

CHAPTER

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Information Systems

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41	Sep 05/2016		63	Sep 05/2016	
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48	Sep 05/2016		70	Sep 05/2016	
49	Sep 05/2016		71	Sep 05/2016	
50	Sep 05/2016		72	Sep 05/2016	
51	Sep 05/2016		73	Sep 05/2016	
52	Jul 25/2018		74	Sep 05/2016	
53	Sep 05/2016		75	Sep 05/2016	
54	Sep 05/2016		76	Sep 05/2016	
55	Sep 05/2016		77	Jul 25/2018	
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85	Sep 05/2016		16	Sep 05/2016	
86	Sep 05/2016		17	May 05/2016	
87	Sep 05/2016		18	May 05/2016	
88	Sep 05/2016		19	May 05/2016	
89	Sep 05/2016		20	May 05/2016	
90	Sep 05/2016		21	May 05/2017	
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2	Sep 05/2016		26	Jul 25/2018	
3	May 05/2016		27	Jul 25/2018	
4	May 05/2016		28	Jul 25/2018	
5	Sep 05/2016		29	Jul 25/2018	
6	May 05/2017		30	Jul 25/2018	
7	May 05/2016		31	Jul 25/2018	
8	May 05/2016		32	Jul 25/2018	
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37	Jul 25/2018		60	Jul 25/2018	
38	Jul 25/2018		61	Jul 25/2018	
39	Jul 25/2018		62	Jul 25/2018	
40	Jul 25/2018		63	Jul 25/2018	
41	Jul 25/2018		64	Jul 25/2018	
42	Jul 25/2018		65	Jul 25/2018	
43	Jul 25/2018		66	Jul 25/2018	
44	Jul 25/2018		67	Jul 25/2018	
45	Jul 25/2018		68	Jul 25/2018	
46	Jul 25/2018		69	Jul 25/2018	
47	Jul 25/2018		70	Jul 25/2018	
48	Jul 25/2018		71	Jul 25/2018	
49	Jul 25/2018		72	Jul 25/2018	
50	Jul 25/2018		73	Jul 25/2018	
51	Jul 25/2018		74	Jul 25/2018	
52	Jul 25/2018		75	Jul 25/2018	
53	Jul 25/2018		76	Jul 25/2018	
54	Jul 25/2018		77	Jul 25/2018	
55	Jul 25/2018		78	Jul 25/2018	
56	Jul 25/2018		79	Jul 25/2018	
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83	Jul 25/2018		98.7	Jul 25/2018	
84	Jul 25/2018		98.8	Jul 25/2018	
85	Jul 25/2018		98.9	Jul 25/2018	
86	Jul 25/2018		98.10	Jul 25/2018	
87	Jul 25/2018		98.11	Jul 25/2018	
88	Jul 25/2018		98.12	Jul 25/2018	
89	Jul 25/2018		98.13	Jul 25/2018	
90	Jul 25/2018		98.14	Jul 25/2018	
91	Jul 25/2018		98.15	Jul 25/2018	
92	Jul 25/2018		98.16	Jul 25/2018	
93	Jul 25/2018		98.17	Jul 25/2018	
94	Jul 25/2018		98.18	Jul 25/2018	
95	Jul 25/2018		98.19	Jul 25/2018	
96	Jul 25/2018		98.20	Jul 25/2018	
97	Jul 25/2018		98.21	Jul 25/2018	
98	Jul 25/2018		98.22	Jul 25/2018	
98.1	Jul 25/2018		98.23	Jul 25/2018	
98.2	Jul 25/2018		98.24	Jul 25/2018	
98.3	Jul 25/2018		98.25	Jul 25/2018	
98.4	Jul 25/2018		98.26	Jul 25/2018	
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98.30	Jul 25/2018		98.53	Jul 25/2018	
98.31	Jul 25/2018		98.54	Jul 25/2018	
98.32	Jul 25/2018		98.55	Jul 25/2018	
98.33	Jul 25/2018		98.56	Jul 25/2018	
98.34	Jul 25/2018		98.57	Jul 25/2018	
98.35	Jul 25/2018		98.58	Jul 25/2018	
98.36	Jul 25/2018		98.59	Jul 25/2018	
98.37	Jul 25/2018		98.60	Jul 25/2018	
98.38	Jul 25/2018		98.61	Jul 25/2018	
98.39	Jul 25/2018		98.62	Jul 25/2018	
98.40	Jul 25/2018		98.63	Jul 25/2018	
98.41	Jul 25/2018		98.64	Jul 25/2018	
98.42	Jul 25/2018		98.65	Jul 25/2018	
98.43	Jul 25/2018		98.66	Jul 25/2018	
98.44	Jul 25/2018		98.67	Jul 25/2018	
98.45	Jul 25/2018		98.68	Jul 25/2018	
98.46	Jul 25/2018		98.69	Jul 25/2018	
98.47	Jul 25/2018		98.70	Jul 25/2018	
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98.49	Jul 25/2018		98.72	Jul 25/2018	
98.50	Jul 25/2018		98.73	Jul 25/2018	

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98.76	Jul 25/2018		98.99	Jul 25/2018	
98.77	Jul 25/2018		98.100	Jul 25/2018	
98.78	Jul 25/2018		98.101	Jul 25/2018	
98.79	Jul 25/2018		98.102	Jul 25/2018	
98.80	Jul 25/2018		98.103	Jul 25/2018	
98.81	Jul 25/2018		98.104	Jul 25/2018	
98.82	Jul 25/2018		98.105	Jul 25/2018	
98.83	Jul 25/2018		98.106	Jul 25/2018	
98.84	Jul 25/2018		98.107	Jul 25/2018	
98.85	Jul 25/2018		98.108	Jul 25/2018	
98.86	Jul 25/2018		98.109	Jul 25/2018	
98.87	Jul 25/2018		98.110	Jul 25/2018	
98.88	Jul 25/2018		98.111	Jul 25/2018	
98.89	Jul 25/2018		98.112	Jul 25/2018	
98.90	Jul 25/2018		98.113	Jul 25/2018	
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98.92	Jul 25/2018		98.115	Jul 25/2018	
98.93	Jul 25/2018		98.116	Jul 25/2018	
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98.121	Jul 25/2018		98.143	Jul 25/2018	
98.122	Jul 25/2018		98.144	Jul 25/2018	
98.123	Jul 25/2018		98.145	Jul 25/2018	
98.124	Jul 25/2018		98.146	Jul 25/2018	
98.125	Jul 25/2018		98.147	Jul 25/2018	
98.126	Jul 25/2018		98.148	Jul 25/2018	
98.127	Jul 25/2018		98.149	Jul 25/2018	
98.128	Jul 25/2018		98.150	Jul 25/2018	
98.129	Jul 25/2018		98.151	Jul 25/2018	
98.130	Jul 25/2018		98.152	Jul 25/2018	
98.131	Jul 25/2018		98.153	Jul 25/2018	
98.132	Jul 25/2018		98.154	Jul 25/2018	
98.133	Jul 25/2018		98.155	Jul 25/2018	
98.134	Jul 25/2018		98.156	Jul 25/2018	
98.135	Jul 25/2018		98.157	Jul 25/2018	
98.136	Jul 25/2018		98.158	Jul 25/2018	
98.137	Jul 25/2018		98.159	Jul 25/2018	
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**ELECTRONIC FLIGHT BAG - INTRODUCTION****General**

The Electronic Flight Bag (EFB) lets the flight crew access to the electronic flight operation data, general purpose computing and communications.

