-09-01-860-005

- (6) For the PSU Preregulator (A2) in the LSCF (P85);
- (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	1	C31634	LSCF PS 1

SUBTASK 31-09-01-860-006

- (7) For the PSU Linear/monitor (A3) in the LSCF (P85);
- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2
J	1	C31634	LSCF PS 1

SUBTASK 31-09-01-860-007

- (8) For the PSU Linear/monitor (A18) in the LSCF (P85);

EFFECTIVITY
ARO ALL

D633W101-ARO

31-09-01

Page 402
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (a) Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2
J	1	C31634	LSCF PS 1

SUBTASK 31-09-01-860-008

- (9) For the PSU Preregulator (A19) in the LSCF (P85);

- (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2

SUBTASK 31-09-01-910-001

 CAUTION	DO NOT TOUCH THE CFPS BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CFPS.

- (10) Before you touch the CFPS [1], do this task: ESDS Handling for Printed Circuit Board Removal, TASK 20-41-01-000-801.

SUBTASK 31-09-01-010-001

- (11) Loosen the 4 quarter turn screws to open the front panel for the applicable systems cardfile.

SUBTASK 31-09-01-000-001

- (12) To remove the CFPS [1], do this task: Printed Circuit Card Removal, TASK 20-10-01-000-802.

———— **END OF TASK** ————

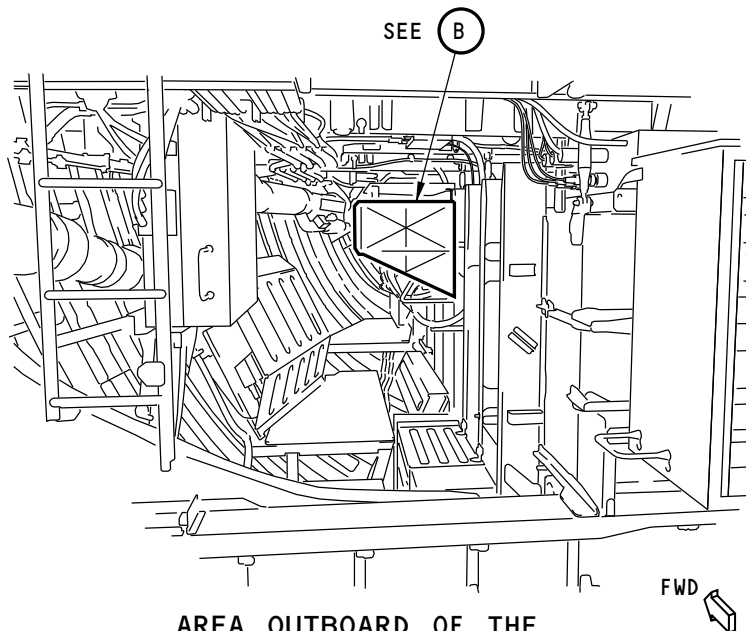
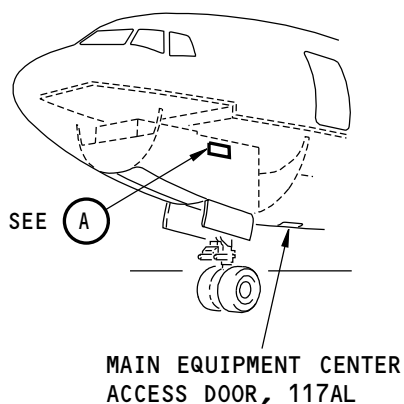
EFFECTIVITY
ARO ALL

31-09-01

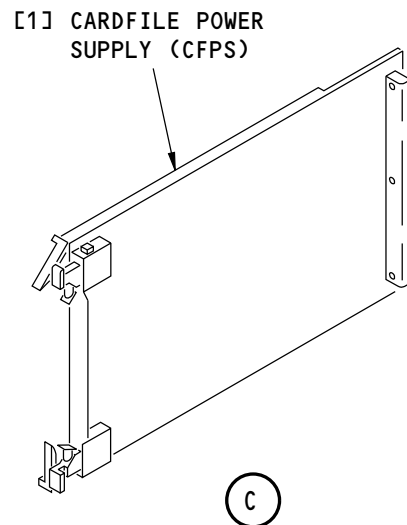
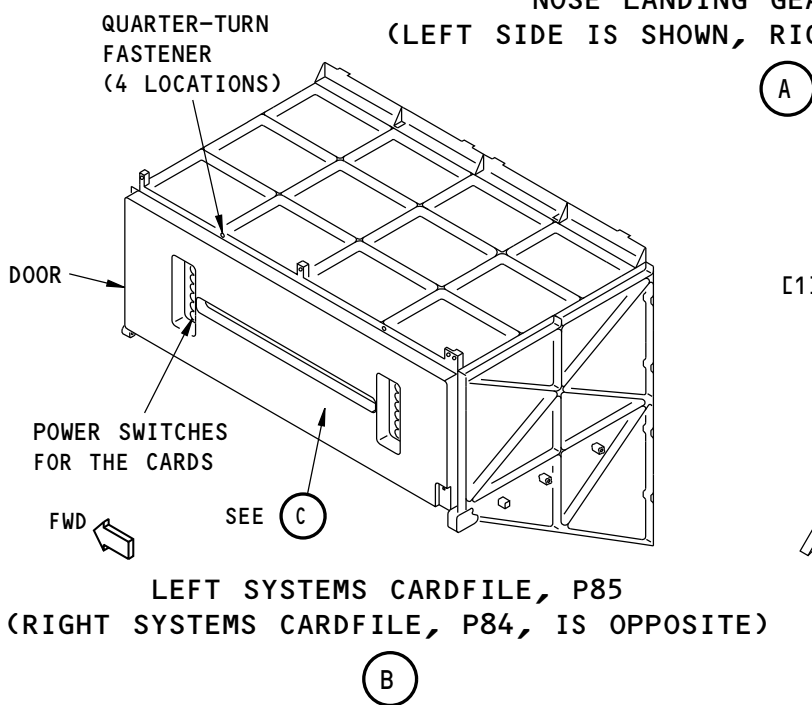
D633W101-ARO

Page 403
Sep 05/2017

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



AREA OUTBOARD OF THE
NOSE LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)



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**Cardfile Power Supply (CFPS) Installation
Figure 401/31-09-01-990-801**

EFFECTIVITY
ARO ALL

31-09-01



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-09-01-400-801

3. Card File Power Supply (CFPS) Installation

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-10-01-400-802	Printed Circuit Card Installation (P/B 401)
20-41-01-400-801	ESDS Handling for Printed Circuit Board Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	CFPS	31-09-00-01-005	ARO ALL
		31-09-00-01-020	ARO ALL
		31-09-00-02-005	ARO ALL
		31-09-00-02-020	ARO ALL

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

E. Installation Procedure

SUBTASK 31-09-01-910-002



DO NOT TOUCH THE CFPS BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CFPS.

- (1) Before you touch the CFPS [1], do this task: ESDS Handling for Printed Circuit Board Installation, TASK 20-41-01-400-801.

SUBTASK 31-09-01-400-001

- (2) To install the CFPS [1], do this task: Printed Circuit Card Installation, TASK 20-10-01-400-802.

SUBTASK 31-09-01-410-001

- (3) Close the front panel for the applicable systems cardfile, and tighten the 4 quarter turn screws.

F. CFPS Installation Test

SUBTASK 31-09-01-860-009

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-09-01-860-019

- (2) Make sure the BATT SW, S3, on the P5 panel is in the ON position.

SUBTASK 31-09-01-860-020

- (3) Make sure all power switches on the front of the applicable cardfile are in the ON position.

EFFECTIVITY
ARO ALL

31-09-01

D633W101-ARO

Page 405
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-09-01-860-021

- (4) Make sure that this circuit breaker is closed:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	5	C24633	P310 PSU A ALTN

SUBTASK 31-09-01-860-010

- (5) For the PSU Preregulator (A2) in the RSCF (P84);
(a) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

SUBTASK 31-09-01-860-011

- (6) For the PSU Linear/monitor (A3) in the RSCF (P84);
(a) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

SUBTASK 31-09-01-860-012

- (7) For the PSU Linear/monitor (A18) in the RSCF (P84);
(a) Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	2	C31638	RSCF PS 1

SUBTASK 31-09-01-860-013

- (8) For the PSU Preregulator (A19) in the RSCF (P84);
(a) Remove the safety tag and close this circuit breaker:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

SUBTASK 31-09-01-860-014

- (9) For the PSU Preregulator (A2) in the LSCF (P85);

EFFECTIVITY
ARO ALL

D633W101-ARO

31-09-01

Page 406
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

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

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	1	C31634	LSCF PS 1

SUBTASK 31-09-01-860-015

- (10) For the PSU Linear/monitor (A3) in the LSCF (P85);

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

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2
J	1	C31634	LSCF PS 1

SUBTASK 31-09-01-860-016

- (11) For the PSU Linear/monitor (A18) in the LSCF (P85);

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

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2
J	1	C31634	LSCF PS 1

SUBTASK 31-09-01-860-017

- (12) For the PSU Preregulator (A19) in the LSCF (P85);

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

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2

SUBTASK 31-09-01-750-001

- (13) After 60 seconds, make sure these EICAS status messages do not show on the EICAS display for the applicable CFPS [1]:

Table 401/31-09-01-993-801

Cardfile Power Supply	EICAS Status Messages
RSCF P84: A2, A3, A18, A19	RSCF PWR SUPPLY 1 RSCF PWR SUPPLY 2
LSCF P85: A2, A3, A18, A19	LSCF PWR SUPPLY 1 LSCF PWR SUPPLY 2

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-09-01-410-002

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-09-01

D633W101-ARO

Page 407
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARINC SIGNAL GATEWAY (ASG) CARD - MAINTENANCE PRACTICES

TASK 31-09-02-400-801

1. ASG Software Installation

A. General

- (1) This procedure tells you how to install software in the ARINC Signal Gateway (ASG) card.
 - (a) The name of the software part loaded into an ASG card follow:
 - ASG OPS
 - Using the name, the specific software part number for an aircraft can be identified in the Illustrated Parts Catalog (IPC). On an aircraft, all four ASG cards use the same software that will be loaded by different Diskette part numbers (See Table 201).
- (2) A maintenance access terminal (MAT or PMAT) is necessary for this procedure. For instructions on how to use a Maintenance Access Terminal (MAT) or Portable Maintenance Access Terminal (PMAT), do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (3) If you do not know if the ASG card needs new software, you can first do the software configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the software configuration check in this task: ARINC Signal Gateway (ASG) Card Installation, TASK 31-09-02-400-802.
- (4) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

- (5) You can install the software from disks, the MAT hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.

NOTE: When new software is installed in the ASG card, the load process first erases the old software and then installs the new software. If you install software directly to the ASG card from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the ASG card.

- (a) Depending on which ASG card is installed in the Cardfiles, that will determine which Diskette/Part number on the MAT will be used.

Table 201/31-09-02-993-802 ASG Card

DSA NUMBER	OPS VERSION NUMBER	SW P/N	HW P/N 285W0020+dash number			
			-101	-103	-104	-105
285W0520-1000	01_00	3175-BCE-000-03	X	X	X	
362A2998P2	01_00	3176-BPS-000-05	X	X	X	
362A2998P2	01_00	3175-BPS-000-06	X		X	
362A2998P3	03_00	3174-BPS-000-07	X	X	X	
362A2998P10	01_00	3172-BPS-000-10				X

EFFECTIVITY
ARO ALL

31-09-02

D633W101-ARO

Page 201
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

Table 201/31-09-02-993-802 ASG Card (Continued)

DSA NUMBER	OPS VERSION NUMBER	SW P/N	HW P/N 285W0020+dash number			
			-101	-103	-104	-105
362A2998P11	03_00	3173-BPS-000-11				X
362A2998P6	04_00	317B-BPS-000-08	X	X	X	
362A2998P7	04_00	317A-BPS-000-09				X

NOTE: Header files contained in Diskette P/N 362A2998P6 and 362A2998P7 have been updated from the Diskette P/N 362A2998P10 and 362A2998P11 and are required when a mixed pair HW P/N 285W0020-104 and HW P/N 285W0020-105 are installed in a Cardfile.

ARO 014-999

- (6) You can also install the software from the Onboard Network System (ONS) Mass Storage Device (MSD). To install new software on the ONS MSD, do this task: Mass Storage Device Software Part Installation, TASK 46-13-00-470-802.
- (a) It is recommended that you remove old software part numbers from the ONS MSD after new software is installed. To remove software from the ONS MSD, do this task: Mass Storage Device Software Removal, TASK 46-13-00-070-801.

ARO ALL

- (7) The airplane must be on the ground with the engines off before you can install software.
- (8) To read about the time that is necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (9) There are two ASG cards in the Right Systems Card File (RSCF) P84, and two ASG cards in the Left Systems Card File (LSCF) P85. The systems cardfiles are in the main equipment center.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-09-02-400-802	ARINC Signal Gateway (ASG) Card Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
46-13-00-070-801	Mass Storage Device Software Removal (P/B 201)
46-13-00-470-802	Mass Storage Device Software Part 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.

EFFECTIVITY
ARO ALL

31-09-02

D633W101-ARO

Page 202
Jul 25/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Reference	Description
SPL-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 31-09-02-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-09-02-860-002

- (2) Set the GND TESTS switch on the overhead maintenance panel, P61, to ENABLE.

SUBTASK 31-09-02-420-001

- (3) Use a MAT or PMAT to install software in the ASG card:

NOTE: Make sure you know the correct software part number for the ASG before you select the software part number on the display. For the ASG card to be an approved installation, the correct software must be installed.

- (a) If the software is on a disk, put the correct disk in the disk drive.
- (b) Make these selections on the MAT or PMAT:
 - 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) DATA LOAD
- (c) Make these selections to select the component that will receive the software:
 - 1) SELECT DESTINATION
 - 2) 31 Systems Cardfiles
 - 3) ARINC Signal Gateway (left or right), (LSCF or RSCF)
 - 4) CONTINUE
- (d) Make these selections to select the source of the software:
 - 1) SELECT SOURCE
 - 2) Select the source of the software (if Disk Drive is the only selection, it is automatically selected).
 - 3) Select the correct software part number from the display.
 - 4) CONTINUE
- (e) Select START to start the software installation.
- (f) When the software installation is completed, make sure the correct software part number shows on the display.
- (g) Select CONTINUE to remove the configuration display.

EFFECTIVITY
ARO ALL

31-09-02

D633W101-ARO

Page 203
May 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-09-02-860-003

- (4) Set the GND TESTS switch to NORM.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-09-02

Page 204
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARINC SIGNAL GATEWAY (ASG) CARD - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the ARINC signal gateway (ASG) card.
 - (2) An installation of the ASG card.
- B. There are two ASG cards in the right systems cardfile (RSCF) P84, and two ASG cards in the left systems cardfile (LSCF) P85. The systems cardfiles are in the main equipment center.
- C. These removal and installation tasks are the same for all ASG cards.

TASK 31-09-02-000-801

2. ARINC Signal Gateway (ASG) Card Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
20-10-01-000-802	Printed Circuit Card Removal (P/B 401)
20-41-01-000-801	ESDS Handling for Printed Circuit Board Removal (P/B 201)

B. **Location Zones**

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right

C. **Access Panels**

Number	Name/Location
117AL	Main Equipment Center Access Door

D. **Removal Procedure**

SUBTASK 31-09-02-940-001

- (1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

to get access to the systems cardfiles.

SUBTASK 31-09-02-860-004

- (2) Set the power switch for the applicable ASG card [1] to the OFF position.

NOTE: Use the power control decal on the front of the cardfile to find the appropriate switch.

SUBTASK 31-09-02-910-001



DO NOT TOUCH THE ASG CARD BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ASG CARD.

- (3) Before you touch the ASG card [1], do this task: ESDS Handling for Printed Circuit Board Removal, TASK 20-41-01-000-801.

SUBTASK 31-09-02-010-001

- (4) Loosen the 4 quarter turn screws to open the front panel for the applicable systems cardfile.

EFFECTIVITY
ARO ALL

31-09-02

D633W101-ARO

Page 401
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-09-02-020-001

- (5) For the removal of the ASG card [1], do this task: Printed Circuit Card Removal, TASK 20-10-01-000-802.

———— **END OF TASK** ————

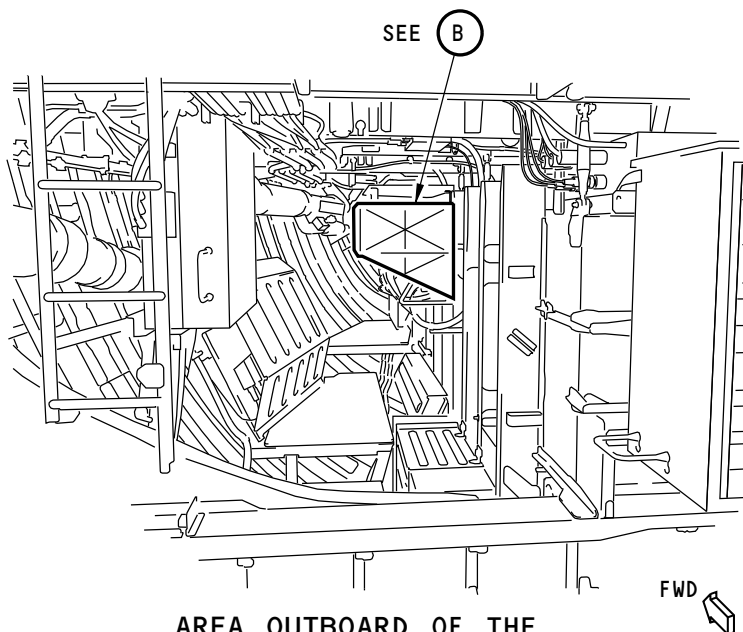
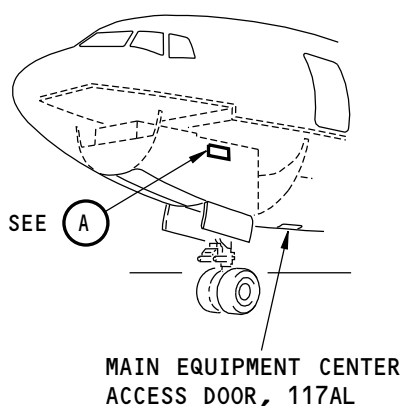
EFFECTIVITY
ARO ALL

D633W101-ARO

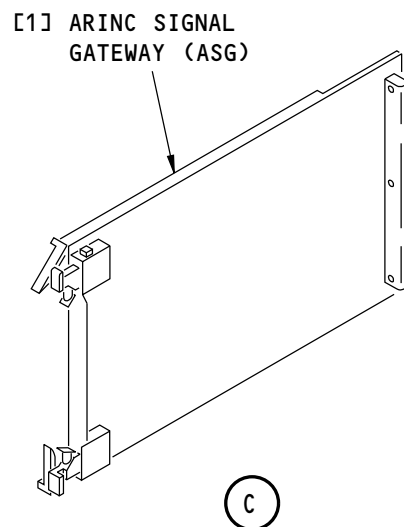
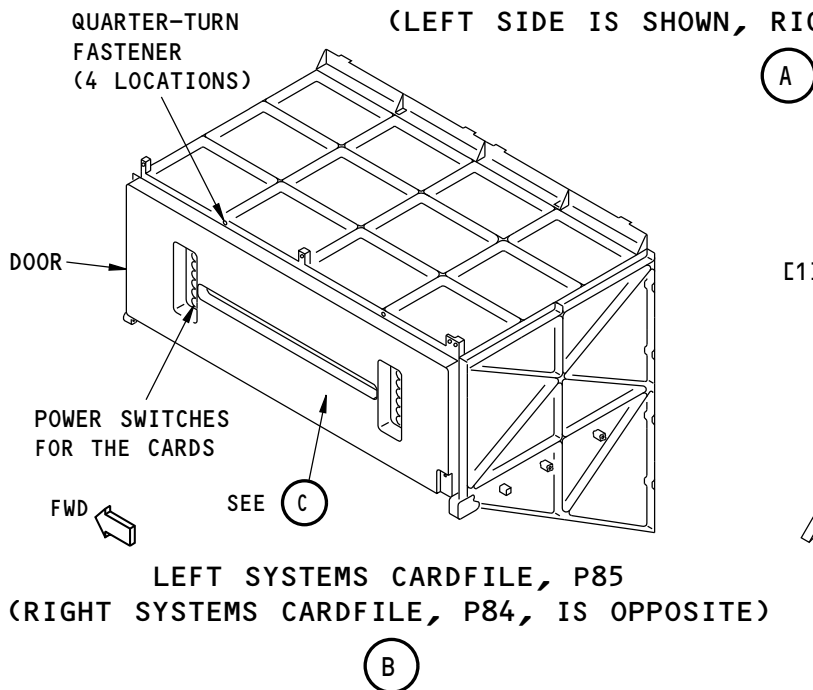
31-09-02

Page 402
Jan 05/2015

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



AREA OUTBOARD OF THE
NOSE LANDING GEAR WHEEL WELL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)



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**ARINC Signal Gateway (ASG) Installation
Figure 401/31-09-02-990-801**

EFFECTIVITY
ARO ALL

31-09-02



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-09-02-400-802

3. ARINC Signal Gateway (ASG) Card Installation

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation test makes sure that the ASG card [1] has the correct software.
- (2) The configuration check will show a failure if the operational program software (OPS) is not installed.
- (3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
20-10-01-400-802	Printed Circuit Card Installation (P/B 401)
20-41-01-400-801	ESDS Handling for Printed Circuit Board Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-09-02-400-801	ASG Software Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Card	31-09-02-01-005	ARO ALL
		31-09-02-02-005	ARO ALL

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. Installation Procedure

SUBTASK 31-09-02-940-002

- (1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

to get access to the systems cardfiles.

EFFECTIVITY
ARO ALL

31-09-02

D633W101-ARO

Page 404
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-09-02-910-002



CAUTION

DO NOT TOUCH THE ASG CARD BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE ASG CARD.

- (2) Before you touch the ASG card [1], do this task: ESDS Handling for Printed Circuit Board Installation, TASK 20-41-01-400-801.

SUBTASK 31-09-02-400-001

- (3) To install the ASG card [1], do this task: Printed Circuit Card Installation, TASK 20-10-01-400-802.

SUBTASK 31-09-02-410-001

- (4) Close the front panel for the applicable systems cardfile, and tighten the 4 quarter turn screws.

G. Installation Test

SUBTASK 31-09-02-860-005

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-09-02-860-006

- (2) Set the power switch for the applicable ASG card [1] to the ON position.

NOTE: Use the power control decal on the front of the cardfile to find the appropriate switch.

SUBTASK 31-09-02-750-001

- (3) Use a maintenance access terminal (MAT) to do a software configuration check of the ASG card [1]:

NOTE: Make sure you know the correct software part number for the ASG card when you look at the software part number on the display. For the ASG card [1] to be an approved installation, the correct software part number must be installed.

- (a) Make these selections on the MAT:

- 1) ONBOARD MAINTENANCE
- 2) LINE MAINTENANCE
- 3) SYSTEM CONFIGURATION
- 4) 31 Systems Cardfiles
- 5) CONTINUE

- (b) Find the applicable ASG card [1] on the display and make sure that the software part number is correct.

NOTE: The configuration check will show a failure if the operational program software (OPS) is not installed.

- (c) Select GO BACK to remove the configuration display.
- (d) If the part number is incorrect, do this task: ASG Software Installation, TASK 31-09-02-400-801.

SUBTASK 31-09-02-750-002

- (4) Make sure the power switch for the applicable ASG card [1] is set to the ON position.

NOTE: Use the power control decal on the front of the cardfile to find the appropriate switch.

- (a) Wait 60 seconds.
- (b) Make sure these EICAS status messages do not show on the EICAS display for the applicable ASG card [1]:

EFFECTIVITY
ARO ALL

31-09-02

D633W101-ARO

Page 405
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

Table 401/31-09-02-993-801

ASG Card	EICAS Status Messages
RSCF P84: A12 RSCF P84: A15	RSCF ASG CARD L RSCF ASG CARD R
LSCF P85: A12 LSCF P85: A15	LSCF ASG CARD L LSCF ASG CARD R

H. Put the Airplane Back to Its Usual Condition

SUBTASK 31-09-02-860-007

- (1) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-09-02

Page 406
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

LEFT FORWARD PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Left Forward Panel.

EFFECTIVITY
ARO ALL

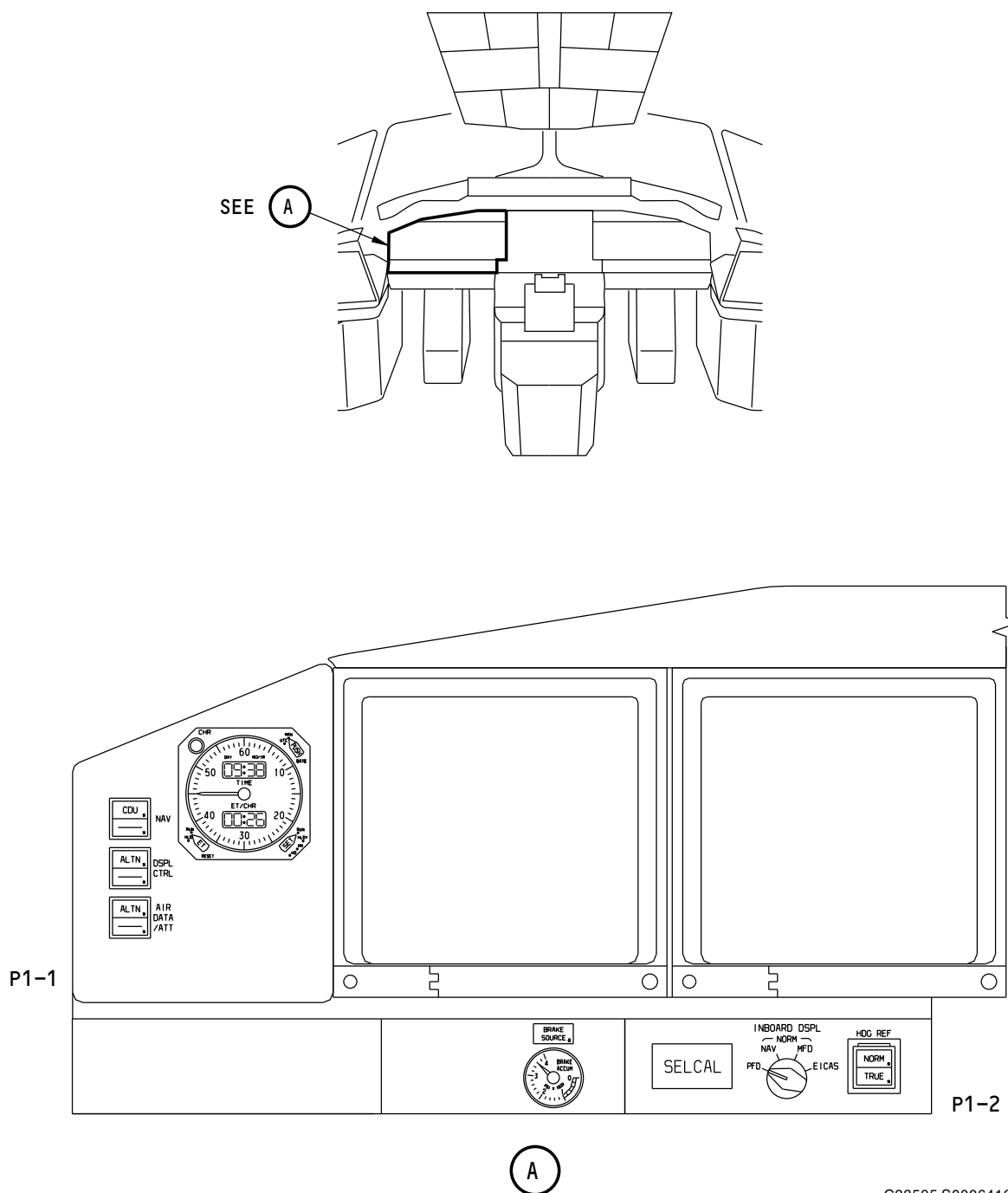
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31-11-11

Page 101
Jan 05/2015

777-200/300 AIRCRAFT MAINTENANCE MANUAL

LEFT FORWARD PANEL



Left Forward Panel - Component Location
Figure 101/31-11-11-990-801 (Sheet 1 of 2)

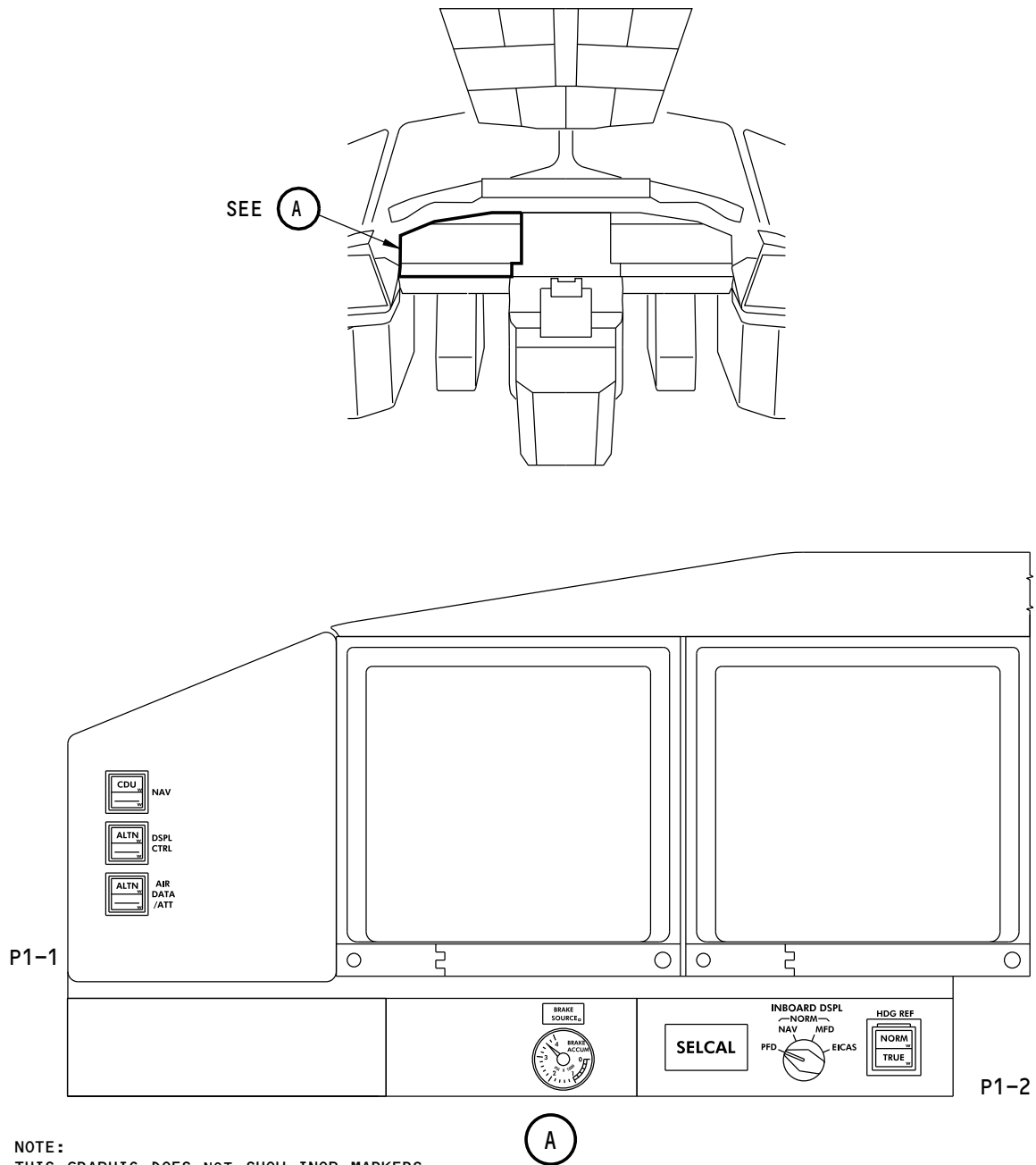
EFFECTIVITY
ARO ALL

31-11-11

D633W101-ARO

Page 102
Jan 05/2015

BOEING
777-200/300
AIRCRAFT MAINTENANCE MANUAL



NOTE:
THIS GRAPHIC DOES NOT SHOW INOP MARKERS.
THE CUSTOMER'S CONFIGURATION COULD HAVE
INOP MARKERS INSTALLED.

2231472 S0000497533_V1

Left Forward Panel - Component Location
Figure 101/31-11-11-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

31-11-11

D633W101-ARO

Page 103
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CENTER FORWARD PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the for the Center Forward Panel.

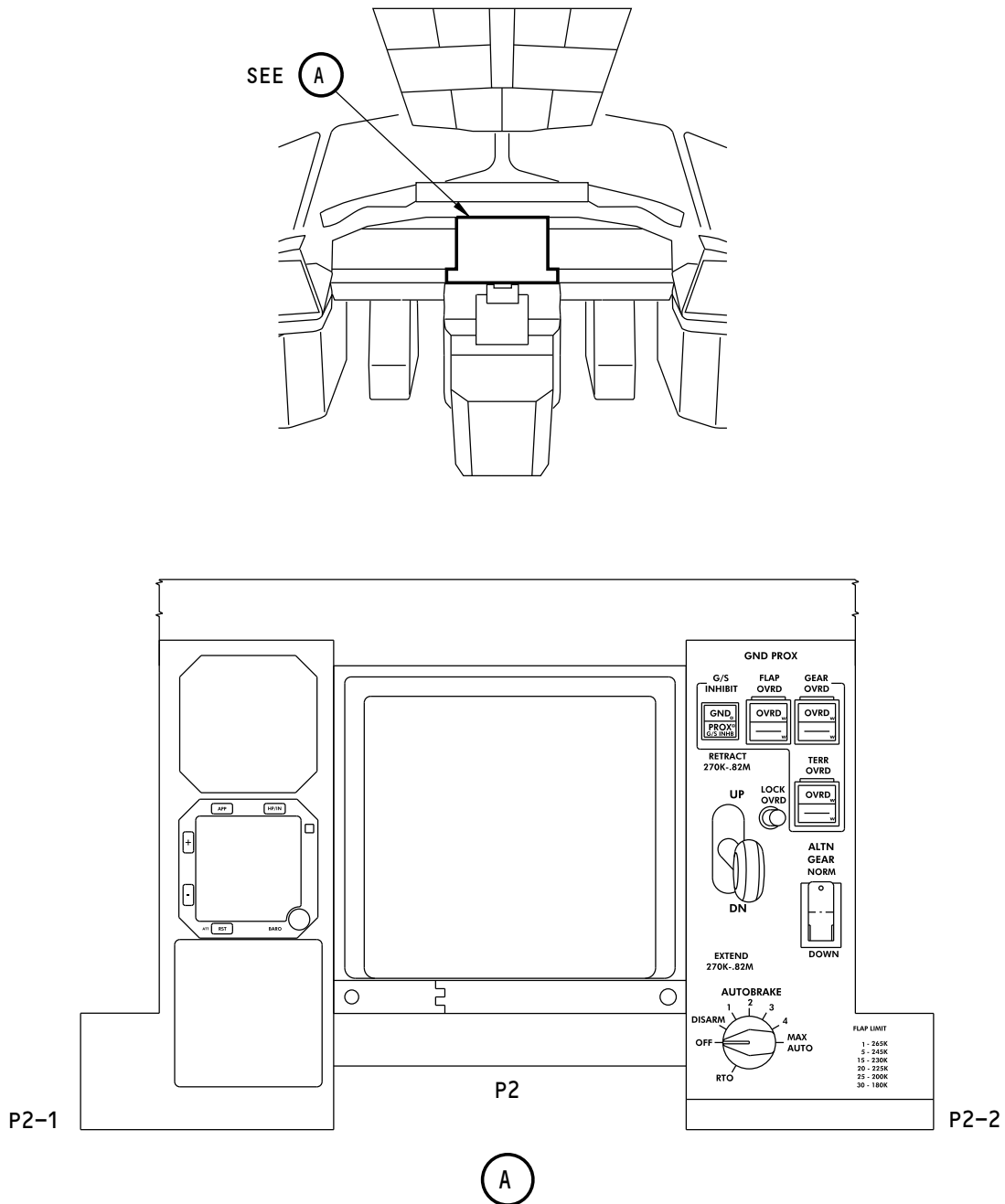
EFFECTIVITY
ARO ALL

D633W101-ARO

31-11-16

Page 101
Jan 05/2015

BOEING
777-200/300
AIRCRAFT MAINTENANCE MANUAL



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INOP MARKERS INSTALLED.

2231482 S0000497535_V1

Center Forward Panel - Component Location
Figure 101/31-11-16-990-801

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ARO ALL

31-11-16

D633W101-ARO

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Page 102
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

GLARESHIELD PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Glareshield Panel.

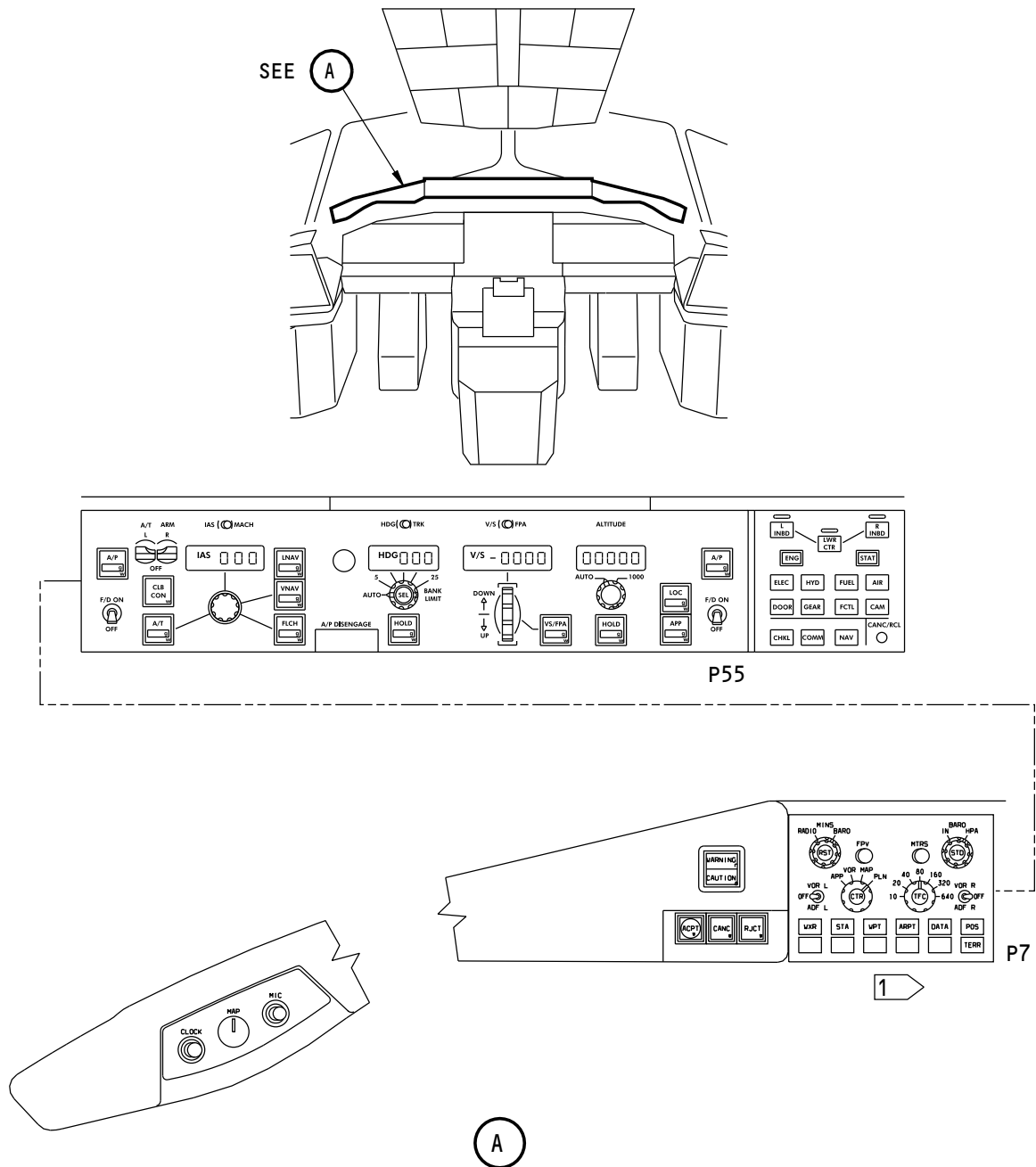
EFFECTIVITY
ARO ALL

D633W101-ARO

31-11-21

Page 101
Jan 05/2015

BOEING
777-200/300
AIRCRAFT MAINTENANCE MANUAL



NOTE:
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INOP MARKERS INSTALLED.

1 LEFT SIDE IS SHOWN,
RIGHT SIDE IS EQUIVALENT

2231485 S0000497537_V1

Glareshield Panel - Component Location
Figure 101/31-11-21-990-801

EFFECTIVITY
ARO ALL

31-11-21

D633W101-ARO

Page 102
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

RIGHT FORWARD PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Right Forward Panel.

EFFECTIVITY
ARO ALL

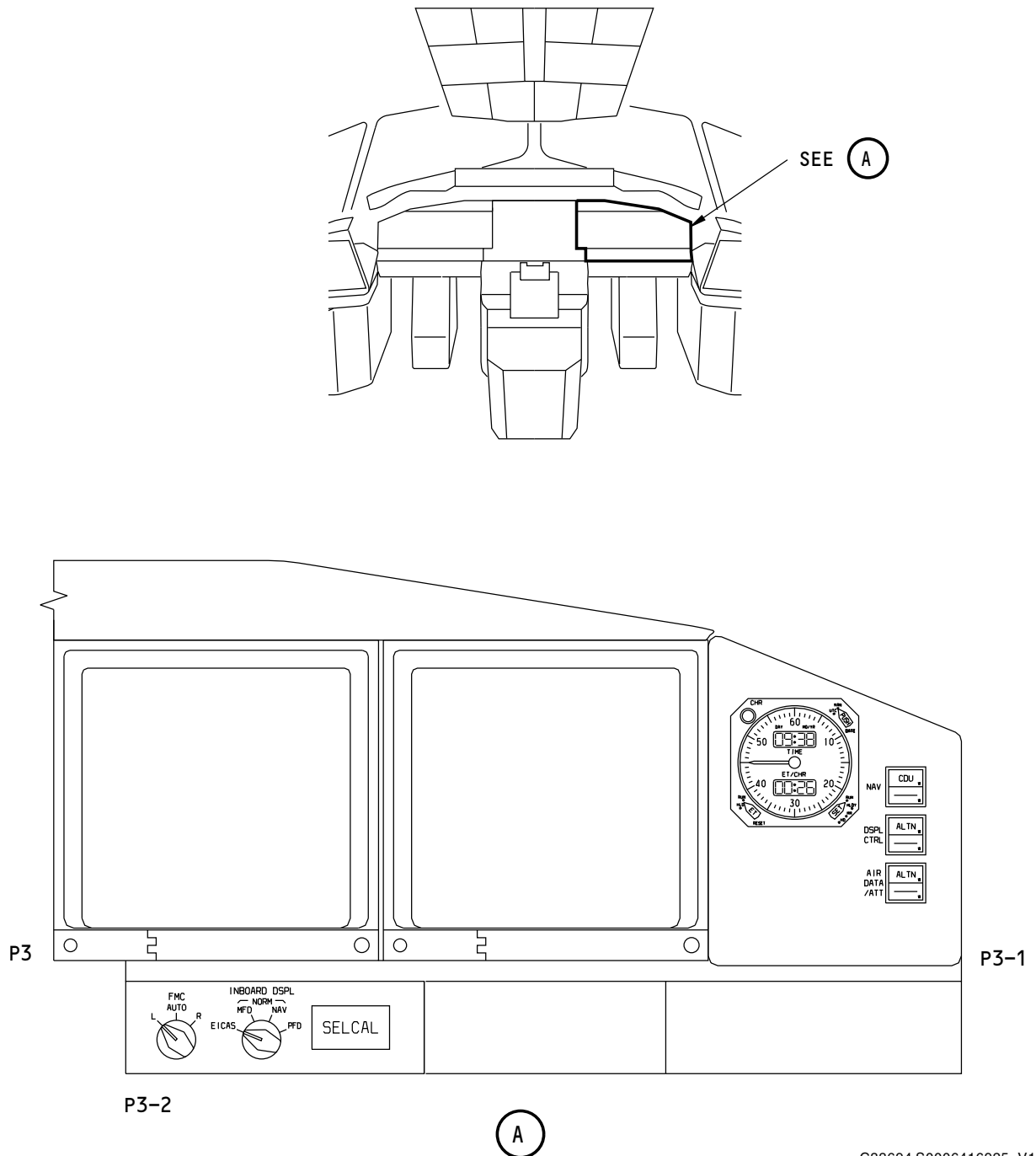
D633W101-ARO

31-11-26

Page 101
Jan 05/2015

BOEING
777-200/300
AIRCRAFT MAINTENANCE MANUAL

RIGHT FORWARD PANEL



C33694 S0006416925_V1

Right Forward Panel - Component Location
Figure 101/31-11-26-990-801 (Sheet 1 of 2)

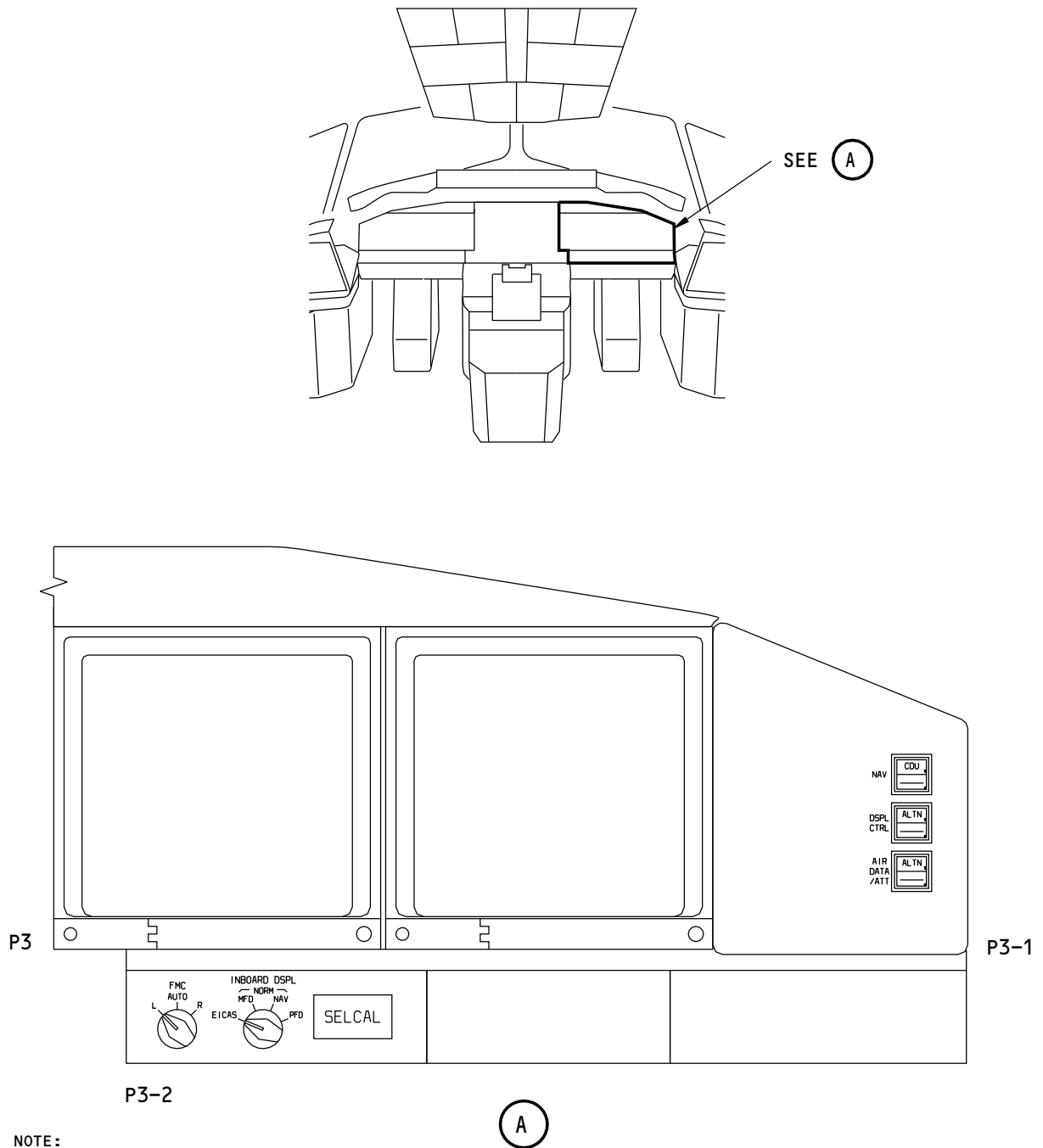
EFFECTIVITY
ARO ALL

31-11-26

D633W101-ARO

Page 102
Jan 05/2015

BOEING
777-200/300
AIRCRAFT MAINTENANCE MANUAL



NOTE:
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INOP MARKERS INSTALLED.

2231490 S0000497540_V1

Right Forward Panel - Component Location
Figure 101/31-11-26-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

31-11-26

D633W101-ARO

Page 103
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

FORWARD AISLE STAND PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Forward Aisle Stand Panel.

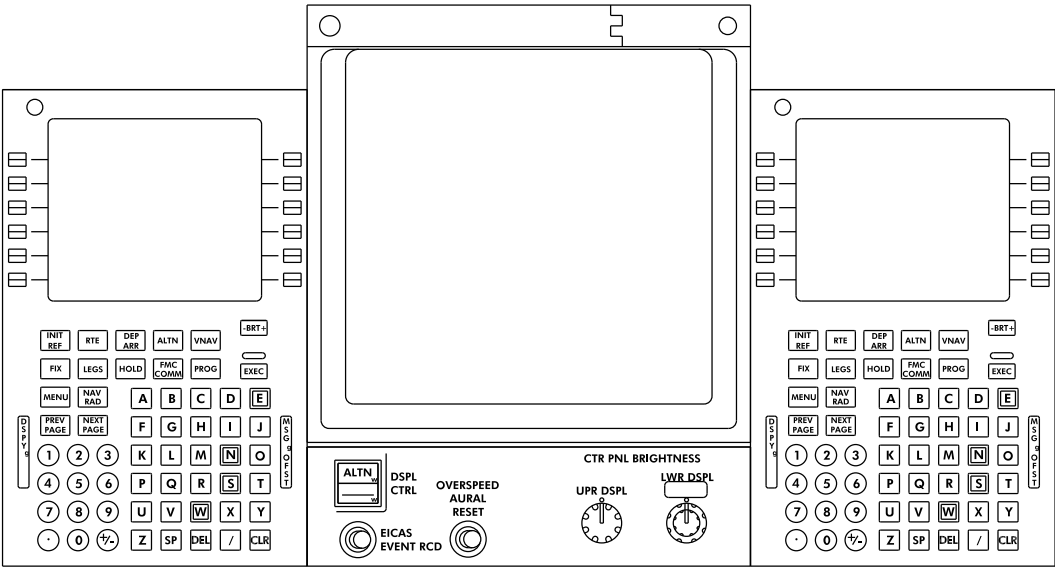
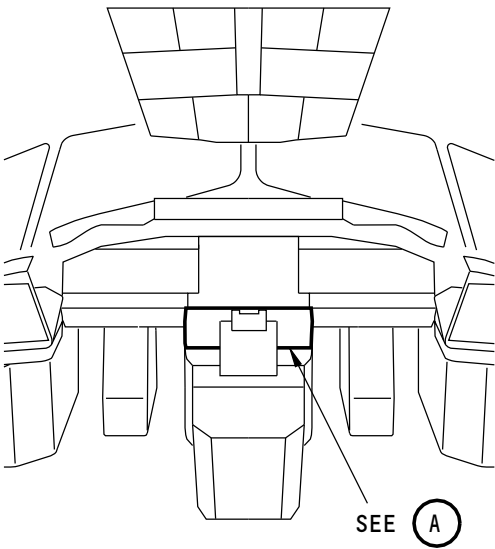
EFFECTIVITY
ARO ALL

D633W101-ARO

31-11-31

Page 101
Jan 05/2015

777-200/300
AIRCRAFT MAINTENANCE MANUAL



A

NOTE:
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THE CUSTOMER'S CONFIGURATION COULD HAVE
INOP MARKERS INSTALLED.

2231497 S0000497542_V1

Forward Aisle Stand Panel - Component Location
Figure 101/31-11-31-990-801

EFFECTIVITY
ARO ALL

31-11-31

D633W101-ARO



777-200/300
AIRCRAFT MAINTENANCE MANUAL

AFT AISLE STAND PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Aft Aisle Stand Panel.

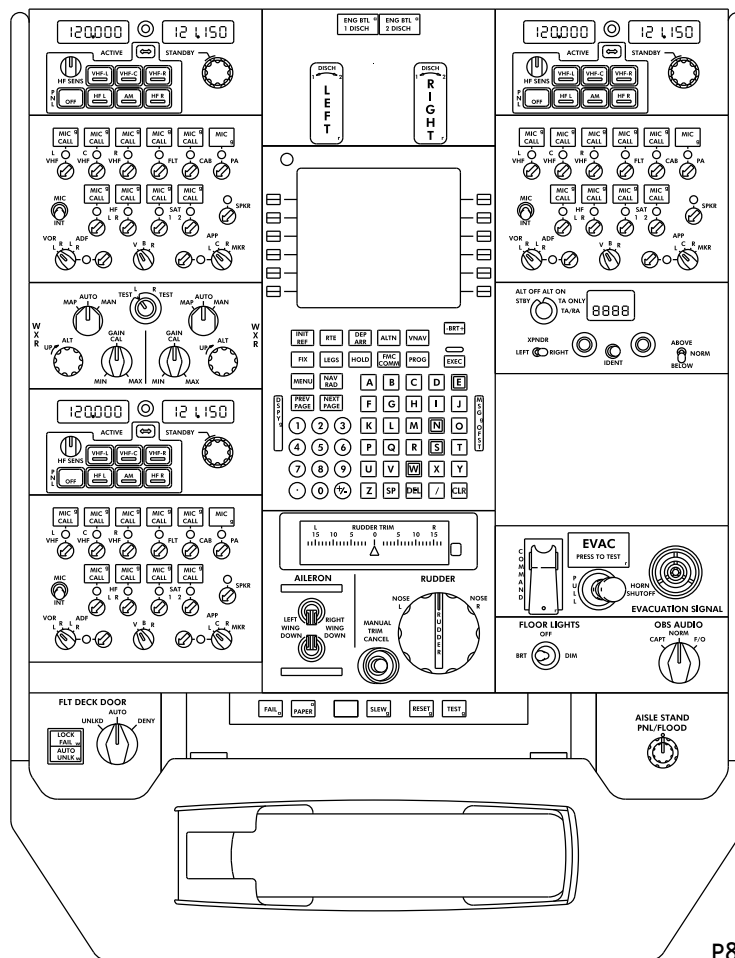
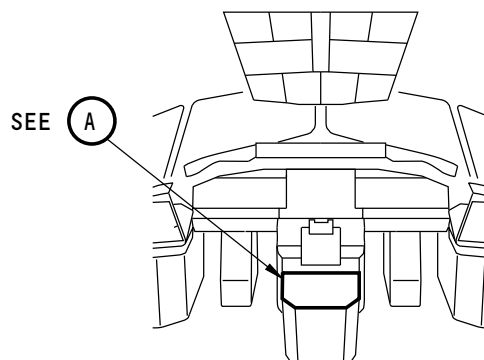
EFFECTIVITY
ARO ALL

D633W101-ARO

31-11-36

Page 101
Jan 05/2015

777-200/300 AIRCRAFT MAINTENANCE MANUAL



P8

NOTE:
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THE CUSTOMER'S CONFIGURATION COULD HAVE
INOP MARKERS INSTALLED.



Aft Aisle Stand Panel - Component Location
Figure 101/31-11-36-990-801 (Sheet 1 of 2)

EFFECTIVITY
ARO 001-014

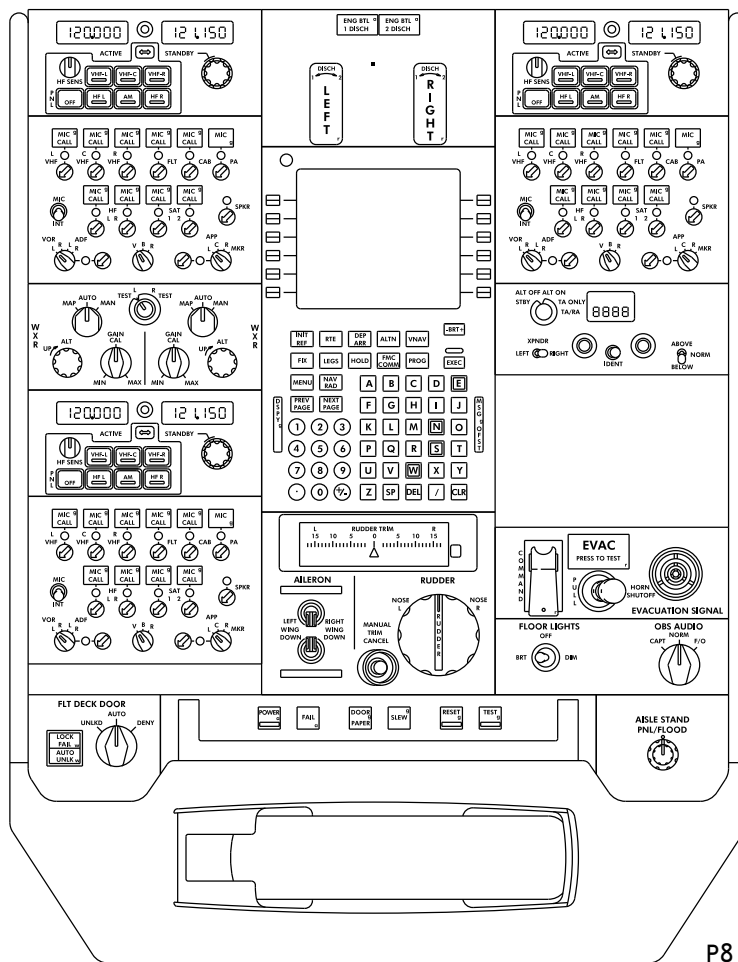
31-11-36

Page 102
May 05/2016

D633W101-ARO



777-200/300 AIRCRAFT MAINTENANCE MANUAL



A

NOTE:
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INOP MARKERS INSTALLED.

2481246 S0000582726_V1

Aft Aisle Stand Panel - Component Location
Figure 101/31-11-36-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO 015-999

31-11-36

Page 103
May 05/2016

D633W101-ARO



777-200/300
AIRCRAFT MAINTENANCE MANUAL
CONTROL STAND - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Control Stand.

EFFECTIVITY
ARO ALL

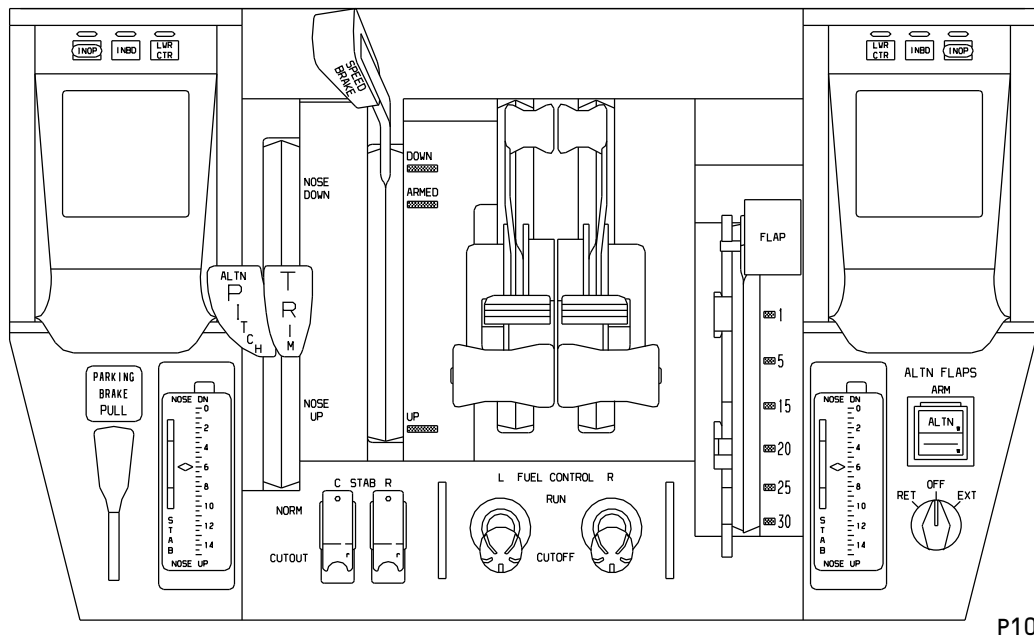
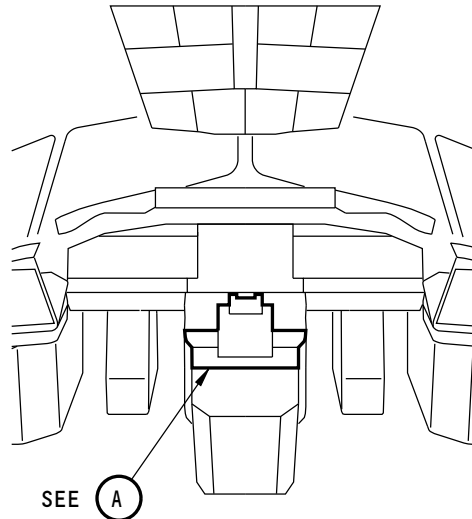
D633W101-ARO

31-11-41

Page 101
Jan 05/2015

BOEING
777-200/300
AIRCRAFT MAINTENANCE MANUAL

CONTROL STAND



A

C33713 S0006417004_V1

Control Stand - Component Location
Figure 101/31-11-41-990-801 (Sheet 1 of 2)

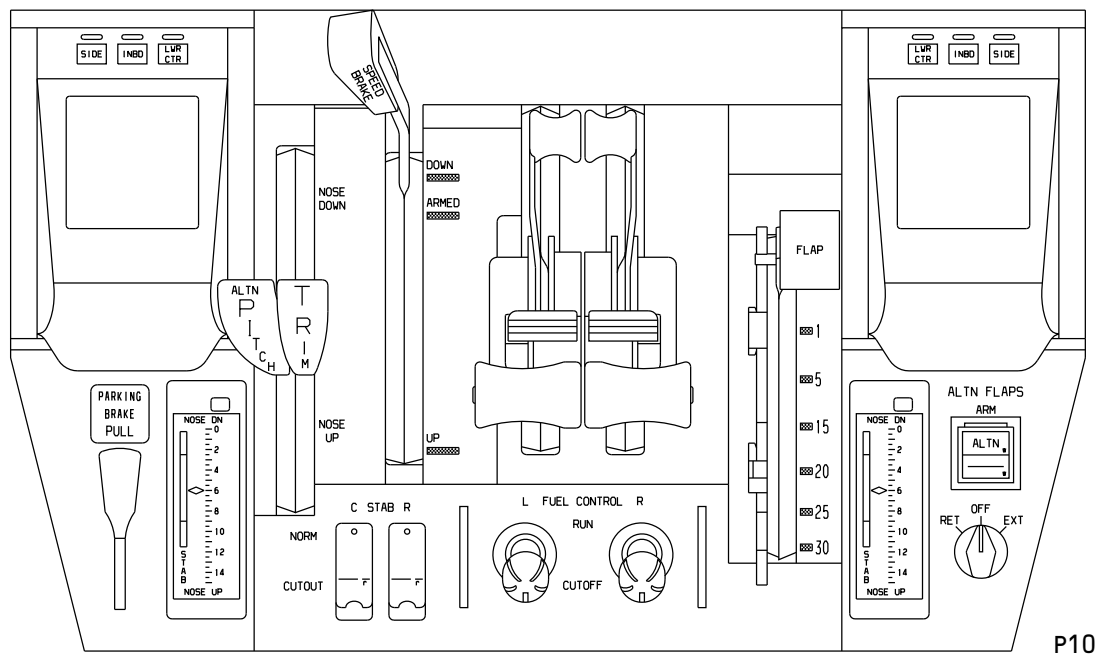
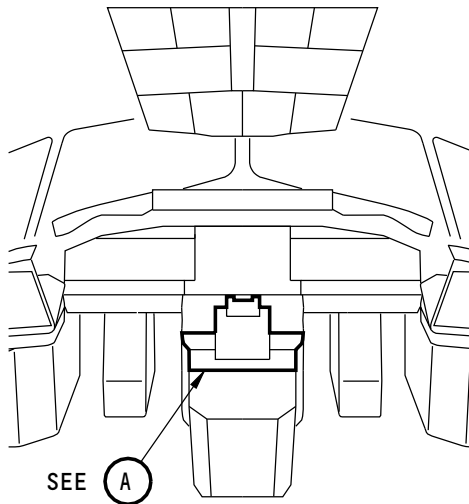
EFFECTIVITY
ARO ALL

31-11-41

D633W101-ARO

Page 102
Jan 05/2015

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AIRCRAFT MAINTENANCE MANUAL



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A

2231582 S0000497547_V1

Control Stand - Component Location
Figure 101/31-11-41-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

31-11-41

D633W101-ARO

Page 103
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL
OVERHEAD PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Overhead Panel.

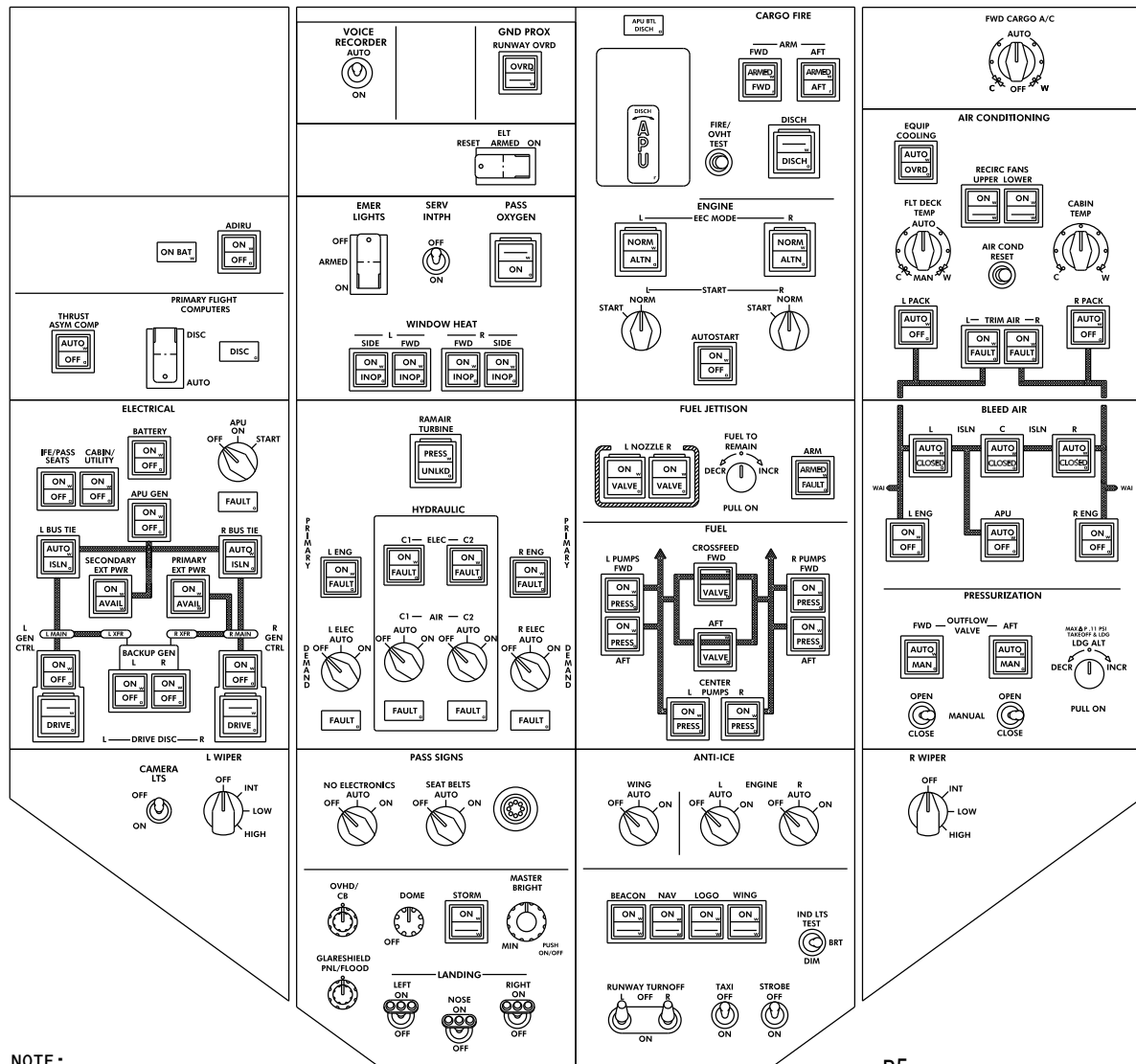
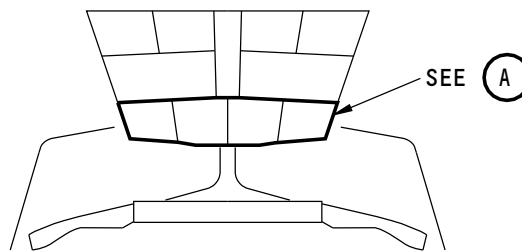
EFFECTIVITY
ARO ALL

D633W101-ARO

31-12-11

Page 101
Jan 05/2015

777-200/300
AIRCRAFT MAINTENANCE MANUAL



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P5

2231627 S0000497551 V1

Overhead Panel - Component Location
Figure 101/31-12-11-990-801 (Sheet 1 of 2)

— EFFECTIVITY
ARO 001-005

31-12-11

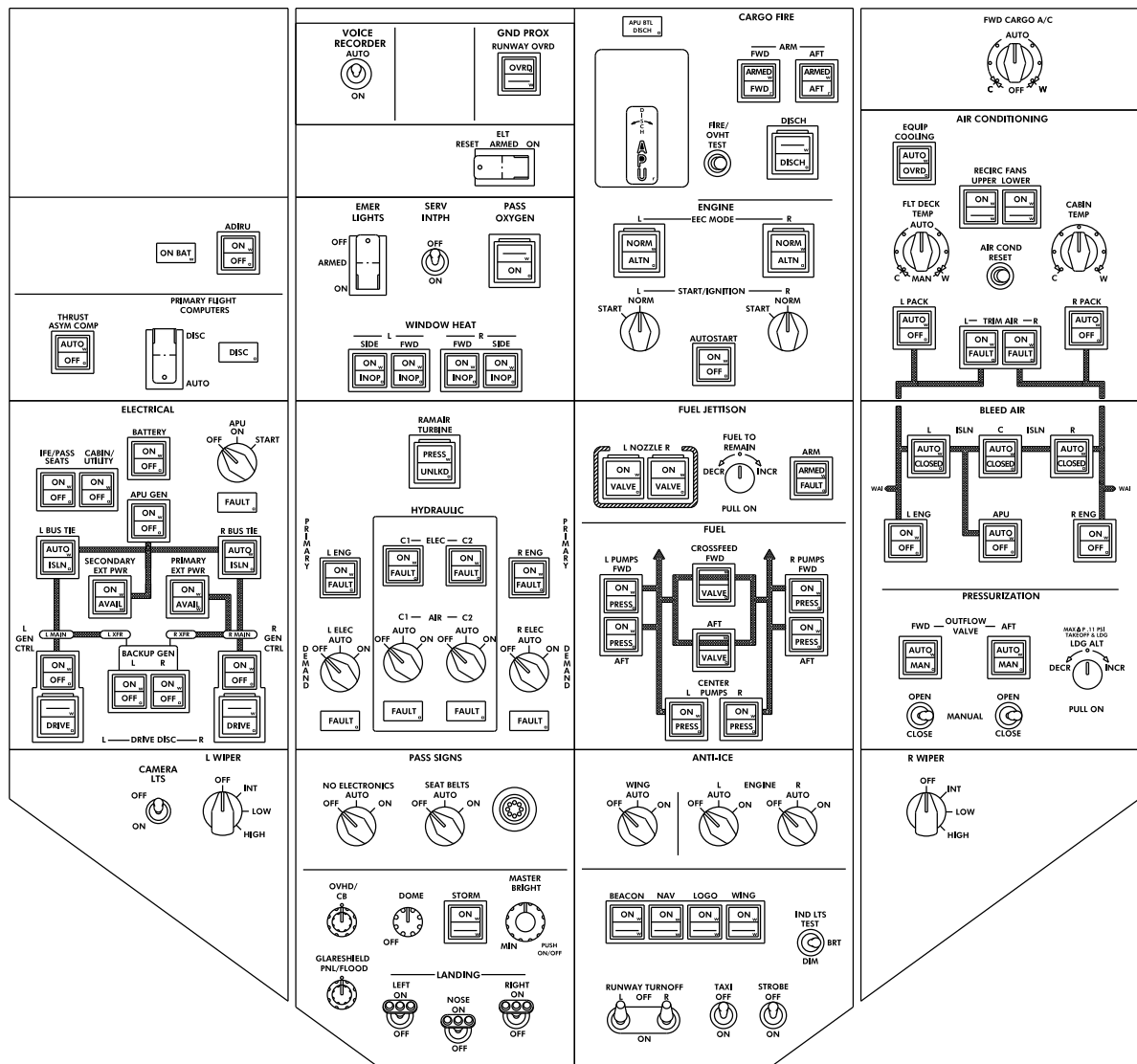
Page 102
Jan 05/2015

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P5

2291367 S0000518777_V1

Overhead Panel - Component Location
Figure 101/31-12-11-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO 006-999

31-12-11

D633W101-ARO

Page 103
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

OVERHEAD MAINTENANCE PANEL - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Overhead Maintenance Panel.

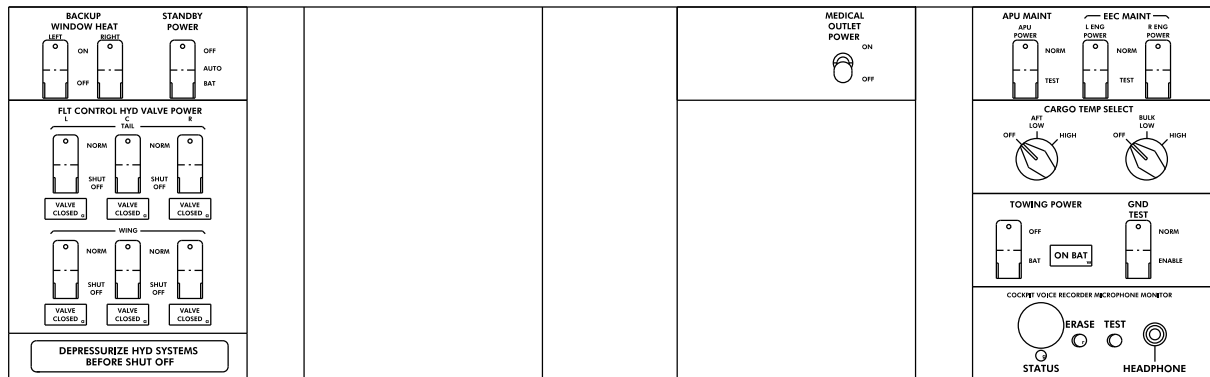
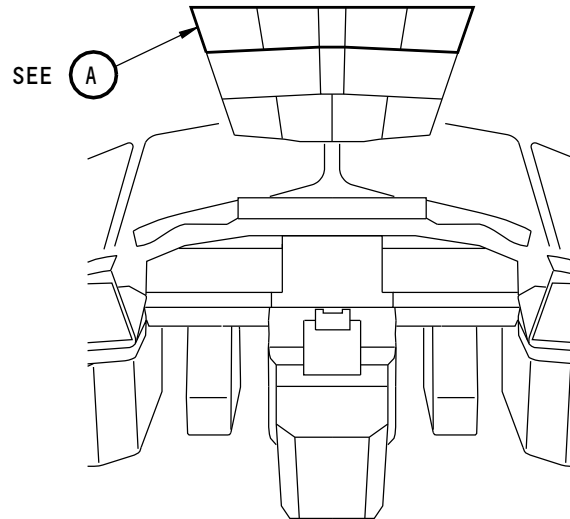
EFFECTIVITY
ARO ALL

D633W101-ARO

31-12-16

Page 101
Jan 05/2015

777-200/300
AIRCRAFT MAINTENANCE MANUAL



P61

A

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INOP MARKERS INSTALLED.

2231635 S0000497555_V1

Overhead Maintenance Panel - Component Location
Figure 101/31-12-16-990-801

EFFECTIVITY
ARO ALL

31-12-16

D633W101-ARO

Page 102
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

LEFT AND RIGHT SIDEWALL PANELS - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Left and Right Sidewall Panels.

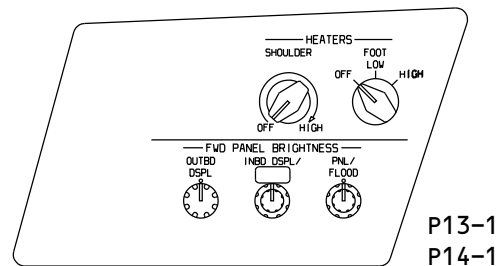
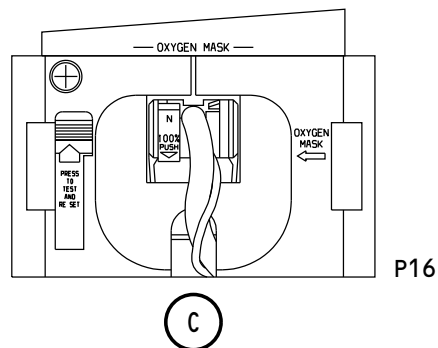
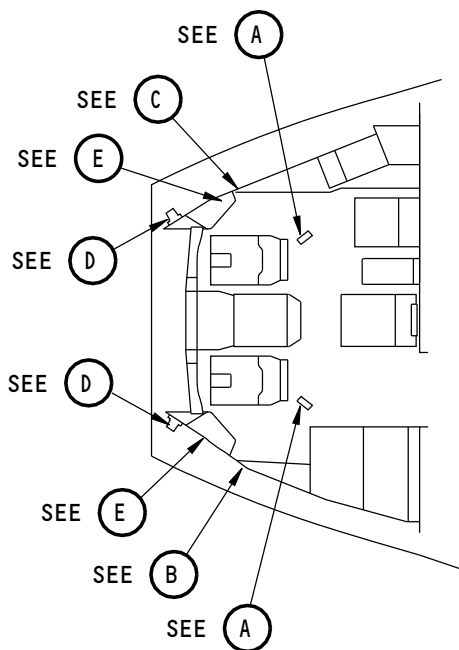
EFFECTIVITY
ARO ALL

D633W101-ARO

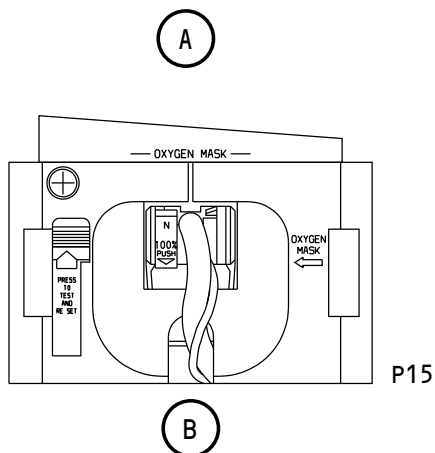
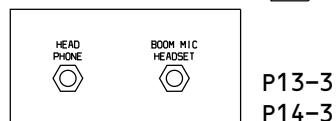
31-13-20

Page 101
Jan 05/2015

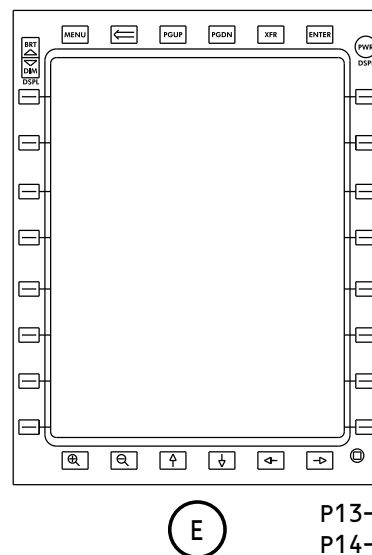
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1 LEFT SIDE IS SHOWN,
RIGHT SIDE IS OPPOSITE



DO NOT USE AIRPORT
MAP AS A PRIMARY
NAVIGATION
REFERENCE



NOTE:
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THE CUSTOMER'S CONFIGURATION COULD HAVE
INOP MARKERS INSTALLED.

2231639 S0000497559_V1

Left and Right Sidewall Panels - Component Location
Figure 101/31-13-20-990-801

EFFECTIVITY
ARO ALL

31-13-20



777-200/300
AIRCRAFT MAINTENANCE MANUAL
OBSERVERS PANELS - COMPONENT LOCATION

1. General

- A. This procedure contains the component location for the Observers Panels.

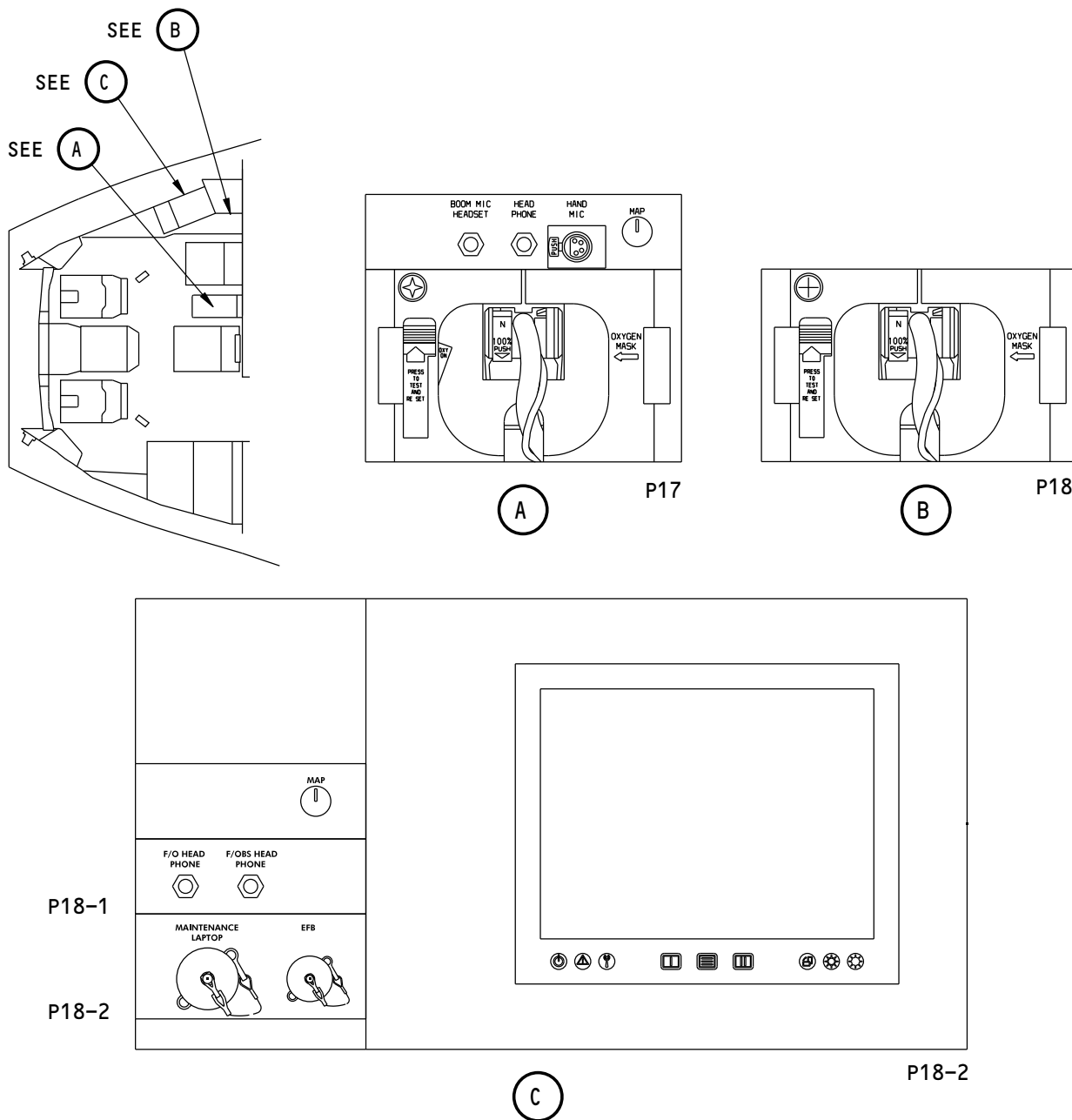
EFFECTIVITY
ARO ALL

D633W101-ARO

31-15-11

Page 101
Jan 05/2015

777-200/300 AIRCRAFT MAINTENANCE MANUAL



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INOP MARKERS INSTALLED.

2231650 S0000497562_V1

Observers' Panels - Component Location
Figure 101/31-15-11-990-801 (Sheet 1 of 2)

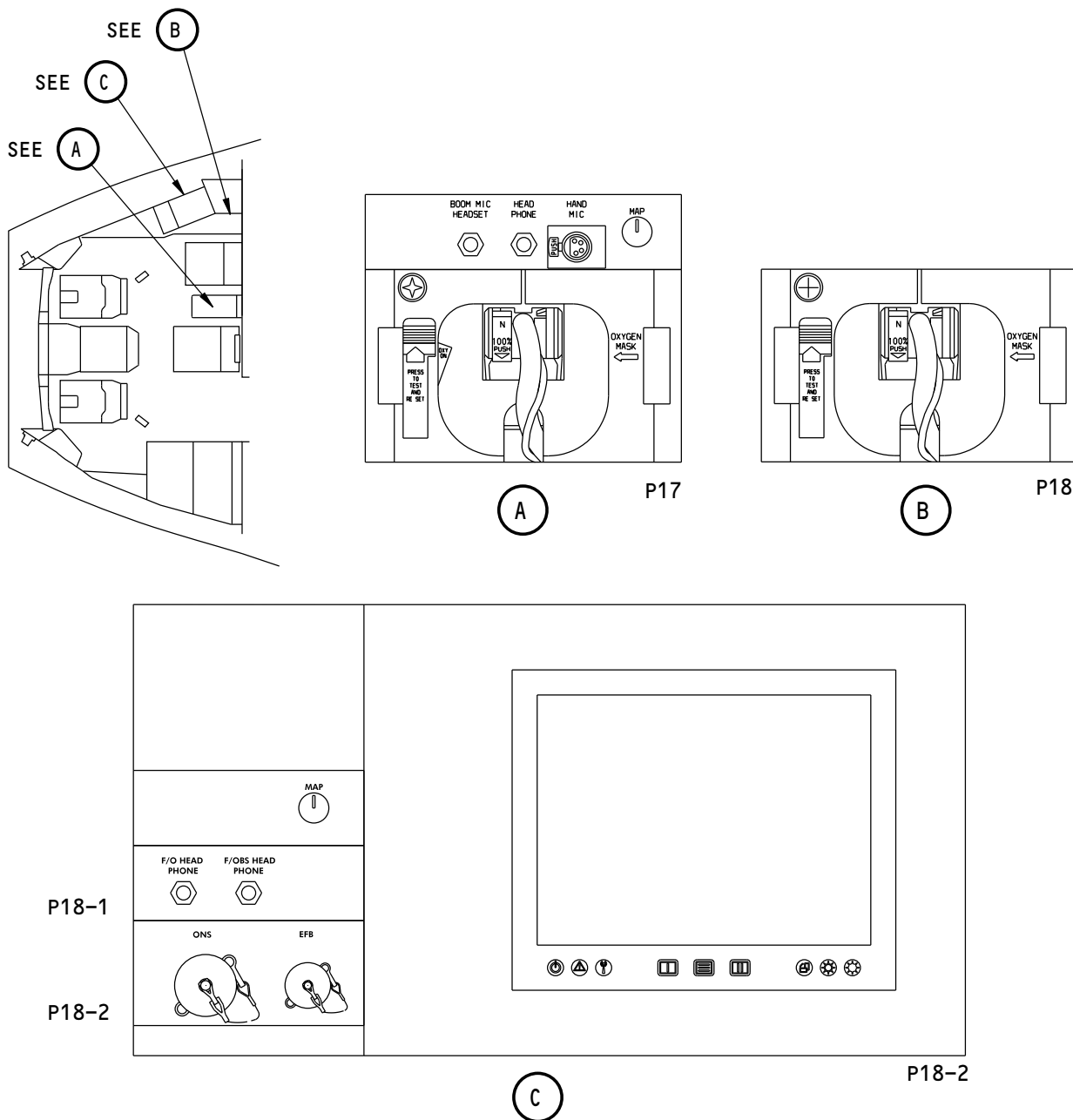
EFFECTIVITY
ARO 001-013

31-15-11

D633W101-ARO

Page 102
May 05/2016

777-200/300 AIRCRAFT MAINTENANCE MANUAL



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2462242 S0000574075_V1

Observers' Panels - Component Location
Figure 101/31-15-11-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO 014-016

31-15-11

D633W101-ARO

Page 103
Jul 25/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

CLOCKS - ADJUSTMENT/TEST

1. General

- A. This procedure is a system test for the clocks. The system test includes a check of the clock interface to the airplane information management system (AIMS).
- B. The captain's clock button is on the left side of the glareshield, P7
- C. The first officer's clock button is on the right side of the glareshield, P7.

TASK 31-25-00-730-802

2. Clocks - System Test

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Prepare for the System Test

SUBTASK 31-25-00-860-010

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

D. Clocks System Test

SUBTASK 31-25-00-860-007

- (1) Test the Captain's clock.
 - (a) Make sure the clock face and digital counter are not displayed on the Captain's Navigation Display.
 - (b) Press and release the Captain's CLOCK button (P7)
 - 1) Make sure the clock face and digital counter appear in the upper right corner of the Captain's Navigation Display.
 - 2) Make sure the digital counter begins incrementing.
 - (c) Press and release the Captain's CLOCK button (P7)
 - 1) Make sure the clock face and digital counter remains in the upper right corner of the Captain's Navigation Display.
 - 2) Make sure the digital counter stops incrementing.
 - (d) Press and release the Captain's CLOCK button (P7)
 - 1) Make sure the clock face and digital counter are not displayed on the upper right corner of the Captain's Navigation Display.

SUBTASK 31-25-00-860-008

- (2) Test the First Officer's clock.
 - (a) Make sure the clock face and digital counter are not displayed on the First Officer's Navigation Display.
 - (b) Press and release the First Officer's CLOCK button (P7)

EFFECTIVITY
ARO ALL

31-25-00

D633W101-ARO

Page 501
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 1) Make sure the clock face and digital counter appear in the upper right corner of the First Officer's Navigation Display.
- 2) Make sure the digital counter begins incrementing.
- (c) Press and release the First Officer's CLOCK button (P7)
 - 1) Make sure the clock face and digital counter remains in the upper right corner of the First Officer's Navigation Display.
 - 2) Make sure the digital counter stops incrementing.
- (d) Press and release the First Officer's CLOCK button (P7)
 - 1) Make sure the clock face and digital counter are not displayed on the upper right corner of the First Officer's Navigation Display.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 31-25-00-860-009

- (1) Remove electrical power if necessary (Remove Electrical Power, TASK 24-22-00-860-806).

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-25-00

D633W101-ARO

Page 502
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

FLIGHT DATA RECORDER SYSTEM (FDRS) - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) An operational test of the flight data recorder system
- (2) A system test of the flight data recorder system.