Abbreviations and Acronyms

- AC - advisory circular (FAA)
- ACARS - aircraft communication addressing and reporting system
- ADC - application dispatch controller
- AIMS - airplane information management system
- API - application program interface
- APU - auxiliary power unit
- ARINC - aeronautical radio, incorporated
- BCA - Boeing commercial airplanes
- BEGGS - Boeing e-plane ground support system
- BIT - Built-in test
- BITE - built-in test equipment
- CAM - CAT application module (e-Plane)
- CAT - common administrative tool (e-Plane)
- CCA - circuit card assembly
- CCD - cursor control device
- CDROM - compact disk read only memory
- CIU - camera interface unit
- CMS - cabin management system
- CNAS - cabin network application system
- CPU - central processing unit
- CRC - cyclic redundancy check
- CSS - cabin surveillance system
- DDM - distributed data management
- DFDAU - digital flight data acquisition unit
- DFIM - DDM flight-bag interface module (application)
- DHCP - dynamic host configuration protocol
- DNS - domain name server
- DSPL - display
- DU - display unit
- ECMF - eplane communications management function
- EFB - electronic flight bag
- EFIS - electronic flight instrument system
- EICAS - engine indicating and crew alert system
- EPT - electronic-enabled portable terminal
- EU - electronic unit
- FAA - federal aviation administration
- FAR - federal aviation regulation
- FDEVSS - flight deck entry video surveillance system
- FIND - find identification of network devices
- FTP - file transfer protocol (application)
- FTS - file transfer service (application)
- GPS - global positioning system
- ICAO - international civil aviation organization
- IO - input output
- HST - high speed transceiver
- JAA - joint airworthiness authorities
- LAN - local area network
- LRU - line replaceable unit
- LSAP - loadable software airplane parts
- LSK - line select key
- MMR - multi-mode receiver
- NIC - network interface card
- NOTAM - notice to airmen (FAA)
- NTP - network time protocol
- OAS - operationally approved software (FAA)

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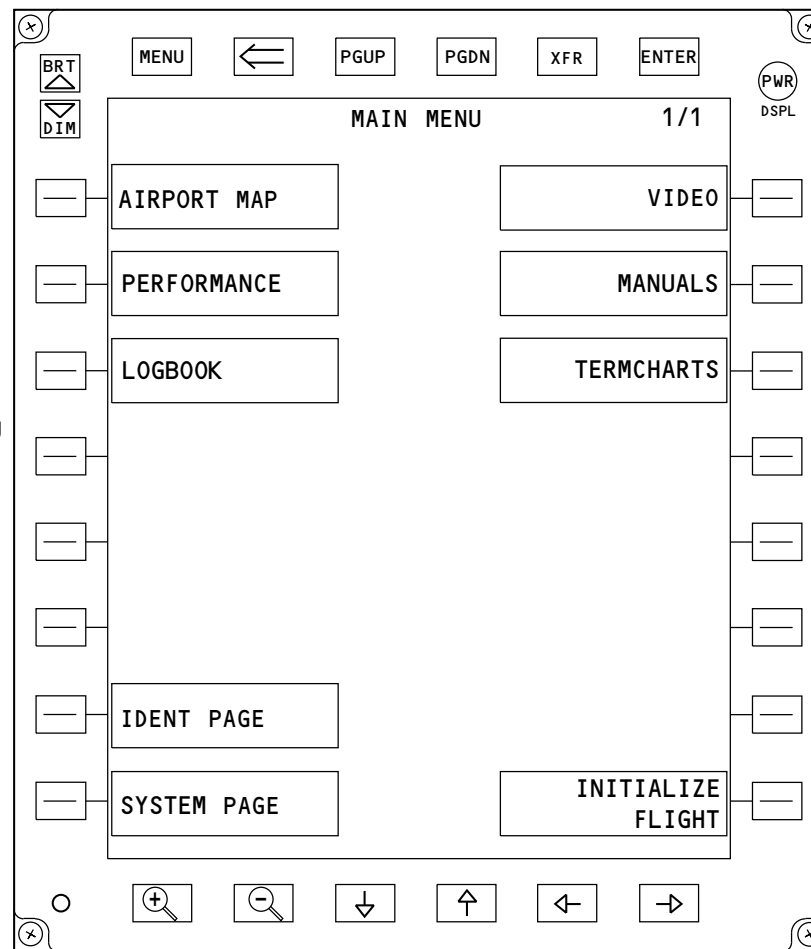
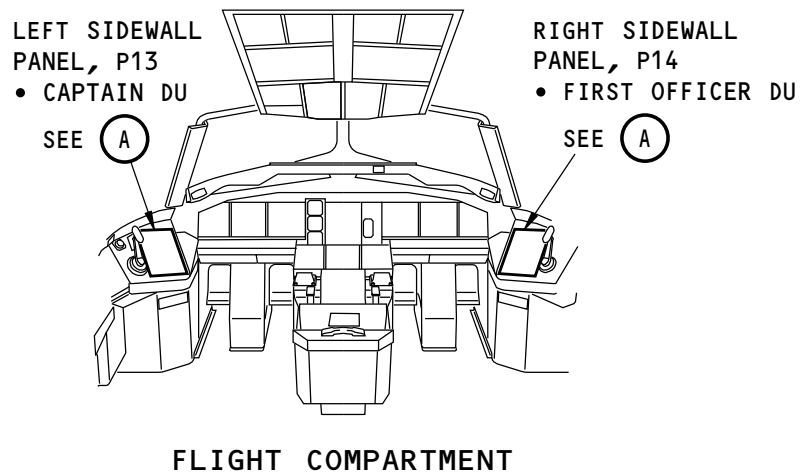
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ELECTRONIC FLIGHT BAG - INTRODUCTION

- OS - operating system
- PDL - portable data loader
- PMAT - portable maintenance access terminal
- PPPoE - point to point protocol over Ethernet
- PWR - power
- SATCOM - satellite communication
- SMF - security management function
- TPA - taxi position awareness
- TSO - technical service order
- VDC - volts direct current
- VPN - virtual private network
- WPM - windows print manager
- XFR - transfer



NOTE: THE DATA SHOWN ON
THE DISPLAY IS ONLY
AN EXAMPLE.

DISPLAY UNIT (DU)

(A)

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ELECTRONIC FLIGHT BAG - INTRODUCTION

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**EFB - GENERAL DESCRIPTION****General**

The electronic flight bag (EFB) has two display units (DU) and two supporting electronics units (EU). The captain's EFB system is independent from the first officer's EFB system. Each EFB system consists of a DU and an EU.

Description

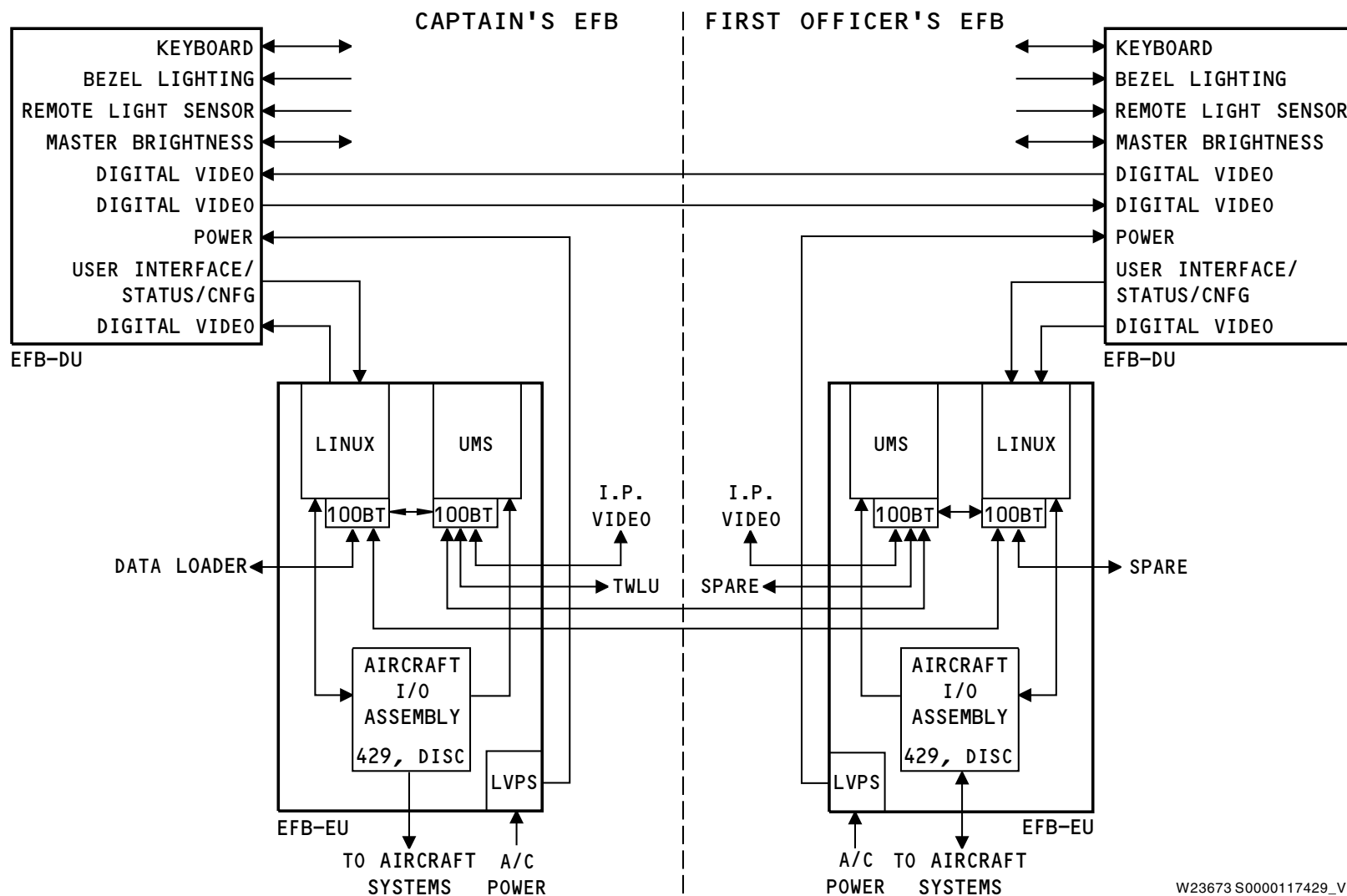
The EFB provides the flight crew with a paperless flight deck environment and enhance the quality of information available to the crew.