TASK 31-31-00-710-801

2. Flight Data Recorder System - Operational Test

A. General

- (1) In this task the flight data recorder (FDR) will operate for a short time. You will lose a part of the oldest data.
- (2) This test does a check of the ARINC 717 bus wiring between left and right AIMS, the ARINC 629 communication between AIMS and ELMS, the FDR Power Relay On/Off, the FDR discretes to AIMS, the ARINC 717 bus switching relays in left and right AIMS, and the DFDAF to CMCS communications.
- (3) A maintenance access terminal is necessary for the procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 31-31-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-31-00-710-002

- (2) Use a maintenance access terminal (MAT) to do the operational test of the flight data recorder:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 AIMS - Flight Data Recorder System
 - 5) SYSTEM TEST
 - 6) Flight Data Recorder System
 - 7) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE

EFFECTIVITY
ARO ALL

31-31-00

D633W101-ARO

Page 501
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 2) START TEST
- (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

————— **END OF TASK** —————

TASK 31-31-00-730-801

3. Flight Data Recorder System - System Test

A. General

- (1) This task tests the flight data recorder FDR system in the fail mode and the FDR system EICAS fault reporting.

ARO 016-999

- (2) This task will check the ONS FDR interface.

ARO ALL

- (3) A maintenance access terminal is necessary for the procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
46-13-00-720-803	Onboard Network System Input Monitoring Check (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Operational Test

SUBTASK 31-31-00-710-001

- (1) Do this task: Flight Data Recorder System - Operational Test, TASK 31-31-00-710-801.

E. Procedure

SUBTASK 31-31-00-730-001

- (1) Make sure there are no FLT RECORDER SYS messages on EICAS.

SUBTASK 31-31-00-860-004

- (2) Put the FUEL CONTROL LEVER (L or R) to RUN.

NOTE: The FUEL CONTROL LEVER is located on the P10 control panel.

SUBTASK 31-31-00-860-005

- (3) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
B	1	C80601	L ENG START VALVE
B	2	C73609	L ENG START CTRL

EFFECTIVITY
ARO ALL

31-31-00

D633W101-ARO

Page 502
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

(Continued)

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	3	C80605	L ENG START SW
B	4	C76601	L ENG FUEL VALVE
B	16	C80600	R ENG START VALVE
B	17	C73610	R ENG START CTRL
B	18	C80606	R ENG START SW
B	19	C76600	R ENG FUEL VALVE

SUBTASK 31-31-00-860-006

- (4) Make sure that these circuit breakers are closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	14	C31641	RSCF PS 2

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	6	C31637	LSCF PS 2
G	3	C76603	L ENG EEC RST/FUEL SPAR
G	4	C76602	R ENG EEC RST/FUEL SPAR
J	1	C31634	LSCF PS 1
J	2	C31638	RSCF PS 1
K	5	C24633	P310 PSU A ALTN

SUBTASK 31-31-00-730-002

- (5) Use a maintenance access terminal (MAT) to do input monitoring of the flight data recorder:

- (a) Make these selections on the MAT:

- 1) ONBOARD MAINTENANCE
- 2) OTHER FUNCTIONS
- 3) INPUT MONITORING
- 4) ANALOG DISCRETE

NOTE: The flight data recorder discretes are at INDEX TABLE NUMBER 193-200.
You can scroll to the table or put the table number to search for.

- 5) CONTINUE
- 6) Make sure FLIGHT DATA RECORDER MAINT shows GROUND.
- 7) Make sure FLIGHT DATA RECORDER STATUS shows OPEN.

SUBTASK 31-31-00-860-007

- (6) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	12	C31605	FLT RCDCR DC

- (a) Keep the circuit breaker open for 20 seconds.

EFFECTIVITY
ARO ALL

31-31-00

D633W101-ARO

Page 503
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-31-00-730-003

- (7) Make sure that FLT RECORDER SYS shows on the EICAS.

NOTE: The EICAS message is a latched message. To remove it, you must do the ground test.

SUBTASK 31-31-00-860-008

- (8) Put the FUEL CONTROL LEVER to CUTOFF.

NOTE: The FUEL CONTROL LEVER is located on the P10 control panel.

SUBTASK 31-31-00-860-009

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
L	12	C31605	FLT RCDCR DC

ARO 016-999

SUBTASK 31-31-00-720-001

- (10) Do the ONS flight data recorder input monitoring check (TASK 46-13-00-720-803).

ARO ALL

SUBTASK 31-31-00-730-004

- (11) Use a maintenance access terminal (MAT) to do the system test of the flight data recorder:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE.
 - 3) GROUND TESTS
 - 4) 31 AIMS - Flight Data Recorder System
 - 5) SYSTEM TEST
 - 6) Flight Data Recorder System
 - 7) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST
 - (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
 - (d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 31-31-00-730-005

- (12) Make sure that FLT RECORDER SYS does not show on the EICAS.

SUBTASK 31-31-00-860-010

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	1	C80601	L ENG START VALVE
B	2	C73609	L ENG START CTRL
B	3	C80605	L ENG START SW

EFFECTIVITY
ARO ALL

31-31-00

D633W101-ARO

Page 504
May 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	4	C76601	L ENG FUEL VALVE
B	16	C80600	R ENG START VALVE
B	17	C73610	R ENG START CTRL
B	18	C80606	R ENG START SW
B	19	C76600	R ENG FUEL VALVE

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-31-00

Page 505
May 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

FLIGHT DATA RECORDER (FDR) - MAINTENANCE PRACTICES

1. General

- A. This procedure contains scheduled maintenance task data.
- B. You can use a device to copy the data from the flight data recorder (FDR) while the FDR is on the airplane. The data copied by the device can then be analyzed at a different location or this service can be ordered through Flight Recorder Data Service on MyBoeingFleet.
- C. This procedure contains these tasks:
 - (1) Flight Data Recorder Deactivation.
 - (2) Flight Data Recorder Activation.
 - (3) Make a copy of the data from the Honeywell HFR5-D SSFDR with the Flight Data Recorder Download Unit.

ARO 016-999

- (4) Make a copy of the flight data recorder (FDR) data via the ONS.

ARO ALL

TASK 31-31-01-040-801

2. Flight Data Recorder - Deactivation

A. General

- (1) This task will deactivate the Flight Data Recorder.

B. Location Zones

Zone	Area
118	Main Equipment Center, Right
264	Area Above Passenger Compartment Ceiling, Right - Section 47

C. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

D. Procedure

SUBTASK 31-31-01-010-005

- (1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

SUBTASK 31-31-01-860-093



WARNING

BE CAREFUL WHEN YOU DO WORK AROUND ENERGIZED PANELS. HIGH VOLTAGES CAN KILL YOU.

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 201
Sep 05/2017

777-200/300 AIRCRAFT MAINTENANCE MANUAL

E. Flight Data Recorder- Tryout

NOTE: This tryout is to make sure that the Flight Data Recorder is in a zero energy state.

SUBTASK 31-31-01-860-094



WARNING BE CAREFUL WHEN YOU DO WORK AROUND ENERGIZED PANELS. HIGH VOLTAGES CAN KILL YOU.

- (1) Make sure that these circuit breakers are open and have safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-700-003

- (2) Use a Maintenance Access Terminal to do the operational test of the Flight Data Recorder System.
- (3) Make these selections on the Maintenance Access Terminal:
 - (a) ONBOARD MAINTENANCE
 - (b) LINE MAINTENANCE
 - (c) GROUND TESTS
 - (d) 31 AIMS – Flight Data Recorder System
 - (e) SYSTEM TEST
 - (f) Flight Data Recorder System
 - (g) CONTINUE
- (4) Do the instructions that show on the Maintenance Access Terminal and then make these selections:
 - (a) CONTINUE
 - (b) START TEST
- (5) When the test is completed, make sure that FAILED shows adjacent to TEST CONDITION on the Maintenance Access Terminal.

————— **END OF TASK** —————

TASK 31-31-01-440-801

3. Flight Data Recorder - Activation

A. General

- (1) This task will activate the Flight Data Recorder.

B. Location Zones

<u>Zone</u>	<u>Area</u>
118	Main Equipment Center, Right
264	Area Above Passenger Compartment Ceiling, Right - Section 47

C. Access Panels

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 202
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

D. Procedure

SUBTASK 31-31-01-860-095



WARNING

BE CAREFUL WHEN YOU DO WORK AROUND ENERGIZED PANELS. HIGH VOLTAGES CAN KILL YOU.

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-410-002

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

————— END OF TASK —————

TASK 31-31-01-970-808

4. Make a Copy of the Data from the Honeywell HFR5-D SSFDR with the Flight Data Recorder Download Unit

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task uses the download unit, COM-12815 to make a copy of the flight data from the Honeywell HFR5-D SSFDR.
- (2) The copied data then can be analyzed at a different location by the applicable airline personnel or this service can be ordered through Flight Recorder Data Services found on MyBoeingFleet.

B. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-805	Supply Electrical Power (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.

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 203
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Reference	Description
COM-12815	Download Unit - Flight Data Recorder Part #: 17TES0060 Supplier: 06141 Part #: 17TES0065 Supplier: 06141 Part #: 69001074-070 Supplier: 97896 Part #: 802-02XX Supplier: 1JSZ6 Part #: FDS40-0301 Supplier: Z7C70 Part #: UCR-2-3-1 Supplier: 1TLM9 Opt Part #: 17TES0041 Supplier: 06141 Opt Part #: 17TES0043 Supplier: 06141 Opt Part #: 69001074-001 Supplier: 97896 Opt Part #: 69001074-060 Supplier: 97896 Opt Part #: 802-0208 Supplier: 1JSZ6 Opt Part #: 964-0446-001 Supplier: 97896 Opt Part #: FDS400-301 Supplier: Z7C70

D. Location Zones

Zone	Area
264	Area Above Passenger Compartment Ceiling, Right - Section 47

E. Prepare to download the FDR data.

SUBTASK 31-31-01-860-071

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 31-31-01-860-072

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

Right Power Management Panel, P210

Row	Col	Number	Name
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-420-018

- (3) Connect the download unit, COM-12815 to the FDR.

SUBTASK 31-31-01-860-073

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

Right Power Management Panel, P210

Row	Col	Number	Name
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

F. Procedure

SUBTASK 31-31-01-860-074

- (1) Use a maintenance access terminal (MAT) to supply power to the flight data recorder.
- (a) Make these selections on the MAT:
- 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Flight Data Recorder System
 - 5) Flight Data Recorder System

EFFECTIVITY
ARO ALL

D633W101-ARO

31-31-01

Page 204
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 6) Press CONTINUE until the screen displays: Flight Data Recorder: Power On, Ready
- 7) Press START FUNCTION

SUBTASK 31-31-01-860-075

- (2) Switch ON the download unit, COM-12815.

SUBTASK 31-31-01-860-076

- (3) Run the HFR5 Downloader Program on the download unit, COM-12815.
 - (a) Click the DOWNLOAD button.
 - 1) Follow the prompts on the download unit, COM-12815 to complete data download.
 - (b) After the copy procedure is completed, click on the QUIT button.

SUBTASK 31-31-01-860-077

- (4) Switch OFF the download unit, COM-12815.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-01-860-078

- (1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-020-012

- (2) Disconnect the download unit, COM-12815 from the FDR.

SUBTASK 31-31-01-860-079

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

————— END OF TASK —————

TASK 31-31-01-970-809

5. Make a Copy of the FDR data with the Hand Held Multipurpose Interface (HHMPI)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task uses a Hand Held Multipurpose Interface (HHMPI) to make a copy of the flight data from a flight data recorder (FDR) while the FDR is in the airplane.
- (2) The copied data then can be analyzed at a different location by the applicable airline personnel or this service can be ordered through Flight Recorder Data Service found on MyBoeingFleet.

B. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-805	Supply Electrical Power (P/B 201)

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 205
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE 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-13694	Unit - Interface, Hand-Held Multi-Purpose (HHMPI) Part #: FDS40-0301 Supplier: Z7C70 Opt Part #: FDS400-301 Supplier: Z7C70
COM-13695	Cable - Interface, HHMPI (Honeywell SSDFDR only) Part #: FDS40-0203 Supplier: Z7C70 Opt Part #: FDS400-203 Supplier: Z7C70
COM-13696	Cable - Interface, HHMPI (Honeywell HFR5-D only) Part #: FDS40-0232 Supplier: Z7C70 Opt Part #: FDS400-232 Supplier: Z7C70
COM-13697	Cable - Interface, HHMPI (L-3 Comm FA2100) Part #: FDS40-0202 Supplier: Z7C70 Opt Part #: FDS400-202 Supplier: Z7C70
COM-13750	Cable - Interface, HHMPI (L-3 Comm F1000 DFDR only) Part #: FDS40-0201 Supplier: Z7C70 Opt Part #: FDS400-201 Supplier: Z7C70

D. Location Zones

Zone	Area
264	Area Above Passenger Compartment Ceiling, Right - Section 47

E. Prepare to Make a Copy of the Flight Data from the FDR

SUBTASK 31-31-01-860-082

- (1) Supply electrical power Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 31-31-01-860-083

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

Right Power Management Panel, P210

Row	Col	Number	Name
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-700-001

- (3) Make sure the Hand-Held Multi-Purpose Interface Unit (HHMPI), COM-13694 is OFF.

SUBTASK 31-31-01-860-084

- (4) Connect the HHMPI cable to the FDR.
 - HHMPI interface cable (Honeywell HFR5-D), COM-13696
 - HHMPI interface cable (Honeywell SSDFDR), COM-13695
 - HHMPI interface cable (L-3 Comm FA2100), COM-13697
 - HHMPI interface cable (L-3 Comm F1000 DFDR), COM-13750

SUBTASK 31-31-01-700-002

- (5) Install the removable media into the HHMPI if required.

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 206
Jul 25/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-31-01-860-085

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-860-090

- (7) Use a maintenance access terminal (MAT) to supply power to the flight data recorder:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Flight Data Recorder System
 - 5) Flight Data Recorder Power On
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION
 - (c) When the function is completed, make sure that COMPLETE shows adjacent to FUNCTION CONDITION on the MAT.

F. Procedure

SUBTASK 31-31-01-970-004

- (1) Select aircraft type, model and tail number if required.
- (2) Select the memory device to store the data.

NOTE: A file download onto the HHMPI's Internal Memory will not appear if an SD memory card is connected. The SD card will override the internal memory function. Remove the SD storage card if access to the internal memory is required.
- (3) Make sure DOWNLOAD ALL DATA initializes.
 - (a) Press the C button to cancel the download.
- (4) Press the OK button when download has completed.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-01-860-086

- (1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-860-087

- (2) Disconnect the HHMPI cable from the FDR.
- (3) Remove the media if required.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-31-01

Page 207
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-31-01-860-088

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-860-089

- (5) Use a maintenance access terminal (MAT) to remove power from the flight data recorder:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Flight Data Recorder System
 - 5) Flight Data Recorder Power Off
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION
 - (c) When the function is completed, make sure that COMPLETE shows adjacent to FUNCTION CONDITION on the MAT.

————— END OF TASK —————

ARO 016-999

TASK 31-31-01-970-810

6. Download the Flight Data Recorder (FDR) data via the ONS

A. General

- (1) This task uses the Network File Server (NFS) to download the flight data recorder data while the aircraft is on the ground.
- (2) To do this task, you will operate the ONS maintenance browser using the maintenance device, SPL-11321.

B. References

<u>Reference</u>	<u>Title</u>
46-13-01-800-802	Network File Server Log File Check (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.

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 208
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 016-999 (Continued)

Reference	Description
SPL-11321	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45001-101 Supplier: 81205 Opt Part #: G45002-1 Supplier: 81205 Opt Part #: G45002-10 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 31-31-01-860-096

- (1) Select and download the applicable FDR data to a portable maintenance device (TASK 46-13-01-800-802).

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-31-01-080-001

- (1) If the maintenance device, SPL-11321 is no longer required, stop the ONS maintenance browser, and disconnect the laptop.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 209
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

FLIGHT DATA RECORDER (FDR) - REMOVAL/INSTALLATION

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) A removal of the flight data recorder.
 - (2) An installation of the flight data recorder.
- C. The flight data recorder is in the E7 aft equipment rack.

TASK 31-31-01-000-801

2. Flight Data Recorder Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
20-10-01-000-801	E/E Box Removal (P/B 401)
25-21-07-000-801	Lowered Ceiling Panel Removal (P/B 401)
31-31-09-000-801	Underwater Locator Beacon Removal (P/B 201)

B. **Tools/Equipment**

Reference	Description
STD-1048	Stepladder - 6 foot (1.83m)

C. **Location Zones**

Zone	Area
264	Area Above Passenger Compartment Ceiling, Right - Section 47

D. **Removal Procedure**

SUBTASK 31-31-01-860-035

- (1) Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-010-001

- (2) To get access to the FLIGHT DATA RECORDER [2] in the aft passenger compartment, do this task: Lowered Ceiling Panel Removal, TASK 25-21-07-000-801.

SUBTASK 31-31-01-800-001

- (3) Use a 6 foot (1.83m) stepladder, STD-1048 to access the FLIGHT DATA RECORDER [2].

SUBTASK 31-31-01-020-004



CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE FLIGHT DATA RECORDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FLIGHT DATA RECORDER.

- (4) To remove the FLIGHT DATA RECORDER, do this task: E/E Box Removal, TASK 20-10-01-000-801.

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 401
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-31-01-020-005

- (5) If the replacement FLIGHT DATA RECORDER does not have an underwater locator beacon (ULB) installed and requires an underwater locator beacon (ULB), do this task: Underwater Locator Beacon Removal, TASK 31-31-09-000-801.

———— **END OF TASK** ————

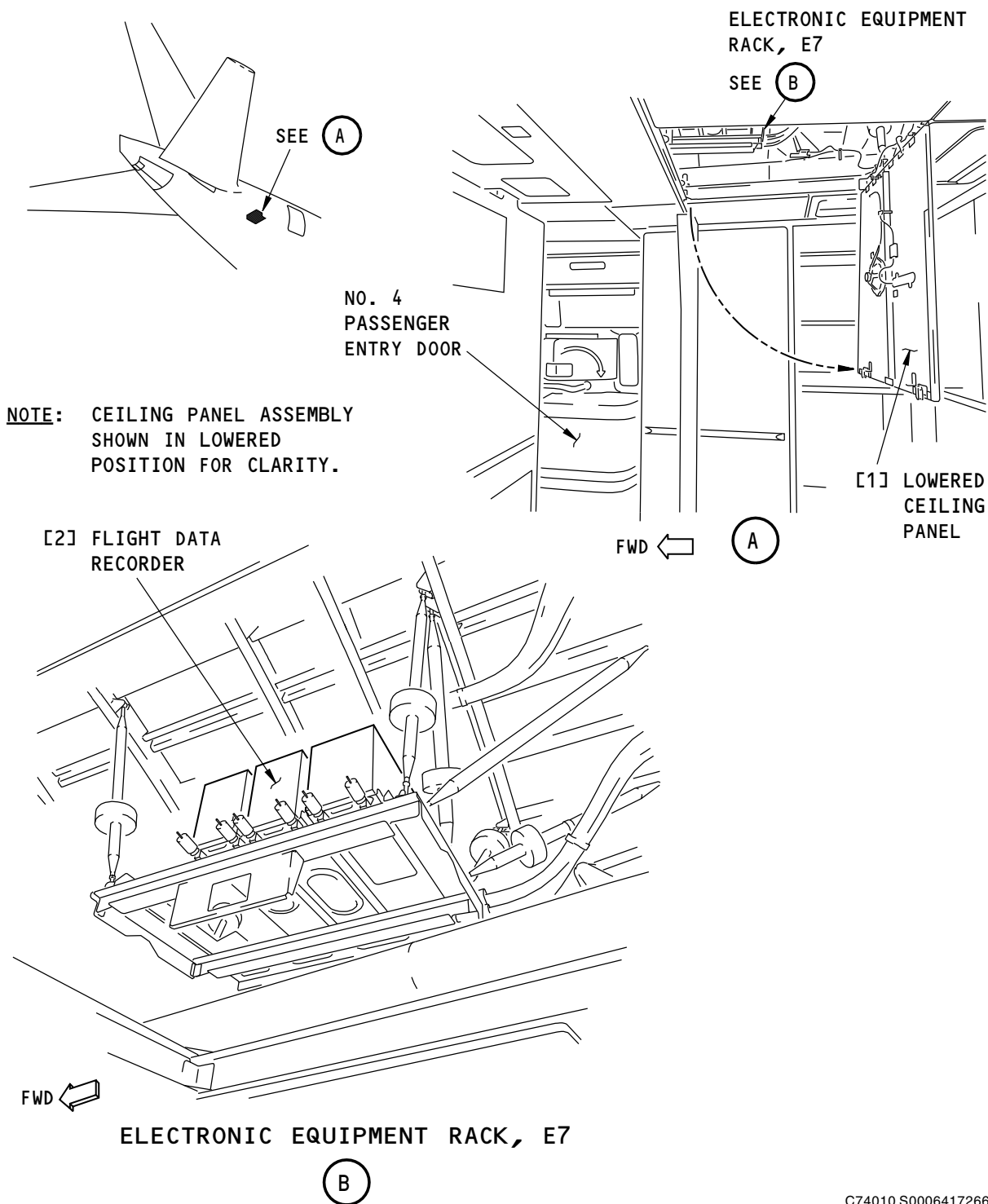
EFFECTIVITY
ARO ALL

D633W101-ARO

31-31-01

Page 402
Jan 05/2015

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



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**Flight Data Recorder Installation
Figure 401/31-31-01-990-801**

**EFFECTIVITY
ARO ALL**

31-31-01

D633W101-ARO

Page 403
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-31-01-400-801

3. Flight Data Recorder Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation test makes sure that the FLIGHT DATA RECORDER operates correctly.
- (2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
20-10-01-400-801	E/E Box Installation (P/B 401)
24-22-00-860-805	Supply Electrical Power (P/B 201)
25-21-07-400-801	Lowered Ceiling Panel Installation (P/B 401)
31-31-09-400-801	Underwater Locator Beacon Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
264	Area Above Passenger Compartment Ceiling, Right - Section 47

D. Installation Procedure

SUBTASK 31-31-01-860-036

- (1) Make sure that these circuit breakers are open and have safety tags:

Right Power Management Panel, P210

Row	Col	Number	Name
E	23	C31400	FLT RCDR AC
L	12	C31605	FLT RCDR DC

SUBTASK 31-31-01-420-007

- (2) If the FLIGHT DATA RECORDER does not have an underwater locator beacon (ULB) installed and an underwater locator beacon (ULB) is required, do this task: Underwater Locator Beacon Installation, TASK 31-31-09-400-801.

SUBTASK 31-31-01-420-006

 CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE FLIGHT DATA RECORDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE FLIGHT DATA RECORDER.

- (3) To install the FLIGHT DATA RECORDER, do this task: E/E Box Installation, TASK 20-10-01-400-801.

SUBTASK 31-31-01-410-001

- (4) To close the lowered ceiling panel, do this task: Lowered Ceiling Panel Installation, TASK 25-21-07-400-801.

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 404
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

E. Installation Test

SUBTASK 31-31-01-860-037

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-31-01-860-038

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	23	C31400	FLT RCDCR AC
L	12	C31605	FLT RCDCR DC

SUBTASK 31-31-01-740-001

- (3) Use a maintenance access terminal (MAT) to do the LRU replacement test of the FLIGHT DATA RECORDER [2]:
- (a) Make these selections on the MAT:
- 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 AIMS - Flight Data Recorder System
 - 5) SYSTEM TEST
 - 6) Flight Data Recorder System
 - 7) CONTINUE
- (b) Do the instructions that show on the MAT and then make these selections:
- 1) CONTINUE
 - 2) START TEST
- (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (d) If FAILED shows, make sure there is no maintenance message for the flight data recorder.
- 1) If there is a maintenance message for the flight data recorder, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-31-01

D633W101-ARO

Page 405
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

UNDERWATER LOCATOR BEACON - MAINTENANCE PRACTICES

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) A removal of the underwater locator beacon (ULB).
 - (2) A replacement of the ULB battery.
 - (3) A test of the ULB.
 - (4) An installation of the ULB.
- C. The underwater locator beacon (ULB) is attached to the front of the flight data recorder. The flight data recorder is on the E7 electronics equipment rack in the aft overhead passenger compartment.

TASK 31-31-09-000-801

2. Underwater Locator Beacon Removal

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. **General**

- (1) The underwater locator beacon (ULB) has a battery as the power source. The ULB has no external electrical connections.

B. **References**

Reference	Title
25-21-07-000-801	Lowered Ceiling Panel Removal (P/B 401)
31-31-01-000-801	Flight Data Recorder Removal (P/B 401)

C. **Location Zones**

Zone	Area
264	Area Above Passenger Compartment Ceiling, Right - Section 47

D. **Removal Procedure**

SUBTASK 31-31-09-010-001

- (1) To get access to the flight data recorder in the aft passenger compartment, do this task:
Lowered Ceiling Panel Removal, TASK 25-21-07-000-801.

SUBTASK 31-31-09-020-004

- (2) Do this task: Flight Data Recorder Removal, TASK 31-31-01-000-801.

SUBTASK 31-31-09-020-005

- (3) Remove the ULB [4] from the flight data recorder:
 - (a) Loosen the screws [1] that hold the ULB [4] on the flight data recorder.
 - (b) Remove the two screws [1] and the mount [5] on one end of the ULB [4].
 - (c) Remove the ULB [4].
 - (d) Keep the two screws [1] and the mount [5].

———— **END OF TASK** ————

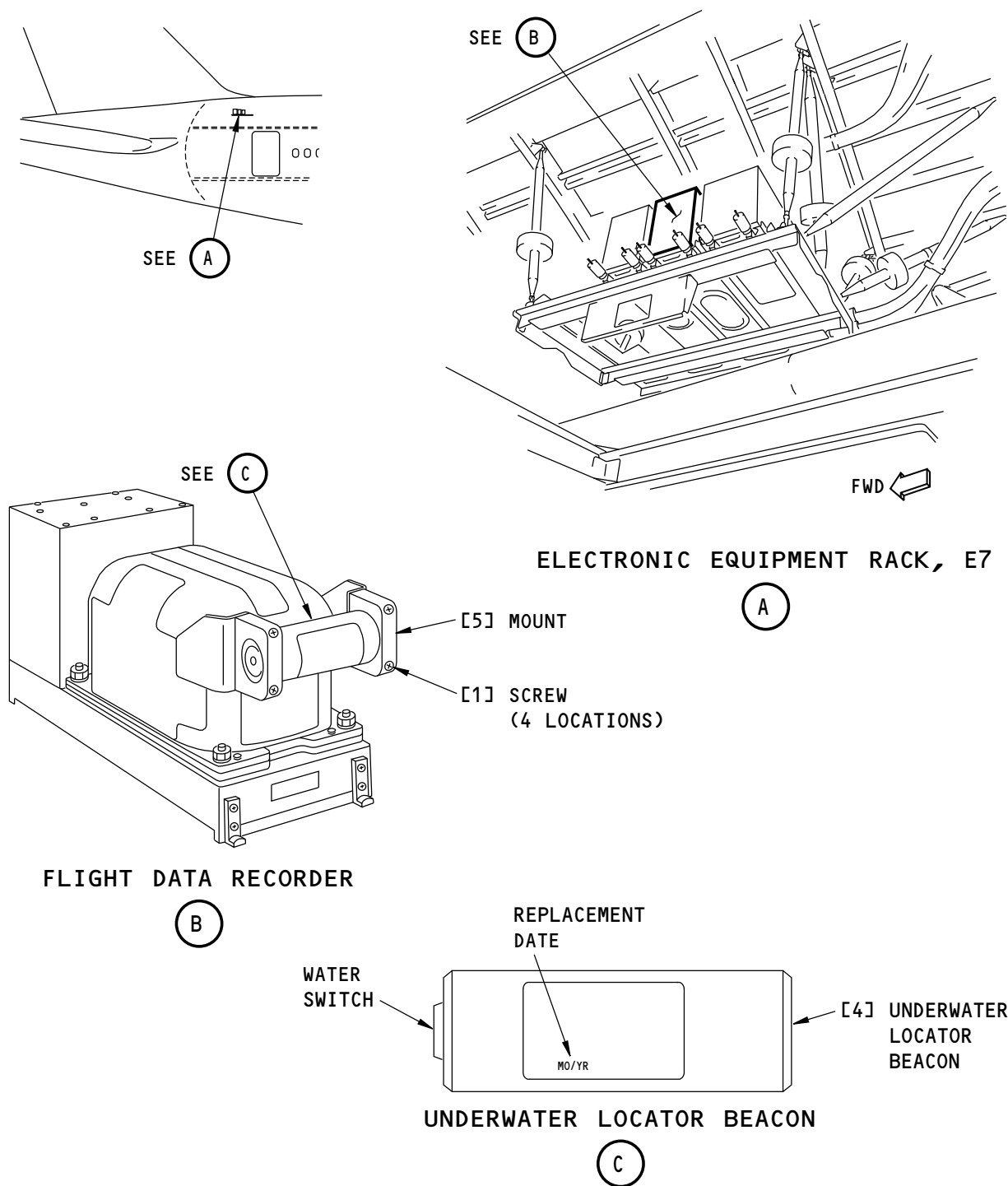
EFFECTIVITY
ARO ALL

31-31-09

D633W101-ARO

Page 201
May 05/2015

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



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**Underwater Locator Beacon Installation
Figure 201/31-31-09-990-801**

EFFECTIVITY
ARO ALL

D633W101-ARO

31-31-09

Page 202
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-31-09-200-802

3. Underwater Locator Beacon Date Check

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The underwater locator beacon (ULB) battery has a rated life limit of 6 years from the date of manufacture, and the expiration date is marked on the outside of the unit.

B. References

Reference	Title
25-21-07-000-801	Lowered Ceiling Panel Removal (P/B 401)

C. Location Zones

Zone	Area
264	Area Above Passenger Compartment Ceiling, Right - Section 47

D. Procedure

SUBTASK 31-31-09-020-013

- (1) To get access to the flight data recorder in the aft passenger compartment, do this task:
Lowered Ceiling Panel Removal, TASK 25-21-07-000-801.

SUBTASK 31-31-09-610-006

- (2) There is a placard on the front of the ULB with a "REPLACE BY" date. Make sure the service life of the ULB battery is sufficient to continue until the next C Check (+ 10% of C Check interval).

SUBTASK 31-31-09-610-007

- (3) Replace the ULB if the ULB battery will expire before the next C Check (+ 10% of C Check interval).

SUBTASK 31-31-09-610-008

- (4) Do not replace the battery in the underwater locator beacon. The entire beacon is to be replaced as an assembly on the aircraft. Upon replacement, the ULB date check and test should be accomplished on the ULB pulled from stock for installation.

————— **END OF TASK** —————

TASK 31-31-09-960-801

4. Dukane Underwater Locator Beacon Battery - Replacement

(Figure 202)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure contains the steps to replace the Dukane ULB battery.

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.

EFFECTIVITY
ARO ALL

31-31-09

D633W101-ARO

Page 203
Sep 05/2016



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Reference	Description
COM-1619	Wrench - Spanner, Used on Underwater Locator Beacon Part #: 810-2007/KVS Supplier: 94970 Part #: 810-325 Supplier: 94970 Part #: B362-09111 Supplier: 61257 Opt Part #: 008407 Supplier: 26858 Opt Part #: B362-04180A Supplier: 26858
STD-1066	Hose - Radiator, Split, 1-1/4 Inch Diameter, 5 Inch Length

C. Consumable Materials

Reference	Description	Specification
D50082	Lubricant - 810-346	

D. Removal Procedure

SUBTASK 31-31-09-800-001



DO NOT REMOVE THE BATTERY FROM THE DK100/DK130 ULB. DO NOT CAUSE DAMAGE TO THE DK100/DK130 ULB. DO NOT DISCARD THE DK100/DK130 ULB. THE MANUFACTURER HAS A REPLACEMENT PROGRAM FOR EXPIRED ULBS. ON OR BEFORE THE EXPIRED DATE, SEND THE DK100/DK130 ULB TO THE MANUFACTURER FOR SERVICING. THE BATTERY CONTAINS DANGEROUS CHEMICAL MATERIALS WHICH CAN CAUSE INJURIES TO PERSONNEL.

- (1) If you have a DK100/DK130 ULB [4], send it to the manufacturer for servicing.

SUBTASK 31-31-09-020-002

- (2) If you do not have a DK100/DK130 ULB [4], remove the ULB battery [28]:



DO NOT HOLD THE ULB WITH A VISE. THIS CAN CAUSE DAMAGE TO THE ULB.

- Hold the ULB [4] body with a radiator hose - 1-1/4 Inch Diameter, 5 Inch Length, STD-1066 [22].
- Use the spanner wrench, COM-1619 [21] to remove the end cap [25] that is identified BATTERY ACCESS.
- Remove the rubber shock cushion [27] from the battery end if it is not removed with the end cap [25].
- Hit the ULB [4] body lightly to remove the battery [28].

E. Installation Procedure

SUBTASK 31-31-09-420-001

- (1) Install the ULB new battery [28].

NOTE: Battery, O-ring and lubricant are provided in the battery replacement kit.

NOTE: The Dukane 810-2007/K battery is a 6 year lithium battery used in the Dukane model DK120/DK140 ULB.

- (a) Put a new battery replacement date label [23] on the ULB [4] body.

EFFECTIVITY
ARO ALL

31-31-09

D633W101-ARO

Page 204
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (b) Write the next scheduled replacement date on the battery replacement label [23] for the new ULB battery that you installed.

NOTE: The date label [23] is blank so you can write in a replacement date based on your maintenance schedule.



CAUTION

INSTALL THE ULB BATTERY [28] CORRECTLY. INCORRECT POLARITY WILL CAUSE PERMANENT DAMAGE TO THE ULB.

- (c) Put the new battery [28] in the ULB [4] with the end identified INSERT THIS END in first.
(d) Remove and discard the used O-ring [26] from the end cap [25].



CAUTION

DIRT OR OTHER UNWANTED MATERIALS CAN CAUSE DAMAGE TO THE THREADS AND THE O-RING SEAL. THIS CAN PERMIT WATER LEAKAGE.

- (e) Clean the threads and the O-ring groove in the ULB [4] body.
(f) Apply a thin layer of lubricant, D50082 to the new O-ring [26], O-ring groove, and threads.
(g) Install the new O-ring [26] on the end cap [25].
(h) Put the rubber shock cushion [27] smoothly on the end cap [25].
(i) Put the end cap [25] into the ULB [4] body.
(j) Use the spanner wrench, COM-1619 [21] to tighten the end cap [25] until the cap flange touches the ULB [4] body.

NOTE: Only use hand force on the spanner wrench, COM-1619 [21].

SUBTASK 31-31-09-720-006

- (2) Do a test of the underwater locator beacon: To do a test of the underwater locator beacon, do this task: Underwater Locator Beacon Test with an ATS-260 Test Set, TASK 31-31-09-700-803 or Underwater Locator Beacon Test with a PL3 Test Set, TASK 31-31-09-700-804 or Underwater Locator Beacon Test with a 42A12 Test Set, TASK 31-31-09-700-801 or Underwater Locator Beacon Test with a PL1 Test Set, TASK 31-31-09-700-802 or Underwater Locator Beacon Test with a TS200 Test Set, TASK 31-31-09-700-806

———— **END OF TASK** ————

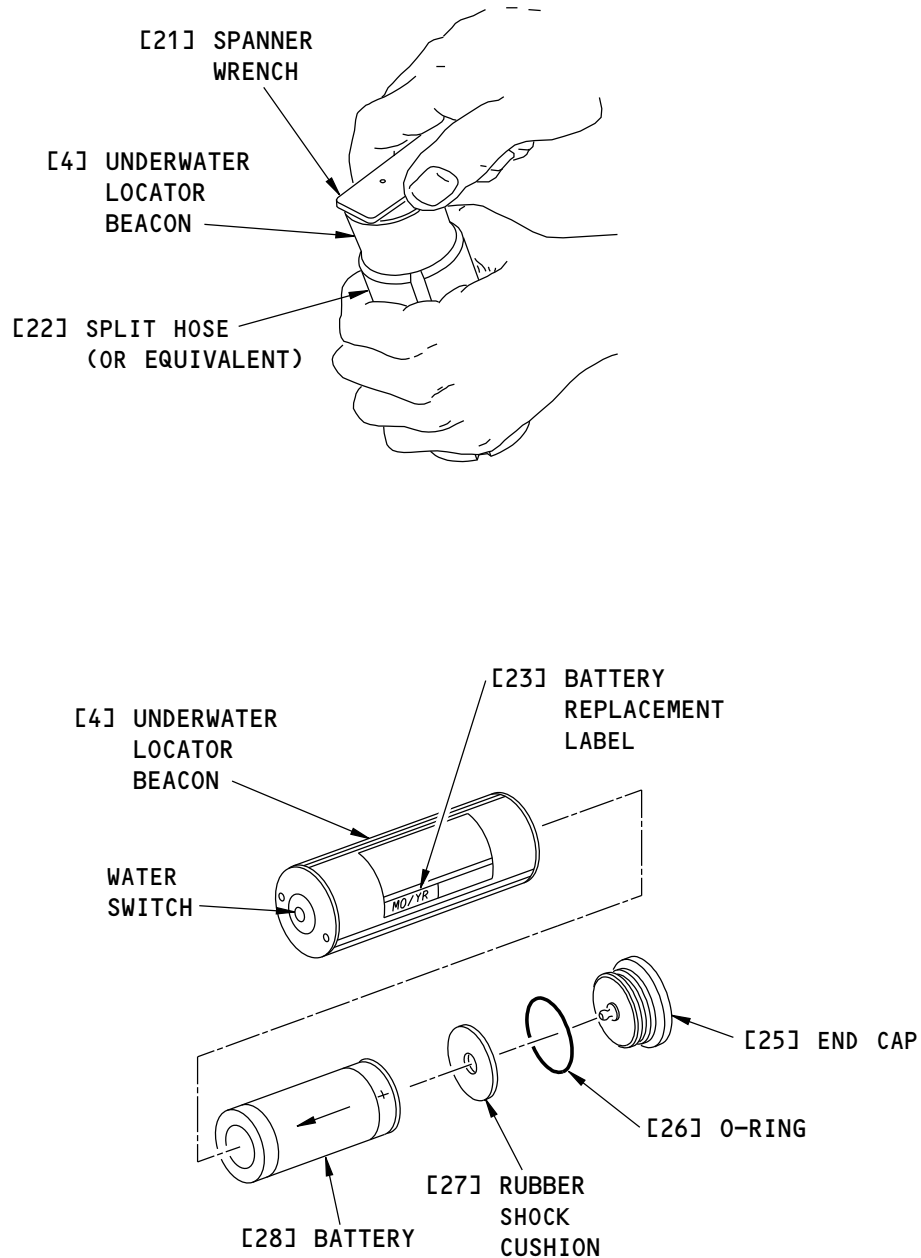
EFFECTIVITY
ARO ALL

31-31-09

D633W101-ARO

Page 205
Sep 05/2017

777-200/300
AIRCRAFT MAINTENANCE MANUAL



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Underwater Locator Beacon Battery Replacement
Figure 202/31-31-09-990-802

EFFECTIVITY
 ARO ALL

D633W101-ARO

31-31-09

Page 206
 Sep 05/2016



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-31-09-960-802

5. Teledyne Benthos Underwater Locator Beacon Battery - Replacement

(Figure 202)

NOTE: This procedure is a scheduled maintenance task.

A. General

(1) This procedure contains the steps to replace the Teledyne Benthos ULB battery.

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-2543	Torque - Adapter, Used on Underwater Locator Beacon Part #: B362-09111 Supplier: 61257 Opt Part #: 008407 Supplier: 26858 Opt Part #: B362-04180A Supplier: 26858
STD-1066	Hose - Radiator, Split, 1-1/4 Inch Diameter, 5 Inch Length

C. Prepare for the Removal

SUBTASK 31-31-09-860-001

- (1) Measure the battery voltage of the ELP-362D ULB [4]. Use a high-impedance digital voltmeter with a minimum input impedance of 10 Megohms.
 - (a) Put the negative meter lead on the water switch.
 - (b) Put the positive meter lead on the bare aluminum surface of the beacon housing.
 - (c) Read the voltmeter.

D. Removal Procedure

SUBTASK 31-31-09-800-002

- (1) If the measured voltage is less than 6.0 Volts, send the ELP-362D ULB [4] to the manufacturer for servicing.

SUBTASK 31-31-09-020-003

- (2) If the measured voltage is 6.0 Volts or more, remove the battery [28] from the ELP-362D ULB [4]:



CAUTION

DO NOT HOLD THE ULB WITH A VISE. THIS CAN CAUSE DAMAGE TO THE ULB.

- (a) Hold the ULB [4] body with a radiator hose - 1-1/4 Inch Diameter, 5 Inch Length, STD-1066.
- (b) Use the underwater locator beacon torque adapter, COM-2543 to remove the end-cap [25] identified as "BATTERY ACCESS".
- (c) Turn the housing up to remove the battery from the unit.
- (d) Discard the battery [28].

NOTE: Refer to local instructions when you discard the battery [28].

EFFECTIVITY
ARO ALL

31-31-09

D633W101-ARO

Page 207
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

E. Installation Procedure

SUBTASK 31-31-09-420-002

- (1) Install the new ULB battery [28]:

NOTE: Battery, O-ring and lubricant are provided in the battery replacement kit.

NOTE: The Teledyne Benthos C362-04270-2 is a six year battery.

- (a) Set the battery [28] until the arrow points to the top end of the unit.

NOTE: The battery label has an arrow mark.

- (b) On the date label [23], write the next scheduled replacement date for the new ULB battery that you installed.

NOTE: The date label [23] is blank so you can write in a replacement date based on your maintenance schedule.



CAUTION

INSTALL THE ULB BATTERY [28] CORRECTLY. INCORRECT POLARITY WILL CAUSE PERMANENT DAMAGE TO THE ULB.

- (c) Put the new battery [28] in the ULB [4] with the end identified INSERT THIS END in first.
(d) Remove the O-ring [26] from its groove in the end-cap [25].



CAUTION

DIRT OR OTHER UNWANTED MATERIALS CAN CAUSE DAMAGE TO THE THREADS AND THE O-RING SEAL. THIS CAN PERMIT WATER LEAKAGE.

- (e) Clean the O-ring groove of dirt, lint, and other unwanted materials.
(f) Apply the O-ring lubricant to the new O-ring [26].
(g) Put the lubricated O-ring [26] in the end-cap groove.
(h) Attach the end-cap [25] to the housing.
(i) Use the underwater locator beacon torque adapter, COM-2543 to install the end-cap [25] tightly.
NOTE: Only use hand force on the underwater locator beacon torque adapter, COM-2543.
(j) Torque the end-cap [25] to 25 to 30 inch pounds.

F. Test

SUBTASK 31-31-09-720-007

- (1) Do a test of the underwater locator beacon: To do a test of the underwater locator beacon, do this task: Underwater Locator Beacon Test with an ATS-260 Test Set, TASK 31-31-09-700-803 or Underwater Locator Beacon Test with a PL3 Test Set, TASK 31-31-09-700-804 or Underwater Locator Beacon Test with a 42A12 Test Set, TASK 31-31-09-700-801 or Underwater Locator Beacon Test with a PL1 Test Set, TASK 31-31-09-700-802 or Underwater Locator Beacon Test with a TS200 Test Set, TASK 31-31-09-700-806

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

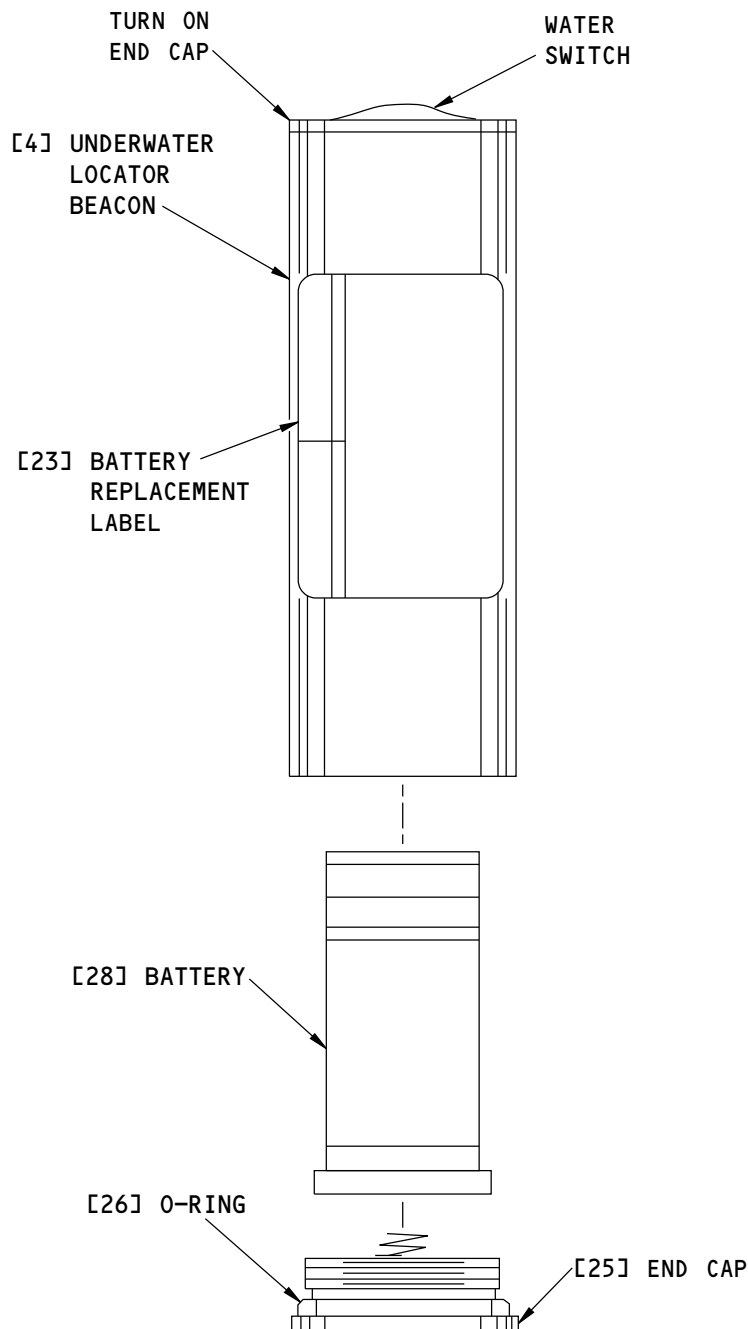
D633W101-ARO

31-31-09

Page 208
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL



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Underwater Locator Beacon Battery Replacement
Figure 203/31-31-09-990-805

EFFECTIVITY
ARO ALL

D633W101-ARO

31-31-09

Page 209
Sep 05/2016



777-200/300
AIRCRAFT MAINTENANCE MANUAL

TASK 31-31-09-700-801

6. Underwater Locator Beacon Test with a 42A12 Test Set

NOTE: This procedure is a scheduled maintenance task.

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
COM-10768	Test Set - 42A12, Underwater Locator Beacon (ULB) Part #: 42A12-1 Supplier: 94970

B. Procedure

SUBTASK 31-31-09-720-010

- (1) If you have a 42A12 ULB Test Set, COM-10768, do this test of the ULB:

NOTE: 42A12 series can do a test for all Boeing approved ULBs.

- (a) Put the 42A12 ULB Test Set, COM-10768 as close as possible to the ULB.
- (b) Set the GAIN control switch on the 42A12 ULB Test Set, COM-10768 to the maximum clockwise position.

NOTE: A background noise is heard. If you do not hear noise from the test set, replace the test set battery.

- (c) Set the TUNING control switch to the middle position.
- (d) Make sure that the 42A12 ULB Test Set, COM-10768 operates correctly.
 - 1) Rub your thumb and fingers together in front of the microphone to make sure that it operates.

NOTE: This will produce a rushing noise from the speaker.

- a) Make sure that you hear sounds through the speaker.

- (e) Use tape to attach a piece of wire, a shorting tab, or other conductive material to the ULB case and to the center of the water switch.

NOTE: This will make a short circuit from the center of the water switch to the outer part of the ULB.

- (f) Set the GAIN control switch to a comfortable listening level.
- (g) Point the microphone of the test set towards the water switch end of the beacon for best results.
 - 1) Make sure that you hear a pulse tone.
- (h) Set the GAIN control switch to the OFF position.
- (i) Make sure that the water switch on the ULB has no grease or dirt.
- (j) If necessary, do the steps that follow:
 - 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-31-09

D633W101-ARO

Page 210
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-31-09-700-802

7. Underwater Locator Beacon Test with a PL1 Test Set

NOTE: This procedure is a scheduled maintenance task.

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
COM-10771	Test Set - Underwater Locator Beacon (ULB) Part #: 42A12-1 Supplier: 94970 Opt Part #: PL1 Supplier: 94970

B. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)

C. Procedure

SUBTASK 31-31-09-720-002

- (1) If you have a ULB Test Set, COM-10771, do this test of the ULB [4]:

NOTE: PL1 can only do a test for the DK100 ULB.

- (a) Use Scotch Flatback Masking Tape 250, G00270 to attach a piece of wire or conductive material to the ULB [4] case and the center of the water switch.

NOTE: This will make a short circuit from the center of the water switch to the outer part of the ULB [4].

- (b) Put the end of the ULB Test Set, COM-10771 against the ULB [4], approximately one inch from the water switch.
- (c) Push and hold the operation switch on the ULB Test Set, COM-10771.
- 1) Make sure that the BEACON ACTIVE WHEN FLASHING light flashes.
 - 2) Remove the wire or conductive material from the ULB [4] case and center of the water switch.
 - 3) Make sure the BEACON ACTIVE WHEN FLASHING light does not flash.
- (d) Release the operation switch on the ULB Test Set, COM-10771.
- (e) Remove the ULB Test Set, COM-10771.
- (f) Make sure the water switch on the ULB [4] has no grease or dirt.
- (g) If necessary, clean the water switch with a weak general purpose household detergent cleaner, B00541.

————— END OF TASK —————

TASK 31-31-09-700-804

8. Underwater Locator Beacon Test with a PL3 Test Set

NOTE: This procedure is a scheduled maintenance task.

EFFECTIVITY
ARO ALL

31-31-09

D633W101-ARO

Page 211
Sep 05/2016



777-200/300 AIRCRAFT MAINTENANCE MANUAL

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
COM-10772	Test Set - Underwater Locator Beacon (ULB) Part #: 42A12-1 Supplier: 94970

B. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	

C. Procedure

SUBTASK 31-31-09-720-004

- (1) If you have a ULB test set, COM-10772, do this test of the ULB [4]:

NOTE: PL3 can only do a test for the DK100 and DK120 ULBs.

- (a) Put the end of the ULB test set, COM-10772 against the ULB [4], water switch.
 - 1) Make sure you hear a tone.
 - 2) Make sure the LED light flashes.
- (b) Remove the ULB test set, COM-10772 from the ULB [4] .
- (c) Make sure the water switch on the ULB [4] has no grease or dirt.
- (d) If necessary, clean the water switch with a weak general purpose household detergent cleaner, B00541.

————— END OF TASK —————

TASK 31-31-09-700-803

9. Underwater Locator Beacon Test with an ATS-260 Test Set

NOTE: This procedure is a scheduled maintenance task.

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
COM-978	Test Set - ATS-260, Underwater Locator Beacon (ULB) Part #: ATS-260 Supplier: 26858

B. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	

C. Procedure

SUBTASK 31-31-09-720-003

- (1) If you have a ATS-260 ULB test set, COM-978, do this test of the ULB [4]:

NOTE: ATS-260 can only do a test for the ELP-362D ULB.

- (a) Put the ATS-260 ULB test set, COM-978 clip on the ULB [4].

EFFECTIVITY
ARO ALL

31-31-09

D633W101-ARO

Page 212
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (b) Push and hold the PUSH TO TEST button.
- (c) Put the ATS-260 ULB test set, COM-978 probe on the ULB [4] water switch.
 - 1) Make sure a green LED shows.
 - 2) Make sure that you can hear sounds from the ATS-260 ULB test set, COM-978.
 - 3) Make sure the amber LED flashes.
- (d) Release the PUSH TO TEST button.
- (e) Remove the ATS-260 ULB test set, COM-978.
- (f) Make sure the water switch on the ULB [4] has no grease or dirt.
- (g) If necessary, clean the water switch with a weak general purpose household detergent cleaner, B00541.

————— END OF TASK —————

TASK 31-31-09-700-809

10. Underwater Locator Beacon Test with a TS100 Test Set

NOTE: This procedure is a scheduled maintenance task.

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
COM-10769	Test Set - TS100, Underwater Locator Beacon (ULB) Part #: TS200 Supplier: 94970 Opt Part #: TS100 Supplier: 94970

B. Procedure

SUBTASK 31-31-09-720-009

- (1) If you have a TS100 ULB Test Set, COM-10769, do this test of the ULB:

NOTE: TS100 can only do a test for the DK100 and DK120 ULBs.

- (a) Connect the probe head of the TS100 ULB Test Set, COM-10769 to the ULB in its mount.
- (b) Slide the switch on the side of the TS100 ULB Test Set, COM-10769 housing to ON.
 - 1) Make sure that the LCD shows "TESTING".
- (c) Push the button in the center of the TS100 ULB Test Set, COM-10769 to start a retest.
 - 1) Make sure that the LCD display shows "TESTING".
- (d) In seconds, the LCD will change to show one of these Pass / Fault messages:

LCD Message	Explanation
Beacon Passed	Beacon is operating properly
Battery Fault	Beacon is NOT operating properly
No Pulse Output	Beacon is NOT operating properly
Pulse Fault	Beacon is NOT operating properly
Free-Run Fault	Beacon is NOT operating properly
Test Set Fault	Test Set batteries must be replaced

EFFECTIVITY
ARO ALL

D633W101-ARO

31-31-09

Page 213
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

(Continued)

LCD Message	Explanation
Need Service	Beacon is NOT operating properly
Open Probe/Batt.	Probe head is not properly attached or the beacon battery is dead. 1) Make sure that the LCD shows "Beacon Passed". <u>NOTE:</u> THE PASS / FAULT MESSAGE WILL BE DISPLAYED FOR APPROXIMATELY 10 SECONDS BEFORE RETURNING TO "READY FOR TEST". (e) Remove the TS100 ULB Test Set, COM-10769. (f) Make sure that the water switch end of the ULB has no grease or dirt. (g) If necessary, do the steps that follow: 1) Clean the switch with water and detergent. 2) Dry the switch with a clean cloth.

————— **END OF TASK** —————

TASK 31-31-09-700-806

11. Underwater Locator Beacon Test with a TS200 Test Set

NOTE: This procedure is a scheduled maintenance task.

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
COM-10770	Test Set - TS200, Underwater Locator Beacon (ULB) Part #: TS200 Supplier: 94970

B. Procedure

SUBTASK 31-31-09-720-005

- (1) If you have an TS200 ULB test set, COM-10770, do this test of the ULB [4]:

NOTE: TS200 can do a test for all Dukane ULBs.

- (a) Attach the test probe clip of the TS200 ULB test set, COM-10770 to the beacon in its mount.
- (b) Put the tip of the probe on the silver pad of the water switch at the end of the beacon.
 - 1) The LCD display will show the battery voltage of the beacon.
- (c) Refer to the applicable battery code for the minimum permitted range of the beacon battery voltage:

NOTE: Examine the battery replacement label to find the battery code.

- 1) Code A – 3.55 Volts
- 2) Code B – 2.97 Volts
- 3) Code C – 2.97 Volts
- 4) Code D – 2.97 Volts
- 5) Code F – 2.97 Volts

EFFECTIVITY
ARO ALL

D633W101-ARO

31-31-09

Page 214
May 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (d) Push the red button on the TS200 ULB test set, COM-10770.
 - 1) The beacon starts and you hear a pinging noise from the TS200 ULB test set, COM-10770.
- (e) Remove the test probe clip of the TS200 ULB test set, COM-10770 from the ULB.
- (f) Replace the ULB if necessary.
- (g) If necessary, do the steps that follow:
 - 1) Clean the switch with water and detergent.
 - 2) Dry the switch with a clean cloth.

———— **END OF TASK** ————

TASK 31-31-09-400-801

12. Underwater Locator Beacon Installation

(Figure 201)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
25-21-07-400-801	Lowered Ceiling Panel Installation (P/B 401)
31-31-01-400-801	Flight Data Recorder Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
B00541	Cleaner - General Purpose Household Detergent	

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	ULB	31-31-09-01-360	ARO 001-014

D. Location Zones

Zone	Area
264	Area Above Passenger Compartment Ceiling, Right - Section 47

E. Installation Procedure

SUBTASK 31-31-09-420-005

- (1) Install the ULB [4] on the flight data recorder:
 - (a) Make sure that the water switch end of the ULB [4] has no grease or dirt.
 - 1) Clean the water switch on the ULB [4] with a weak general purpose household detergent cleaner, B00541.
 - (b) Put the ULB [4] in the cradle on the flight data recorder.
 - (c) Make sure you can read the replacement date on the ULB [4].
 - (d) Install the two screws [1] that hold the mount [5] on the end of the ULB.
 - (e) Tighten all screws [1].

SUBTASK 31-31-09-700-005

- (2) Make sure that the ULB is operational.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-31-09

Page 215
May 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (a) If you can not verify that the ULB is operational, do one of these tasks: Underwater Locator Beacon Test with an ATS-260 Test Set, TASK 31-31-09-700-803 or Underwater Locator Beacon Test with a PL3 Test Set, TASK 31-31-09-700-804 or Underwater Locator Beacon Test with a 42A12 Test Set, TASK 31-31-09-700-801 or Underwater Locator Beacon Test with a PL1 Test Set, TASK 31-31-09-700-802 or Underwater Locator Beacon Test with a TS200 Test Set, TASK 31-31-09-700-806, Underwater Locator Beacon Test with a TS100 Test Set, TASK 31-31-09-700-809.

SUBTASK 31-31-09-420-004

- (3) Do this task: Flight Data Recorder Installation, TASK 31-31-01-400-801.

F. Put the Airplane Back to its Usual Condition

SUBTASK 31-31-09-410-001

- (1) Do this task: Lowered Ceiling Panel Installation, TASK 25-21-07-400-801.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-31-09

D633W101-ARO

Page 216
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

FLIGHT COMPARTMENT PRINTING - MAINTENANCE PRACTICES

1. General

- A. This procedure has one task:
(1) The replacement of the paper roll in the printer.

TASK 31-33-00-960-802

2. Flight Compartment Printer Paper Replacement

(Figure 201)

A. **References**

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

B. **Consumable Materials**

Reference	Description	Specification
G51361	Roll - Printer Paper, Thermal, A4 Width	
G51362	Roll - Printer Paper, Thermal, Letter Width	

C. **Expendables/Parts**

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Paper roll	31-33-01-01-060	ARO 014

D. **Location Zones**

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

ARO 014

E. **Procedure**

SUBTASK 31-33-00-860-008

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-33-00-010-006

- (2) Move the handset cradle assembly [3] aft to get access to the printer.

SUBTASK 31-33-00-010-007

- (3) Push the printer door latch [6] and open the printer door [7].

SUBTASK 31-33-00-020-001

- (4) Remove the empty paper roll [1]:



CAUTION

DO NOT PULL HARD ON THE STRAP [2]. THE PAPER CAN COME OUT FIRST ON ONE SIDE AND CAUSE DAMAGE TO THE LOW PAPER SWITCH ADJUSTMENT.

- (a) Pull the strap [2] on the paper roll [1] to disengage the paper roll from the guides.
(b) Pull the paper roll [1] out of the printer slowly.

SUBTASK 31-33-00-420-004

- (5) Install a new paper roll [1]:
(a) Remove the tape from the new paper roll [1].

EFFECTIVITY
ARO ALL

D633W101-ARO

31-33-00

Page 201
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 014 (Continued)

- (b) Keep the loose edge of the paper below the strap [2] on the new paper roll [1].
- (c) Hold the strap to match the white end [4] of the paper roll with the white guide [5] in the printer.
- (d) Carefully push down on both sides of the paper roll [1] until the ends lock into position.
- (e) Turn the paper roll [1] in the direction of the arrows until the paper is automatically pulled through the printer.
 - 1) Make sure the paper moves out of the printer exit.
 - 2) Make sure the automatic paper installation sequence completes before you close the printer door.

SUBTASK 31-33-00-410-005

- (6) Close the printer door [7].

SUBTASK 31-33-00-710-004

- (7) Push the SLEW switch on the printer front panel.
 - (a) Make sure that paper comes out of the printer exit.

SUBTASK 31-33-00-410-006

- (8) Push the handset cradle assembly [3] forward until it latches.

ARO 001-013; AIRPLANES WITH THALES PRINTER

F. Procedure

SUBTASK 31-33-00-860-009

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-33-00-010-008

- (2) Get access to the printer:
 - (a) Push the latch [8] adjacent to the flight deck handset.
 - (b) Tilt the handset cradle assembly [3] aft.

SUBTASK 31-33-00-010-009

- (3) Push the latches [6] on the printer and open the printer door [7].

SUBTASK 31-33-00-020-002

- (4) Remove the empty paper roll [1]:
 - (a) Pull both sides of the blue strap [2] on the paper roll [1] to disengage the paper roll from the guides.
 - (b) Push lightly on the green tab [9] to release the paper.
 - (c) Pull the paper roll [1] out of the printer.

SUBTASK 31-33-00-420-005

- (5) Install a new paper roll [1]:
 - (a) Remove the tape from the new paper roll [1].
 - (b) Keep the loose edge of the paper below the strap [2] on the new paper roll [1].
 - (c) Hold the strap to match the white end [4] of the paper roll with the white guide [5] in the printer.
 - (d) Carefully push on both sides of the paper roll [1] until the ends lock into position.
 - (e) Turn the paper roll [1] in the direction of the green arrow until the PAPER light goes off.

EFFECTIVITY
ARO ALL

31-33-00

D633W101-ARO

Page 202
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 001-013; AIRPLANES WITH THALES PRINTER (Continued)

- (f) When the PAPER light goes off, turn the paper roll some more.
- (g) Push the SLEW switch until paper comes out of the printer.

NOTE: After you release the SLEW switch, some more paper comes out of the printer.

SUBTASK 31-33-00-410-007

- (6) Close the printer door [7].

SUBTASK 31-33-00-410-008

- (7) Tilt the handset cradle assembly [3] forward until it latches.

ARO 015-999; AIRPLANES WITH COMPUSAVE/ASTRO-MED PRINTER

G. Paper Replacement Procedure

SUBTASK 31-33-00-010-011

- (1) Move the handset cradle assembly [3] aft to get access to the printer.

SUBTASK 31-33-00-010-010

- (2) Open the printer door [2].
 - (a) Unscrew the two captive door fasteners.
 - (b) Lift the door panel.

SUBTASK 31-33-00-020-003

- (3) Remove the used paper roll [1] from the door assembly.

NOTE: When a roll of paper shows the end-of-roll stripes, typically, there is 8 ft (2 m) of paper remaining.

- (a) Compress the roller bar, which is spring-loaded.
- (b) Remove the roller.
- (c) Make sure the word PAPER is illuminated bright.
- (d) Remove and save the center roller from the old paper roll.

SUBTASK 31-33-00-420-006

- (4) Install a new printer paper roll, G51361, or printer paper roll, G51362.
 - (a) Remove the protective wrapping from the new paper roll [1].
 - (b) Insert the roller bar into the paper roll [1].
 - (c) Install the roller into the printer.
 - (d) Close the printer door, and turn the two captive fasteners clockwise 1/4 turn.
 - (e) Push the SLEW switch until paper comes out of the printer.

NOTE: After you release the SLEW switch, some more paper can come out of the printer.

SUBTASK 31-33-00-860-010

- (5) Tilt the handset cradle assembly [3] forward until it latches.

ARO ALL

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

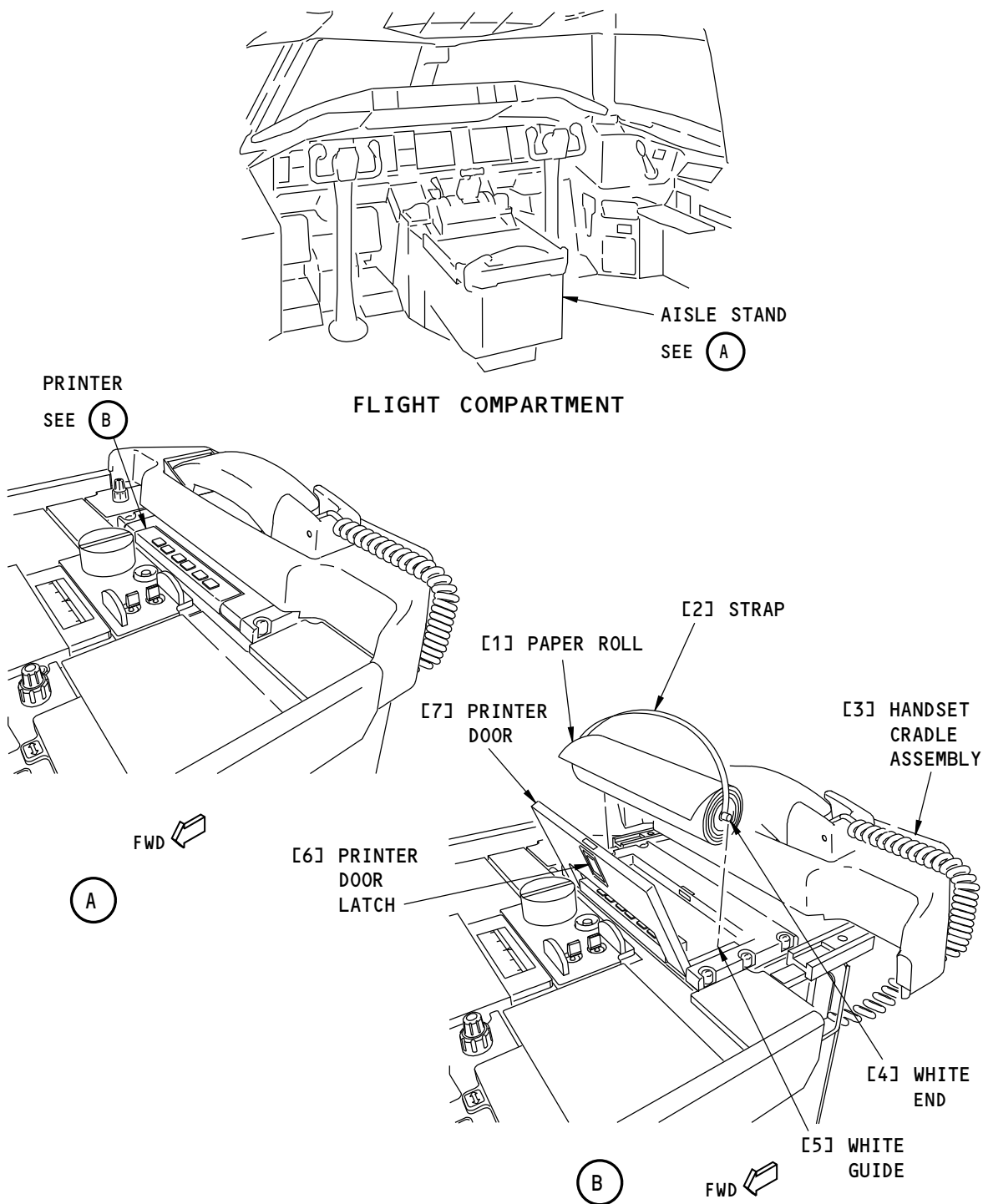
31-33-00

D633W101-ARO

Page 203
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL



H05621 S0006417298_V1

Flight Compartment Printer Paper Installation
Figure 201/31-33-00-990-801 (Sheet 1 of 3)

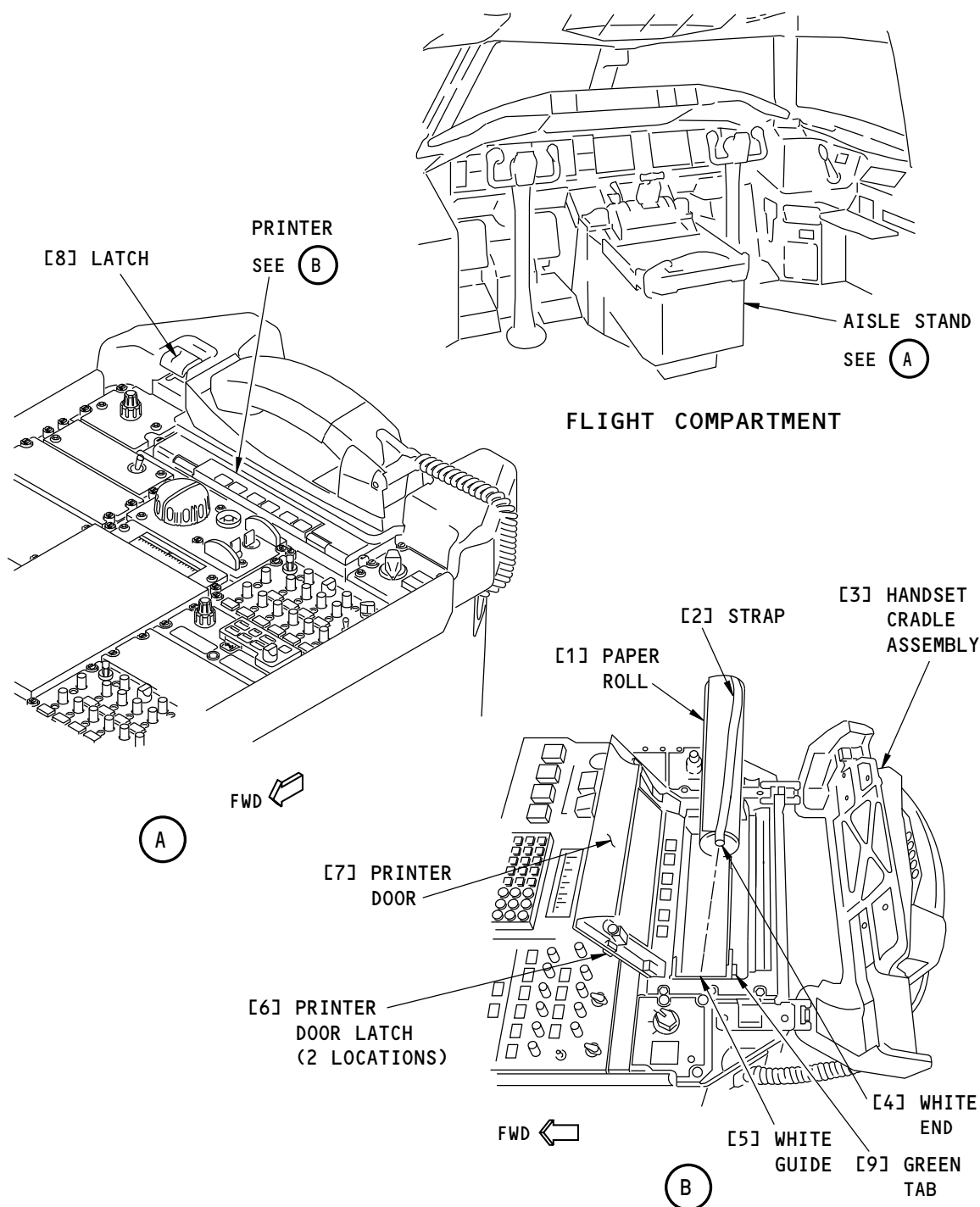
EFFECTIVITY
ARO 014

D633W101-ARO

31-33-00

Page 204
May 05/2016

777-200/300 AIRCRAFT MAINTENANCE MANUAL



H05861 S0006417300_V1

Flight Compartment Printer Paper Installation
Figure 201/31-33-00-990-801 (Sheet 2 of 3)

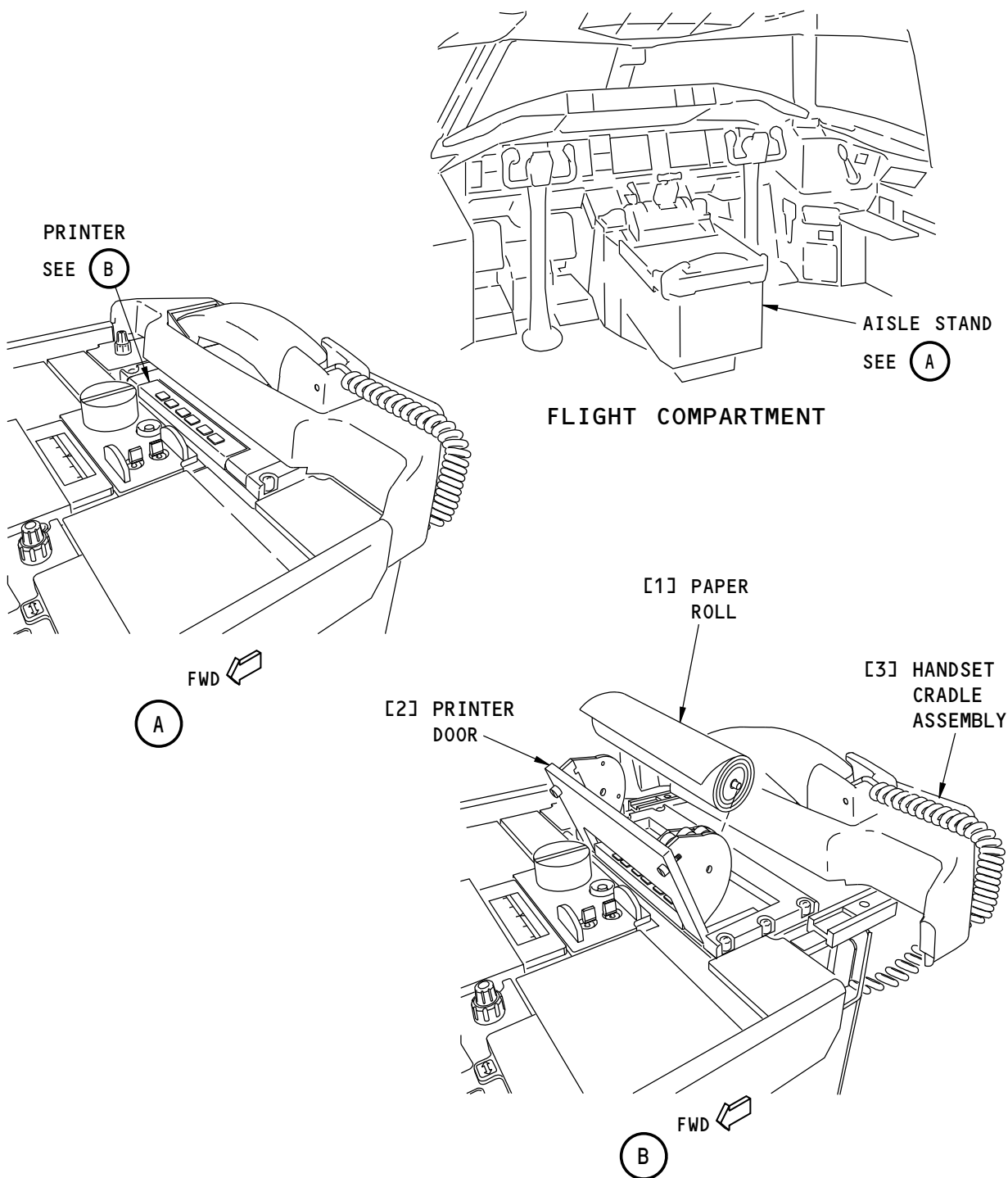
EFFECTIVITY
ARO 001-013

D633W101-ARO

31-33-00

Page 205
May 05/2016

777-200/300
AIRCRAFT MAINTENANCE MANUAL



2475355 S0000579291_V1

Flight Compartment Printer Paper Installation
Figure 201/31-33-00-990-801 (Sheet 3 of 3)

EFFECTIVITY
ARO 015-999

D633W101-ARO

31-33-00

Page 206
May 05/2016



777-200/300
AIRCRAFT MAINTENANCE MANUAL

FLIGHT COMPARTMENT PRINTING - ADJUSTMENT/TEST

1. General

- A. This procedure has two tasks for the flight compartment printing system:
- (1) An operational test
 - (2) A system test.

TASK 31-33-00-710-801

2. Flight Compartment Printing - Operational Test

A. General

- (1) During this test the printer does an internal test. If the printer has no problems, it makes a printout of a page of characters. The lights on the printer come on during the test.
- (2) A maintenance access terminal (MAT) is necessary for this procedure. For instructions on how to use a MAT, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 31-33-00-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-33-00-740-001

- (2) Use a maintenance access terminal (MAT) to do the operational test of the flight compartment printer:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 Printer
 - 5) SYSTEM TEST
 - 6) Printer System
 - 7) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST
 - (c) Make sure the switch buttons and light indicators on the printer come on.

EFFECTIVITY
ARO ALL

31-33-00

D633W101-ARO

Page 501
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (d) Make sure the FAIL indicator on the printer goes off when the test is completed.
- (e) Make sure the printer prints a page.
- (f) Look at the printed page.
 - 1) Make sure the top of the page shows a solid black bar.
 - 2) Make sure the characters can be easily read.
- (g) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (h) If failed shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

————— END OF TASK —————

TASK 31-33-00-730-801

3. Flight Compartment Printing - System Test

A. General

- (1) This test makes sure there are no problems in the printer or in the related hardware.
- (2) The configuration check will show a failure if the operational program software (OPS) is not installed.
- (3) A maintenance access terminal (MAT) is necessary for this procedure. For instructions on how to use a MAT, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-33-01-400-802	Flight Compartment Printer Software Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 31-33-00-860-005

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-33-00-710-002

- (2) Do this task: Flight Compartment Printing - Operational Test, TASK 31-33-00-710-801.

SUBTASK 31-33-00-750-001

- (3) Use a maintenance access terminal (MAT) to do a software configuration check of the flight compartment printer:

NOTE: Make sure you know the correct software part number for the flight compartment printer when you look at the software part number on the display. For the flight compartment printer to be an approved installation, the correct software part number must be installed.

- (a) Make these selections on the MAT:

EFFECTIVITY
ARO ALL

31-33-00

D633W101-ARO

Page 502
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) SYSTEM CONFIGURATION
 - 4) 31 Printer
 - 5) CONTINUE
- (b) Find Printer on the display and make sure that the software part number is correct.
- NOTE: The configuration check will show a failure if the operational program software (OPS) is not installed. The flight compartment printer must also contain the fonts software.
- (c) Select GO BACK to remove the configuration display.

ARO 001-014

SUBTASK 31-33-00-420-003

- (4) If the part number is incorrect, do this task: Flight Compartment Printer Software Installation, TASK 31-33-01-400-802.

ARO ALL

SUBTASK 31-33-00-730-001

- (5) Use a maintenance access terminal (MAT) to look for maintenance messages in existing faults:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) EXISTING FAULTS
 - 4) 31 Printer
 - 5) CONTINUE
 - (b) Make sure the MAT does not show any maintenance messages for 31-33 Flight Compartment Printing.
 - (c) To put the MAT back to its initial condition, make these selections:
 - 1) OTHER FUNCTIONS
 - 2) EXIT MAINTENANCE

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-33-00

D633W101-ARO

Page 503
May 05/2016



777-200/300
AIRCRAFT MAINTENANCE MANUAL

FLIGHT COMPARTMENT PRINTER - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) Flight Compartment Printer Deactivation.
 - (2) Flight Compartment Printer Activation.

ARO 001-014

- (3) Flight Compartment Printer Software Installation.

ARO 015-999; AIRPLANES WITH COMPUSAVE/ASTRO-MED PRINTER

- B. You can not install software into the flight deck printer. Refer to (FLIGHT COMPARTMENT PRINTER - REMOVAL/INSTALLATION, PAGEBLOCK 31-33-01/401) to install a serviceable printer.

ARO ALL

TASK 31-33-01-040-801

2. Flight Compartment Printer - Deactivation

A. **General**

- (1) This task will deactivate the Flight Compartment Printer.

B. **Location Zones**

Zone	Area
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

C. **Access Panels**

Number	Name/Location
117AL	Main Equipment Center Access Door

D. **Procedure**

SUBTASK 31-33-01-010-003

- (1) Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

SUBTASK 31-33-01-860-015



WARNING

BE CAREFUL WHEN YOU DO WORK AROUND ENERGIZED PANELS. HIGH VOLTAGES CAN KILL YOU.

- (2) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C31404	FLT DECK PRINTER

E. **Flight Compartment Printer - Tryout**

NOTE: This tryout is to make sure that the Flight Compartment Printer is in a zero energy state.

EFFECTIVITY
ARO ALL

31-33-01

D633W101-ARO

Page 201
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-33-01-860-016



WARNING

BE CAREFUL WHEN YOU DO WORK AROUND ENERGIZED PANELS. HIGH VOLTAGES CAN KILL YOU.

- (1) Make sure that this circuit breaker is open and has safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C31404	FLT DECK PRINTER

SUBTASK 31-33-01-700-001

- (2) Use a Maintenance Access Terminal to do the operational test of the Flight Compartment Printer.
- (3) Make these selections on the Maintenance Access Terminal:
 - (a) ONBOARD MAINTENANCE
 - (b) LINE MAINTENANCE
 - (c) GROUND TESTS
 - (d) 31 Printer
 - (e) SYSTEM TEST
 - (f) Printer System
 - (g) CONTINUE
- (4) Do the instructions that show on the Maintenance Access Terminal and then make these selections:
 - (a) CONTINUE
 - (b) START TEST
- (5) Make sure the switch buttons and light indicators on the printer DO NOT come on.
- (6) When the test is completed, make sure that FAILED shows adjacent to TEST CONDITION on the Maintenance Access Terminal.

————— END OF TASK —————

TASK 31-33-01-440-801

3. Flight Compartment Printer - Activation

A. General

- (1) This task will Activate the Flight Compartment Printer.

B. Location Zones

<u>Zone</u>	<u>Area</u>
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Access Panels

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

EFFECTIVITY
ARO ALL

31-33-01

D633W101-ARO

Page 202
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

D. Procedure

SUBTASK 31-33-01-860-014



WARNING

BE CAREFUL WHEN YOU DO WORK AROUND ENERGIZED PANELS. HIGH VOLTAGES CAN KILL YOU.

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C31404	FLT DECK PRINTER

SUBTASK 31-33-01-410-004

- (2) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

————— END OF TASK —————

ARO 001-014

TASK 31-33-01-400-802

4. Flight Compartment Printer Software Installation

A. General

- (1) This procedure tells you how to install software in the flight compartment printer.

- (a) The name of the software parts loaded into a Flight Deck Printer follow:

- PTR OPSA
- PTR DB

Using the name, the specific software part number for an aircraft can be identified in the IPC. Printer software part numbers are hardware dependant. On an aircraft the specific Printer software is selected by knowing the hardware part number of the Printer to be loaded. Because a printer may become unserviceable if the incorrect software is installed, printers are preloaded in the shop and do not normally need on-board loading.

ARO 014

- (2) When you install the OPSA, the DB is also installed automatically.

ARO 001-013; AIRPLANES WITH THALES PRINTER

- (3) You must install the printer (PTR) OPSA first, and then install the PTR DB.

ARO 014

- (4) You cannot use the MAT or PMAT hard drive to install software in the printer. You must install software from a disk in the MAT or PMAT disk drive.

ARO 001-014

- (5) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

EFFECTIVITY
ARO ALL

31-33-01

D633W101-ARO

Page 203
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 001-014 (Continued)

- (6) If you do not know if the printer needs new software, you can first do the software configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the software configuration check in this task: Flight Compartment Printer Installation, TASK 31-33-01-400-801.
- (7) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.
NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.
- (8) You can install the software from disks, the MAT hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.
NOTE: When new software is installed in the printer, the load process first erases the old software and then installs the new software. If you install software directly to the printer from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the printer.
 - (a) It is recommended that you remove old software part numbers from the MAT or PMAT hard drive after new software is installed. To remove software from the hard drive, do this task: How to Remove Software from the Hard Drive, TASK 45-10-00-860-813.
- (9) The airplane must be on the ground with the engines off before you can install software.
- (10) To read about the conditions and times necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-33-01-400-801	Flight Compartment Printer Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
45-10-00-860-813	How to Remove Software from the Hard Drive (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-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

EFFECTIVITY
ARO ALL

31-33-01

D633W101-ARO

Page 204
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 001-014 (Continued)

D. Location Zones

Zone	Area

212	Flight Compartment, Right

E. Procedure

SUBTASK 31-33-01-860-010

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-33-01-420-002

- (2) Use a maintenance access terminal MAT or PMAT to install software in the flight compartment printer:

NOTE: Make sure you know the correct software part number for the flight compartment printer before you select the software part number on the display. For the flight compartment printer to be an approved installation, the correct software must be installed.

- (a) Make these selections on the MAT or PMAT to make sure the left CMCF is in control:
- 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL
 - 4) If the MAT or PMAT shows LEFT CENTRAL MAINTENANCE COMPUTER IS IN CONTROL, select GO BACK.
 - 5) IF the MAT or PMAT shows RIGHT CENTRAL MAINTENANCE COMPUTER IS IN CONTROL, select SWITCH TO LEFT.
- (b) If the software is on a disk, put the correct disk in the disk drive.
- (c) Make these selections on the MAT or PMAT:
- 1) EXTENDED MAINTENANCE
 - 2) DATA LOAD
- (d) Make these selections to select the component that will receive the software:
- 1) SELECT DESTINATION
 - 2) 31 Printer
 - 3) Printer
 - 4) CONTINUE
- (e) Make these selections to select the source of the software:
- 1) SELECT SOURCE

ARO 014

- 2) Select Disk Drive.

ARO 001-013

- 3) Select the source of the software (Disk Drive or Hard Drive).

ARO 001-014

- 4) Select the correct software part number from the display.
- 5) CONTINUE

EFFECTIVITY
ARO ALL

D633W101-ARO

31-33-01

Page 205
May 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

ARO 001-014 (Continued)

- (f) Select START to start the software installation.
- (g) When the software installation is completed, make sure the correct software part number shows on the display.
- (h) Select CONTINUE to remove the configuration display.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-33-01

Page 206
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

FLIGHT COMPARTMENT PRINTER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the flight compartment printer.
 - (2) An installation of the flight compartment printer.
- B. The flight compartment printer is on the aisle stand below the flight deck handset.

TASK 31-33-01-000-801

2. Flight Compartment Printer Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Removal Procedure

SUBTASK 31-33-01-860-001

- (1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C31404	FLT DECK PRINTER

SUBTASK 31-33-01-860-002

- (2) Turn the outer knob of the AISLE STAND PNL/FLOOD control switch fully counterclockwise.

ARO 014-999; AIRPLANES WITHOUT THALES PRINTER

SUBTASK 31-33-01-010-001

- (3) Remove the handset cradle assembly [5]:
- (a) Remove the handset [9] from the cradle [10].
 - (b) Move the handset cradle assembly [5] aft.
 - (c) Push the two detent buttons [8] to release the cradle assembly [5] from the aisle stand.

ARO 001-013; AIRPLANES WITH THALES PRINTER

SUBTASK 31-33-01-010-002

- (4) Get access to the printer [4]:
- (a) Push the latch [1] adjacent to the flight deck handset.
 - (b) Tilt the handset cradle assembly [5] aft.

ARO ALL

SUBTASK 31-33-01-020-002



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE PRINTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PRINTER.

- (5) Remove the printer [4]:

EFFECTIVITY
ARO ALL

31-33-01

D633W101-ARO

Page 401
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (a) Loosen the 6 quarter turn fasteners [2] that attach the printer [4] to the aisle stand.

ARO 014-999; AIRPLANES WITHOUT THALES PRINTER

- (b) Use the printer door latch or latches [7] to open the printer door [3].

ARO 001-013; AIRPLANES WITH THALES PRINTER

- (c) Push the printer door latches [7] and open the printer door [3].

ARO ALL

- (d) Use the printer door [3] to carefully pull the printer [4] out of the aisle stand.

ARO 014-999; AIRPLANES WITHOUT THALES PRINTER

- (e) Disconnect the electrical connector from the printer [4].

ARO 001-013; AIRPLANES WITH THALES PRINTER

- (f) Disconnect the electrical connector [6] from the printer [4].

ARO ALL

- (g) Put a protective cover on the electrical connector on the rear of the printer [4].

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

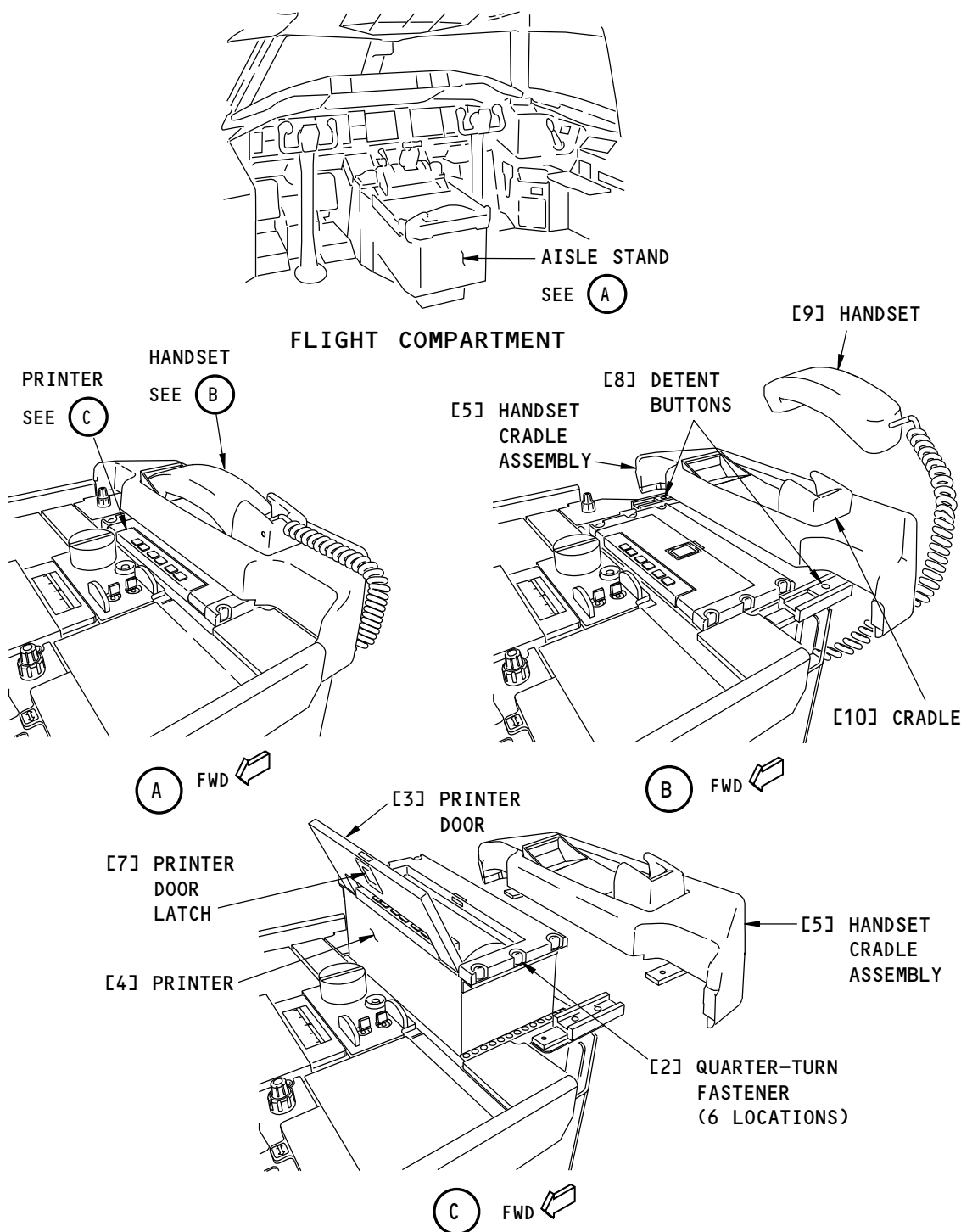
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31-33-01

Page 402
Sep 05/2016

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



H05625 S0006417309_V1

**Flight Compartment Printer Installation
Figure 401/31-33-01-990-801 (Sheet 1 of 2)**

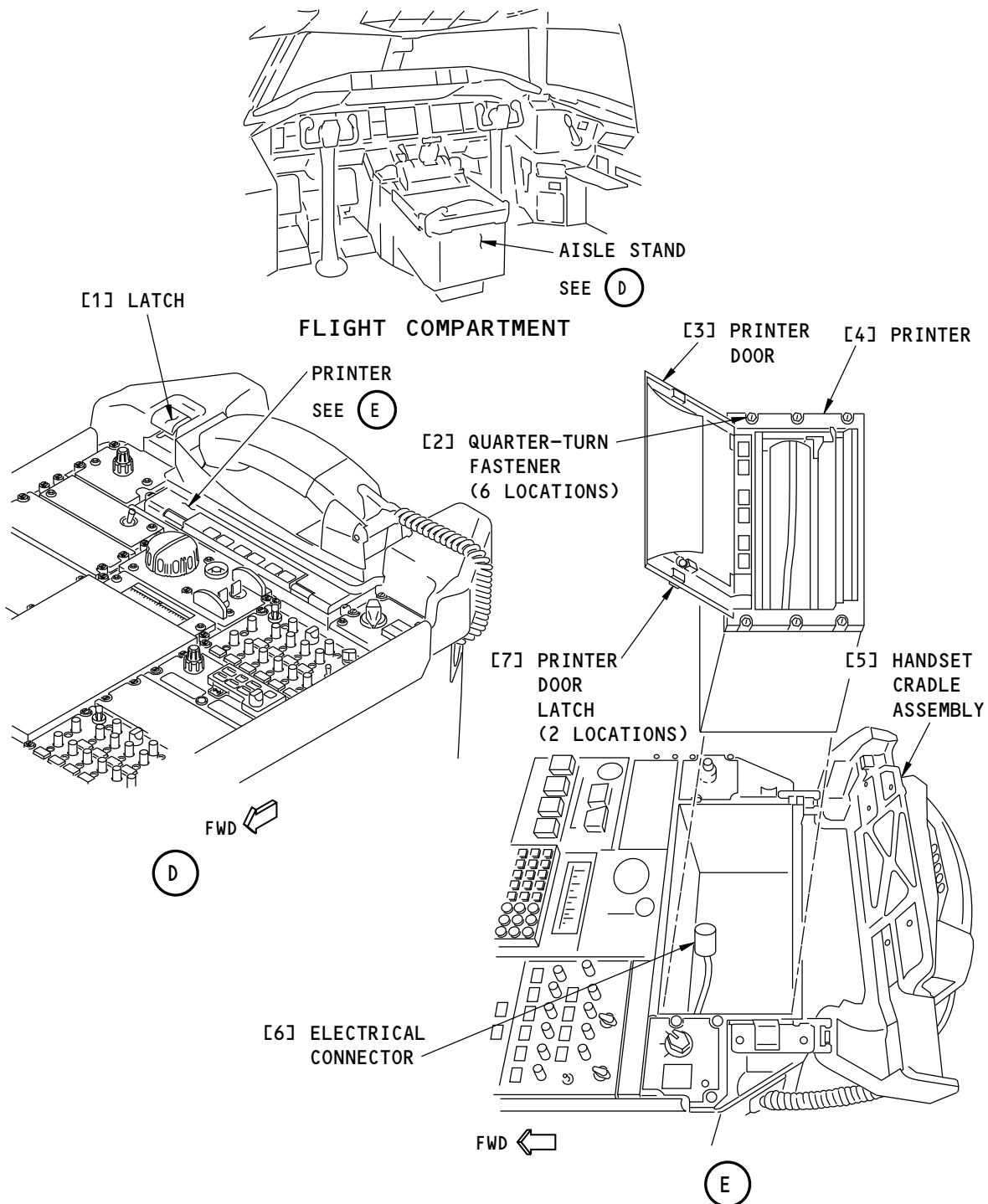
EFFECTIVITY
**ARO 014-999; AIRPLANES WITHOUT THALES
PRINTER**

D633W101-ARO

31-33-01

Page 403
Sep 05/2016

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



H05881 S0006417311_V1

**Flight Compartment Printer Installation
Figure 401/31-33-01-990-801 (Sheet 2 of 2)**

EFFECTIVITY
ARO 001-013; AIRPLANES WITH THALES PRINTER

31-33-01

D633W101-ARO

Page 404
Sep 05/2016



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-33-01-400-801

3. Flight Compartment Printer Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure gives the steps to install the flight compartment printer, M31004.