The flight crew interacts with the EFB via the display unit (DU) either by pushing the buttons on the DU bezel, or by using a touch-screen that is a feature of certain applications (example: electronic logbook).

In addition, the flight crew can also make use of the cursor control device (CCD) and the portable keyboard (optional).

The electronic Unit (EU) has these functions:

- Process aircraft interface signals
- Program memory (hard-disk drive)
- Ethernet communications network
- Video input processing
- Convert the digital video output signal to the DU
- Supply 28V DC power to the onside DU



EFB - GENERAL DESCRIPTION

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EFB - FLIGHT DECK COMPONENT LOCATIONS

General

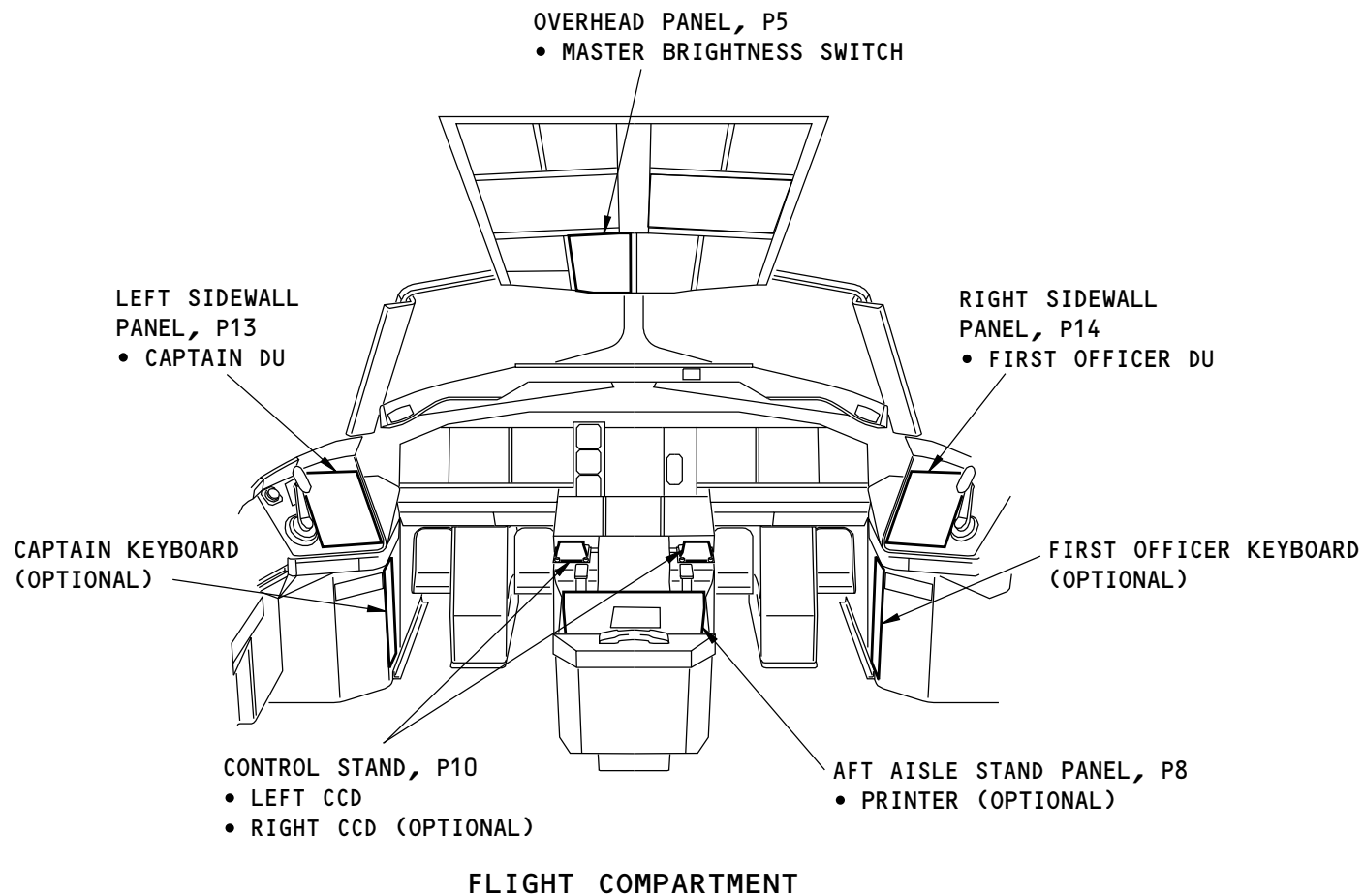
These are the basic components in the flight deck that interface with the EFB:

- Display units, one for each pilot
- Master brightness control

These are the optional components in the flight deck that interface with the EFB:

- Printer
- Cursor control device (CCD)
- Keyboard

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EFB - FLIGHT DECK COMPONENT LOCATIONS

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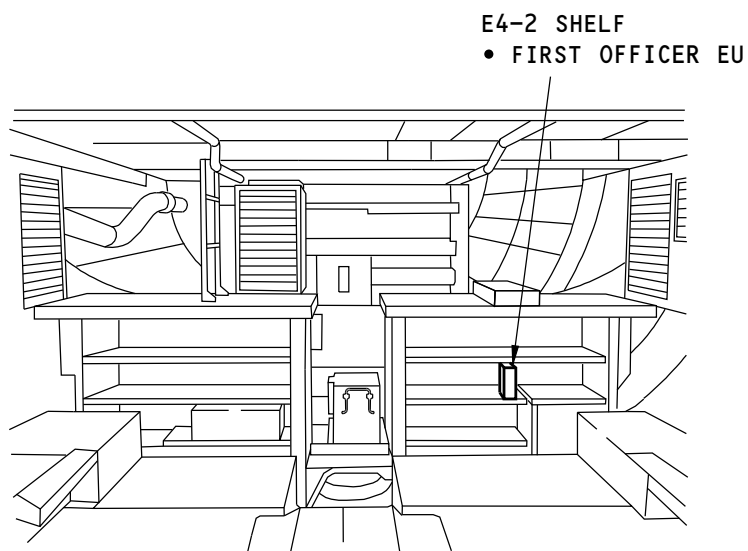
EFB - MAIN EQUIPMENT CENTER COMPONENT LOCATIONS

General

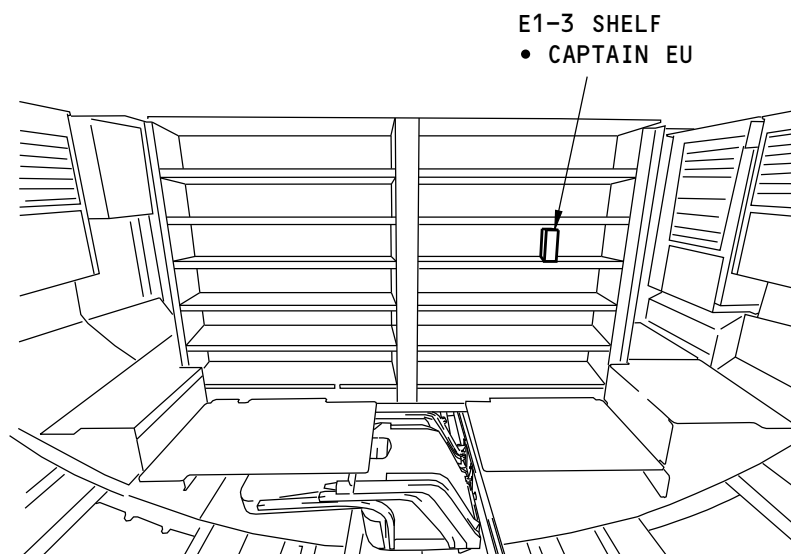
These are the components in the main equipment center that interface with the EFB:

- Electronic units (EU)

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**MAIN EQUIPMENT CENTER
(VIEW IN THE FORWARD DIRECTION)**



**MAIN EQUIPMENT CENTER
(VIEW IN THE AFT DIRECTION)**

EFB - MAIN EQUIPMENT CENTER COMPONENT LOCATIONS

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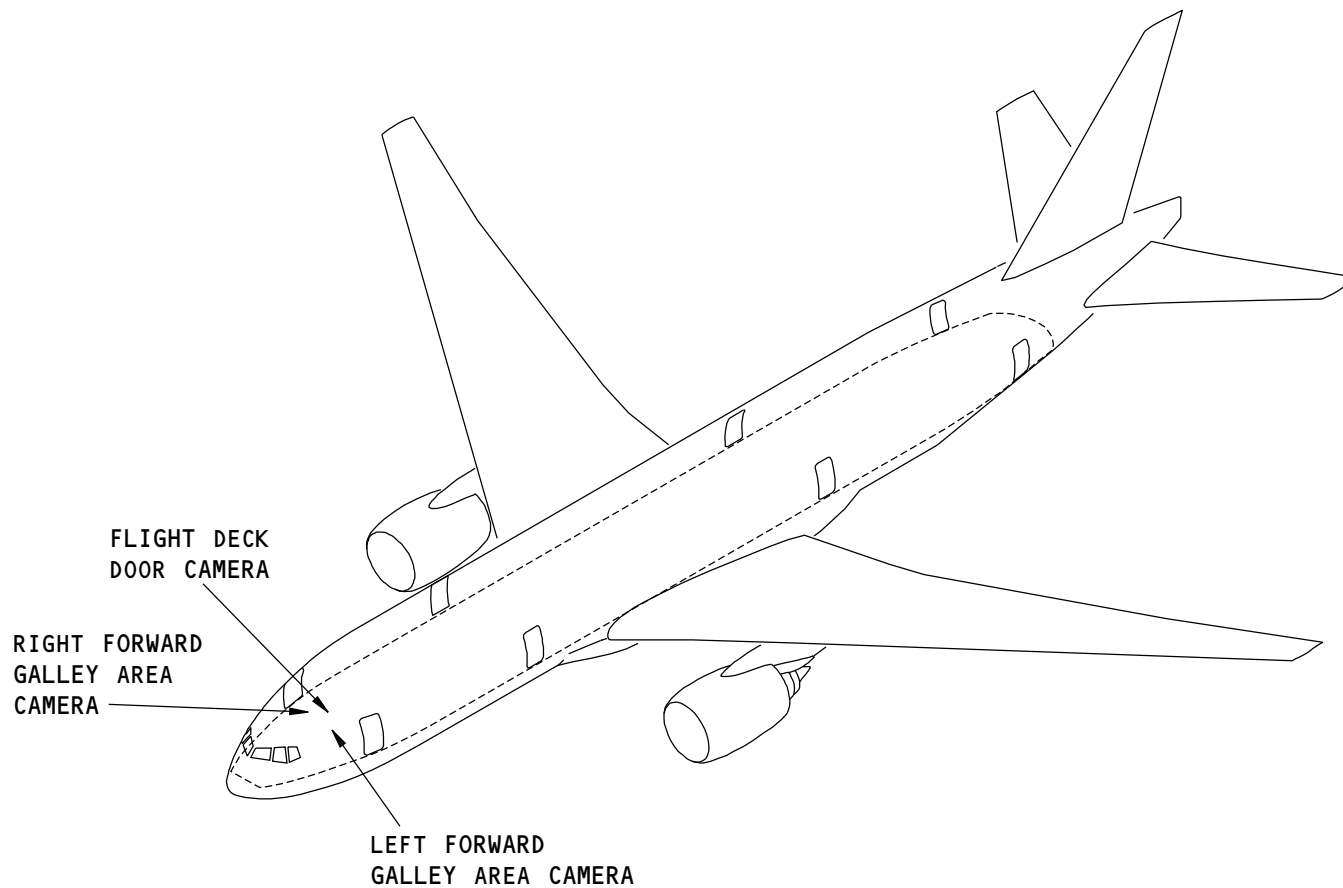
**EFB - CABIN AND COCKPIT DOORWAY COMPONENT LOCATIONS****General**

These are the optional components in the cabin and the cockpit doorway that interface with the EFB.

The flight deck entry video surveillance system (FDEVSS) has an interface with the EFB. The FDEVSS has four components. There are three infrared cameras installed in the cabin ceiling:

- One flight deck entry door area camera
- Two forward galley area cameras

The fourth component is the camera interface unit (CIU). The CIU is installed in the lower ceiling panel of the forward galley area.



EFB - CABIN AND COCKPIT DOORWAY COMPONENT LOCATIONS

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EFB - DISPLAY UNIT

General

The Display Unit (DU) operates as a computer monitor and input device. The flat-panel is an active matrix liquid crystal display (AMLCD) that shows graphics and video data in color. The panel is also touch-sensitive. It measures where you press on the screen, and changes that to digital data for the Electronics Unit (EU).

Around the flat panel is a bezel frame with 30 push-buttons, or keys. The keys across the top and bottom are permanent in function (for example; power). The line selection keys (LSK) on the left and right sides operate in relation to the data shown on the touchscreen. You use the keys and touchscreen to operate the Electronic Flight Bag (EFB).

The DUs are rack mounted, and line-replaceable. There is no physical difference between the captain's and first officer's DUs. They are interchangeable.

Physical Description

The DU has these physical characteristics:

- Height - 10.30 in. (26.2 cm)
- Width - 8.00 in. (20 cm)
- Depth - 3.47 in. (8.81 cm)
- Viewing area - 6.21 in. (15.77 cm) x 8.28 in. (21.03 cm)
- Resolution - 768 x 1024 pixels (XGA)
- Weight, maximum - 10.0 lb (4.5 kg)

The DU has four (4) captive screws that attach the component to a rack.

On the rear, the DU has one dual-insert connector. One insert contains four (4) fiber-optic connections. The second insert contains wired connectors that transmit power and data.

DU Operation

The DU operates on 28V dc (volts direct current) power received from the EU. When the EU is energized, the DU is also energized.

The PWR (Power) key controls power only to the LCD backlight assembly. The backlight assembly has four (4) edge-mounted cold-cathode lamps. When energized, the backlight assembly operates continuously while the active matrix screen filters the light.

Power for illumination of the bezel keys is variable 0–5V ac (volts alternating current), from the captain's and first officer's panel lighting.

The DU receives and shows graphics data from the EU. It can also display the image shown on the opposite-side DU.

The DU is cooled by natural convection and radiation.

The DU can accept input from a PS/2 keyboard when supplied.

Data shown on the DU can be sent to the cockpit printer, when available.

The DU also has some memory functions that are separate from the EU.

DU Brightness

When the backlight is energized (PWR), you can adjust display brightness with the BRT/DIM bezel keys.

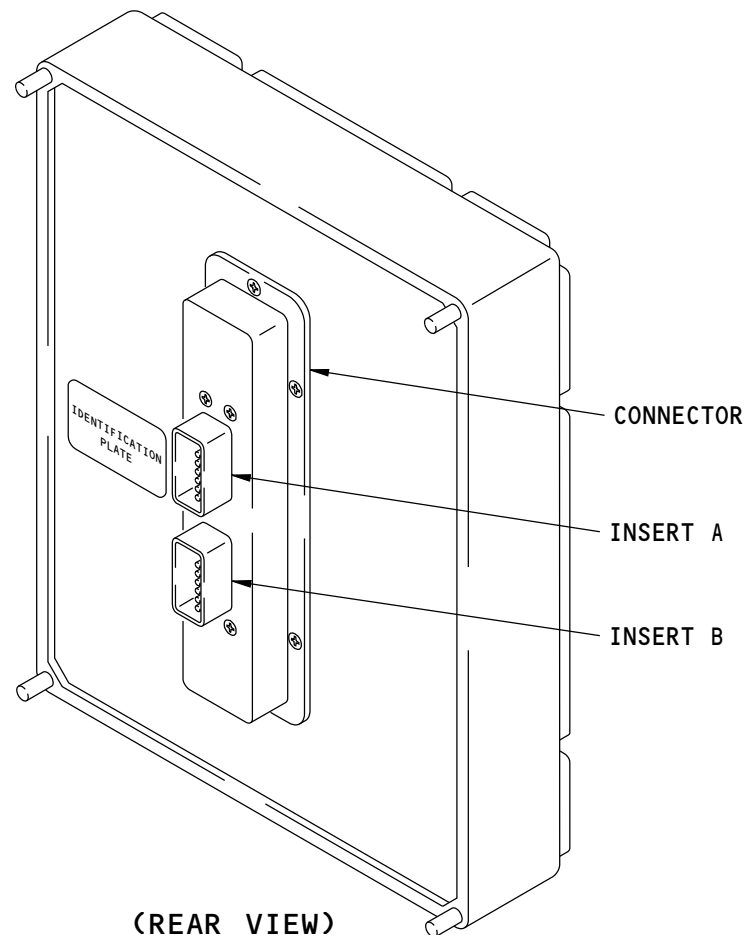
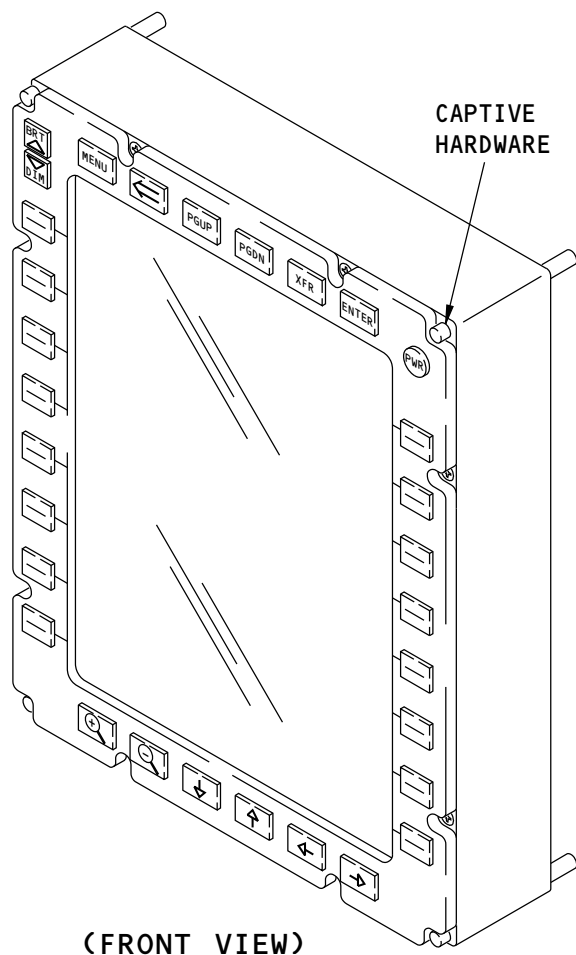
Additional brightness is controlled directly by the DU. It has internal sensors that monitor and adjust the brightness of the backlight assembly according to unit temperature, age, and other factors.