ARO 001-014; AIRPLANES WITHOUT COMPUSAVE/ASTRO-MED PRINTER

- (2) The installation test makes sure the flight compartment printer has the correct software.
- (3) The configuration check will show a failure if the operational program software (OPS) is not installed.

ARO 015-999; AIRPLANES WITH COMPUSAVE/ASTRO-MED PRINTER

- (4) To make a paper copy of the printer's configuration data, refer to (Flight Compartment Printing - Operational Test, TASK 31-33-00-710-801).

ARO ALL

- (5) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-33-00-710-801	Flight Compartment Printing - Operational Test (P/B 501)
31-33-01-400-802	Flight Compartment Printer Software Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	Printer	11-31-00-51-110	ARO ALL
		31-11-36-01A-060	ARO 001-013
		31-11-36-01C-065	ARO 014-999
		31-33-01-01-055	ARO ALL

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-33-01-860-004

- (1) Make sure that this circuit breaker is open and has safety tag:

Right Power Management Panel, P210

Row	Col	Number	Name
D	2	C31404	FLT DECK PRINTER

SUBTASK 31-33-01-860-005

- (2) Make sure that the AISLE STAND PNL/FLOOD control switch is turned fully counterclockwise.

EFFECTIVITY
ARO ALL

31-33-01

D633W101-ARO

Page 405
Sep 05/2016



**777-200/300
AIRCRAFT MAINTENANCE MANUAL**

ARO 001-014; AIRPLANES WITHOUT COMPUSAVE/ASTRO-MED PRINTER

SUBTASK 31-33-01-420-003



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE PRINTER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE PRINTER.

- (3) Install the printer [4]:
- (a) Remove the protective cover from the electrical connector on the rear of the printer [4].
 - (b) Examine the electrical connector for bent or broken pins.

ARO 014; AIRPLANES WITHOUT THALES PRINTER

- (c) Connect the electrical connector.

ARO 001-013; AIRPLANES WITH THALES PRINTER

- (d) Connect the electrical connector [6].

ARO 014; AIRPLANES WITHOUT THALES PRINTER

- (e) Use the printer door latch or latches [7] to open the printer door [3].

ARO 001-013; AIRPLANES WITH THALES PRINTER

- (f) Push the printer door latches [7] and open the printer door [3].

ARO 001-014; AIRPLANES WITHOUT COMPUSAVE/ASTRO-MED PRINTER

- (g) Hold the printer door [3] and carefully lower the printer [4] into the aisle stand.
- (h) Tighten the fasteners [2].
- (i) Close the printer door [3].

ARO 015-999; AIRPLANES WITH COMPUSAVE/ASTRO-MED PRINTER

SUBTASK 31-33-01-420-004



DO NOT TOUCH THE CONNECTOR PINS, OR OTHER CONDUCTORS. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COMPONENTS.

- (4) Install the printer [4]:
- (a) Remove the protective cover from the electrical connector on the rear of the printer [4].
 - (b) Examine the electrical connector for bent or broken pins.
 - (c) Connect the electrical connector.
 - (d) Close the printer door, and tighten the two quarter-turn fasteners.
 - (e) Hold the printer door fasteners and carefully lower the printer [4] into the aisle stand.
 - (f) Tighten the four mounting fasteners

ARO 014; AIRPLANES WITHOUT A COMPUSAVE/ASTRO-MED OR THALES C12349AC02/AD03/DA01 PRINTER

SUBTASK 31-33-01-410-002

- (5) Install the handset cradle assembly [5]:
- (a) Align the cradle assembly [5] with the tracks.
 - (b) Push the cradle assembly [5] forward until the detent buttons [8] lock.

EFFECTIVITY
ARO ALL

31-33-01

D633W101-ARO

Page 406
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 014; AIRPLANES WITHOUT A COMPUSAVE/ASTRO-MED OR THALES C12349AC02/AD03/DA01 PRINTER (Continued)

- (c) Put the handset [9] in the cradle [10].

ARO 001-013, 015-999; AIRPLANES WITH THALES PRINTER

SUBTASK 31-33-01-410-003

- (6) Tilt the handset cradle assembly [5] forward until it latches.

ARO 001-014; AIRPLANES WITHOUT COMPUSAVE/ASTRO-MED PRINTER

SUBTASK 31-33-01-400-002

- (7) Do this task: Flight Compartment Printer Software Installation, TASK 31-33-01-400-802.

ARO ALL

F. Installation Test

SUBTASK 31-33-01-860-006

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-33-01-860-007

- (2) Turn the outer knob of the AISLE STAND PNL/FLOOD control switch clockwise to the middle position.

SUBTASK 31-33-01-860-008

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

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	2	C31404	FLT DECK PRINTER

ARO 001-014; AIRPLANES WITHOUT COMPUSAVE/ASTRO-MED PRINTER

SUBTASK 31-33-01-740-001

- (4) Do this to start the printer BITE test:

- (a) Wait for 90 seconds.

NOTE: The printer ignores input for 90 seconds after you supply power.

- (b) Push the TEST button on the printer.

ARO ALL; AIRPLANES WITHOUT C12349AA01 PRINTER

SUBTASK 31-33-01-860-012

- (5) Wait for 90 seconds before you do the next step.

NOTE: The printer ignores input for 90 seconds after you supply power.

SUBTASK 31-33-01-740-002

- (6) Push the TEST button on the printer.

ARO ALL

SUBTASK 31-33-01-710-001

- (7) Make sure these occur on the printer [4]:

- (a) The switch buttons and light indicators come on.
- (b) The FAIL indicator goes off when the test is completed.
- (c) The printer prints a page.
- (d) The printed page shows a solid black bar at the top.

EFFECTIVITY
ARO ALL

31-33-01

D633W101-ARO

Page 407
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (e) You can easily read the characters on the printed page.

ARO 001-014; AIRPLANES WITHOUT COMPUSAVE/ASTRO-MED PRINTER

SUBTASK 31-33-01-750-001

- (8) Use a maintenance access terminal (MAT) to do a software configuration check of the printer [4]:

NOTE: Make sure you know the correct software part number for the printer [4] when you look at the software part number on the display. For the printer [4] to be an approved installation, the correct software part number must be installed.

- (a) Make these selections on the MAT:

- 1) ONBOARD MAINTENANCE
- 2) LINE MAINTENANCE
- 3) SYSTEM CONFIGURATION
- 4) 31 Printer
- 5) CONTINUE

- (b) Find Printer on the display and make sure that the software part number is correct.

NOTE: The configuration check will show a failure if the operational program software (OPS) is not installed. The printer [4] must also contain the fonts software.

- (c) Select GO BACK to remove the configuration display.

SUBTASK 31-33-01-400-001

- (9) If the part number is incorrect, do this task: Flight Compartment Printing - Operational Test, TASK 31-33-00-710-801).

ARO 015-999; AIRPLANES WITH COMPUSAVE/ASTRO-MED PRINTER

SUBTASK 31-33-01-710-002

- (10) Do this task (Flight Compartment Printing - Operational Test, TASK 31-33-00-710-801).

- (a) Make sure the output page of the printer is serviceable. The page shows these details:

- 1) Printer configuration data.
- 2) A print test that shows all characters and figures the printer can make.
- 3) Make sure that the last line of text on the page shows the words: END OF TEST.

NOTE: You can not install software parts into this printer.

ARO ALL

————— **END OF TASK** —————

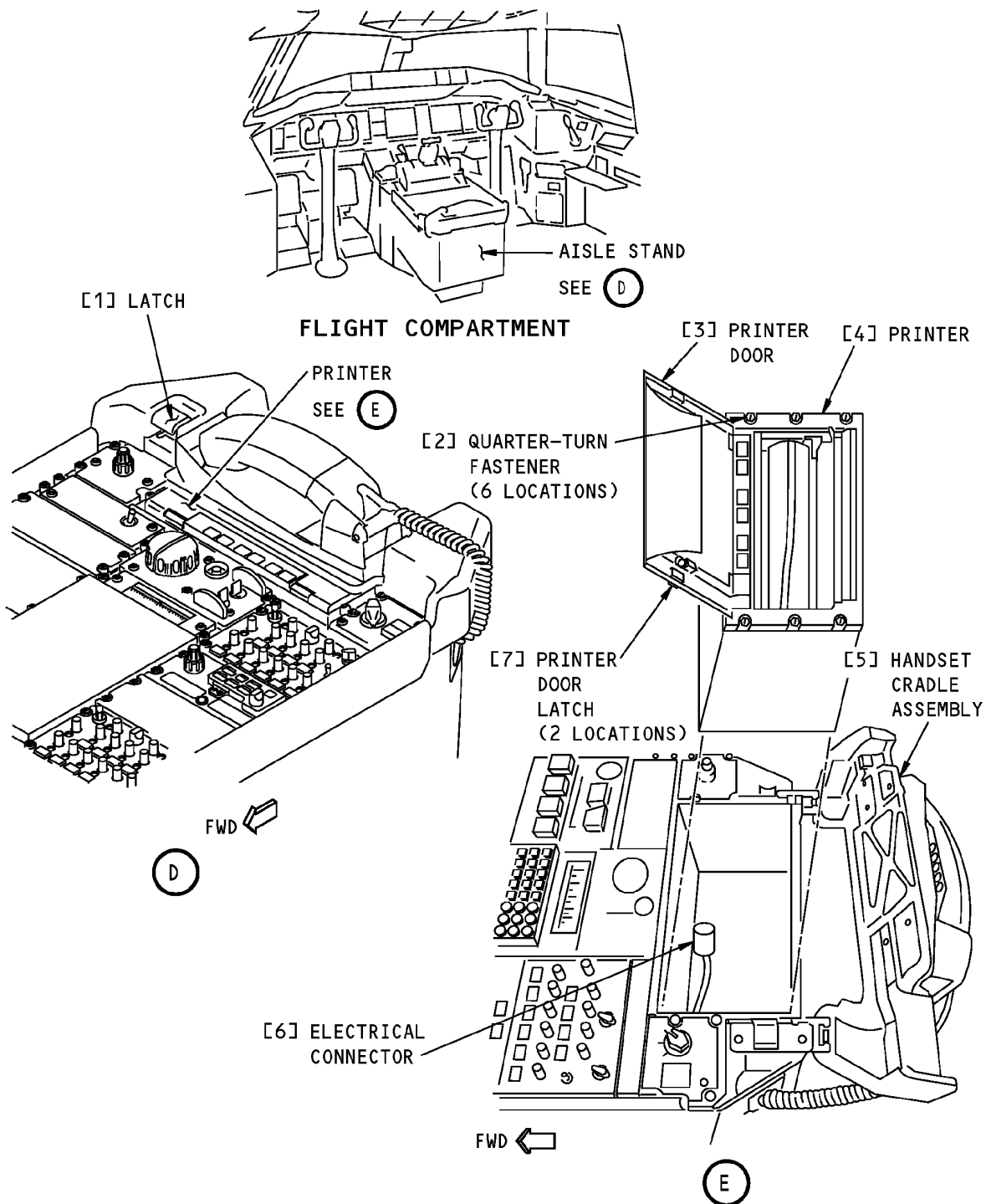
EFFECTIVITY
ARO ALL

D633W101-ARO

31-33-01

Page 408
Sep 05/2017

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



**Flight Compartment Printer Paper Path
Figure 402/31-33-01-990-802 (Sheet 1 of 2)**

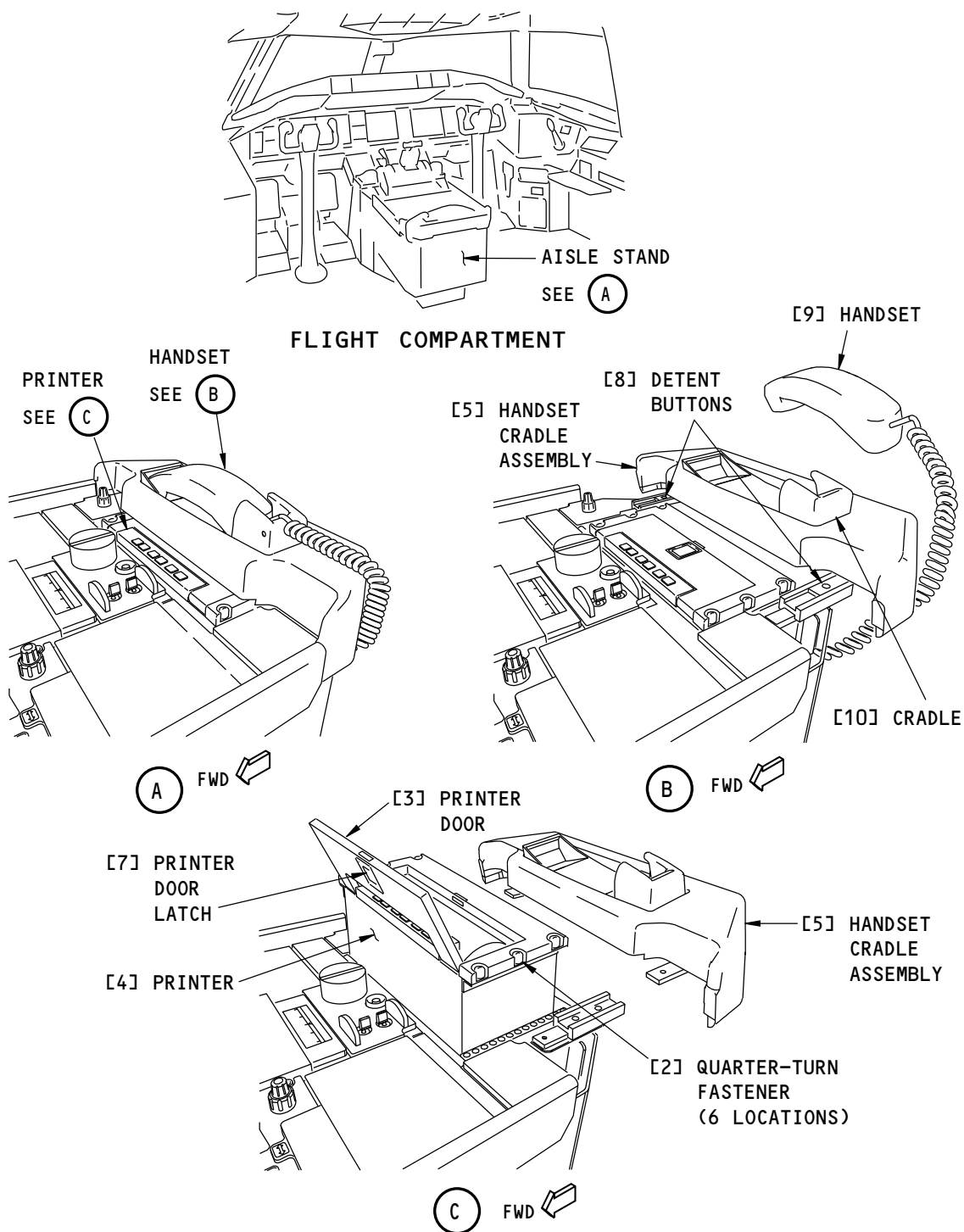
EFFECTIVITY
ARO 001-013, 015-999; AIRPLANES WITH THALES
PRINTER

D633W101-ARO

31-33-01

Page 409
Sep 05/2016

777-200/300 AIRCRAFT MAINTENANCE MANUAL



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**Flight Compartment Printer Paper Path
Figure 402/31-33-01-990-802 (Sheet 2 of 2)**

EFFECTIVITY
ARO 014; AIRPLANES WITHOUT A
COMPUSAVE/ASTRO-MED OR THALES
C12349AC02/AD03/DA01 PRINTER

D633W101-ARO

31-33-01

Page 410
Sep 05/2016



777-200/300 AIRCRAFT MAINTENANCE MANUAL

AIRPLANE CONDITION MONITORING SYSTEM (ACMS) - MAINTENANCE PRACTICES

1. General

A. This procedure contains these tasks:

- (1) A task on how to get AIMS BITE history data and put the data on a disk.
- (2) A task on how to perform User Defined BITE history download onto a disk.

TASK 31-35-00-740-801

2. How to Get AIMS BITE History Data

A. **General**

- (1) This task tells how to get AIMS BITE history data and put the data on a disk.
- (2) This task contains steps which, depending on the version of AIMS software installed, will require additional steps which are referenced in this procedure.
- (3) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

- (4) A maintenance access terminal (MAT or PMAT) is necessary for this procedure. For instructions on how to use the MAT, do this task: How to Operate the MAT in the Flight Compartment, TASK 45-10-00-910-810.
- (5) You can use a high density disk (1.44 MB) with adapter or USB flash drive in the MAT or maintenance laptop USB port.

B. **References**

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-910-810	How to Operate the MAT in the Flight Compartment (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-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. **Location Zones**

Zone	Area
212	Flight Compartment, Right

E. **Procedure**

SUBTASK 31-35-00-860-007

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-35-00

Page 201
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-35-00-740-004

- (2) Use a maintenance access terminal (MAT or PMAT) to get AIMS BITE history data:
- (a) Put a (1.44 MB capacity, formatted for DOS, and not write-protected) with USB adapter or USB flash drive in the USB port.
 - (b) Select CONDITION MONITORING from the initial menu.
 - (c) Select AIMS BITE DUMP from the first condition monitoring display (title screen).
 - (d) When the list of AIMS BITE options shows, make one of the selections that follow to get the necessary data:

NOTE: The number in parentheses adjacent to the selection is the time (in minutes) necessary to put all the data on the disk.

- 1) CPMCOMML
- 2) CPMACMF
- 3) CPMGGL1
- 4) CPMGGL2
- 5) CPMCOMMR
- 6) CPMBASIC
- 7) CPMGGR1
- 8) CPMGGR2
- 9) FMCSBITE

NOTE: FMCSBITE contains FM, NAV and TM L/R

- 10) DISPBITE
- 11) COMMBITE
- 12) CORLEFT
- 13) CORRIGHT
- 14) FMLBPQL
- 15) FMLBPQR
- 16) FMBITE

NOTE: FMBITE contains FM L/R

- 17) DSPL1
- 18) DSPL2
- 19) DSPR1
- 20) DSPR2
- 21) BITEBRDL
- 22) BITEBRDR
- 23) DCGF1
- 24) DCGF2
- 25) DFDAF
- 26) CMCF
- 27) ACMF

EFFECTIVITY
ARO ALL

31-35-00

D633W101-ARO

Page 202
May 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (e) If a FMCB BITE is necessary, do the FMLBPQL and FMLBPQR BITE also.

NOTE: The time to complete all three BITE dumps is approximately 45 minutes.

NOTE: The FMLBPQL and FMLBPQR BITE should be downloaded within 1.5 days of the event being investigated or there is risk of loss of FMLBQL and FMLBPQR BITE data leading up to the event and the event itself.

- (f) The following selections only appear on aircraft with an AIMS 2 configuration:

- 1) IOMLEFT
- 2) IOMRIGHT
- 3) IOMBITE

NOTE: IOMBITE contains IOMLEFT and IOMRIGHT.

- (g) Select DUMP TO DISK to put the BITE data on the disk.

NOTE: The cursor changes when you make the selection. When the usual cursor shows again, all the BITE data is on the disk.

- (h) If it is necessary to get more data, select the data and then select DUMP TO DISK again.

- (i) Select ACMS from the menu at the top of the display.

- (j) Select EXIT ACMS from the drop-down menu.

———— **END OF TASK** ————



777-200/300
AIRCRAFT MAINTENANCE MANUAL

AIRPLANE CONDITION MONITORING SYSTEM (ACMS) - ADJUSTMENT/TEST

1. **General**

A. This procedure has these tasks:

- (1) An operational test of the airplane condition monitoring system (ACMS)
- (2) A system test of the airplane condition monitoring system (ACMS).

TASK 31-35-00-710-801

2. **Airplane Condition Monitoring System - Operational Test**

A. **General**

- (1) A maintenance access terminal is necessary for the procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. **References**

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. **Location Zones**

Zone	Area
118	Main Equipment Center, Right
212	Flight Compartment, Right

D. **Procedure**

SUBTASK 31-35-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-35-00-730-001

- (2) Use a maintenance access terminal (MAT) to do the display test of the Airplane Condition Monitoring System:
 - (a) Make these selections on the MAT:
 - 1) Condition Monitoring
 - (b) Make sure the ACMS title page shows.

NOTE: If the ACMS title page shows, the Airplane Condition Monitoring Function can send data to the MAT and the Onboard Network System (ONS).

————— **END OF TASK** —————

TASK 31-35-00-730-801

3. **Airplane Condition Monitoring System - System Test**

A. **General**

- (1) A maintenance access terminal is necessary for the procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

EFFECTIVITY
ARO ALL

31-35-00

D633W101-ARO

Page 501
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
118	Main Equipment Center, Right
212	Flight Compartment, Right

D. Procedure

SUBTASK 31-35-00-860-003

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-35-00-740-001

- (2) Use a maintenance access terminal (MAT) to do the system test of the ACMS:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 AIMS - Airplane Condition Monitoring System
 - 5) SYSTEM TEST
 - 6) Left ACMF Software Reset Test
 - 7) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST
 - (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
 - (d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-35-00

D633W101-ARO

Page 502
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

QUICK ACCESS RECORDER - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

- (1) WGL-QAR Recording Media Removal
- (2) WGL-QAR Recording Media Installation

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81

- (3) WGL-QAR Software Installation

ARO 011-999 POST SB2243800-31-27; AIRPLANES WITH TELEDYNE 2243800-362/-364

- (4) WGL-QAR Software Installation

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81

- (5) A procedure to verify and set the WGL-QAR bipolar_rate parameter to AUTO.

ARO ALL

TASK 31-35-02-000-805

2. WGL-QAR Recording Media Removal

A. **General**

- (1) This task contains the instructions on how to remove the recording media from the wireless groundlink - quick access recorder (WGL-QAR).

B. **References**

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. **Location Zones**

Zone	Area
118	Main Equipment Center, Right

D. **Procedure**

SUBTASK 31-35-02-860-028

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 31-35-02-860-029

- (2) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

Row	Col	Number	Name
E	14	C31401	QUICK ACCESS RECORDER

SUBTASK 31-35-02-710-020

- (3) Push the - or + keys to get to CARTRIDGE EJECT menu.

SUBTASK 31-35-02-710-021

- (4) Push the SEL key to change message to display TO CONTINUE PRESS +.

SUBTASK 31-35-02-710-022

- (5) Push the + key to continue.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 201
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81

SUBTASK 31-35-02-212-001

- (6) Make sure that the WGL-QAR displays the message WAITING FOR CLEANUP for several seconds, followed by the message EJECT CARTRIDGE NOW.

ARO 011-999; AIRPLANES WITH TELEDYNE 2243800-362/-364

SUBTASK 31-35-02-210-007

- (7) Make sure that the WGL-QAR displays the message WAITING FOR CLEANUP, followed by the message REMOVE CF.

ARO ALL

SUBTASK 31-35-02-010-018

- (8) Open the access door of the WGL-QAR.

NOTE: One of the RF antennas may need to be removed to allow the door to open.

SUBTASK 31-35-02-710-023

- (9) Push the EJECT key on the WGL-QAR.

SUBTASK 31-35-02-905-002

- (10) Remove the recording media and put it in a container.

SUBTASK 31-35-02-410-008

- (11) Close the access door of the WGL-QAR.

————— END OF TASK —————

TASK 31-35-02-400-805

3. WGL-QAR Recording Media Installation

A. General

- (1) This task contains the instructions on how to install the recording media in the wireless groundlink - quick access recorder (WGL-QAR).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
118	Main Equipment Center, Right

D. Procedure

SUBTASK 31-35-02-860-030

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805

SUBTASK 31-35-02-860-031

- (2) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

Row	Col	Number	Name
E	14	C31401	QUICK ACCESS RECORDER

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81

SUBTASK 31-35-02-212-002

- (3) Make sure the WGL-QAR displays the message INSERT NEW CARTRIDGE NOW.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 202
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 011-999; AIRPLANES WITH TELEDYNE 2243800-362/-364

SUBTASK 31-35-02-210-005

- (4) Make sure the WGL-QAR displays the message INSERT NEW CF.

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81

SUBTASK 31-35-02-210-006

- (5) Make sure the FAIL light is on.

ARO ALL

SUBTASK 31-35-02-010-019

- (6) Open the access door of the WGL-QAR.

NOTE: One of the RF antennas may need to be removed to allow the door to open.

SUBTASK 31-35-02-400-006

- (7) Push the recording media into the WGL-QAR.

SUBTASK 31-35-02-010-020

- (8) Close the access door of the WGL-QAR.

ARO 011-999; AIRPLANES WITH TELEDYNE 2243800-362/-364

NOTE: The WGL-QAR will automatically reboot.

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81

SUBTASK 31-35-02-212-003

- (9) Make sure the WGL-QAR displays the message SYSTEM WILL NOW REBOOT.

NOTE: The WGL-QAR will automatically reboot.

- (a) If removed, install the RF antenna.

————— END OF TASK —————

TASK 31-35-02-470-804

4. WGL-QAR Software Installation

A. General

- (1) This task contains software installation procedure for the quick access recorder.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
118	Main Equipment Center, Right

D. Prepare the WQAR/QAR for software installation.

SUBTASK 31-35-02-860-035

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-35-02-860-045

- (2) Make sure the airplane parking brake is on.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 203
Jan 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81 (Continued)

SUBTASK 31-35-02-860-036

- (3) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	14	C31401	QUICK ACCESS RECORDER

E. Procedure

SUBTASK 31-35-02-470-005

- (1) Do these steps to install the software:
- (a) Remove the antennas to gain access to the door on the front of the QAR.
 - 1) Unscrew the antenna at it's base.
NOTE: Do not remove the metal elbow connectors.
 - (b) Press the MODE key on the QAR.
 - (c) Press the '+' key until "CARTRIDGE EJECT" is displayed on QAR.
 - (d) Press the SEL button on the QAR.
 - (e) Press the '+' to continue with the cartridge eject.
 - (f) Verify the "EJECT CARTRIDGE NOW" is displayed on the QAR.
 - (g) Open the access door and press the button to eject the WQAR Recording Media card.
 - (h) Verify that the "FAIL" light is illuminated and "INSERT NEW CARTRIDGE NOW" is displayed on the QAR.
 - (i) Insert the PCMCIA media card which contains the necessary software for installation.
 - (j) Close the access door and verify that "SYSTEM WILL NOW REBOOT" or "REBOOTING PLEASE WAIT" is displayed on the QAR.
 - (k) Do these steps if loading Media Title "WQAR APPLICATION SOFTWARE."
 - 1) Verify the "APPL LOAD SEL TO START" is displayed on the QAR.
 - 2) Press the SEL button to start the load.
 - 3) Verify the "LOADING APPL PLEASE WAIT" is displayed on the QAR.
NOTE: The "FAIL" light will be illuminated. This process takes 3-7 minutes.
 - 4) Verify the "LOAD COMPLETE EJECT LOAD MEDIA" is displayed on the QAR
 - (l) Do these steps if loading Media Title " 31 WQAR APPLICATION/CORE"
 - 1) Verify the "APPL LOAD SEL TO START" is displayed on the QAR.
 - 2) Press the SEL button to start the Core Software load.
 - 3) Verify the "LOADING APPL PLEASE WAIT" is displayed on the QAR.
NOTE: The "FAIL" light will be illuminated.
 - 4) Verify the "REBOOTING...WAIT FOR PROMT" is displayed on the QAR.
 - 5) Verify the "APPL LOAD SEL TO START" is displayed on the QAR.
 - 6) Press the SEL button to start the Application Software load.
 - 7) Verify the "VERIFYING MEDIA PLEASE WAIT...." Is displayed on the QAR.
 - 8) Verify the "LOADING APPL PLEASE WAIT...." is displayed on the QAR.
NOTE: This process takes approximately 13-20 minutes.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-35-02

Page 204
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81 (Continued)

- (m) If the QAR has MOD dot 7 implemented (visible on the QAR faceplate Nameplate), do these steps:
 - 1) Press the MODE key to exit radio firmware update
 - 2) Verify the "LOAD COMPLETE EJECT LOAD MEDIA" is displayed on the QAR.
- (n) If the QAR does NOT have MOD dot 7 implemented, do these steps:
 - 1) Press the SEL button to start the radio firmware update.
NOTE: This update takes 20-45 minutes. If all radios already have the new firmware, the update will take approximately 2 minutes.
 - 2) Verify the "G18 LOADER IS COMPLETE" is displayed on the QAR.
NOTE: There will be several different messages displayed during the G18 load. DO NOT remove power from QAR during this process.
- (o) Open the access door and press the button to eject the PCMCIA card.
- (p) Verify the "INSERT RECORDING MEDIA" is displayed on the QAR.
- (q) Insert the QAR Recording Media card into the PCMCIA slot.
- (r) Close the access door and verify that the system reboots.

F. Software Verification

SUBTASK 31-35-02-470-007

- (1) Do these steps to verify the software:
 - (a) Press the MODE button on the QAR.
 - (b) Press the '+' key until "S/W VERSION" is displayed on QAR.
 - (c) Press the SEL button on the QAR.
 - (d) Make sure that the software part number and version appears on the QAR.
 - (e) Verify the software part numbers displayed match the software part numbers which were meant to be installed.
 - 1) If the software part numbers match, the software installation is not required. Do these steps to end the software configuration:
 - a) Press the "MODE" button on the QAR.
 - b) Press the "+" button until "SYSTEM STATE" is displayed on the QAR.
 - c) Press the "SEL" button on the QAR.
 - d) Reinstall the antenna, if it has been removed.
 - e) Return the circuit breaker(s) to their previous states (as required).
 - 2) If the software part numbers do not match, the software installation is required.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 31-35-02-860-037

- (1) Do this task: Remove Electrical Power, TASK 24-22-00-860-806

————— END OF TASK —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-35-02

Page 205
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 011-999 POST SB2243800-31-27; AIRPLANES WITH TELEDYNE 2243800-362/-364

TASK 31-35-02-400-806

5. WGL-QAR Software Installation

A. General

- (1) This task contains software installation procedure for the quick access recorder.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)

C. Location Zones

Zone	Area
118	Main Equipment Center, Right

D. Prepare the WQAR/QAR for software installation

SUBTASK 31-35-02-860-041

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.
- (2) Make sure the airplane parking brake is on.

SUBTASK 31-35-02-860-042

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

Right Power Management Panel, P210

Row	Col	Number	Name
E	14	C31401	QUICK ACCESS RECORDER

E. Procedure

SUBTASK 31-35-02-070-001

- (1) To load the SW retrieved from BEDS, do these steps:
 - (a) The uncrated Loadable Software Part (LSP) or Media Set Part (MSP) is stored on the ML's hard drive (e.g. "D:\BEDS\Uncrated"). Retrieve parts from BEDS to the ML.
 - (b) The uncrated LSP or the SW in the uncrated MSP on the ML is imported to the PMAT 2000's LoadStar Library for loading. Import Parts from ML to PMAT 2000's LoadStar Library via USB Sharing Cable.
- (2) To load the SW from the physical media:
 - (a) The CD must be available.
 - (b) Import SW from CD to PMAT 2000's LoadStar Library.
- (3) Do the WQAR SW Verification, refer to paragraph entitled, "WQAR HW P/N 2243800-XXX (e.g. -362, -364) SW Verification" below if not already done.
- (4) Unscrew and open the access door of the WQAR.
- (5) Do the Initial Setup, refer to paragraph entitled, "PMAT 2000 Initial Setup".
- (6) Connect the circular connector of the PMAT Interface Cable P/N 7000-2209-104-1 (OBWO 80035-3) to the J1 port of the PMAT 2000.
- (7) Connect one end of the Ethernet cable to the RJ45 port of the PMAT Interface Cable, and the other end to the RJ45 port in front of the WQAR LRU.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 206
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 011-999 POST SB2243800-31-27; AIRPLANES WITH TELEDYNE 2243800-362/-364 (Continued)

- (8) Do the Common Onboard SW Installation, refer to paragraph entitled, "Common Onboard SW Installation Using PMAT 2000/615A".
- (9) Disconnect cables connected to PMAT 2000 and WQAR LRU.
- (10) Shutdown PMAT 2000.
- (11) Do the WQAR SW Verification, refer to paragraph entitled, "WQAR HW P/N 2243800-XXX (e.g. -362, -364) SW Verification".

F. Import Parts from ML to PMAT 2000's LoadStar Library via USB Sharing Cable

NOTE: The uncrated Loadable Software Part (LSP) or Media Set Part (MSP) retrieved from BEDS to the ML hard drive ("D:\BEDS\Uncrated").

SUBTASK 31-35-02-070-002

- (1) Share parts from ML, refer to paragraph entitled "ML Share Parts with the PMAT 2000".
- (2) Copy parts from ML to PMAT 2000's Newloads directory ("C:\Datafiles\Newloads"):
 - (a) Do the Initial Setup, refer to paragraph entitled "PMAT 2000 Initial Setup", if not already done.
 - (b) Connect the other end of the USB Sharing Cable to the PMAT 2000's USB port.
 - (c) Wait 30 seconds. The PMAT 2000 will recognize the USB Sharing Cable as a USB Disk drive.
 - (d) Copy (DRAG & DROP), the selected SW parts from the ML's virtual USB Disk Drive (e.g. "E:") to the PMAT 2000's Newloads directory "C:\Datafiles\Newloads".
- (3) Import parts from PMAT 2000's Newloads directory to LoadStar Library:
 - (a) Import parts, refer to paragraph entitled, "Initiate LoadStar from PMAT 2000" if not already done.
 - (b) Verify the "LoadStar" Main Menu screen is displayed.
 - (c) Select "LIBRARY" tab. The LoadStar Library options are displayed.
 - (d) Select "INSTALL SOFTWARE" button. The "INSTALL SOFTWARE" screen is displayed.
 - (e) Select "NEW LOAD DIRECTORY" in the "GET LOADS FROM" options.
 - (f) Select one or multiple parts in the "NEW LOADS" box.

NOTE: To delete the parts from "C:\Datafiles\Newloads" directory after importing parts to its database, select the "DELETE ORIGINAL AFTER INSTALL" check box.
 - (g) Uncheck "AUTO-ASSIGN TAILS" box.
 - (h) Select "NEXT". The screen showing parts, A/P model, A/P tail, and System/LRU is displayed.
 - (i) Select appropriate A/P model (e.g. "B777") in the "MODEL" list.
 - (j) Select appropriate tail in the "AIRPLANE TAIL NUMBER" list.
 - (k) Select appropriate "SYSTEM/LRU" if it is not default selected.
 - (l) Select "NEXT" button.

NOTE: If the imported part already exists in the LoadStar's database, the overwriting confirmed window is displayed. Select "Yes" to continue.
 - (m) If the window with message "TO CONFIRM LOAD OF SOFTWARE..." is displayed, press the part(s) and the "NEXT" button. Otherwise, skip this step.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 207
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 011-999 POST SB2243800-31-27; AIRPLANES WITH TELEDYNE 2243800-362/-364 (Continued)

- (n) Verify the "INSTALLATION COMPLETE" message is displayed.
- (o) Select "OK" button.
- (p) Repeat from step (j) to associate airplane model/tail and SYSTEM/LRU for another part.
- (q) Select the "LOGOFF LOADSTAR" to close the LoadStar menu.
- (r) Select "Close" button to close the LoadStar login screen.

G. PMAT 2000 Initial Setup

SUBTASK 31-35-02-070-003

NOTE: The PMAT 2000 has built-in Floppy Drive and additional ports which allows external device plug-ins, such as mouse, CD-ROM or DVD-ROM Drive.

- (1) Refer to steps below if using the external USB Mouse, CD-ROM/DVD-ROM drive. Otherwise, skip these steps.

NOTE: PMAT 2000 version 4 or below does not have a built-in USB port, so a USB adapter cable (80072-1) must be used.

- (a) If using an external mouse, insert the USB mouse's cable connector to one of the PMAT 2000's USB ports or USB adapter cable.
- (b) If using an external USB CD-ROM or DVD-ROM Drive, attach the device cable connector to one of the PMAT 2000's USB ports or USB adapter cable.
- (2) Supply the power to PMAT 2000:
 - (a) If using the battery, insert the battery into the PMAT 2000's battery holder.
 - (b) If using the external power supply, plug the external power supply into AC outlet and the DC cable with connector into PMAT 2000.
- (3) Press "DOWN" the PMAT 2000's power button for 3 seconds to power up the PMAT 2000.
- (4) Wait for the PMAT 2000's operating system to boot completely
- (5) Verify, the PMAT 2000 Main Menu is displayed.

H. Initiate LoadStar from PMAT 2000

SUBTASK 31-35-02-070-004

- (1) Do the Initial Setup, refer to paragraph entitled "PMAT 2000 Initial Setup" if not already done.
- (2) Verify, the PMAT 2000 Main Menu is displayed.
- (3) Press the "LoadStar" button. The LoadStar main menu is displayed.

I. Import Parts from CD to PMAT 2000's LoadStar Library

SUBTASK 31-35-02-070-005

NOTE: There are two ways to import parts from a CD-ROM to PMAT 2000's LoadStar Library: Copy parts from a CD to the PMAT 2000's hard drive ("C:\Datafiles\Newloads"); and import parts from "Newloads" directory to LoadStar library.

- (1) Copy/transfer parts from CD to PMAT 2000's hard drive if the CD has TCAS or TBMS SW:
 - NOTE: LoadStar requires extra manual steps to create sub-directory "\Disk001" if the CD has D6-55562-5 SW part format.
 - (a) Insert the CD containing the SW per the IP's BOM into the PMAT 2000's CD drive.
 - (b) Press the "Start" -> "Programs" -> "Accessories" -> "Command Prompt". The DOS Command Prompt window is displayed.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 208
Jan 05/2017



**777-200/300
AIRCRAFT MAINTENANCE MANUAL**

ARO 011-999 POST SB2243800-31-27; AIRPLANES WITH TELEDYNE 2243800-362/-364 (Continued)

- (c) Type the "cd\" and press 'Enter' key.
- (d) Type the "md C:\Datafiles\Newloads\Disk001" and press 'Enter' key. The Name "Disk001" is mandatory.
NOTE: If the TCAS MSP P/N is "9400008-104", type the following: md C:\Datafiles\Newloads\9400008-104\Disk001.
- (e) Close the DOS Command Prompt window.
- (f) Open the Windows Explorer.
- (g) Copy all files in the CD to the directory "C:\Datafiles\Newloads\Disk001".
NOTE: The directory "C:\Datafiles\Newloads\9400008-104\Disk001" now contains all files from the TCAS CD.
- (h) Do the Initiate LoadStar, refer to paragraph entitled, "Initiate LoadStar" from PMAT 2000.
- (i) Verify the "LoadStar" Main Menu screen is displayed.
- (j) Press the "LIBRARY" tab. The LoadStar Library options are displayed.
- (2) Copy/transfer parts from CD to PMAT 2000's hard drive If the CD has EFB SW:
 - (a) Import parts, refer to paragraph entitled, "Initiate LoadStar from PMAT 2000".
 - (b) Verify the "LoadStar Main Menu" screen is displayed.
 - (c) Insert the CD containing the SW per the IP's BOM into the PMAT 2000's CD drive.
 - (d) Press the "LIBRARY" tab. The LoadStar Library options are displayed.
 - (e) Press the "INSTALL SOFTWARE" button.
 - (f) Press the "REMOVABLE MEDIA" under "GET LOADS FROM" options.
 - (g) Press the "NEXT" button. The "Import Media" window is displayed.
 - (h) Press the "X: REMOVABLE", where "X" is the CD/DVD driver letter.
 - (i) Press the "SCAN" button.
 - (j) Press the one or multiple P/Ns under the "ARINC 665 Parts" list.
 - (k) Press the "IMPORT" button.
 - (l) Verify the "Successfully imported media" message appears under "Import Items".
 - (m) Press the "CONTINUE" to close the "Import Media" window.
 - (n) Repeat from step (e) to install SW from another CD to the "Newloads" directory.
- (3) Import parts from PMAT 2000's "Newloads" directory to LoadStar Library.
 - (a) Press the "INSTALL SOFTWARE" button. The "INSTALL SOFTWARE" screen is displayed.
 - (b) Press the "NEW LOAD DIRECTORY" in the "GET LOADS FROM" options.
 - (c) Press the one or more desired parts in the "NEW LOADS" box.
 - (d) Press the "DELETE ORIGINAL AFTER INSTALL".
NOTE: Select this option causes the LoadStar application to delete the parts in the "Newloads" directory after successfully importing them to the LoadStar Library.
 - (e) Deselect the "AUTO-ASSIGN TAILS".
 - (f) Press the "NEXT" button. The parts, airplane model, tail associated LRU screen is displayed.



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 011-999 POST SB2243800-31-27; AIRPLANES WITH TELEDYNE 2243800-362/-364 (Continued)

- (g) Press the appropriate A/P model (e.g. "B777") in the "MODEL" list.
- (h) Press the appropriate tail in the "AIRPLANE TAIL NUMBER" list.
- (i) Press the appropriate "SYSTEM/LRU" if it is not the default selected.
- (j) Press the "NEXT" button.
NOTE: If the part imported already exists in the LoadStar Library, the overwriting confirmed window is displayed. Select "Yes" to continue.
- (k) If the window with message "TO CONFIRM LOAD OF SOFTWARE..." is displayed, select the part(s) and select "NEXT" button. Otherwise, skip this step.
- (l) Verify the window with message "INSTALLATION COMPLETE" is displayed.
- (m) Press the "OK" button.
- (n) Repeat from step (i) to associate airplane model/tail and SYSTEM/LRU for another part.
- (o) Do the initial setup:
 - 1) Press the "LOGOFF LOADSTAR" to close the LoadStar menu.
 - 2) Press the "Close" button to close the LoadStar login screen.

J. Software Verification

SUBTASK 31-35-02-070-006

- (1) Do the Initial Setup, refer to paragraph entitled, "Initial Setup".
- (2) Press the 'MODE' button on the WQAR until "SYSTEM STATE" is displayed.
- (3) Press the '+' or '-' button until "UNIT INFO" is displayed.
- (4) Press the 'SEL' button.
- (5) Press the '+' or '-' button until "S/W VERSION" is displayed.
- (6) Press 'SEL' button.
- (7) Press the '+' or '-' button until "OPS" is displayed.
NOTE: The OPS SW P/N will be shown on the second line of the display.
NOTE: The '+' or '-' buttons will only cycle through the installed software.
- (8) Verify the SW P/Ns displayed on the WQAR match the SW P/Ns listed in the Installation Plan (IP)'s BOM.
 - (a) If the SW P/Ns match, the software installation is not required. Return the circuit breaker(s) to their previous states (as required).
 - (b) If the SW P/Ns do not match, the software installation is required.

K. Common Onboard SW Installation Using PMAT 2000/615A

SUBTASK 31-35-02-070-007

- (1) Make shure the LRU and PMAT 2000 have been set up properly as described in the LRU section.
- (2) Verify the PMAT 2000 MAIN MENU screen is displayed.
- (3) Select the "ARINC 615A DATALOADER" button. The "615A DATALOADER" Log-In screen is displayed.
- (4) Enter your name in the "USER NAME" box.
- (5) Select an appropriate tail in the "SELECT THE TAIL NUMBER" list.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 210
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 011-999 POST SB2243800-31-27; AIRPLANES WITH TELEDYNE 2243800-362/-364 (Continued)

- (6) Select a connection type below in the "SELECT CONNECTION TYPE" list.

NOTE: Select "ELECTRONIC FLIGHT BAG (EFB)" for EFB LRU.

Select "TDY WGL Comm+" for WQAR LRU.

- (7) Select the "CONTINUE". The Dataloader Operation Menu is displayed.



LOADING OR RELOADING OF THE OPS SOFTWARE LSP INTO THE WGL COMM+ WILL CAUSE ALL EXISTING CONFIGURATION FILES IN THE WGL COMM+ TO BE DELETED. THE OPERATOR MUST USE THIS SERVICE BULLETIN TO LOAD THE APPROPRIATE CONFIGURATION FILE LSPS AFTER THE OPS SOFTWARE LSP IS LOADED. CONTACT TELEDYNE CONTROLS CUSTOMER SERVICES FOR DETAILS.

- (8) Select the "Upload" button. The "TARGET LIST" window is displayed.
- (9) Wait for the target to appear under "TARGET NAME" and the colored status block of the target is green.
- NOTE: It may take up to 15 seconds or more before the target can be found and the colored status block turns to green. The status block for some LRUs may show yellow when the LRU is actually ready to accept a dataload.
- (10) Select a target displayed under "TARGET NAME".
- (11) Select the "CONTINUE" button. The "UPLOAD" window is displayed.
- (12) Select "INTERNAL MSD" under "SELECT LSAP SOURCE".
- (13) Select appropriate airplane model.
- (14) Select appropriate airplane tail or "ANY TAIL".
- (15) Select SW P/Ns displayed under "SELECT PARTS TO UPLOAD".
- (16) Select the "CONTINUE" button. The "CONFIRM UPLOAD" window is displayed.
- (17) Select the "CONTINUE UPLOAD". The upload Session Status Window appears.
- (18) Wait for the data transfer to finish.
- (19) Verify the "Status" is "Completed" and the "Progress" bar is colored green.
- (20) Select "Close" on the "Session Status Window" to close it.
- (21) Repeat from step (h) if loading another SW part or another LRU load target.
- (22) Do the initial setup: quick LRU config check via the data loader. Otherwise, skip these setup.
- (a) Select the "Get Information". Wait for the target to appear on the "TARGET LIST" window and the colored status block of the target is green.
- (b) Select a target displayed under "TARGET NAME".
- (c) Select the "CONTINUE" button. The Session Status Window (SSW) appears.
- (d) Wait until the Status shows "Complete".
- (e) Select "Show Report" on the SSW. The report (Notepad) screen is displayed.
- (f) Review the LRU config.
- (23) Select the "GO BACK" button to go back to the "PMAT 2000 MAIN MENU" page.
- (24) Return to the loaded LRU section Part C "Software Installation" and continue with the next step to complete the LRU loading session.

NOTE: Cross-loading the EFB is provided in the EFB section.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 211
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

ARO 011-999 POST SB2243800-31-27; AIRPLANES WITH TELEDYNE 2243800-362/-364 (Continued)

L. Put the Airplane Back to Its Usual Condition

SUBTASK 31-35-02-860-043

- (1) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	14	C31401	QUICK ACCESS RECORDER

SUBTASK 31-35-02-860-044

- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

————— **END OF TASK** —————

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81

TASK 31-35-02-800-801

6. WGL-QAR Verify and Set the bipolar_rate Parameter to AUTO

A. General

- (1) This task includes steps to manually verify and change the bipolar_rate parameter via the front panel buttons of the QAR unit. Change the bipolar_rate parameter to AUTO when using a Teledyne wireless QAR where the dataframe has a different rate than the rate set via the QAR program pin.

B. References

<u>Reference</u>	<u>Title</u>
24-22-00-860-805	Supply Electrical Power (P/B 201)
24-22-00-860-806	Remove Electrical Power (P/B 201)

C. Location Zones

<u>Zone</u>	<u>Area</u>
118	Main Equipment Center, Right

D. Prepare the QAR

SUBTASK 31-35-02-760-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-35-02-760-005

- (2) Make sure that this circuit breaker is closed:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	14	C31401	QUICK ACCESS RECORDER

E. Procedure

SUBTASK 31-35-02-800-001

- (1) Do these steps to view the current bipolar_rate parameter:
- Wait for the QAR to power on and for the front panel of the QAR to display "ILOff."
 - Press the MODE key. "SYSTEM STATE" will be displayed.
 - Press the + key until "CONFIG" is displayed. Press the SEL key.
 - Press the + key until "DISPLAY" is displayed. Press the SEL key.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 212
Jan 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81 (Continued)

- (e) Press the + key until the front panel displays the following:
bipolar_rate
[the current bipolar_rate parameter]

SUBTASK 31-35-02-860-038

- (2) Do these steps to change the bipolar_rate parameter to AUTO:
 - (a) Press the MODE key. "DISPLAY" will be displayed.
 - (b) Press the + key until "SET" is displayed. Press the SEL key.
 - (c) The front panel will display the following:
BoxId
[the unit serial number]
 - (d) Press the + key until the front panel displays the following:
bipolar_rate
[the current bipolar_rate parameter]
 - (e) Press the SEL key. The first character of the current bipolar_rate parameter will start to flash.
 - (f) Press the + or - key until the first character is changed to "A," and then press the SEL key again. The second character will start to flash. Continue to change the next three characters so that the first four characters say "AUTO."
 - NOTE: The bipolar_rate parameter change procedure can be aborted at any time by pressing the MODE key.
 - (g) Now that the first four characters say "AUTO," use the + or - key to change the fifth character to be a blank character. Press the SEL key.
NOTE: The blank character is between the "z" and "!" characters.
 - (h) The front panel display of the QAR will display the following:
+ Accept Change
- Discard Change
 - (i) Press the + key to accept the change. Press the MODE key. The front panel will display the following:
+ Apply Change
- Discard Change
 - (j) Press the + key to apply the change. The front panel will display "SYSTEM WILL NOW REBOOT."
 - (k) After the QAR comes on, make sure that the FAIL light on the front of the QAR is OFF.
 - (l) Press the MODE key. "SYSTEM STATE" will be displayed.
 - (m) Press the + key until "CONFIG" is displayed. Press the SEL key.
 - (n) Press the + key until "DISPLAY" is displayed. Press the SEL key.
 - (o) Press the + key until the front panel displays the following:
bipolar_rate
AUTO

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 213
Jan 05/2017



**777-200/300
AIRCRAFT MAINTENANCE MANUAL**

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81 (Continued)

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-35-02-800-002

- (1) Do these steps to display the system state on the front panel of the QAR:
 - (a) Press the MODE key until "CONFIG" is displayed.
 - (b) Press the + key until "SYSTEM STATE" is displayed. Press the SEL key to display the system state.

SUBTASK 31-35-02-760-006

- (2) Do this task: Remove Electrical Power, TASK 24-22-00-860-806.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-35-02

Page 214
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

QUICK ACCESS RECORDER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the quick access recorder (QAR)
- (2) An installation of the quick access recorder.
- (3) ACMF only outputs QAR data when the engines are running or airplane is in the air. The read_recen parameter (Run Control Enable) is not required.

TASK 31-35-02-000-803

2. Quick Access Recorder (QAR) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

<u>Reference</u>	<u>Title</u>
20-10-01-000-801	E/E Box Removal (P/B 401)
31-35-02-000-805	WGL-QAR Recording Media Removal (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
118	Main Equipment Center, Right

C. Removal Procedure

SUBTASK 31-35-02-710-024

- (1) Remove the recording media from the WGL-QAR. To remove it, do this task: WGL-QAR Recording Media Removal, TASK 31-35-02-000-805

SUBTASK 31-35-02-760-001

- (2) Open this circuit breaker and install safety tag:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	14	C31401	QUICK ACCESS RECORDER

SUBTASK 31-35-02-020-001



CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE QUICK ACCESS RECORDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE QUICK ACCESS RECORDER.

- (3) To remove the QUICK ACCESS RECORDER [1], do this task: E/E Box Removal, TASK 20-10-01-000-801.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

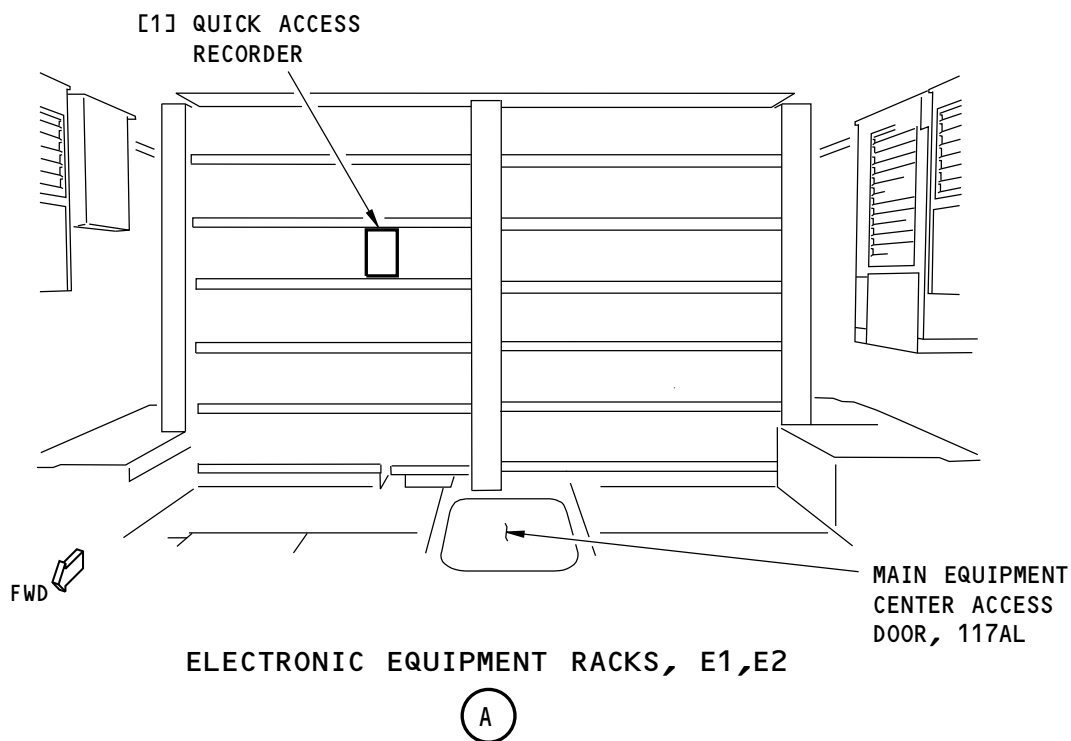
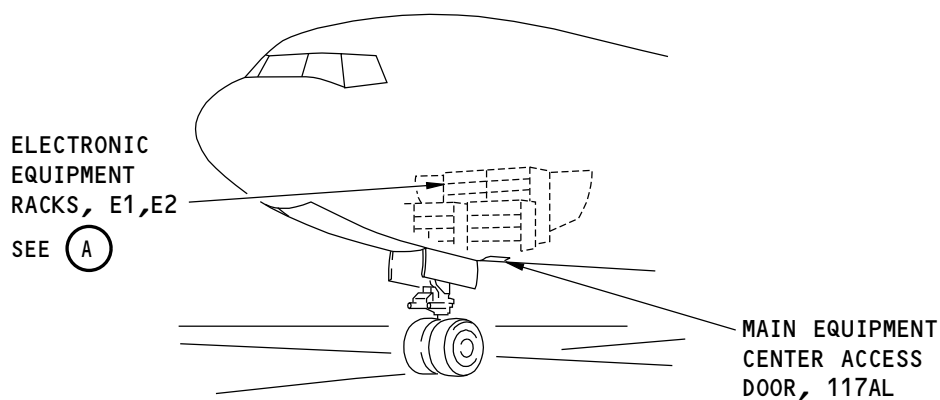
D633W101-ARO

31-35-02

Page 401
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL



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Quick Access Recorder Installation
Figure 401/31-35-02-990-801

EFFECTIVITY
ARO ALL

D633W101-ARO

31-35-02

Page 402
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-35-02-400-803

3. Quick Access Recorder (QAR) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

- A. This task provides the instructions on how to install the Quick Access Recorder (QAR) and how to set the basic operator configuration parameters.**

NOTE: Reference the QAR supplier operations guide for instructions on how to set operator specific configuration parameters.

B. References

Reference	Title
20-10-01-400-801	E/E Box Installation (P/B 401)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-35-02-400-805	WGL-QAR Recording Media Installation (P/B 201)
31-35-02-400-806	WGL-QAR Software Installation (P/B 201)
31-35-02-470-804	WGL-QAR Software Installation (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	QUICK ACCESS RECORDER	31-31-24-01-030	ARO 011-999
		31-35-50-41-010	ARO 001-010

D. Location Zones

Zone	Area
118	Main Equipment Center, Right

E. Installation Procedure

SUBTASK 31-35-02-760-002

- (1) Make sure that this circuit breaker is open and has safety tag:

Right Power Management Panel, P210

Row	Col	Number	Name
E	14	C31401	QUICK ACCESS RECORDER

SUBTASK 31-35-02-420-002



CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE QUICK ACCESS RECORDER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE QUICK ACCESS RECORDER.

- (2) To install the QUICK ACCESS RECORDER [1], do this task: E/E Box Installation, TASK 20-10-01-400-801.

SUBTASK 31-35-02-760-003

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

Right Power Management Panel, P210

Row	Col	Number	Name
E	14	C31401	QUICK ACCESS RECORDER

SUBTASK 31-35-02-860-019

- (4) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 403
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-35-02-710-025

- (5) Install the recording media in the WGL-QAR. To install it, do this task: WGL-QAR Recording Media Installation, TASK 31-35-02-400-805

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81

SUBTASK 31-35-02-860-032

- (6) Do these steps to set the time and date on the WQAR:
- (a) Push the MODE key to display WQAR MENU.
 - (b) Push the + or - keys until the DATE | TIME shows on the display.
 - (c) When DATE | TIME shows, push the SEL key.
 - (d) When DISPLAY shows, push SEL key.
 - (e) When the current system date display shows, push SEL key.
NOTE: The DATE|TIME will show on the display.
 - (f) Push the + key to show SET on the display.
 - 1) Use the SEL key to allow the calendar year to be modified.
 - 2) When the year field on the display is flashing, use the + or - keys to select the year.
 - (g) Push the SEL key to allow the calendar month to be modified.
 - 1) Use the + or - keys to select the month.
 - (h) Push the SEL key to allow the calendar day to be modified.
 - 1) Use the + or - keys to select the day.
 - (i) Push the SEL key to allow the hour to be modified.
 - 1) Use the + or - keys to select the hour.
 - (j) Push the SEL key to allow the minutes to be modified.
 - 1) Use the + or - keys to select the minutes.
 - (k) Push the SEL key to allow the seconds to be modified.
 - 1) Use the + or - keys to select the seconds.
 - (l) Push the SEL key to complete the entry of date and time.
NOTE: The WGL-QAR will automatically reboot and display the new date and time.

ARO 011-999; AIRPLANES WITH TELEDYNE 2243800-362/-364

SUBTASK 31-35-02-860-039

- (7) Do these steps to set the time and date on the WQAR:
- (a) Push the MODE key to display SYSTEM STATE.
 - (b) Push the + key until UNIT INFO shows on the display.
 - (c) When UNIT INFO shows, push the SEL key.
 - (d) When DATE | TIME shows, push the SEL key.
 - (e) When DISPLAY shows, push SEL key.
NOTE: The DATE|TIME will show on the display.
 - (f) Push the + key to show SET on the display.
 - 1) Use the SEL key to allow the calendar year to be modified.
 - 2) When the year field on the display is flashing, use the + or - keys to select the year.

EFFECTIVITY
ARO ALL

31-35-02

D633W101-ARO

Page 404
Jan 05/2017



**777-200/300
AIRCRAFT MAINTENANCE MANUAL**

ARO 011-999; AIRPLANES WITH TELEDYNE 2243800-362/-364 (Continued)

- (g) Push the SEL key to allow the calendar month to be modified.
 - 1) Use the + or - keys to select the month.
- (h) Push the SEL key to allow the calendar day to be modified.
 - 1) Use the + or - keys to select the day.
- (i) Push the SEL key to allow the hour to be modified.
 - 1) Use the + or - keys to select the hour.
- (j) Push the SEL key to allow the minutes to be modified.
 - 1) Use the + or - keys to select the minutes.
- (k) Push the SEL key to allow the seconds to be modified.
 - 1) Use the + or - keys to select the seconds.
- (l) Push the MODE key to complete the entry of date and time.
- (m) Push the + key to confirm the update.

NOTE: The WGL-QAR will automatically reboot and display the new date and time.

ARO 001-010; AIRPLANES WITH TELEDYNE 2243800-61/-73/-79/-81

SUBTASK 31-35-02-860-033

- (8) Do this to enter the aircraft tail number into the QAR:
 - (a) Push the MODE key to display WQAR MENU.
 - (b) Push the + or - keys until the CONFIG Menu shows on the display.
 - (c) When CONFIG Menu shows, push the SEL key.
 - (d) Push the + or - keys until SET is shows on the display and press the SEL key.
 - (e) Push the + or - keys until AircraftTailNum shows.
 - NOTE: The WQAR will display the first modifiable parameter with the parameter name on the top line and the current parameter value on the bottom line with the first character space blinking as a cursor.
 - (f) Push the SEL key to allow the AircraftTailNum to be modified.
 - (g) Do this to enter the aircraft tail number one character at a time:
 - 1) Push the + or - until the applicable alphanumeric character is displayed.
 - 2) Push the SEL key to select the character and move the cursor to the next character.
 - 3) Continue until all the aircraft tail number characters have been entered.
 - 4) Press the SEL key after the last character is entered.
 - 5) Push the SEL key until Accept Change displays and press the + key.
 - (h) Push the MODE key once to exit edit mode.
 - (i) Push + to apply the changes.

NOTE: The WGL-QAR will automatically reboot and the new AircraftTailNum value will be in effect.

ARO 011-999; AIRPLANES WITH TELEDYNE 2243800-362/-364

SUBTASK 31-35-02-860-040

- (9) Do this to enter the aircraft tail number into the WQAR:

EFFECTIVITY
ARO ALL

D633W101-ARO

31-35-02

Page 405
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 011-999; AIRPLANES WITH TELEDYNE 2243800-362/-364 (Continued)

- (a) Push the MODE key to display SYSTEM STATE.
- (b) Push the + or - keys until the display shows UNIT INFO.
- (c) Push the SEL key to display DATE | TIME.
- (d) Push the + or - keys until UPDATE TAIL NUMBER shows.
- (e) Push the SEL key to allow the aircraft tail number to be modified.
- (f) Do this to enter the aircraft tail number one character at a time:
 - 1) Push the + or - key until the applicable alphanumeric character is displayed.
 - 2) Push the SEL key to select the character and move the cursor to the next character.
 - 3) Continue until all the aircraft tail number characters have been entered.
- (g) Push the + or - key to display the <SPACE> character.
- (h) Press the SEL key.

NOTE: All characters after the <SPACE> character will be removed.
- (i) Push the + key to confirm the tail number changes.

NOTE: The WQAR will automatically reboot and the new aircraft tail number value will be in effect.

ARO 001-010

SUBTASK 31-35-02-710-026

- (10) Verify the software installed on the WQAR (TASK 31-35-02-470-804).

ARO 011-999 POST SB2243800-31-27

SUBTASK 31-35-02-710-027

- (11) Verify the software installed on the WQAR (TASK 31-35-02-400-806).

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-35-02

Page 406
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

AIRPLANE INFORMATION MANAGEMENT SYSTEM (AIMS) - MAINTENANCE PRACTICES

1. General

- A. This procedure has these tasks:
- (1) The removal of an AIMS line replaceable module (LRM).
 - (2) The installation of an AIMS line replaceable module (LRM).
- B. The AIMS line replaceable modules are in the left and right AIMS cabinets. The left AIMS cabinet is in the electronics equipment rack E3. the right AIMS cabinet is in the electronics equipment rack E2.

TASK 31-41-00-000-801

2. AIMS LRM Removal

(Figure 201 or Figure 202)

A. General

- (1) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.
NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.
- (2) A maintenance access terminal (MAT or PMAT) is necessary for this procedure. For instructions on how to use the MAT, do this task: How to Operate the MAT in the Flight Compartment, TASK 45-10-00-910-810.

B. References

Reference	Title
20-41-01-000-803	ESDS Handling for Metal Encased Unit Removal (P/B 201)
31-41-00-710-801	Airplane Information Management System (AIMS) - Operational Test (P/B 501)
45-10-00-910-810	How to Operate the MAT in the Flight Compartment (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-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 201
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

E. Removal Procedure

SUBTASK 31-41-00-710-015

(1) To manually keep the LRM BITE data from the left AIMS cabinet, do this step:

- (a) Use the MAT or PMAT to do the left AIMS Cabinet Reset Test, refer to TASK 31-41-00-710-801.

NOTE: If the AIMS Cabinet Reset Test is not performed, then important LRM BITE data needed for module fault troubleshooting may be lost.

SUBTASK 31-41-00-710-014

(2) To manually keep the LRM BITE data from the right AIMS cabinet, do this step:

- (a) Use the MAT or PMAT to do the right AIMS Cabinet Reset Test, refer to TASK 31-41-00-710-801.

NOTE: If the AIMS Cabinet Reset Test is not performed, then important LRM BITE data needed for module fault troubleshooting may be lost.

SUBTASK 31-41-00-860-014



DO NOT OPEN THE AIMS STANDBY-L OR THE AIMS STANDBY-R CIRCUIT BREAKERS ON THE STANDBY POWER MANAGEMENT PANEL, P310. IF YOU OPEN THESE CIRCUIT BREAKERS THE CONTENTS OF THE AIMS BATTERY-BACKED MEMORY WILL BE ERASED.

(3) To remove an LRM from the left AIMS cabinet, do this step:

- (a) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4

SUBTASK 31-41-00-860-015

(4) To remove an LRM from the right AIMS cabinet, do this step:

- (a) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

SUBTASK 31-41-00-910-001



DO NOT TOUCH THE LRM BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO LRM.

(5) Before you touch the LRM, do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-41-01-000-803.

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 202
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-00-020-001

- (6) To remove the LRM, do these steps:
- (a) Turn the knob on the front hold-down extractor counterclockwise until you can see the red band.
 - (b) Turn the latch counterclockwise to disengage the front hold-down extractor from the T-hook.
 - (c) Lower the front hold-down extractor to be clear of the T-hook.
 - (d) Pull the LRM carefully out of the AIMS cabinet.
 - (e) Put protective caps on the electrical connectors.

———— **END OF TASK** ————

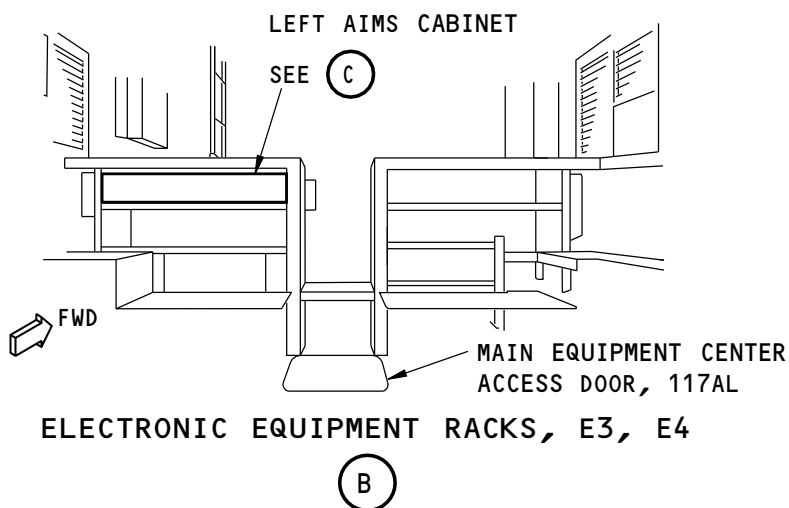
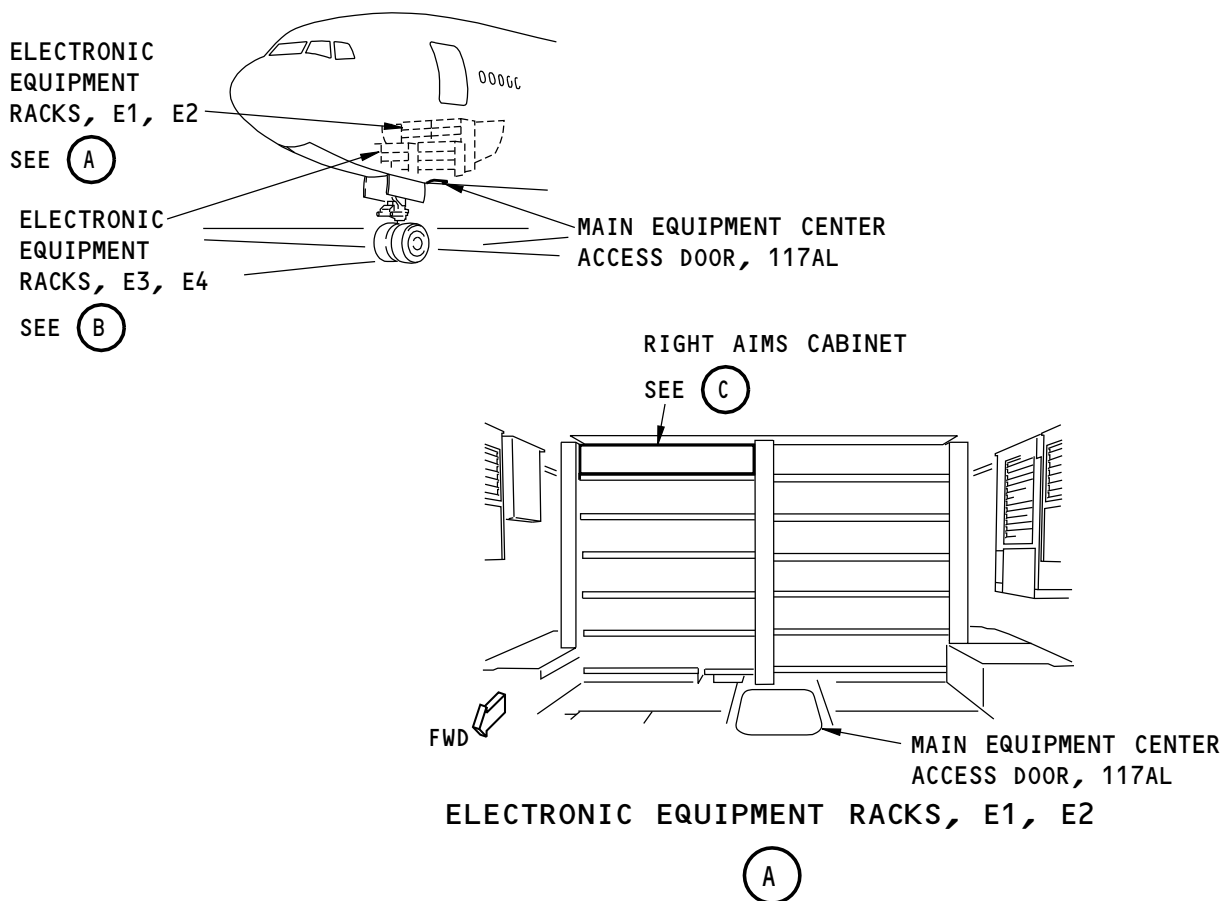
EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-00

Page 203
Sep 05/2017

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



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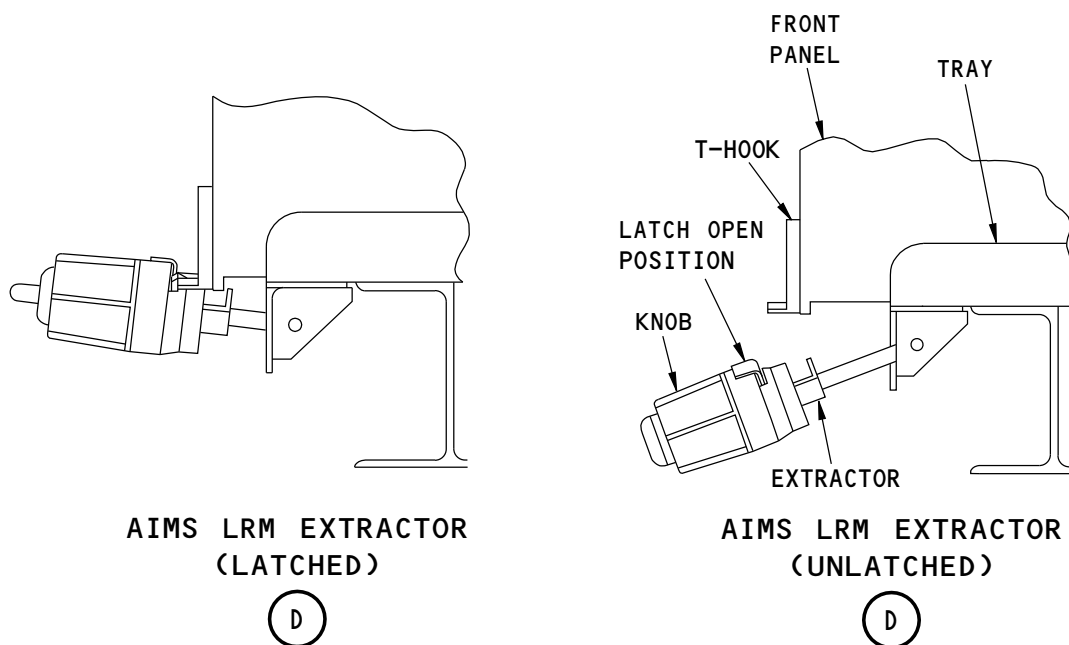
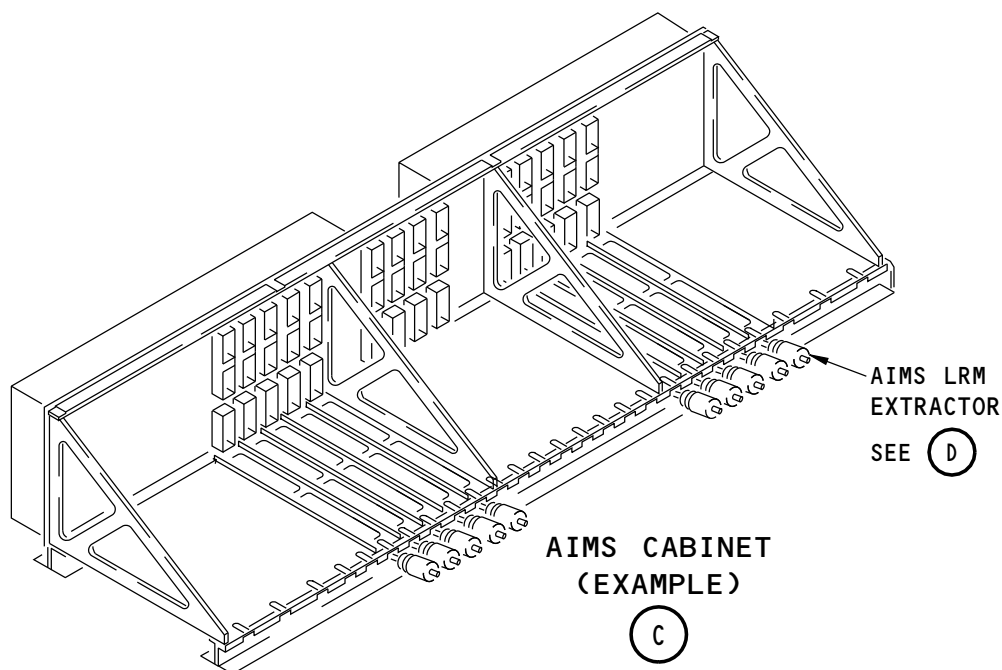
**Airplane Information Management System Installation
Figure 201/31-41-00-990-801**

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 204
Jan 05/2015



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**Airplane Information Management System Installation
Figure 202/31-41-00-990-802**

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 205
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

TASK 31-41-00-400-801

3. **AIMS LRM Installation**

(Figure 201 or Figure 202)

A. References

Reference	Title
20-41-01-400-803	ESDS Handling for Metal Encased Unit Installation (P/B 201)

B. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right

C. Installation Procedure

SUBTASK 31-41-00-860-016



CAUTION

DO NOT OPEN THE LEFT AND RIGHT AIMS CIRCUIT BREAKERS ON THE P310 STANDBY POWER MANAGEMENT PANEL. THESE CIRCUIT BREAKERS PROVIDE THE 28 VOLTS DC HOT BATTERY BUS POWER TO THE AIMS CABINETS. IF THIS POWER IS REMOVED THE CONTENTS OF THE AIMS BATTERY-BACKED MEMORY WILL BE ERASED.

- (1) If you will install an LRM in the left AIMS cabinet, do this step:
 - (a) Make sure that these circuit breakers are open and have safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4

SUBTASK 31-41-00-860-017

- (2) If you will install an LRM in the right AIMS cabinet, do this step:
 - (a) Make sure that these circuit breakers are open and have safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

SUBTASK 31-41-00-910-002



CAUTION

DO NOT TOUCH THE LRM BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE LRMS.

- (3) Before you touch the LRM, do this task: ESDS Handling for Metal Encased Unit Installation, TASK 20-41-01-400-803.

SUBTASK 31-41-00-420-002

- (4) To install the LRM, do these steps:

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 206
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (a) Remove the protective caps from the electrical connectors.
- (b) Examine the electrical connectors for bent or broken pins, dirt, and damage.
- (c) Examine the AIMS cabinet electrical connectors for blockage.
- (d) Push the LRM carefully into the opening in the AIMS cabinet and engage the electrical connector.
- (e) Align the front hold-down extractor with the T-hook.
- (f) Put the extractor on the T-hook and turn the latch clockwise.
- (g) Turn the knob on the front hold-down extractor clockwise until you can not see the red band and the clutch engages.
- (h) Tighten the extractor

SUBTASK 31-41-00-860-018

- (5) If you installed an LRM in the left AIMS cabinet, do this step:
 - (a) Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4

SUBTASK 31-41-00-860-019

- (6) If you installed an LRM in the right AIMS cabinet, do this step:
 - (a) Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 207
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

AIRPLANE INFORMATION MANAGEMENT SYSTEM (AIMS) - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) An operational test of the airplane information management system (AIMS).
 - (2) A system test of the airplane information management system (AIMS).

TASK 31-41-00-710-801

2. Airplane Information Management System (AIMS) - Operational Test

A. General

- (1) This procedure uses the AIMS cabinet reset test to make sure the left and right AIMS cabinets are operational. This procedure does not do a software configuration check.
- (2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (3) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (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-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Prepare for the Test

SUBTASK 31-41-00-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 501
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-00-860-005

- (2) On a maintenance access terminal (MAT), select ONBOARD MAINTENANCE.

SUBTASK 31-41-00-860-006

- (3) Use the MAT to put the right CMCF in control:
 - (a) Make these selections on the MAT:
 - 1) OTHER FUNCTIONS
 - 2) CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL
 - (b) If the MAT shows RIGHT CENTRAL MAINTENANCE COMPUTER IS IN CONTROL, select GO BACK.
 - (c) If the MAT shows LEFT CENTRAL MAINTENANCE COMPUTER IS IN CONTROL, make these selections:
 - 1) SWITCH TO RIGHT
 - 2) YES
 - 3) CONTINUE
 - (d) On the MATA AIMS Main Menu, select Interface R_AIMS.

F. Left AIMS Cabinet Status Test

SUBTASK 31-41-00-710-013

- (1) Use the PMAT to do the left AIMS cabinet reset test:
 - (a) Make these selections on the PMAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 AIMS - Left AIMS
 - 5) SYSTEM TEST
 - 6) Left AIMS Cabinet Reset
 - 7) CONTINUE
 - (b) Do the instructions that show on the PMAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST

NOTE: The test can take up to 2- 3 minutes to complete.
 - (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the PMAT.
 - (d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

G. Right AIMS Cabinet Status Test

SUBTASK 31-41-00-860-007

- (1) Use the MAT to put the left CMCF in control:
 - (a) Make these selections on the MAT:
 - 1) OTHER FUNCTIONS
 - 2) CENTRAL MAINTENANCE SOURCE SWITCHING

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-00

Page 502
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 3) SWITCH TO LEFT
- 4) YES
- 5) CONTINUE

(b) On the MATA AIMS Main Menu, select Interface L_AIMS.

SUBTASK 31-41-00-710-002

(2) Use the MAT to do the right AIMS cabinet reset test:

(a) Make these selections on the MAT:

- 1) ONBOARD MAINTENANCE
- 2) LINE MAINTENANCE
- 3) GROUND TESTS
- 4) 31 AIMS - Right AIMS
- 5) SYSTEM TEST
- 6) Right AIMS Cabinet Reset
- 7) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

- 1) CONTINUE
- 2) START TEST

NOTE: The test can take up to 2- 3 minutes to complete.

- (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 31-41-00-860-008

(1) Make these selections to show the initial MAT menu again:

- (a) LINE MAINTENANCE
- (b) EXIT MAINTENANCE

————— END OF TASK —————

TASK 31-41-00-730-801

3. Airplane Information Management System (AIMS) - System Test

A. General

(1) The AIMS system test is a group of AIMS component functional tests.

B. References

Reference	Title
22-31-00-730-801	Thrust Management Computing System - System Test (P/B 501)
23-27-00-740-801	Data Communications Management Function - System Test (P/B 501)
31-31-00-730-801	Flight Data Recorder System - System Test (P/B 501)
31-35-00-730-801	Airplane Condition Monitoring System - System Test (P/B 501)

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 503
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Title
31-61-00-730-801	Primary Display System - System Test (P/B 501)
34-61-00-730-801	Flight Management Computing System - System Test (P/B 501)
45-10-00-710-801	Central Maintenance Computing System (CMCS) - Operational Test (P/B 501)

C. Airplane Information Management System (AIMS) - System Test

SUBTASK 31-41-00-710-003

- (1) Do this task: Thrust Management Computing System - System Test, TASK 22-31-00-730-801.

SUBTASK 31-41-00-710-004

- (2) Do this task: Data Communications Management Function - System Test, TASK 23-27-00-740-801.

SUBTASK 31-41-00-710-005

- (3) Do this task: Flight Data Recorder System - System Test, TASK 31-31-00-730-801.

SUBTASK 31-41-00-710-006

- (4) Do this task: Airplane Condition Monitoring System - System Test, TASK 31-35-00-730-801.

SUBTASK 31-41-00-710-007

- (5) Do this task: Primary Display System - System Test, TASK 31-61-00-730-801.

SUBTASK 31-41-00-710-008

- (6) Do this task: Flight Management Computing System - System Test, TASK 34-61-00-730-801.

SUBTASK 31-41-00-710-009

- (7) Do this task: Central Maintenance Computing System (CMCS) - Operational Test, TASK 45-10-00-710-801.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 504
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

AIRPLANE INFORMATION MANAGEMENT SYSTEM - INSPECTION/CHECK

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has this task:
 - (1) An airplane information management system (AIMS) loss of redundancy check.

TASK 31-41-00-710-803

2. AIMS Loss of LRM Redundancy - Check

NOTE: This procedure is a scheduled maintenance task.

A. **General**

- (1) This procedure makes sure that the airplane information management system (AIMS) does not have a loss of line replaceable module (LRM) redundancy.

B. **References**

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-00-800-815	Showing Scheduled Maintenance Tasks (P/B 201)
45-10-00-740-806	How to Find Maintenance Messages Correlated to Scheduled Maintenance Tasks (P/B 201)

C. **Location Zones**

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. **Procedure**

SUBTASK 31-41-00-860-012

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-00-710-011

- (2) Make sure the system maintenance task (SMT) AIMS CABINET LRM does not show on the 31 Maintenance Task page. To do this check, do this task: Showing Scheduled Maintenance Tasks, TASK 31-61-00-800-815.

SUBTASK 31-41-00-710-012

- (3) If the SMT shows, then do these steps:
 - (a) To find the correlated maintenance message, do this task: How to Find Maintenance Messages Correlated to Scheduled Maintenance Tasks, TASK 45-10-00-740-806.
 - (b) Do the specified fault isolation task for the maintenance message.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-41-00

D633W101-ARO

Page 601
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

CORE PROCESSOR MODULE/GRAPHICS GENERATOR - MAINTENANCE PRACTICES

1. General

A. This procedure has this task:

- (1) A software installation procedure for the core processor module/graphics generator (CPM/GG) or a software installation procedure for the core processor module/graphics generator (CPM/GG) and other AIMS LRMs.

TASK 31-41-02-420-804

2. Core Processor Module/GG Software Installation

A. General

- (1) This procedure tells you how to install software in the core processor module/GG (CPM/GG). The CPM/GG must contain these pieces of software:
 - (a) The following names of software parts loaded into a CPM/GG module are used in the IPC to identify the specific software part numbers required for a particular aircraft tail number.
 - NRB OPS
 - CPM/GG OPS
 - FDO/SWAT DB
 - CHECKLIST BOEING DB
 - CHECKLIST AIRLINE DB2
 - CPM/GG DU DB
 - AIMS OPC
 - CHECKLIST AIRLINE DB1Using the name, the specific software part number for an aircraft can be identified in the IPC.
 - (b) The same eight software part numbers should be in all CPM/GG modules.
- (2) You should add ALL of the software part numbers that are required for each and every module to be loaded in a single START.

NOTE: If software is installed one at a time, then you should install the NRB OPS and the CPM/GG OPS in the first load session, followed by the other parts for the module in any order.
- (3) Make sure you have all the correct software for this module.
- (4) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (5) If you do not know if the CPM/GG needs new software, you can first do the software configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the software configuration check in this task: Core Processor Module/Graphics Generator (CPM/GG) Installation, TASK 31-41-02-400-801.
- (6) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

EFFECTIVITY
ARO ALL

31-41-02

D633W101-ARO

Page 201
Jan 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (7) You can install the software from compact disks (CD), Mass Storage Device (MSD), the MAT hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. Direct installation from the Floppy Disk Drive is not recommended. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.

NOTE: When new software is installed in the CPM/GG, the load process first erases the old software and then installs the new software. If you install software directly to the CPM/GG from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the CPM/GG.

- (a) It is recommended that you remove old software part numbers from the MAT or PMAT hard drive after new software is installed. To remove software from the hard drive, do this task: How to Remove Software from the Hard Drive, TASK 45-10-00-860-813.
- (8) The airplane must be on the ground with the engines off before you can install software.
- (9) To read about the conditions and times necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (10) If software installation fails, then it is recommended to exit the data load screen on the MAT/PMAT/LMAT (back to the Onboard Maintenance screen) and wait 5 minutes to allow the module/system to reboot. After waiting the appropriate amount of time, a software installation retry should then be performed.
- (11) If you have a failure after retry of the software installation and one of the Maintenance Messages (below) is displayed for the module being data loaded, you must open and close the applicable circuit breakers for the applicable AIMS cabinet. Then do the software installation procedure.

CMC/EICAS Maintenance Message:

- (a) CPM/GG(M010) in Left AIMS has no output on the AIMS Backplane.
- (b) CPM/GG(M010) in Right AIMS has no output on the AIMS Backplane.
- (c) CPM/GG(M011) in Left AIMS has no output on the AIMS Backplane.
- (d) CPM/GG(M011) in Right AIMS has no output on the AIMS Backplane.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-02-400-801	Core Processor Module/Graphics Generator (CPM/GG) Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
45-10-00-860-813	How to Remove Software from the Hard Drive (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.

EFFECTIVITY
ARO ALL

31-41-02

D633W101-ARO

Page 202
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Reference	Description
SPL-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 31-41-02-860-026

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-02-420-013

- (2) Make this selection on the MAT or PMAT to start the maintenance session and identify the active CMCF channel:

- (a) ONBOARD MAINTENANCE

NOTE: It is recommended that the active CMCF function is in the opposite AIMS cabinet (the off-side cabinet) where the data load will occur.

SUBTASK 31-41-02-420-014

- (3) If the display shows that the on-side CMCF is in control, then do these steps:

- (a) Make these selections on the MAT or PMAT to put the off-side CMCF in control:
- 1) OTHER FUNCTIONS
 - 2) CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL
 - 3) SWITCH TO RIGHT(LEFT)

SUBTASK 31-41-02-470-016

- (4) Make these selections on the MAT or PMAT to prepare the data loader for operation:

- (a) EXTENDED MAINTENANCE
(b) DATA LOAD

NOTE: This shows the Data Load Main Menu.

SUBTASK 31-41-02-470-017

- (5) Make these selections to identify the LRM that will receive the software:

NOTE: The following steps are for normal loading.

- (a) SELECT DESTINATION
(b) 31 AIMS - LEFT(RIGHT) AIMS
(c) CPM/GG (M010) or CPM/GG (M011) in LEFT(RIGHT) AIMS
(d) ADD

NOTE: The selected LRM will show in the third window

- (e) You can select another LRM and select ADD

NOTE: You can repeat these steps until all the destinations that need software loading show in the third window.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-02

Page 203
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-02-470-018

- (6) If you complete adding the LRM, select CONTINUE to go back to the data load main display.

SUBTASK 31-41-02-470-019

- (7) Make these selections to identify the source of the software you will install:

- (a) SELECT SOURCE
- (b) Select the device that will install software (CD drive, MSD or hard drive).
- (c) Select the correct software part number from the display.
- (d) Select ADD.

NOTE: The part number and the source will show in the new window.

- (e) You can select another software part number and select ADD

- 1) If a NRB OPS or CPM/GG OPS load is necessary, make sure that the NRB OPS and the CPM/GG OPS are at the top of the software load list.

NOTE: The NRB OPS and CPM/GG OPS need to be loaded together.

- 2) Add all software part numbers necessary for the LRM load.

SUBTASK 31-41-02-470-022

- (8) Make sure all the software part numbers that need to be loaded show in the window.

SUBTASK 31-41-02-470-023

- (9) If you added more than one destination, select each destination and add the necessary software for that destination.

SUBTASK 31-41-02-470-020

- (10) If you complete adding the software part number, select CONTINUE to go back to the data load main display.

SUBTASK 31-41-02-470-021

- (11) Select START from the data load main display to start the data loading.

- (a) Make sure the MAT or PMAT shows the load progress activity indication "Data Load Percent Complete" slider bar.
- (b) When the software installation is complete, select the "SHOW STATUS" to confirm that the software installation is complete or failed.

NOTE: Make sure the correct destination LRU and software part number show on the display.

- (c) Select CONTINUE to show the Data Load Main Menu display.

NOTE: After a data load is completed, the Data Load Main Menu display will be blank until you select a destination module.

SUBTASK 31-41-02-860-027

- (12) When you have completed loading software in the AIMS cabinet, select ONBOARD MAINTENANCE to put the LRM and AIMS cabinet in their usual condition.

NOTE: Each AIMS-2 LRM automatically initializes after you have completed loading the software.



777-200/300
AIRCRAFT MAINTENANCE MANUAL



CAUTION

DO NOT OPEN THE AIMS STANDBY-L OR THE AIMS STANDBY-R CIRCUIT BREAKERS ON THE STANDBY POWER MANAGEMENT PANEL, P310. IF YOU OPEN THESE CIRCUIT BREAKERS THE CONTENTS OF THE AIMS BATTERY-BACKED MEMORY WILL BE ERASED.

- (a) Open and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-02

Page 205
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

CORE PROCESSOR MODULE/GRAPHICS GENERATOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of a core processor module/graphics generator (CPM/GG).
 - (2) An installation of a CPM/GG, which includes a software check and an installation test.
- B. There are four CPM/GGs. There are two CPM/GGs (M10 and M11) in the left AIMS cabinet and two CPM/GGs (M10 and M11) in the right AIMS cabinet. The AIMS cabinets are in the main equipment center. The left AIMS cabinet is on the electronic equipment rack E3, shelf No. 1. The right AIMS cabinet is on the electronic equipment rack E2, shelf No. 1.
- C. The CPM/GG has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the CPM/GG. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the CPM/GG.
- D. The functions in the CPM/GG are: data conversion gateway and primary display.

TASK 31-41-02-000-801

2. Core Processor Module/Graphics Generator (CPM/GG) Removal

NOTE: (Figure 401)

NOTE: (Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
31-41-00-000-801	AIMS LRM Removal (P/B 201)

B. **Location Zones**

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

C. **Removal Procedure**

SUBTASK 31-41-02-020-001

- (1) To remove the CPM/GG [1], do this task: AIMS LRM Removal, TASK 31-41-00-000-801.

NOTE: The CPM/GG has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the CPM/GG. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the CPM/GG.

SUBTASK 31-41-02-550-001

- (2) Put a protective cover on the electrical connector.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

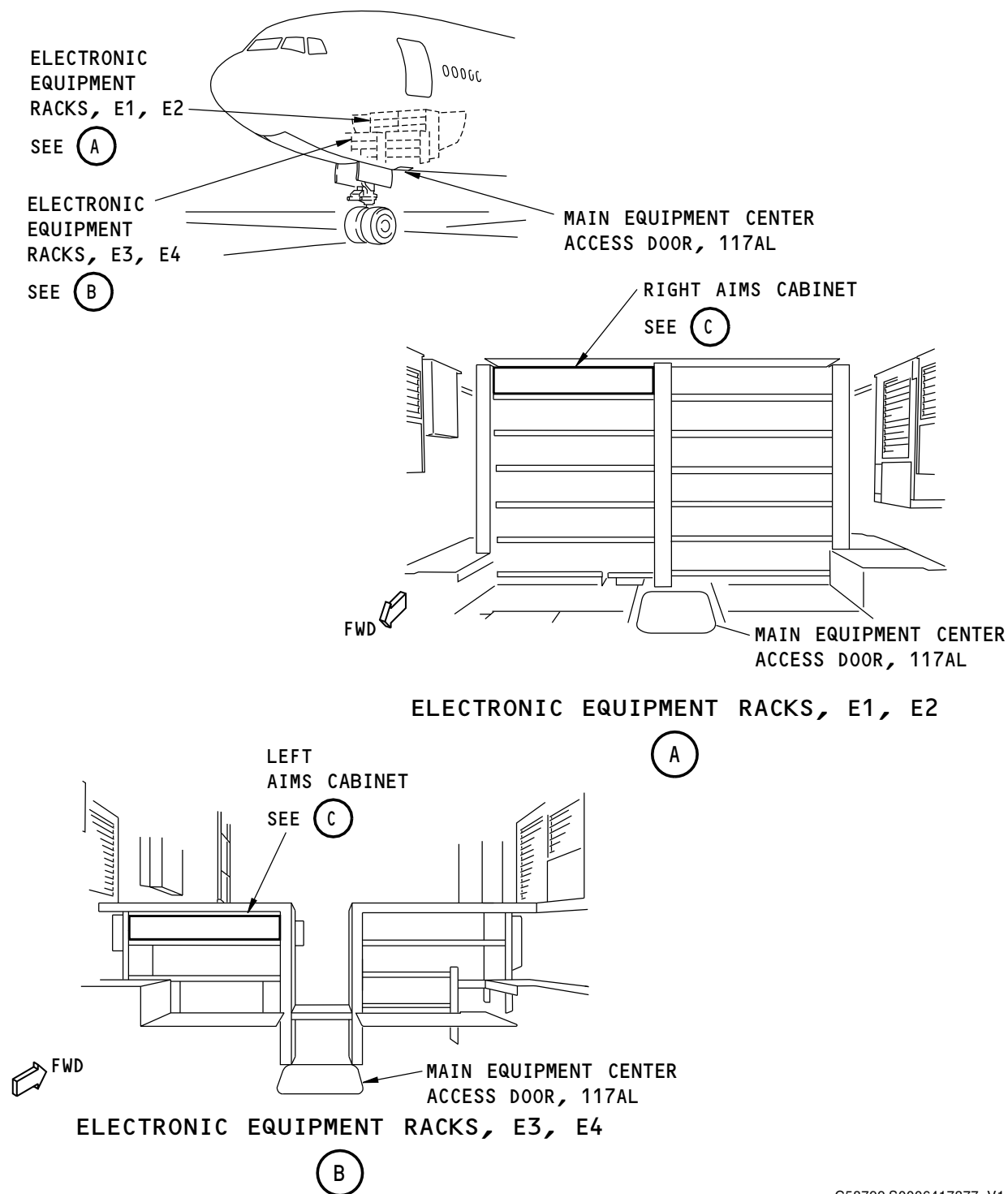
D633W101-ARO

31-41-02

Page 401
May 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



C58799 S0006417377_V1

Core Processor Module/Graphics Generator Installation
Figure 401/31-41-02-990-801

EFFECTIVITY
ARO ALL

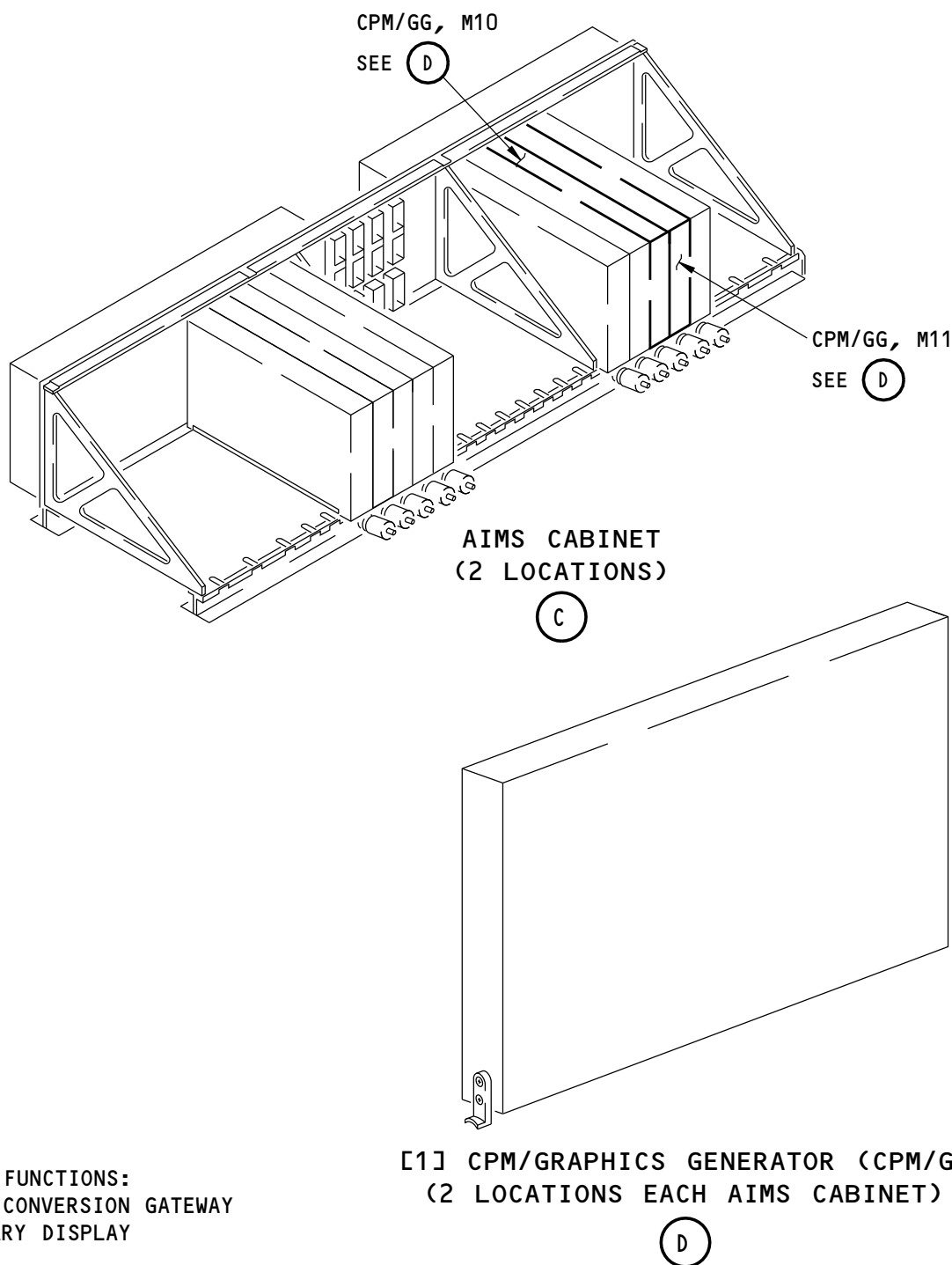
31-41-02

D633W101-ARO

Page 402
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



- CPM/GG FUNCTIONS:
- DATA CONVERSION GATEWAY
 - PRIMARY DISPLAY

M94064 S0006417380_V1

Core Processor Module/Graphics Generator Installation
Figure 402/31-41-02-990-802

EFFECTIVITY
ARO ALL

31-41-02

D633W101-ARO

Page 403
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-41-02-400-801

3. Core Processor Module/Graphics Generator (CPM/GG) Installation

NOTE: (Figure 401)

NOTE: (Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation procedure includes an installation test. The installation test makes sure that the CPM/GG is connected and serviceable.
- (2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-00-400-801	AIMS LRM Installation (P/B 201)
31-41-02-420-804	Core Processor Module/GG Software Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	CPM/GG	25-17-01-32-050	ARO ALL
		25-71-91-50A-025	ARO ALL

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-41-02-420-001

- (1) To install the CPM/GG [1], do this task: AIMS LRM Installation, TASK 31-41-00-400-801.

F. Installation Test

SUBTASK 31-41-02-860-005

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-02-750-004

- (2) Use a maintenance access terminal (MAT) to do a software configuration check of the CPM/GG you installed:

NOTE: Make sure you know the correct software part numbers for the CPM/GG when you look at the software part numbers on the display. For the CPM/GG to be an approved installation, the correct software part numbers must be installed.

- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE

EFFECTIVITY
ARO ALL

31-41-02

D633W101-ARO

Page 404
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 3) SYSTEM CONFIGURATION
 - 4) 31 AIMS - Left (Right) AIMS
 - 5) CONTINUE
- (b) Find the CPM/GG on the display and make sure that the software part numbers are correct.

NOTE: If the System Configuration shows: "CONFIG DATA NOT AVAILABLE. LRU DOES NOT GIVE A REPLY" and a new Maintenance Message in Existing Faults for the installed module indicates "NO OUTPUT ON THE AIMS BACKPLANE", then you will need to install the correct OPS part number for the CPM/GG.

- (c) Select GO BACK.
- (d) If the software part numbers for the CPM/GG you installed are incorrect or if the System Configuration and Existing Faults show the messages as indicated above, then, do this task: Core Processor Module/GG Software Installation, TASK 31-41-02-420-804.

SUBTASK 31-41-02-740-001

- (3) Use a maintenance access terminal (MAT) to do the system test of the CPM/GG you installed:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 AIMS - Left (Right) AIMS
 - 5) SYSTEM TEST
 - (b) Select the test for the CPM/GG:
 - 1) CPM/GG(M010) in Left (Right) AIMS Module Reset
 - 2) CPM/GG(M011) in Left (Right) AIMS Module Reset
 - (c) Select CONTINUE.
 - (d) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST
 - (e) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
 - (f) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-41-02

D633W101-ARO

Page 405
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

CORE PROCESSOR MODULE/COMMUNICATION - MAINTENANCE PRACTICES

1. General

A. This procedure has this task:

- (1) A software installation procedure for the core processor module/communication (CPM/COMM) or a software installation procedure for the core processor module/communication (CPM/COMM) and other AIMS LRMs.

TASK 31-41-04-420-804

2. Core Processor Module/COMM Software Installation

A. General

- (1) This procedure tells you how to install software in the Core Processor Module/COMM (CPM/COMM). The CPM/COMM must contain these pieces of software:
 - (a) The following names of software parts loaded into a CPM/COMM module are used in the IPC to identify the specific software part numbers required for a particular aircraft tail number.
 - NP OPS
 - NRB OPS
 - CPM/COMM OPS
 - AIMS OPC
 - DCMF AMI
 - FDCF AMI
 - FDO/SWAT DB

ARO ALL; AIMS BP V17(17.1) AND ATN OPC ENABLED

- ATC DATABASE
- (b) The same software part numbers should be in both CPM/COM modules.

ARO ALL

- (2) You should add ALL of the software part numbers that are required for each and every module to be loaded in a single START.

NOTE: If software is installed one at a time, then you should install the NP OPS in the first load session, NRB OPS and CPM/COMM OPS in the second load session, followed by the other parts for the module in any order.
- (3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (4) If you do not know if the CPM/COMM needs new software, you can first do the software configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the software configuration check in this task: Core Processor Module/Communication (CPM/Comm) Installation, TASK 31-41-04-400-802.
- (5) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

EFFECTIVITY
ARO ALL

31-41-04

D633W101-ARO

Page 201
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (6) You can install the software from compact disks (CD), Mass Storage Device (MSD), the MAT hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. Direct installation from the Floppy Disk Drive is not recommended. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.

NOTE: When new software is installed in the CPM/COMM, the load process first erases the old software and then installs the new software. If you install software directly to the CPM/COMM from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the CPM/COMM.

- (a) It is recommended that you remove old software part numbers from the MAT or PMAT hard drive after new software is installed. To remove software from the hard drive, do this task: How to Remove Software from the Hard Drive, TASK 45-10-00-860-813.
- (7) The airplane must be on the ground with the engines off before you can install software.
- (8) To read about the conditions and times necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (9) If software installation fails, then it is recommended to exit the data load screen on the MAT/PMAT/LMAT (back to the Onboard Maintenance screen) and wait 5 minutes to allow the module/system to reboot. After waiting the appropriate amount of time, a software installation retry should then be performed.
- (10) If you have a failure after retry of the software installation and one of the Maintenance Messages (below) is displayed for the module being data loaded, you must open and close the applicable circuit breakers for the applicable AIMS cabinet. Then do the software installation procedure.

CMC/EICAS Maintenance Message:

- (a) CPM/Comm(M001) in Left AIMS has no output on the AIMS Backplane.
- (b) CPM/Comm(M001) in Right AIMS has no output on the AIMS Backplane.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-04-400-802	Core Processor Module/Communication (CPM/Comm) Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
45-10-00-860-813	How to Remove Software from the Hard Drive (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.

EFFECTIVITY
ARO ALL

31-41-04

D633W101-ARO

Page 202
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Reference	Description
SPL-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 31-41-04-860-031

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-04-420-020

- (2) Make this selection on the MAT or PMAT to start the maintenance session and identify the active CMCF channel:

- (a) ONBOARD MAINTENANCE

NOTE: It is recommended that the active CMCF function is in the opposite AIMS cabinet (the off-side cabinet) where the data load will occur.

SUBTASK 31-41-04-420-021

- (3) If the display shows that the on-side CMCF is in control, then do these steps:

- (a) Make these selections on the MAT or PMAT to put the off-side CMCF in control:
- 1) OTHER FUNCTIONS
 - 2) CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL
 - 3) SWITCH TO RIGHT(LEFT)

SUBTASK 31-41-04-470-016

- (4) Make these selections on the MAT or PMAT to prepare the data loader for operation:

- (a) EXTENDED MAINTENANCE
(b) DATA LOAD

NOTE: This shows the Data Load Main Menu.

SUBTASK 31-41-04-470-017

- (5) Make these selections to identify the LRM that will receive the software:

NOTE: The following steps are for the normal loading.

- (a) SELECT DESTINATION
(b) 31 AIMS - LEFT(RIGHT) AIMS
(c) CPM/COMM(M1) in LEFT(RIGHT) AIMS
(d) ADD

NOTE: The selected LRM will show in the third window



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (e) You can select another LRM and select ADD

NOTE: You can repeat these steps until all the destinations that need software loading show in the third window.

NOTE: If you need to load the NP OPS, you need to select the destination CPM/COMM NP to load the NP OPS.

SUBTASK 31-41-04-470-018

- (6) If you are done adding the LRM, select CONTINUE to go back to the data load main display.

SUBTASK 31-41-04-470-019

- (7) Make these selections to identify the source of the software you will install:

- (a) SELECT SOURCE
- (b) Select the device that will install software (CD drive, MSD or hard drive).
- (c) Select the correct software part number from the display.
- (d) Select ADD.

NOTE: The part number and the source will show in the new window

- (e) You can select another software part number and select ADD

- 1) If a NRB OPS or CPM/COMM OPS load is necessary, make sure that the NRB OPS and the CPM/COMM OPS are at the top of the software load list.

NOTE: The NRB OPS and CPM/COMM OPS need to be loaded together.

- 2) Add all software part numbers necessary for the LRM load.

SUBTASK 31-41-04-470-022

- (8) Make sure all the software part numbers that need to be loaded show in the window for the each selected destinations.

SUBTASK 31-41-04-470-023

- (9) If you added more than one destination, select each destination and add the necessary software for that destination.

NOTE: The NP OPS needs to be loaded to the CPM/COMM NP destination.

SUBTASK 31-41-04-470-020

- (10) If you are done adding the software part number, select CONTINUE to go back to the data load main display.

SUBTASK 31-41-04-470-021

- (11) Select START from the data load main display to start the data loading.

- (a) Make sure the MAT or PMAT shows the load progress activity indication "Data Load Percent Complete" slider bar.

NOTE: If you installed the NP OPS only, wait 3 minutes for the power-up test to complete.

- (b) When the software installation is complete, select the "SHOW STATUS" to confirm that the software installation is complete or failed.

NOTE: Make sure the correct destination LRU and software part number show on the display.

- (c) Select CONTINUE to show the Data Load Main Menu display.

NOTE: After a data load is completed, the Data Load Main Menu display will be blank until you select a destination module.

777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-04-860-032

- (12) When you have completed loading software in the AIMS cabinet, select ONBOARD MAINTENANCE to put the LRM and AIMS cabinet in their usual condition.



CAUTION

DO NOT OPEN THE AIMS STANDBY-L OR THE AIMS STANDBY-R CIRCUIT BREAKERS ON THE STANDBY POWER MANAGEMENT PANEL, P310. IF YOU OPEN THESE CIRCUIT BREAKERS THE CONTENTS OF THE AIMS BATTERY-BACKED MEMORY WILL BE ERASED.

- (a) Open and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

SUBTASK 31-41-04-860-033

- (13) Enter the airplane tail number on the System Information page to establish Controller-Pilot Data Link Communications (CPDLC).

- (a) Make these selections on the MFD to access the System Information page.
- 1) Press COMM on the DSP to display the FDCF MAIN MENU on the MFD.
 - 2) Press MANAGER on the FDCF MAIN MENU to display the FDCF MANAGER MENU.
 - 3) Press SYSTEM INFORMATION on the FDCF MANAGER MENU to display the SYSTEM INFORMATION Sub-menu.
- (b) Enter the airplane tail number.

NOTE: The tail number is lost and needs to be re-entered to re-establish CPDLC if the AIMS L or AIMS R circuit breakers are cycled, the AIMS CPM/COMM module is e-racked, new CMCf AMI software is loaded, or new COMM software is loaded. The Tail Number must be entered before engine start, since the field is inhibited after engine start.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-41-04

D633W101-ARO

Page 205
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

CORE PROCESSOR MODULE/COMMUNICATION - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of a core processor module/communication (CPM/Comm).
 - (2) An installation of a CPM/Comm, which includes a software check and an installation test.
- B. There are two CPM/Comms. There is one CPM/Comm (M1) in the left AIMS cabinet and one CPM/Comm (M1) in the right AIMS cabinet. The AIMS cabinets are in the main equipment center. The left AIMS cabinet is on the electronic equipment rack E3, shelf No. 1. The right AIMS cabinet is on the electronic equipment rack E2, shelf No. 1.
- C. The CPM/Comm has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the CPM/Comm. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the CPM/Comm.
- D. The functions in the CPM/Comms are: central maintenance computing, data communication management, data conversion gateway, data load gateway, digital flight data acquisition, and engine data interface.

TASK 31-41-04-000-802

2. Core Processor Module/Communication (CPM/Comm) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
31-41-00-000-801	AIMS LRM Removal (P/B 201)

B. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Removal Procedure

SUBTASK 31-41-04-020-002

- (1) To remove the CPM/Comm [1] in the AIMS cabinet, do this task: AIMS LRM Removal, TASK 31-41-00-000-801.

NOTE: The CPM/Comm has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the CPM/Comm. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the CPM/Comm.

SUBTASK 31-41-04-550-003

- (2) Put a protective cover on the electrical connector.

————— **END OF TASK** —————

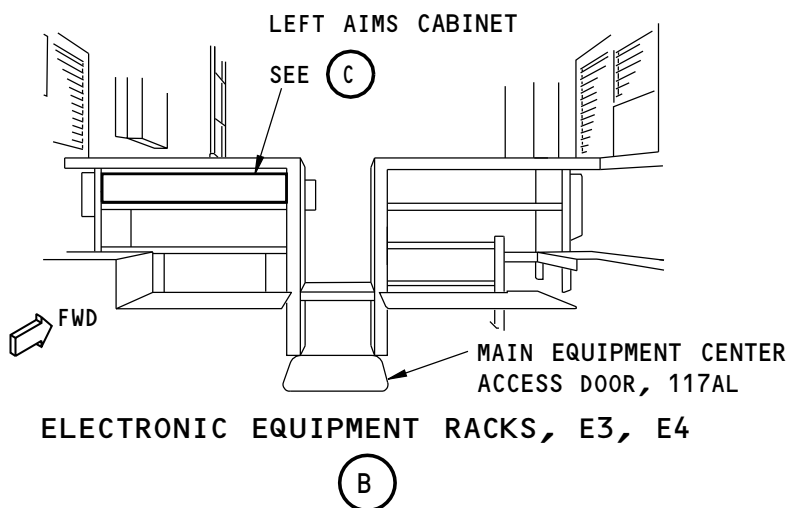
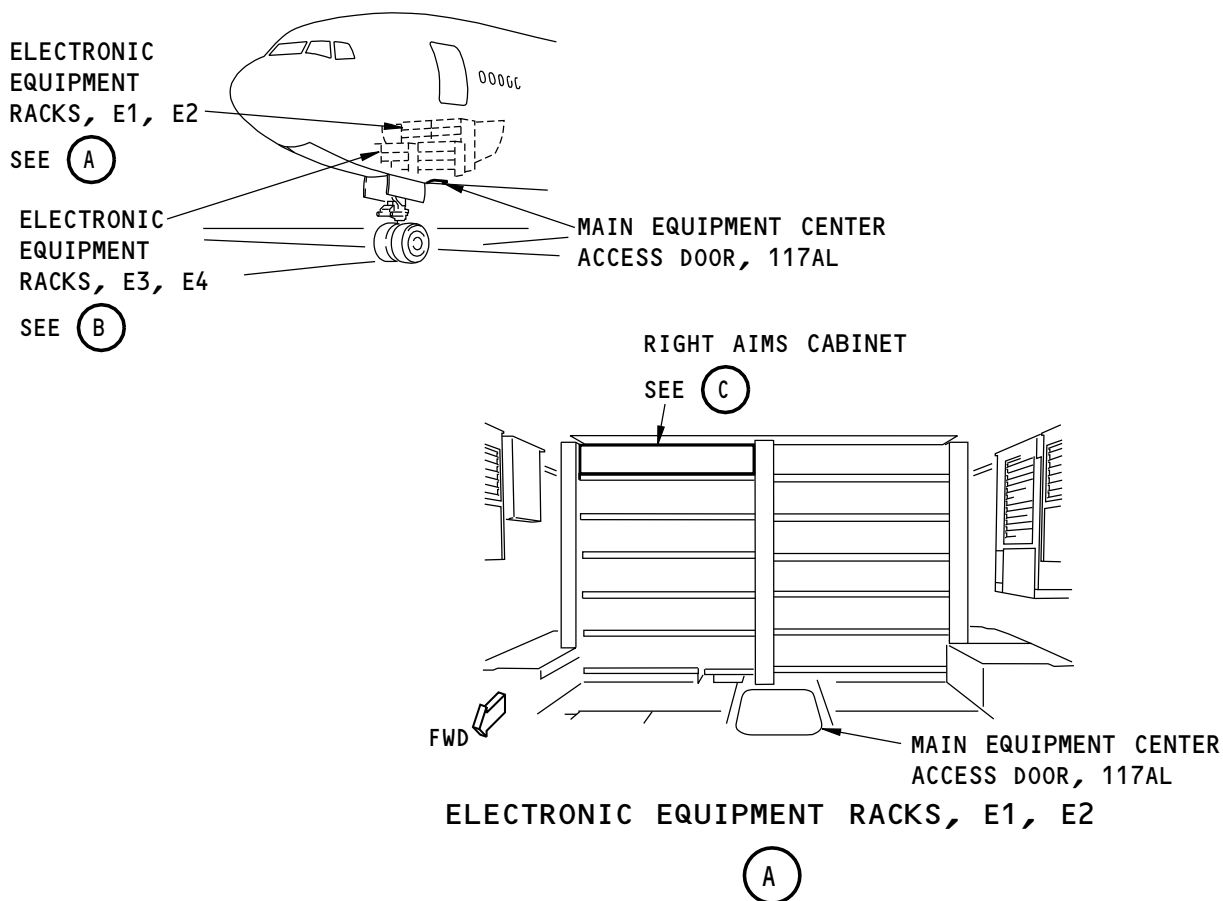
EFFECTIVITY
ARO ALL

31-41-04

D633W101-ARO

Page 401
May 05/2015

777-200/300 AIRCRAFT MAINTENANCE MANUAL



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Core Processor Module/Communication (CPM/COMM) Installation Figure 401/31-41-04-990-802 (Sheet 1 of 2)

EFFECTIVITY
ARO ALL

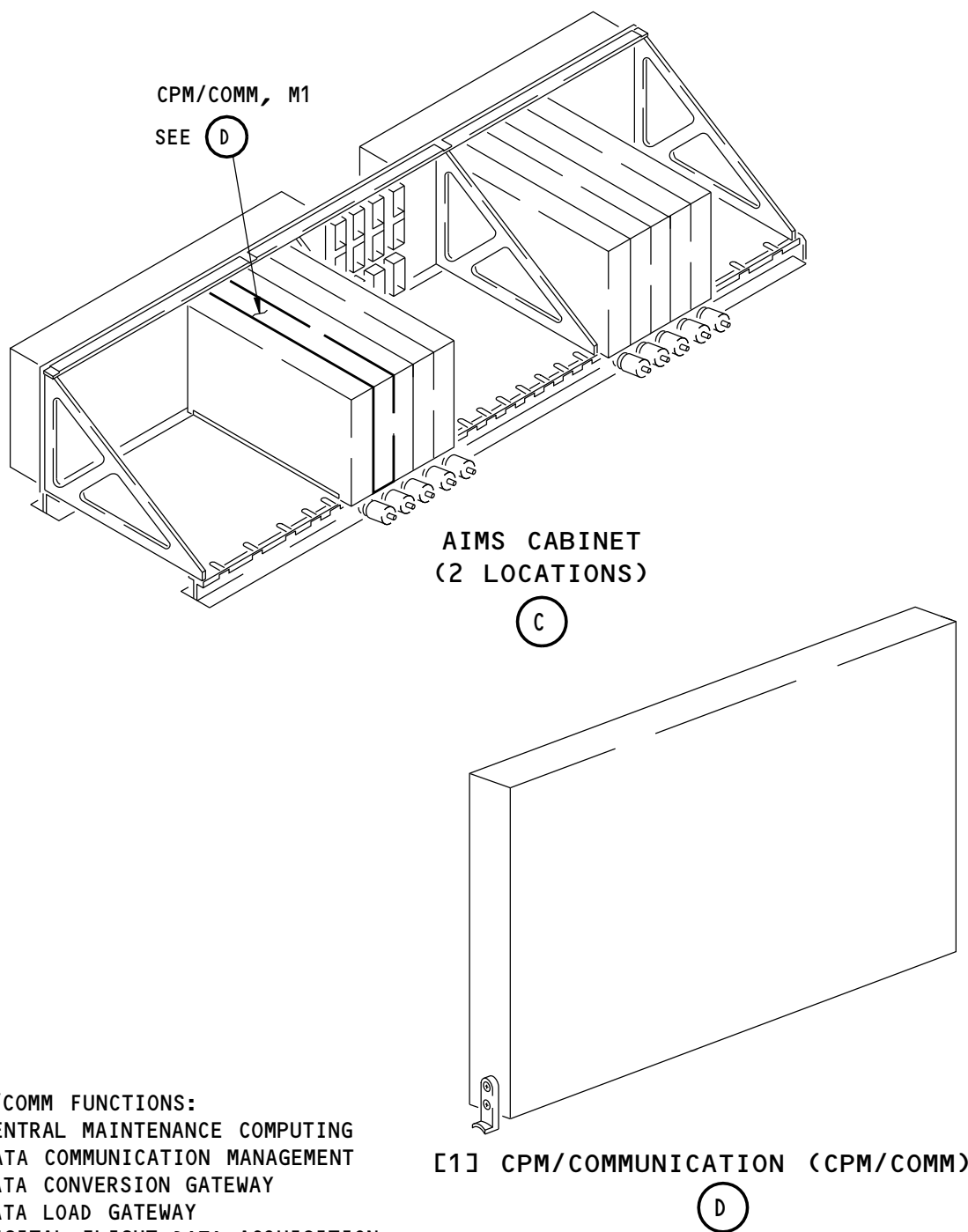
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D633W101-ARO

Page 402
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



CPM/COMM FUNCTIONS:

- CENTRAL MAINTENANCE COMPUTING
- DATA COMMUNICATION MANAGEMENT
- DATA CONVERSION GATEWAY
- DATA LOAD GATEWAY
- DIGITAL FLIGHT DATA ACQUISITION

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Core Processor Module/Communication (CPM/COMM) Installation
Figure 401/31-41-04-990-802 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

31-41-04

D633W101-ARO

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777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-41-04-400-802

3. Core Processor Module/Communication (CPM/Comm) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation procedure includes an installation test. The installation test makes sure that the CPM/Comm is connected and serviceable.
- (2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-00-400-801	AIMS LRM Installation (P/B 201)
31-41-04-420-804	Core Processor Module/COMM Software Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	CPM/Comm	25-17-01-32-055	ARO ALL
		25-71-91-50A-010	ARO ALL
		31-41-04-01-010	ARO ALL
		31-41-04-01-425	ARO ALL

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-41-04-420-016

- (1) To install the CPM/Comm [1] in the AIMS cabinet, do this task: AIMS LRM Installation, TASK 31-41-00-400-801.

F. Installation Test

SUBTASK 31-41-04-860-028

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-04-750-002

- (2) Use a maintenance access terminal (MAT) to do a software configuration check of the CPM/Comm you installed:

NOTE: Make sure you know the correct software part numbers for the CPM/Comm when you look at the software part numbers on the display. For the CPM/Comm to be an approved installation, the correct software part numbers must be installed.

- (a) Make these selections on the MAT:

EFFECTIVITY
ARO ALL

31-41-04

D633W101-ARO

Page 404
Jan 05/2016



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) SYSTEM CONFIGURATION
 - 4) 31 AIMS - Left(Right) AIMS
 - 5) CONTINUE
- (b) Find the CPM/Comm on the display and make sure that the software part numbers are correct.

NOTE: If the System Configuration shows: "CONFIG DATA NOT AVAILABLE. LRU DOES NOT GIVE A REPLY" and a new Maintenance Message in Existing Faults for the installed module indicates "NO OUTPUT ON THE AIMS BACKPLANE", then you will need to install the correct OPS part number for the CPM/Comm.

- (c) Select GO BACK.

SUBTASK 31-41-04-420-017

- (3) If the part numbers are incorrect or if the System Configuration and Existing Faults show the messages as indicated above, do this task: Core Processor Module/COMM Software Installation, TASK 31-41-04-420-804.

SUBTASK 31-41-04-420-018

- (4) If you will do a test of the left CPM/Comm, make these selections on the MAT to make sure the right CMCF is in control: OTHER FUNCTIONS, CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL.

NOTE: You must reset the CPM/Comm from the off-side CMCF.

- (a) If the display shows that the left CMCF is in control, select SWITCH TO RIGHT, YES, and then CONTINUE.

- (b) On the MATA AIMS Main Menu, select Interface R_AIMS.

NOTE: You must switch the AIMS interface to avoid MAT disconnect.

- (c) If the display shows that the right CMCF is in control, then select GO BACK.

SUBTASK 31-41-04-420-019

- (5) If you will do a test of the right CPM/Comm, make these selections on the MAT to make sure the left central maintenance computing function (CMCF) is in control: OTHER FUNCTIONS, CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL.

NOTE: You must reset the CPM/Comm from the off-side CMCF.

- (a) If the display shows that the right CMCF is in control, select SWITCH TO LEFT, YES, and then CONTINUE..

- (b) On the MATA AIMS Main Menu, select Interface L_AIMS.

NOTE: You must switch the AIMS interface to avoid MAT disconnect.

- (c) If the display shows that the left CMCF is in control, then select GO BACK.

SUBTASK 31-41-04-740-002

- (6) Use a portable maintenance access terminal (PMAT) to do the system test of the left CPM/Comm and use a maintenance access terminal (MAT) to do the system test of the right CPM/Comm:

- (a) Make these selections on the PMAT or MAT:

- 1) ONBOARD MAINTENANCE
- 2) LINE MAINTENANCE

EFFECTIVITY
ARO ALL

31-41-04

D633W101-ARO

Page 405
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 3) GROUND TESTS
 - 4) 31 AIMS - Left(Right) AIMS
 - 5) SYSTEM TEST
 - 6) CPM/COMM (M001) in Left(Right) AIMS Module Reset
 - 7) Select CONTINUE
- (b) Do the instructions that show on the MAT and then make these selections:
- 1) CONTINUE
 - 2) START TEST
- NOTE: When performing this installation test, maintenance messages 23–71071 and 23–71072 may appear. These are nuisance messages which occur as a result of the removal and installation of the CPM/Comm modules.
- (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

SUBTASK 31-41-04-860-034

- (7) If necessary, enter the airplane tail number on the System Information page to establish Controller-Pilot Data Link Communications (CPDLC).
- (a) Make these selections on the MFD to access the System Information page.
- 1) Press COMM on the DSP to display the FDCF MAIN MENU on the MFD.
 - 2) Press MANAGER on the FDCF MAIN MENU to display the FDCF MANAGER MENU.
 - 3) Press SYSTEM INFORMATION on the FDCF MANAGER MENU to display the SYSTEM INFORMATION Sub-menu.
- (b) Enter the airplane tail number.

NOTE: The tail number is lost and needs to be re-entered to re-establish CPDLC if the AIMS L or AIMS R circuit breakers are cycled, the AIMS CPM/COMM module is re-racked, new CMCF AMI software is loaded, or new COMM software is loaded. The Tail Number must be entered before engine start, since the field is inhibited after engine start.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-41-04

D633W101-ARO

Page 406
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

CORE PROCESSOR MODULE/STANDARD - MAINTENANCE PRACTICES

1. General

A. This procedure has this task:

- (1) A software installation procedure for the core processor module/standard (CPM/STD).

TASK 31-41-05-420-801

2. Core Processor Module/Standard Software Installation

A. General

- (1) This procedure tells you how to install software in the Core Processor Module (CPM)/STD (Standard).

- (a) The names of the software parts loaded into a CPM/STD module are used in the Illustrated Parts Catalog (IPC) to identify the specific software part numbers required for the aircraft tail number. The names follow:

- NRB OPS
- CPM/STD OPS
- AERO-ENGINE DB
- FDO/SWAT DB
- AIMS OPC
- FMCF AMI
- ACMF AMI
- NAVIGATION DB (CURRENT)
- NAVIGATION DB (NOT CURRENT)
- MAGVAR DB

Using the name, the specific software part number for an aircraft can be identified in the IPC.

- (2) You can also install this Airline Modifiable Information (AMI):

- (a) Airplane Condition Monitoring Function (ACMF) AMI

NOTE: The Left and Right CPM/STD modules each have unique ACMF AMI part numbers, which are not interchangeable.

- (b) FMCF AMI

- (3) You should add ALL of the software part numbers that are required for each and every module to be loaded in a single START.

NOTE: If software is installed one at a time, then you should install the NRB Operational Program Software (OPS) first and the CPM/STD OPS in the first load session, followed by the other parts for the module in any order.

- (4) If you installed new OPS software, you must enter the latest drag, fuel flow, and mach bias factors if they are different from the default values.

NOTE: The drag, fuel flow, and mach bias factors will go to the default values when new OPS is loaded

- (a) For instructions on how to enter the drag and fuel flow factors, do this task: Drag Factor/Fuel Flow Factor Modification Procedure, TASK 34-61-00-400-801

EFFECTIVITY
ARO ALL

31-41-05

D633W101-ARO

Page 201
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (5) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (6) If you do not know if the CPM/STD needs new software, you can first do the software configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the software configuration check in this task: Core Processor Module/STD Installation, TASK 31-41-05-400-801.
- (7) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the Portable Maintenance Access Terminal (PMAT) in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

- (8) You can install the software from Compact Disc (CD), Mass Storage Device (MSD), the Maintenance Access Terminal (MAT) hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. Direct installation from the Floppy Disk Drive is not recommended. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.

NOTE: When new software is installed in the CPM/STD, the load process first erases the old software and then installs the new software. If you install software directly to the CPM/STD from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the CPM/STD.

- (a) It is recommended that you remove old software part numbers from the MAT or PMAT hard drive after new software is installed. To remove software from the hard drive, do this task: How to Remove Software from the Hard Drive, TASK 45-10-00-860-813.

ARO 014-999

- (9) You can also install the software from the Onboard Network System (ONS) MSD. To install new software on the ONS MSD, do this task: Mass Storage Device Software Part Installation, TASK 46-13-00-470-802.
 - (a) It is recommended that you remove old software part numbers from the ONS MSD after new software is installed. To remove software from the ONS MSD, do this task: Mass Storage Device Software Removal, TASK 46-13-00-070-801.

ARO ALL

- (10) The airplane must be on the ground with the engines off before you can install software.
- (11) To read about the conditions and times necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (12) If software installation fails, then it is recommended to exit the data load screen on the MAT/PMAT/LMAT (back to the Onboard Maintenance screen) and wait 5 minutes to allow the module/system to reboot. After waiting the appropriate amount of time, a software installation retry should then be performed.
- (13) If you have a failure after retry of the software installation and one of the Maintenance Messages (below) is displayed for the module being data loaded, you must open and close the applicable circuit breakers for the applicable Airplane Information Management System (AIMS) and MAT. Then do the software installation procedure.

CMC/EICAS Maintenance Message:

- (a) CPM/ACMF or STD(M002) in Left AIMS has no output on the AIMS Backplane.
 - (b) CPM/ACMF or Basic or STD(M002) in Right AIMS has no output on the AIMS Backplane.

EFFECTIVITY
ARO ALL

31-41-05



777-200/300 AIRCRAFT MAINTENANCE MANUAL

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-05-400-801	Core Processor Module/STD Installation (P/B 401)
34-61-00-400-801	Drag Factor/Fuel Flow Factor Modification Procedure (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
45-10-00-860-813	How to Remove Software from the Hard Drive (P/B 201)
46-13-00-070-801	Mass Storage Device Software Removal (P/B 201)
46-13-00-470-802	Mass Storage Device Software Part 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-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 31-41-05-860-005

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-05-420-003

- (2) Make this selection on the MAT or PMAT to start the maintenance session and identify the active Central Maintenance Computing Function (CMCF) channel:
- (a) ONBOARD MAINTENANCE

NOTE:

- Dual Data Loading for both AIMS cabinets:
Either side of CMCF function can load the multiple destinations in both AIMS cabinets.

SUBTASK 31-41-05-420-004

- (3) If the display shows that the on-side CMCF is in control, then do these steps:
- (a) Make these selections on the MAT or PMAT to put the off-side CMCF in control:
- 1) OTHER FUNCTIONS
 - 2) CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL

EFFECTIVITY
ARO ALL

31-41-05

D633W101-ARO

Page 203
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

3) SWITCH TO RIGHT(LEFT)

SUBTASK 31-41-05-470-001

(4) Make these selections on the MAT or PMAT to prepare the data loader for operation:

- (a) EXTENDED MAINTENANCE
- (b) DATA LOAD

NOTE: This shows the Data Load Main Menu.

SUBTASK 31-41-05-470-002

(5) Make these selections to identify the Line Replaceable Module (LRM) that will receive the software:

NOTE: The following steps are for the normal loading.

- (a) SELECT DESTINATION
- (b) 31 AIMS - LEFT AIMS or 31 AIMS - RIGHT
- (c) CPM/STD (M002) in Left AIMS or CPM/STD (M002) in Right AIMS
- (d) ADD

NOTE: The selected LRM will show in the third window

- (e) You can select another LRM and select ADD

NOTE: You can repeat these steps until all the destinations that need software loading show in the third window.

SUBTASK 31-41-05-470-003

(6) If you complete adding the LRM, select CONTINUE to go back to the data load main display.

SUBTASK 31-41-05-470-004

(7) Make these selections to identify the source of the software you will install:

- (a) SELECT SOURCE
- (b) Select the device that will install software (CD drive, MSD or hard drive).
 - 1) If the navigational database is on a CD, select source CD drive to install directly from the CD.

NOTE: The navigational database will fail to load from the MAT or PMAT hard drive.

- 2) If the navigational database is on diskettes, load the navigational database to the MAT or PMAT hard drive.
- (c) Select the correct software part number from the display.
- (d) Select ADD.

NOTE: The part number and the source will show in the new window

- (e) You can select another software part number and select ADD
 - 1) If a NRB OPS or CPM/STD OPS load is necessary, make sure that the NRB OPS and the CPM/STD OPS are at the top of the software load list.

NOTE: The NRB OPS and CPM/STD OPS need to be loaded together.

- 2) Add all software part numbers necessary for the LRM load.

SUBTASK 31-41-05-470-008

(8) Make sure all the software part numbers that need to be loaded show in the window.

EFFECTIVITY
ARO ALL

31-41-05

D633W101-ARO

Page 204
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-05-470-005

- (9) If you complete adding the software part number, select CONTINUE to go back to the data load main display.

SUBTASK 31-41-05-470-009

- (10) If you added more than one destination, select each destination and add the necessary software for that destination.

SUBTASK 31-41-05-470-006

- (11) Select START from the data load main display to start the data loading.
- (a) Make sure the MAT or PMAT shows the load progress activity indication "Data Load Percent Complete" slider bar.
- NOTE: Make sure the correct destination Line Replaceable Unit (LRU) and software part number show on the display.
- (b) Select CONTINUE to show the Data Load Main Menu display.
- NOTE: After a data load is completed, the Data Load Main Menu display will be blank until you select a destination module.

SUBTASK 31-41-05-860-006

- (12) If the AIMS cabinet resets after you have completed loading software in the AIMS cabinet, select ONBOARD MAINTENANCE to put the LRM and AIMS cabinet in their usual condition.

NOTE: The LRM and AIMS cabinet will be in their usual condition in less than 2.5 minutes.

NOTE: If there is no electrical power supplied to the other AIMS cabinet, it is normal for the MAT/PMAT to respond with "MAT shows MTF cannot connect and CMCF does not give a reply" error message. Select continue to clear the dialog message. Wait for the AIMS cabinet to return to their normal condition and try again.



CAUTION

DO NOT OPEN THE AIMS STANDBY-L OR THE AIMS STANDBY-R CIRCUIT BREAKERS ON THE STANDBY POWER MANAGEMENT PANEL, P310. IF YOU OPEN THESE CIRCUIT BREAKERS THE CONTENTS OF THE AIMS BATTERY-BACKED MEMORY WILL BE ERASED.

- (a) Open and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

SUBTASK 31-41-05-860-010

- (13) Make sure that the ACMF title screen shows the correct AMI software part number.
- (a) In the home screen of the MAT, make the selections that follows:
- 1) MATA
 - 2) CONDITION MONITORING

EFFECTIVITY
ARO ALL

31-41-05

D633W101-ARO

Page 205
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (b) If the AMI software part number shows "Invalid AMI", then do the step that follows:
- 1) Open and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	6	C31651	AIMS L
J	7	C31650	AIMS R

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-05

Page 206
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

CORE PROCESSOR MODULE/STD - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the core processor module/standard function (CPM/STD) from the AIMS cabinet.
 - (2) An installation of the CPM/STD in the AIMS cabinet, which includes a software check and an installation test.
- B. There are two CPM/STDs. There is one CPM/STD (M2) in the left AIMS cabinet and one CPM/STD (M2) in the right AIMS cabinet. The AIMS cabinets are in the main equipment center. The left AIMS cabinet is on the electronic equipment rack E3, shelf No. 1. The right AIMS cabinet is on the electronic equipment rack E2, shelf No. 1.
- C. The CPM/STD has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the CPM/STD. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the CPM/STD.
- D. The functions in the CPM/STD are: airplane condition monitoring, data conversion gateway, engine data interface, flight management, and thrust management.

TASK 31-41-05-000-801

2. Core Processor Module/STD Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
31-41-00-000-801	AIMS LRM Removal (P/B 201)

B. **Location Zones**

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

C. **Removal Procedure**

SUBTASK 31-41-05-020-001

- (1) To remove the CPM/STD [1] in the AIMS cabinet, do this task: AIMS LRM Removal, TASK 31-41-00-000-801.

NOTE: The CPM/STD has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the CPM/STD. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the CPM/STD.

SUBTASK 31-41-05-550-001

- (2) Put a protective cover on the electrical connector.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-05

Page 401
May 05/2015



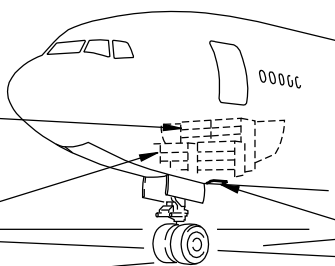
777-200/300
AIRCRAFT MAINTENANCE MANUAL

ELECTRONIC
EQUIPMENT
RACKS, E1, E2

SEE (A)

ELECTRONIC
EQUIPMENT
RACKS, E3, E4

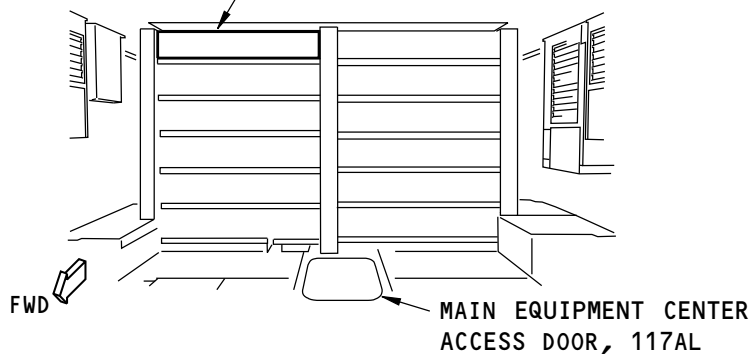
SEE (B)



MAIN EQUIPMENT CENTER
ACCESS DOOR, 117AL

RIGHT AIMS CABINET

SEE (C)

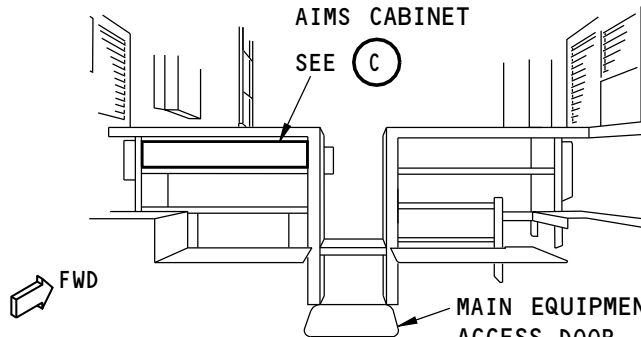


ELECTRONIC EQUIPMENT RACKS, E1, E2

(A)

LEFT
AIMS CABINET

SEE (C)



ELECTRONIC EQUIPMENT RACKS, E3, E4

(B)

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Core Processor Module/Standard (CPM/STD) Installation
Figure 401/31-41-05-990-801 (Sheet 1 of 2)

EFFECTIVITY
ARO ALL

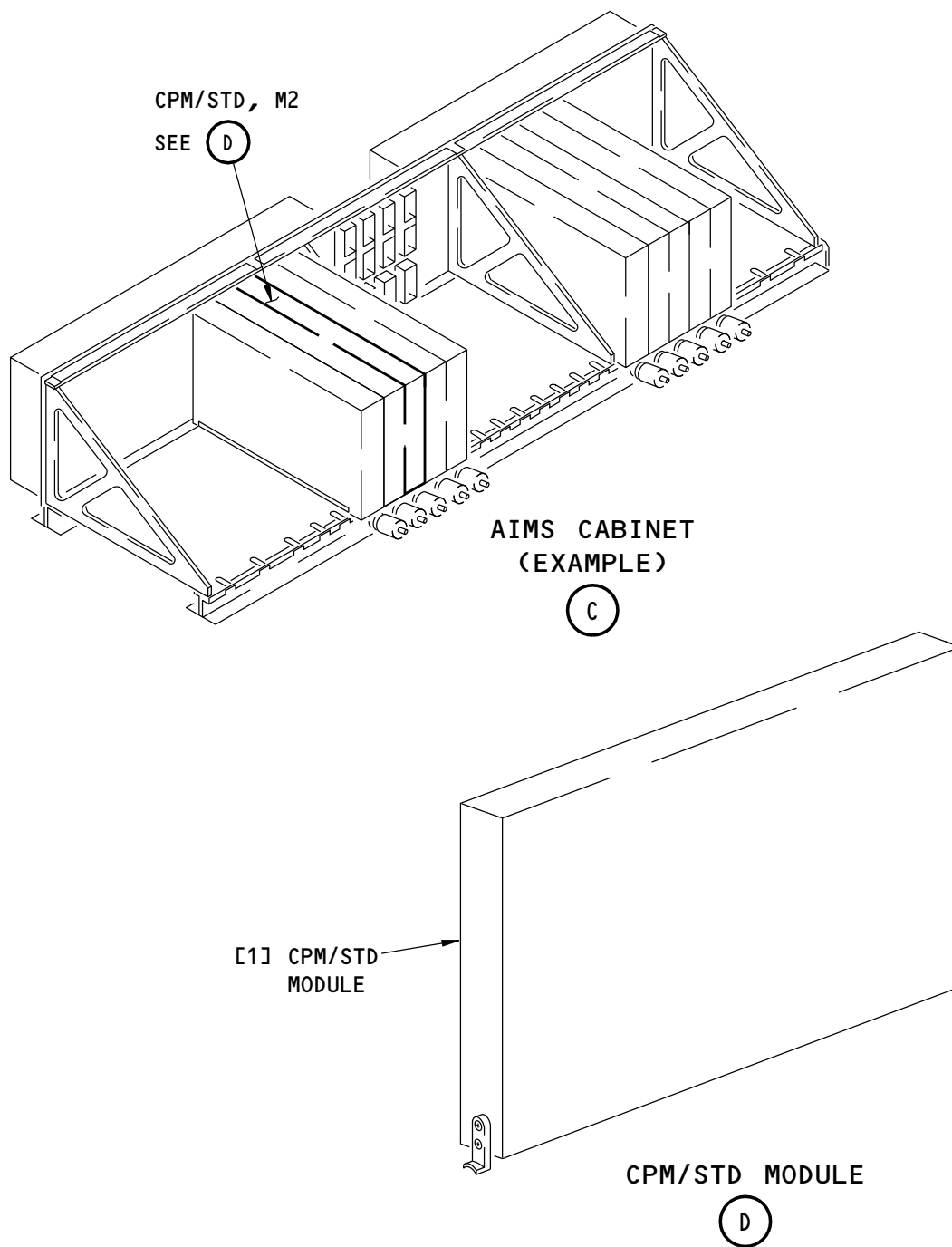
31-41-05

D633W101-ARO

Page 402
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



M60433 S0006417413_V1

Core Processor Module/Standard (CPM/STD) Installation
Figure 401/31-41-05-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

31-41-05

D633W101-ARO

Page 403
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-41-05-400-801

3. Core Processor Module/STD Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation procedure includes an installation test. The installation test makes sure that the CPM/STD is connected and serviceable.
- (2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (3) You can use the maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-00-400-801	AIMS LRM Installation (P/B 201)
31-41-05-420-801	Core Processor Module/Standard Software Installation (P/B 201)
34-21-00-820-803	Mach Bias Modification Procedure (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (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-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-41-05-420-001

- (1) To install the CPM/STD [1] in the AIMS cabinet, do this task: AIMS LRM Installation, TASK 31-41-00-400-801.

EFFECTIVITY
ARO ALL

31-41-05

D633W101-ARO

Page 404
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-05-470-007

- (2) If the CPM/STD [1] has pre-installed AIMS software that is not the same configuration as the AIMS software on the airplane, install the correct software in the module. To install the software, do this task: Core Processor Module/Standard Software Installation, TASK 31-41-05-420-801.

SUBTASK 31-41-05-860-007

- (3) Do these steps to enter the current engine ident information to the CPM/STD [1].
- (a) Make sure that these circuit breakers are closed:

Left Power Management Panel, P110

Row	Col	Number	Name
C	24	C73401	L ENG EEC ALTN PWR CHAN A
E	19	C73403	L ENG EEC ALTN PWR CHAN B

Right Power Management Panel, P210

Row	Col	Number	Name
E	1	C73400	R ENG EEC ALTN PWR CHAN A
E	11	C73402	R ENG EEC ALTN PWR CHAN B

- (b) Set the EEC MAINT POWER switch on the Overhead Maintenance panel, P61, to the TEST position.
- 1) Wait ten seconds before you proceed to the next step.
- (c) Set the EEC MAINT POWER switch on the Overhead Maintenance panel, P61, to the NORM position.

SUBTASK 31-41-05-860-008

- (4) Do this Task to enter the Mach Bias Value:Mach Bias Modification Procedure, TASK 34-21-00-820-803.

F. Installation Test

SUBTASK 31-41-05-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-05-750-001

- (2) Use a maintenance access terminal (MAT) to do a software configuration check of the CPM/STD you installed:

NOTE: Make sure you know the correct software part numbers for the CPM/STD when you look at the software part numbers on the display. For the left CPM/STD to be an approved installation, the correct software part numbers (NRB OPS, STD OPS, OPC navigational database, FIDO/SWAT DB, AEDB, ACMF AMI, and FMCF AMI) must be installed. For the right CPM/STD to be an approved installation, the correct software part numbers (NRB OPS, STD OPS, OPC navigational database, FIDO/SWAT DB, AEDB, and FMCF AMI) must be installed.

- (a) Make these selections on the MAT:
- 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) SYSTEM CONFIGURATION
 - 4) 31 AIMS - Left AIMS
 - 5) CONTINUE

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-05

Page 405
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (b) Find CPM/STD(M002) in AIMS on the display and make sure that the software part numbers are correct.

NOTE: If the System Configuration shows: "CONFIG DATA NOT AVAILABLE. LRU DOES NOT GIVE A REPLY" and a new Maintenance Message in Existing Faults for the installed module indicates "NO OUTPUT ON THE AIMS BACKPLANE", then you will need to install the correct OPS part number for the CPM/STD.

- (c) Select GO BACK.

SUBTASK 31-41-05-420-002

- (3) If the part numbers are incorrect or if the System Configuration and Existing Faults show the messages as indicated above, do this task: Core Processor Module/Standard Software Installation, TASK 31-41-05-420-801.

SUBTASK 31-41-05-740-001

- (4) Use a maintenance access terminal (MAT) to do the system test of the CPM/STD you installed:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 AIMS - Left AIMS
 - 5) SYSTEM TEST
 - 6) CPM/STD(M002) in AIMS Module Reset
 - 7) Select CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST
 - (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
 - (d) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.
 - (e) Enter the recommended Mach Bias factor per TASK 34-21-00-820-803 if the Mach Bias factor returns to default value.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-05

Page 406
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

POWER CONDITIONING MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of a power conditioning module (PCM).
 - (2) An installation of a power conditioning module (PCM), which includes a software check and an installation test.
- B. There are four PCMS. There are two PCMs (M210 and M450) in the left AIMS cabinet and two PCMs (M201 and M450) in the right AIMS cabinet. The AIMS cabinets are in the main equipment center. The left AIMS cabinet is on the electronic equipment rack E3, shelf No. 1. The right AIMS cabinet is on the electronic equipment rack E2, shelf No. 1.
- C. The PCM has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the PCM. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the PCM.

TASK 31-41-06-000-801

2. Power conditioning Module (PCM) Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
31-41-00-000-801	AIMS LRM Removal (P/B 201)

B. **Location Zones**

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

C. **Removal Procedure**

SUBTASK 31-41-06-020-001

- (1) To remove the PCM [1] in the AIMS cabinet, do this task: AIMS LRM Removal, TASK 31-41-00-000-801.

NOTE: The PCM has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the PCM. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the PCM.

SUBTASK 31-41-06-550-001

- (2) Put a protective cover on the electrical connector.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

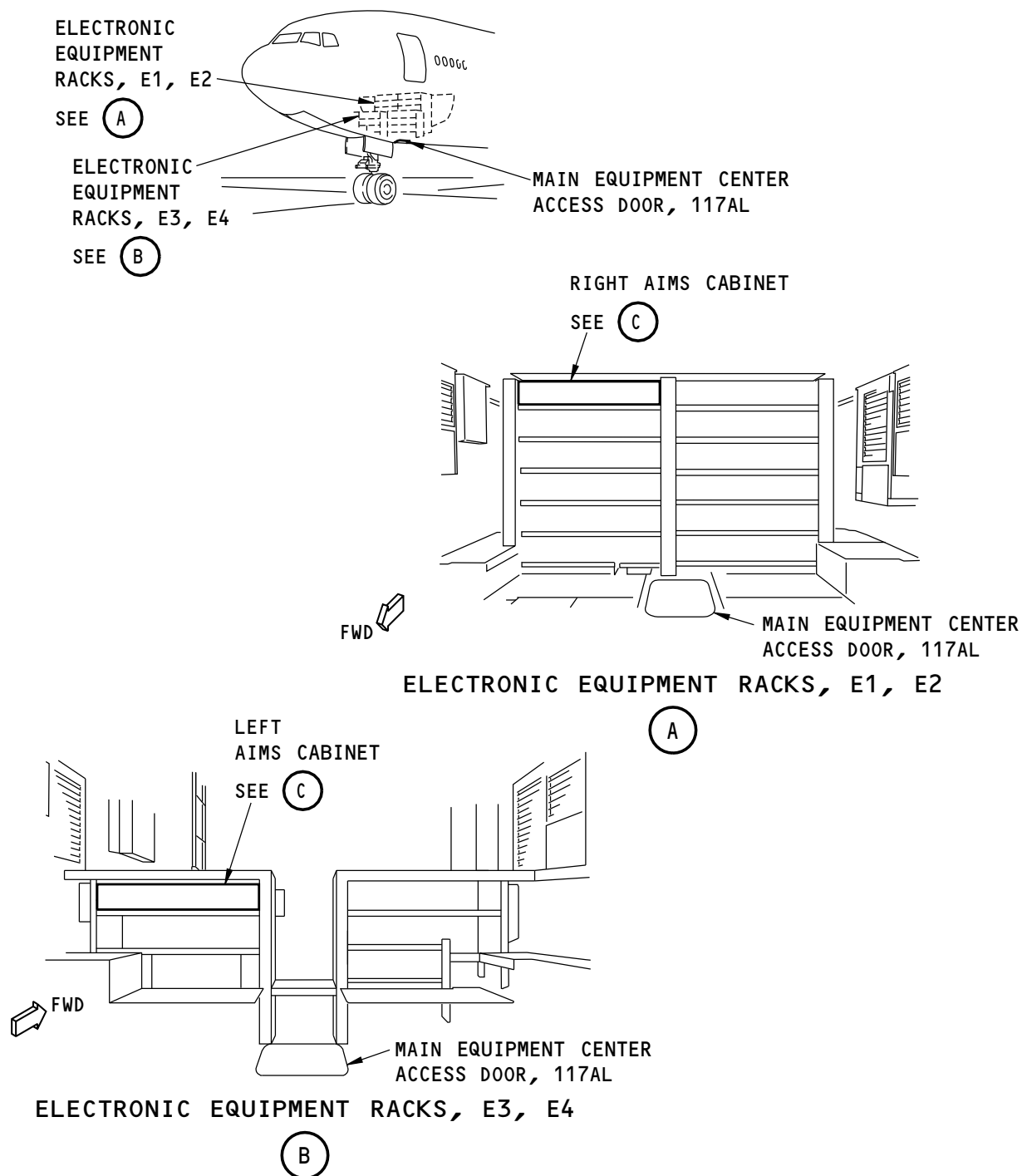
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31-41-06

Page 401
May 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



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Power Conditioning Module (PCM) Installation
Figure 401/31-41-06-990-801 (Sheet 1 of 2)

EFFECTIVITY
ARO ALL

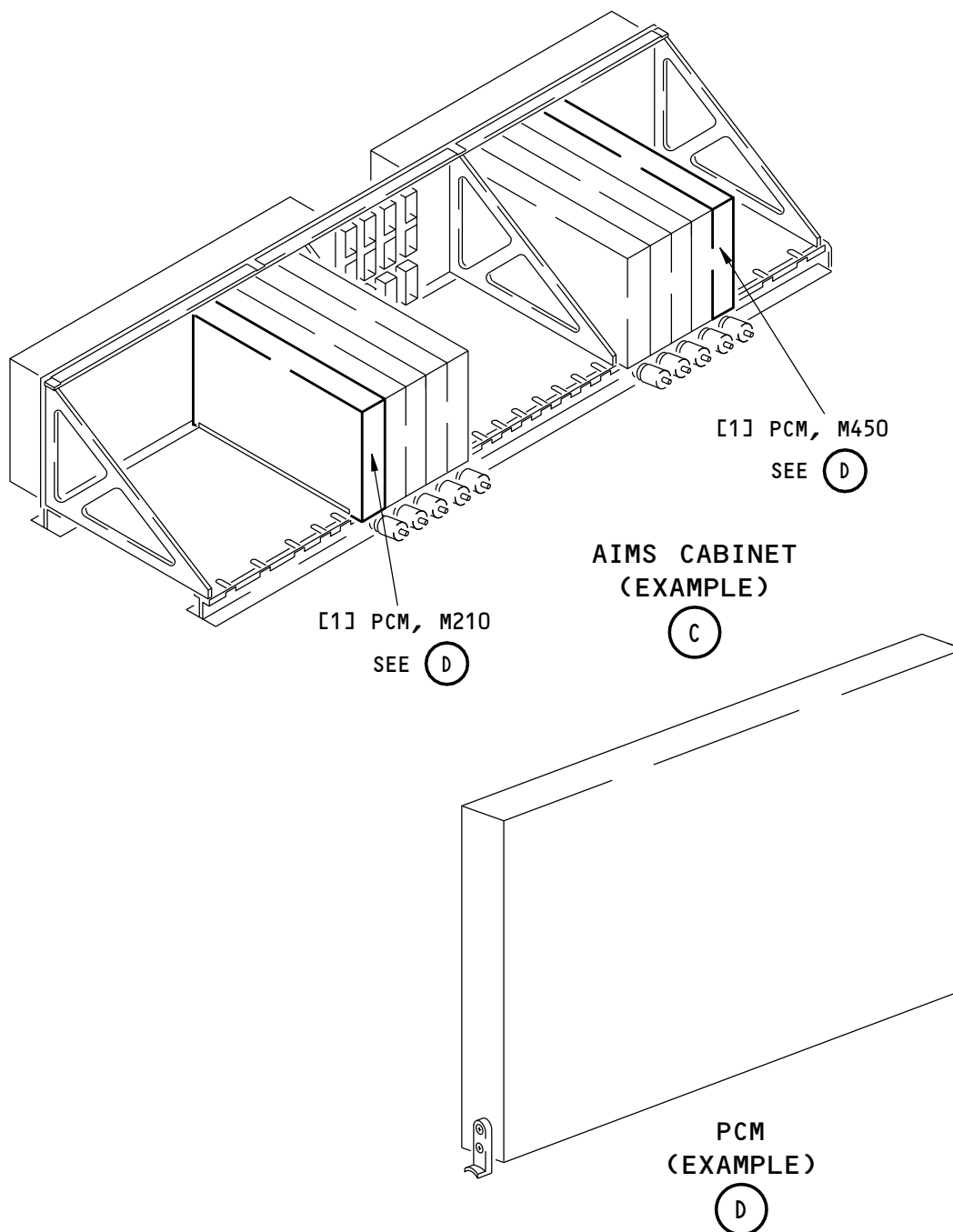
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D633W101-ARO

Page 402
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



M60270 S0006417419_V1

Power Conditioning Module (PCM) Installation
Figure 401/31-41-06-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

31-41-06

D633W101-ARO

Page 403
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-41-06-400-801

3. Power Conditioning Module (PCM) Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation procedure includes an installation test. The installation test makes sure that the IOM is connected and serviceable.
- (2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
31-41-00-400-801	AIMS LRM Installation (P/B 201)
31-41-00-710-801	Airplane Information Management System (AIMS) - Operational Test (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Installation Procedure

SUBTASK 31-41-06-420-001

- (1) To install the PCM in the AIMS cabinet, do this task: AIMS LRM Installation, TASK 31-41-00-400-801.

E. Installation Test

SUBTASK 31-41-06-860-008

- (1) Do this task: Airplane Information Management System (AIMS) - Operational Test, TASK 31-41-00-710-801.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-41-06

D633W101-ARO

Page 404
Jan 05/2016



777-200/300 AIRCRAFT MAINTENANCE MANUAL

INPUT/OUTPUT MODULE - MAINTENANCE PRACTICES

1. General

A. This procedure has this task:

- (1) A software installation procedure for the input/output module (IOM) or a software installation procedure for the input/output module (IOM) and other AIMS LRMs.

TASK 31-41-11-420-806

2. Input/Output Module (IOM) Software Installation

A. General

- (1) This procedure tells you how to install software in the Input/Output Module (IOM).
- (2) There are eight IOMs. There are four IOMs (M3, M4, M8, and M9) in the left AIMS cabinet and four IOMs (M3, M4, M8, and M9) in the right AIMS cabinet. You install software in each IOM.
- (3) The IOM module must contain the following software:
 - (a) NRB OPS
 - (b) IOM OPS

ARO ALL; AIRPLANES WITH AIMS BP V17A UPGRADE & SUBSEQUENT

- (c) AIMS OPC
- (d) CMCF AMI

NOTE: If you are installing CMCF AMI software with a different tail ID than is currently installed on the airplane, you will need to calibrate the WOW load sensor per WOW Load Sensor Calibration, TASK 32-09-03-820-801.

- (e) CMCF LDI DB

ARO ALL

- (4) You should add ALL of the software part numbers that are required for each and every module to be loaded in a single START.

NOTE: If software is installed one at a time, then you should install the NRB OPS and the IOM OPS in the first load session, followed by the other parts for the module in any order.

- (5) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (6) If you do not know if the IOM needs new software, you can first do the software configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the software configuration check in this task: Input/Output Module (IOM) Installation, TASK 31-41-11-400-801.
- (7) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

EFFECTIVITY
ARO ALL

31-41-11

D633W101-ARO

Page 201
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (8) You can install the software from compact disks (CD), Mass Storage Device (MSD), the MAT hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. Direct installation from the Floppy Disk Drive is not recommended. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.

NOTE: When new software is installed in the IOM, the load process first erases the old software and then installs the new software. If you install software directly to the IOM from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the IOM.

- (a) It is recommended that you remove old software part numbers from the MAT or PMAT hard drive after new software is installed. To remove software from the hard drive, do this task: How to Remove Software from the Hard Drive, TASK 45-10-00-860-813.

ARO 014-999

- (9) You can also install the software from the Onboard Network System (ONS) Mass Storage Device (MSD). To install new software on the ONS MSD, do this task: Mass Storage Device Software Part Installation, TASK 46-13-00-470-802.
- (a) It is recommended that you remove old software part numbers from the ONS MSD after new software is installed. To remove software from the ONS MSD, do this task: Mass Storage Device Software Removal, TASK 46-13-00-070-801.

ARO ALL

- (10) The airplane must be on the ground with the engines off before you can install software.
- (11) To read about the conditions and times necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (12) If software installation fails, then it is recommended to exit the data load screen on the MAT/PMAT/LMAT (back to the Onboard Maintenance screen) and wait 5 minutes to allow the module/system to reboot. After waiting the appropriate amount of time, a software installation retry should then be performed.
- (13) If you have a failure after retry of the software installation and one of the Maintenance Messages (below) is displayed for the module being data loaded, you must open and close the applicable circuit breakers for the applicable AIMS and MAT. Then do the software installation procedure.

CMC/EICAS Maintenance Message:

- (a) IOM(M003) in Left AIMS has no output on the AIMS Backplane.
- (b) IOM(M003) in Right AIMS has no output on the AIMS Backplane.
- (c) IOM(M004) in Left AIMS has no output on the AIMS Backplane.
- (d) IOM(M004) in Right AIMS has no output on the AIMS Backplane.
- (e) IOM(M008) in Left AIMS has no output on the AIMS Backplane.
- (f) IOM(M008) in Right AIMS has no output on the AIMS Backplane.
- (g) IOM(M009) in Left AIMS has no output on the AIMS Backplane.
- (h) IOM(M009) in Right AIMS has no output on the AIMS Backplane.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)

EFFECTIVITY
ARO ALL

31-41-11

D633W101-ARO

Page 202
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-11-400-801	Input/Output Module (IOM) Installation (P/B 401)
32-09-03-820-801	WOW Load Sensor Calibration (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
45-10-00-860-813	How to Remove Software from the Hard Drive (P/B 201)
46-13-00-070-801	Mass Storage Device Software Removal (P/B 201)
46-13-00-470-802	Mass Storage Device Software Part 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-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 31-41-11-860-037

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-11-420-021

- (2) Make this selection on the MAT or PMAT to start the maintenance session and identify the active CMCF channel:

- (a) ONBOARD MAINTENANCE

NOTE: It is recommended that the active CMCF function is in the opposite AIMS cabinet (the off-side cabinet) where the data load will occur.

SUBTASK 31-41-11-420-022

- (3) If the display shows that the on-side CMCF is in control, then do these steps:
- (a) Make these selections on the MAT or PMAT to put the off-side CMCF in control:
- 1) OTHER FUNCTIONS
 - 2) CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL
 - 3) SWITCH TO RIGHT(LEFT)

SUBTASK 31-41-11-470-023

- (4) Make these selections on the MAT or PMAT to prepare the data loader for operation:

EFFECTIVITY
ARO ALL

31-41-11

D633W101-ARO

Page 203
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (a) EXTENDED MAINTENANCE
- (b) DATA LOAD

NOTE: This shows the Data Load Main Menu.

SUBTASK 31-41-11-470-024

- (5) Make these selections to identify the LRM that will receive the software:

NOTE: The following steps are for the normal loading.

- (a) SELECT DESTINATION
- (b) 31 AIMS - LEFT(RIGHT) AIMS
- (c) Applicable IOM in LEFT(RIGHT) AIMS
- (d) ADD

NOTE: The selected LRM will show in the third window

- (e) You can select another LRM and select ADD

NOTE: You can repeat these steps until all the destinations that need software loading show in the third window.

SUBTASK 31-41-11-470-025

- (6) If you complete adding the LRM, select CONTINUE to go back to the data load main display.

SUBTASK 31-41-11-470-026

- (7) Make these selections to identify the source of the software you will install:

- (a) SELECT SOURCE
- (b) Select the device that will install software (CD drive, MSD or hard drive).
- (c) Select the correct software part number from the display.
- (d) Select ADD.

NOTE: The part number and the source will show in the new window

- (e) You can select another software part number and select ADD

- 1) If a NRB OPS or IOM OPS load is necessary, make sure that the NRB OPS and the CPM/GG OPS are at the top of the software load list.

NOTE: The NRB OPS and IOM OPS need to be loaded together.

- 2) Add all software part numbers necessary for the LRM load.

SUBTASK 31-41-11-470-029

- (8) Make sure all the software part numbers that need to be loaded show in the window.

SUBTASK 31-41-11-470-030

- (9) If you added more than one destination, select each destination and add the necessary software for that destination.

SUBTASK 31-41-11-470-027

- (10) If you complete adding the software part number, select CONTINUE to go back to the data load main display.

SUBTASK 31-41-11-470-028

- (11) Select START from the data load main display to start the data loading.
 - (a) Make sure the MAT or PMAT shows the load progress activity indication "Data Load Percent Complete" slider bar.



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (b) When the software installation is complete, select the "SHOW STATUS" to confirm that the software installation is complete or failed.

NOTE: Make sure the correct destination LRU and software part number show on the display.

- (c) Select CONTINUE to show the Data Load Main Menu display.

NOTE: After a data load is completed, the Data Load Main Menu display will be blank until you select a destination module.

SUBTASK 31-41-11-860-038

- (12) When you have completed loading software in the AIMS cabinet, select ONBOARD MAINTENANCE to put the LRM and AIMS cabinet in their usual condition.

NOTE: The LRM and AIMS cabinet will be in their usual condition in less than 2.5 minutes.

NOTE: If there is no electrical power supplied to the other AIMS cabinet, it is normal for the MAT/PMAT to respond with "MAT shows MTF cannot connect and CMCF does not give a reply" error message. Select continue to clear the dialog message. Wait for the AIMS cabinet to return to their normal condition and try again.

- (a) If the LRM is not in its usual condition after 2.5 minutes, open and close the AIMS circuit breakers:



DO NOT OPEN THE AIMS STANDBY-L OR THE AIMS STANDBY-R CIRCUIT BREAKERS ON THE STANDBY POWER MANAGEMENT PANEL, P310. IF YOU OPEN THESE CIRCUIT BREAKERS THE CONTENTS OF THE AIMS BATTERY-BACKED MEMORY WILL BE ERASED.

- 1) Open and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-41-11

D633W101-ARO

Page 205
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

INPUT/OUTPUT MODULE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of an input/output module (IOM).
 - (2) An installation of an input/output module (IOM), which includes a software check and an installation test.
- B. There are eight IOMs. There are four IOMs (M003, M004, M008, and M009) in the left AIMS cabinet and four IOMs (M003, M004, M008, and M009) in the right AIMS cabinet. The AIMS cabinets are in the main equipment center. The left AIMS cabinet is on the electronic equipment rack E3, shelf No. 1. The right AIMS cabinet is on the electronic equipment rack E2, shelf No. 1.
- C. The IOM has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the IOM. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the IOM.

TASK 31-41-11-000-801

2. Input/Output Module (IOM) Removal

(Figure 401 or Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
31-41-00-000-801	AIMS LRM Removal (P/B 201)

B. **Location Zones**

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

C. **Removal Procedure**

SUBTASK 31-41-11-020-001

- (1) To remove the IOM [1] in the AIMS cabinet, do this task: AIMS LRM Removal, TASK 31-41-00-000-801.

NOTE: The IOM has two pins that are shorter than the other pins on the connector. These two pins supply 28 Vdc to the IOM. The two shorter pins allow contact to occur between the ARINC 650 connector and the backplane of the cabinet before power is supplied to the IOM.

SUBTASK 31-41-11-550-001

- (2) Put a protective cover on the electrical connector.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

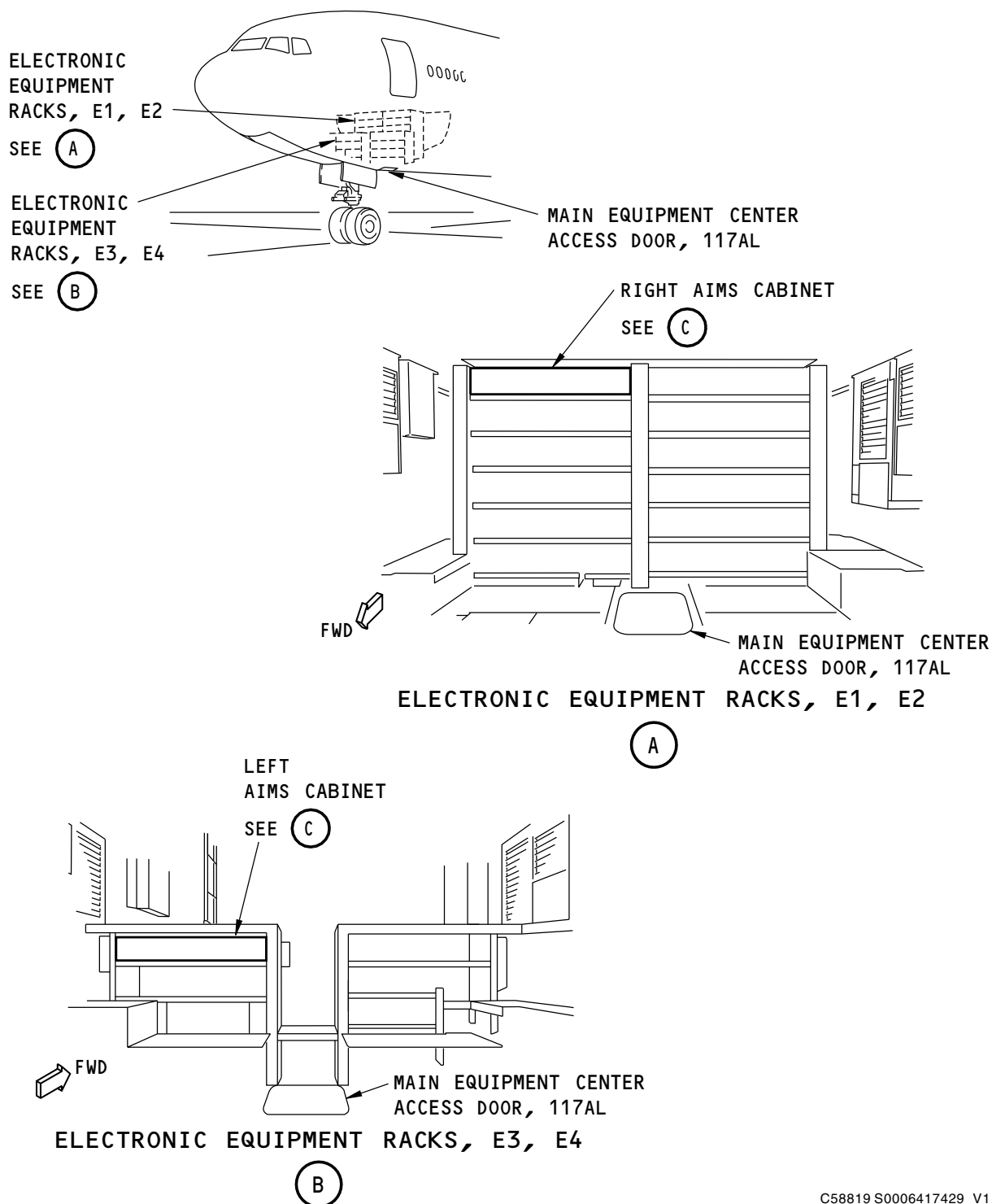
31-41-11

D633W101-ARO

Page 401
May 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



C58819 S0006417429_V1

Input/Output Module Installation
Figure 401/31-41-11-990-801

EFFECTIVITY
ARO ALL

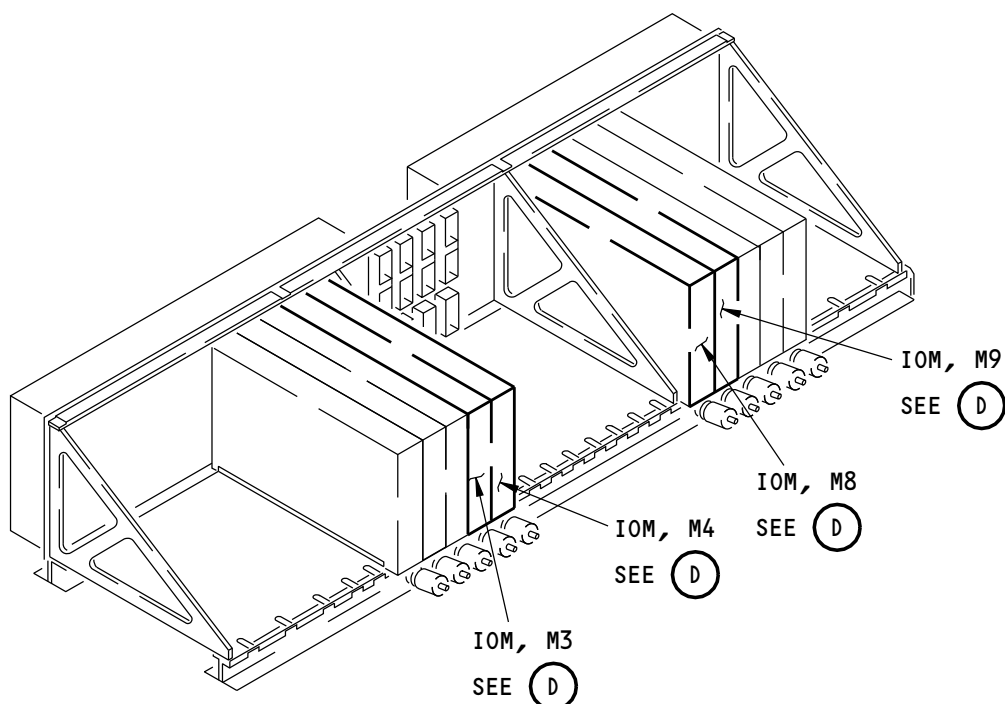
31-41-11

D633W101-ARO

Page 402
Jan 05/2015

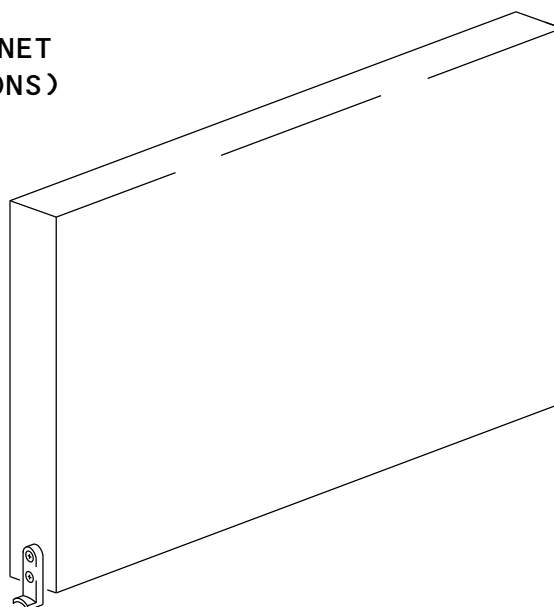


777-200/300
AIRCRAFT MAINTENANCE MANUAL



AIMS CABINET
(2 LOCATIONS)

(C)



[1] INPUT/OUTPUT MODULE (IOM)
(4 LOCATIONS EACH AIMS CABINET)

(D)

M94052 S0006417432_V1

Input/Output Module Installation
Figure 402/31-41-11-990-802

EFFECTIVITY
ARO ALL

31-41-11

D633W101-ARO

Page 403
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-41-11-400-801

3. Input/Output Module (IOM) Installation

(Figure 401 or Figure 402)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation procedure includes an installation test. The installation test makes sure that the IOM is connected and serviceable.
- (2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-00-400-801	AIMS LRM Installation (P/B 201)
31-41-11-420-806	Input/Output Module (IOM) Software Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	IOM	31-41-11-10-050	ARO ALL
		31-41-11-10-110	ARO ALL

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-41-11-420-001

- (1) To install the IOM [1] in the AIMS cabinet, do this task: AIMS LRM Installation, TASK 31-41-00-400-801.

F. Installation Test

SUBTASK 31-41-11-860-007

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-11-750-001

- (2) Use a maintenance access terminal (MAT) to do a software configuration check of the IOM you installed:

NOTE: Make sure you know the correct software part numbers for the IOM when you look at the software part numbers on the display. For the IOM to be an approved installation, the correct software part numbers must be installed.

- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE

EFFECTIVITY
ARO ALL

31-41-11

D633W101-ARO

Page 404
Jan 05/2016



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 3) SYSTEM CONFIGURATION
 - 4) 31 AIMS - Left(Right) AIMS
 - 5) CONTINUE
- (b) Find the IOM on the display and make sure that the software part numbers are correct.

NOTE: If the System Configuration shows: "CONFIG DATA NOT AVAILABLE. LRU DOES NOT GIVE A REPLY" and a new Maintenance Message in Existing Faults for the installed module indicates "NO OUTPUT ON THE AIMS BACKPLANE", then you will need to install the correct OPS part number for the IOM.

- (c) Select GO BACK.

SUBTASK 31-41-11-420-002

- (3) If the part numbers are incorrect or if the System Configuration and Existing Faults show the messages as indicated above, do this task: Input/Output Module (IOM) Software Installation, TASK 31-41-11-420-806.

SUBTASK 31-41-11-860-039

- (4) If you will do a test of the left IOM(M003), make these selections on the MAT to make sure the right CMCF is in control: OTHER FUNCTIONS, CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL.

NOTE: You must reset the IOM(M003) from the off-side CMCF.

- (a) If the display shows that the left CMCF is in control, select SWITCH TO RIGHT, YES, and then CONTINUE.
- 1) On the MATA AIMS Main Menu, select Interface R_AIMS.
 - 2) Select ONBOARD MAINTENANCE.
- (b) If the display shows that the right CMCF is in control, then select GO BACK.

SUBTASK 31-41-11-860-040

- (5) If you will do a test of the right IOM(M003), make these selections on the MAT to make sure the left central maintenance computing function (CMCF) is in control: OTHER FUNCTIONS, CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL.

NOTE: You must reset the IOM(M003) from the off-side CMCF.

- (a) If the display shows that the right CMCF is in control, select SWITCH TO LEFT, YES, and then CONTINUE..
- 1) On the MATA AIMS Main Menu, select Interface R_AIMS.
 - 2) Select ONBOARD MAINTENANCE.
- (b) If the display shows that the left CMCF is in control, then select GO BACK.

SUBTASK 31-41-11-740-001

- (6) Use a maintenance access terminal (MAT) to do the system test of the IOM you installed:
- (a) Make these selections on the MAT:
- 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 AIMS - Left(Right) AIMS
 - 5) SYSTEM TEST
- (b) Select the test for the module:

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-11

Page 405
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 1) IOM(M003) in Left(Right) AIMS Module Reset
 - 2) IOM(M004) in Left(Right) AIMS Module Reset
 - 3) IOM(M008) in Left(Right) AIMS Module Reset
 - 4) IOM(M009) in Left(Right) AIMS Module Reset
- (c) Select CONTINUE.
- (d) Do the instructions that show on the MAT and then make these selections:
- 1) CONTINUE
 - 2) START TEST
- (e) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (f) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-11

Page 406
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL
AIMS CABINET - MAINTENANCE PRACTICES

1. General

- A. This procedure tells you how to install the software in the AIMS cabinets. The modules of the AIMS cabinets must contain these pieces of software:
- (1) The core processor module/comm (CPM/COMM):
Core Processor Module/COMM Software Installation, TASK 31-41-04-420-804
 - (2) The core processor module/standard (CPM/STD):
Core Processor Module/Standard Software Installation, TASK 31-41-05-420-801
 - (3) The input/output module (IOM):
Input/Output Module (IOM) Software Installation, TASK 31-41-11-420-806
 - (4) The core processor module/graphic generator (CPM/GG):
Core Processor Module/GG Software Installation, TASK 31-41-02-420-804
- B. This procedure also tells you how to correct a nuisance display of the data load dialog box on the maintenance access terminal (MAT). This nuisance shows intermittently after AIMS power-up or after data loading the CMCF LDI software.
- C. Make sure you have all the correct software for the cabinets.
- D. A maintenance access terminal is necessary for this procedure. For instruction on how to use the maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808
- E. The airplane must be on the ground with the engine off before you can install the software.
- F. To read about the time that is necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801

TASK 31-41-21-470-801

2. AIMS Cabinet Batch Software Installation

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

B. Location Zones

Zone	Area
212	Flight Compartment, Right

C. Procedure

SUBTASK 31-41-21-420-005

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805
- (2) Use the MAT to install the software into the AIMS cabinet as follows:
 - (a) Make this selection on the MAT to start the maintenance session and identify the CMCF channel that is on:
 - 1) ONBOARD MAINTENANCE
 - (b) If the display shows that the off-side CMCF (Right AIMS) is in control, then do these steps:
 - 1) Make these selections on the MAT to put the on-side CMCF (Left AIMS) in control.
 - 2) OTHER FUNCTIONS

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 201
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 3) CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL
 - 4) SWITCH TO LEFT
 - 5) Select yes to confirm the choice, wait for a few seconds to see the notice that says session has stopped then select CONTINUE
- (c) Make these selections on the MAT to prepare the data loader for the operation:
- 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) DATA LOAD
- (d) Make these selections to identify the cabinet that will receive the software:
- 1) SELECT BATCH
 - 2) Select the data source device that install software (CD drive, disk drive, or hard drive).
 - 3) Select the correct batch file part number from the display.
- NOTE: There are three batch files on the AIMS Media CD for the Operational Program Software (OPS). HNPxx-xx01-xxxx will install the OPS in the left AIMS cabinet. HNPxx-xx02-xxxx will install the OPS in the right AIMS cabinet. HNPxx-xx03-xxxx will install the OPS in the left and right AIMS cabinets. XX indicates the sections of the software part number that change with each blockpoint upgrade. If you use the HNPxx-xx03-xxxx file, you will decrease data load time.
- NOTE: It is not required to build the other remaining software into the batch.
- (e) When the batch file is added, select CONTINUE to go back to the DATA LOAD main display.
- (f) If you want to load the OPS batch software, do this:
- 1) Select START from the DATA LOAD main display to start the data load function.
- NOTE: Sometimes it is necessary to assemble a batch file to include other AIMS software, for example OPC, AMIs, AEDB, etc. not included in the OPS batch file.
- (g) For all software not included in the OPS batch file, make these selections to install software into the individual LRM:
- 1) Select the correct LRM from the display.
 - 2) SELECT SOURCE.
 - 3) Select the device that will install software (CD drive, disk drive, or hard drive).
 - 4) Select the correct software part number from the display.
 - 5) Select ADD.
- NOTE: The part number and the source will show in the new window.
- 6) You can select the additional software part number again and select ADD.
- NOTE: You can repeat this step multiple times as needed.
- (h) When the software part number selection is completed, select CONTINUE to go back to the DATA LOAD main display.
- (i) Select START from the DATA LOAD main display to start the data load function.
- (j) Select CONTINUE.