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EFB - DISPLAY UNIT

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EFB - DU FUNCTIONAL DESCRIPTION**General**

The display unit (DU) is a flat panel active matrix liquid crystal display (AMLCD). The AMLCD makes a high resolution color image of the display data.

DU Interface Control

The DU interface control performs the following functions:

- Processes the video data from the microcontroller and the incoming video from EU
- Processes user interface data from the bezel buttons, external keyboard and touch screen data.
- Selects video data from EU or cross cockpit DU
- Sends displayed video out to the cross cockpit DU
- Creates interface signals to the AMLCD
- Communicates with the microcontroller for brightness control, power and BITE status information
- Runs its internal BITE
- Creates test pattern for the display during initiated BITE
- Performs optical loop-back data when commanded by EU during BITE

DU Microcontroller

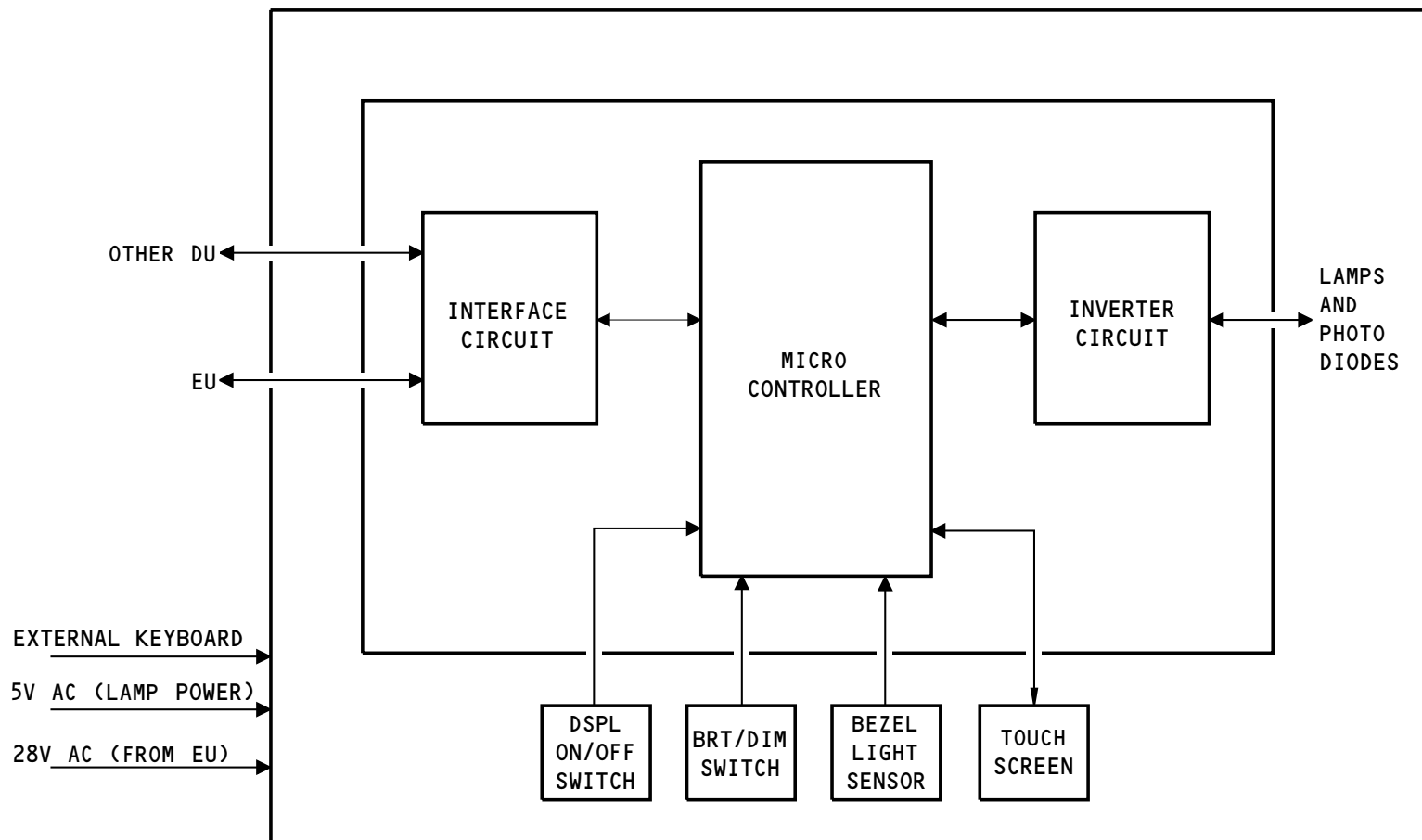
The main functions of the microcontroller are:

- Interfaces with the DU interface/inverter control
- Automatic and master brightness control
- Remembers last commanded brightness setting
- Processes temperature sensor data to switch heaters/fan on and off
- Monitors the on/off switch for controlling the DU backlight

DU Inverter Control

The DU inverter control is used to drive the backlight, it performs the following functions:

- Generates closed-loop controlled burst of pulses to drive the DU backlight
- Turn on/off the DU backlight (commanded by the microcontroller)



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EFB - DU - FUNCTIONAL DESCRIPTION

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**EFB - ELECTRONIC UNIT****General**

The Electronics Unit (EU) operates as the central processing unit for the Electronic Flight Bag (EFB). The airplane has two EUs (left and right) that operate independently, but are connected together by Ethernet. Each EU contains the hardware, operating systems, and software necessary to calculate and show data on the applicable Display Unit (DU).

The EUs are rack mounted, and line-replaceable. There is no hardware difference between the left and right EU. They are interchangeable – when the software also agrees. The rack location of each EU determines the right or left designation. The EU-L tray always connects to the captain's DU. The EU-R tray always connects to the first officer's DU.

EU-L receives power from the 115V ac (volts alternating current) left bus. EU-R receives power from the 115V ac right bus (section 2). Power is controlled by two circuit breakers on the overhead circuit breaker panel, P-11.

The EUs are cooled by forced air.

Physical Description

The EU is an 2-MCU enclosure with these characteristics:

- Width - 2.27 in. (5.77 cm)
- Height - 7.83 in. (19.89 cm)
- Depth - 15.26 in. (38.80 cm)
- Weight - 12 lb (5 kg), maximum

Connector

On the rear surface, each EU has one ARINC 600 rack-compatible connector with three (3) inserts. The connections include:

- Input power
- Power output for one DU
- Discrete inputs and outputs
- ARINC 429 input and output channels

- Ethernet interfaces
- RS-422 interface to the DU for optional keyboard inputs
- Fiber optic interfaces.

Operation

When the EUs are energized at the circuit breakers, they automatically start a power-up sequence. The EUs automatically energize the DUs at the same time. When the sequence is complete, the DUs show the MAIN MENU page.

NOTE: The start-up sequence can take approximately eight (8) minutes to complete.

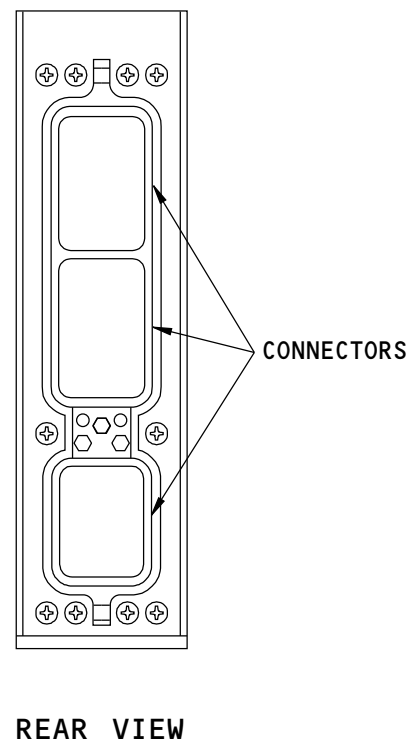
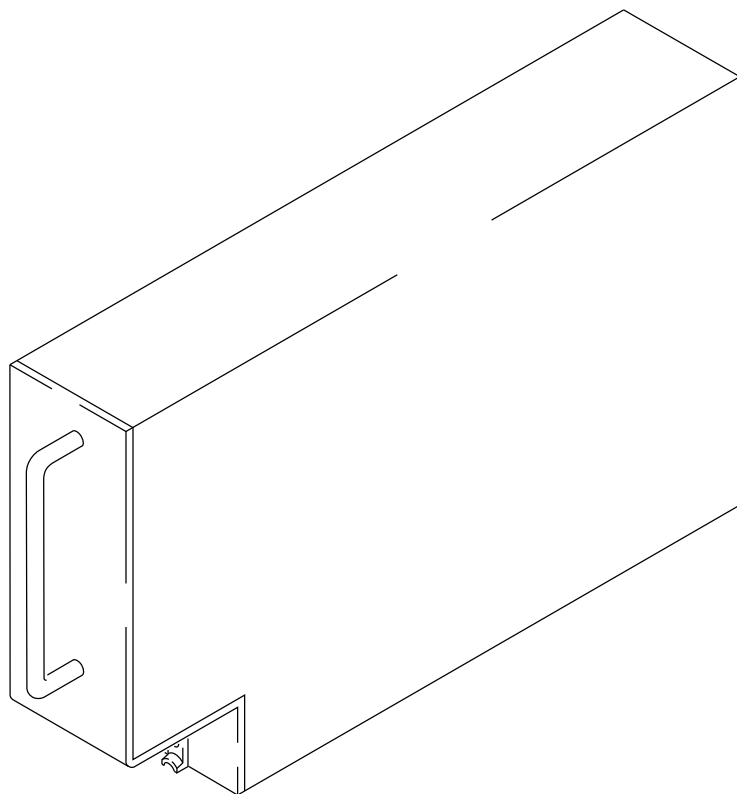
Each EU has two operating systems, Linux and Windows, with each OS on an isolated hard-disk drive. Linux and Windows operate at the same time, and are necessary to operate specific software applications. To the user, operation of the systems is transparent.

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EFB - ELECTRONIC UNIT

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**EFB - EU FUNCTIONAL DESCRIPTION****General**

The EU processes the data based upon configuration, operator selections, input data and generate display graphics.

The EU has three circuit card assemblies (CCAs). These are the cards in the EU:

- CPU CCA
- Modular I/O CCA
- Power supply CCA

CPU CCA

The CPU CCA has two CPU cores within each EU to support the partitioned system. Each core has a microprocessor and a hard drive.

One core hosts a Linux operating system (OS) and the third party avionics applications. The software functions installed in this core are not intended to be modifiable or changed by the user.

The other core hosts a Windows based operating system. The software functions installed in this core contains the user modifiable software.

The CPU CCA performs the following functions:

- Interfaces with external input/output channels: ARINC 429, GND/OPEN, 28V/OPEN, Ethernet 10/100BASE-T, 1000Base-SX Fiberoptic channel.
- Sends data to the graphics generator
- Built-in test (BIT)

Modular I/O CCA

The modular I/O CCA is a microcontroller that provides the ARINC 429, RS-422, discrete, high speed serial interfaces, and interface adaptations for internal signals.

Power Supply CCA

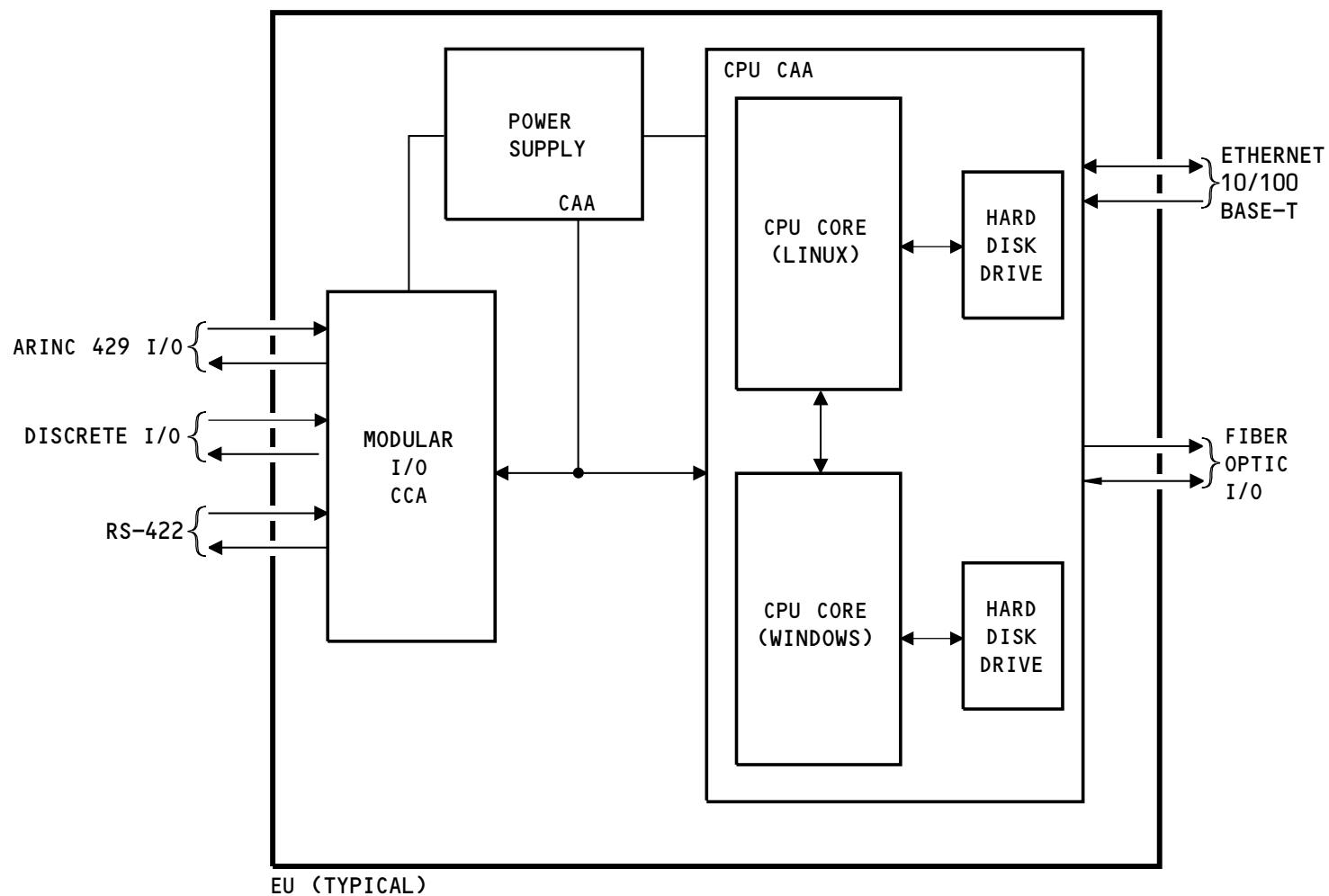
The power supply CCA receives 115 VAC, 400HZ power from the aircraft (120 VAC, 60HZ for ground support) and distributes power as required to the DU and EU internal assemblies.

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EFB - EU - FUNCTIONAL DESCRIPTION

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EFB - EU SYSTEM INTERFACES

General

There are two types of Electronics Unit (EU) interfaces: connections to other components in the Electronic Flight Bag (EFB) system, and connections to non-EFB systems or components that interchange data, or supply power.