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (k) Select CONTINUE.
 - 1) Make sure that MAT shows the load progress activity indication "Data Load Percent Complete" slider bars.
- (l) When the software installation is completed, do these steps:
 - 1) Make sure that the correct part numbers show on the display.
 - 2) Select CONTINUE.
- (m) If the software installation failed for a minimum of one part number, then select TRY AGAIN on the data loader status summary.
- (n) Make these selections to examine the reason a part number failed:
 - 1) Select the correct software part number from the display.
 - 2) Select SHOW FAILURE REASON.
- (3) After the software is installed in the AIMS cabinet, select ONBOARD MAINTENANCE to put the LRM and AIMS CABINET in their usual condition.

————— END OF TASK —————

TASK 31-41-21-470-802

3. Nuisance Display of Data Load Option Box after AIMS Power-up - Troubleshooting

A. Location Zones

Zone	Area
212	Flight Compartment, Right

B. General

SUBTASK 31-41-21-470-001

- (1) Although AIMS may have the same, valid CMCF LDI software loads in both cabinets, it is possible to see an intermittent nuisance data load message.
- (2) Use this procedure when:
 - (a) Both left and right AIMS Cabinets have the same, valid CMCF LDI software load and
 - (b) At AIMS power-up or after you install the CMCF LDI software, the Data Load Option dialog box incorrectly shows on the MAT and
 - (c) The dialog box shows the message(s) "Load Left (or Right) AIMS IOM CMCF LDI".

C. Procedure

SUBTASK 31-41-21-470-002

- (1) If it is available, make the selection "Connect to Active Left (or Right) AIMS Cabinet".
 - (a) When the CMCF screen appears, begin using CMCF normally.

SUBTASK 31-41-21-470-004

- (2) When both buttons indicate "Load Left (or Right) AIMS IOM CMCF LDI": make a selection of Left or Right.

NOTE: Use these steps if you can select the ONBOARD MAINTENANCE button.

- (a) When the Data Load screen appears, if the ONBOARD MAINTENANCE button is selectable:
- (b) Select it and when the CMCF screen appears, begin using CMCF normally.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-21

Page 203
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-21-470-005

- (3) When both buttons indicate "Load Left (or Right) AIMS IOM CMCF LDI": make a selection of Left or Right.

NOTE: Use these steps if you cannot select the ONBOARD MAINTENANCE button.

- (a) When the Data Load screen appears, if the ONBOARD MAINTENANCE button is NOT selectable,
- (b) Open and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

NOTE: Make sure you close all Left and Right AIMS cabinet circuit breakers at the same time.

- (c) If the Data Load Option dialog box continues to show after you cycle the AIMS circuit breakers, reload the applicable (Left and/or Right) AIMS cabinet CMCF LDI(s) software.

AIMS Cabinet Batch Software Installation, TASK 31-41-21-470-801

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 204
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL
AIMS CABINET - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the AIMS cabinet.
 - (2) An installation of the AIMS cabinet, which includes an installation test.
- B. There are two AIMS cabinets on the airplane. Both cabinets are in electronic equipment racks in the main equipment center. The left AIMS cabinet is in E3-1. The right AIMS cabinet is in E2-1.

TASK 31-41-21-000-802

2. AIMS Cabinet Removal

(Figure 401)

A. References

<u>Reference</u>	<u>Title</u>
31-41-02-000-801	Core Processor Module/Graphics Generator (CPM/GG) Removal (P/B 401)
31-41-04-000-802	Core Processor Module/Communication (CPM/Comm) Removal (P/B 401)
31-41-06-000-801	Power conditioning Module (PCM) Removal (P/B 401)
31-41-11-000-801	Input/Output Module (IOM) Removal (P/B 401)

B. Location Zones

<u>Zone</u>	<u>Area</u>
117	Main Equipment Center, Left
118	Main Equipment Center, Right

C. Removal Procedure

SUBTASK 31-41-21-860-028



CAUTION

ONLY OPEN THE AIMS STANDBY CIRCUIT BREAKER ON THE STANDBY POWER MANAGEMENT PANEL, P310, FOR THE AIMS CABINET YOU WILL REMOVE. IF THE CIRCUIT BREAKER FOR THE OTHER AIMS CABINET IS OPENED, THE CONTENTS OF THE AIMS BATTERY-BACKED MEMORY FOR THAT CABINET WILL BE ERASED.

- (1) For the left AIMS cabinet [8], do this step:
- (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	6	C31651	AIMS L

SUBTASK 31-41-21-860-029

- (2) For the right AIMS cabinet [8], do this step:
- (a) Open this circuit breaker and install safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	7	C31650	AIMS R

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 401
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-21-860-030

- (3) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

SUBTASK 31-41-21-020-004

- (4) Remove these modules:

- (a) For the CPM/Comm(M001), do this task: Core Processor Module/Communication (CPM/Comm) Removal, TASK 31-41-04-000-802.
 - 1) Put protective covers on the LRM electrical connector.
- (b) For the CPM/Standard(M002), do this task: Core Processor Module/Communication (CPM/Comm) Removal, TASK 31-41-04-000-802.
 - 1) Put protective cover on the LRM electrical connector.
- (c) For the PCM(M210), do this task: Power conditioning Module (PCM) Removal, TASK 31-41-06-000-801.
 - 1) Put protective cover on the LRM electrical connector.
- (d) For the PCM(M450), do this task: Power conditioning Module (PCM) Removal, TASK 31-41-06-000-801.
 - 1) Put protective cover on the LRM electrical connector.
- (e) For the IOM(M003), do this task: Input/Output Module (IOM) Removal, TASK 31-41-11-000-801.
 - 1) Put a protective cover on the LRM electrical connector.
- (f) For the IOM(M004), do this task: Input/Output Module (IOM) Removal, TASK 31-41-11-000-801.
 - 1) Put a protective cover on the LRM electrical connector.
- (g) For the IOM(M008), do this task: Input/Output Module (IOM) Removal, TASK 31-41-11-000-801.
 - 1) Put a protective cover on the LRM electrical connector.
- (h) For the IOM(M009), do this task: Input/Output Module (IOM) Removal, TASK 31-41-11-000-801.
 - 1) Put a protective cover on the LRM electrical connector.
- (i) For the CPM/GG(M010), do this task: Core Processor Module/Graphics Generator (CPM/GG) Removal, TASK 31-41-02-000-801.
 - 1) Put a protective cover on the LRM electrical connector.
- (j) For the CPM/GG(M011), do this task: Core Processor Module/Graphics Generator (CPM/GG) Removal, TASK 31-41-02-000-801.

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 402
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 1) Put a protective cover on the LRM electrical connector.

SUBTASK 31-41-21-020-005

- (5) Remove the AIMS cabinet:

- (a) Disconnect all the electrical connectors from the back of the cabinet.
- (b) Remove the bolt [1], washer [2], washer [3] and nut [4] that attach the cabinet to the left side of the rack.
- (c) Remove the bolt [6] and washer [5] that attach the cabinet to the right side of the rack.
- (d) Pull the AIMS cabinet [8] out of the rack.

SUBTASK 31-41-21-860-049

- (6) Enter the airplane tail number on the System Information page to establish Controller-Pilot Data Link Communications (CPDLC).

- (a) Make these selections on the MFD to access the System Information page.
 - 1) Press COMM on the DSP to display the FDCF MAIN MENU on the MFD.
 - 2) Press MANAGER on the FDCF MAIN MENU to display the FDCF MANAGER MENU.
 - 3) Press SYSTEM INFORMATION on the FDCF MANAGER MENU to display the SYSTEM INFORMATION Sub-menu.
- (b) Enter the airplane tail number.

NOTE: The tail number is lost and needs to be re-entered to re-establish CPDLC if the AIMS L or AIMS R circuit breakers are cycled, the AIMS CPM/COMM module is re-racked, new CMCF AMI software is loaded, or new COMM software is loaded. The Tail Number must be entered before engine start, since the field is inhibited after engine start.

————— **END OF TASK** —————

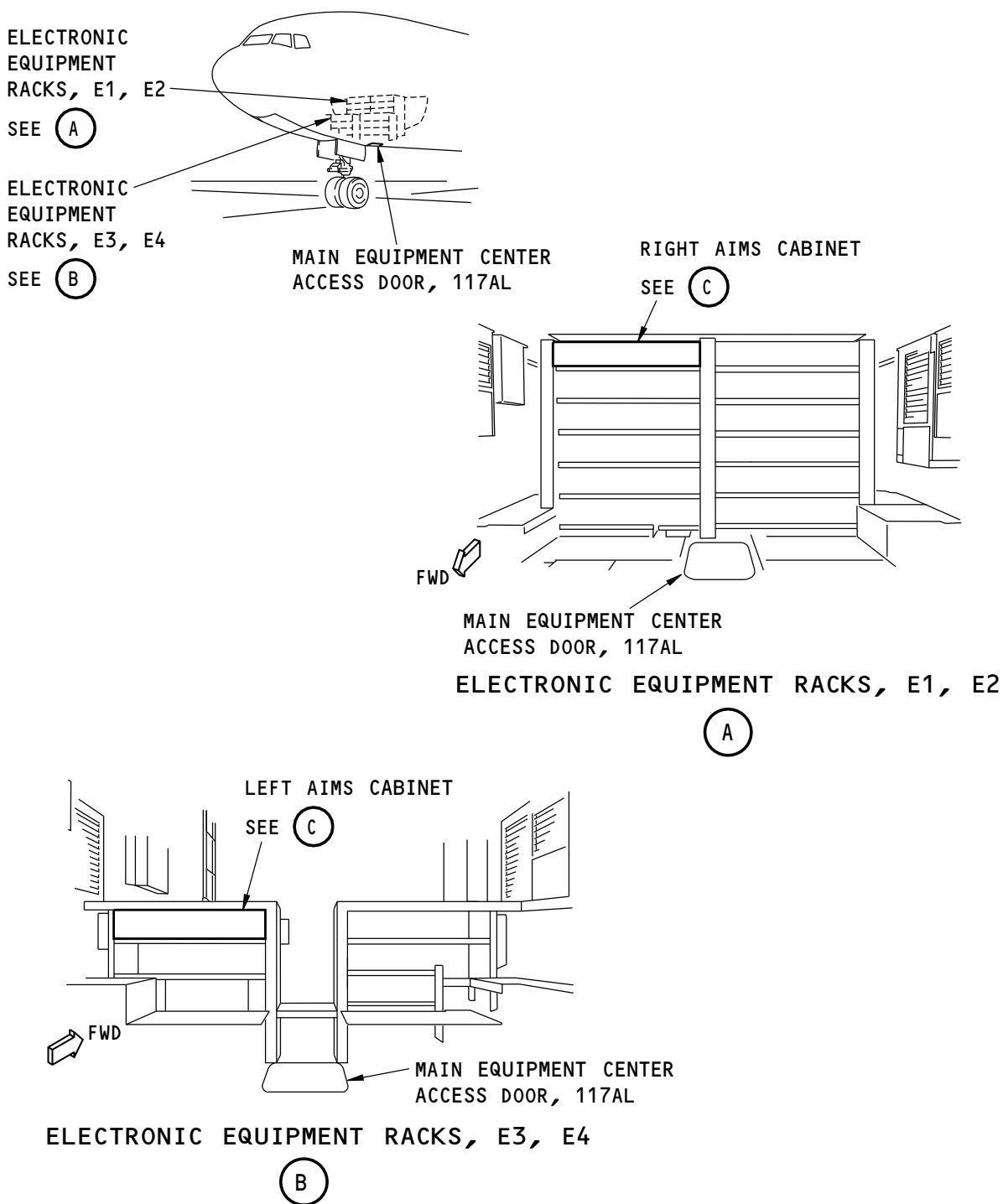
EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 403
Jan 05/2018

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



N14529 S0006417441_V1

**AIMS Cabinet Installation
Figure 401/31-41-21-990-802 (Sheet 1 of 3)**

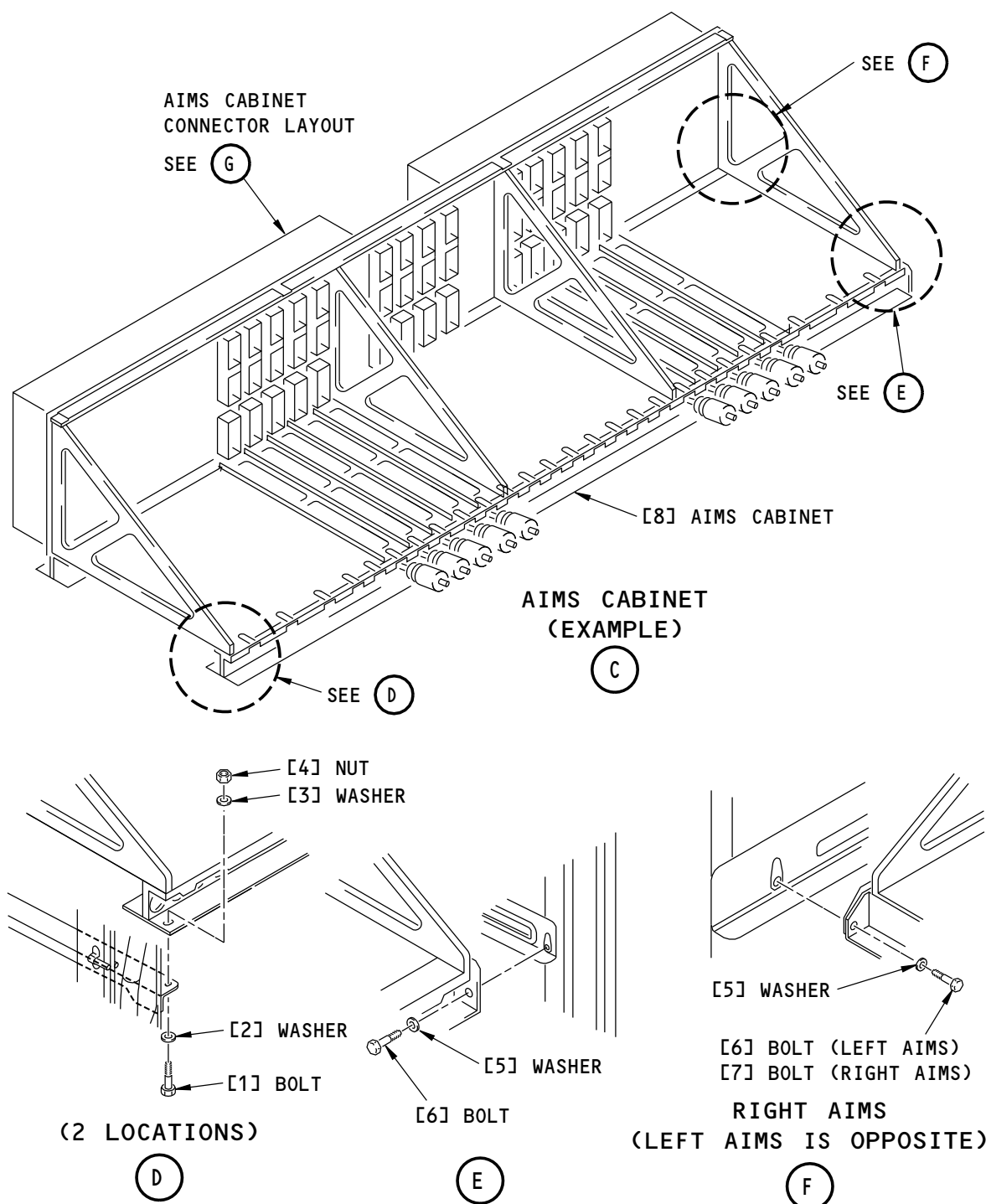
EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-21

Page 404
Jan 05/2015

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



N14534 S0006417442_V1

**AIMS Cabinet Installation
Figure 401/31-41-21-990-802 (Sheet 2 of 3)**

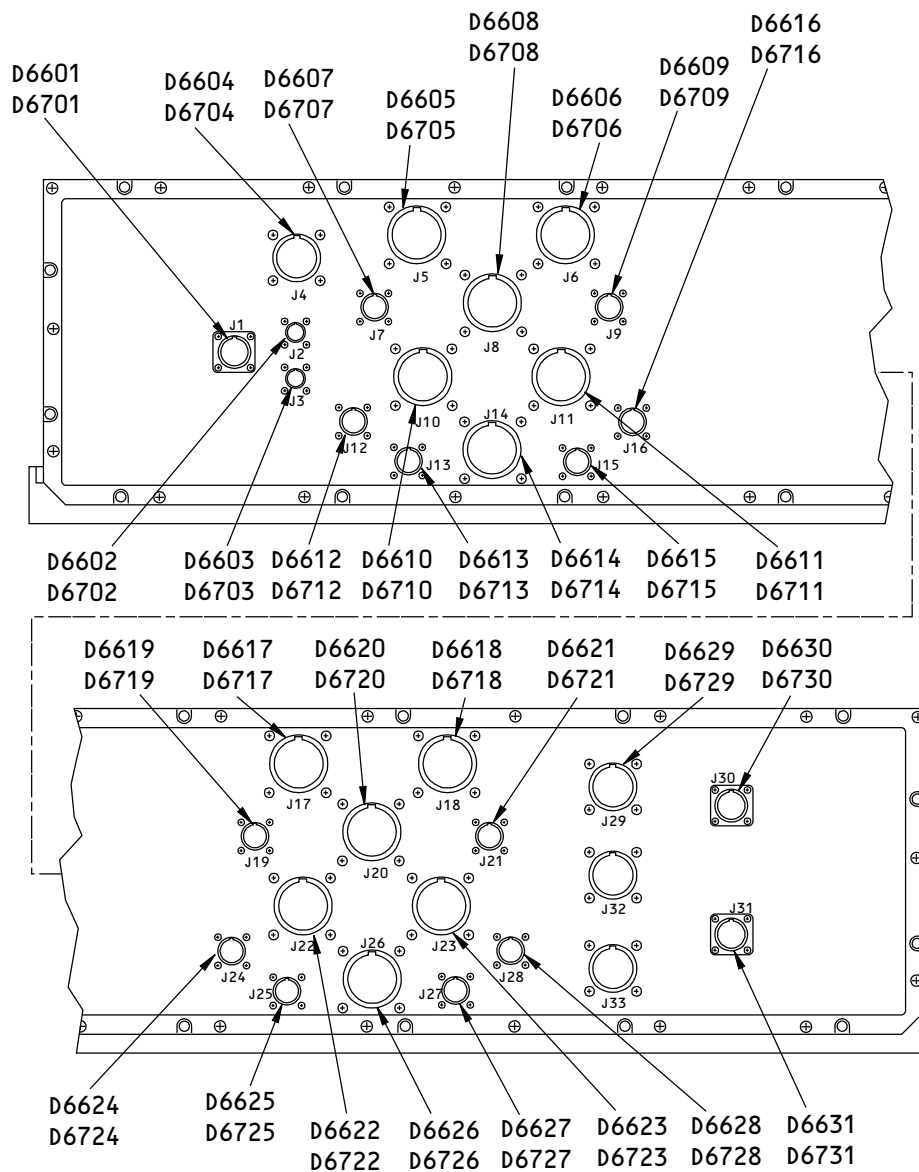
EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

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777-200/300 AIRCRAFT MAINTENANCE MANUAL



NOTE: THE D66XX ARE IN THE
LEFT CABINET.
THE D67XX ARE IN THE
RIGHT CABINET.

AIMS CABINET CONNECTOR LAYOUT (LEFT OR RIGHT CABINET, REAR VIEW)

G

N14538 S0006417443_V1

AIMS Cabinet Installation
Figure 401/31-41-21-990-802 (Sheet 3 of 3)

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 406
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-41-21-400-801

3. AIMS Cabinet Installation

A. General

- (1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (2) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the PMAT in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-02-400-801	Core Processor Module/Graphics Generator (CPM/GG) Installation (P/B 401)
31-41-04-400-802	Core Processor Module/Communication (CPM/Comm) Installation (P/B 401)
31-41-05-400-801	Core Processor Module/STD Installation (P/B 401)
31-41-05-420-801	Core Processor Module/Standard Software Installation (P/B 201)
31-41-06-400-801	Power Conditioning Module (PCM) Installation (P/B 401)
31-41-11-400-801	Input/Output Module (IOM) Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-810	How to Change the Primary CMCF (P/B 201)
SSM 31-41-00	System Schematics 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
SPL-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
8	AIMS cabinet	31-41-21-01-204	ARO ALL
		31-41-21-01-604	ARO ALL

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 407
May 05/2018

777-200/300 AIRCRAFT MAINTENANCE MANUAL

E. Location Zones

Zone	Area
212	Flight Compartment, Right

F. Installation Procedure

SUBTASK 31-41-21-860-024



ONLY OPEN THE AIMS STANDBY CIRCUIT BREAKER ON THE STANDBY POWER MANAGEMENT PANEL, P310, FOR THE AIMS CABINET YOU WILL INSTALL. IF THE CIRCUIT BREAKER FOR THE OTHER AIMS CABINET IS OPENED, THE CONTENTS OF THE AIMS BATTERY-BACKED MEMORY FOR THAT CABINET WILL BE ERASED.

- (1) For the left AIMS cabinet [8], do this step:
 - (a) Make sure that this circuit breaker is open and has safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	6	C31651	AIMS L

SUBTASK 31-41-21-860-025

- (2) For the right AIMS cabinet [8], do this step:
 - (a) Make sure that this circuit breaker is open and has safety tag:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	7	C31650	AIMS R

SUBTASK 31-41-21-860-004

- (3) Make sure that these circuit breakers are open and have safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

SUBTASK 31-41-21-420-002

- (4) Install the AIMS cabinet:
 - (a) Push the AIMS cabinet [8] into the rack.
 - (b) Install the bolt [1], washer [2], washer [3] and nut [4] that attach the cabinet to the left side of the rack.
 - (c) Install the bolt [6] and washer [5] that attach the cabinet to the right side of the rack.
 - (d) Connect all the electrical connectors to the back of the cabinet (SSM 31-41-00).

SUBTASK 31-41-21-420-001

- (5) Install these modules:

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 408
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (a) For the CPM/Comm(M001), do this task:
NOTE: Core Processor Module/Communication (CPM/Comm) Installation, TASK 31-41-04-400-802
- 1) Remove the protective cover from the electrical connector.
- (b) For the CPM/Standard(M002),
These are the tasks:
Core Processor Module/STD Installation, TASK 31-41-05-400-801,
Core Processor Module/Standard Software Installation, TASK 31-41-05-420-801.
- 1) Remove the protective cover from the electrical connector.
- (c) For the PCM(M210), do this task: Power Conditioning Module (PCM) Installation, TASK 31-41-06-400-801.
- 1) Remove the protective cover from the LRM electrical connector.
- (d) For the PCM(M450), do this task: Power Conditioning Module (PCM) Installation, TASK 31-41-06-400-801.
- 1) Remove the protective cover from the LRM electrical connector.
- (e) For the IOM(M003), do this task: Input/Output Module (IOM) Installation, TASK 31-41-11-400-801.
- 1) Remove the protective cover from the electrical connector.
- (f) For the IOM(M004), do this task: Input/Output Module (IOM) Installation, TASK 31-41-11-400-801.
- 1) Remove the protective cover from the electrical connector.
- (g) For the IOM(M008), do this task: Input/Output Module (IOM) Installation, TASK 31-41-11-400-801.
- 1) Remove the protective cover from the electrical connector.
- (h) For the IOM(M009), do this task: Input/Output Module (IOM) Installation, TASK 31-41-11-400-801.
- 1) Remove the protective cover from the electrical connector.
- (i) For the CPM/GG(M010), do this task: Core Processor Module/Graphics Generator (CPM/GG) Installation, TASK 31-41-02-400-801.
- 1) Remove the protective cover from the electrical connector.
- (j) For the CPM/GG(M011), do this task: Core Processor Module/Graphics Generator (CPM/GG) Installation, TASK 31-41-02-400-801.
- 1) Remove the protective cover from the electrical connector.

SUBTASK 31-41-21-860-026

- (6) If you installed the left AIMS cabinet [8], do this:
- (a) Remove the safety tag and close this circuit breaker:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	6	C31651	AIMS L

SUBTASK 31-41-21-860-027

- (7) If you installed the right AIMS cabinet [8], do this:

EFFECTIVITY
ARO ALL

D633W101-ARO

31-41-21

Page 409
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

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

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
J	7	C31650	AIMS R

SUBTASK 31-41-21-860-006

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

G. AIMS Cabinet Installation Test

SUBTASK 31-41-21-860-007

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-41-21-740-047

- (2) If you installed the left AIMS cabinet, do this ground test on the PMAT: 31 AIMS - Left AIMS, System Test, Left AIMS Cabinet Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the PMAT.
- (b) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

SUBTASK 31-41-21-740-002

- (3) If you installed the right AIMS cabinet, do this ground test on the MAT: 31 AIMS - Right AIMS, System Test, Right AIMS Cabinet Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (b) If FAILED shows, select the maintenance message and select MAINTENANCE MESSAGE DATA or refer to the applicable Maintenance Message Index in the FIM.

SUBTASK 31-41-21-860-020

- (4) If you installed the left cabinet, put the right CMCF in control (TASK 45-10-00-860-810).

SUBTASK 31-41-21-860-021

- (5) If you installed the right cabinet, put the left CMCF in control (TASK 45-10-00-860-810).

SUBTASK 31-41-21-740-046

- (6) Do this test on the PMAT: 31 AIMS - Left AIMS, LRU REPLACEMENT TEST, CPM/Comm(M001) in Left AIMS Module Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the PMAT.

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 410
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-21-740-004

- (7) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, LRU REPLACEMENT TEST, CPM/STD(M002)) in Left(Right) AIMS Module Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-740-009

- (8) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, LRU REPLACEMENT TEST, CPM/GG(M010) in Left(Right) AIMS Module Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-740-010

- (9) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, LRU REPLACEMENT TEST, CPM/GG(M011) in Left(Right) AIMS Module Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-740-020

- (10) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, LRU REPLACEMENT TEST, IOM(M003) in Left(Right) AIMS Module Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-740-011

- (11) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, OPERATIONAL TEST, IOM(M003) in Left(Right) AIMS ARINC 429 Relays.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-740-021

- (12) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, LRU REPLACEMENT TEST, IOM(M004) in Left(Right) AIMS Module Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-740-012

- (13) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, OPERATIONAL TEST, IOM(M004) in Left(Right) AIMS ARINC 429 Relays.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-740-022

- (14) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, LRU REPLACEMENT TEST, IOM(M008) in Left(Right) AIMS Module Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-740-013

- (15) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, OPERATIONAL TEST, IOM(M008) in Left(Right) AIMS ARINC 429 Relays.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 411
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-21-740-023

- (16) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, LRU REPLACEMENT TEST, IOM(M009) in Left(Right) AIMS Module Reset.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-740-014

- (17) Do this test on the MAT: 31 AIMS - Left(Right) AIMS, OPERATIONAL TEST, IOM(M009) in Left AIMS ARINC 429 Relays.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-860-010

- (18) If you will test the left(right) cabinet, put the left(right) CMCF in control (TASK 45-10-00-860-810).

SUBTASK 31-41-21-860-011

- (19) Make sure the FMC switch on the EICAS display control panel is in the L(R) position.

SUBTASK 31-41-21-740-015

- (20) Do this test on the MAT: 22 AIMS - Autothrottle, SYSTEM TEST, Left(Right) TMCF - Autothrottle Servo Loop.
- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-730-001

- (21) Use a maintenance access terminal (MAT) to do the system test of the left(right) cabinet TMF analog input discretes:
- (a) Make these selections on the MAT:
- 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 22 AIMS - AUTOTHROTTLE
 - 5) LRU REPLACEMENT TEST
 - 6) LEFT TMCF - AUTOTHROTTLE SWITCHES
 - 7) CONTINUE
- (b) Do the instructions that show on the MAT.
- (c) If TEST CONDITION: INHIBITED appears, select TO TEST, perform the listed actions, and then select CONTINUE.
- (d) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (e) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 31-41-21-740-024

- (22) If you installed the left AIMS cabinet, use a maintenance access terminal (MAT) to do the CPM/Graphics generators connectivity check:
- (a) Make these selections on the MAT:
- 1) ONBOARD MAINTENANCE

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 412
May 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) CONTINUE
 - 6) CPM/GG(M010-L and M011-R) to DU Interface Check
- (b) Do the instructions that show on the MAT and then make these selections:
- 1) CONTINUE
 - 2) START FUNCTION
 - 3) For the left inboard, left outboard, and center upper DUs, make sure:
 - a) GG SOURCE shows L10,
 - b) ARINC 429 LOOP shows PASS, and
 - c) INPUT ACTIVITY show activity in the 1st column.
 - 4) COMPLETE TEST
- (c) Make these selections on the MAT:
- 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) CONTINUE
 - 6) CPM/GG(M010-R and M011-L) to DU Interface Check
- (d) Do the instructions that show on the MAT and then make these selections:
- 1) CONTINUE
 - 2) START FUNCTION
 - 3) For the right inboard, right outboard, and center lower DUs, make sure:
 - a) GG SOURCE shows L11,
 - b) ARINC 429 LOOP shows PASS, and
 - c) INPUT ACTIVITY show activity in the 2nd column.
 - 4) COMPLETE TEST

SUBTASK 31-41-21-740-025

- (23) If you installed the right AIMS cabinet, use a maintenance access terminal (MAT) to do the CPM/Graphics generators connectivity check:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) CONTINUE
 - 6) CPM/GG(M010-R and M011-L) to DU Interface Check
 - (b) Do the instructions that show on the MAT and then make these selections:

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 413
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 1) CONTINUE
 - 2) START FUNCTION
 - 3) For the left inboard, left outboard, and center upper DUs, make sure:
 - a) GG SOURCE shows R10,
 - b) ARINC 429 LOOP shows PASS, and
 - c) INPUT ACTIVITY show activity in the 3rd column.
 - 4) COMPLETE TEST
- (c) Make these selections on the MAT:
- 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) CONTINUE
 - 6) CPM/GG(M010-L and M011-R) to DU Interface Check
- (d) Do the instructions that show on the MAT and then make these selections:
- 1) CONTINUE
 - 2) START FUNCTION
 - 3) For the right inboard, right outboard, and center lower DUs, make sure:
 - a) GG SOURCE shows R11,
 - b) ARINC 429 LOOP shows PASS, and
 - c) INPUT ACTIVITY show activity in the 4th column.
 - 4) COMPLETE TEST

SUBTASK 31-41-21-740-017

- (24) Do this test on the MAT: 31 AIMS - Flight Data Recorder System, SYSTEM TEST, Flight Data Recorder System.

NOTE: You will lose old flight recorder data when you do this test.

- (a) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.

SUBTASK 31-41-21-860-012

- (25) If you installed the left AIMS cabinet, do this step to open the right AIMS cabinet circuit breakers:

- (a) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

NOTE: The right AIMS cabinet must be powered off when you do a test of the left AIMS cabinet.

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 414
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-21-860-013

- (26) If you installed the right AIMS cabinet, do this step to open the left AIMS cabinet circuit breakers:
- (a) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4

NOTE: The left AIMS cabinet must be off for you to do a test of the right AIMS cabinet.

SUBTASK 31-41-21-740-018

- (27) Do these steps to check the nav tuning bus interface:

NOTE: The other AIMS cabinet must be off for this test.

- (a) Set the FMC selector switch on the right display switching module to the L position.

NOTE: The right display switching module is on the P3-2 panel.

- (b) Set the inboard DSPL switch on the left display switching module to the NAV position.

NOTE: The left display switching module is on the P1-2 panel.

- (c) Set the inboard DSPL switch on the right display switching module to the NAV position.

NOTE: The right display switching module is on the P3-2 panel.

- (d) Set the display mode switch on the left EFIS control panel to the APP position.

NOTE: The left EFIS control panel is on the P55 panel.

- (e) Set the display mode switch on the right EFIS control panel to the APP position.

NOTE: The right EFIS control panel is on the P55 panel.

- (f) Tune the left ILS to any valid ILS frequency on a CDU. Use a frequency that is different then the value currently shown.

NOTE: The CDUs are in the center aisle stand.

- (g) Tune the left ILS to any valid ILS course on a CDU. Use a course that is different then the value currently shown.

- (h) Make sure the selected station identifier or tuned frequency is displayed on the upper right corner of the left ND for the left ILS.

- (i) Make sure the selected course is displayed on the upper right corner of the left ND for the left ILS.

- (j) Make sure the selected station identifier or tuned frequency is displayed on the upper right corner of the right ND for the right ILS.

- (k) Make sure the selected course is displayed on the upper right corner of the right ND for the right ILS.

SUBTASK 31-41-21-860-014

- (28) Open this circuit breaker and install safety tag:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	9	C34426	MMR L

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 415
May 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-21-740-019

- (29) Do these steps to check the nav tuning bus interface:
- (a) Make sure the selected station identifier or tuned frequency is displayed on the upper right corner of the left ND for the center ILS.
 - (b) Make sure the selected course is displayed on the upper right corner of the left ND for the center ILS.

SUBTASK 31-41-21-860-015

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
E	9	C34426	MMR L

SUBTASK 31-41-21-700-001

- (31) Do these steps to check the cursor control device and EFIS control panel interface:
- (a) Set the inboard DSPL switch on the left display switching module to the MFD position.
 - (b) Set the inboard DSPL switch on the right display switching module to the MFD position.
 - (c) Make sure the EICAS message "SGL SOURCE DISPLAYS" (advisory) does not show.
 - (d) Push the L INBD switch on the display select panel.
 - (e) On the CDU, push the key adjacent to MAINT INFO DISPLAY.
 - (f) Push the R INBD switch on the display select panel.
 - (g) On the CDU, push the key adjacent to MAINT INFO DISPLAY.
 - (h) Push the INBD switch on the left cursor control device (CCD).
 - (i) Move your finger on the touch pad of the left CCD.
 - (j) Make sure the cursor moves on the left inboard DU.
NOTE: The cursor moves in the direction that you move your finger.
 - (k) Push the INBD switch on the right CCD.
 - (l) Move your finger on the touch pad of the right CCD.
 - (m) Make sure the cursor moves on the right inboard DU.
NOTE: The cursor moves in the direction that you move your finger.
 - (n) Rotate the BARO knob on the left EFIS control panel clockwise and counterclockwise.
 - (o) Make sure the BARO value on the left PFD increases when you rotate the BARO switch clockwise.
 - (p) Make sure the BARO value on the left PFD decreases when you rotate the BARO switch counterclockwise.
 - (q) Rotate the BARO knob on the right EFIS control panel clockwise and counterclockwise.
 - (r) Make sure the BARO value on the right PFD increases when you rotate the BARO switch clockwise.
 - (s) Make sure the BARO value on the right PFD decreases when you rotate the BARO switch counterclockwise.

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 416
May 05/2017

777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-41-21-700-002



WARNING

DO NOT OPERATE THE WEATHER RADAR WHILE FUEL IS ADDED OR REMOVED FROM THE AIRPLANE. DO NOT TRANSMIT RF ENERGY WHILE FUEL IS ADDED OR REMOVED IN AN AREA 300 FEET OR LESS OF THE ANTENNA. THIS CAN CAUSE AN EXPLOSION.



WARNING

MAKE SURE NO PERSONS ARE IN THE AREA 50 FEET OR LESS FROM THE ANTENNA WHEN IT TRANSMITS RF ENERGY. RF ENERGY CAN CAUSE INJURIES TO PERSONS.



CAUTION

MAKE SURE NO LARGE METALLIC OBJECTS ARE CLOSER THAN 300 FEET FOR THE 180-DEGREE AREA IN FRONT OF THE AIRPLANE WHEN THE RADAR OPERATES. LARGE METALLIC OBJECTS CAN INCLUDE HANGARS, TRUCKS, OR OTHER AIRPLANES. DAMAGE TO THE TRANSCEIVER COULD OCCUR IF OBJECTS ARE IN THIS AREA. WHEN THE WEATHER RADAR OPERATES IN THE STANDBY OR TEST MODE, THIS DOES NOT APPLY.

- (32) Do these steps to check the weather radar interface:
- (a) Set the inboard DSPL switch on the left display switching module to the NAV position.
 - (b) Set the inboard DSPL switch on the right display switching module to the NAV position.
 - (c) Set the mode control switch on the left EFIS control panel to the MAP position.
 - (d) Set the mode control switch on the right EFIS control panel to the MAP position.
 - (e) Set the left ADF/VOR control switch on the left EFIS control panel to the OFF position.
 - (f) Set the right ADF/VOR control switch on the right EFIS control panel to the OFF position.
 - (g) If testing the left AIMS cabinet, do these steps to test the interface of the left AIMS cabinet and the weather radar system:
 - 1) Select the left weather radar system on the WXR control panel.
NOTE: For single weather radar system, it is not necessary to select the left or the right weather radar system.
 - 2) Set the mode selector switch on the WXR control panel to the TEST position.
 - 3) Push the WXR switch on the left EFIS control panel.
 - 4) Push the WXR switch on the right EFIS control panel.
 - a) Make sure the weather radar test pattern appears on the left (captain's) ND.
 - b) Make sure the weather radar test pattern appears on the right (first officer's) ND.
 - c) Make sure the WXR ATT flag does not appear on the left ND.
 - d) Make sure the WXR ATT flag does not appear on the right ND.
 - (h) If testing the right AIMS cabinet, do these steps to test the interface of the left AIMS cabinet and the weather radar system:
 - 1) Select the right weather radar system on the WXR control panel.
NOTE: For single weather radar system, it is not necessary to select the left or the right weather radar system.
 - 2) Set the mode selector switch on the WXR control panel to the TEST position.
 - 3) Push the WXR switch on the left EFIS control panel.

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 417
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 4) Push the WXR switch on the right EFIS control panel.
 - a) Make sure the weather radar test pattern appears on the left (captain's) ND.
 - b) Make sure the weather radar test pattern appears on the right (first officer's) ND.
 - c) Make sure the WXR ATT flag does not appear on the left ND.
 - d) Make sure the WXR ATT flag does not appear on the right ND.

SUBTASK 31-41-21-860-016

- (33) If you did a test of the left cabinet, do this step:
 - (a) Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	12	C31610	AIMS R-1
F	13	C31612	AIMS R-2
F	14	C31618	AIMS R-3
F	15	C31620	AIMS R-4

SUBTASK 31-41-21-860-017

- (34) If you did a test of the right cabinet, do this step:
 - (a) Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-41-21

D633W101-ARO

Page 418
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

WARNING ELECTRONIC SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure does a system test of the Warning Electronic System (WES).
- C. There are two warning electronic units (WEU-L and WEU-R) in the WES. Each WEU has two identical but independent channels which do the same functions.
- D. The WES supplies indications of incorrect airplane conditions to the flight crew.

TASK 31-51-00-730-801

2. Warning Electronic System - System Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task has these tests:
 - (a) The Warning Electronic System Test
 - (b) The Configuration Check
 - (c) The Takeoff Configuration Test
 - (d) The Landing Configuration Test
 - (e) The Stall Warning Test
 - (f) The Autopilot Disconnect/Master Warning Signals Test
 - (g) The Alternate Gear Down Dispatch Switch Test
- (2) This test does a full functional check of the WES.
- (3) The warning electronic system test makes sure that the WEUs are installed correctly.
- (4) The configuration check makes sure that the WEU has the correct software.
- (5) You cannot do a configuration check until the operational program specification (OPS) is installed.
- (6) The takeoff configuration test makes sure that the takeoff configuration function is operational.
- (7) The landing configuration test makes sure that the landing configuration function is operational.
- (8) The stall warning test makes sure that the stick shaker operates correctly.
- (9) The autopilot disconnect/master warning signals test makes sure that the autopilot disconnect and the master warning switch operate correctly.
- (10) The alternate gear down dispatch switch test makes sure that the switch operates correctly.
- (11) A maintenance access terminal is necessary for this procedure, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
27-02-01-400-801	Primary Flight Computer (PFC) Reset Test (P/B 501)
27-51-00-740-801	Flap/Slat Electronics Unit (FSEU) Self Test (P/B 501)
31-41-00-710-801	Airplane Information Management System (AIMS) - Operational Test (P/B 501)
31-51-01-400-802	Warning Electronic Unit Software Installation (P/B 201)

EFFECTIVITY
ARO ALL

31-51-00

D633W101-ARO

Page 501
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Title
31-61-00-730-801	Primary Display System - System Test (P/B 501)
32-08-00-730-801	Proximity Sensor Electronics Unit - System Test (P/B 501)
34-21-00-730-801	Air Data Inertial Reference System - System Test (P/B 501)
34-33-00-710-801	Radio Altimeter System - Operational Test (P/B 501)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 31-51-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-51-00-860-002

- (2) Make sure these systems are on:
- (a) Primary Flight Computers (TASK 27-02-01-400-801).
 - (b) Flap/Slat Electronic Units (TASK 27-51-00-740-801).
 - (c) Airplane Information Management System (TASK 31-41-00-710-801).
 - (d) Primary Display System (TASK 31-61-00-730-801).
 - (e) Proximity Sensor System (TASK 32-08-00-730-801).
 - (f) Air Data Inertial Reference System (TASK 34-21-00-730-801).
 - (g) Radio Altimeter System (TASK 34-33-00-710-801).

E. Warning Electronic System Test

SUBTASK 31-51-00-710-001

- (1) Use a maintenance access terminal (MAT) to do an operational test of the left and right WEUs:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 Warning Electronic System
 - 5) SYSTEM TEST
 - 6) Warning Electronic System
 - 7) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST

NOTE: If the test is not completed after 10 minutes, select STOP TEST. After FAILED shows adjacent to the TEST CONDITION, select OPERATE TEST AGAIN on the MAT.

EFFECTIVITY
ARO ALL

31-51-00

D633W101-ARO

Page 502
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (d) If PASSED shows, then do these steps:
 - 1) Select EXTENDED MAINTENANCE.
 - 2) Select EXISTING FAULTS.
 - 3) Select 31 Warning Electronic System (if it shows) and look for one of these maintenance messages: 31-70035, 31-70036, 31-70037, or 31-70038.
 - 4) IF one of the above maintenance messages shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and then select MAINTENANCE MESSAGE DATA.
- (e) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 31-51-00-710-005

- (2) Do this task: Fire/Ovht Warning Signals Test, TASK 31-51-00-710-801.

F. Configuration Check

SUBTASK 31-51-00-750-001

- (1) Use a maintenance access terminal (MAT) to do a software configuration check of the WEUs:

NOTE: Make sure you know the correct software part number for the WEU before you select the software part number on the display. For the WEU to be an approved installation, the correct software part number must be installed.

- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) SYSTEM CONFIGURATION
 - 4) 31 Warning Electronic System
 - 5) CONTINUE
- (b) Find these items on the display and make sure that the software part numbers are correct:
 - 1) Warning Electronic Unit (left channel 1)
 - 2) Warning Electronic Unit (left channel 2)
 - 3) Warning Electronic Unit (right channel 1)
 - 4) Warning Electronic Unit (right channel 2).

NOTE: The WEU must contain these pieces of software:

OPS (operational program specification), and OPC (operational program configuration).

- (c) Select GO BACK to remove the display.

SUBTASK 31-51-00-860-004

- (2) If one or more of the part number are incorrect, install software in the WEU (TASK 31-51-01-400-802).

G. Takeoff Configuration Warning Test

SUBTASK 31-51-00-710-002

- (1) Use a maintenance access terminal (MAT) to do the Takeoff Configuration Warning Test:

EFFECTIVITY
ARO ALL

31-51-00

D633W101-ARO

Page 503
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 Warning Electronic System
 - 5) SYSTEM TEST
 - 6) Takeoff Configuration Warning
 - 7) CONTINUE
- (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST

NOTE: If the test is not completed after 10 minutes, select STOP TEST. After FAILED shows adjacent to the TEST CONDITION, select OPERATE TEST AGAIN on the MAT.
- (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

H. Landing Configuration Warning Test

SUBTASK 31-51-00-710-003

- (1) Use a maintenance access terminal (MAT) to do the Landing Configuration Warning Test:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 Warning Electronic System
 - 5) SYSTEM TEST
 - 6) Landing Configuration Warning
 - 7) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST

NOTE: If the test is not completed after 10 minutes, select STOP TEST. After FAILED shows adjacent to the TEST CONDITION, select OPERATE TEST AGAIN on the MAT.
 - (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
 - (d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

EFFECTIVITY
ARO ALL

31-51-00

D633W101-ARO

Page 504
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

I. Stall Warning Test

SUBTASK 31-51-00-710-004

- (1) Use a maintenance access terminal (MAT) to do the Stall Warning Test:



IF THE FLAP LEVER IS AT 1, 5, 15, OR 20 AND HYDRAULIC POWER IS APPLIED TO THE AIRPLANE, THIS TEST WILL CAUSE THE LE SLATS TO MOVE FROM SEALED TO GAPPED. THE LE SLAT MOVEMENT CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT. THIS LE SLAT MOVEMENT CAN BE PREVENTED BY SETTING BOTH THE C1 AND C2 AIR SWITCHES (P5 HYDRAULIC PANEL) TO THE OFF POSITIONS.

- (a) Make these selections on the MAT:
- 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 27 Stall Warning Management
 - 5) SYSTEM TEST
 - 6) Stall Warning
 - 7) CONTINUE
- (b) Do the instructions that show on the MAT and then make these selections:
- 1) CONTINUE
 - 2) START TEST
- NOTE: If the test is not completed after 10 minutes, select STOP TEST. After FAILED shows adjacent to the TEST CONDITION, select OPERATE TEST AGAIN on the MAT.
- (c) When the test is completed, make sure that PASSED shows adjacent to TEST CONDITION on the MAT.
- (d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

J. Autopilot Disconnect/Master Warning Signals Test

SUBTASK 31-51-00-710-008

- (1) Push and hold the autopilot disconnect switch on the captain's control wheel.
- (a) Make sure that the master WARNING light comes on.
 - (b) Make sure that the wailer aural comes on.

SUBTASK 31-51-00-710-009

- (2) Push and hold the captain's master WARNING light.
- (a) Make sure that the master WARNING light goes off.
 - (b) Make sure that the wailer aural stays on.

SUBTASK 31-51-00-710-010

- (3) Release the captain's master WARNING light.

SUBTASK 31-51-00-710-011

- (4) Release the autopilot disconnect switch on the captain's control wheel.
- (a) Make sure that the master WARNING light is off.

EFFECTIVITY
ARO ALL

31-51-00

D633W101-ARO

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Page 505
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (b) Make sure that the wailer aural stops.

SUBTASK 31-51-00-710-012

- (5) Push and hold the autopilot disconnect switch on the F/O's control wheel.
 - (a) Make sure that the master WARNING light comes on.
 - (b) Make sure that the wailer aural comes on.

SUBTASK 31-51-00-710-013

- (6) Push and hold the F/O's master WARNING light.
 - (a) Make sure that the master WARNING light goes off.
 - (b) Make sure that the wailer aural stays on.

SUBTASK 31-51-00-710-014

- (7) Release the F/O's master WARNING light.

SUBTASK 31-51-00-710-015

- (8) Release the autopilot disconnect switch on the F/O's control wheel.
 - (a) Make sure that the master WARNING light is off.
 - (b) Make sure that the wailer aural stops.

K. Alternate Gear Down Dispatch Switch Test

SUBTASK 31-51-00-750-002

- (1) Set the ALTERNATE GEAR DOWN DISPATCH switch in the main equipment center to the VMO position.
 - (a) Make sure that the EICAS memo message, VMO GEAR DOWN, shows on the primary EICAS display.

SUBTASK 31-51-00-750-003

- (2) Set the ALTERNATE GEAR DOWN DISPATCH switch to the NORMAL position.
 - (a) Make sure that the EICAS memo message, VMO GEAR DOWN, does not show on the primary EICAS display.

————— END OF TASK —————

31-CMR-01

TASK 31-51-00-710-801

3. Fire/Ovht Warning Signals Test

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This task makes sure the Fire/Ovht warning function operates correctly. (Figure 501)

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

EFFECTIVITY
ARO ALL

31-51-00

D633W101-ARO

Page 506
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

D. Procedure

SUBTASK 31-51-00-860-005

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-51-00-710-006

(2) Push and hold the FIRE/OVHT TEST switch on the P5 panel.

(a) Make sure these indications occur:

- 1) FIRE TEST IN PROGRESS EICAS message shows.
- 2) APU fire warning light.
- 3) FWD cargo fire warning light.
- 4) AFT cargo fire warning light.
- 5) Master WARNING lights come on.
- 6) The fire bell aural comes on.

NOTE: The fire bell operates on a cycle of 1 second on and 9.5 seconds off plus or minus 0.5 seconds.

- 7) FUEL CONTROL (L) (R) switch fire lights.
- 8) LEFT and RIGHT engine fire warning lights.
- 9) FIRE TEST PASS EICAS message shows.

SUBTASK 31-51-00-710-007

(3) Release the FIRE/OVHT TEST switch on the P5 panel.

(a) Make sure these indications occur:

- 1) APU fire warning light go off.
- 2) FWD cargo fire warning light go off.
- 3) AFT cargo fire warning light go off.
- 4) The master WARNING lights go off
- 5) The fire bell aural stops.
- 6) FUEL CONTROL (L) (R) switch fire lights go off.
- 7) LEFT and RIGHT engine fire warning lights go off.
- 8) FIRE TEST PASS EICAS message shows go off.

———— **END OF TASK** ————

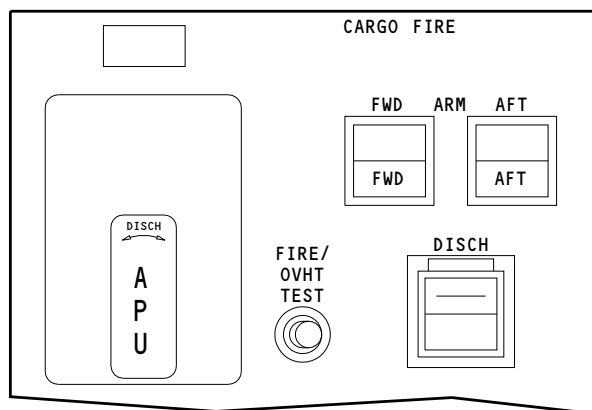
EFFECTIVITY
ARO ALL

D633W101-ARO

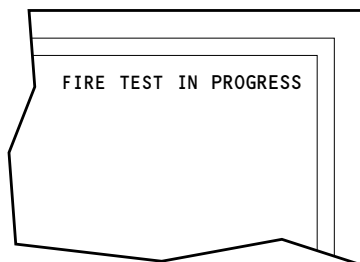
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Page 507
Sep 05/2017

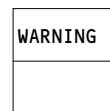
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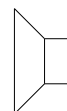
APU AND CARGO FIRE WARNING LIGHTS (P5)



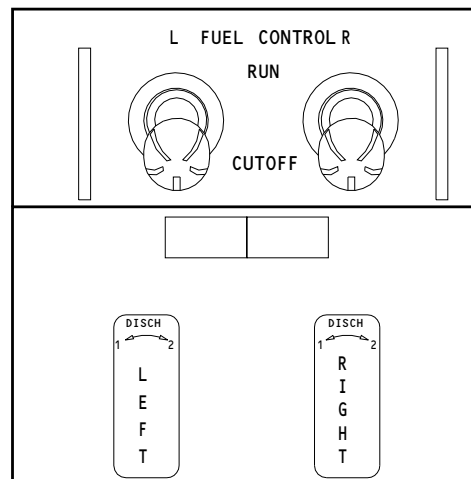
EICAS ENGINE PRIMARY FORMAT



MASTER WARNING
LIGHTS



FIRE AURAL
WARNING



ENGINE FIRE WARNING LIGHTS (P10/P8)

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FIRE PROTECTION - FIRE/OVERHEAT TEST Figure 501/31-51-00-990-802

EFFECTIVITY
ARO ALL

31-51-00

D633W101-ARO

Page 508
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

WARNING ELECTRONIC UNIT (WEU) - MAINTENANCE PRACTICES

TASK 31-51-01-400-802

1. Warning Electronic Unit Software Installation

A. General

- (1) This procedure tells you how to install software in the Warning Electronic Unit (WEU).
- (2) Each WEU has two channels. The names of the two software parts loaded into each channel in a WEU follow:
 - WEU Operational Program Software (OPS)
 - WEU Operational Program Configuration (OPC)
 - Using the names, the specific software part numbers for an aircraft can be identified in the Illustrated Parts Catalog (IPC). On an aircraft four WEU channels use the same two software part numbers.
- (3) You can install the pieces of software in any sequence, but it is best to install the OPS first. You cannot do a configuration check until the OPS is installed.
- (4) The two pieces of software must be installed for each channel of each WEU.
- (5) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (6) If you do not know if the WEU needs new software, you can first do the software configuration check. It will save time if you only install software when the software is missing or the part number is incorrect. You can find the software configuration check in this task: Warning Electronic Unit Installation, TASK 31-51-01-400-801.
- (7) You can use the GSE-Laptop, maintenance device, SPL-5704, as an alternative to the Portable Maintenance Access Terminal (PMAT) in this task.

NOTE: The GSE-Laptop and the PMAT are equivalent for all of the PMAT functions that you will use in this task.

- (8) You can install the software from disks, the Maintenance Access Terminal (MAT) hard drive or the PMAT hard drive (if available). It is recommended that you install software from the MAT or PMAT hard drive. To install new software on the MAT or PMAT hard drive, do this task: How to Add Software to the Hard Drive, TASK 45-10-00-860-812.

NOTE: When new software is installed in the WEU, the load process first erases the old software and then installs the new software. If you install software directly to the WEU from a faulty disk, the load process may erase the old software and then fail, so that no software is installed. If you install a faulty disk to the MAT or PMAT hard drive, the load may fail, but you will not erase the software from the WEU.

- (a) It is recommended that you remove old software part numbers from the MAT or PMAT hard drive after new software is installed. To remove software from the hard drive, do this task: How to Remove Software from the Hard Drive, TASK 45-10-00-860-813.

ARO 014-999

- (9) You can also install the software from the Onboard Network System (ONS) Mass Storage Device (MSD). To install new software on the ONS MSD, do this task: Mass Storage Device Software Part Installation, TASK 46-13-00-470-802.

EFFECTIVITY
ARO ALL

31-51-01

D633W101-ARO

Page 201
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ARO 014-999 (Continued)

- (a) It is recommended that you remove old software part numbers from the ONS MSD after new software is installed. To remove software from the ONS MSD, do this task: Mass Storage Device Software Removal, TASK 46-13-00-070-801.

ARO ALL

- (10) The airplane must be on the ground with the engines off before you can install software.
- (11) To read about the conditions and times necessary for software installation, do this task: On-Airplane Software Installation, TASK 20-15-11-400-801.
- (12) The CMCS WEU system test is automatically started after the OPS and OPC softwares are installed into all four WEU channels.

NOTE: This test makes sure that all WEU OPS and OPC software part numbers are correctly installed into all WEU channels as shown on the MAT.

NOTE: This test can also be started from the MAT manually.

B. References

Reference	Title
20-15-11-400-801	On-Airplane Software Installation (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-51-01-400-801	Warning Electronic Unit Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
45-10-00-860-812	How to Add Software to the Hard Drive (P/B 201)
45-10-00-860-813	How to Remove Software from the Hard Drive (P/B 201)
46-13-00-070-801	Mass Storage Device Software Removal (P/B 201)
46-13-00-470-802	Mass Storage Device Software Part 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-5704	Device - Maintenance Part #: G45004-1 Supplier: 81205 Part #: G45004-3 Supplier: 81205 Opt Part #: G45002-20 Supplier: 81205 Opt Part #: G45002-25 Supplier: 81205 Opt Part #: G45002-29 Supplier: 81205 Opt Part #: J45001-1 Supplier: 81205 Opt Part #: J45003-1 Supplier: 81205

D. Location Zones

Zone	Area
212	Flight Compartment, Right

E. Procedure

SUBTASK 31-51-01-860-009

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

EFFECTIVITY
ARO ALL

31-51-01

D633W101-ARO

Page 202
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-51-01-420-003

- (2) Use a maintenance access terminal (MAT or PMAT) to install software in the WEU:

NOTE: Make sure you know the correct software part number for the WEU before you select the software part number on the display. For the WEU to be an approved installation, the correct software must be installed.

- (a) If the software is on a disk, put the correct disk in the disk drive.
- (b) Make these selections on the MAT or PMAT:
 - 1) ONBOARD MAINTENANCE
 - 2) EXTENDED MAINTENANCE
 - 3) DATA LOAD
- (c) Make these selections to select the component that will receive the software:
 - 1) SELECT DESTINATION
 - 2) 31 Warning Electronic System
 - 3) Warning Electronic Unit (left channel 1, left channel 2, right channel 1, or right channel 2)
 - 4) CONTINUE
- (d) Make these selections to select the source of the software:
 - 1) SELECT SOURCE:
 - 2) Select the source of the software (if DISK DRIVE is the only selection, it is automatically selected).
 - 3) Select the correct software part number from the display.
 - 4) CONTINUE
- (e) Select START to start the software installation.
- (f) When the software installation is completed, make sure the correct part number shows on the display.
- (g) Select CONTINUE to remove the configuration display.

NOTE: If the other WEU channels need to be loaded, do this task again.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-51-01

Page 203
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

WARNING ELECTRONIC UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the warning electronic unit (WEU)
 - (2) An installation of the WEU.
- B. In the installation task, there is a test to make sure the WEU is installed correctly.
- C. The left and right WEUs are installed in the main equipment center. The left WEU is in the E1-5 shelf. The right WEU is in the E4-2 shelf.

TASK 31-51-01-000-801

2. Warning Electronic Unit Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. **References**

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Fuselage (P/B 201)
20-10-01-000-801	E/E Box Removal (P/B 401)

B. **Location Zones**

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

C. **Access Panels**

Number	Name/Location
117AL	Main Equipment Center Access Door

D. **Removal Procedure**

SUBTASK 31-51-01-010-001

- (1) To get access to the main equipment center (TASK 06-41-00-800-801),
Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

SUBTASK 31-51-01-860-001

- (2) For the left WEU [1],
Open these circuit breakers and install safety tags:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

SUBTASK 31-51-01-860-004

- (3) For the right WEU [1],

EFFECTIVITY
ARO ALL

D633W101-ARO

31-51-01

Page 401
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Open these circuit breakers and install safety tags:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

SUBTASK 31-51-01-020-001



CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE WEU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE WEU.

- (4) To remove the applicable WEU [1], do this task: E/E Box Removal, TASK 20-10-01-000-801.

NOTE: The warning electronic unit is referred to as the WEU in this task.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

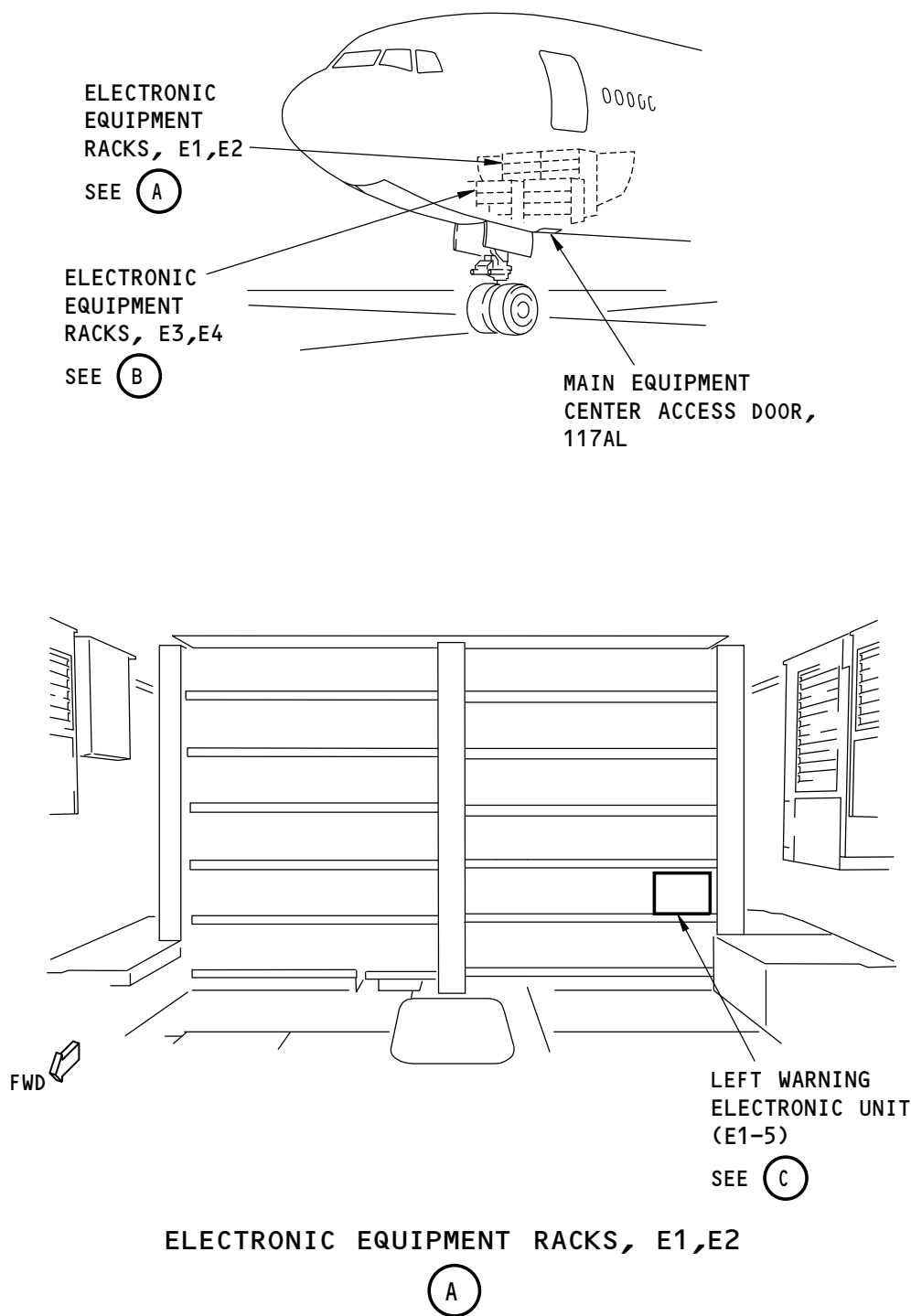
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31-51-01

Page 402
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL



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Warning Electronic Unit (WEU) Installation
Figure 401/31-51-01-990-801 (Sheet 1 of 2)

EFFECTIVITY
ARO ALL

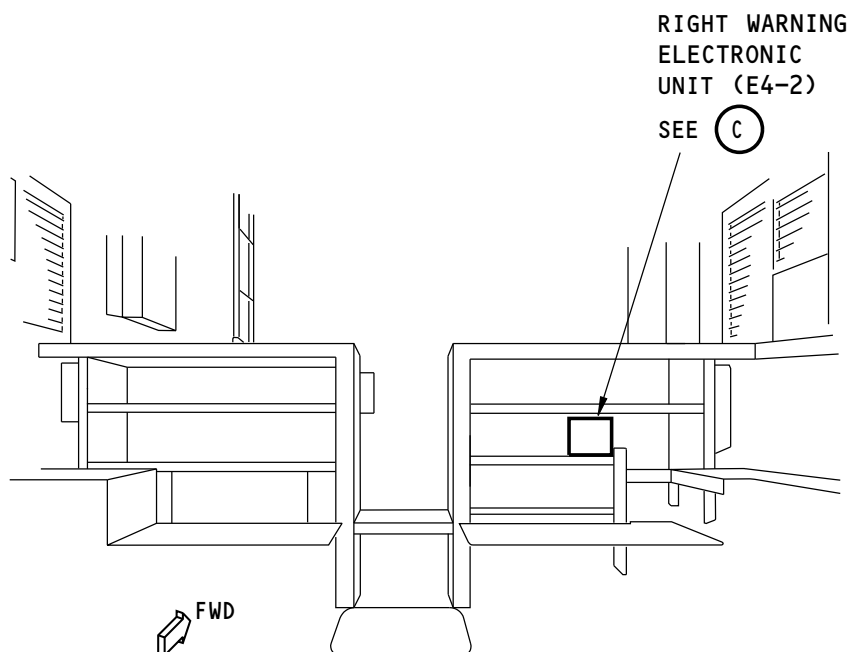
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31-51-01

Page 403
Jan 05/2015

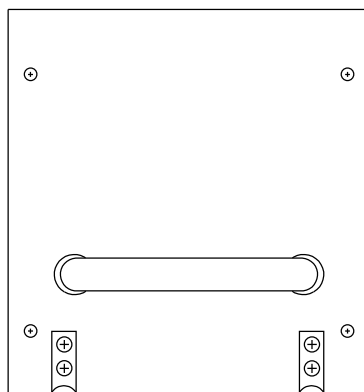


777-200/300
AIRCRAFT MAINTENANCE MANUAL



ELECTRONIC EQUIPMENT RACKS, E3,E4

(B)



[1] WARNING ELECTRONIC UNIT

(C)

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Warning Electronic Unit (WEU) Installation
Figure 401/31-51-01-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

31-51-01

D633W101-ARO

Page 404
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-51-01-400-801

3. Warning Electronic Unit Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The configuration check makes sure that the WEU has correct software.
- (2) You cannot do a configuration check until the operational program specification (OPS) is installed.
- (3) A maintenance access terminal is necessary for this procedure.

B. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Fuselage (P/B 201)
20-10-01-400-801	E/E Box Installation (P/B 401)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-51-00-730-801	Warning Electronic System - System Test (P/B 501)
31-51-01-400-802	Warning Electronic Unit Software Installation (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	WEU	25-17-01-32-015	ARO ALL
		25-71-91-50A-075	ARO ALL
		31-51-01-01-040	ARO ALL
		31-51-01-02-008	ARO ALL

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. Installation Procedure

SUBTASK 31-51-01-860-005

- (1) For the left WEU [1],

Make sure that these circuit breakers are open:

Standby Power Management Panel, P310

Row	Col	Number	Name
C	8	C31653	WEU L1
C	9	C31655	WEU L2

SUBTASK 31-51-01-860-006

- (2) For the right WEU [1],

EFFECTIVITY
ARO ALL

31-51-01

D633W101-ARO

Page 405
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Make sure that these circuit breakers are open:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

SUBTASK 31-51-01-420-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE WEU. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE WEU.

- (3) To install the applicable WEU [1], do this task: E/E Box Installation, TASK 20-10-01-400-801.

NOTE: The warning electronic unit is referred to as the WEU in this task.

SUBTASK 31-51-01-010-002

- (4) Close this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

(TASK 06-41-00-800-801).

SUBTASK 31-51-01-860-007

- (5) For the left WEU [1],

Remove the safety tags and close these circuit breakers:

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	8	C31653	WEU L1
C	9	C31655	WEU L2

SUBTASK 31-51-01-860-008

- (6) For the right WEU [1],

Remove the safety tags and close these circuit breakers:

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
M	13	C31652	WEU R1
M	14	C31654	WEU R2

G. Installation Test

SUBTASK 31-51-01-860-002

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-51-01-750-002

- (2) Make sure the master warning lights flash momentarily.

SUBTASK 31-51-01-750-003

- (3) Make sure you hear the caution aural momentarily on the Capt's and F/O's speakers.

SUBTASK 31-51-01-750-004

- (4) Make sure these EICAS status messages do not show on the multi-function display (MFD):

(a) WEU CHANNEL L1

EFFECTIVITY
ARO ALL

31-51-01

D633W101-ARO

Page 406
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (b) WEU CHANNEL L2
- (c) WEU CHANNEL R1
- (d) WEU CHANNEL R2
- (e) WARNING SPEAKER L
- (f) WARNING SPEAKER R.

SUBTASK 31-51-01-710-002

- (5) Use a maintenance access terminal (MAT) to do a software configuration check of the left (right) WEU [1]:

NOTE: Make sure you know the correct software part number for the WEU [1] when you look at the software part number on the display. For the WEU [1] to be an approved installation, the correct software part number must be installed.

- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) SYSTEM CONFIGURATION
 - 4) 31 Warning Electronic System
 - 5) CONTINUE
- (b) Find these items on the display and make sure that the software part numbers are correct:
 - 1) Warning Electronic Unit (Left channel 1)
 - 2) Warning Electronic Unit (Left channel 2)
 - 3) Warning Electronic Unit (Right channel 1)
 - 4) Warning Electronic Unit (Right channel 2).

NOTE: The WEU [1] must contain these pieces of software:

OPS (Operational program specification), and OPC (operational program configuration).

- (c) Select GO BACK to remove the display.

SUBTASK 31-51-01-750-001

- (6) If one or more of the part numbers are incorrect, do this task: Warning Electronic Unit Software Installation, TASK 31-51-01-400-802.

SUBTASK 31-51-01-710-003

- (7) Use a maintenance access terminal (MAT) to do an operational test of the left (right) WEU [1]:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 Warning Electronic System
 - 5) SYSTEM TEST
 - 6) Warning Electronic System
 - 7) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:

EFFECTIVITY
ARO ALL

31-51-01

D633W101-ARO

Page 407
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 1) CONTINUE
- 2) START TEST

NOTE: If the test is not completed after 10 minutes, select STOP TEST. After FAILED shows adjacent to the TEST CONDITION, select OPERATE TEST AGAIN on the MAT.

- (c) When the test is completed, make sure the PASSED shows adjacent to TEST CONDITION on the MAT.
- (d) If PASSED shows, then do these steps:
 - 1) Select EXTENDED MAINTENANCE.
 - 2) Select EXISTING FAULTS.
 - 3) Select 31 Warning Electronic System (if it shows) and look for one of these maintenance messages: 31-70035, 31-70036, 31-70037, or 31-70038.
 - 4) IF one of the above maintenance messages shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and then select MAINTENANCE MESSAGE DATA.
- (e) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 31-51-01-710-004

- (8) Use a maintenance access terminal (MAT) to do the Stall Warning Test:

- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 27 Stall Warning Management
 - 5) SYSTEM TEST
 - 6) Stall Warning
 - 7) CONTINUE
- (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST

NOTE: If the test is not completed after 10 minutes, select STOP TEST. After FAILED shows adjacent to the TEST CONDITION, select OPERATE TEST AGAIN on the MAT.

- (c) When the test is completed, make sure the PASSED shows adjacent to TEST CONDITION on the MAT.
- (d) If FAILED shows, refer to the applicable Maintenance Message Index in the FIM or select the maintenance message and select MAINTENANCE MESSAGE DATA.

SUBTASK 31-51-01-710-001

- (9) Do this task: Warning Electronic System - System Test, TASK 31-51-00-730-801.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-51-01

D633W101-ARO

Page 408
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

WARNING SPEAKER - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of the warning speaker
 - (2) An installation of the warning speaker.
- B. The left and right warning speakers are installed on the overhead lining assembly in the flight compartment. The left warning speaker is installed on the left overhead lining assembly. The right warning speaker is installed on the right overhead lining assembly.

TASK 31-51-02-000-801

2. Warning Speaker Removal

(Figure 401)

A. **References**

Reference	Title
25-15-06-000-801	Overhead Lining - Removal (P/B 401)

B. **Location Zones**

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. **Removal Procedure**

SUBTASK 31-51-02-860-001

- (1) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

Standby Power Management Panel, P310

Row	Col	Number	Name
C	10	C27636	WARN SPKR/STICK SHAKER-L

SUBTASK 31-51-02-010-001

- (2) Remove the overhead ceiling panels around the applicable warning speaker [1] (TASK 25-15-06-000-801).

SUBTASK 31-51-02-020-001

- (3) Disconnect the electrical connector [2].

SUBTASK 31-51-02-020-004

- (4) For the left warning speaker [1], remove the screws [3] and washers [4].

SUBTASK 31-51-02-020-002

- (5) For the right warning speaker [1], remove the screws [6], screws [7], mounting plates [5], and washers [4].

SUBTASK 31-51-02-020-003

- (6) Remove the warning speaker [1].

————— **END OF TASK** —————

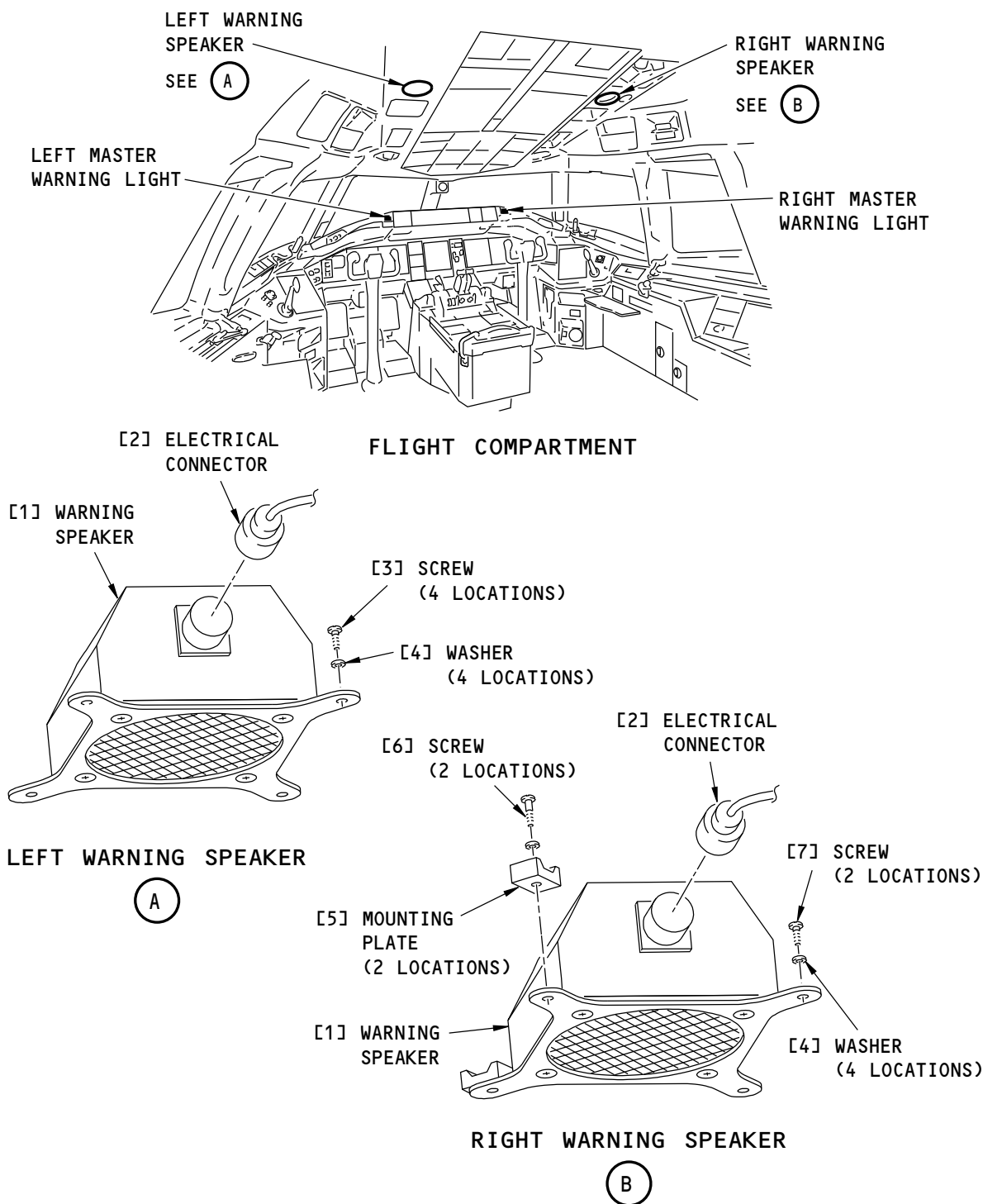
EFFECTIVITY
ARO ALL

31-51-02

D633W101-ARO

Page 401
Jan 05/2015

777-200/300 AIRCRAFT MAINTENANCE MANUAL



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Warning Speaker Installation
Figure 401/31-51-02-990-801

EFFECTIVITY
ARO ALL

31-51-02

D633W101-ARO

Page 402
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-51-02-400-801

3. Warning Speaker Installation

(Figure 401)

A. General

- (1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
25-15-06-400-801	Overhead Lining - Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Speaker	23-51-05-01-035	ARO ALL
		23-51-51-02-010	ARO ALL

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-51-02-860-002

- (1) Make sure that these circuit breakers are open and have safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

Standby Power Management Panel, P310

Row	Col	Number	Name
C	10	C27636	WARN SPKR/STICK SHAKER-L

SUBTASK 31-51-02-420-001

- (2) Connect the electrical connector [2] to the warning speaker [1].

SUBTASK 31-51-02-420-002

- (3) Put the warning speaker [1] into position.

SUBTASK 31-51-02-420-003

- (4) For the left warning speaker [1], install the screws [3] and washers [4].

SUBTASK 31-51-02-420-004

- (5) For the right warning speaker [1], install the screws [6], screws [7], mounting plates [5], and washers [4].

SUBTASK 31-51-02-410-001

- (6) Install the overhead ceiling panels (TASK 25-15-06-400-801).

EFFECTIVITY
ARO ALL

31-51-02

D633W101-ARO

Page 403
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

F. Warning Speaker Test

SUBTASK 31-51-02-860-003

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	1	C31001	WARNING SPEAKER-L
C	14	C31606	WARNING SPEAKER-R

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
C	10	C27636	WARN SPKR/STICK SHAKER-L

SUBTASK 31-51-02-860-004

- (2) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-51-02-740-001

- (3) Use a maintenance access terminal (MAT) to make sure the warning speaker [1] operates during this test:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) LINE MAINTENANCE
 - 3) GROUND TESTS
 - 4) 31 Warning Electronic System
 - 5) SYSTEM TEST
 - 6) Warning Electronic System
 - 7) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START TEST
 - (c) Make sure you hear the warning speaker [1] operates during this test.
 - (d) Make sure that the EICAS status message, WARNING SPEAKER L (R), does not show on the multi-function display after the test is completed.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-51-02

D633W101-ARO

Page 404
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

PRIMARY DISPLAY SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure contains these tasks:
- (1) Using the Cursor Control Device
 - (2) Showing Alert Messages
 - (3) Showing Status Messages
 - (4) Erasing Latched Status Messages
 - (5) Showing Scheduled Maintenance Tasks
 - (6) Erasing Scheduled Maintenance Tasks
 - (7) Showing a System Synoptic Page
 - (8) Showing a Maintenance Page
 - (9) Showing a Snapshot
 - (10) Erasing a Snapshot with the Page Menu
 - (11) Making a Snapshot with the Page Menu
 - (12) Printing a Maintenance Page or Snapshot with the Page Menu
 - (13) Sending a Maintenance Page or Snapshot with the Page Menu
 - (14) Erasing a Snapshot with the Erase Selection Menu
 - (15) Printing a Maintenance Page or Snapshot with the Print Selection Menu
 - (16) Sending a Maintenance Page or a Snapshot with the Datalink Selection Menu
- B. You can use the page menu or the selection menus when you work with the maintenance pages or snapshots.
- C. Figure 201 contains the location of the components used in these procedure.

TASK 31-61-00-800-801

2. Using the Cursor Control Device

(Figure 201)

A. **General**

- (1) This task tells you how to use the cursor control device (CCD). You use the CCD to select something on the multi-function display (MFD).

B. **References**

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. **Location Zones**

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. **Prepare to Use the Cursor Control Device**

SUBTASK 31-61-00-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-002

- (2) On the display select panel (DSP), push the LWR CTR switch.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 201
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-710-017

- (3) Make sure that LWR CTR is selected on the cursor control device.

SUBTASK 31-61-00-860-135

- (4) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-231

- (5) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

E. To Move the Cursor on the MFD

SUBTASK 31-61-00-860-003

- (1) Move the cursor on the MFD with the CCD as follows:

- (a) Move your finger on the touch pad of the CCD to move the cursor on the MFD.

NOTE: The cursor moves in the direction that you move your finger.

- (b) Touch the corners of the touch pad to make the cursor go to the corners of the MFD.

NOTE: The cursor moves to the same corner of the MFD as the corner of the touch pad that you touched.

F. To Select Something on the MFD

SUBTASK 31-61-00-860-004

- (1) Select something on the MFD with the CCD as follows:

- (a) Move the cursor over a selection on the MFD.

- (b) Push the selection switch on the CCD to select the item.

NOTE: Some items become highlighted (change color) when they are selected.

————— END OF TASK —————

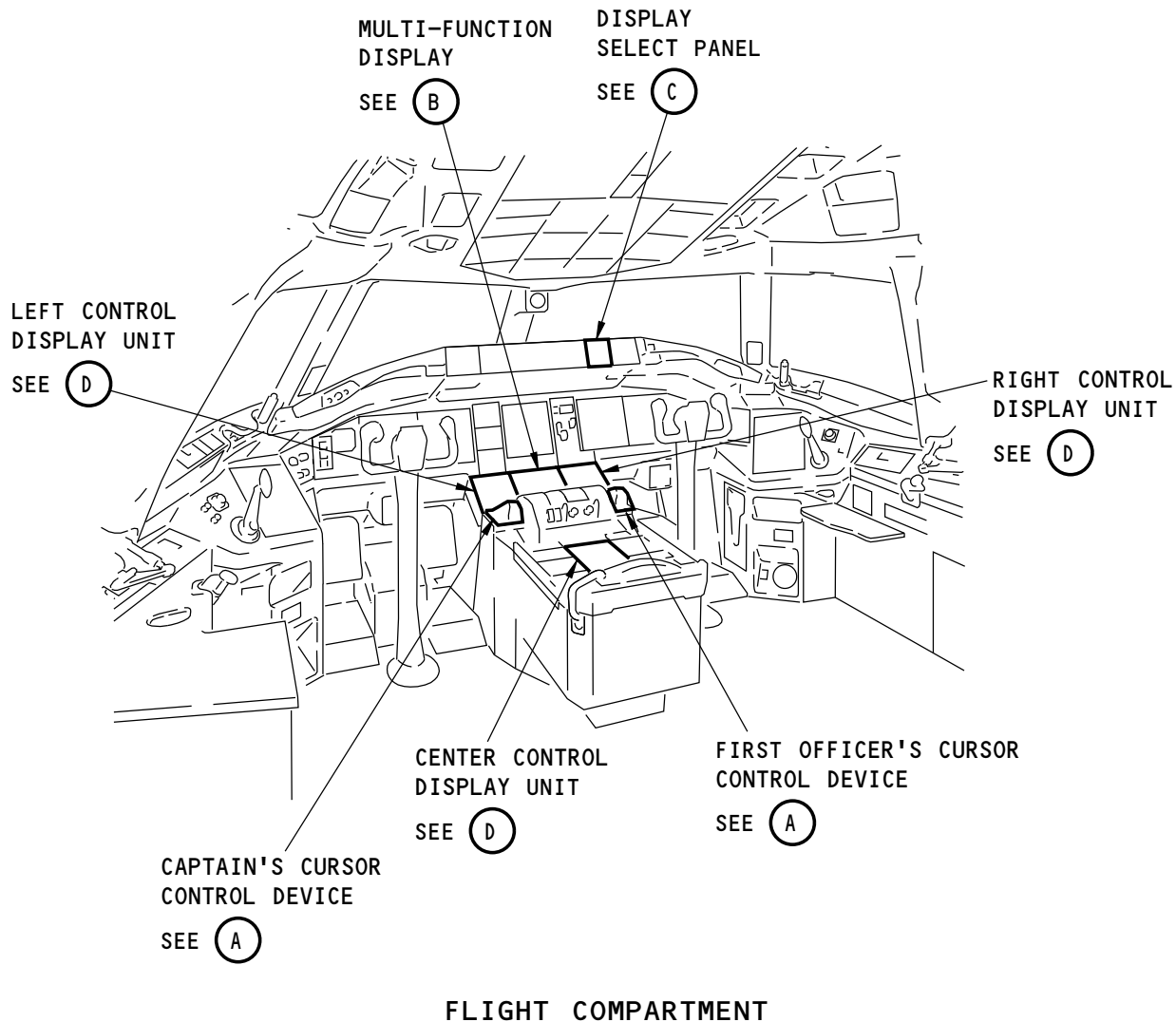
EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 202
Jan 05/2018

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



C79418 S0006417471_V1

**Primary Display System - Component Location
Figure 201/31-61-00-990-811 (Sheet 1 of 3)**

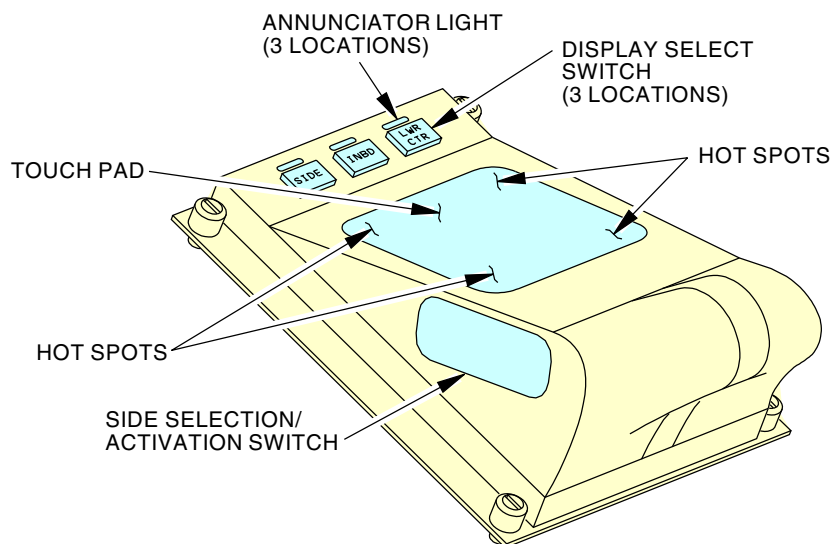
EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

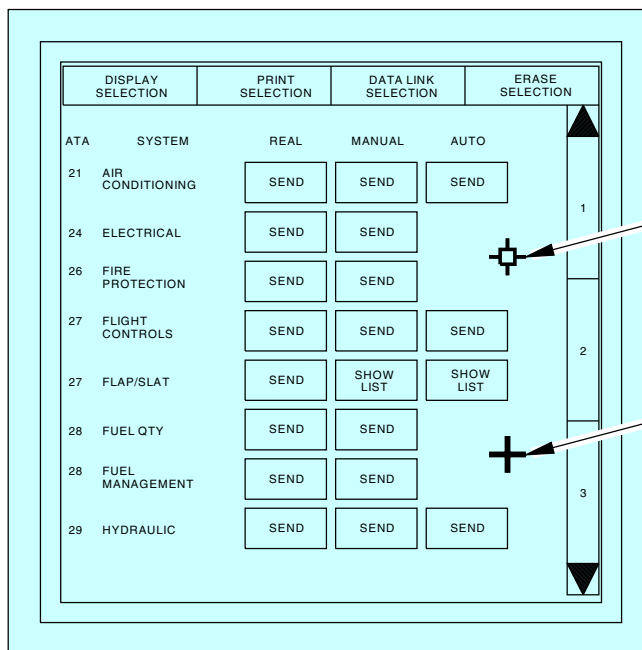
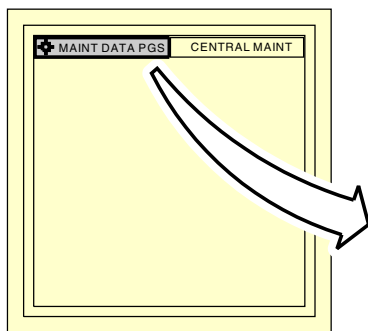
Page 203
Jan 05/2018

777-200/300 AIRCRAFT MAINTENANCE MANUAL



**CAPTAIN'S CURSOR CONTROL DEVICE (CCD)
(FIRST OFFICER'S OPPOSITE)**

A



MULTI-FUNCTION DISPLAY (MFD)

B

2519207 S0000591363_V1

**Primary Display System - Component Location
Figure 201/31-61-00-990-811 (Sheet 2 of 3)**

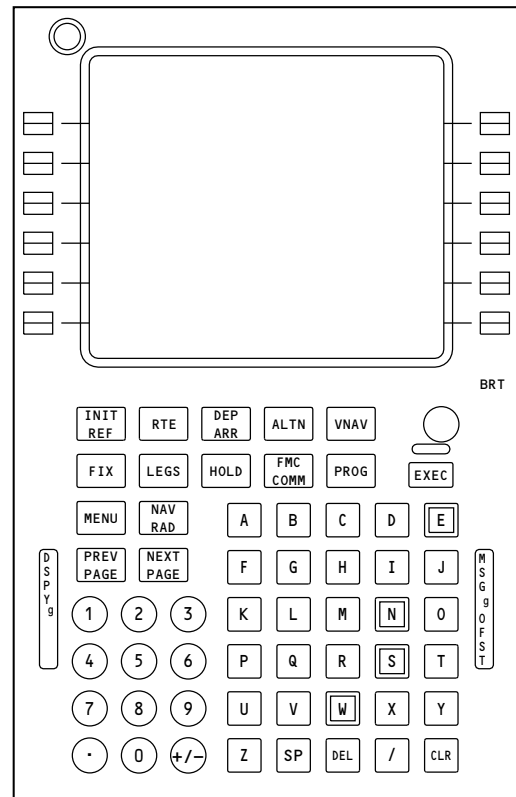
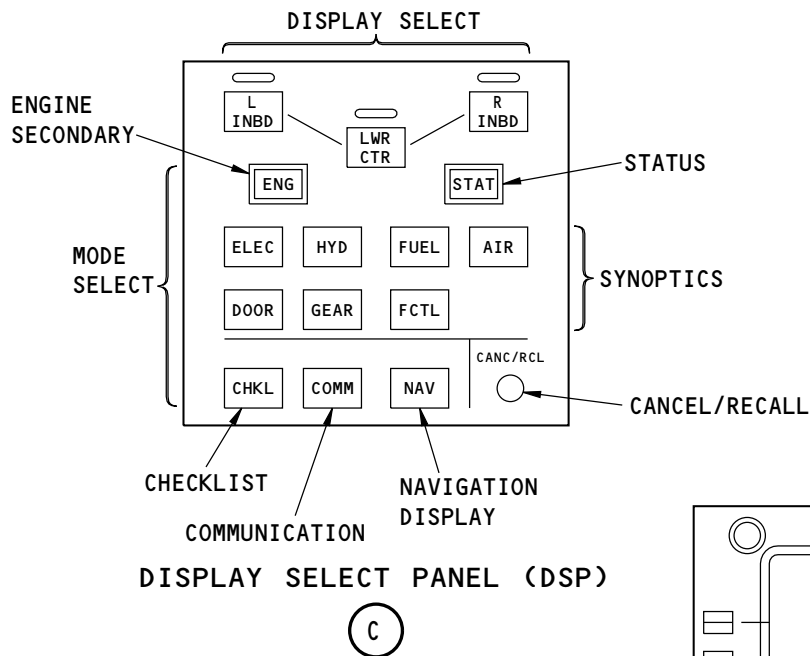
EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 204
Jan 05/2018

777-200/300 AIRCRAFT MAINTENANCE MANUAL



C87610 S0006417473_V1

Primary Display System - Component Location
Figure 201/31-61-00-990-811 (Sheet 3 of 3)

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 205
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-814

3. Showing Alert Messages

(Figure 202)

A. General

- (1) This task tells you how to show alert messages.
- (2) There are five types of alert messages. In order of importance they are: Warnings, cautions, advisories, comm, and memos.
- (3) The alert message field is in the upper right portion of the primary EICAS display.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. To Show Alert Messages

SUBTASK 31-61-00-860-137

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-138

- (2) Push the CANC/RCL switch on the display select panel (DSP).

SUBTASK 31-61-00-860-139

- (3) Push the CANC/RCL switch on the DSP to page through the list of alert messages.

NOTE: The message field will blank when the CANC/RCL switch is pushed after the last page is shown.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-61-00

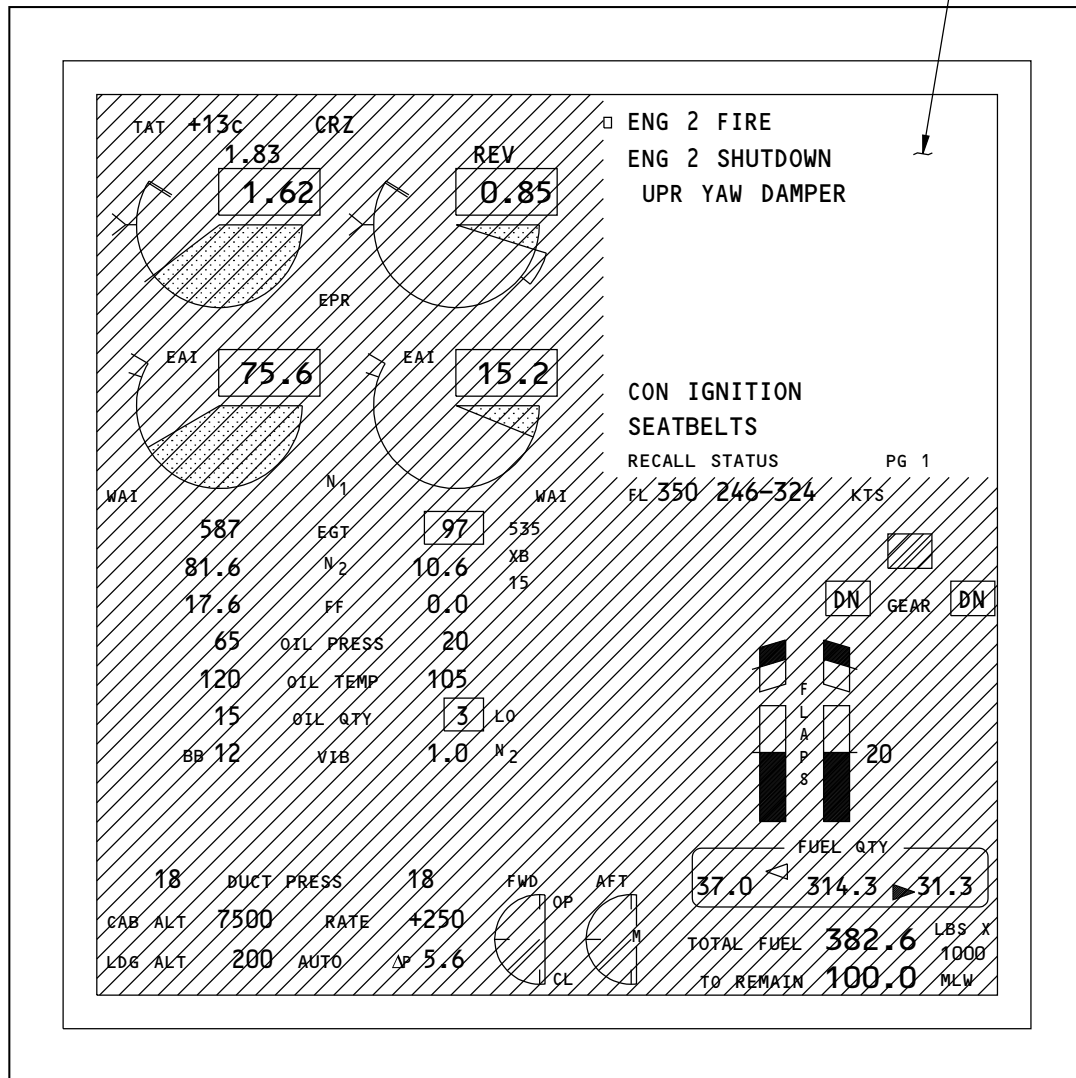
D633W101-ARO

Page 206
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

ALERT MESSAGE
FIELD



PRIMARY EICAS DISPLAY

E52797 S0006417475_V1

Showing Alert Messages
Figure 202/31-61-00-990-812

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 207
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-813

4. Showing Status Messages

(Figure 203)

A. General

- (1) This task tells you how to show status messages.
- (2) The status message field is on the lower left side of the multi-function display (MFD).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. To Show Status Messages

SUBTASK 31-61-00-860-129

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-130

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-131

- (3) Push the STAT switch on the DSP.

SUBTASK 31-61-00-860-132

- (4) Push the STAT switch on the DSP to page through the list of status messages.

NOTE: The status message field will blank when the STAT switch is pushed after the last page is shown.

E. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-133

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

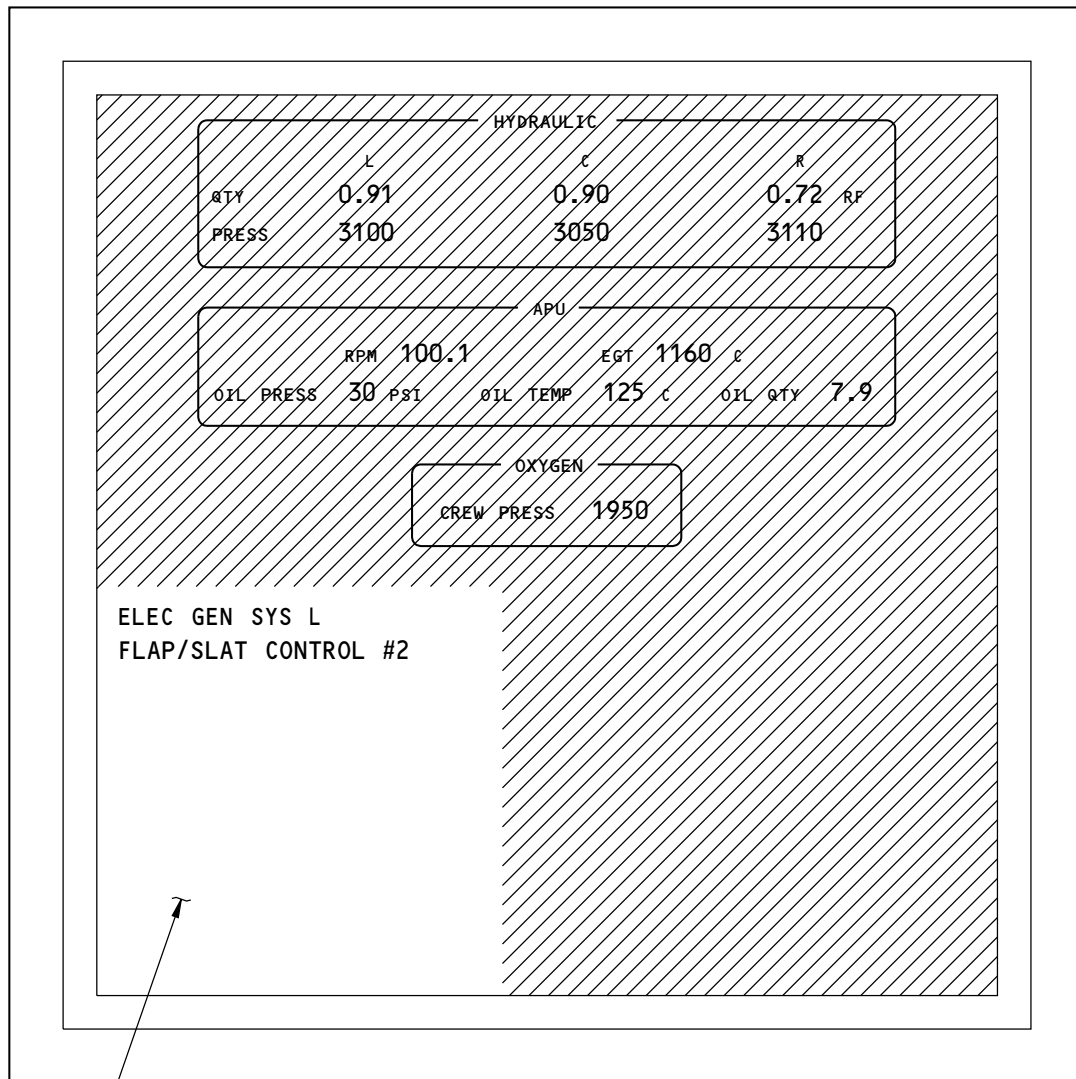
EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 208
Jan 05/2018

777-200/300
AIRCRAFT MAINTENANCE MANUAL



STATUS
MESSAGE
FIELD

MULTI-FUNCTION DISPLAY

E52790 S0006417477_V1

Showing Status Messages
Figure 203/31-61-00-990-813

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 209
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-802

5. Erasing a EICAS Status Message Latched by AIMS

(Figure 204)

A. General

- (1) This task tells you how to erase a status message that was latched by AIMS.
- (2) The latched status messages show on the ERASABLE STATUS MESSAGES part of the MAINTENANCE TASK page. You select 31 MAINTENANCE TASK from the display selection menu on the MFD to show the MAINTENANCE TASK page.
- (3) The erasable latched status messages show in order of occurrence.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Erase a Latched Status Message

SUBTASK 31-61-00-860-005

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-006

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-007

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-232

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-209

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Erase a Latched Status Message

SUBTASK 31-61-00-710-016

- (1) Make sure that LWR CTR is selected on the cursor control device.

SUBTASK 31-61-00-860-009

- (2) On the MFD, use the cursor control device and scroll bar to find 31 MAINTENANCE TASK.

SUBTASK 31-61-00-860-010

- (3) Select SHOW DISPLAY.

NOTE: The MAINTENANCE TASK page shows on the MFD.

SUBTASK 31-61-00-860-011

- (4) If ERASABLE STATUS MESSAGES shows more than one page of status messages, select PAGE to see the other pages until you find the status message you want to erase.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 210
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-860-012

- (5) Select ERASE adjacent to the status message you want to erase.

NOTE: The status message is removed from the list.

SUBTASK 31-61-00-860-013

- (6) Select MAIN MENU to return to the display selection menu.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-014

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

———— **END OF TASK** ————

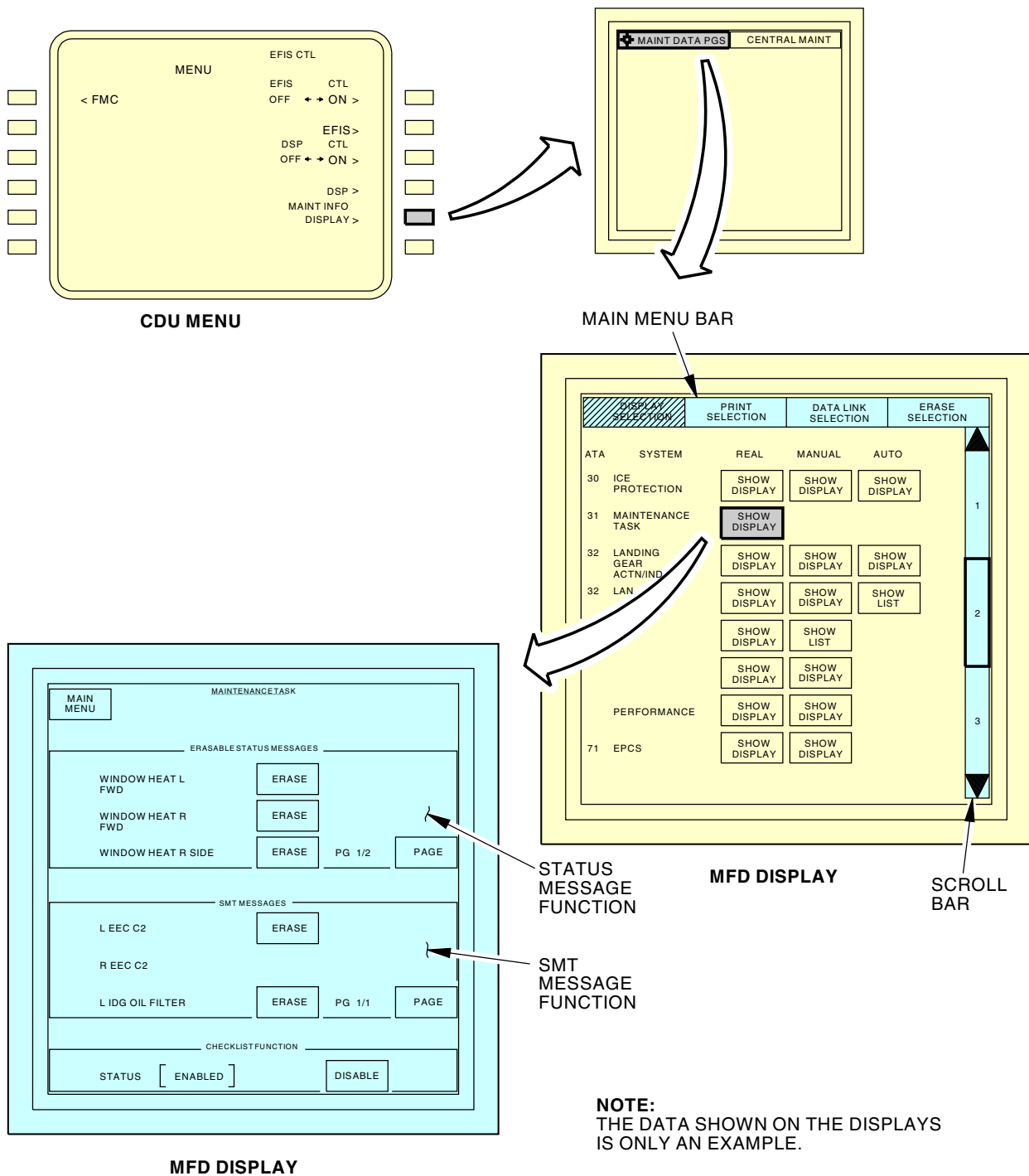
EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 211
Jan 05/2018

777-200/300 AIRCRAFT MAINTENANCE MANUAL



2519223 S0000591385_V1

Showing or Erasing EICAS Status Messages or SMT Messages
Figure 204/31-61-00-990-814

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 212
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-815

6. Showing Scheduled Maintenance Tasks

A. General

- (1) This task tells you how to show scheduled maintenance tasks (SMTs).
- (2) The scheduled maintenance tasks show on the SMT MESSAGE part of the MAINTENANCE TASK page. You select 31 MAINTENANCE TASK from the display selection menu on the MFD to show the MAINTENANCE TASK page.
- (3) The scheduled maintenance tasks show in order of occurrence.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Show a Scheduled Maintenance Task

SUBTASK 31-61-00-860-141

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-142

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-143

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-212

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-213

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Show a Scheduled Maintenance Task

SUBTASK 31-61-00-860-145

- (1) On the MFD, use the scroll bar to find 31 MAINTENANCE TASK.

SUBTASK 31-61-00-860-146

- (2) Select SHOW DISPLAY.

NOTE: The MAINTENANCE TASK page shows on the MFD.

SUBTASK 31-61-00-860-147

- (3) If SMT MESSAGES shows more than one page of scheduled maintenance tasks, select PAGE to see the other pages.

SUBTASK 31-61-00-860-148

- (4) Select MAIN MENU to return to the display selection menu.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 213
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-149

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

TASK 31-61-00-800-803

7. Erasing a Scheduled Maintenance Task

(Figure 204)

A. General

- (1) This task tells you how to erase a scheduled maintenance task (SMT).
- (2) The scheduled maintenance tasks show on the SMT MESSAGE part of the MAINTENANCE TASK page. You select 31 MAINTENANCE TASK from the display selection menu on the MFD to show the MAINTENANCE TASK page.
- (3) The scheduled maintenance tasks show in order of occurrence.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Erase a Scheduled Maintenance Task

SUBTASK 31-61-00-860-016

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-017

- (2) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-210

- (3) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-211

- (4) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Erase a Scheduled Maintenance Task

SUBTASK 31-61-00-860-019

- (1) On the MFD, use the scroll bar, as necessary, to find 31 MAINTENANCE TASK.

SUBTASK 31-61-00-860-020

- (2) Select SHOW DISPLAY.

NOTE: The MAINTENANCE TASK page shows on the MFD.

SUBTASK 31-61-00-860-021

- (3) If SMT MESSAGES shows more than one page of SMTs, select PAGE to see the other pages until you find the SMT you want to erase.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 214
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-860-022

- (4) Select ERASE adjacent to the SMT you want to erase.

NOTE: The scheduled maintenance task is removed from the list.

SUBTASK 31-61-00-860-023

- (5) Select MAIN MENU to return to the display selection menu.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-024

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

TASK 31-61-00-800-816

8. Showing a System Synoptic Page

A. General

- (1) This task tells you how to show a system synoptic page.
- (2) System synoptics pages show real-time graphic information about a system. System synoptics pages can be useful for fault isolation and system repair. The system synoptic pages show on the multi-function display (MFD).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. To Show a System Synoptic Page

SUBTASK 31-61-00-860-151

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-152

- (2) Push the LWR CTR switch on the display select panel (DSP).

SUBTASK 31-61-00-860-153

- (3) Push the switch on the DSP for the system synoptic page you want to show:
 - (a) AIR for air
 - (b) DOOR for doors
 - (c) ELEC for electrical
 - (d) FCTL for flight controls
 - (e) FUEL for fuel
 - (f) GEAR for gear
 - (g) HYD for hydraulics

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 215
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

E. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-154

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

TASK 31-61-00-800-804

9. Showing a Maintenance Page

(Figure 205)

A. General

- (1) This task tells you how to show a maintenance page.
- (2) Maintenance pages show real time information about a system and can be useful for fault isolation and system repair. The maintenance pages show on the multi-function display (MFD). The maintenance page selections are:
 - (a) 21 Air Conditioning
 - (b) 24 Electrical
 - (c) 26 Fire Protection
 - (d) 27 Flight Controls
 - (e) 27 Flap/Slat
 - (f) 28 Fuel Quantity
 - (g) 28 Fuel Management
 - (h) 29 Hydraulic
 - (i) 30 Ice Protection
 - (j) 31 Maintenance Task
 - (k) 32 Landing Gear Actuation/Indication
 - (l) 32 Landing Gear Brakes/Steering
 - (m) 36 Air Supply
 - (n) 49 APU
 - (o) 71 Performance
 - (p) 71 EPCS
 - (q) 71 Propulsion Data Limits
 - (r) 71 Left Engine Exceedance
 - (s) 71 Right Engine Exceedance

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 216
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

D. Prepare to Show a Maintenance Page

SUBTASK 31-61-00-860-026

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-027

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-028

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-215

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-207

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Show a Maintenance Page

SUBTASK 31-61-00-860-030

- (1) On the MFD, use the scroll bar to find the ATA and system for the maintenance page you want to see.

SUBTASK 31-61-00-860-031

- (2) In the REAL column, select SHOW DISPLAY adjacent to the ATA and system.

NOTE: The system maintenance page shows on the MFD.

SUBTASK 31-61-00-860-032

- (3) Select SHOW PG MENU.

NOTE: A page menu appears at the bottom of the page.

SUBTASK 31-61-00-860-033

- (4) If the maintenance page has more than one page, select NEXT PAGE to see the other pages.

SUBTASK 31-61-00-860-034

- (5) Select MAIN MENU to return to the display selection menu.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-035

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

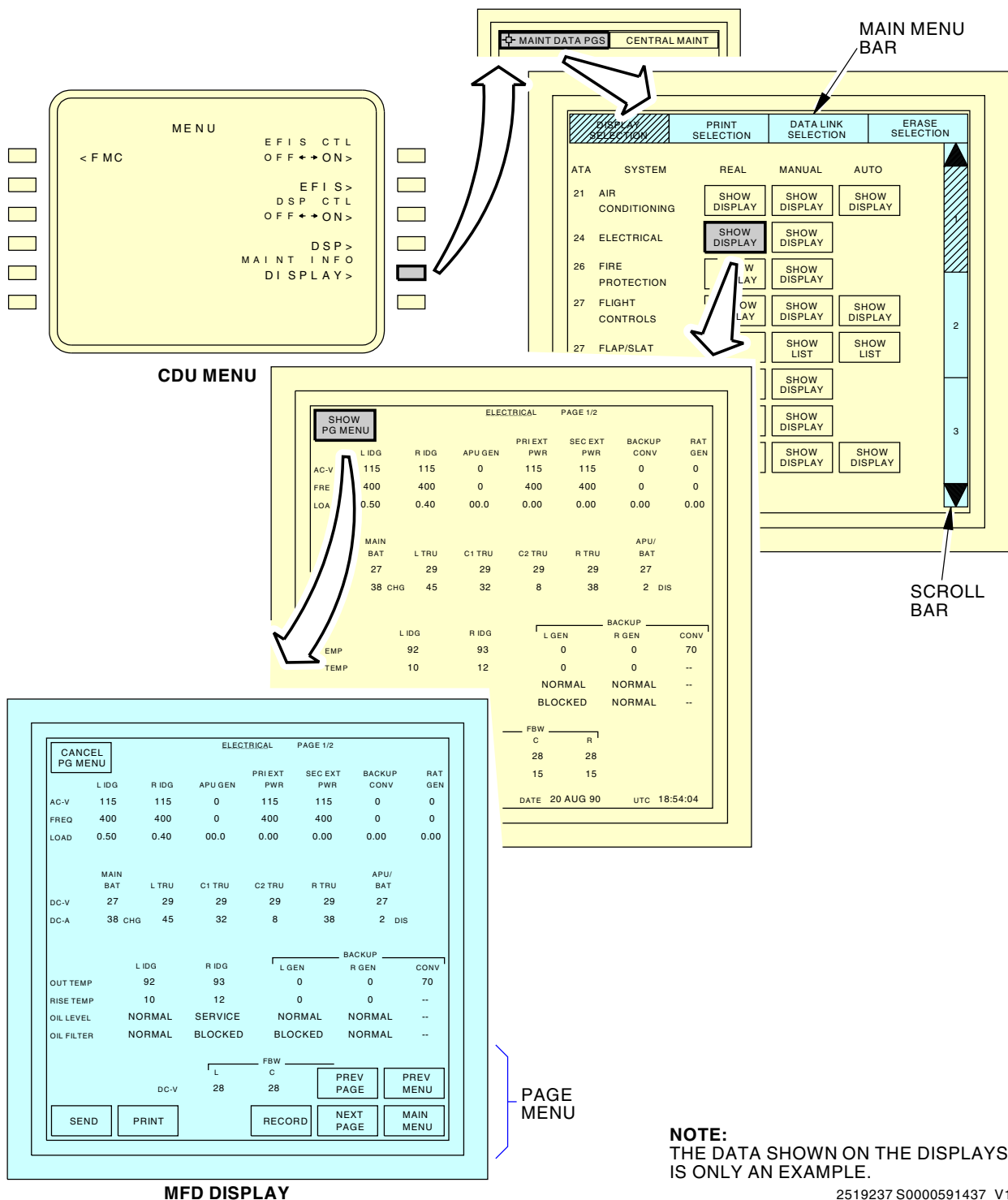
EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 217
Jan 05/2018

777-200/300 AIRCRAFT MAINTENANCE MANUAL



Showing a Maintenance Page
Figure 205/31-61-00-990-815



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-805

10. Showing a Snapshot

(Figure 206)

A. General

- (1) This task tells you how to show a snapshot of a maintenance page.
- (2) There are two types of maintenance page snapshots. A manual snapshot and an automatic snapshot. Automatic snapshots occur automatically when a system malfunction occurs. Manual snapshots occur when a mechanic or technician choose to record the information on the maintenance page.
- (3) Snapshots show information about a system when the snapshot was taken and can be useful for fault isolation and system repair. The date and time the snapshot occurred is shown on the bottom of the snapshot. The snapshots show on the multi-function display (MFD). The snapshot selections are:
 - (a) 21 Air Conditioning
 - (b) 24 Electrical
 - (c) 26 Fire Protection
 - (d) 27 Flight Controls
 - (e) 27 Flap/Slat
 - (f) 28 Fuel Quantity
 - (g) 28 Fuel Management
 - (h) 29 Hydraulic
 - (i) 30 Ice Protection
 - (j) 32 Landing Gear Actuation/Indication
 - (k) 32 Landing Gear Brakes/Steering
 - (l) 36 Air Supply
 - (m) 49 APU
 - (n) 71 Performance
 - (o) 71 EPCS
 - (p) 71 Propulsion Data Limits
 - (q) 71 Left Engine Exceedance
 - (r) 71 Right Engine Exceedance

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Show a Snapshot

SUBTASK 31-61-00-860-037

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 219
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-860-038

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-039

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-216

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-217

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Show a Snapshot

SUBTASK 31-61-00-860-041

- (1) On the MFD, use the scroll bar to find the ATA and system for the snapshot you want to see.

SUBTASK 31-61-00-860-042

- (2) In the applicable column (MANUAL or AUTO), select SHOW DISPLAY or SHOW LIST adjacent to the ATA and system.

NOTE: The snapshot or a list of snapshots for the system shows on the MFD.

SUBTASK 31-61-00-860-043

- (3) If a list of snapshots shows, select SHOW DISPLAY adjacent to the snapshot you want to see.

SUBTASK 31-61-00-860-044

- (4) Select SHOW PG MENU.

NOTE: A page menu appears at the bottom of the page.

SUBTASK 31-61-00-860-045

- (5) If the snapshot has more than one page, select NEXT PAGE to see the other pages.

SUBTASK 31-61-00-860-046

- (6) Select MAIN MENU to return to the display selection menu or PREV MENU to return to the list of snapshots.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-047

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

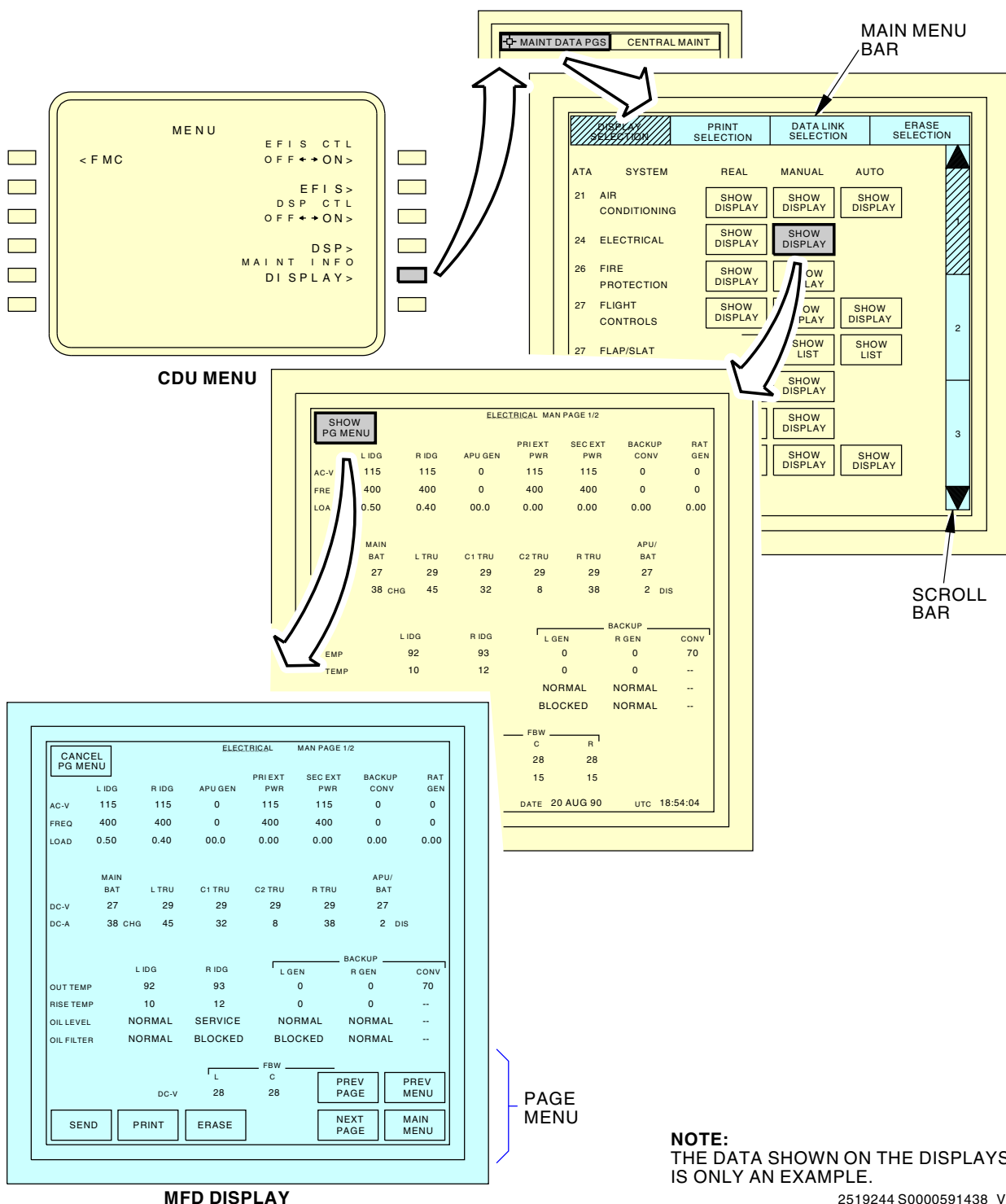
EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

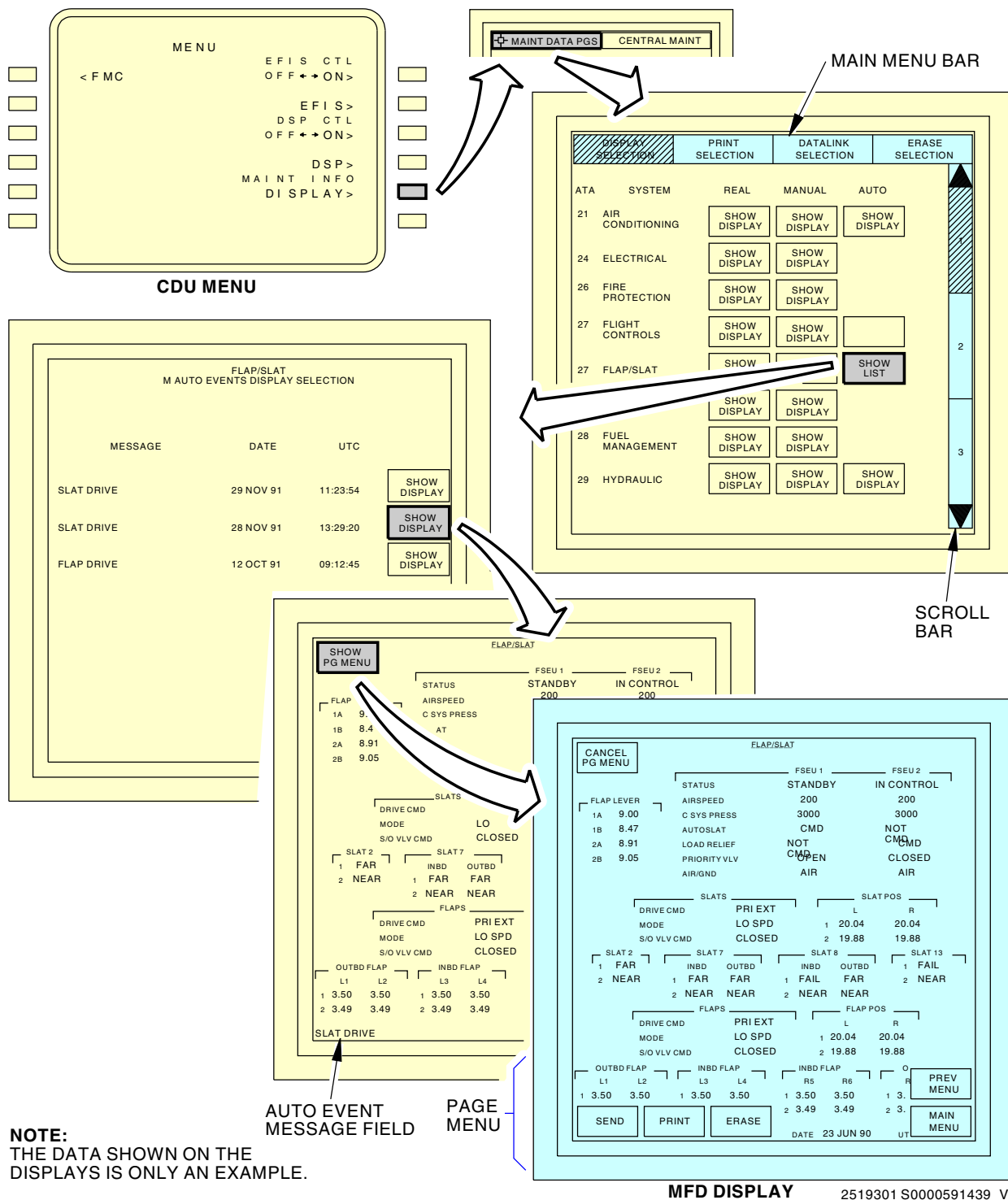
Page 220
Jan 05/2018

777-200/300 AIRCRAFT MAINTENANCE MANUAL



Showing a Maintenance Page Snapshot
Figure 206/31-61-00-990-816 (Sheet 1 of 2)

777-200/300 AIRCRAFT MAINTENANCE MANUAL



Showing a Maintenance Page Snapshot
Figure 206/31-61-00-990-816 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

31-61-00



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-806

11. Erasing a Snapshot with the Page Menu

(Figure 207)

A. General

- (1) This task tells you how to erase a snapshot with the page menu.

NOTE: Print the useful data prior to permanently erasing it.

- (2) Snapshots should be erased when they are no longer useful for fault isolation and system repair. Only five auto snapshots of a maintenance page can be stored in memory, therefore auto snapshots should be erased whenever a problem is corrected. The snapshots show on the multi-function display (MFD).

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Erase a Snapshot with the Page Menu

SUBTASK 31-61-00-860-049

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-050

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-051

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-218

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-219

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Erase a Snapshot with the Page Menu

SUBTASK 31-61-00-860-053

- (1) On the MFD, use the scroll bar to find the ATA and system for the snapshot you want to erase.

SUBTASK 31-61-00-860-054

- (2) In the applicable column (MANUAL or AUTO), select SHOW DISPLAY or SHOW LIST adjacent to the ATA and system.

NOTE: The snapshot or a list of snapshots for the system shows on the MFD.

SUBTASK 31-61-00-860-055

- (3) If a list of snapshots shows, select SHOW DISPLAY adjacent to the snapshot you want to erase.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 223
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-860-056

- (4) Select SHOW PG MENU.

NOTE: A page menu appears at the bottom of the page.

SUBTASK 31-61-00-860-057

- (5) Select ERASE to erase the snapshot.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-058

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

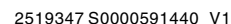
———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 224
Jan 05/2018



Using the Maintenance Page - Page Menu

Figure 207/31-61-00-990-817



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-807

12. Making a Snapshot of a Maintenance Page with the Page Menu

(Figure 207)

A. General

- (1) This task tells you how to make a snapshot of a maintenance page with the page menu.
- (2) A manual snapshot of a maintenance page can be used for fault isolation and system repair. Only five manual snapshots of a maintenance page can be stored in memory at one time. Additional snapshots will replace those already in memory.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Make a Snapshot of a Maintenance Page with the Page Menu

SUBTASK 31-61-00-860-060

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-061

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-062

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-220

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-208

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Make a Snapshot of a Maintenance Page with the Page Menu

SUBTASK 31-61-00-860-064

- (1) On the MFD, use the scroll bar to find the ATA and system for the maintenance page snapshot you want to record.

SUBTASK 31-61-00-860-065

- (2) In the REAL column, select SHOW DISPLAY adjacent to the ATA and system.

NOTE: The maintenance page for the system shows on the MFD.

SUBTASK 31-61-00-860-066

- (3) Select SHOW PG MENU.

NOTE: A page menu appears at the bottom of the page.

SUBTASK 31-61-00-860-067

- (4) Select RECORD to make a snapshot of the maintenance page.

SUBTASK 31-61-00-860-068

- (5) Select MAIN MENU to return to the display selection menu.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 226
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-069

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

TASK 31-61-00-800-808

13. Printing a Maintenance Page or Snapshot with the Page Menu

(Figure 207)

A. General

- (1) This task tells you how to print a maintenance page or snapshot with the page menu.
- (2) A printed copy of a maintenance page or snapshot can be used for fault isolation and system repair. The maintenance page or snapshot is shown on the multi-function display (MFD) and is printed on the flight deck printer.
- (3) There are three types of maintenance pages. A real time page, a manual snapshot page, and an automatic snapshot page. The REAL column lists real time pages, the MANUAL column lists manual snapshot pages, and the AUTO column lists automatic snapshot pages. Each type has a column in the display selection menu.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Print a Maintenance Page or Snapshot with the Page Menu

SUBTASK 31-61-00-860-071

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-072

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-073

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-221

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-222

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Print a Maintenance Page or Snapshot with the Page Menu

SUBTASK 31-61-00-860-075

- (1) On the MFD, use the scroll bar to find the ATA and system for the maintenance page or snapshot you want to print.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 227
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-860-076

- (2) In the applicable column (REAL, MANUAL, or AUTO), select SHOW DISPLAY or SHOW LIST adjacent to the ATA and system.

NOTE: The maintenance page, a snapshot, or a list of snapshots for the system shows on the MFD.

SUBTASK 31-61-00-860-077

- (3) If a list of snapshots shows, select SHOW DISPLAY adjacent to the snapshot you want to print.

SUBTASK 31-61-00-860-078

- (4) Select SHOW PG MENU.

NOTE: A page menu appears at the bottom of the page.

SUBTASK 31-61-00-860-079

- (5) Select PRINT from the page menu to print the maintenance page or snapshot.

SUBTASK 31-61-00-860-080

- (6) Select MAIN MENU to return to the display selection menu or PREV MENU to return to the list of snapshots.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-081

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

TASK 31-61-00-800-809

14. Sending a Maintenance Page or a Snapshot with the Page Menu

(Figure 207)

A. General

- (1) This task tells you how to send a maintenance page or snapshot with the page menu.
- (2) A copy of a maintenance page or snapshot can be used for fault isolation and system repair. The maintenance page or snapshot is shown on the multi-function display (MFD) and is sent via ACARS.
- (3) There are three types of maintenance pages. A real time page, a manual snapshot page, and an automatic snapshot page. The REAL column lists real time pages, the MANUAL column lists manual snapshot pages, and the AUTO column lists automatic snapshot pages. Each type has a column in the display selection menu.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Send a Maintenance Page or Snapshot with the Page Menu

SUBTASK 31-61-00-860-083

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 228
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-860-084

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-085

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-223

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-224

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Send a Maintenance Page or Snapshot with the Page Menu

SUBTASK 31-61-00-860-087

- (1) On the MFD, use the scroll bar to find the ATA and system for the maintenance page or snapshot you want to send.

SUBTASK 31-61-00-860-088

- (2) In the applicable column (REAL, MANUAL, or AUTO), select SHOW DISPLAY or SHOW LIST adjacent to the ATA and system.

NOTE: The maintenance page, a snapshot, or a list of snapshots for the system shows on the MFD.

SUBTASK 31-61-00-860-089

- (3) If a list of snapshots shows, select SHOW DISPLAY adjacent to the snapshot you want to send.

SUBTASK 31-61-00-860-090

- (4) Select SHOW PG MENU.

NOTE: A page menu appears at the bottom of the page.

SUBTASK 31-61-00-860-091

- (5) Select SEND from the page menu to send the maintenance page or snapshot.

SUBTASK 31-61-00-860-092

- (6) Select MAIN MENU to return to the display selection menu or PREV MENU to return to the list of maintenance pages.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-093

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 229
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-810

15. Erasing a Snapshot with the Erase Selection Menu

(Figure 208)

A. General

- (1) This task tells you how to erase a manual or an automatic snapshot with the erase selection menu.
- (2) There are two types of snapshots. A manual snapshot and an automatic snapshot. The MANUAL column lists manual snapshots and the AUTO column lists automatic snapshots. Each type has a column in the erase selection menu. The erase selection menu shows on the MFD.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Erase a Snapshot with the Erase Selection Menu

SUBTASK 31-61-00-860-095

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-096

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-097

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-225

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-226

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Erase a Snapshot with the Erase Selection Menu

SUBTASK 31-61-00-860-099

- (1) On the MFD, select ERASE SELECTION from the main menu bar.

SUBTASK 31-61-00-860-100

- (2) On the MFD, use the scroll bar to find the ATA and system for the snapshot you want to erase.

SUBTASK 31-61-00-860-101

- (3) In the applicable column (MANUAL or AUTO), select ERASE or SHOW LIST adjacent to the ATA and system.

NOTE: If ERASE was selected, the snapshot is erased and the ERASE button is removed from the display. If SHOW LIST was selected, a list of snapshots for the system shows on the MFD.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 230
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-860-102

- (4) If a list of snapshots shows, select ERASE adjacent to the snapshot you want to erase.

NOTE: The snapshot is erased and removed from the list.

SUBTASK 31-61-00-860-103

- (5) If a list of snapshots shows, select MAIN MENU to return to the ERASE SELECTION menu.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-104

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— **END OF TASK** —————

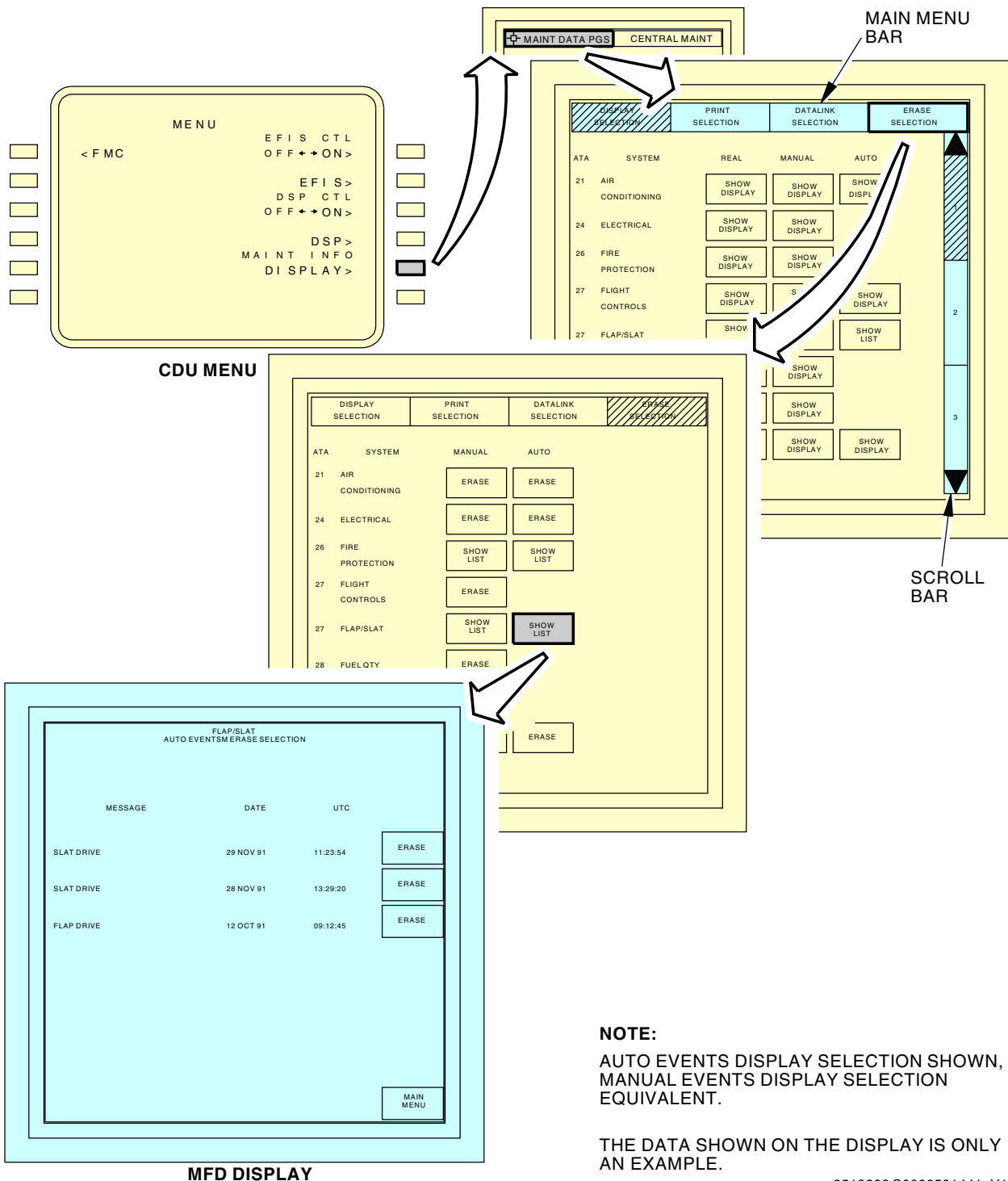
EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 231
Jan 05/2018

777-200/300 AIRCRAFT MAINTENANCE MANUAL



Erasing a Maintenance Page Snapshot with the Erase Selection Menu
Figure 208/31-61-00-990-818

EFFECTIVITY
ARO ALL

31-61-00



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-811

16. Printing a Maintenance Page or a Snapshot with the Print Selection Menu

(Figure 209)

A. General

- (1) This task tells you how to print a maintenance page or snapshot on the flight deck printer.
- (2) There are three types of maintenance pages. A real time page, a manual snapshot, and an automatic snapshot. The REAL column lists real time pages, the MANUAL column lists manual snapshots, and the AUTO column lists automatic snapshots. Each type has a column in the print selection menu. The print selection menu shows on the MFD.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Print a Maintenance Page or Snapshot with the Print Selection Menu

SUBTASK 31-61-00-860-106

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-107

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-108

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-227

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-228

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Print a Maintenance Page or Snapshot with the Print Selection Menu

SUBTASK 31-61-00-860-110

- (1) On the MFD, select PRINT SELECTION from the main menu bar.

SUBTASK 31-61-00-860-111

- (2) On the MFD, use the scroll bar to find the ATA and system for the maintenance page or snapshot you want to print.

SUBTASK 31-61-00-860-112

- (3) In the applicable column (REAL, MANUAL, or AUTO), select PRINT or SHOW LIST adjacent to the ATA and system.

NOTE: If PRINT was selected, the maintenance page or snapshot is printed. If SHOW LIST was selected, a list of snapshots for the system shows on the MFD.

SUBTASK 31-61-00-860-113

- (4) If a list of snapshots shows, select PRINT adjacent to the snapshot you want to print.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 233
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-860-114

(5) If a list of snapshots shows, select MAIN MENU to return to the PRINT SELECTION menu.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-115

(1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

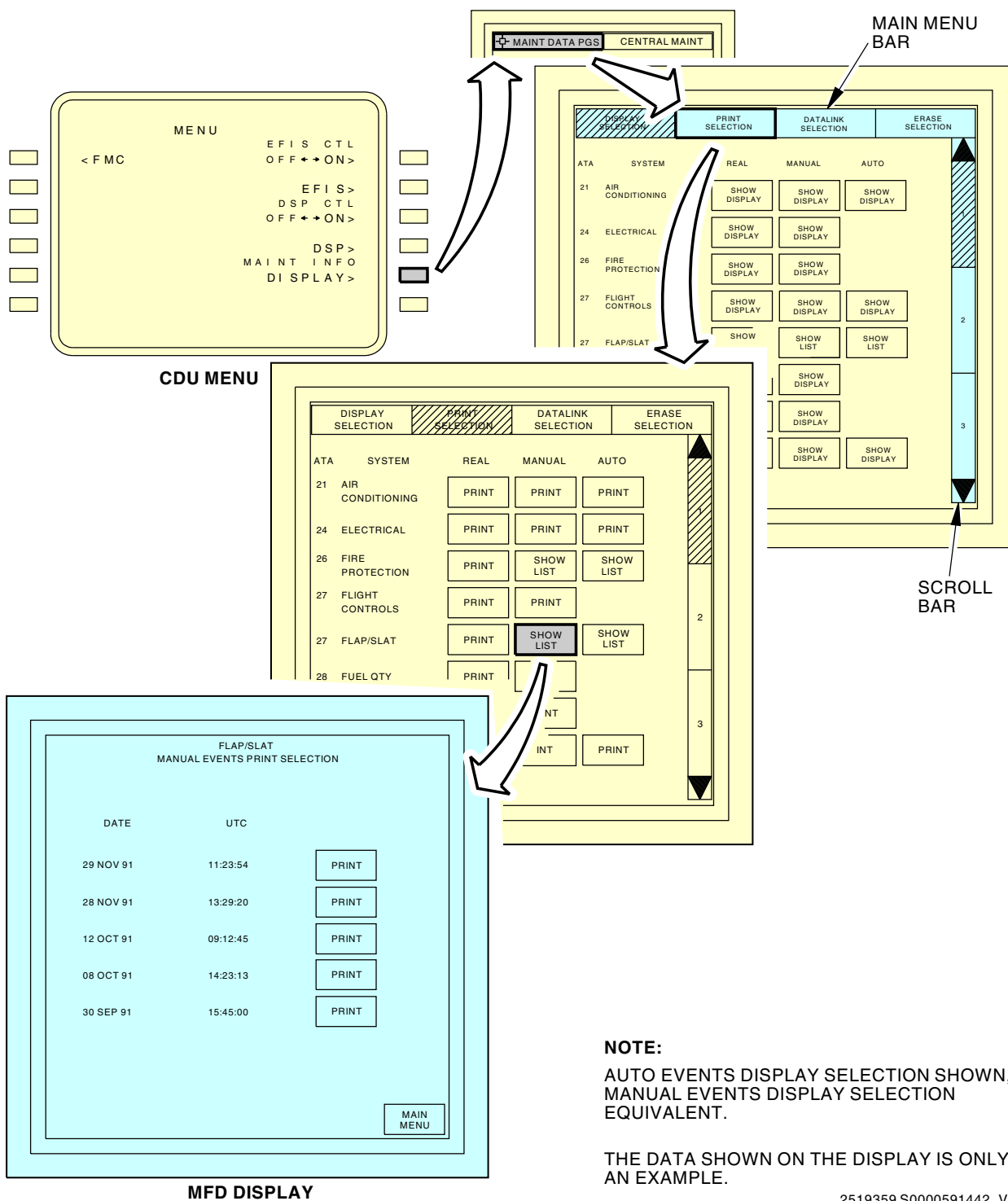
D633W101-ARO

31-61-00

Page 234
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL



Printing a Maintenance Page with the Print Selection Menu
Figure 209/31-61-00-990-819

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 235
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-812

17. Sending a Maintenance Page or a Snapshot with the Datalink Selection Menu

(Figure 210)

A. General

- (1) This task tells you how to datalink a maintenance page or snapshot via ACARS.
- (2) There are three types of maintenance pages. A real time page, a manual snapshot page, and an automatic snapshot page. The REAL column lists real time pages, the MANUAL column lists manual snapshots, and the AUTO column lists automatic snapshots. Each type has a column in the datalink selection menu. The datalink selection menu shows on the MFD.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Send a Maintenance Page or Snapshot with the Datalink Selection Menu

SUBTASK 31-61-00-860-117

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-118

- (2) On the display select panel (DSP), push the LWR CTR switch.

SUBTASK 31-61-00-860-119

- (3) Push the MENU key on the control display unit (CDU) to show the CDU menu.

SUBTASK 31-61-00-860-229

- (4) On the CDU, push the key adjacent to MAINT INFO DISPLAY.

NOTE: The maintenance info display menu shows on the MFD.

SUBTASK 31-61-00-860-230

- (5) On the MFD, use the CCD to select MAINT DATA PGS.

NOTE: The display selection menu shows on the MFD.

E. To Send a Maintenance Page or Snapshot with the Datalink Selection Menu

SUBTASK 31-61-00-860-121

- (1) On the MFD, select DATALINK SELECTION from the main menu bar.

SUBTASK 31-61-00-860-122

- (2) On the MFD, use the scroll bar to find the ATA and system for the maintenance page or snapshot you want to send.

SUBTASK 31-61-00-860-123

- (3) In the applicable column (REAL, MANUAL, or AUTO), select SEND or SHOW LIST adjacent to the ATA and system.

NOTE: If SEND was selected, the maintenance page or snapshot is sent. If SHOW LIST was selected, a list of snapshots for the system shows on the MFD.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 236
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-860-124

- (4) If a list of snapshots events is shown, select SEND adjacent to the snapshot event you want to send..

SUBTASK 31-61-00-860-125

- (5) If a list of snapshots events is shown, select MAIN MENU to return to the DATALINK SELECTION menu.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-126

- (1) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

————— END OF TASK —————

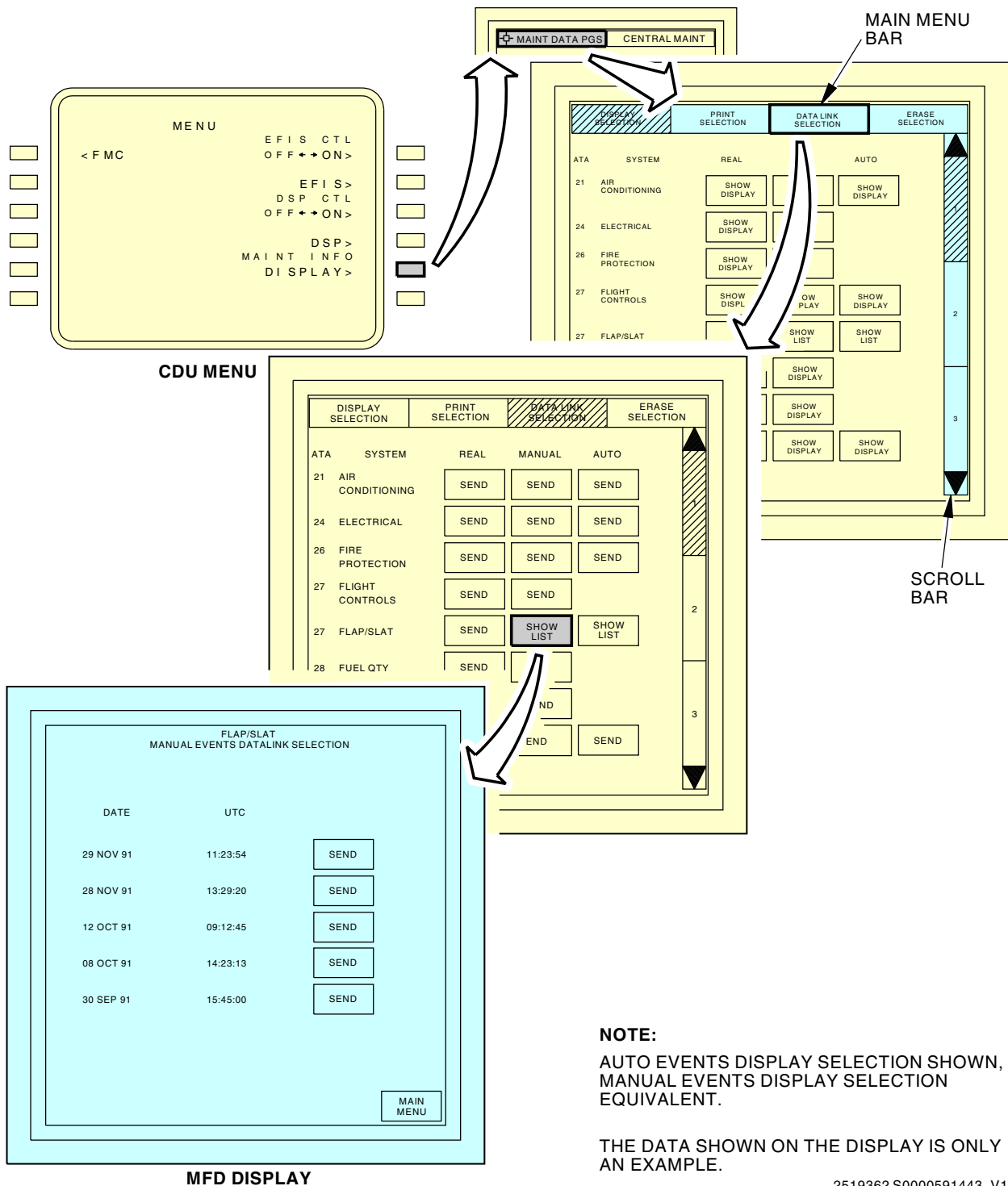
EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 237
Jan 05/2018

777-200/300 AIRCRAFT MAINTENANCE MANUAL



Sending a Maintenance Page Snapshot with the Datalink Selection Menu
Figure 210/31-61-00-990-820

EFFECTIVITY
ARO ALL

31-61-00



777-200/300
AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-800-817

18. How to Use the Electronic Checklist

A. General

- (1) This task tells you how to use the electronic checklist.
- (2) The electronic checklist can show on the left inboard, right inboard, or the lower center display units. Push the L INBD, R INBD, or LWR CTR switch on the display select panel to select the applicable display unit. Push the CHKL switch on the display select panel to show the electronic checklist on the display unit.
- (3) There are three types of electronic checklists.
 - (a) Normal checklist
 - (b) Non-normal checklist related to an EICAS message
 - (c) Non-normal checklist not related to an EICAS message (unannunciated checklist)
- (4) Use the applicable cursor control device to select electronic checklist menu options on the applicable display unit.
- (5) The primary display system monitors the air/ground phase and EICAS message level and makes an automatic checklist selection.
 - (a) When the airplane is in the ground phase (on the ground with the engines off), this is the electronic checklist priority:
 - 1) Warning message (not completed or not accessed)
 - 2) Normal checklist (not completed or not accessed)
 - 3) Caution message (not completed or not accessed)
 - 4) Advisory message (not completed or not accessed)
 - 5) Unannunciated checklist (not completed)
 - (b) When the airplane is in the air phase (engines running), this is the electronic checklist priority:
 - 1) Warning message (not completed or not accessed)
 - 2) Caution message (not completed or not accessed)
 - 3) Advisory message (not completed or not accessed)
 - 4) Unannunciated checklist (not completed)
 - 5) Normal checklist (not completed or not accessed)
- (6) If the primary display system makes a decision that no checklists need to show, use the electronic checklist menu bar on the display unit to select the normal or non-normal menus as applicable.
- (7) A checklist page is complete when one of these messages show at the bottom of the checklist page:
 - (a) CHECKLIST COMPLETE
 - (b) CHECKLIST COMPLETE EXCEPT DEFERRED ITEMS
 - (c) CHECKLIST OVERRIDDEN
- (8) Closed loop items are monitored by the primary display system. After the airplane is set to the configuration shown in the electronic checklist item, the item on the checklist automatically shows complete (A check mark shows next to the item).

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 239
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (9) Open loop items are not monitored and show as a gray box on the checklist. After the airplane is set to the configuration shown in the electronic checklist item, use the cursor control device to set the item complete (A check mark shows in the gray box) on the applicable display unit.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare to Use the Electronic Checklist

SUBTASK 31-61-00-860-201

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-202

- (2) On the display select panel (DSP), push the LWR CTR switch.

E. How to Use the Electronic Checklist

SUBTASK 31-61-00-860-203

- (1) Push the CHKL switch on the DSP.

SUBTASK 31-61-00-860-204

- (2) Use a cursor control device to show the applicable normal and non-normal checklist menus.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-00-860-205

- (1) Push the CHKL switch on the DSP get out of the electronic checklist.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 240
Jan 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

PRIMARY DISPLAY SYSTEM - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

- (1) An operational test of the primary display system.
- (2) A system test of the primary display system.

TASK 31-61-00-710-801

2. Primary Display System - Operational Test

A. **General**

- (1) The operational test does a quick check of the primary display system. The test makes sure that the system is serviceable.
- (2) You can do the tests in sequence or one at a time. The Prepare For Test procedure must be done before each test or sequence of tests.
- (3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. **References**

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. **Location Zones**

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. **Prepare For Test**

SUBTASK 31-61-00-860-168

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-169

- (2) Set the INBOARD DSPL switch on the two display switching panels to NAV.
 - (a) Make sure the displays show as follows:

- 1) The two outboard display units show the PFD format.
- 2) The two inboard display units show the ND format.
- 3) The center upper display unit shows the EICAS engine primary format.
- 4) The center lower display unit shows the engine secondary format.

NOTE: If the engine secondary format does not show, push the ENG switch on the display select panel until the engine secondary format shows.

SUBTASK 31-61-00-860-170

- (3) Push either master caution light to make sure the master caution lights are not on.

E. **Display Unit Operational Test**

SUBTASK 31-61-00-740-001

- (1) Use a maintenance access terminal (MAT) to do a test of the display units (DUs):

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 501
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) CPM/GG(M010-L and M011-R) to DU Interface Check
 - 6) CONTINUE
- (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION
 - a) For each DU make sure that the DU shows the correct DU LOCATION and ARINC 429 LOOP PASS
 - 3) COMPLETE TEST
 - 4) CONTINUE

F. EFIS Control Panel Operational Test

SUBTASK 31-61-00-710-001

- (1) Do these steps at the left EFIS control panel. Then, repeat the steps for the right EFIS control panel.
 - (a) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - 1) Make sure the barometric pressure shows in inches below the altitude tape on the applicable PFD.
 - (b) Turn the inner knob on the BARO switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the barometric pressure increases and decreases on the applicable PFD.
 - (c) Push the STD button on the BARO switch on the EFIS control panel.
 - 1) Make sure STD shows below the altitude tape on the applicable PFD.

G. Display Select Panel Operational Test

SUBTASK 31-61-00-710-004

- (1) Push the LWR CTR switch on the display select panel.

SUBTASK 31-61-00-710-005

- (2) Push the STAT switch on the display select panel.
 - (a) Make sure the status page shows on the center lower display unit.

SUBTASK 31-61-00-710-006

- (3) Push the ENG switch on the display select panel.
 - (a) Make sure the secondary EICAS page shows on the center lower display unit.

H. Center Display Control Panel Operational Test

SUBTASK 31-61-00-730-076

- (1) Use a maintenance access terminal (MAT) to start the test of the center display control panel:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 502
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) Brightness Controls and Display Units
 - 6) CONTINUE
- (b) Do the instructions that show on the MAT and then make these selections:
- 1) CONTINUE
 - 2) START FUNCTION

SUBTASK 31-61-00-730-077

- (2) Turn the UPR DSPL knob of the CTR PNL BRIGHTNESS controls clockwise and counterclockwise.
- (a) Make sure the BRIGHTNESS CONTROLS UNIT value shown on the center upper display unit increases when you adjust the knob clockwise.
 - (b) Make sure the BRIGHTNESS CONTROLS UNIT value shown on the center upper display decreases when you adjust the knob counterclockwise.

SUBTASK 31-61-00-730-078

- (3) Turn the LWR DSPL knob of the CTR PNL BRIGHTNESS controls clockwise and counterclockwise.
- (a) Make sure the BRIGHTNESS CONTROLS UNIT value shown on the center lower display increases when you adjust the knob clockwise.
 - (b) Make sure the BRIGHTNESS CONTROLS UNIT value shown on the center lower display decreases when you adjust the knob counterclockwise.

SUBTASK 31-61-00-730-079

- (4) Use a maintenance access terminal to stop the function:
- (a) Make these selections on the MAT:
 - 1) COMPLETE TEST
 - 2) CONTINUE

I. Instrument Source Select Panel Operational Test

SUBTASK 31-61-00-750-001

- (1) Use a maintenance access terminal (MAT) to start the test of the instrument source select panel:
- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) Display Switches
 - 6) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 503
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

2) START FUNCTION

NOTE: All six display units show the position of the instrument panel switches.

SUBTASK 31-61-00-730-124

- (2) Push the NAV switch on the captain's instrument source select panel until CDU shows on the switch.
 - (a) Make sure CDU shows below NAV on the display units.

SUBTASK 31-61-00-730-125

- (3) Push the NAV switch on the captain's instrument source select panel.
 - (a) Make sure the NAV switch does not show CDU.
 - (b) Make sure AUTO shows below NAV on the display units.

SUBTASK 31-61-00-730-126

- (4) Push the DSPL CTRL switch on the captain's instrument source select panel until ALTN shows on the switch.
 - (a) Make sure ALTN shows below DSPL CTRL on the display units.

SUBTASK 31-61-00-730-127

- (5) Push the DSPL CTRL switch on the captain's instrument source select panel.
 - (a) Make sure the DSPL CTRL switch does not show ALTN.
 - (b) Make sure AUTO shows below DSPL CTRL on the display units.

SUBTASK 31-61-00-730-128

- (6) Push the AIR DATA/ATT switch on the captain's instrument source select panel until ALTN shows on the switch.
 - (a) Make sure ALTN shows below AIR DATA/ATT on the display units.

SUBTASK 31-61-00-730-129

- (7) Push the AIR DATA/ATT switch on the captain's instrument source select panel.
 - (a) Make sure the AIR DATA/ATT switch does not show ALTN.
 - (b) Make sure AUTO shows below AIR DATA/ATT on the display units.

SUBTASK 31-61-00-730-138

- (8) Push the NAV switch on the first officer's instrument source select panel until CDU shows on the switch.
 - (a) Make sure CDU shows below NAV on the display units.

SUBTASK 31-61-00-730-139

- (9) Push the NAV switch on the first officer's instrument source select panel.
 - (a) Make sure the NAV switch does not show CDU.
 - (b) Make sure AUTO shows below NAV on the display units.

SUBTASK 31-61-00-730-140

- (10) Push the DSPL CTRL switch on the first officer's instrument source select panel until ALTN shows on the switch.
 - (a) Make sure ALTN shows below DSPL CTRL on the display units.

SUBTASK 31-61-00-730-141

- (11) Push the DSPL CTRL switch on the first officer's instrument source select panel.
 - (a) Make sure the DSPL CTRL switch does not show ALTN.
 - (b) Make sure AUTO shows below DSPL CTRL on the display units.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 504
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-730-142

- (12) Push the AIR DATA/ATT switch on the first officer's instrument source select panel until ALTN shows on the switch.
 - (a) Make sure ALTN shows below AIR DATA/ATT on the display units.

SUBTASK 31-61-00-730-143

- (13) Push the AIR DATA/ATT switch on the first officer's instrument source select panel.
 - (a) Make sure the AIR DATA/ATT switch does not show ALTN.
 - (b) Make sure AUTO shows below AIR DATA/ATT on the display units.

SUBTASK 31-61-00-730-092

- (14) Use a maintenance access terminal to stop the function:
 - (a) Make this selection on the MAT:
 - 1) COMPLETE TEST
 - 2) CONTINUE

J. Display Switching Panel Operational Test

SUBTASK 31-61-00-710-007

- (1) Set the INBOARD DSPL switch on the captain's display switching panel to each of these positions (PFD, NAV, and EICAS).
 - (a) Make sure the left inboard display unit shows the correct display for each switch position.

SUBTASK 31-61-00-710-008

- (2) Set the INBOARD DSPL switch on the captain's display switching panel to the MFD position.

SUBTASK 31-61-00-710-009

- (3) Push the L INBD switch on the display select panel.

SUBTASK 31-61-00-710-010

- (4) Push the ELEC switch on the display select panel.
 - (a) Make sure the left inboard display unit shows the electrical synoptic page.

SUBTASK 31-61-00-710-011

- (5) Set the INBOARD DSPL switch on the captain's display switching panel to the NAV position.

SUBTASK 31-61-00-710-018

- (6) Set the INBOARD DSPL switch on the first officer's display switching panel to each of these positions (PFD, NAV, and EICAS).
 - (a) Make sure the right inboard display unit shows the correct display for each switch position.

SUBTASK 31-61-00-710-019

- (7) Set the INBOARD DSPL switch on the first officer's display switching panel to the MFD position.

SUBTASK 31-61-00-710-020

- (8) Push the R INBD and COMM switches on the display select panel.

SUBTASK 31-61-00-710-021

- (9) Push the ELEC switch on the display select panel.
 - (a) Make sure the right inboard display unit shows the electrical synoptic page.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 505
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-710-022

- (10) Set the INBOARD DSPL switch on the first officer's display switching panel to the NAV position.

K. Cursor Control Device Operational Test

SUBTASK 31-61-00-730-082

- (1) Push the LWR CTR and COMM switches on the display select panel.
 - (a) Make sure the indicator above the LWR CTR switch on the display select panel comes on.

SUBTASK 31-61-00-730-130

- (2) Push the LWR CTR switch on the captain's cursor control device (CCD).
 - (a) Make sure the indicator above the LWR CTR switch on the captain's CCD comes on.
 - (b) Make sure the captain's cursor shows on the lower center display unit.

NOTE: The captain's cursor is a cross hair with a square in the middle. The first officer's cursor is a double width cross hair.

SUBTASK 31-61-00-730-080

- (3) Move your finger on the captain's CCD.
 - (a) Make sure the applicable cursor moves in the same direction.

SUBTASK 31-61-00-730-081

- (4) Select a menu item with the selection switch on the captain's CCD.
 - (a) Make sure the selected menu item shows on the lower center display unit.

SUBTASK 31-61-00-730-132

- (5) Push the LWR CTR switch on the first officer's CCD.
 - (a) Make sure the indicator above the LWR CTR switch on the first officer's CCD comes on.
 - (b) Make sure the first officer's cursor shows on the lower center display unit.

NOTE: The first captain's cursor is a cross hair with a square in the middle. The first officer's cursor is a double width cross hair.

SUBTASK 31-61-00-730-133

- (6) Move your finger on the first officer's CCD.
 - (a) Make sure the applicable cursor moves in the same direction.

SUBTASK 31-61-00-730-134

- (7) Select a menu item with the selection switch on the first officer's CCD.
 - (a) Make sure the selected menu item shows on the lower center display unit.

SUBTASK 31-61-00-730-083

- (8) Push the ENG switch on the display select panel.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 506
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-730-801

3. Primary Display System - System Test

A. General

- (1) The system test does a complete check of the primary display system. The test makes sure that the system operates satisfactorily.
- (2) You can do the tests in sequence or one at a time. The Prepare For Test procedure must be done before each test or sequence of tests.
- (3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare For Test

SUBTASK 31-61-00-860-156

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-157

- (2) Set the INBOARD DSPL switch on the two display switching panels to NAV.
 - (a) Make sure of the displays show as follows:
 - 1) The two outboard display units show the PFD format.
 - 2) The two inboard display units show the ND format.
 - 3) The center upper display unit shows the EICAS engine primary format.
 - 4) The center lower display unit shows the engine secondary format.
- NOTE: If the engine secondary format does not show, push the ENG switch on the display select panel until the engine secondary format shows.

SUBTASK 31-61-00-860-158

- (3) Push either master caution light to make sure the master caution lights are not on.

E. Display Switching Panel Test

SUBTASK 31-61-00-730-001

- (1) Set the INBOARD DSPL switch on the captain's display switching panel to PFD.
 - (a) Make sure the left inboard display unit shows the PFD format.

SUBTASK 31-61-00-730-084

- (2) Set the INBOARD DSPL switch on the captain's display switching panel to MFD.

SUBTASK 31-61-00-730-085

- (3) Push the L INBD switch on the display select panel.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 507
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-730-086

- (4) Push the ELEC switch on the display select panel.
 - (a) Make sure the left inboard display unit shows the electrical synoptic page.

SUBTASK 31-61-00-730-002

- (5) Set the INBOARD DSPL switch on the captain's display switching panel to EICAS.
 - (a) Make sure the left inboard display unit shows the primary EICAS format.

SUBTASK 31-61-00-860-159

- (6) Set the INBOARD DSPL switch on the captain's display switching panel to NAV.
 - (a) Make sure the applicable inboard display unit shows the ND format.

SUBTASK 31-61-00-730-161

- (7) Set the INBOARD DSPL switch on the officer's display switching panel to PFD.
 - (a) Make sure the right inboard display unit shows the PFD format.

SUBTASK 31-61-00-730-144

- (8) Set the INBOARD DSPL switch on the first officer's display switching panel to MFD.

SUBTASK 31-61-00-730-145

- (9) Push the R INBD switch on the display select panel.

SUBTASK 31-61-00-730-146

- (10) Push the ELEC switch on the display select panel.
 - (a) Make sure the right inboard display unit shows the electrical synoptic page.

SUBTASK 31-61-00-730-147

- (11) Set the INBOARD DSPL switch on the first officer's display switching panel to EICAS.
 - (a) Make sure the right inboard display unit shows the primary EICAS format.

SUBTASK 31-61-00-860-197

- (12) Set the INBOARD DSPL switch on the first officer's display switching panel to NAV.
 - (a) Make sure the right inboard display unit shows the ND format.

F. Cursor Control Device Test

SUBTASK 31-61-00-730-087

- (1) Push the LWR CTR and COMM switches on the display select panel.
 - (a) Make sure the indicator above the LWR CTR switch on the display select panel is on.

SUBTASK 31-61-00-730-131

- (2) Push the LWR CTR switch on the captain's cursor control device (CCD).
 - (a) Make sure the indicator above the LWR CTR switch on the captain's CCD comes on.
 - (b) Make sure the captain's cursor shows on the lower center display unit.

NOTE: The captain's left cursor is a cross hair with a square in the middle. The first officer's cursor is a double width cross hair.

SUBTASK 31-61-00-730-088

- (3) Move your finger on the captain's CCD.
 - (a) Make sure the captain's cursor moves in the same direction.

SUBTASK 31-61-00-730-089

- (4) Select a menu item with the selection switch on the captain's CCD.
 - (a) Make sure the selected menu item shows on the lower center display unit.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 508
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-730-090

- (5) Push the ENG switch on the display select panel.

SUBTASK 31-61-00-860-160

- (6) Set the INBOARD DSPL switch on the captain's display switching panel to MFD.

SUBTASK 31-61-00-860-161

- (7) Push the L INBD and COMM switches on the display select panel.
 - (a) Make sure the indicator above the L INBD switch comes on.
 - (b) Make sure the indicator above the INBD switch on the captain's CCD is on.
 - (c) Make sure the captain's cursor shows on the left inboard display unit.

NOTE: The captain's cursor is a cross hair with a square in the middle. The first officer's cursor is a double width cross hair.

SUBTASK 31-61-00-730-003

- (8) Move your finger on the captain's CCD.
 - (a) Make sure the captain's cursor moves in the same direction.

SUBTASK 31-61-00-730-004

- (9) Select a menu item with the thumb switch on the captain's CCD.
 - (a) Make sure the selected menu item shows on the left inboard display unit.

SUBTASK 31-61-00-860-162

- (10) Set the INBOARD DSPL switch on the captain's display switching panel to NAV.

SUBTASK 31-61-00-730-148

- (11) Push the LWR CTR and COMM switches on the display select panel.
 - (a) Make sure the indicator above the LWR CTR switch on the display select panel is on.

SUBTASK 31-61-00-730-149

- (12) Push the LWR CTR switch on the first officer's CCD.
 - (a) Make sure the indicator above the LWR CTR switch on the first officer's CCD comes on.
 - (b) Make sure the first officer's cursor shows on the lower center display unit.

NOTE: The captain's left cursor is a cross hair with a square in the middle. The first officer's cursor is a double width cross hair.

SUBTASK 31-61-00-730-150

- (13) Move your finger on the first officer's CCD.
 - (a) Make sure the first officer's cursor moves in the same direction.

SUBTASK 31-61-00-730-151

- (14) Select a menu item with the selection switch on the first officer's CCD.
 - (a) Make sure the selected menu item shows on the lower center display unit.

SUBTASK 31-61-00-730-152

- (15) Push the ENG switch on the display select panel.

SUBTASK 31-61-00-860-198

- (16) Set the INBOARD DSPL switch on the first officer's display switching panel to MFD.

SUBTASK 31-61-00-860-199

- (17) Push the R INBD and COMM switches on the display select panel.
 - (a) Make sure the indicator above the R INBD switch comes on.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 509
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (b) Make sure the indicator above the INBD switch on the first officer's CCD is on.
- (c) Make sure the first officer's cursor shows on the right inboard display unit.

NOTE: The captain's cursor is a cross hair with a square in the middle. The first officer's cursor is a double width cross hair.

SUBTASK 31-61-00-730-153

- (18) Move your finger on the first officer's CCD.
 - (a) Make sure the first officer's cursor moves in the same direction.

SUBTASK 31-61-00-730-154

- (19) Select a menu item with the thumb switch on the first officer's CCD.
 - (a) Make sure the selected menu item shows on the right inboard display unit.

SUBTASK 31-61-00-860-200

- (20) Set the INBOARD DSPL switch on the first officer's display switching panel to NAV.

G. EFIS Control Panel Test

SUBTASK 31-61-00-730-005

- (1) Do these steps at the left EFIS control panel. Then, repeat the steps for the right EFIS control panel.
 - (a) Set the display mode switch on the EFIS control panel to APP.
 - 1) Make sure the approach mode shows on the applicable ND.
 - (b) Push the CTR button on the EFIS control panel several times.
 - 1) Make sure the applicable ND format changes between the full rose and expanded compass modes.
 - (c) Set the display mode switch on the EFIS control panel to VOR.
 - 1) Make sure the VOR mode shows on the applicable ND.
 - (d) Set the display mode switch on the EFIS control panel to MAP.
 - 1) Make sure map mode shows on the applicable ND.
 - (e) Set the display mode switch on the EFIS control panel to PLN.
 - 1) Make sure plan mode shows on the applicable ND.
 - NOTE: The plan mode shows as a full rose compass with a north up orientation.
 - (f) Set the display mode switch on the EFIS control panel to APP.
 - (g) Set the VOR L/ADF L switch on the EFIS control panel to VOR L.
 - 1) Make sure VOR L shows in the lower left corner of the applicable.
 - (h) Set the VOR L/ADF L switch on the EFIS control panel to ADF L.
 - 1) Make sure ADF L shows in the lower left corner of the applicable ND.
 - (i) Set the VOR L/ADF L switch on the EFIS control panel to OFF.
 - 1) Make sure neither VOR L or ADF L shows in the lower left corner of the applicable ND.
 - (j) Set the right VOR/ADF switch on the EFIS control panel to VOR R.
 - 1) Make sure VOR R shows in the lower right corner of the applicable ND.
 - (k) Set the VOR R/ADF R switch on the EFIS control panel to ADF R.
 - 1) Make sure ADF R shows in the lower right corner of the applicable ND.
 - (l) Set the VOR R/ADF R switch on the EFIS control panel to OFF.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 510
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 1) Make sure neither VOR R or ADF R shows in the lower right corner of the applicable ND.
- (m) Set the display mode switch on the EFIS control panel to MAP.
NOTE: If the applicable ND does not show the MAP data in the expanded mode, push CTR on the EFIS control panel.
- (n) Set the range switch on the EFIS control panel to the values that follow (Table 501).
 - 1) Make sure the applicable ND shows the corresponding mid-range value in the middle of the display.

Table 501/31-61-00-993-821

EFIS Range Switch Test	
Range Switch	Mid-Range Value
10	5
20	10
40	20
80	40
160	80
320	160
640	320

- (o) Set the range switch on the EFIS control panel to 40.
- (p) Push the TFC button on the EFIS control panel.
 - 1) Make sure the TRAFFIC annunciator shows on the lower left side of the applicable ND.
- (q) Push the TFC button on the EFIS control panel.
 - 1) Make sure the TRAFFIC annunciator does not show on the applicable ND.
- (r) Push the WXR button on the EFIS control panel.
 - 1) Make sure the WXR annunciator shows on the left side of the applicable ND.
- (s) Push the WXR button on the EFIS control panel.
 - 1) Make sure the WXR annunciator does not show on the applicable ND.
- (t) Push the STA button on the EFIS control panel.
 - 1) Make sure the STA annunciator shows on the left side of the applicable ND.
- (u) Push the STA button on the EFIS control panel.
 - 1) Make sure the STA annunciator does not show on the applicable ND.
- (v) Push the WPT button on the EFIS control panel.
 - 1) Make sure the WPT annunciator shows on the left side of the applicable ND.
- (w) Push the WPT button on the EFIS control panel.
 - 1) Make sure the WPT annunciator does not show on the applicable ND.
- (x) Push the ARPT button on the EFIS control panel.
 - 1) Make sure the ARPT annunciator shows on the left side of the applicable ND.
- (y) Push the ARPT button on the EFIS control panel.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 511
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 1) Make sure the ARPT annunciator does not show on the applicable ND.
- (z) Push the DATA button on the EFIS control panel.
 - 1) Make sure the waypoint data shows on the applicable ND.

NOTE: Waypoint data will not show unless an active route is installed in the flight management computer.
- (aa) Push the DATA button on the EFIS control panel.
 - 1) Make sure the waypoint data does not show on the applicable ND.
- (ab) Push the POS button on the EFIS control panel.
 - 1) Make sure the IRS position indicator shows on the applicable ND.
- (ac) Push the POS button on the EFIS control panel.
 - 1) Make sure the IRS position indicator does not show on the applicable ND.
- (ad) Set the outer knob on the MINS switch on the EFIS control panel to the BARO position.
 - 1) Make sure BARO shows to the left of the bottom of the altitude tape on the applicable PFD.
- (ae) Turn the inner knob on the MINS switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the minimum BARO altitude increases and decreases on the applicable PFD.
- (af) Set the outer knob on the MINS switch on the EFIS control panel to the RADIO position.
 - 1) Make sure RADIO shows left of the bottom of the altitude tape on the applicable PFD.
- (ag) Turn the inner knob on the MINS switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the minimum RADIO altitude increases and decreases on the applicable PFD.
- (ah) Set the outer knob on the BARO switch on the EFIS control panel to the HPA position.
 - 1) Make sure the barometric pressure shows in hectopascals below the altitude tape on the applicable PFD.
- (ai) Set the outer knob on the BARO switch on the EFIS control panel to the IN position.
 - 1) Make sure the barometric pressure shows in inches below the altitude tape on the applicable PFD.
- (aj) Turn the inner knob on the BARO switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the barometric pressure increases and decreases on the applicable PFD.
- (ak) Push the STD button on the BARO switch on the EFIS control panel.
 - 1) Make sure STD shows below the altitude tape on the applicable PFD.
- (al) Do these steps to do a test of the MTR button on the EFIS control panel.
 - 1) Push the MTR button on the EFIS control panel.
 - a) Make sure that the metric altitude shows on the applicable PFD.
 - 2) Push the MTR button on the EFIS control panel.
 - a) Make sure that the metric altitude does not shows on the applicable PFD.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 512
May 05/2016



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (am) Push the FPV button on the EFIS control panel.
 - 1) Make sure flight path vector shows on the applicable PFD.

H. Display Select Panel Test

SUBTASK 31-61-00-730-034

- (1) Use a maintenance access terminal (MAT) to start the display select panel test:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) Display Switches
 - 6) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION

NOTE: The display switches test format shows on all six display units.

SUBTASK 31-61-00-730-035

- (2) Do these steps to test the L INBD switch on the display select panel.
 - (a) Push and hold the L INBD switch on the display select panel.
 - 1) Make sure the display units show L INBD selected.
 - (b) Release the L INBD switch on the display select panel.
 - 1) Make sure the display units show L INBD not selected.

SUBTASK 31-61-00-730-037

- (3) Do these steps to test the LWR CTR switch on the display select panel.
 - (a) Push and hold the LWR CTR switch on the display select panel.
 - 1) Make sure the display units show LWR CTR selected.
 - (b) Release the LWR CTR switch on the display select panel.
 - 1) Make sure the display units show LWR CTR not selected.

SUBTASK 31-61-00-730-039

- (4) Do these steps to test the R INBD switch on the display select panel.
 - (a) Push and hold the R INBD switch on the display select panel.
 - 1) Make sure the display units show R INBD selected.
 - (b) Release the R INBD switch on the display select panel.
 - 1) Make sure the display units show R INBD not selected.

SUBTASK 31-61-00-730-041

- (5) Do these steps to test the ENG switch on the display select panel.
 - (a) Push and hold the ENG switch on the display select panel.
 - 1) Make sure the display units show ENG selected.
 - (b) Release the ENG switch on the display select panel.
 - 1) Make sure the display units show ENG not selected.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 513
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-730-042

- (6) Do these steps to test the STAT switch on the display select panel.
 - (a) Push and hold the STAT switch on the display select panel.
 - 1) Make sure the display units show STAT selected.
 - (b) Release the STAT switch on the display select panel.
 - 1) Make sure the display units show STAT not selected.

SUBTASK 31-61-00-730-043

- (7) Do these steps to test the CANC/RCL switch on the display select panel.
 - (a) Push and hold the CANC/RCL switch on the display select panel.
 - 1) Make sure the display units show CANC/RCL selected.
 - (b) Release the CANC/RCL switch on the display select panel.
 - 1) Make sure the display units show CANC/RCL not selected.

SUBTASK 31-61-00-860-166

- (8) Do these steps to test the synoptic display switches on the display select panel.
 - (a) Push and hold the synoptic display switch on the display select panel as follows (Table 502).
 - 1) Make sure the display units show the corresponding switch selected.
 - (b) Release the synoptic display switch on the display select panel.
 - 1) Make sure the display units show the corresponding switch not selected.

Table 502/31-61-00-993-822

Display Select Panel Test	
Synoptic Switch	Synoptic Display
ELEC	Electrical
HYD	Hydraulic
FUEL	Fuel
AIR	Air
DOOR	Door
GEAR	Gear
FCTL	Flight Controls

SUBTASK 31-61-00-730-045

- (9) Do these steps to test the CHKL switch on the display select panel.
 - (a) Push and hold the CHKL switch on the display select panel.
 - 1) Make sure the display units show CHKL selected.
 - (b) Release the CHKL switch on the display select panel.
 - 1) Make sure the display units show CHKL not selected.

SUBTASK 31-61-00-730-046

- (10) Do these steps to test the COMM switch on the display select panel.
 - (a) Push and hold the COMM switch on the display select panel.
 - 1) Make sure the display units show COMM selected.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 514
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (b) Release the COMM switch on the display select panel.
 - 1) Make sure the display units show COMM not selected.

SUBTASK 31-61-00-730-047

- (11) Do these steps to test the NAV switch on the display select panel.
 - (a) Push and hold the NAV switch on the display select panel.
 - 1) Make sure the display units show NAV selected.
 - (b) Release the NAV switch on the display select panel.
 - 1) Make sure the display units show NAV not selected.

SUBTASK 31-61-00-730-093

- (12) Use a maintenance access terminal to stop the function:
 - (a) Make these selections on the MAT:
 - 1) COMPLETE TEST
 - 2) CONTINUE

I. Instrument Source Select Panel Test

SUBTASK 31-61-00-730-048

- (1) Use a maintenance access terminal (MAT) to start the instrument source select panel test:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) Display Switches
 - 6) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION

NOTE: All six display units show the position of the instrument panel switches.

SUBTASK 31-61-00-730-049

- (2) Push the NAV switch on the captain's instrument source select panel until CDU shows on the switch.
 - (a) Make sure CDU shows below NAV on the display units.

SUBTASK 31-61-00-730-050

- (3) Push the NAV switch on the captain's instrument source select panel.
 - (a) Make sure the NAV switch does not show CDU.
 - (b) Make sure AUTO shows below NAV on the display units.

SUBTASK 31-61-00-730-051

- (4) Push the DSPL CTRL switch on the captain's instrument source select panel until ALTN shows on the switch.
 - (a) Make sure ALTN shows below DSPL CTRL on the display units.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 515
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-730-052

- (5) Push the DSPL CTRL switch on the captain's instrument source select panel.
 - (a) Make sure the DSPL CTRL switch does not show ALTN.
 - (b) Make sure AUTO shows below DSPL CTRL on the display units.

SUBTASK 31-61-00-730-053

- (6) Push the AIR DATA/ATT switch on the captain's instrument source select panel until ALTN shows on the switch.
 - (a) Make sure ALTN shows below AIR DATA/ATT on the display units.

SUBTASK 31-61-00-730-054

- (7) Push the AIR DATA/ATT switch on the captain's instrument source select panel.
 - (a) Make sure the AIR DATA/ATT switch does not show ALTN.
 - (b) Make sure AUTO shows below AIR DATA/ATT on the display units.

SUBTASK 31-61-00-730-155

- (8) Push the NAV switch on the first officer's instrument source select panel until CDU shows on the switch.
 - (a) Make sure CDU shows below NAV on the display units.

SUBTASK 31-61-00-730-156

- (9) Push the NAV switch on the first officer's instrument source select panel.
 - (a) Make sure the NAV switch does not show CDU.
 - (b) Make sure AUTO shows below NAV on the display units.

SUBTASK 31-61-00-730-157

- (10) Push the DSPL CTRL switch on the first officer's instrument source select panel until ALTN shows on the switch.
 - (a) Make sure ALTN shows below DSPL CTRL on the display units.

SUBTASK 31-61-00-730-158

- (11) Push the DSPL CTRL switch on the first officer's instrument source select panel.
 - (a) Make sure the DSPL CTRL switch does not show ALTN.
 - (b) Make sure AUTO shows below DSPL CTRL on the display units.

SUBTASK 31-61-00-730-159

- (12) Push the AIR DATA/ATT switch on the first officer's instrument source select panel until ALTN shows on the switch.
 - (a) Make sure ALTN shows below AIR DATA/ATT on the display units.

SUBTASK 31-61-00-730-160

- (13) Push the AIR DATA/ATT switch on the first officer's instrument source select panel.
 - (a) Make sure the AIR DATA/ATT switch does not show ALTN.
 - (b) Make sure AUTO shows below AIR DATA/ATT on the display units.

SUBTASK 31-61-00-730-055

- (14) Push the DSPL CTRL switch on the center display control panel until ALTN shows on the switch.
 - (a) Make sure ALTN shows below DSPL CTR on the display units.

SUBTASK 31-61-00-730-056

- (15) Push the DSPL CTRL switch on the center display control panel.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 516
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (a) Make sure ALTN does not show on the switch.
- (b) Make sure AUTO shows below DSPL CTRL on the display units.

SUBTASK 31-61-00-730-094

- (16) Use a maintenance access terminal to stop the function:
 - (a) Make this selection on the MAT:
 - 1) COMPLETE TEST
 - 2) CONTINUE

J. Display Lighting Test

SUBTASK 31-61-00-730-057

- (1) Use a maintenance access terminal (MAT) to start the lighting test:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) Brightness Controls and Display Units
 - 6) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION

SUBTASK 31-61-00-730-059

- (2) Adjust the UPR DSPL control on the center display control panel clockwise and counterclockwise.
 - (a) Make sure the UNIT value shown on the center upper display unit increases when you adjust the control clockwise.
 - (b) Make sure the UNIT value shown on the center upper display decreases when you adjust the control counterclockwise.

SUBTASK 31-61-00-730-060

- (3) Adjust the LWR DSPL control on the center display control clockwise and counterclockwise.
NOTE: The outer knob is the LWR DSPL control. The inner knob is for WXR.
 - (a) Make sure the UNIT value shown on the center lower display increases when you adjust the control clockwise.
 - (b) Make sure the UNIT value shown on the center lower display decreases when you adjust the control counterclockwise.

SUBTASK 31-61-00-730-135

- (4) Adjust the WXR control on the center display control clockwise and counterclockwise.
NOTE: The outer knob is the LWR DSPL control. The inner knob is for WXR.
 - (a) Make sure the UNIT value shown on the center lower display increases when you adjust the control clockwise.
 - (b) Make sure the UNIT value shown on the center lower display decreases when you adjust the control counterclockwise.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 517
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-00-730-061

- (5) Adjust the applicable INBD DSPL control on the P13(P14) panel clockwise and counterclockwise.

NOTE: The outer knob is the INBD DSPL control. The inner knob is for WXR.

- (a) Make sure the UNIT value shown on the inboard display increases when you adjust the control clockwise.
- (b) Make sure the UNIT value shown on the inboard display decreases when you adjust the control counterclockwise.

SUBTASK 31-61-00-730-136

- (6) Adjust the applicable WXR control on the on the P13(P14) panel clockwise and counterclockwise.

NOTE: The outer knob is the INBD DSPL control. The inner knob is for WXR.

- (a) Make sure the UNIT value shown on the inboard display increases when you adjust the control clockwise.
- (b) Make sure the UNIT value shown on the inboard display decreases when you adjust the control counterclockwise.