Included in the EFB system, each EU connects to the opposite-side EU using two isolated Ethernet links (one for Windows, the other for Linux), one fiber optic Ethernet link to the same-side Display Unit (DU), and for EU-L there is one remote-access data port.

Each EU also monitors global position, inertial reference, and other flight data from ARINC 429 compatible devices.

The EUs can also send data to the flight deck printer.

1000Base-F Fiber Optic Interface

Each EU uses 1000Base-F fiber optic cable to connect to the same-side DU. EU-L only connects to the captain's DU, and EU-R only connects to the first officer's DU. A separate fiber optic cable connects the captain's and first officer's DUs directly.

Cursor Control Device

Display items such as menus and application specific interfaces may be controlled by one of two Cursor Control Device (CCD)s that are installed in the flight deck.

The cursor control pad will emulate the touch screen for cursor movement. For menu election, the cursor movement and side key tap will emulate line key selection or touch screen tap.

The EFB interfaces with the CCD through ARINC 429.

Portable Keyboard (Optional)

One keyboard connector is provided to each side display. The keyboard will be stowed external to the crew information system

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Printer

EU-L and EU-R each can send text, and graphics-based images to the flight compartment printer.

Text data is sent directly to the printer through the ARINC 429 bus. Graphics images and font-based text are sent to the printer through Ethernet.

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Flight Deck Data Load Port

Direct electronic access to EU-L, and indirectly to EU-R, is through the data load port, using 10/100Base-T Ethernet. The data port is an RJ-45 specification connector. The connector receives an external Ethernet cable, connected to the Portable Data Loader (PDL). The RJ-45 data port location is as follows:

- Flight deck - second observer's panel, P18-1, M23218.

AIMS

EU-L and EU-R each have Ethernet connections with the left, and right Airplane Information Management System (AIMS) cabinets. This lets the EFB exchange ARINC 429 data, and Aircraft Communications Addressing And Reporting System (ACARS) maintenance messages with the AIMS data communication management function (DCMF).

ACARS is an air-ground network consisting of airborne Line Replaceable Unit (LRU)s, satellites, Datalink Service Provider (DSP) systems. On the ground, airline systems and air traffic service providers have systems that interface with the DSP. With the applicable onboard equipment, the air-to-ground traffic can go over VHF, SATCOM, HF, or wireless LAN. Within the aircraft an ACARS communication management function manages the air-ground links, and the internal aircraft routing to its peripherals.

Each EU has two ARINC 429 ports connected to the left and right AIMS. The EU receives activity from only one AIMS cabinet at a time. The EU transmits data to each AIMS cabinet at the same time, but only one cabinet can process the information.

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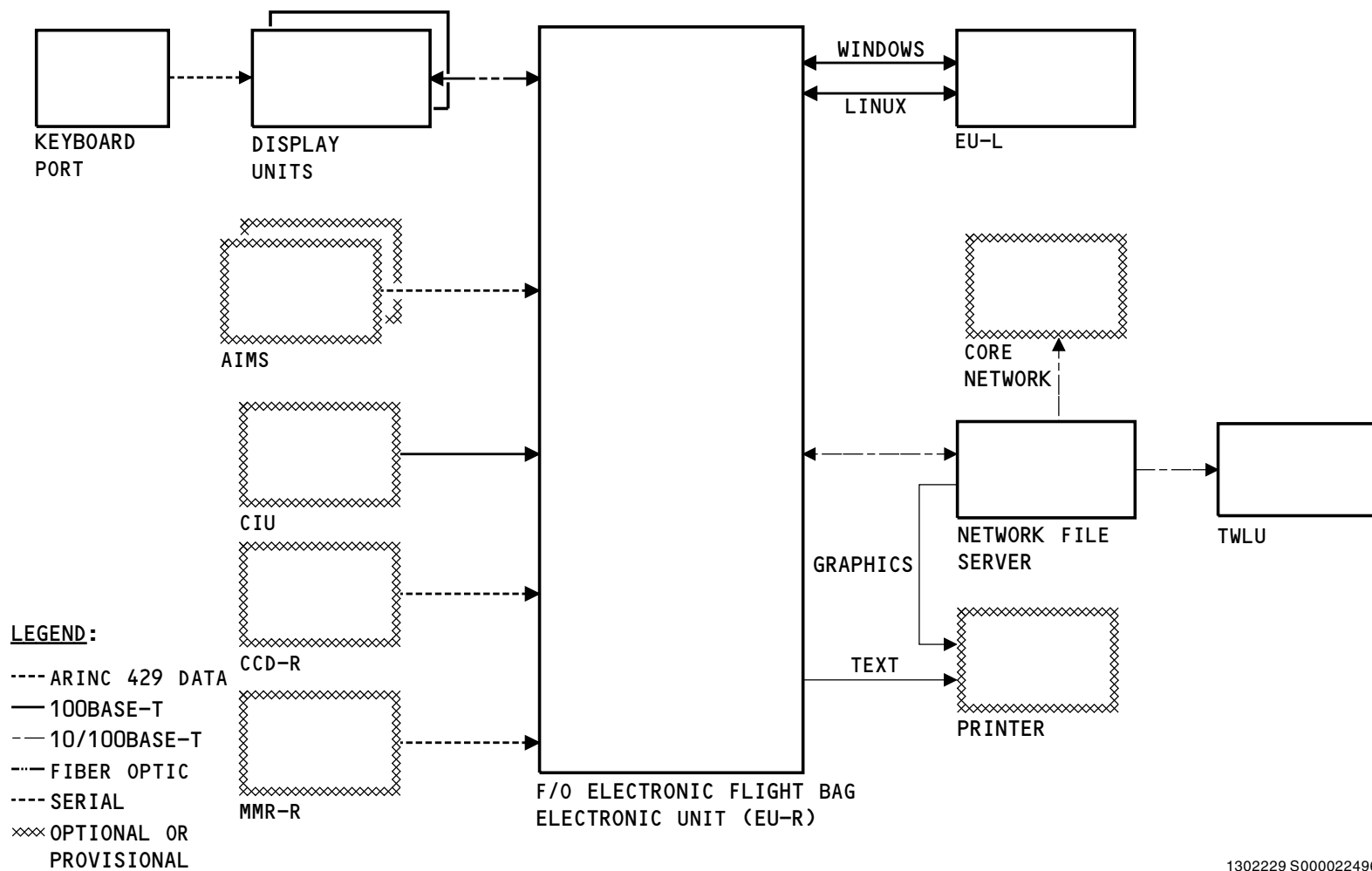


EFB - EU SYSTEM INTERFACES

MMRs

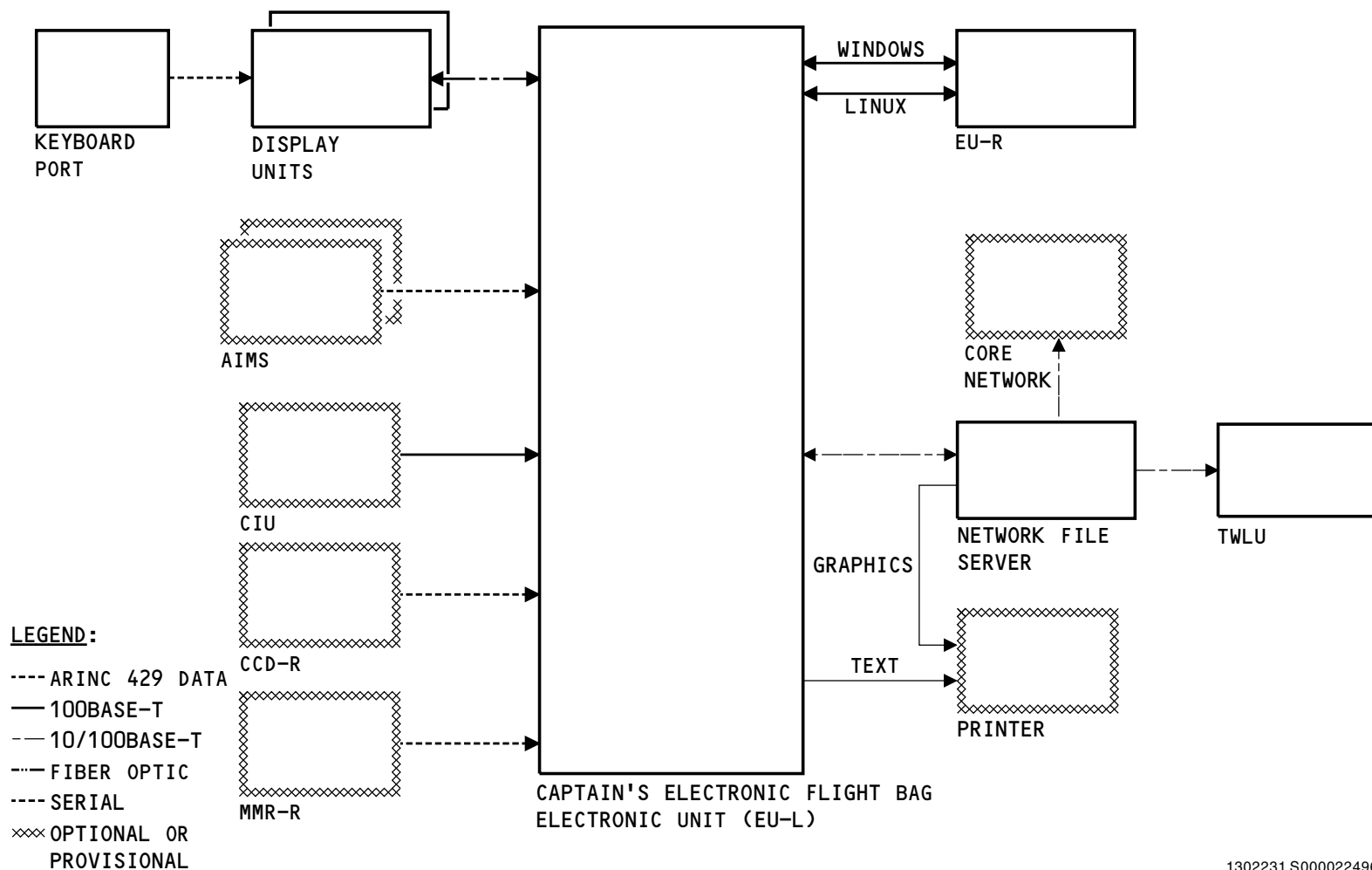
The EFB system interfaces with the Multimode Receiver (MMR) via a high speed ARINC 429 port.