SUBTASK 31-61-00-730-137

- (7) Adjust the applicable OUTBD DSPL control on the P13(P14) panel clockwise and counterclockwise.

- (a) Make sure the UNIT value shown on the outboard display increases when you adjust the control clockwise.
- (b) Make sure the UNIT value shown on the outboard display decreases when you adjust the control counterclockwise.

SUBTASK 31-61-00-730-062

- (8) Put lighted flashlight against each bezel light sensor on the left outboard display unit.

- (a) Make sure the BEZEL value shown on the left outboard display increases.

SUBTASK 31-61-00-730-063

- (9) Remove the flashlight from the bezel light sensor.

- (a) Make sure the BEZEL value shown on the left outboard display decreases.

SUBTASK 31-61-00-730-064

- (10) Put lighted flashlight against each bezel light sensor on the left inboard display unit.

- (a) Make sure the BEZEL value shown on the left inboard display increases.

SUBTASK 31-61-00-730-065

- (11) Remove the flashlight from the bezel light sensor.

- (a) Make sure the BEZEL value shown on the left inboard display decreases.

SUBTASK 31-61-00-730-066

- (12) Put lighted flashlight against each bezel light sensor on the center upper display unit.

- (a) Make sure the BEZEL value shown on the center upper display increases.

SUBTASK 31-61-00-730-067

- (13) Remove the flashlight from the bezel light sensor.

- (a) Make sure the BEZEL value shown on the center upper display decreases.

SUBTASK 31-61-00-730-068

- (14) Put lighted flashlight against each bezel light sensor on the center lower display unit.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 518
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (a) Make sure the BEZEL value shown on the center lower display increases.

SUBTASK 31-61-00-730-069

- (15) Remove the flashlight from the bezel light sensor.

- (a) Make sure the BEZEL value shown on the center lower display decreases.

SUBTASK 31-61-00-730-070

- (16) Put lighted flashlight against each bezel light sensor on the right inboard display unit.

- (a) Make sure the BEZEL value shown on the right inboard display increases.

SUBTASK 31-61-00-730-071

- (17) Remove the flashlight from the bezel light sensor.

- (a) Make sure the BEZEL value shown on the right inboard display decreases.

SUBTASK 31-61-00-730-072

- (18) Put lighted flashlight against each bezel light sensor on the right outboard display unit.

- (a) Make sure the BEZEL value shown on the right outboard display increases.

SUBTASK 31-61-00-730-073

- (19) Remove the flashlight from the bezel light sensor.

- (a) Make sure the BEZEL value shown on the right outboard display decreases.

SUBTASK 31-61-00-970-001

- (20) Make a note of the REMOTE LIGHT SENSOR value on the captain's (first officer's) outboard display unit.

SUBTASK 31-61-00-730-074

- (21) Put an opaque lint-free fabric on the captain's (first officer's) remote light sensor.

- (a) Make sure the REMOTE LIGHT SENSOR value decreases.

SUBTASK 31-61-00-730-075

- (22) Remove the opaque lint-free fabric from the captain's (first officer's) remote light sensor.

- (a) Make sure the REMOTE LIGHT SENSOR value increases.

SUBTASK 31-61-00-730-095

- (23) Use a maintenance access terminal to stop the function:

- (a) Make these selections on the MAT:

- 1) COMPLETE TEST
- 2) CONTINUE

K. Remote Light Sensor Test

SUBTASK 31-61-00-730-162

- (1) Use a maintenance access terminal (MAT) to start the remote light sensor test:

- (a) Make these selections on the MAT:

- 1) ONBOARD MAINTENANCE
- 2) OTHER FUNCTIONS
- 3) SPECIAL FUNCTIONS
- 4) 31 AIMS - Display System
- 5) Brightness Controls and Display Units
- 6) CONTINUE

- (b) Do the instructions that show on the MAT and then make these selections:

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 519
May 05/2016



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 1) CONTINUE
- 2) START FUNCTION

NOTE: All six DUs are grouped into two sets of 3, with each set driven by a single GG. When the display unit test is selected, two GGs will be selected to drive them. Also, the left outboard and right outboard display units provides the excitation voltage for the left RLS and right RLS.

SUBTASK 31-61-00-730-163

- (2) Adjust each DU's individual brightness control so that all six DUs are readable.
 - (a) Make sure all six DUs present the correct format.

SUBTASK 31-61-00-730-164

- (3) Hold hand over the appropriate glareshield mounted RLS.
 - (a) Make sure the sensor housing is completely covered and light does not enter the RLS slit aperture.

SUBTASK 31-61-00-730-165

- (4) Put the flashlight on the glareshield.
 - (a) Make sure the flashlight shines into the slit in the right RLS housing.
 - (b) Make sure the value displayed on the onside outboard DU is greater when the flashlight is applied than when the RLS is covered.

NOTE: The difference between the two values will depend on the natural lighting conditions present at the time the test is conducted.

SUBTASK 31-61-00-730-166

- (5) Use a maintenance access terminal to stop the function:
 - (a) Make these selections on the MAT:
 - 1) COMPLETE TEST
 - 2) CONTINUE

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 520
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

PRIMARY DISPLAY SYSTEM - INSPECTION/CHECK

1. General

- A. This procedure contains scheduled maintenance task data.
- B. This procedure has these tasks:
 - (1) A check of the Display Units (DU).
 - (2) A check of the INBOARD DSPL select switches.
 - (3) A check of the NAV and AIR DATA/ATT source select switches.
 - (4) A check of the DSPL CTRL switches.
 - (5) A check of the AIMS coaxial couplers.

TASK 31-61-00-710-810

2. Display Units - Check

A. **General**

- (1) This task makes sure that the Display Units (DU) are serviceable.

B. **References**

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. **Location Zones**

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. **Prepare for the Check**

SUBTASK 31-61-00-860-206

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

E. **Procedure**

SUBTASK 31-61-00-750-002

- (1) Count the number of the defective pixels (bright green/red dots) on the LCD screen of the DU.
 - (a) Make sure that there are less than 8 defective pixels on the LCD screen.

———— **END OF TASK** ————

TASK 31-61-00-710-806

3. Inboard Display Select Switches - Check

NOTE: This procedure is a scheduled maintenance task.

A. **General**

- (1) This procedure makes sure that the primary display system inboard display (INBOARD DSPL) select switches operate correctly.
- (2) There are two INBOARD DSPL switches; one for each inboard display unit (DU). The INBOARD DSPL switches are located on the forward instrument panel directly below the inboard DUs.
- (3) The same sequence of steps is used to check the left or the right INBOARD DSPL switch.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 601
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Check

SUBTASK 31-61-00-860-184

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-185

- (2) Set the INBOARD DSPL switch on the two display switching panels to NAV.

SUBTASK 31-61-00-860-186

- (3) Make sure of the following:
- (a) The two outboard DUs show the PFD format.
 - (b) The two inboard DUs show the ND format.
 - (c) The upper center DU shows the EICAS engine primary format.
 - (d) The lower center DU is blank or shows the engine secondary format.
 - (e) If the engine secondary format does not show, push the ENG switch on the display select panel (DSP) until the engine secondary format shows.

E. Procedure

SUBTASK 31-61-00-730-110

- (1) Set the left(right) INBOARD DSPL switch to PFD, NAV, and EICAS.
- (a) Make sure the left(right) DU shows the correct display format for each switch position.

SUBTASK 31-61-00-730-111

- (2) Set the left(right) INBOARD DSPL switch to MFD.

SUBTASK 31-61-00-730-112

- (3) Push the L INBD(R INBD) switch on the DSP.
- (a) Make sure the indicator above the L INBD(R INBD) switch comes on.

SUBTASK 31-61-00-860-187

- (4) Push the STAT switch on the DSP.
- (a) Make sure the left(right) inboard DU shows the status page format.

SUBTASK 31-61-00-860-188

- (5) Set the left(right) INBOARD DSPL switch to NAV.
- (a) Make sure the indicator above the L INBD(R INBD) switch on the DSP goes off.
- (b) Make sure the left(right) inboard DU shows the ND format.

————— END OF TASK —————

TASK 31-61-00-710-807

4. Instrument Source Select Switches - Check

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 602
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

A. General

- (1) This procedure makes sure that the primary display system NAV and AIR DATA/ATT source select switches operate correctly.
- (2) There are two NAV and two AIR DATA/ATT source select switches. The NAV and AIR DATA/ATT switches for the left display units (DUs) are on the left instrument source select panel (P1-1). The NAV and AIR DATA/ATT switches for the right DUs are on the right instrument source select panel (P3-1).
- (3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (4) During the test the normal display formats are removed from the DUs and a test format shows on the DUs (Figure 601). The information for the left source select switches shows on the left side of the test format. The information for the right source select switches shows on the right side of the test format.
- (5) The same sequence of steps is used to check the left and the right NAV and AIR DATA/ATT source select switches.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 31-61-00-860-190

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-730-113

- (2) Use a maintenance access terminal (MAT) to do the check of the left(right) NAV and AIR DATA/ATT source select switches:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) Display Switches
 - 6) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION

SUBTASK 31-61-00-730-114

- (3) Push the left(right) NAV switch.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 603
May 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (a) Make sure CDU shows on the switch.
- (b) Make sure CDU shows below NAV on the left(right) side of the DUs.

SUBTASK 31-61-00-730-115

- (4) Push the left(right) NAV switch.
 - (a) Make sure CDU does not show on the switch.
 - (b) Make sure AUTO shows below NAV on the left(right) side of the DUs.

SUBTASK 31-61-00-730-116

- (5) Push the left(right) AIR DATA/ATT switch.
 - (a) Make sure ALTN shows on the switch.
 - (b) Make sure ALTN shows below AIR DATA/ATT on the left(right) side of the DUs.

SUBTASK 31-61-00-730-117

- (6) Push the left(right) AIR DATA/ATT switch.
 - (a) Make sure ALTN does not show on the switch.
 - (b) Make sure AUTO shows below AIR DATA/ATT on the left(right) side of the DUs.

SUBTASK 31-61-00-710-014

- (7) Use a MAT to stop the function:
 - (a) Make these selections on the MAT:
 - 1) COMPLETE TEST
 - 2) CONTINUE

———— **END OF TASK** ————

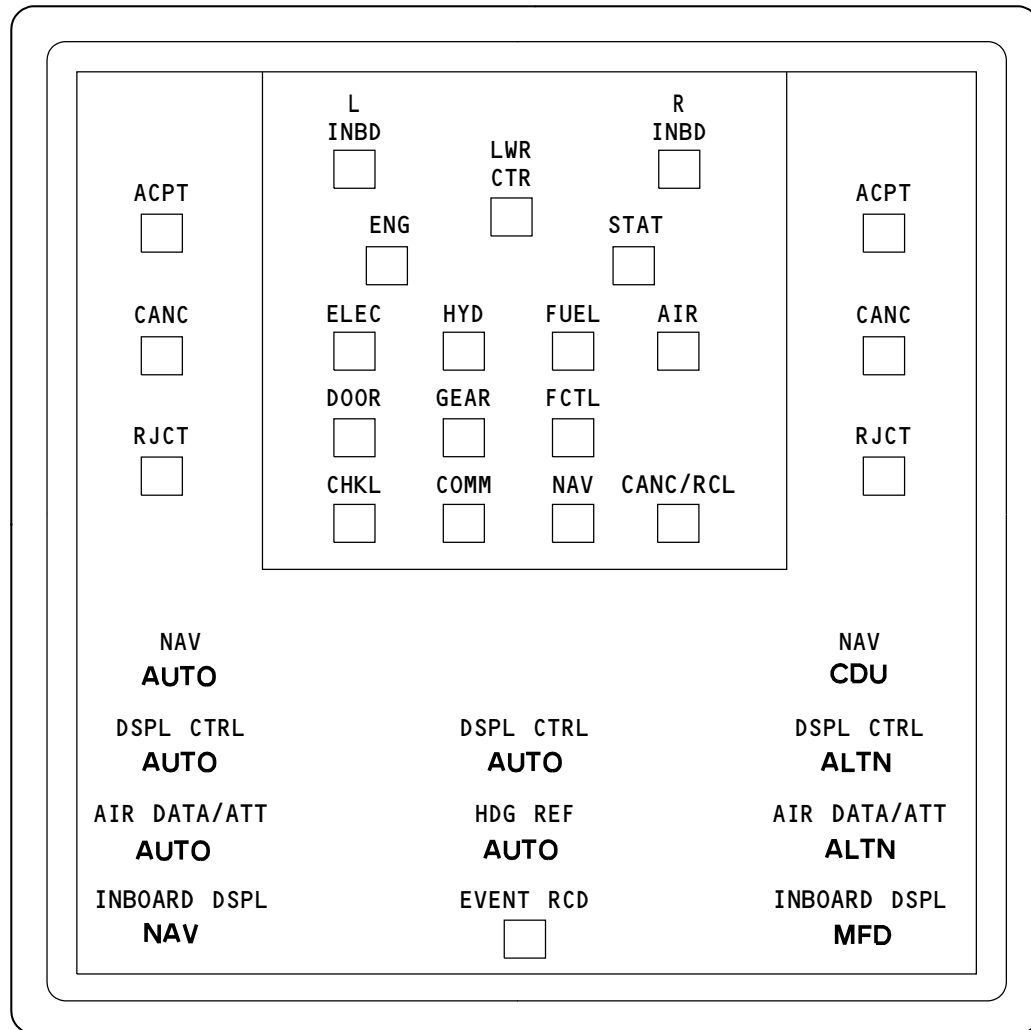
EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-00

Page 604
May 05/2015

777-200/300
AIRCRAFT MAINTENANCE MANUAL



E45380 S0006417508_V1

Display Switches Test Format
Figure 601/31-61-00-990-801

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 605
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-00-710-808

5. Display Control Switches - Check

(Figure 601)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure makes sure that the primary display system display control (DSPL CTRL) switches operate correctly.
- (2) There are three DSPL CTRL switches. The DSPL CTRL switch for the left display units (DUs) is on the left instrument source select panel (P1-1). The DSPL CTRL switch for the right DUs is on the right instrument source select panel (P3-1). The DSPL CTRL switch for the center DUs is on the center display control panel (P9).
- (3) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (4) During the test the normal display formats are removed from the DUs and a test format shows on the DUs (Figure 601). The information for the left DSPL CTRL switch shows on the left side of the test format. The information for the right DSPL CTRL switch shows on the right side of the test format. The information for the center DSPL CTRL switch shows in the center of the test format.
- (5) The same sequence of steps is used to check the left or the right display unit DSPL CTRL switches. The DSPL CTRL switch for the center DUs uses a separate sequence of steps.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 31-61-00-860-192

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-730-118

- (2) Use a maintenance access terminal (MAT) to do the check of the left(right, center) DSPL CTRL switches:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) Display Switches
 - 6) CONTINUE

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 606
May 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION

SUBTASK 31-61-00-730-119

- (3) Push the DSPL CTRL switch on the left(right) instrument source select panel.
 - (a) Make sure ALTN shows on the switch.
 - (b) Make sure ALTN shows below DSPL CTRL on the left(right) side of the DUs.

SUBTASK 31-61-00-730-120

- (4) Push the DSPL CTRL switch on the left(right) instrument source select panel.
 - (a) Make sure ALTN does not show on the switch.
 - (b) Make sure AUTO shows below DSPL CTRL on the left(right) side of the display units.

SUBTASK 31-61-00-730-121

- (5) Push the DSPL CTRL switch on the center display control panel.
 - (a) Make sure ALTN shows on the switch.
 - (b) Make sure ALTN shows below DSPL CTRL in the center of the DUs.

SUBTASK 31-61-00-730-122

- (6) Push the DSPL CTRL switch on the center display control panel.
 - (a) Make sure ALTN does not show on the switch.
 - (b) Make sure AUTO shows below DSPL CTRL in the center of the DUs.

SUBTASK 31-61-00-710-015

- (7) Use a MAT to stop the function:
 - (a) Make these selections on the MAT:
 - 1) COMPLETE TEST
 - 2) CONTINUE

————— **END OF TASK** —————

TASK 31-61-00-710-809

6. Coaxial Coupler - Check

(Figure 602)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) This procedure makes sure that the primary display system coaxial couplers operate correctly.
- (2) There are four coaxial couplers. Two couplers are installed outboard of the captain's rudder pedals and two couplers are installed outboard of the first officer's rudder pedals.
- (3) The left coaxial couplers are connected to the graphic generators in the left AIMS cabinet. The right coaxial couplers are connected to the graphic generators in the right AIMS cabinet. Each coaxial coupler can supply a video signal to each of the six display units (DUs).
- (4) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (5) During the procedure the normal display formats are removed from the DUs and a test format shows on the DUs (Figure 602). The information for each DU shows on that DU.

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 607
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 31-61-00-860-194

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-00-860-196

- (2) Adjust the brightness controls for each display unit so that all six display units are readable.

SUBTASK 31-61-00-730-123

- (3) Use a maintenance access terminal (MAT) to do the CPM/Graphics generators connectivity check:

- (a) Make these selections on the MAT:

- 1) ONBOARD MAINTENANCE
- 2) OTHER FUNCTIONS
- 3) SPECIAL FUNCTIONS
- 4) 31 AIMS - Display System

- (b) Select each of the checks that follow in order:

NOTE: Make sure when each check is finished you do the next check.

- 1) CPM/GG(M010-L and M011-R) to DU Interface Check (Table 601)
- 2) CPM/GG(M010-R and M011-L) to DU Interface Check (Table 602)
- 3) CPM/GG(M011-L and M010-R) to DU Interface Check (Table 603)
- 4) CPM/GG(M011-R and M010-L) to DU Interface Check (Table 604)

- (c) Do the instructions that show on the MAT and then make these selections:

- 1) CONTINUE
- 2) START FUNCTION

- (d) For each DU make sure the DU LOCATION, ARINC 429 LOOP, GG SOURCE, and INPUT ACTIVITY and are per the applicable table.

NOTE: The bracketed [Y] on the DU indicates the active channel and will show in white. A green Y on the DU indicates a channel with activity present. A red N on the DU indicates a channel with no detected activity present.

Table 601/31-61-00-993-823

Display Unit Test Format CPM/GG(M010-L and M011-R) to DU Interface Check						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU

EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 608
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

Table 601/31-61-00-993-823 (Continued)

Display Unit Test Format CPM/GG(M010-L and M011-R) to DU Interface Check						
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS
GG SOURCE	L10	L10	L10	R11	R11	R11
INPUT ACTIVITY	[Y]YYY	[Y]YYY	[Y]YYY	YYY[Y]	YYY[Y]	YYY[Y]

Table 602/31-61-00-993-824

Display Unit Test Format CPM/GG(M010-R and M011-L) to DU Interface Check						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS
GG SOURCE	R10	R10	R10	L11	L11	L11
INPUT ACTIVITY	YY[Y]Y	YY[Y]Y	YY[Y]Y	Y[Y]YY	Y[Y]YY	Y[Y]YY

Table 603/31-61-00-993-825

Display Unit Test Format CPM/GG(M011-L and M010-R) to DU Interface Check						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS
GG SOURCE	L11	L11	L11	R10	R10	R10
INPUT ACTIVITY	Y[Y]YY	Y[Y]YY	Y[Y]YY	YY[Y]Y	YY[Y]Y	YY[Y]Y

Table 604/31-61-00-993-826

Display Unit Test Format CPM/GG(M011-R and M010-L) to DU Interface Check						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS
GG SOURCE	R11	R11	R11	L10	L10	L10
INPUT ACTIVITY	YYY[Y]	YYY[Y]	YYY[Y]	[Y]YYY	[Y]YYY	[Y]YYY

- (e) Select NEW FUNCTION to run another check or CONTINUE to stop.

NOTE: You should do all four DU interface checks before you select CONTINUE.

———— **END OF TASK** ————

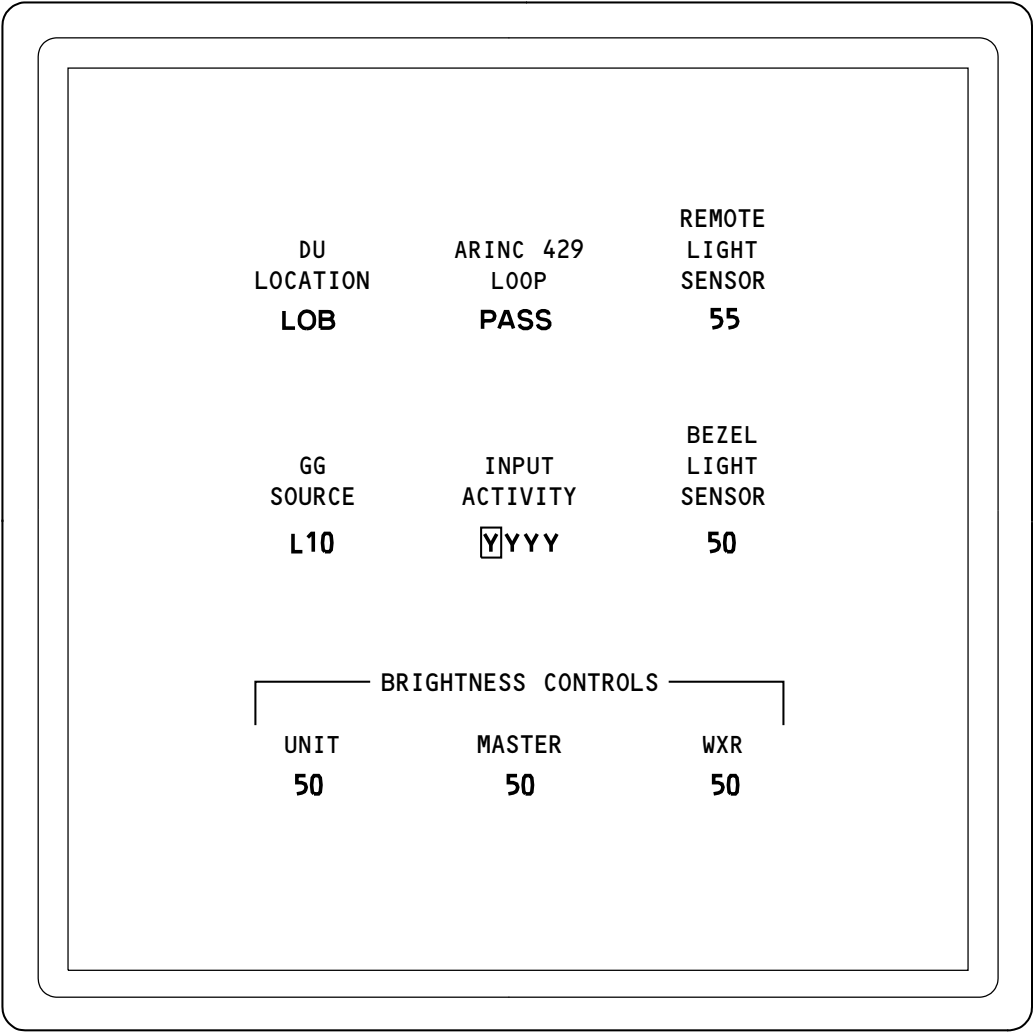
EFFECTIVITY
ARO ALL

31-61-00

D633W101-ARO

Page 609
Jan 05/2015

777-200/300
AIRCRAFT MAINTENANCE MANUAL



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Display Unit Test Format
Figure 602/31-61-00-990-802

EFFECTIVITY

ARO ALL

31-61-00



777-200/300
AIRCRAFT MAINTENANCE MANUAL
DISPLAY UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of a display unit.
 - (2) An installation of a display unit, which includes an installation test.
- B. There are six display units. Five of the display units are in the forward instrument panel. The five display units are installed with the latch mechanism at the bottom. The sixth display is the center lower display unit and is in the forward aisle stand. The center lower display unit is installed with the latch mechanism at the top.
- C. It is acceptable having up to 8 (blue/red dots) failed pixels on the LCD screen per DU.

TASK 31-61-01-000-801

2. Display Unit Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Removal Procedure

SUBTASK 31-61-01-860-001

- (1) For the applicable display unit:

Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	1	C31625	CAPT DISPLAY-OUTBD
D	2	C31627	CAPT DISPLAY-INBD
D	3	C31613	C DSPL UPR
D	14	C31626	F/O DISPLAY-OUTBD
D	15	C31628	F/O DISPLAY-INBD
F	3	C31614	C DSPL LWR

SUBTASK 31-61-01-800-001



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU MOVE THE CONTROL COLUMN. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Make sure hydraulic power is removed from the flight controls before you move the control column, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

EFFECTIVITY
ARO ALL

31-61-01

D633W101-ARO

Page 401
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-01-020-001



CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY UNIT. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY UNIT.

- (3) Remove the display unit [1] from the instrument panel:
- (a) Release the quarter-turn fastener [2] on the handle [3] of the display unit [1].
 - (b) Pull the handle [3] to approximately 90 degrees from the face of the display unit [1].
 - (c) Pull the display unit [1] out carefully to remove it from the instrument panel.
 - (d) Push the handle [3] until it is flat against the face of the display unit [1].
 - (e) Turn and lock the quarter-turn fastener [2] on the handle of the display unit [1].
 - (f) Put protective covers on the electrical connectors.

———— **END OF TASK** ————

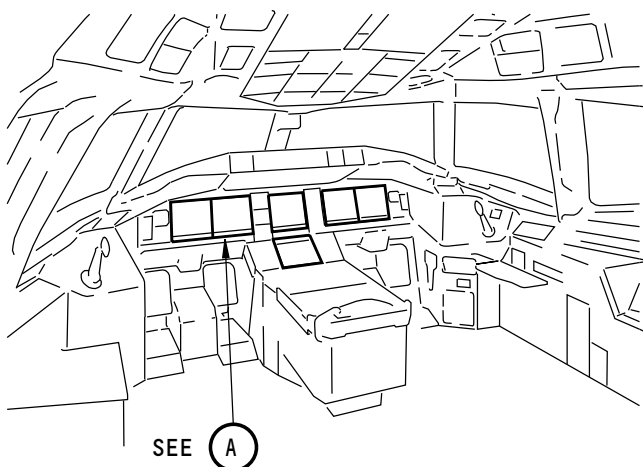
EFFECTIVITY
ARO ALL

31-61-01

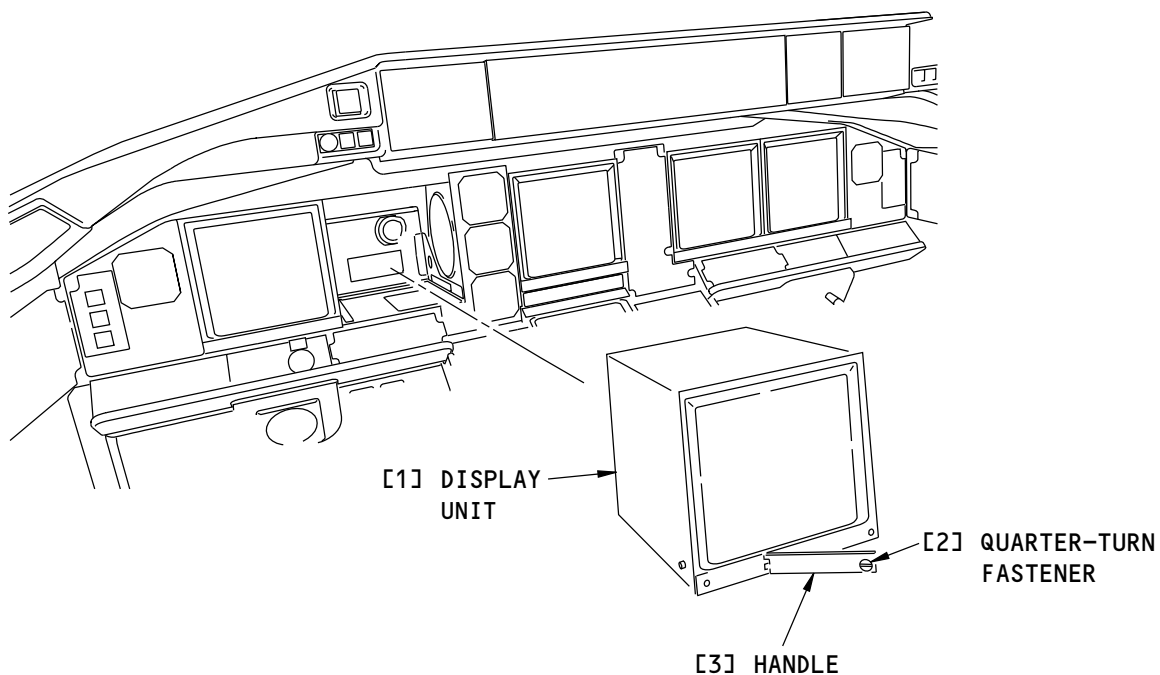
D633W101-ARO

Page 402
Sep 05/2017

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



FLIGHT COMPARTMENT



(EXAMPLE, 6 LOCATIONS)

A

C39962 S0006417519_V1

**Display Unit Installation
Figure 401/31-61-01-990-802**

**EFFECTIVITY
ARO ALL**

D633W101-ARO

31-61-01

Page 403
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-01-400-801

3. Display Unit Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation procedure includes an installation test. The installation test makes sure that the Display Unit (DU) has the correct location codes and is connected correctly to ARINC 429 feedback busses.
- (2) Make sure you have the correct CPM/GG OPS software P/N before you do the installation test.
- (3) Make sure you have the correct type of display unit for each display unit position.
- (4) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Display unit	31-61-01-01-010	ARO ALL
		31-61-01-01-015	ARO ALL

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-61-01-860-002

- (1) For the applicable display unit:

Make sure that these circuit breakers are open and have safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	1	C31625	CAPT DISPLAY-OUTBD
D	2	C31627	CAPT DISPLAY-INBD
D	3	C31613	C DSPL UPR
D	14	C31626	F/O DISPLAY-OUTBD
D	15	C31628	F/O DISPLAY-INBD
F	3	C31614	C DSPL LWR

EFFECTIVITY
ARO ALL

31-61-01

D633W101-ARO

Page 404
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-01-800-002



KEEP PERSONS AND EQUIPMENT CLEAR OF THE FLIGHT CONTROL SURFACES, THE THRUST REVERSERS, AND THE LANDING GEAR. THESE COMPONENTS CAN MOVE SUDDENLY WHEN YOU MOVE THE CONTROL COLUMN. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Make sure hydraulic power is removed from the flight controls before you move the control column, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 31-61-01-420-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY UNIT. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY UNIT.

- (3) Install the display unit [1]:

NOTE: You must install the center lower display unit with the latch mechanism at the top. You install all other display units with the latch mechanism at the bottom.

- (a) Remove the protective covers from the electrical connectors.
- (b) Examine the electrical connectors for bent or broken pins, dirt, and damage.
- (c) Release the quarter-turn fastener [2] on the handle [3] of the display unit [1].
- (d) Pull the handle [3] to approximately 90 degrees from the face of the display unit [1].
- (e) Put the display unit [1] carefully into the opening in the instrument panel.
- (f) Push the display unit [1] fully into the opening until it stops.
- (g) Push the handle [3] until it is flat against the face of the display unit [1].
- (h) Turn and lock the quarter-turn fastener [2] on the handle of the display unit [1].

SUBTASK 31-61-01-860-003

- (4) For the applicable display unit [1]:

Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	1	C31625	CAPT DISPLAY-OUTBD
D	2	C31627	CAPT DISPLAY-INBD
D	3	C31613	C DSPL UPR
D	14	C31626	F/O DISPLAY-OUTBD
D	15	C31628	F/O DISPLAY-INBD
F	3	C31614	C DSPL LWR

F. Installation Test

SUBTASK 31-61-01-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-01-740-001

- (2) Use a maintenance access terminal (MAT) to do the CPM/Graphics generators connectivity check:
- (a) Make these selections on the MAT:

EFFECTIVITY
ARO ALL

31-61-01

D633W101-ARO

Page 405
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) CPM/GG(M010-L and M011-R) to DU Interface Check
 - 6) CONTINUE
- (b) Do the instructions that show on the MAT and then make these selections:
- 1) CONTINUE
 - 2) START FUNCTION
 - a) For the applicable DU make sure the DU shows the correct DU LOCATION and ARINC 429 LOOP PASS
 - 3) COMPLETE TEST

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-01

Page 406
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

DISPLAY UNIT - CLEANING/PAINTING

1. General

- A. This procedure has these tasks:
- (1) The display surface cleaning.
 - (2) The display unit light sensor cleaning.
 - (3) The display unit cooling air inlet screen cleaning.
- B. There are six display units. Five of the display units are in the forward instrument panel. The sixth display is the center lower display unit and is in the forward aisle stand.
- C. These procedures are the same for all six display units.

TASK 31-61-01-100-801

2. Display Surface Cleaning

A. General

- (1) This task has four procedures to clean the display surface. It is necessary to use only one of the four procedures. When cleaning the Honeywell 4086840-2 DGAs which are supplied on the PIP DU's, the most effective cleaner is reagent grade alcohol and bluewipes.

B. Tools/Equipment

Reference	Description
STD-123	Brush - Soft Bristle

C. Consumable Materials

Reference	Description	Specification
B00130	Alcohol - Isopropyl	TT-I-735
B00402	Cleaner - Aerospace Equipment	MIL-PRF-87937
B50012	Cleaner - Optical Cleaning, Calotherm Solution - Supaspray	
B50013	Cloth - Calocoat Hi-Tech Lenscloth - Supacloth	
B50197	Wiper - BlueWipe TX512 Utility Wiper	
B50198	Alcohol - Malinckrodt Baker 6183 Reagent Alcohol	HMN 11X2537
G02457	Cleaner - Wet/Dry Anti-Static Sachet - ALGLAS Visial ALG/CR 215	

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Procedure to use reagent grade alcohol and bluewipes

SUBTASK 31-61-01-100-021



DO NOT USE ABRASIVE MATERIALS WHEN YOU CLEAN THE DISPLAY SURFACE. ABRASIVE MATERIALS WILL CAUSE SCRATCHES IN THE DISPLAY SURFACE.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-01

Page 701
Sep 05/2017

777-200/300
AIRCRAFT MAINTENANCE MANUAL

(CAUTION PRECEDES)



CAUTION

DO NOT TOUCH THE GLASS WITH YOUR BARE SKIN. YOU CAN CAUSE DAMAGE TO THE OPTICAL COATING.

- (1) Remove all particles from the display surface with a clean, soft, natural-bristle soft bristle brush, STD-123.

SUBTASK 31-61-01-100-022



CAUTION

DO NOT APPLY THE CLEANING SOLUTION DIRECTLY ON THE LCD GLASS SURFACE. DO NOT CLEAN THE LCD GLASS SURFACE WITH A DRY WIPER. THIS CAN CAUSE SCRATCHES ON THE LCD GLASS.



CAUTION

DO NOT USE TOO MUCH FORCE WHEN YOU CLEAN THE DISPLAY SURFACE. TOO MUCH FORCE WILL CAUSE DAMAGE TO THE DISPLAY SURFACE.

- (2) Clean the display surface with 6183 reagent alcohol, B50198 and bluewipe wiper, B50197:
 - (a) Apply 6183 reagent alcohol, B50198 to a bluewipe wiper, B50197.
 - (b) Wipe the display surface with the bluewipe wiper, B50197 until it is relatively free of blemishes.
 - (c) Apply 6183 reagent alcohol, B50198 to a bluewipe wiper, B50197.
 - (d) Drag the bluewipe wiper, B50197 on the display surface in a straight line from top to bottom. As the alcohol evaporates, it will leave the surface clean.

F. Procedure to use Alglas Visial Wet/Dry Anti-Static Sachet

SUBTASK 31-61-01-100-013



CAUTION

DO NOT USE ABRASIVE MATERIALS WHEN YOU CLEAN THE DISPLAY SURFACE. ABRASIVE MATERIALS WILL CAUSE SCRATCHES IN THE DISPLAY SURFACE.



CAUTION

DO NOT TOUCH THE GLASS WITH YOUR BARE SKIN. YOU CAN CAUSE DAMAGE TO THE OPTICAL COATING.

- (1) Remove all particles from the display surface with a clean, soft, natural-bristle soft bristle brush, STD-123.

SUBTASK 31-61-01-100-012



CAUTION

DO NOT APPLY THE CLEANING SOLUTION DIRECTLY ON THE LCD GLASS SURFACE. DO NOT CLEAN THE LCD GLASS SURFACE WITH A DRY WIPER. THIS CAN CAUSE SCRATCHES ON THE LCD GLASS.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-01

Page 702
Sep 05/2017

777-200/300
AIRCRAFT MAINTENANCE MANUAL

(CAUTION PRECEDES)



CAUTION

DO NOT USE TOO MUCH FORCE WHEN YOU CLEAN THE DISPLAY SURFACE. TOO MUCH FORCE WILL CAUSE DAMAGE TO THE DISPLAY SURFACE.

- (2) Clean the display surface with the wet and dry anti-static sachets (ALGLAS Visial cleaner, G02457):
 - (a) Use the wet sachet to carefully clean the display surface in a straight line from top to bottom.
 - (b) Gradually move from one side of the display surface to the other side while you clean from top to bottom.
 - (c) When the display surface is clean, use the dry sachet in a straight line from top to bottom to carefully dry the display surface.

G. Procedure to use Supaspray and Supacloth

SUBTASK 31-61-01-100-014



CAUTION

DO NOT USE ABRASIVE MATERIALS WHEN YOU CLEAN THE DISPLAY SURFACE. ABRASIVE MATERIALS WILL CAUSE SCRATCHES IN THE DISPLAY SURFACE.



CAUTION

DO NOT TOUCH THE GLASS WITH YOUR BARE SKIN. YOU CAN CAUSE DAMAGE TO THE OPTICAL COATING.

- (1) Remove all particles from the display surface with a clean, soft, natural-bristle soft bristle brush, STD-123.

SUBTASK 31-61-01-100-015



CAUTION

DO NOT APPLY THE CLEANING SOLUTION DIRECTLY ON THE LCD GLASS SURFACE. DO NOT CLEAN THE LCD GLASS SURFACE WITH A DRY WIPER. THIS CAN CAUSE SCRATCHES ON THE LCD GLASS.



CAUTION

DO NOT USE TOO MUCH FORCE WHEN YOU CLEAN THE DISPLAY SURFACE. TOO MUCH FORCE WILL CAUSE DAMAGE TO THE DISPLAY SURFACE.

- (2) Clean the display surface with the Supaspray cleaner, B50012, and a Supacloth cloth, B50013:
 - (a) Apply 2 or 3 sprays of the Supaspray cleaner, B50012, to the Supacloth cloth, B50013.
 - (b) Use the moist cloth to carefully clean the display surface in a straight line from top to bottom.
 - (c) Gradually move from one side of the display surface to the other side while you clean from top to bottom.
 - (d) When the display surface is clean, use a clean, dry area of the Supacloth cloth, B50013, in a straight line from top to bottom to carefully dry the display surface.

EFFECTIVITY
ARO ALL

31-61-01

D633W101-ARO

Page 703
Sep 05/2017

777-200/300 AIRCRAFT MAINTENANCE MANUAL

H. Procedure to use Isopropanol and Thin Film cleaner.

SUBTASK 31-61-01-100-016



DO NOT USE ABRASIVE MATERIALS WHEN YOU CLEAN THE DISPLAY SURFACE. ABRASIVE MATERIALS WILL CAUSE SCRATCHES IN THE DISPLAY SURFACE.



DO NOT TOUCH THE GLASS WITH YOUR BARE SKIN. YOU CAN CAUSE DAMAGE TO THE OPTICAL COATING.

- (1) Carefully remove all particles of grit, dirt, or sand with dry, compressed air or a clean soft bristle brush, STD-123

SUBTASK 31-61-01-100-017



DO NOT APPLY THE CLEANING SOLUTION DIRECTLY ON THE LCD GLASS SURFACE. DO NOT CLEAN THE LCD GLASS SURFACE WITH A DRY WIPER. THIS CAN CAUSE SCRATCHES ON THE LCD GLASS.



DO NOT USE TOO MUCH FORCE WHEN YOU CLEAN THE DISPLAY SURFACE. TOO MUCH FORCE WILL CAUSE DAMAGE TO THE DISPLAY SURFACE.

- (2) Carefully clean the glass with the moist cloth.

SUBTASK 31-61-01-100-018

- (3) Soak a clean cloth with alcohol, B00130

SUBTASK 31-61-01-100-019

- (4) Do these steps to remove the alcohol, B00130 that stays on the glass.
 - (a) Soak a clean cloth with the cleaner, B00402.
 - (b) Carefully clean the glass with the moist cloth
 - (c) Clean the glass with a clean, dry cloth.

SUBTASK 31-61-01-100-020

- (5) Soak a clean cloth with distilled water to remove all scratches on the glass.

————— END OF TASK —————

TASK 31-61-01-100-802

3. Display Unit Light Sensor Cleaning

A. Tools/Equipment

Reference	Description
STD-123	Brush - Soft Bristle

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

EFFECTIVITY
ARO ALL

31-61-01

D633W101-ARO

Page 704
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

C. Procedure

SUBTASK 31-61-01-100-005

- (1) Remove all grit, dirt, and sand from the light sensor with a clean, soft, soft bristle brush, STD-123.

————— END OF TASK —————

TASK 31-61-01-100-803

4. Display Unit Cooling Air Inlet Screen Cleaning

A. References

Reference	Title
20-41-01-000-803	ESDS Handling for Metal Encased Unit Removal (P/B 201)
31-61-01-000-801	Display Unit Removal (P/B 401)
31-61-01-400-801	Display Unit Installation (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Procedure

SUBTASK 31-61-01-100-008



DO NOT TOUCH THE COOLING AIR INLET SCREEN BEFORE YOU DO THE PROCEDURE FOR DEVICES THAT ARE SENSITIVE TO ELECTROSTATIC DISCHARGE. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY UNIT.

- (1) Before you touch the cooling air inlet screen, do this task: ESDS Handling for Metal Encased Unit Removal, TASK 20-41-01-000-803.

SUBTASK 31-61-01-010-001

- (2) Do this task: Display Unit Removal, TASK 31-61-01-000-801.

SUBTASK 31-61-01-100-007



DO NOT USE COMPRESSED AIR TO CLEAN THE SCREEN IN THE COOLING AIR INLET. COMPRESSED AIR WILL PUSH CONTAMINATION INTO THE DISPLAY UNIT AND CAUSE EQUIPMENT FAILURE.

- (3) Remove all lint, dust, and debris from the cooling air inlet screen with a vacuum cleaner.

SUBTASK 31-61-01-410-001

- (4) Do this task: Display Unit Installation, TASK 31-61-01-400-801.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-61-01

D633W101-ARO

Page 705
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

EFIS CONTROL PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of an EFIS control panel.
- (2) An installation of an EFIS control panel, which includes an installation test.

B. There are two EFIS control panels installed on the glareshield. The captain's control panel is on the left side of the glareshield. The F/O's control panel is on the right side of the glareshield.

TASK 31-61-02-000-801

2. EFIS Control Panel Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Removal Procedure

SUBTASK 31-61-02-860-001

- (1) Turn the outer knob of the GLARESHIELD PNL/FLOOD control switch fully counterclockwise.

SUBTASK 31-61-02-860-002

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C31621	EFIS CTRL SWITCH L
D	17	C31622	EFIS CTRL SWITCH R

SUBTASK 31-61-02-020-001

 CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE EFIS CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE EFIS CONTROL PANEL.

- (3) Remove the EFIS control panel [1]:
 - (a) Loosen the captive screws [2] that attach the EFIS control panel [1] to the bottom of the glareshield.
 - (b) Pull the EFIS control panel [1] out carefully to get access to the electrical connectors.
 - (c) Disconnect the electrical connectors.
 - (d) Put protective covers on the electrical connectors.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

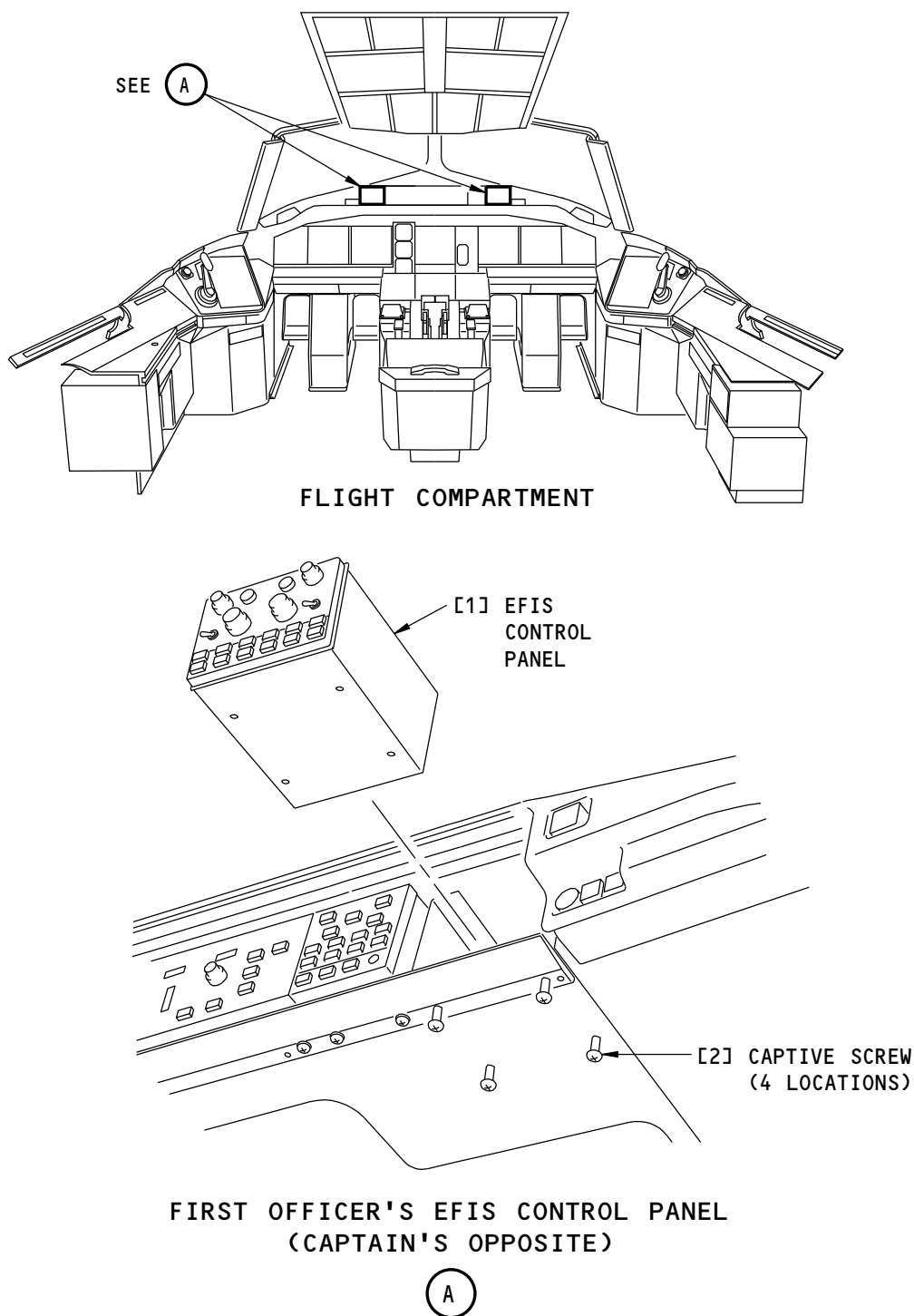
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31-61-02

Page 401
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL



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EFIS Control Panel Installation
Figure 401/31-61-02-990-802

EFFECTIVITY
ARO ALL

D633W101-ARO

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31-61-02

Page 402
Jan 05/2015

777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-02-400-801

3. EFIS Control Panel Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	EFIS control panel	31-61-02-01-008	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Installation Procedure

SUBTASK 31-61-02-860-003

- (1) Make sure the outer knob of the GLARESHIELD PNL/FLOOD control switch is fully counterclockwise.

SUBTASK 31-61-02-860-004

- (2) Make sure that these circuit breakers are open and have safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	4	C31621	EFIS CTRL SWITCH L
D	17	C31622	EFIS CTRL SWITCH R

SUBTASK 31-61-02-420-001



CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE EFIS CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE EFIS CONTROL PANEL.

- (3) Install the EFIS control panel [1]:
 - (a) Remove the protective covers from the electrical connectors.
 - (b) Examine the electrical connectors for bent or broken pins, dirt, and damage.
 - (c) Connect the electrical connectors.
 - (d) Put the EFIS control panel [1] carefully into the opening in the glareshield.
 - (e) Push the EFIS control panel [1] fully into the opening until it stops.
 - (f) Tighten the captive screws [2] that attach the EFIS control panel [1] to the bottom of the glareshield.

EFFECTIVITY
ARO ALL

31-61-02

D633W101-ARO

Page 403
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-02-860-005

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	4	C31621	EFIS CTRL SWITCH L
D	17	C31622	EFIS CTRL SWITCH R

SUBTASK 31-61-02-860-006

- (5) Turn the outer knob of the GLARESHIELD PNL/FLOOD control switch to the middle position.

E. Installation Test

SUBTASK 31-61-02-860-007

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-02-710-001

- (2) Make sure the captain's and the first officer's outboard DUs show the PFD format.

SUBTASK 31-61-02-750-001

- (3) Do a test of the EFIS control panel you installed:
- (a) Set the outer knob on the BARO switch on the EFIS control panel to IN.
 - 1) Make sure the barometric pressure shows in inches below the altitude tape on the captain's(first officer's) PFD.
 - (b) Turn the inner knob on the BARO switch on the EFIS control panel clockwise and counterclockwise.
 - 1) Make sure the barometric pressure increases and decreases on the captain's(first officer's) PFD.
 - (c) Push the STD button on the BARO switch on the EFIS control panel.
 - 1) Make sure STD shows below the altitude tape on the captain's(first officer's) PFD.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-61-02

D633W101-ARO

Page 404
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

DISPLAY SELECT PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the display select panel.
- (2) An installation of the display select panel, which includes an installation test.

B. The display select panel is in the flight compartment on the right side of the glareshield.

TASK 31-61-03-000-801

2. Display Select Panel Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. **Location Zones**

Zone	Area

212	Flight Compartment, Right

B. **Removal Procedure**

SUBTASK 31-61-03-860-001

- (1) Turn the outer knob of the GLARESHIELD PNL/FLOOD control switch fully counterclockwise.

SUBTASK 31-61-03-020-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY SELECT PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY SELECT PANEL.

- (2) Remove the display select panel [1]:
 - (a) Loosen the captive screws [2] that attach the display select panel [1] to the bottom of the glareshield.
 - (b) Pull the display select panel [1] out carefully to get access to the electrical connectors.
 - (c) Disconnect the electrical connectors.
 - (d) Put protective covers on the electrical connectors.

————— **END OF TASK** —————

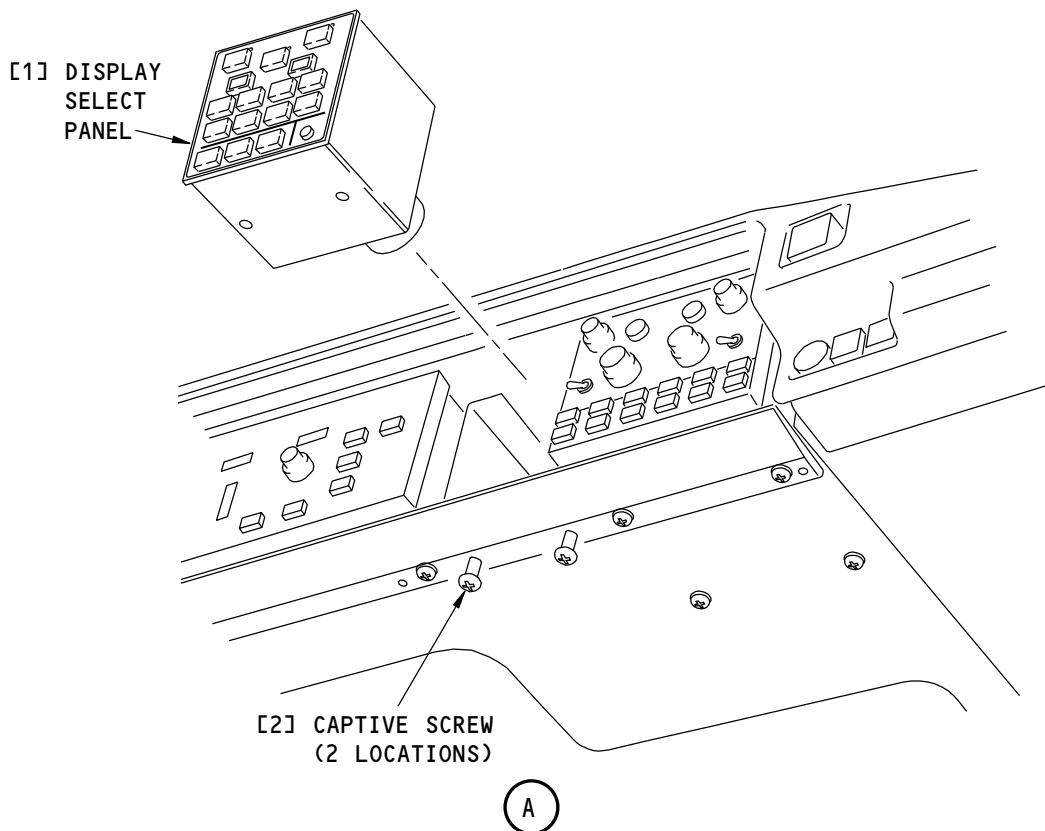
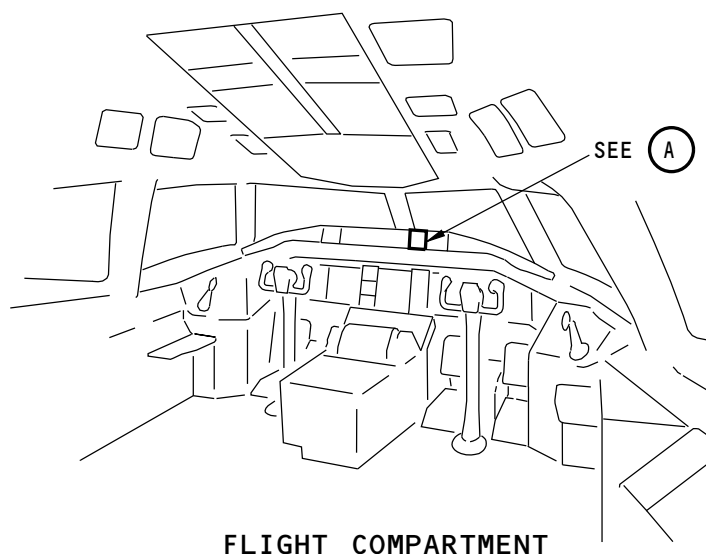
EFFECTIVITY
ARO ALL

31-61-03

D633W101-ARO

Page 401
Sep 05/2017

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



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**Display Select Panel Installation
Figure 401/31-61-03-990-802**

EFFECTIVITY
ARO ALL

31-61-03

D633W101-ARO

Page 402
Jan 05/2015

777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-03-400-801

3. Display Select Panel Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Display select panel	31-11-51-01B-020	ARO ALL
		31-61-03-10-009	ARO ALL

C. Location Zones

Zone	Area
212	Flight Compartment, Right

D. Installation Procedure

SUBTASK 31-61-03-860-002

- (1) Make sure the outer knob of the GLARESHIELD PNL/FLOOD control switch is fully counterclockwise.

SUBTASK 31-61-03-420-001



CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY SELECT PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY SELECT PANEL.

- (2) Install the display select panel [1]:
 - (a) Remove the protective covers from the electrical connectors.
 - (b) Examine the electrical connectors for bent or broken pins, dirt, and damage.
 - (c) Connect the electrical connectors.
 - (d) Put the display select panel [1] carefully in the glareshield.
 - (e) Push the display select panel [1] into the opening until it stops.
 - (f) Tighten the captive screws [2] that attach the display select panel [1] to the bottom of the glareshield.

SUBTASK 31-61-03-860-003

- (3) Turn the outer knob of the GLARESHIELD PNL/FLOOD control switch to the middle position.

E. Installation Test

SUBTASK 31-61-03-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-03-750-001

- (2) Do a test of the display select panel installation:
 - (a) Push the LWR CTR switch on the display select panel.
 - (b) Push the STAT switch on the display select panel.
 - 1) Make sure the status page shows on the center lower display unit.

EFFECTIVITY
ARO ALL

31-61-03

D633W101-ARO

Page 403
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (c) Push the ENG switch on the display select panel.
 - 1) Make sure the secondary EICAS page shows on the center lower display unit.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-03

Page 404
May 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

CENTER DISPLAY CONTROL PANEL - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of the center display control panel.
- (2) An installation of the center display control panel, which includes a test of the installation.

B. The center display control panel is in the flight compartment in the forward aisle stand panel, P9.

TASK 31-61-04-000-801

2. Center Display Control Panel Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Removal Procedure

SUBTASK 31-61-04-860-001

- (1) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C31613	C DSPL UPR
F	3	C31614	C DSPL LWR

SUBTASK 31-61-04-860-002

- (2) Turn the outer knob of the AISLE STAND PNL/FLOOD control switch fully counterclockwise.

SUBTASK 31-61-04-020-001



CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY CONTROL PANEL.

- (3) Remove the center display control panel [1]:
 - (a) Release the four quarter-turn fasteners [2] that attach the display control panel [1] to the forward aisle stand.
 - (b) Pull the display control panel [1] out carefully to get access to the electrical connectors.
 - (c) Disconnect the electrical connectors.
 - (d) Put protective covers on the electrical connectors.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

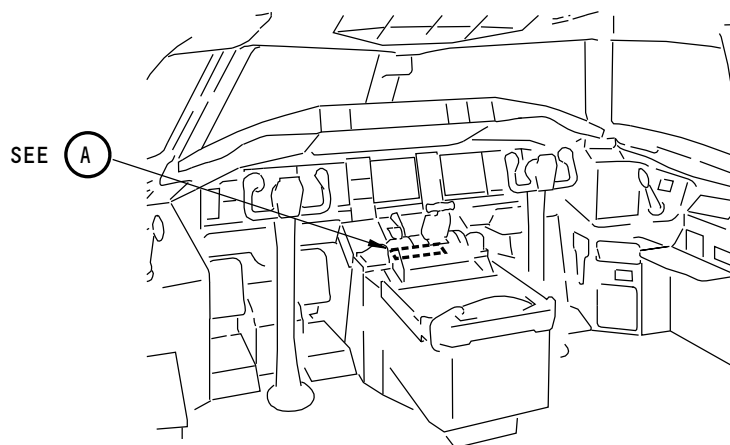
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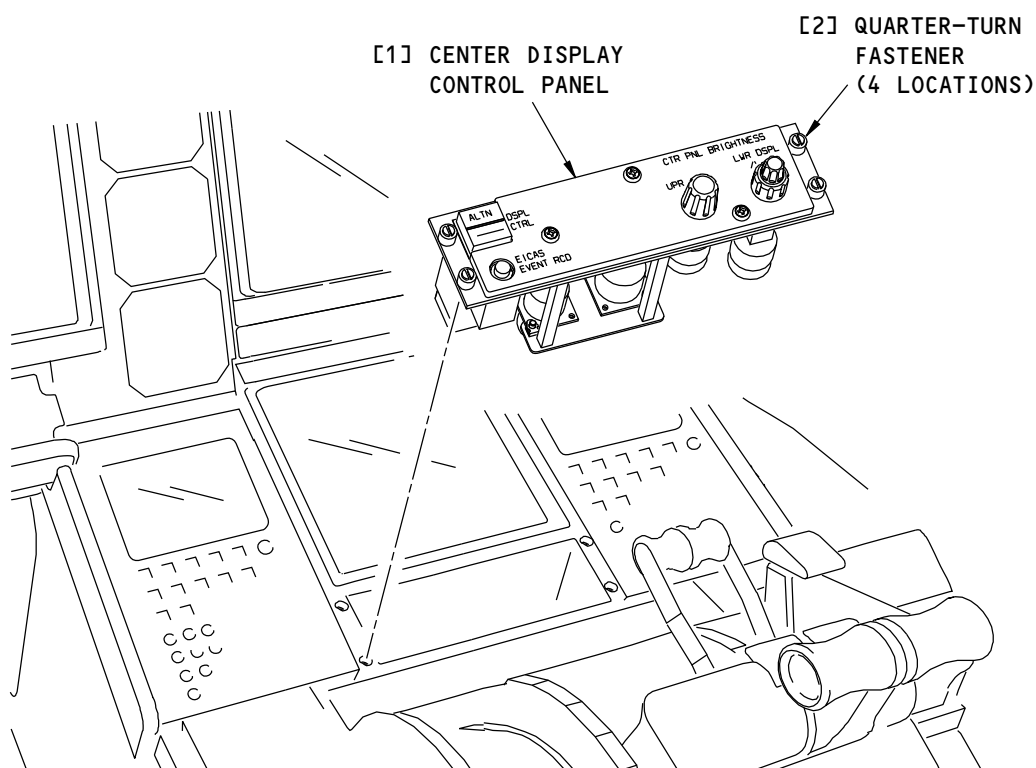
Page 401
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL



FLIGHT COMPARTMENT



A

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Center Display Control Panel Installation
Figure 401/31-61-04-990-802

EFFECTIVITY
ARO ALL

31-61-04

D633W101-ARO

Page 402
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-04-400-801

3. Center Display Control Panel Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. General

- (1) The installation procedure includes an installation test. The installation test makes sure that brightness control is connected and serviceable.
- (2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Display control panel	33-13-00-03-085	ARO ALL
		33-13-51-01-009	ARO ALL
		34-61-02-12-009	ARO ALL

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-61-04-860-003

- (1) Make sure that these circuit breakers are open and have safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	3	C31613	C DSPL UPR
F	3	C31614	C DSPL LWR

SUBTASK 31-61-04-860-004

- (2) Make sure the outer knob of the AISLE STAND PNL/FLOOD control switch is fully counterclockwise.

SUBTASK 31-61-04-420-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY CONTROL PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY CONTROL PANEL.

- (3) Install the center display control panel [1]:
 - (a) Remove the protective covers from the electrical connectors.
 - (b) Examine the electrical connectors for bent or broken pins, dirt, and damage.

EFFECTIVITY
ARO ALL

31-61-04

D633W101-ARO

Page 403
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (c) Connect the electrical connectors.
- (d) Put the display control panel [1] carefully into the forward aisle stand.
- (e) Tighten the four quarter-turn fasteners [2] that attach the display control panel [1] to the aisle stand.

SUBTASK 31-61-04-860-005

- (4) Turn the outer knob of the AISLE STAND PNL/FLOOD control switch to the middle position.

SUBTASK 31-61-04-860-006

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

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	3	C31613	C DSPL UPR
F	3	C31614	C DSPL LWR

F. Installation Test

SUBTASK 31-61-04-860-007

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-04-730-001

- (2) Use a maintenance access terminal (MAT) to do the installation test:

- (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) Brightness Controls and Display Units
 - 6) CONTINUE
- (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION

SUBTASK 31-61-04-730-002

- (3) Turn the UPR DSPL knob of the CTR PNL BRIGHTNESS controls clockwise and counterclockwise.
 - (a) Make sure the BRIGHTNESS CONTROLS UNIT value shown on the center upper display unit increases when you adjust the knob clockwise.
 - (b) Make sure the BRIGHTNESS CONTROLS UNIT value shown on the center upper display decreases when you adjust the knob counterclockwise.

SUBTASK 31-61-04-730-003

- (4) Turn the LWR DSPL knob of the CTR PNL BRIGHTNESS controls clockwise and counterclockwise.
 - (a) Make sure the BRIGHTNESS CONTROLS UNIT value shown on the center lower display increases when you adjust the knob clockwise.
 - (b) Make sure the BRIGHTNESS CONTROLS UNIT value shown on the center lower display decreases when you adjust the knob counterclockwise.

EFFECTIVITY
ARO ALL

31-61-04

D633W101-ARO

Page 404
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-04-730-004

(5) To stop the function, select STOP FUNCTION.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-04

Page 405
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

INSTRUMENT SOURCE SELECT PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the instrument source select panel.
 - (2) An installation of the instrument source select panel, which includes an installation test.
- B. There are two instrument source select panels installed in the flight compartment in the main instrument panel. One in the captain's instrument panel, the other in the first officer's instrument panel.

TASK 31-61-05-000-801

2. Instrument Source Select Panel Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Removal Procedure

SUBTASK 31-61-05-860-001

- (1) Turn the outer knob of the PNL/FLOOD control switch on the applicable FWD PANEL BRIGHTNESS fully counterclockwise.

SUBTASK 31-61-05-020-001



CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE INSTRUMENT SOURCE SELECT PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE INSTRUMENT SOURCE SELECT PANEL.

- (2) Remove the instrument source select panel [1]:
 - (a) Release the quarter-turn fasteners [2] that attach the source select panel [1] to the instrument panel.
 - (b) Pull the source select panel [1] out carefully to get access to the electrical connectors.
 - (c) Disconnect the electrical connectors.
 - (d) Put protective covers on the electrical connectors.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

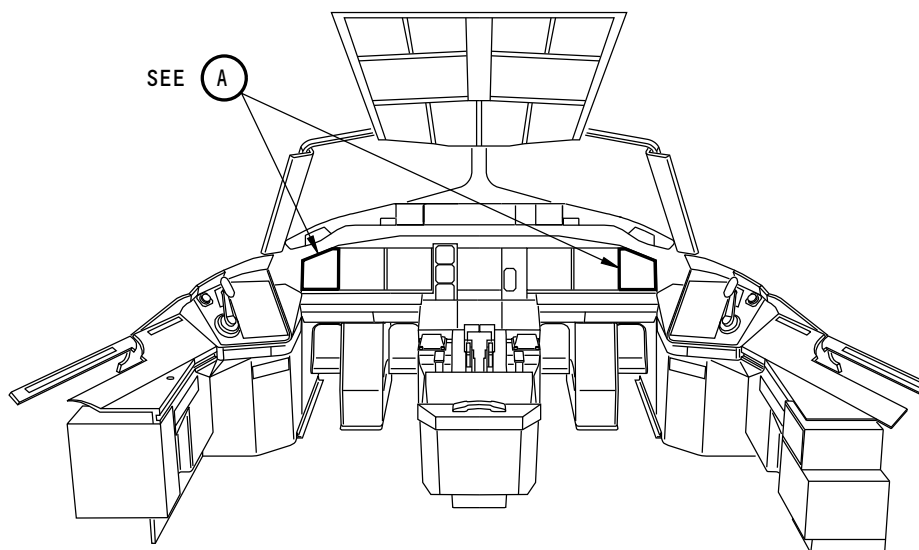
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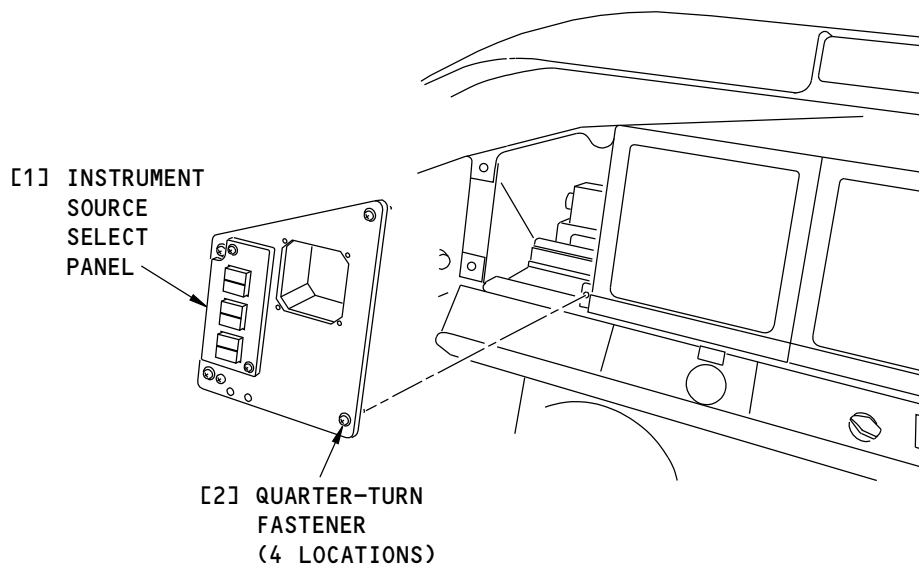
Page 401
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL



FLIGHT COMPARTMENT



CAPTAIN'S INSTRUMENT SOURCE SELECT PANEL
(FIRST OFFICER'S OPPOSITE)



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Instrument Source Select Panel Installation
Figure 401/31-61-05-990-802

EFFECTIVITY
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D633W101-ARO

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31-61-05

Page 402
Jan 05/2017

777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-05-400-801

3. Instrument Source Select Panel Installation

(Figure 401)

A. General

- (1) The installation procedure includes an installation test. The installation test makes sure that the instrument source select panel is connected and serviceable.
- (2) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Source select panel	31-11-51-01B-035	ARO ALL
		31-11-51-01B-080	ARO ALL
		33-13-00-03-007	ARO ALL
		33-13-00-03-065	ARO ALL
		33-13-00-03-085	ARO ALL
		34-21-03-10-008	ARO ALL
		34-21-03-10-010	ARO ALL
		34-61-02-10-009	ARO ALL
		34-61-02-10-010	ARO ALL

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-61-05-860-002

- (1) Make sure the outer knob of the PNL/FLOOD control switch on the applicable FWD PANEL BRIGHTNESS is fully counterclockwise.

SUBTASK 31-61-05-420-001



CAUTION DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE INSTRUMENT SOURCE SELECT PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE INSTRUMENT SOURCE SELECT PANEL.

- (2) Install the instrument source select panel [1]:
 - (a) Remove the protective covers from the electrical connectors.
 - (b) Examine the electrical connectors for bent or broken pins, dirt, and damage.
 - (c) Connect the electrical connectors.

EFFECTIVITY
ARO ALL

31-61-05

D633W101-ARO

Page 403
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (d) Put the source select panel [1] carefully into the instrument panel.
- (e) Tighten the quarter-turn fasteners [2] that attach the source select panel [1] to the instrument panel.

SUBTASK 31-61-05-860-003

- (3) Turn the outer knob of the PNL/FLOOD control switch on the applicable FWD PANEL BRIGHTNESS to the middle position.

F. Installation Test

SUBTASK 31-61-05-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-05-750-001

- (2) Use a maintenance access terminal (MAT) to do a test of the instrument source select panel installation:
 - (a) Make these selections on the MAT:
 - 1) ONBOARD MAINTENANCE
 - 2) OTHER FUNCTIONS
 - 3) SPECIAL FUNCTIONS
 - 4) 31 AIMS - Display System
 - 5) Display Switches
 - 6) CONTINUE
 - (b) Do the instructions that show on the MAT and then make these selections:
 - 1) CONTINUE
 - 2) START FUNCTION

NOTE: The left inboard, upper center, and right inboard display units show the position of the instrument panel switches.
 - (c) Push the NAV switch on the source select panel to the CDU position.
 - 1) Make sure CDU shows below NAV on the display units.
 - (d) Push the NAV switch on the source select panel to the AUTO position.
 - 1) Make sure AUTO shows below NAV on the display units.
 - (e) Push the DSPL CTRL switch on the source select panel to the ALTN position.
 - 1) Make sure ALTN shows below DSPL CTRL on the display units.
 - (f) Push the DSPL CTRL switch on the source select panel to the AUTO position.
 - 1) Make sure AUTO shows below DSPL CTRL on the display units.
 - (g) Push the AIR DATA/ATT switch on the source select panel to the ALTN position.
 - 1) Make sure ALTN shows below AIR DATA/ATT on the display units.
 - (h) Push the AIR DATA/ATT switch on the source select panel to the AUTO position.
 - 1) Make sure AUTO shows below AIR DATA/ATT on the display units.
 - (i) To stop the function, select STOP FUNCTION.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-61-05

D633W101-ARO

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Page 404
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

DISPLAY SWITCHING PANEL - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of a display switching panel.
 - (2) An installation of a display switching panel, which includes an installation test.
- B. There are two display switching panels in the flight compartment. One on the captain's forward instrument panel and one on the first officer's forward instrument panel. The captain's display switching panel has a HDG REF switch. The first officer's display switching panel has a FMC switch. The panels are not interchangeable.

TASK 31-61-06-000-801

2. Display Switching Panel Removal

(Figure 401)

A. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

B. Removal Procedure

SUBTASK 31-61-06-860-001

- (1) Turn the outer knob of the applicable FWD PANEL BRIGHTNESS PNL/FLOOD CONTROL switch fully counterclockwise.

SUBTASK 31-61-06-020-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY SWITCHING PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY SWITCHING PANEL.

- (2) Remove the display switching panel [1]:
 - (a) Release the four quarter-turn fasteners [2].
 - (b) Pull the display switching panel [1] out carefully from the control stand.
 - (c) Disconnect the electrical connectors.
 - (d) Put protective caps on the electrical connectors.

SUBTASK 31-61-06-020-002

- (3) Remove the SELCAL placard from the display switching panel and keep for the installation.

————— END OF TASK —————

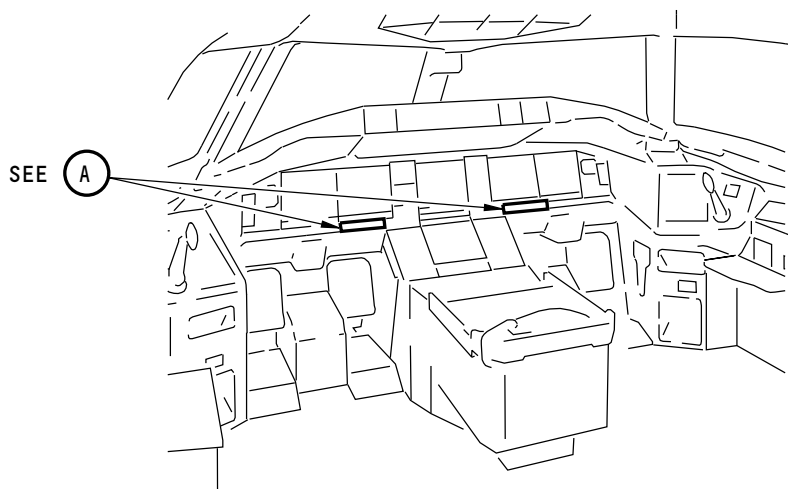
EFFECTIVITY
ARO ALL

31-61-06

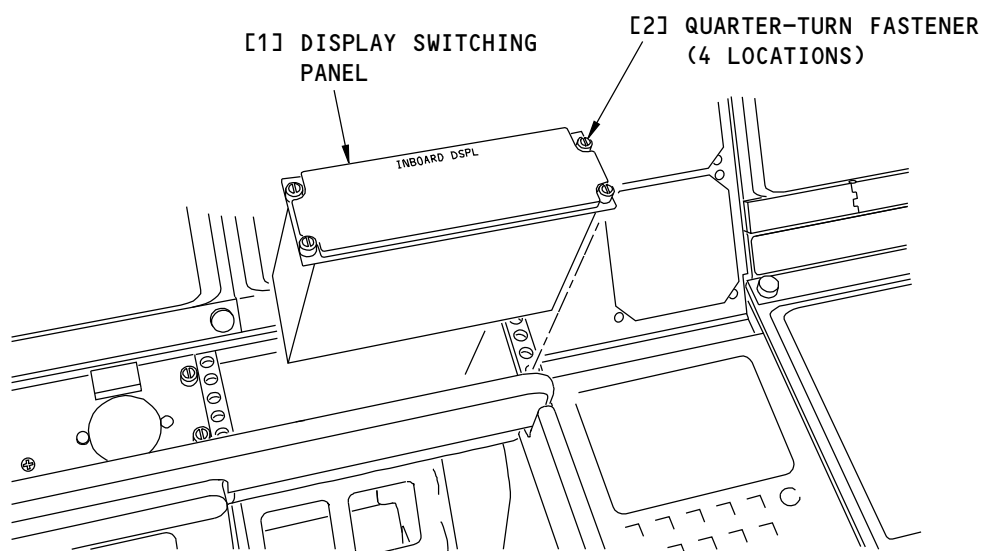
D633W101-ARO

Page 401
Sep 05/2017

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



FLIGHT COMPARTMENT



**CAPTAIN'S DISPLAY SWITCHING PANEL
(FIRST OFFICERS OPPOSITE)**

FWD 

A

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**Display Switching Panel Installation
Figure 401/31-61-06-990-801**

EFFECTIVITY
ARO ALL

31-61-06

D633W101-ARO

Page 402
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-06-400-801

3. Display Switching Panel Installation

(Figure 401)

A. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Display switching panel	31-11-51-01B-095	ARO ALL
		31-61-06-01-010	ARO ALL
		31-61-51-01-009	ARO ALL
		31-61-51-01-010	ARO ALL
		33-13-00-03-025	ARO ALL
		33-13-00-03-045	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Installation Procedure

SUBTASK 31-61-06-860-002

- (1) Make sure the outer knob of the applicable FWD PANEL BRIGHTNESS PNL/FLOOD CONTROL switch is fully counterclockwise.

SUBTASK 31-61-06-420-002

- (2) Put the SELCAL placard on the display switching panel [1].

SUBTASK 31-61-06-420-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE DISPLAY SWITCHING PANEL. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE DISPLAY SWITCHING PANEL.

- (3) Install the display switching panel [1]:
 - (a) Remove the protective caps from the electrical connectors.
 - (b) Examine the electrical connectors for bent or broken pins, dirt, or damage.
 - (c) Connect the electrical connectors.
 - (d) Put the display switching panel [1] carefully into the forward instrument panel.
 - (e) Tighten the four quarter-turn fasteners [2].

E. Installation Test

SUBTASK 31-61-06-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

EFFECTIVITY
ARO ALL

31-61-06

D633W101-ARO

Page 403
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-06-860-004

- (2) Make sure that this circuit breaker is closed:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C23605	OPAS 3

SUBTASK 31-61-06-860-005

- (3) Open this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C23603	OPAS 1

SUBTASK 31-61-06-710-001

- (4) Do an installation test of the display switching panel you installed:
- (a) Set the INBOARD DSPL switch on the display switching panel to each position (PFD, NAV, and EICAS).
 - 1) Make sure the inboard display unit shows the correct display for each switch position.
 - (b) Set the INBOARD DSPL switch on the display switching panel to the MFD position.
 - (c) Push the L(R) DSPL switch on the display select panel for the display switching panel you installed.
 - (d) Push the ELEC switch on the display select panel.
 - 1) Make sure the inboard display unit shows the electrical synoptic page.
 - (e) Close this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	6	C23603	OPAS 1

- (f) Open this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C23605	OPAS 3

- (g) Set the INBOARD DSPL switch on the display switching panel to each position (PFD, NAV, and EICAS).
 - 1) Make sure the inboard display unit shows the correct display for each switch position.
- (h) Set the INBOARD DSPL switch on the display switching panel to the MFD position.
- (i) Push the L(R) DSPL switch on the display select panel for the display switching panel you installed.
- (j) Push the ELEC switch on the display select panel.
 - 1) Make sure the inboard display unit shows the electrical synoptic page.
- (k) Set the INBOARD DSPL switch on the display switching panel to the NAV position.

EFFECTIVITY
ARO ALL

31-61-06

D633W101-ARO

Page 404
Jan 05/2015



**777-200/300
AIRCRAFT MAINTENANCE MANUAL**

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-06-860-006

- (1) Close this circuit breaker:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C23605	OPAS 3

SUBTASK 31-61-06-860-007

- (2) Turn the outer knob of the applicable FWD PANEL BRIGHTNESS PNL/FLOOD CONTROL switch to its middle position.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-06

Page 405
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

CURSOR CONTROL DEVICE - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
 - (1) A removal of the cursor control device.
 - (2) An installation of the cursor control device, which includes an installation test.
- B. There are two cursor control devices (CCD) on the control stand adjacent to the throttles. One for the captain and one for the first officer.
- C. The captain's CCD has the selection switch on the left side and the first officer's CCD has the selection switch on the right side.
- D. The control stand access panel adjacent to the CCD must be removed to get access to the electrical connectors.

TASK 31-61-07-000-801

2. Cursor Control Device Removal

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

<u>Reference</u>	<u>Title</u>
20-41-01-000-802	Conductive Dust Cap and Connector Cover Installation (P/B 201)

B. Location Zones

<u>Zone</u>	<u>Area</u>
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Removal Procedure

SUBTASK 31-61-07-860-001

- (1) For the applicable cursor control device, do this step:
Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C31623	CURSOR CTRL L
D	18	C31624	CURSOR CTRL R

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	4	C33611	MD & T CHANNEL 4

SUBTASK 31-61-07-010-001

- (2) Remove the applicable access panel [1] from the side of the control stand, P10.
 - (a) Release the thirteen quarter-turn fasteners [2] that attached the access panel to the control stand.
 - (b) Remove the left(right) access panel [1] from the side of the control stand.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-07

Page 401
May 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-07-020-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE CURSOR CONTROL DEVICE. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CURSOR CONTROL DEVICE.

- (3) Disconnect the electrical connectors from the cursor control device [3].

NOTE: Because the electrical cables for the cursor control device [3] are short, the electrical connectors must be disconnected from the cursor control device [3] before you can remove it from the control stand, P10. You access the electrical connectors through the side of the control stand.

SUBTASK 31-61-07-020-002

- (4) Remove the cursor control device [3]:
- (a) Release the four quarter-turn fasteners [4].
 - (b) Pull the cursor control device [3] out carefully from the control stand.
 - (c) Do this task: Conductive Dust Cap and Connector Cover Installation, TASK 20-41-01-000-802.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

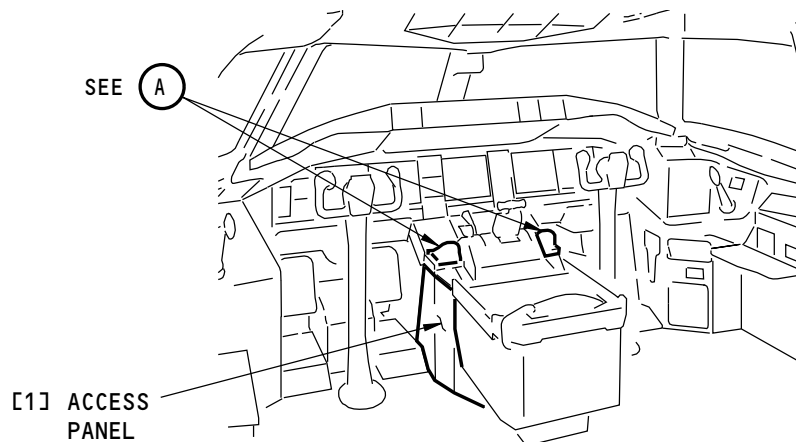
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D633W101-ARO

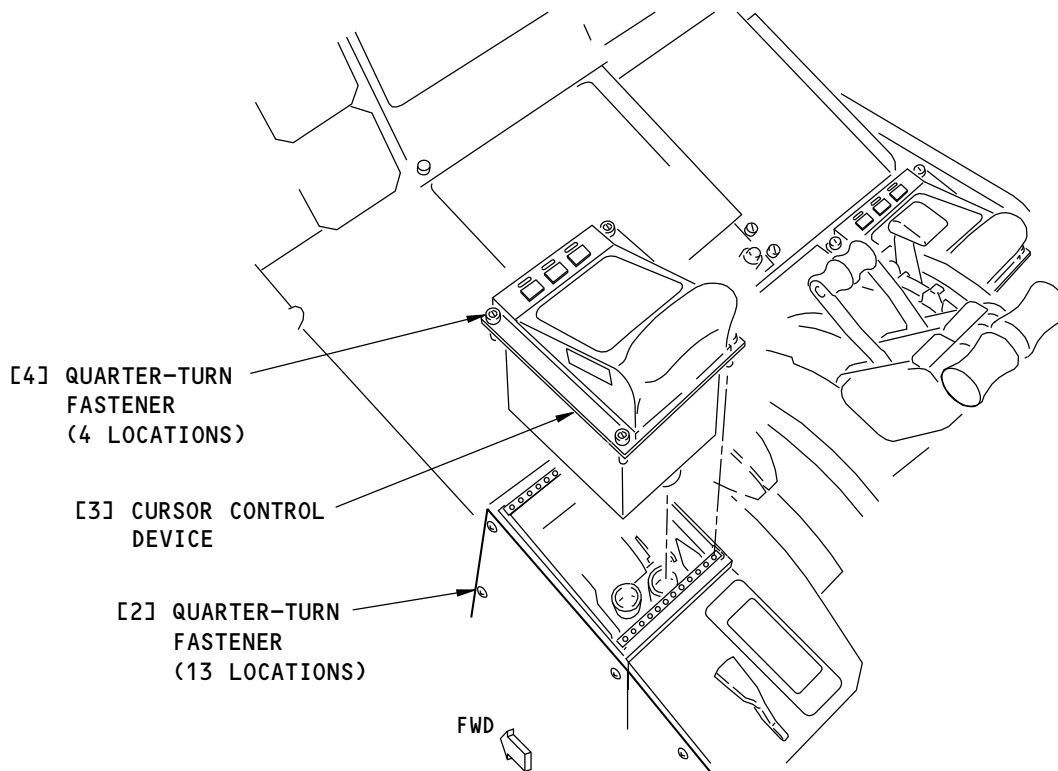
Page 402
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL



FLIGHT COMPARTMENT



CAPTAIN'S CURSOR CONTROL DEVICE
(FIRST OFFICER'S OPPOSITE)



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Cursor Control Device Installation
Figure 401/31-61-07-990-802

EFFECTIVITY
ARO ALL

31-61-07

D633W101-ARO

Page 403
Jan 05/2015

777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-07-400-801

3. Cursor Control Device Installation

(Figure 401)

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
20-41-01-400-802	Conductive Dust Cap and Connector Cover Removal (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)

B. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Cursor control device	31-11-36-01A-005	ARO 001-013
		31-11-36-01A-010	ARO 001-013
		31-61-07-02-055	ARO ALL
		31-61-07-02-060	ARO ALL

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Installation Procedure

SUBTASK 31-61-07-860-002

- (1) For the applicable cursor control device, do this step:

Make sure that these circuit breakers are open and have safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	5	C31623	CURSOR CTRL L
D	18	C31624	CURSOR CTRL R

Standby Power Management Panel, P310

Row	Col	Number	Name
F	4	C33611	MD & T CHANNEL 4

SUBTASK 31-61-07-420-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE CURSOR CONTROL DEVICE. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE CURSOR CONTROL DEVICE.

- (2) Install the cursor control device [3]:

NOTE: Because the electrical cables for the cursor control device [3] are short, the electrical connectors can only be connected to the cursor control device [3] after you install it in the control stand, P10.

- (a) Do this task: Conductive Dust Cap and Connector Cover Removal, TASK 20-41-01-400-802.
- (b) Examine the electrical connectors for bent or broken pins, dirt, or damage.

EFFECTIVITY
ARO ALL

31-61-07

D633W101-ARO

Page 404
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (c) Put the cursor control device [3] carefully into the aisle stand.
- (d) Tighten the quarter-turn fasteners [4].

NOTE: If there was a INOP placard on the side switch of the CCD you removed, make sure you put it on the new CCD.

SUBTASK 31-61-07-020-003

- (3) Connect the electrical connectors to the cursor control device [3].

NOTE: Access to the electrical connectors is through the side of the control stand, P10.

SUBTASK 31-61-07-860-003

- (4) For the applicable cursor control device, do this step:
Remove the safety tags and close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	5	C31623	CURSOR CTRL L
D	18	C31624	CURSOR CTRL R

Standby Power Management Panel, P310

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	4	C33611	MD & T CHANNEL 4

E. Installation Test

SUBTASK 31-61-07-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-07-860-005

- (2) Push the LWR CTR and COMM switches on the display select panel (DSP).

SUBTASK 31-61-07-730-001

- (3) Push the LWR CTR switch on the captain's(first officer's) cursor control device.
 - (a) Make sure the indicator above the LWR CTR switch comes on.
 - (b) Make sure the captain's(first officer's) cursor shows on the lower center display unit.

NOTE: The captain's cursor is a cross hair with a square in the middle. The first officer's cursor is a double width cross hair.

SUBTASK 31-61-07-730-002

- (4) Move your finger on the captain's (first officer's) cursor control device [3].
 - (a) Make sure the captain's (first officer's) cursor moves in the same direction.

SUBTASK 31-61-07-730-003

- (5) Select a menu item with the selection switch on the captain's(first officer's) cursor control device [3].
 - (a) Make sure the selected menu item shows on the lower center display unit.

SUBTASK 31-61-07-860-006

- (6) Push the ENG switch on the DSP to show the secondary engine format on the MFD.

F. Put the Airplane Back to Its Usual Condition

SUBTASK 31-61-07-410-001

- (1) Install the access panel [1] on the side of the control stand, P10.
 - (a) Put the access panel [1] in its position on the side of the control stand.

EFFECTIVITY
ARO ALL

31-61-07

D633W101-ARO

Page 405
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (b) Tighten the thirteen quarter-turn fasteners [2] that attached the access panel to the control stand.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-07

Page 406
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

CURSOR CONTROL DEVICE - CLEANING/PAINTING

1. General

- A. This procedure has this task:
 - (1) Cleaning the touch pad surface of the cursor control device.
- B. There are two cursor control devices. The captain's is on the left side of the forward electronics control stand. The first officer's is on the right side of the forward electronics control stand.
- C. This procedures is the same for the captain's or the first officer's cursor control devices.

TASK 31-61-07-100-801

2. Touch Pad Surface Cleaning

A. **General**

- (1) This task has two procedures to clean the display surface. It is necessary to use only one of the two procedures.

B. **Tools/Equipment**

Reference	Description
STD-123	Brush - Soft Bristle

C. **Consumable Materials**

Reference	Description	Specification
B01057	Cleaner - Glass, Standard Household	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G02457	Cleaner - Wet/Dry Anti-Static Sachet - ALGLAS Visial ALG/CR 215	

D. **Location Zones**

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. **Procedure to Use the Cleaner/Glass Standard Household**

SUBTASK 31-61-07-100-005



CAUTION

DO NOT USE ABRASIVE MATERIALS WHEN YOU CLEAN THE TOUCH PAD SURFACE. ABRASIVE MATERIALS WILL CAUSE SCRATCHES IN THE TOUCH PAD SURFACE.

- (1) Remove all particles from the touch pad surface with a clean, soft, natural-bristle soft bristle brush, STD-123.

SUBTASK 31-61-07-100-006

- (2) Clean the grease, oil, and contamination from the touch pad surface with a lint-free cotton wiper, G00034, and glass cleaner (glass cleaner, B01057):
 - (a) Apply the glass cleaner to the cloth.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-07

Page 701
Sep 05/2017

777-200/300
AIRCRAFT MAINTENANCE MANUAL



CAUTION

DO NOT USE TOO MUCH FORCE WHEN YOU CLEAN THE TOUCH PAD SURFACE WITH THE CLOTH. TOO MUCH FORCE WILL CAUSE DAMAGE TO THE TOUCH PAD SURFACE.

- (b) Use the moist cloth to carefully clean a small area of the touch pad surface at a time.
- (c) Frequently change to a clean area of the moist cloth.
- (d) Remove the excess glass cleaner before it dries.
- (e) Let the touch pad dry.
- (f) If a thin layer of dry glass cleaner stays on the touch pad surface, clean again with a clean, moist cloth.

F. Procedure to Use Alglas Visial Wet/Dry Anti-Static Sachet

SUBTASK 31-61-07-100-007



CAUTION

DO NOT USE TOO MUCH FORCE WHEN YOU CLEAN THE TOUCH PAD SURFACE. TOO MUCH FORCE WILL CAUSE DAMAGE TO THE TOUCH PAD SURFACE.

- (1) Clean the touch pad surface with the wet and dry anti-static sachets (ALGLAS Visial cleaner, G02457):
 - (a) Use the wet sachet to carefully clean the touch pad surface in a straight line from top to bottom.
 - (b) Gradually move from one side of the touch pad surface to the other side while you clean from top to bottom.
 - (c) When the touch pad surface is clean, use the dry sachet in a straight line from top to bottom to carefully dry the touch pad surface.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

31-61-07

D633W101-ARO

Page 702
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

REMOTE LIGHT SENSOR - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of a remote light sensor.
 - (2) An installation of a remote light sensor.
- B. There are two remote light sensors. They are on the glareshield in front of the pilots. You remove or install the remote light sensor from below the glareshield.
- C. Power for the left remote light sensor is supplied by the captain's outboard display unit. Power for the right remote light sensor is supplied by the first officer's outboard display unit.

TASK 31-61-08-000-801

2. Remote Light Sensor Removal

(Figure 401)

A. References

Reference	Title
31-61-02-000-801	EFIS Control Panel Removal (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Removal Procedure

SUBTASK 31-61-08-860-001

- (1) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	1	C31625	CAPT DISPLAY-OUTBD
D	14	C31626	F/O DISPLAY-OUTBD

SUBTASK 31-61-08-010-001

- (2) Do this task: EFIS Control Panel Removal, TASK 31-61-02-000-801.

SUBTASK 31-61-08-020-001

- (3) Remove the remote light sensor [2]:
- (a) Disconnect the electrical [1] connector from the remote light sensor [2].
 - (b) Remove the two screws [3] from the remote light sensor [2].
 - (c) Lower the remote light sensor [2] from the glareshield.
 - (d) Put protective covers on the electrical connectors.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

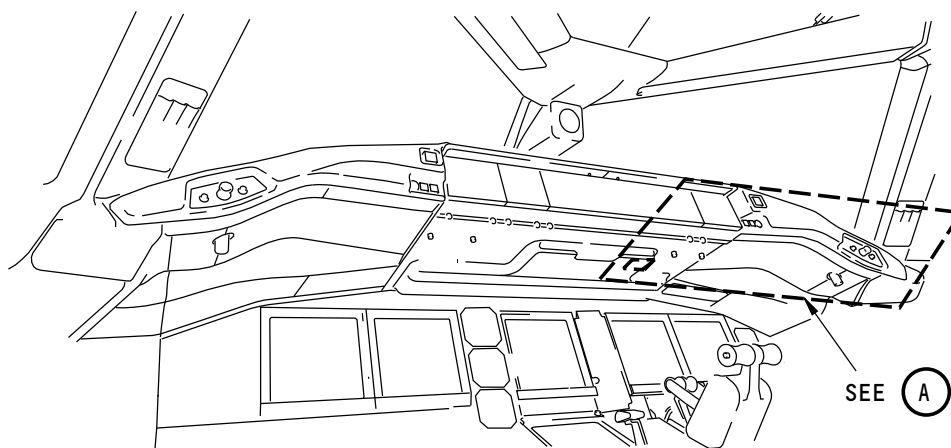
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31-61-08

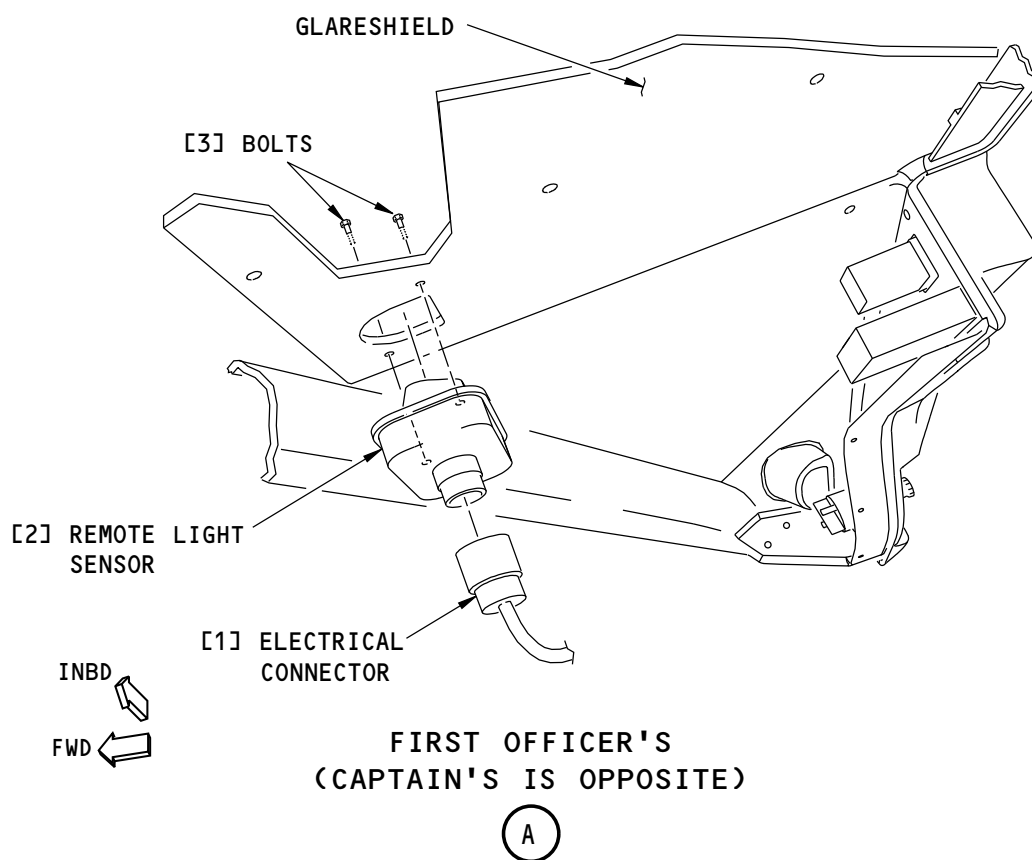
Page 401
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



FLIGHT COMPARTMENT



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Remote Light Sensor Installation
Figure 401/31-61-08-990-802

EFFECTIVITY
ARO ALL

31-61-08

D633W101-ARO

Page 402
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-08-400-801

3. Remote Light Sensor Installation

(Figure 401)

A. General

- (1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-61-02-400-801	EFIS Control Panel Installation (P/B 401)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
2	Remote light sensor	31-61-08-02-010	ARO ALL

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Installation Procedure

SUBTASK 31-61-08-860-002

- (1) Make sure that these circuit breakers are open and have safety tags:

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	1	C31625	CAPT DISPLAY-OUTBD
D	14	C31626	F/O DISPLAY-OUTBD

SUBTASK 31-61-08-420-001

- (2) Install the remote light sensor [2]:
 - (a) Remove the protective covers from the electrical connectors.
 - (b) Put the remote light sensor [2] into the glareshield.
 - (c) Install the two screws [3] in the remote light sensor [2].
 - (d) Connect the electrical connector [1] to the remote light sensor [2].

SUBTASK 31-61-08-410-001

- (3) Do this task: EFIS Control Panel Installation, TASK 31-61-02-400-801.

SUBTASK 31-61-08-860-003

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

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
D	1	C31625	CAPT DISPLAY-OUTBD
D	14	C31626	F/O DISPLAY-OUTBD

EFFECTIVITY
ARO ALL

31-61-08

D633W101-ARO

Page 403
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

F. Installation Test

SUBTASK 31-61-08-860-004

(1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-08-730-002

(2) Use a maintenance access terminal (MAT) to do the remote light sensor installation test:

(a) Make these selections on the MAT:

- 1) ONBOARD MAINTENANCE
- 2) OTHER FUNCTIONS
- 3) SPECIAL FUNCTIONS
- 4) 31 AIMS - Display System
- 5) Brightness Controls and Display Units
- 6) CONTINUE

(b) Do the instructions that show on the MAT and then make these selections:

- 1) CONTINUE
- 2) START FUNCTION

NOTE: All six DUs are grouped into two sets of 3, with each set driven by a single GG. When the display unit test is selected, two GGs will be selected to drive them. Also, the left outboard and right outboard display units provides the excitation voltage for the left RLS and right RLS.

(c) Adjust each DU's individual brightness control so that all six DUs are readable.

- 1) Make sure all six DUs present the correct format.

(d) Hold hand over the appropriate glareshield mounted RLS.

- 1) Make sure the sensor housing is completely covered and light does not enter the RLS slit aperture.

(e) Put the flashlight on the glareshield.

- 1) Make sure the flashlight shines into the slit in the right RLS housing.
- 2) Make sure the value displayed on the onside outboard DU is greater when the flashlight is applied than when the RLS is covered.

NOTE: The difference between the two values will depend on the natural lighting conditions present at the time the test is conducted.

(f) To stop the function, select STOP FUNCTION.

————— END OF TASK —————

EFFECTIVITY
ARO ALL

31-61-08

D633W101-ARO

Page 404
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

PRIMARY DISPLAY SYSTEM SOFTWARE INSTALLATION - MAINTENANCE PRACTICES

1. General

A. This procedure has one task:

- (1) A reference to the primary display system software installation procedure.

TASK 31-61-10-400-801

2. Primary Display System Software Installation

A. General

- (1) The CPM/GG(M10) and CPM/GG(M11) in the left and right AIMS cabinets must contain this software:
 - (a) Operational program software (OPS).
- (2) You can also install this airline modifiable information (AMI) in the CPM/GG(M10) and CPM/GG(M11) in the left and right AIMS cabinets:
 - (a) Electronic checklist AMI.
- (3) You can install the software in any sequence, but it is best to install the OPS first.
- (4) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.
- (5) The airplane must be on the ground with the engines off before you can install software.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-02-420-804	Core Processor Module/GG Software Installation (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)

C. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Procedure

SUBTASK 31-61-10-860-001

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-10-420-002

- (2) To install the CPM/GG OPS software or the electronic checklist AMI in the four CPM/GGs, do this task: Core Processor Module/GG Software Installation, TASK 31-41-02-420-804.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-61-10

D633W101-ARO

Page 201
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

COAXIAL COUPLER - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

- (1) A removal of a coaxial coupler.
- (2) An installation of a coaxial coupler.

B. There are four coaxial couplers. There are two coaxial couplers installed on the left disconnect panel for the instrument panel in the flight deck. You can get access to the coaxial couplers through the forward access panel outboard of the captain's rudder pedals. There are two coaxial couplers installed on the right disconnect panel for the instrument panel in the flight deck. You can get access to the coaxial couplers through the forward access panel outboard of the first officer's rudder pedals.

TASK 31-61-11-000-801

2. Coaxial Coupler Removal

(Figure 401)

A. References

Reference	Title
25-11-01-000-801	Captain and First Officer Seat Removal (P/B 401)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

C. Removal Procedure

SUBTASK 31-61-11-860-001

- (1) Open these circuit breakers and install safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
H	1	C33405	CAPT INST & PNL LTS

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
B	7	C23605	OPAS 3
C	20	C31630	FMC CDU-R
D	1	C31625	CAPT DISPLAY-OUTBD
D	2	C31627	CAPT DISPLAY-INBD
D	3	C31613	C DSPL UPR
D	6	C23603	OPAS 1
D	14	C31626	F/O DISPLAY-OUTBD
D	15	C31628	F/O DISPLAY-INBD
F	3	C31614	C DSPL LWR

EFFECTIVITY
ARO ALL

31-61-11

D633W101-ARO

Page 401
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	13	C25324	F/O SEAT
F	25	C33406	F/O INST & PNL LTS

SUBTASK 31-61-11-860-002

- (2) For the left, center, and right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 31-61-11-010-001



REMOVE ELECTRICAL POWER FROM THE CAPTAIN'S (FIRST OFFICER'S) SEAT. YOU CAN ACCIDENTALLY CAUSE A SEAT TO MOVE AND CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT.

- (3) Remove the captain's (first officer's) seat. To remove it, do this task: Captain and First Officer Seat Removal, TASK 25-11-01-000-801.

SUBTASK 31-61-11-860-003

- (4) Use the hand crank to move the rudder pedals to the full forward position.

SUBTASK 31-61-11-010-005

- (5) Get access to the applicable COAXIAL COUPLER [4]:
- (a) Loosen the fasteners on the applicable forward access panel [1] (outboard of the rudder pedals).
 - (b) Remove the forward access panel [1].
 - (c) Loosen the fasteners on the applicable brightness/heater access panel [2].
 - (d) Remove the brightness/heater access panel [2].

NOTE: You can hang the panel on the side with the cables still connected.

SUBTASK 31-61-11-020-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE COAXIAL COUPLER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COAXIAL COUPLER.

- (6) Remove the applicable COAXIAL COUPLER [4]:
- (a) Remove the four screws [6], washers [5], and lock washers [7] that hold the COAXIAL COUPLER [4] to the disconnect panel.
 - (b) Disconnect the seven coaxial cables [3] from the COAXIAL COUPLER [4].
 - (c) Put protective covers on the electrical connectors.

————— **END OF TASK** —————

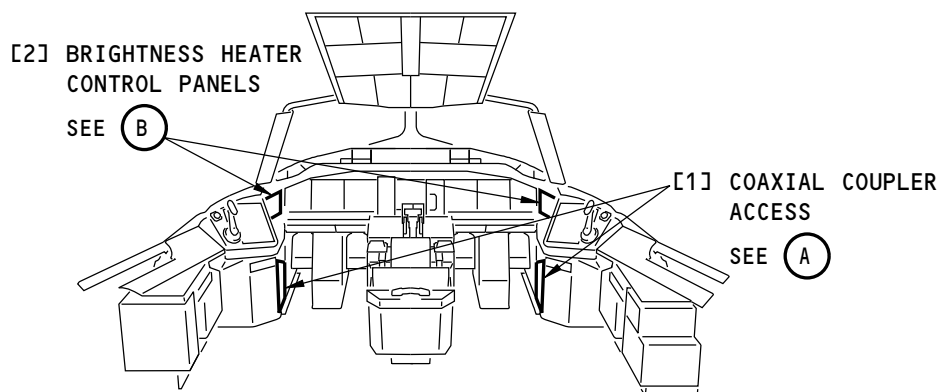
EFFECTIVITY
ARO ALL

31-61-11

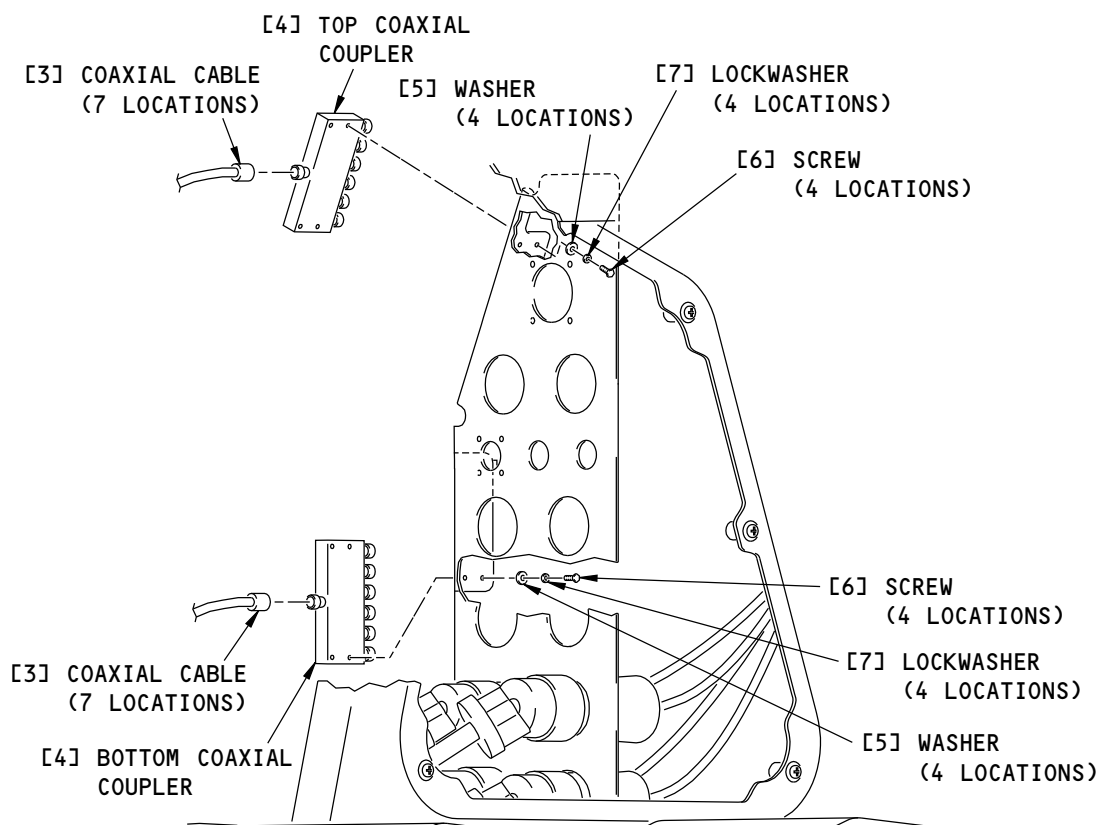
D633W101-ARO

Page 402
Sep 05/2017

**777-200/300
AIRCRAFT MAINTENANCE MANUAL**



FLIGHT COMPARTMENT



**COAXIAL COUPLER ACCESS
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)**

(A)

F17177 S0006417568_V1

**Coaxial Coupler Installation
Figure 401/31-61-11-990-806 (Sheet 1 of 2)**

EFFECTIVITY
ARO ALL

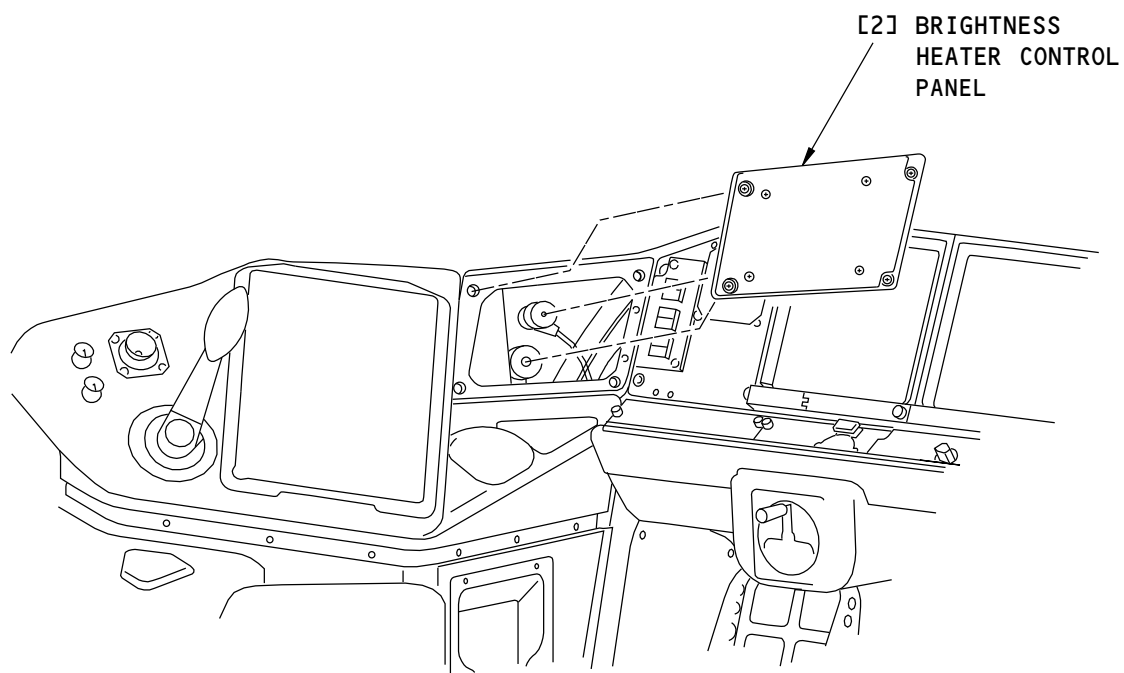
31-61-11

D633W101-ARO

Page 403
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL



BRIGHTNESS HEATER CONTROL PANEL
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

(B)

F17211 S0006417569_V1

Coaxial Coupler Installation
Figure 401/31-61-11-990-806 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

31-61-11

D633W101-ARO

Page 404
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-11-400-801

3. Coaxial Coupler Installation

(Figure 401)

A. General

- (1) A maintenance access terminal is necessary for this procedure. For instructions on how to use a maintenance access terminal, do this task: How to Use the Central Maintenance Computing System, TASK 45-10-00-740-808.

B. References

Reference	Title
24-22-00-860-805	Supply Electrical Power (P/B 201)
25-11-01-400-801	Captain and First Officer Seat - Installation (P/B 401)
29-11-00-860-808	Main Hydraulic System Power Removal (P/B 201)
45-10-00-740-808	How to Use the Central Maintenance Computing System (P/B 201)
WDM 31-61-14	Wiring Diagram Manual
WDM 31-61-15	Wiring Diagram Manual

C. Consumable Materials

Reference	Description	Specification
A00226	Compound - Tamper-Proof Putty	BMS8-45

D. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
4	COAXIAL COUPLER	31-11-16-02-005	ARO ALL

E. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right

F. Installation Procedure

SUBTASK 31-61-11-860-004

- (1) Make sure that these circuit breakers are open and have safety tags:

Left Power Management Panel, P110

Row	Col	Number	Name
D	18	C25323	CAPT SEAT
H	1	C33405	CAPT INST & PNL LTS

Overhead Circuit Breaker Panel, P11

Row	Col	Number	Name
B	7	C23605	OPAS 3
C	20	C31630	FMC CDU-R
D	1	C31625	CAPT DISPLAY-OUTBD
D	2	C31627	CAPT DISPLAY-INBD
D	3	C31613	C DSPL UPR
D	6	C23603	OPAS 1
D	14	C31626	F/O DISPLAY-OUTBD
D	15	C31628	F/O DISPLAY-INBD

EFFECTIVITY
ARO ALL

31-61-11

D633W101-ARO

Page 405
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

(Continued)

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
F	3	C31614	C DSPL LWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	13	C25324	F/O SEAT
F	25	C33406	F/O INST & PNL LTS

SUBTASK 31-61-11-860-005

- (2) Make sure the left, center, and right hydraulic systems are off.
- (a) If the hydraulic power is not off for the left, center, or right hydraulic systems, do this task: Main Hydraulic System Power Removal, TASK 29-11-00-860-808.

SUBTASK 31-61-11-420-001



DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE COAXIAL COUPLER. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE COAXIAL COUPLER.

- (3) Install the COAXIAL COUPLER [4]:
- (a) Remove the protective covers from the electrical connectors.
- (b) Connect the seven coaxial cables [3] to the COAXIAL COUPLER [4] (WDM 31-61-14) (WDM 31-61-15).
- (c) Tighten the connectors on the seven coaxial cables to 7-10 pound-inches.
- (d) Apply compound, A00226 or equivalent to the seven connectors at the COAXIAL COUPLER [4].
- (e) Put the COAXIAL COUPLER [4] in place on the disconnect panel.
- (f) Install the four screws [6], washers [5], and lock washers [7].

SUBTASK 31-61-11-410-002

- (4) Re-install the forward access panel [1] (outboard of the rudder pedals).

SUBTASK 31-61-11-410-003

- (5) Tighten the fasteners on the forward access panel [1].

SUBTASK 31-61-11-410-005

- (6) Re-install the brightness/heater access panel [2].

SUBTASK 31-61-11-410-006

- (7) Tighten the fasteners on the brightness/heater access panel [2].

SUBTASK 31-61-11-410-004

- (8) To re-install the captain's (first officer's) seat, do this task: Captain and First Officer Seat - Installation, TASK 25-11-01-400-801.

EFFECTIVITY
ARO ALL

31-61-11

D633W101-ARO

Page 406
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-11-860-006

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
D	18	C25323	CAPT SEAT
H	1	C33405	CAPT INST & PNL LTS

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	7	C23605	OPAS 3
C	20	C31630	FMC CDU-R
D	1	C31625	CAPT DISPLAY-OUTBD
D	2	C31627	CAPT DISPLAY-INBD
D	3	C31613	C DSPL UPR
D	6	C23603	OPAS 1
D	14	C31626	F/O DISPLAY-OUTBD
D	15	C31628	F/O DISPLAY-INBD
F	3	C31614	C DSPL LWR

Right Power Management Panel, P210

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	13	C25324	F/O SEAT
F	25	C33406	F/O INST & PNL LTS

G. Installation Test

SUBTASK 31-61-11-860-007

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-11-860-008

- (2) Adjust the brightness controls for each display unit so that all six display units are readable.

SUBTASK 31-61-11-730-002

- (3) Use a maintenance access terminal (MAT) to do a test of the CPM/Graphics generators connectivity:

- (a) Make these selections on the MAT:

- 1) ONBOARD MAINTENANCE
- 2) OTHER FUNCTIONS
- 3) SPECIAL FUNCTIONS
- 4) 31 AIMS - DISPLAY SYSTEM

- (b) Select one of the two tests for the COAXIAL COUPLER [4] you installed:

NOTE: Make sure when the first test passes you do the second test.

- 1) For the bottom COAXIAL COUPLER [4] on the left side, do these tests:

NOTE: See (Table 401) and (Table 402).

- a) CPM/GG(M011-L and M010-R) to DU Interface Check
- b) CPM/GG(M010-R and M011-L) to DU Interface Check.

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-11

Page 407
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 2) For the top COAXIAL COUPLER [4] on the left side, do these tests:

NOTE: See (Table 403) and (Table 404)

- a) CPM/GG(M010-L and M011-R) to DU Interface Check
- b) CPM/GG(M011-R and M010-L) to DU Interface Check.

- 3) For the bottom COAXIAL COUPLER [4] on the right side, do these tests:

NOTE: See (Table 404) and (Table 403)

- a) CPM/GG(M011-R and M010-L) to DU Interface Check
- b) CPM/GG(M010-L and M011-R) to DU Interface Check.

- 4) For the top COAXIAL COUPLER [4] on the right side, do these tests:

NOTE: See (Table 402) and (Table 401).

- a) CPM/GG(M010-R and M011-L) to DU Interface Check
- b) CPM/GG(M011-L and M010-R) to DU Interface Check.

(c) Select CONTINUE

(d) START TEST

(e) Make sure all six display units show the test format (Figure 402).

(f) For each display unit, make sure the DU LOCATION, GG SOURCE, INPUT ACTIVITY, and ARINC 429 LOOP are as follows:

NOTE: The bracketed Y indicates the active channel and will show in white on the display unit. A green Y on the display indicates a channel with activity on it. A red N on the display indicates a channel with no detected activity on it.

Table 401/31-61-11-993-802

Display Unit Test Format CPM/GG(M011-L and M010-R) to DU Interface Check						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
GG SOURCE	L11	L11	L11	R10	R10	R10
INPUT ACTIVITY	Y[Y]YY	Y[Y]YY	Y[Y]YY	YY[Y]Y	YY[Y]Y	YY[Y]Y
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

Table 402/31-61-11-993-803

Display Unit Test Format CPM/GG(M010-R and M011-L) to DU Interface Check						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
GG SOURCE	R10	R10	R10	L11	L11	L11
INPUT ACTIVITY	YY[Y]Y	YY[Y]Y	YY[Y]Y	Y[Y]YY	Y[Y]YY	Y[Y]YY
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

EFFECTIVITY
ARO ALL

31-61-11

D633W101-ARO

Page 408
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

Table 403/31-61-11-993-804

Display Unit Test Format CPM/GG(M010-L and M011-R) to DU Interface Check						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
GG SOURCE	L10	L10	L10	R11	R11	R11
INPUT ACTIVITY	[Y]YYY	[Y]YYY	[Y]YYY	YYY[Y]	YYY[Y]	YYY[Y]
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

Table 404/31-61-11-993-805

Display Unit Test Format CPM/GG(M011-R and M010-L) to DU Interface Check						
	Left Outbd DU	Left Inbd DU	Center Upper DU	Center Lower DU	Right Inbd DU	Right Outbd DU
DU LOCATION	LOB	LIB	CU	CL	RIB	ROB
GG SOURCE	R11	R11	R11	L10	L10	L10
INPUT ACTIVITY	YYY[Y]	YYY[Y]	YYY[Y]	[Y]YYY	[Y]YYY	[Y]YYY
ARINC 429 LOOP	PASS	PASS	PASS	PASS	PASS	PASS

- (g) Push NEW FUNCTION to select a different test or CONTINUE to stop the test.

NOTE: You should do the two DU interface checks for the COAXIAL COUPLER [4] you installed.

———— **END OF TASK** ————

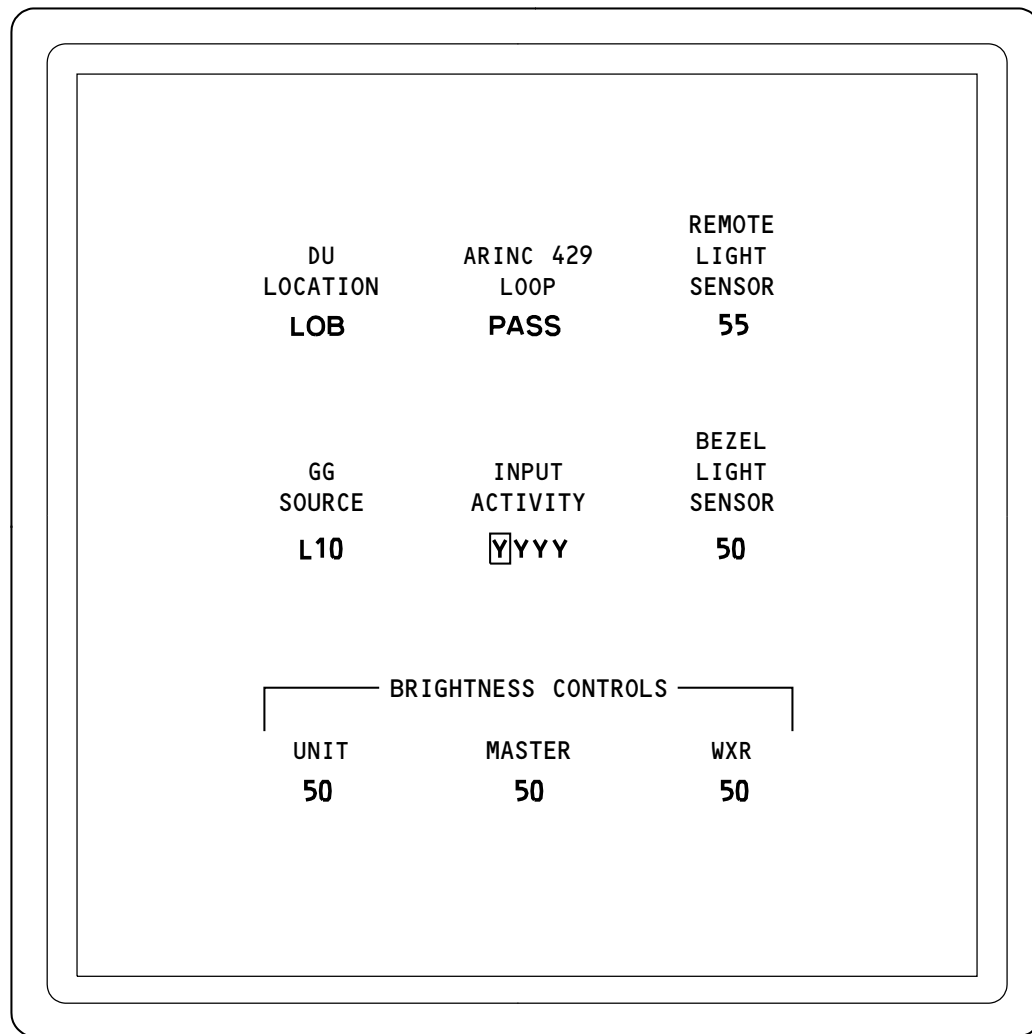
EFFECTIVITY
ARO ALL

31-61-11

D633W101-ARO

Page 409
Jan 05/2015

777-200/300
AIRCRAFT MAINTENANCE MANUAL



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Display Unit Test Format
Figure 402/31-61-11-990-801

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-11

Page 410
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

GROUND MANEUVER CAMERA SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This procedure has four tasks:
- (1) A removal of the nose gear taxi camera.
 - (2) An installation of the nose gear taxi camera.
 - (3) A removal of the main gear taxi camera.
 - (4) An installation of the main gear taxi camera.
- B. The nose gear camera is a compact self-contained unit that minimizes aerodynamic drag and is mounted on the airplane belly approximately 22 feet aft of the nose gear.
- C. Both the left and right main gear taxi cameras use the same color camera assembly and are secured into the leading edges of the horizontal stabilizers.

TASK 31-61-21-000-801

2. Nose Gear Taxi Camera Removal

(Figure 201)

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
COM-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5

B. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
G50140	Gloves - Protective, Latex or Nitrile	

C. Location Zones

Zone	Area
123	Area Below Forward Cargo Compartment, Left
124	Area Below Forward Cargo Compartment, Right

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-21

Page 201
May 05/2018

777-200/300 AIRCRAFT MAINTENANCE MANUAL

D. Removal Procedure

SUBTASK 31-61-21-860-001

- (1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

SUBTASK 31-61-21-020-001

- (2) Put on protective gloves, G50140.



WARNING

DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. PUT ON EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION) AND GLOVES WHEN YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (3) Remove the nose gear taxi camera [3]:
 - (a) Remove the sealant, A02315 from around the base of the camera [3] and the heads of the captive screws [2] with a sealant removal tool, COM-2481.
 - (b) Loosen the captive screws [2] from the camera [3].



CAUTION

BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE CAMERA BASE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN OR THE CAMERA HOUSING.

- (c) Use force around the camera [3] with the sealant removal tool, COM-2481 until the seal is fully broken.



CAUTION

LOWER THE CAMERA ONLY AS FAR AS NECESSARY TO DISCONNECT THE CONNECTOR. DAMAGE TO THE CABLE CAN OCCUR IF YOU PULL THE CABLE.

- (d) Lower the camera [3] until you can get access to the connector [1].
 - (e) Disconnect the connector [1] from the camera [3].
 - (f) Remove the camera [3].
 - (g) Remove the sealant from the airplane skin and the camera [3] using the sealant removal tool, COM-2481.
 - 1) Wipe camera [3] clean.

————— **END OF TASK** —————

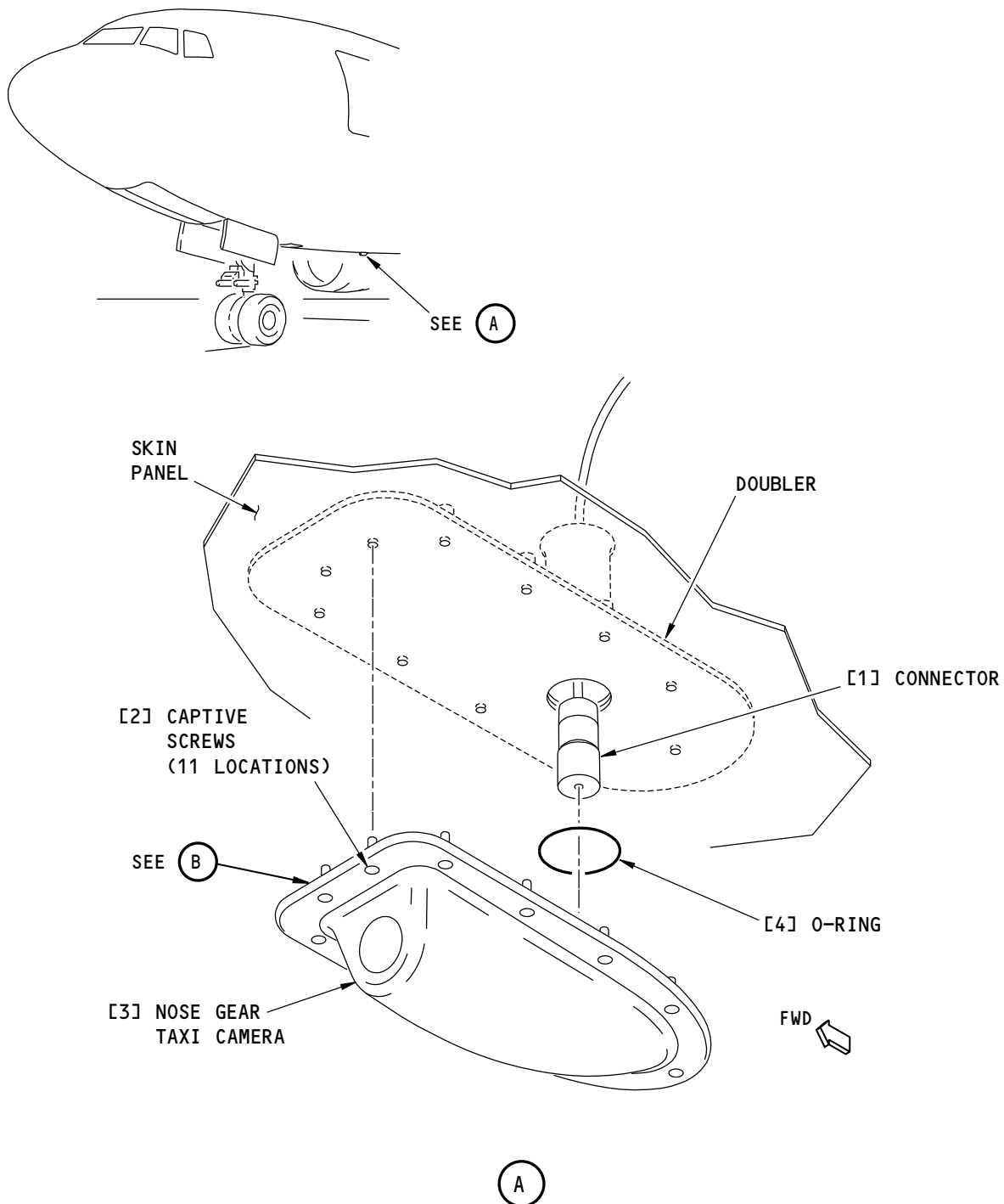
EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 202
Sep 05/2017

BOEING
777-200/300
AIRCRAFT MAINTENANCE MANUAL



G54072 S0006417579_V1

Nose Gear Taxi Camera Installation
Figure 201/31-61-21-990-801 (Sheet 1 of 2)

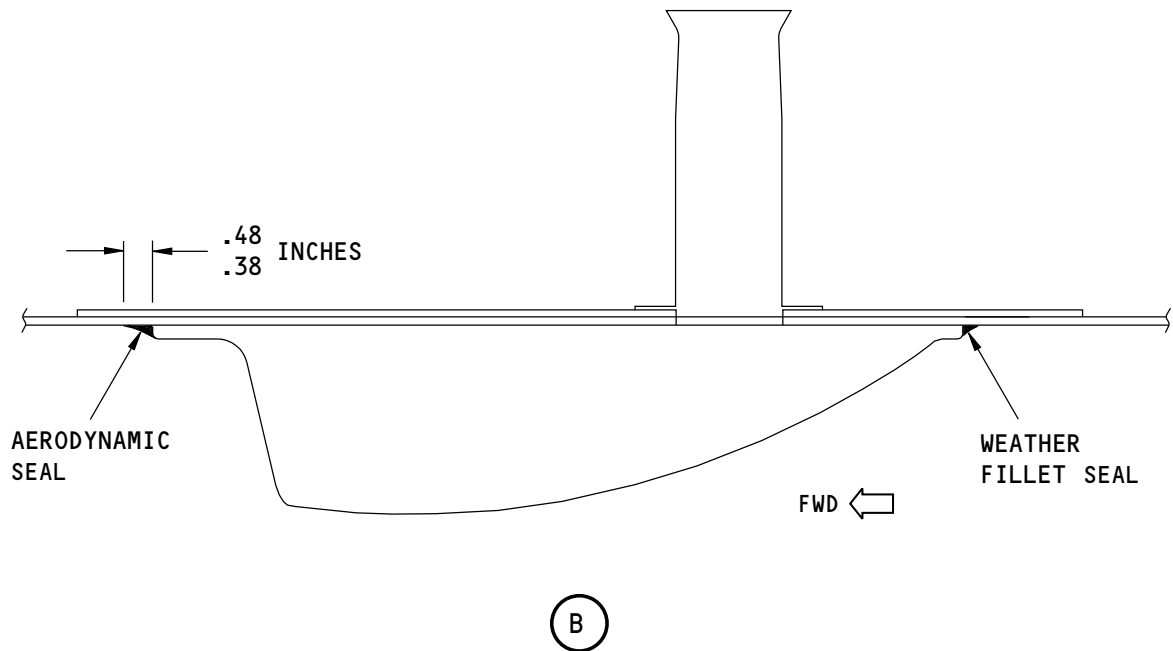
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ARO ALL

D633W101-ARO

31-61-21

Page 203
Jan 05/2015

777-200/300
AIRCRAFT MAINTENANCE MANUAL



G59306 S0006417580_V1

Nose Gear Taxi Camera Installation
Figure 201/31-61-21-990-801 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-21

Page 204
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-21-400-801

3. Nose Gear Taxi Camera Installation

(Figure 201)

A. General

- (1) An installation test is done after the installation of the camera. The installation test makes sure that the camera operates correctly.

B. References

Reference	Title
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
51-21-03-100-801	Corrosion Removal and Control (P/B 701)
51-21-04-620-801	Alodine 600, 1000, 1200, and 1200S Coating Application (P/B 701)
51-31-01-390-806	Aerodynamic Smoother Application (P/B 201)
SWPM 20-20-00	Standard Wiring Practices 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-1550	Bonding Meters - 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). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

D. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
B01000	Solvent - General Cleaning Of Metal	
B01008	Solvent - Final Cleaning Of Metal Prior To Non-Structural Bonding - Series 88	
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79 Type III
C00913	Compound - Corrosion Inhibiting Material, Nondrying Resin Mix	BMS3-27
D00254	Compound - Silicone	SAE AS8660 (NATO S-736) (Supersedes MIL-S-8660)
D00633	Grease - Aircraft General Purpose	BMS3-33

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-21

Page 205
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Description	Specification
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50140	Gloves - Protective, Latex or Nitrile	
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Camera	31-61-21-02-030	ARO 001-016

F. Location Zones

Zone	Area
123	Area Below Forward Cargo Compartment, Left
124	Area Below Forward Cargo Compartment, Right

G. Prepare for the installation

NOTE: Do not remove the protective film from the camera window before the camera installation is completed.

SUBTASK 31-61-21-860-002

- (1) Make sure that this circuit breaker is open:

Left Power Management Panel, P110

Row	Col	Number	Name
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

SUBTASK 31-61-21-100-001

- (2) Clean the airplane mating surface:



WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (a) Clean the airplane mating surface with a cotton wiper, G00034 moistened with Series 88 solvent, B01008 (TASK 20-30-88-910-801).
- (b) Use a cotton wiper, G00034 and clean the mating surface again.
- (c) Do these two steps until the mating surface is clean and dry.

SUBTASK 31-61-21-370-001

- (3) If the finish on the airplane mating surface has corrosion or other damage, do the steps that follow to clean and prepare the surface:
- (a) If it is necessary, do this task: Corrosion Removal and Control, TASK 51-21-03-100-801
- (b) Do this task: Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801.

NOTE: This procedure has steps to clean and prepare the surface before you apply the alodine.

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 206
Jan 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- 1) Make sure the alodine layer is approximately 1/4-inch larger than the camera baseplate.
- (c) Apply two layers of primer, C00175 to the mating surface.
 - 1) Make sure the primer, C00175 layer is approximately 1/4-inch larger than the camera baseplate.

SUBTASK 31-61-21-420-001

- (4) Do these steps to install the camera O-ring [4] seal:

NOTE: O-ring [4] seal is supplied with each camera.

- (a) Make sure the O-ring [4] is not damaged.
- (b) Apply a layer of grease, D00633 in the O-ring [4] groove in the camera baseplate.
- (c) Apply a layer of grease, D00633 on the O-ring [4].
- (d) Install the O-ring [4] in the O-ring groove.
 - 1) Make sure you install the O-ring [4] correctly.

SUBTASK 31-61-21-620-001



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.



DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (5) Do these steps to do the corrosion protection for the mating surface (Figure 201):
 - (a) Put on protective gloves, G50140
 - (b) Apply a layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, to the surfaces that follow:
 - 1) The opening for the connector [1].
 - 2) The nutplates.
 - 3) The threads and shank of each captive screws [2].
 - (c) Apply a very thin layer of Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, on the mating surface of the camera [3]:
 - 1) Make sure you apply Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, on the pressurized and the not pressurized surfaces adjacent to the O-ring [4].
 - 2) Do not get Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, on the O-ring [4] or in the O-ring groove.
 - 3) Do not get Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, on the connector [1].

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

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Page 207
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

H. Installation Procedure

SUBTASK 31-61-21-420-002

- (1) Install the nose gear taxi camera [3]:
 - (a) Connect the connector [1] to the camera [3].
 - (b) Apply a coat of silicone compound, D00254 to the camera connector.
 - (c) Put the camera [3] in the correct position on the airplane surface and install the captive screws [2].

NOTE: Leave one of the captive screw [2] out to do an electrical bond check.



TIGHTEN THE SCREWS MANUALLY TO THE CORRECT TORQUE VALUE. USE OF POWER OR AIR TOOLS TO TIGHTEN THE SCREWS CAN CAUSE DAMAGE TO THE CAMERA BASEPLATE SURFACE.

- 1) Make sure you manually tighten the screws to 15 in-lb (1.7 N·m)-20 in-lb (2.3 N·m) of torque.

SUBTASK 31-61-21-700-001

- (2) Measure the resistance between the camera baseplate and the airplane skin with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00).

NOTE: Use the empty space between screw hole and the screw to get access to the camera baseplate.

- (a) Make sure the resistance is 0.025 ohms or less.

SUBTASK 31-61-21-700-002

- (3) Install the last captive screw [2].

SUBTASK 31-61-21-110-001



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.



DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM THIS MATERIAL. PUT ON A RESPIRATOR, EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION), AND GLOVES BEFORE YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (4) If Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, is around the edge of the flange, or is on the screw heads, clean the surfaces with Series 80 solvent, B01000 until all the Cor-Ban 27L Compound, G50237 or Mastinox 6856 K, C00913, is removed.

NOTE: Sealant will not bond to the compound.

SUBTASK 31-61-21-390-001

- (5) Apply sealant, A02315 around the flange of the camera [3] to make an aerodynamic seal (TASK 51-31-01-390-806).

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 208
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (a) Use a hardwood or plastic fillet smoothing spatula, STD-810 to make an aerodynamic ramp seal at the leading edge of the flange.

NOTE: Make sure you make the aerodynamic ramp seal before you make the weather fillet seal.

- 1) Start the ramp seal 0.50 in. (12.70 mm) to 0.60 in. (15.24 mm) forward of the flange.
- 2) Keep the width of the ramp seal constant.

- (b) Apply a weather fillet seal around the remaining edge of the flange.

SUBTASK 31-61-21-390-002

- (6) Apply a layer of sealant, A02315 on the surface of the captive screws [2].

SUBTASK 31-61-21-390-004

- (7) Remove the protective film from the camera window.

SUBTASK 31-61-21-860-003

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

I. Installation Test

SUBTASK 31-61-21-860-004

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-21-860-005

- (2) Close the circuit breakers L CAM, N CAM and R CAM on the front panel of the taxi camera interface unit (TCIU).

SUBTASK 31-61-21-860-006

- (3) Set the CAMERA SYSTEM switch on the P56 main wheel well electrical service panel to the ON position.

SUBTASK 31-61-21-860-071

- (4) Set the BEACON switch on the P5 overhead panel to the ON position.

SUBTASK 31-61-21-860-072

- (5) Set the CAMERA LTS switch on the P5 overhead panel to the ON position.

SUBTASK 31-61-21-860-008

- (6) Push the L INBD button on the display select panel.

SUBTASK 31-61-21-860-009

- (7) Push the CAM button on the display select panel.

SUBTASK 31-61-21-860-010

- (8) Open the N CAM circuit breaker on the front panel of the TCIU.

NOTE: Two-person operation is recommended for this test. The person in the flight deck monitors the display unit(s), checks results, and provides instructions to the TCIU operator in the E/E bay.

- (a) Make sure that the nose gear camera view is blanked.

SUBTASK 31-61-21-860-011

- (9) Close the N CAM circuit breaker on the front panel of the TCIU.

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

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Page 209
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (a) Make sure that the nose gear camera view shows in the upper section of the camera format.

————— END OF TASK —————

TASK 31-61-21-000-802

4. Main Gear Taxi Camera Removal

(Figure 202)

A. General

- (1) This procedure is applicable for both the left and right main gear taxi cameras.

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-2481	Tool - Sealant Removal, BAC5000, PSD 6-184 Approved Part #: 1-6390-A Supplier: 63318 Part #: 10810 Supplier: \$0855 Part #: 234350 Supplier: \$0857 Part #: 311 Supplier: F6892 Part #: 411B60 Supplier: 3DN12 Part #: 411B90 Supplier: 3DN12 Part #: DAD5013 Supplier: \$0856 Part #: DFD5019 Supplier: \$0856 Part #: J5-0275-2010 Supplier: 435R8 Part #: SCD5019 Supplier: \$0856 Part #: ST982LF-9 Supplier: 62176 Part #: TS1275-4 Supplier: 1DWR5

C. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
G50140	Gloves - Protective, Latex or Nitrile	

D. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
332	Left Horizontal Stabilizer Leading Edge
342	Right Horizontal Stabilizer Leading Edge

E. Removal Procedure

SUBTASK 31-61-21-860-012

- (1) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

Row	Col	Number	Name
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

SUBTASK 31-61-21-020-002

- (2) Put on protective gloves, G50140.

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 210
May 05/2018

777-200/300
AIRCRAFT MAINTENANCE MANUAL



DO NOT GET THIS MATERIAL IN YOUR MOUTH, EYES, OR ON YOUR SKIN. PUT ON EYE PROTECTION (GOGGLES, OR OTHER APPROVED PROTECTION) AND GLOVES WHEN YOU USE THIS MATERIAL. MAKE SURE THAT THERE IS SUFFICIENT AIRFLOW. KEEP THIS MATERIAL AWAY FROM SPARKS, FLAME, AND HEAT. THIS MATERIAL CAN CAUSE INJURIES TO PERSONNEL AND DAMAGE TO EQUIPMENT.

- (3) Remove the main gear taxi camera [3]:
- (a) Remove the sealant, A02315 from around the base of the camera and the heads of the captive screws [2] with a sealant removal tool, COM-2481.
 - (b) Loosen the captive screws [2] from the camera [3].



BE CAREFUL WHEN YOU USE THE SEALANT REMOVAL TOOL TO BREAK THE CAMERA BASE SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRPLANE SKIN OR THE CAMERA HOUSING.

- (c) Use force around the camera with the sealant removal tool, COM-2481 until the seal is fully broken.



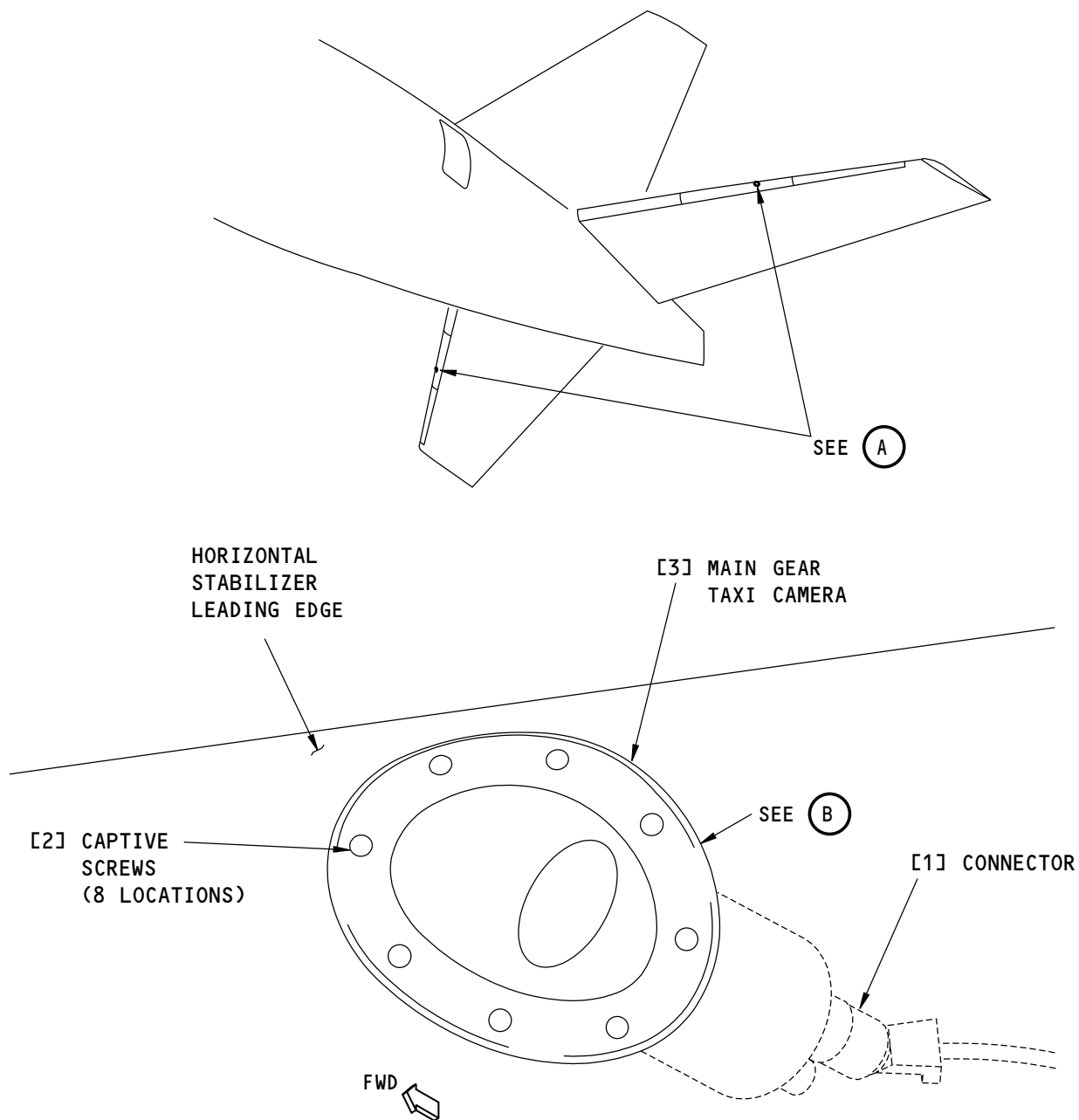
LOWER THE CAMERA ONLY AS FAR AS NECESSARY TO DISCONNECT THE CONNECTOR. DAMAGE TO THE CABLE CAN OCCUR IF YOU PULL THE CABLE.

- (d) Lower the camera until you can get access to the connector [1].
- (e) Disconnect the connector from the camera [3].
- (f) Remove the camera [3].
- (g) Remove the sealant from the airplane skin and the camera using the sealant removal tool, COM-2481.
 - 1) Wipe camera [3] clean.

———— **END OF TASK** ————



777-200/300
AIRCRAFT MAINTENANCE MANUAL



LEFT MAIN LANDING GEAR TAXI CAMERA
(RIGHT MAIN LANDING GEAR TAXI CAMERA IS OPPOSITE)

(A)

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Main Gear Taxi Camera Installation
Figure 202/31-61-21-990-802 (Sheet 1 of 2)

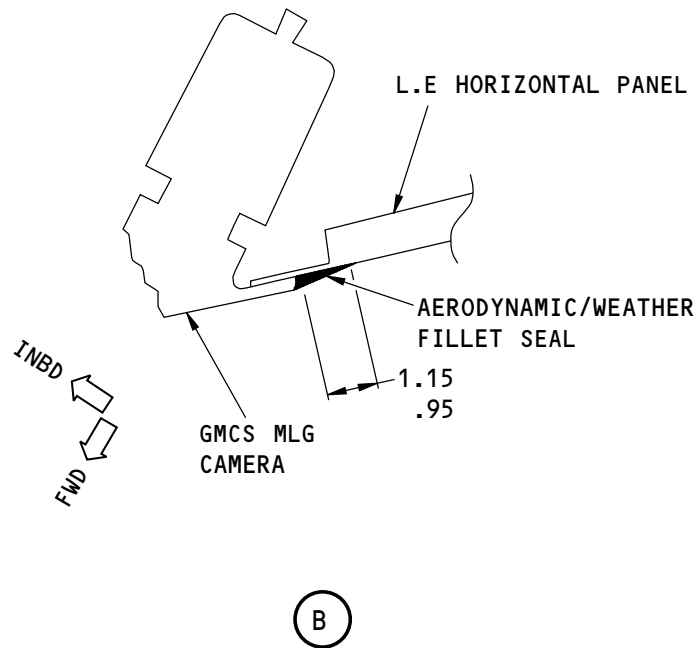
EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-21

Page 212
Jan 05/2015

777-200/300
AIRCRAFT MAINTENANCE MANUAL



G79552 S0006417584_V1

Main Gear Taxi Camera Installation
Figure 202/31-61-21-990-802 (Sheet 2 of 2)

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-21

Page 213
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-21-400-802

5. Main Gear Taxi Camera Installation

(Figure 202)

A. General

- (1) This procedure is applicable for both the left and right main gear taxi cameras.
- (2) An installation test is done after the installation of the camera. The installation test makes sure that the camera operates correctly.

B. References

Reference	Title
20-30-88-910-801	Final Cleaning of Metal Prior to Non-structural Bonding (Series 88) (P/B 201)
24-22-00-860-805	Supply Electrical Power (P/B 201)
51-21-03-100-801	Corrosion Removal and Control (P/B 701)
51-21-04-620-801	Alodine 600, 1000, 1200, and 1200S Coating Application (P/B 701)
51-31-01-390-806	Aerodynamic Smoother Application (P/B 201)
SWPM 20-20-00	Standard Wiring Practices 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-1550	Bonding Meters - 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). Part #: 620LK Supplier: 1CRL2 Part #: M1 Supplier: 3AD17 Part #: T477W Supplier: 01014 Opt Part #: M1B Supplier: 3AD17
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

D. Consumable Materials

Reference	Description	Specification
A02315	Sealant - Low Density, Synthetic Rubber. 2 Part	BMS5-142 Type II
B01000	Solvent - General Cleaning Of Metal	
B01008	Solvent - Final Cleaning Of Metal Prior To Non-Structural Bonding - Series 88	
C00175	Primer - Urethane Compatible, Corrosion Resistant (Less Than 1% Aromatic Amines)	BMS10-79 Type III
D00254	Compound - Silicone	SAE AS8660 (NATO S-736) (Supersedes MIL-S-8660)
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G50140	Gloves - Protective, Latex or Nitrile	

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 214
May 05/2018



777-200/300
AIRCRAFT MAINTENANCE MANUAL

(Continued)

Reference	Description	Specification
G50237	Compound - Corrosion Inhibiting, Non-drying - Cor-Ban 27L	BMS3-38

E. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
3	Camera	31-61-21-01-020	ARO ALL
		31-61-21-01-025	ARO ALL
		31-61-21-01-040	ARO ALL
		31-61-21-01-045	ARO ALL

F. Location Zones

Zone	Area
211	Flight Compartment, Left
212	Flight Compartment, Right
332	Left Horizontal Stabilizer Leading Edge
342	Right Horizontal Stabilizer Leading Edge

G. Prepare for the installation

NOTE: Do not remove the protective film from the camera window before the camera installation is completed.

SUBTASK 31-61-21-860-013

- (1) Make sure that this circuit breaker is open:

Left Power Management Panel, P110

Row	Col	Number	Name
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

SUBTASK 31-61-21-100-002

- (2) Clean the airplane mating surface:



WARNING

DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. SOLVENTS MAY BE FLAMMABLE OR HARMFUL TO THE ENVIRONMENT. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

- (a) Clean the airplane mating surface with a cotton wiper, G00034 moistened with Series 88 solvent, B01008 (TASK 20-30-88-910-801).
- (b) Use a cotton wiper, G00034 and clean the mating surface again.
- (c) Do these two steps until the mating surface is clean and dry.

SUBTASK 31-61-21-370-002

- (3) If the finish on the airplane mating surface has corrosion or other damage, do the steps that follow to clean and prepare the surface:
- (a) If it is necessary, do this task: Corrosion Removal and Control, TASK 51-21-03-100-801

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 215
May 05/2018

777-200/300
AIRCRAFT MAINTENANCE MANUAL

- (b) Do this task: Alodine 600, 1000, 1200, and 1200S Coating Application, TASK 51-21-04-620-801.

NOTE: This procedure has steps to clean and prepare the surface before you apply the alodine.

- 1) Make sure the alodine layer is approximately 0.12 in. (3.05 mm) larger than the camera flange.
- (c) Apply one layer of primer, C00175 to the mating surface.
- 1) Make sure the primer, C00175 layer is approximately 0.12 in. (3.05 mm) larger than the camera flange.

SUBTASK 31-61-21-620-002



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) Do these steps to do the corrosion protection for the mating surface (Figure 202):
- (a) Put on protective gloves, G50140.
 - (b) Apply a layer of Cor-Ban 27L Compound, G50237, to the surfaces that follow:
 - 1) The opening for the connector [1].
 - 2) The nutplates.
 - 3) The threads and shank of each captive screws [2].
 - (c) Apply a very thin layer of Cor-Ban 27L Compound, G50237, on the mating surface of the camera [3].

H. Installation Procedure

SUBTASK 31-61-21-420-003

- (1) Install the camera [3]:
- (a) Connect the connector [1] to the camera [3].
 - (b) Apply a coat of silicone compound, D00254 to the camera connector.
 - (c) Put the camera [3] in the correct position on the leading edge surface and install the captive screws [2].

NOTE: Leave one of the captive screw [2] out to do an electrical bond check.



TIGHTEN THE SCREWS MANUALLY TO THE CORRECT TORQUE VALUE. USE OF POWER OR AIR TOOLS TO TIGHTEN THE SCREWS CAN CAUSE DAMAGE TO THE CAMERA BASEPLATE SURFACE.

- 1) Make sure you manually tighten the screws to 15 in-lb (1.7 N·m)-20 in-lb (2.3 N·m) of torque.

SUBTASK 31-61-21-700-003

- (2) Measure the resistance between the camera flange and the leading edge skin with an intrinsically safe approved bonding meter, COM-1550 (SWPM 20-20-00).

NOTE: Use the empty space between the screw hole and the screw to get access to the camera flange.

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 216
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (a) Make sure the resistance is 0.025 ohms or less.

SUBTASK 31-61-21-700-004

- (3) Install the last captive screw [2].

SUBTASK 31-61-21-110-002

- (4) If Cor-Ban 27L Compound, G50237, is around the edge of the flange, or is on the screw heads, clean the surfaces with Series 80 solvent, B01000 until all the Cor-Ban 27L Compound, G50237, is removed.

NOTE: Sealant will not bond to the compound.

SUBTASK 31-61-21-390-006

- (5) Apply sealant, A02315 around the flange of the camera [3] to make an aerodynamic seal (TASK 51-31-01-390-806).

- (a) Use a hardwood or plastic fillet smoothing spatula, STD-810 to make an aerodynamic ramp seal at the leading edge of the flange.

NOTE: Make sure you make the aerodynamic ramp seal before you make the weather fillet seal.

- 1) Start the ramp seal 0.50 in. (12.70 mm) to 0.60 in. (15.24 mm) forward of the flange.
- 2) Keep the width of the ramp seal constant.

- (b) Apply a weather fillet seal around the remaining edge of the flange.

SUBTASK 31-61-21-390-003

- (6) Apply a layer of sealant, A02315 on the surface of the captive screws [2].

SUBTASK 31-61-21-390-005

- (7) Remove the protective film from the camera window.

SUBTASK 31-61-21-860-014

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

I. Installation Test

NOTE: Two-person operation is recommended for this test. The person in the flight deck monitors the display unit(s), checks results, and provides instructions to the TCIU operator in the E/E bay.

SUBTASK 31-61-21-860-015

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-21-860-016

- (2) Close the circuit breakers L CAM, N CAM and R CAM on the front panel of the taxi camera interface unit (TCIU).

SUBTASK 31-61-21-860-017

- (3) Set the CAMERA SYSTEM switch on the P56 main wheel well electrical service panel to the ON position.

SUBTASK 31-61-21-860-018

- (4) Set the BEACON switch on the P5 overhead panel to the ON position.

SUBTASK 31-61-21-860-073

- (5) Set the CAMERA LTS switch on the P5 overhead panel to the ON position.

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 217
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-21-860-019

- (6) Push the L INBD button on the display select panel.

SUBTASK 31-61-21-860-020

- (7) Push the CAM button on the display select panel.

SUBTASK 31-61-21-860-021

- (8) For the left main gear taxi camera, do these steps:
- (a) Open the L CAM circuit breaker on the front panel of the TCIU.
 - 1) Make sure that the left gear camera view is blanked.
 - (b) Close the L CAM circuit breaker on the front panel of the TCIU.
 - 1) Make sure that the left camera view shows in the lower left section of the camera format.

SUBTASK 31-61-21-860-022

- (9) For the right main gear taxi camera, do these steps:
- (a) Open the R CAM circuit breaker on the front panel of the TCIU.
 - 1) Make sure that the right gear camera view is blanked.
 - (b) Close the R CAM circuit breaker on the front panel of the TCIU.
 - 1) Make sure that the right camera view shows in the lower right section of the camera format.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-21

Page 218
May 05/2018



777-200/300 AIRCRAFT MAINTENANCE MANUAL

GROUND MANEUVER CAMERA SYSTEM - ADJUSTMENT/TEST

1. General

- A. This procedure has these tasks:
- (1) A system test of the ground maneuver camera system (GMCS).
 - (2) An alignment of the GMCS.
- B. The GMCS is designed to provide the pilot with the camera views of the nose gear and the main gear areas when the airplane is maneuvered on ground.

TASK 31-61-21-730-801

2. Ground Maneuver Camera System - System Test

A. General

- (1) This task has these tests:
 - (a) Display Unit Interface Test
 - (b) TCIU-Camera Interface Test
 - (c) Power Relay Test
- (2) The display unit interface test makes sure that the camera format shows on the display units.
- (3) The taxi camera interface unit (TCIU)-camera interface test makes sure that the GMCS is fully functional.
- (4) The power relay test makes sure that the operation of the CAMERA SYSTEM switch is correct.

B. References

Reference	Title
23-51-00-730-801	Flight Interphone System - System Test (P/B 501)
23-93-00-730-801	Overhead Panel ARINC 629 System - Operational Test (P/B 501)
24-22-00-860-805	Supply Electrical Power (P/B 201)
31-41-00-710-801	Airplane Information Management System (AIMS) - Operational Test (P/B 501)
31-61-00-730-801	Primary Display System - System Test (P/B 501)

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
123	Area Below Forward Cargo Compartment, Left
124	Area Below Forward Cargo Compartment, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 31-61-21-860-023

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-21-860-024

- (2) Make sure these systems are on:
 - (a) Overhead Panel ARINC 629 System (TASK 23-93-00-730-801).

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 501
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (b) Flight Interphone System (TASK 23-51-00-730-801).
- (c) Airplane Information Management System (TASK 31-41-00-710-801).
- (d) Primary Display System (TASK 31-61-00-730-801).

SUBTASK 31-61-21-860-025

- (3) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

SUBTASK 31-61-21-860-026

- (4) Set the CAMERA SYSTEM switch on the P56 main wheel well electrical service panel to the ON position.

SUBTASK 31-61-21-860-068

- (5) Set the BEACON switch on the P5 overhead panel to the ON position.

SUBTASK 31-61-21-860-069

- (6) Set the CAMERA LTS switch on the P5 overhead panel to the ON position.

E. Display Unit Interface Test

SUBTASK 31-61-21-860-028

- (1) Push the L INBD button on the display select panel.

SUBTASK 31-61-21-860-029

- (2) Push the CAM button on the display select panel.
 - (a) Make sure the camera format shows on the left inboard display unit.

NOTE: The "camera format" consists of a 3-way split format with the nose gear view in the upper section, the left main gear view in the lower left section, and the right main gear view in the lower right section.

SUBTASK 31-61-21-860-030

- (3) Push the LWR CTR button on the display select panel.

SUBTASK 31-61-21-860-031

- (4) Push the CAM button on the display select panel.
 - (a) Make sure the camera format shows on the lower center display unit.

SUBTASK 31-61-21-860-032

- (5) Push the R INBD button on the display select panel.

SUBTASK 31-61-21-860-033

- (6) Push the CAM button on the display select panel.
 - (a) Make sure the camera format shows on the right inboard display unit.

F. TCIU-Camera Interface Test

SUBTASK 31-61-21-860-034

- (1) Open the L CAM circuit breaker on the front panel of the TCIU.

NOTE: Two-person operation is recommended for this test. The person in the flight deck monitors the display unit(s), examines results, and provides instructions to the TCIU operator in the main equipment center.

- (a) Make sure that the left main gear camera view does not show.



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-21-860-035

- (2) Close the L CAM circuit breaker on the front panel of the TCIU.
 - (a) Make sure that all three camera views show.

SUBTASK 31-61-21-860-036

- (3) Open the N CAM circuit breaker on the front panel of the TCIU.
 - (a) Make sure that the nose gear camera view does not show and the other two camera views show.

SUBTASK 31-61-21-860-037

- (4) Close the N CAM circuit breaker on the front panel of the TCIU.
 - (a) Make sure that all three camera views show.

SUBTASK 31-61-21-860-038

- (5) Open the R CAM circuit breaker on the front panel of the TCIU.
 - (a) Make sure that the right main gear camera view does not show and the other two camera views show.

SUBTASK 31-61-21-860-039

- (6) Close the R CAM circuit breaker on the front panel of the TCIU.
 - (a) Make sure that all three camera views show.

G. Power Relay Test

SUBTASK 31-61-21-860-040

- (1) Open the guard for the CAMERA SYSTEM switch on the P56 main wheel well electrical service panel.

SUBTASK 31-61-21-860-041

- (2) Set the CAMERA SYSTEM switch on the P56 main wheel well electrical service panel to the OFF position.
 - (a) Make sure that the camera lights go off and the camera format does not show.

NOTE: The nose gear light is located above the P40 panel on the aft side of the nose landing gear strut. The left and right main gear lights are located on the non-removable portion of the left and right outboard flap support fairings.

SUBTASK 31-61-21-860-042

- (3) Set the CAMERA SYSTEM switch on the P56 main wheel well electrical service panel to the ON position.
 - (a) Make sure that the camera lights come on and the camera format shows.

SUBTASK 31-61-21-860-043

- (4) Close the guard for the CAMERA SYSTEM switch on the P56 main wheel well electrical service panel.

SUBTASK 31-61-21-860-044

- (5) Put the cover on the P56 main wheel well electrical service panel.

————— **END OF TASK** —————

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 503
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-21-730-802

3. Ground Maneuver Camera System - Alignment

A. General

- (1) This task has these tests:
 - (a) Camera Format Setup
 - (b) Camera Image Alignment
 - (c) Video Contrast and Picture Quality adjustment
 - (d) Horizontal Stabilizer Position Compensation
- (2) The camera format setup makes sure that the camera format shows on the display units.
- (3) The camera image alignment makes sure that cameras are aligned properly.
- (4) The video contrast and picture quality adjustment makes sure that the camera views are in focus and free from noise pattern.
- (5) The horizontal stabilizer position compensation makes sure that the relative position of the main gear tires do not change.

B. References

Reference	Title
23-51-00-730-801	Flight Interphone System - System Test (P/B 501)
23-93-00-730-801	Overhead Panel ARINC 629 System - Operational Test (P/B 501)
24-22-00-860-805	Supply Electrical Power (P/B 201)
29-11-00-860-801	Main Hydraulic System Pressurization (P/B 201)
29-11-00-860-807	Main Hydraulic System and the Reservoir Depressurization (P/B 201)
31-41-00-710-801	Airplane Information Management System (AIMS) - Operational Test (P/B 501)
31-61-00-730-801	Primary Display System - System Test (P/B 501)

C. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
123	Area Below Forward Cargo Compartment, Left
124	Area Below Forward Cargo Compartment, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

D. Prepare for the Test

SUBTASK 31-61-21-860-045

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-21-860-046

- (2) Make sure these systems are on:
 - (a) Overhead Panel ARINC 629 System (TASK 23-93-00-730-801).
 - (b) Flight Interphone System (TASK 23-51-00-730-801).
 - (c) Airplane Information Management System (TASK 31-41-00-710-801).

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 504
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

- (d) Primary Display System (TASK 31-61-00-730-801).

SUBTASK 31-61-21-860-047

- (3) Make sure that this circuit breaker is closed:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

SUBTASK 31-61-21-840-001



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 center and right hydraulic systems, do this task: Main Hydraulic System Pressurization, TASK 29-11-00-860-801.

- (a) Make sure the hydraulic pressure shows between 2900 and 3100 on the external hydraulic console.

SUBTASK 31-61-21-840-002

- (5) Set the R STAB CUTOFF switch on the P10 control stand to the NORM position.

SUBTASK 31-61-21-840-003

- (6) Set the C STAB CUTOFF switch on the P10 control stand to the NORM position.

SUBTASK 31-61-21-860-048

- (7) Set the CAMERA SYSTEM switch on the P56 main wheel well electrical service panel to the ON position.

SUBTASK 31-61-21-860-070

- (8) Set the BEACON switch on the P5 overhead panel to the ON position.

SUBTASK 31-61-21-860-049

- (9) Set the CAMERA LTS switch on the P5 overhead panel to the ON position.

- (a) Make sure the nose gear, the left main gear, and the right main gear camera lights come on.

NOTE: The nose gear light is located above the P40 panel on the aft side of the nose landing gear strut. The left and right main gear lights are located on the non-removable portion of the left and right outboard flap support fairings.

E. Camera Format Setup

SUBTASK 31-61-21-860-050

- (1) Push the L INBD button on the display select panel.

SUBTASK 31-61-21-860-051

- (2) Push the CAM button on the display select panel.

- (a) Make sure the camera format shows on the left inboard display unit.

NOTE: The "camera format" consists of a 3-way split format with the nose gear view in the upper section, the left main gear view in the lower left section, and the right main gear view in the lower right section.

SUBTASK 31-61-21-860-052

- (3) Push the LWR CTR button on the display select panel.

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 505
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-21-860-053

- (4) Push the CAM button on the display select panel.
 - (a) Make sure the camera format shows on the lower center display unit.

SUBTASK 31-61-21-860-054

- (5) Push the R INBD button on the display select panel.

SUBTASK 31-61-21-860-055

- (6) Push the CAM button on the display select panel.
 - (a) Make sure the camera format shows on the right inboard display unit.

F. Camera Image Alignment

(Figure 501)

NOTE: Two-person operation is recommended for this test. The person in the flight deck monitors the display unit(s), examine results, and provides instructions to the TCIU operator in the main equipment center.

SUBTASK 31-61-21-860-056

- (1) Make sure the nose gear steering is about neutral.

SUBTASK 31-61-21-860-057



THE STEPS BELOW WILL CAUSE THE STABILIZER SURFACE TO MOVE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT. IN AN EMERGENCY, YOU CAN MOVE THE STABILIZER CUTOUT SWITCHES TO THE CUTOUT POSITION TO STOP THE STABILIZER MOTION.

- (2) Push the PITCH TRIM switches on the captain's control wheel in either the up or down position as necessary to position the horizontal stabilizers to 8.5 as shown on the stabilizer position indicator.

SUBTASK 31-61-21-860-058

- (3) Turn the CAMERA SELECT knob on the front panel of the TCIU to the L position.

NOTE: The TCIU will be put in the image alignment mode if you turn the CAMERA SELECT knob to any position other than NORMAL. In this mode, a solid cyan colored alignment target shows on the selected camera view.

- (a) Make sure the L shows on the lower left section of the camera format.
- (b) Compare the position of the aft outboard tire to the L overlay.

NOTE: The person in the flight deck monitors the display(s) and instructs the TCIU operator the direction to move the camera image in order to position the aft outboard tire on top of the horizontal line and inboard of the vertical line. The TCIU operator will momentarily push the CAMERA ADJUST arrow buttons as instructed.

NOTE: If the CAMERA ADJUST arrow button is pushed for longer than 1/2 second, the image will continuously move until the pan limit is reached. Momentary button pushes result in single-step movement in the selected direction.

SUBTASK 31-61-21-860-059

- (4) Push the right, left, up, or down CAMERA ADJUST arrow buttons on the TCIU, as necessary, to align the tire to the overlay.
 - (a) Make sure the tire is in proper alignment with the overlay.

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 506
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-21-860-060

- (5) Turn the CAMERA SELECT knob on the TCIU to the N position.
 - (a) Make sure the upside-down T shows on the upper section of the camera format.
 - (b) Compare the position of the nose gear tire to the overlay.

SUBTASK 31-61-21-860-061

- (6) Push the right, left, up, or down CAMERA ADJUST arrow buttons on the TCIU, as necessary, to align the tire and strut to the overlay.
 - (a) Make sure the tire and strut are in proper alignment with the overlay.

SUBTASK 31-61-21-860-062

- (7) Turn the CAMERA SELECT knob on the TCIU to the R position.
 - (a) Make sure the backwards L shows on the lower right section of the camera format.
 - (b) Compare the position of the aft outboard tire to the overlay.

SUBTASK 31-61-21-860-063

- (8) Push the right, left, up, or down CAMERA ADJUST arrow buttons on the TCIU, as necessary, to align the tire to the overlay.
 - (a) Make sure the tire is in proper alignment with the overlay.

SUBTASK 31-61-21-860-064

- (9) Turn the CAMERA SELECT knob on the TCIU to the NORMAL position.
 - (a) Make sure the alignment targets do not show.

G. Video Contrast and Picture Quality Adjustment

SUBTASK 31-61-21-860-065

- (1) Turn the INBD DSPL BRIGHTNESS knob on the P14 auxiliary panel to make the picture quality better.
 - (a) Make sure the picture of each of the camera views is in focus and is free from noise patterns.

H. Horizontal Stabilizer Position Compensation

NOTE: You need to monitor the camera format while you control the movement of the horizontal stabilizer to make sure that the relative position of the main gear tires does not change.

SUBTASK 31-61-21-840-004



WARNING

THE STEPS BELOW WILL CAUSE THE STABILIZER SURFACE TO MOVE. THIS CAN CAUSE INJURIES TO PERSONS AND DAMAGE TO EQUIPMENT. IN AN EMERGENCY, YOU CAN MOVE THE STABILIZER CUTOUT SWITCHES TO THE CUTOUT POSITION TO STOP THE STABILIZER MOTION.

- (1) Push the PITCH TRIM switches on the captain's control wheel to the DOWN position (airplane nose up) to position the horizontal stabilizer to 10 as shown on the stabilizer position indicator.
 - (a) Make sure the positions of the main gears in the left and right camera views do not change.

SUBTASK 31-61-21-840-005

- (2) Push the PITCH TRIM switches on the captain's control wheel to the UP position (airplane nose down) to position the horizontal stabilizer to 3.5 as shown on the stabilizer position indicator.
 - (a) Make sure the positions of the main gears in the left and right camera views do not change.

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 507
Sep 05/2017



777-200/300 AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-21-860-066

- (3) Open these circuit breakers and install safety tags:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4

NOTE: The lower center display unit will be blank until these circuit breakers are closed.

- (a) Make sure the positions of the main gears in the left and right camera views do not change.

SUBTASK 31-61-21-860-067

- (4) Close these circuit breakers:

Overhead Circuit Breaker Panel, P11

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
B	12	C31609	AIMS L-1
B	13	C31611	AIMS L-2
B	14	C31617	AIMS L-3
B	15	C31619	AIMS L-4

- (a) Make sure the positions of the main gears in the left and right camera views do not change.

SUBTASK 31-61-21-840-006

- (5) Push the PITCH TRIM switches on the captain's control wheel to the DOWN position (airplane nose up) to position the horizontal stabilizer to 8.5 as shown on the stabilizer position indicator.

- (a) Make sure the positions of the main gears in the left and right camera views do not change.

SUBTASK 31-61-21-840-007

- (6) For the center and right hydraulic systems, do this task: Main Hydraulic System and the Reservoir Depressurization, TASK 29-11-00-860-807.

————— **END OF TASK** —————

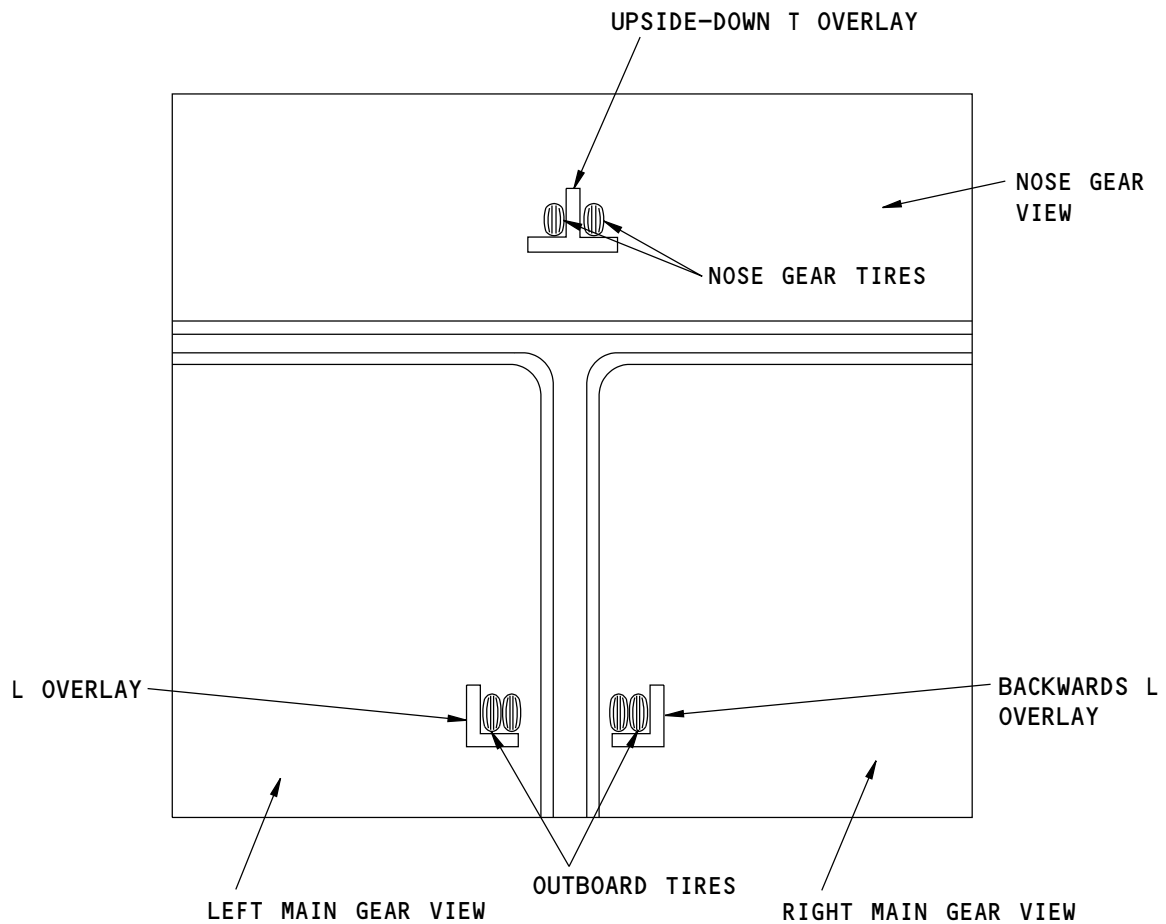
EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 508
Jan 05/2015

777-200/300
AIRCRAFT MAINTENANCE MANUAL



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Camera Format Display
Figure 501/31-61-21-990-803

EFFECTIVITY
ARO ALL

31-61-21

D633W101-ARO

Page 509
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

TAXI CAMERA INTERFACE UNIT - REMOVAL/INSTALLATION

1. General

- A. This procedure has these tasks:
- (1) A removal of a taxi camera interface unit.
 - (2) An installation of a taxi camera interface unit.
- B. The taxi camera interface unit is on the E1 electronic equipment rack, shelf No. 5, in the main equipment center.

TASK 31-61-22-000-801

2. Taxi Camera Interface Unit Removal

(Figure 401)

A. **References**

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Fuselage (P/B 201)
20-10-01-000-801	E/E Box Removal (P/B 401)

B. **Location Zones**

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

C. **Access Panels**

Number	Name/Location
117AL	Main Equipment Center Access Door

D. **Removal Procedure**

SUBTASK 31-61-22-010-001

- (1) To get access to the main equipment center (TASK 06-41-00-800-801),
Open this access panel:

<u>Number</u>	<u>Name/Location</u>
117AL	Main Equipment Center Access Door

SUBTASK 31-61-22-860-001

- (2) Open this circuit breaker and install safety tag:

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-22

Page 401
Jan 05/2015



777-200/300
AIRCRAFT MAINTENANCE MANUAL

SUBTASK 31-61-22-020-001



CAUTION

DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE TAXI CAMERA INTERFACE UNIT. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE TAXI CAMERA INTERFACE UNIT.

- (3) To remove a taxi camera interface unit [1], do this task: E/E Box Removal, TASK 20-10-01-000-801.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

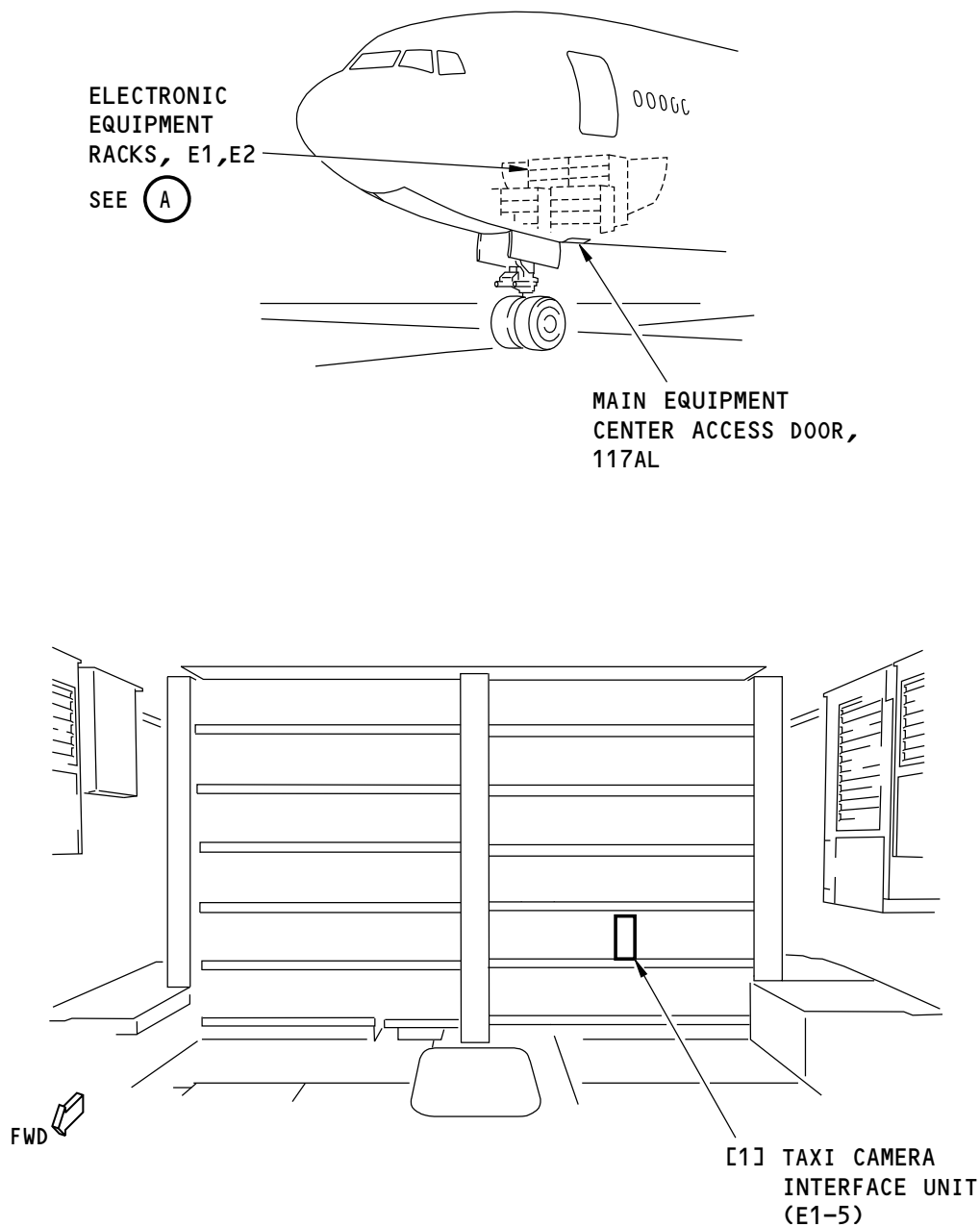
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31-61-22

Page 402
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL



ELECTRONIC EQUIPMENT RACKS, E1, E2

(A)

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Taxi Camera Interface Unit Installation
Figure 401/31-61-22-990-801

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-22

Page 403
Jan 05/2015



777-200/300 AIRCRAFT MAINTENANCE MANUAL

TASK 31-61-22-400-801

3. Taxi Camera Interface Unit Installation

(Figure 401)

A. General

- (1) The installation test makes sure the taxi camera interface unit operates correctly.

B. References

Reference	Title
06-41-00-800-801	Finding an Access Door or Panel on the Fuselage (P/B 201)
20-10-01-400-801	E/E Box Installation (P/B 401)
24-22-00-860-805	Supply Electrical Power (P/B 201)

C. Expendables/Parts

AMM Item	Description	AIPC Reference	AIPC Effectivity
1	Unit	31-61-22-01-005	ARO ALL

D. Location Zones

Zone	Area
117	Main Equipment Center, Left
118	Main Equipment Center, Right
211	Flight Compartment, Left
212	Flight Compartment, Right

E. Access Panels

Number	Name/Location
117AL	Main Equipment Center Access Door

F. Installation Procedure

SUBTASK 31-61-22-860-002

- (1) Make sure that this circuit breaker is open:

Left Power Management Panel, P110

Row	Col	Number	Name
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

SUBTASK 31-61-22-420-001

 CAUTION	DO NOT TOUCH THE CONNECTOR PINS OR OTHER CONDUCTORS ON THE TAXI CAMERA INTERFACE UNIT. IF YOU TOUCH THESE CONDUCTORS, ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THE TAXI CAMERA INTERFACE UNIT.

- (2) To install the taxi camera interface unit [1], do this task: E/E Box Installation, TASK 20-10-01-400-801.

SUBTASK 31-61-22-010-002

- (3) Close this access panel:
(TASK 06-41-00-800-801)

Number	Name/Location
117AL	Main Equipment Center Access Door

EFFECTIVITY
ARO ALL

31-61-22

D633W101-ARO

Page 404
Sep 05/2017



777-200/300
AIRCRAFT MAINTENANCE MANUAL

G. Installation Test

SUBTASK 31-61-22-860-003

- (1) Do this task: Supply Electrical Power, TASK 24-22-00-860-805.

SUBTASK 31-61-22-860-004

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

Left Power Management Panel, P110

<u>Row</u>	<u>Col</u>	<u>Number</u>	<u>Name</u>
K	16	C31601	TAXI CAMERAL I/F UNIT/SYS CTRL

SUBTASK 31-61-22-860-005

- (3) Close the circuit breakers L CAM, N CAM and R CAM on the front panel of the taxi camera interface unit.

SUBTASK 31-61-22-860-006

- (4) Set the CAMERA SYSTEM switch on the P56 main wheel well electrical service panel to the ON position.

SUBTASK 31-61-22-860-014

- (5) Set the BEACON switch on the P5 overhead panel to the ON position.

SUBTASK 31-61-22-860-015

- (6) Set the CAMERA LTS switch on the P5 overhead panel to the ON position.

SUBTASK 31-61-22-860-008

- (7) Push the L INBD button on the display select panel.

SUBTASK 31-61-22-860-009

- (8) Push the CAM button on the display select panel.

SUBTASK 31-61-22-860-010

- (9) Open the L CAM circuit breaker on the front panel of the TCIU.

NOTE: Two-person operation is recommended for this test. The person in the flight deck monitors the display unit(s), checks results, and provides instructions to the TCIU operator in the E/E bay.

- (a) Make sure that the left main gear camera view is blanked.

SUBTASK 31-61-22-860-012

- (10) Close the L CAM circuit breaker on the front panel of the TCIU.

- (a) Make sure that the left main gear camera view is displayed.

———— **END OF TASK** ————

EFFECTIVITY
ARO ALL

D633W101-ARO

31-61-22

Page 405
Jan 05/2015