In support of the EFB functionality, the pilot information displays will receive the data such as aircraft position, ground speed, date, and time from the MMRs.



EFB EU-R INTERFACES

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EFB EU-L INTERFACES

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EFB - POWER AND BRIGHTNESS INTERFACES

EFB Power Interfaces

The electronic unit (EU) is responsible for converting 115V AC power from the main power bus for use internally by the EU.

The EU also provides the 28V DC power to the onside Display Unit (DU) from a single internal power supply. The EU is capable of supplying electrical power to only a single DU.

EU Self Test

When the Electronic Flight Bag (EFB) is energized, the EU and DU do a Built-In-Test (BIT).

During the BIT, each DU will flash intermittently, and show the words EU SELFTEST. This is normal operation and continues for approximately one (1) minute.

To cancel the test, push the MENU bezel key.

When the test is complete, the DU shows the MAIN MENU.

The system will bypass the BIT if the time between EU shut-down and EU-energize is less than two minutes.

Display Unit Brightness Control

The EFB DU provides an automatic brightness control function the controls display luminance as a function of inputs from the DU brightness control (BRI/DIM rocker switch) inputs, bezel light sensor (BLS) inputs, master brightness control inputs, and remote light sensor (RLS) inputs.

Manual Brightness Control

The EFB DU also supports manual brightness adjustments from either the EFB DU brightness rocker switch inputs and the master brightness control inputs.

The EFB DU receives a master brightness enable/disable single discrete input that is either grounded (0 VDC) or open. When the discrete is grounded, full range luminance control will be applied to the master brightness inputs and the EFB DU rocker switch is limited in its range of control to +/- 20% of the luminance set by the master brightness.

Automatic Brightness Control

Each EFB DU has a bezel light sensor (BLS) on the front of the unit that measures the ambient light. The automatic brightness control calculation uses inputs from the BLS and the remote light sensor (RLS) to adjust the DU brightness.

The RLS sends a signal to the DU and the signal changes with the amount of light in the forward part of the flight deck.

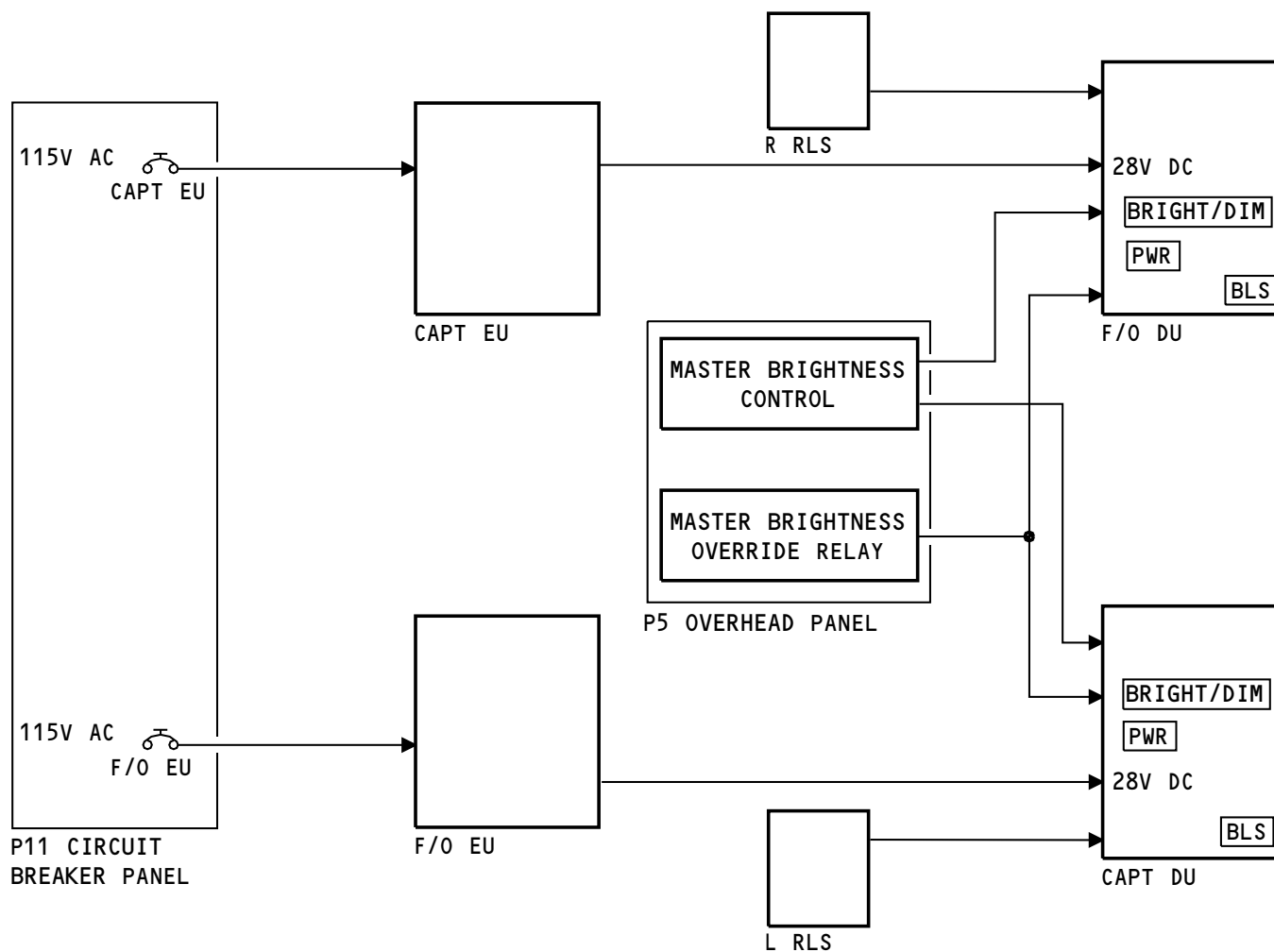
DU Backlight Control

A dedicated pushbutton switch is provided for turning power on and off to the DU backlight. Other EFB components such as the EU and the operating system remain on when the DU backlight is turned off.

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EFB - POWER AND BRIGHTNESS INTERFACES

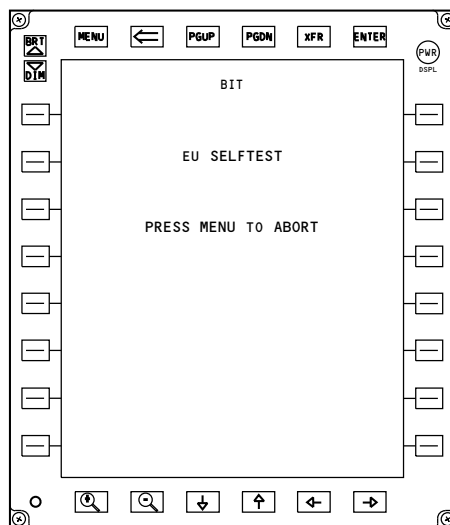
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EU SELF TEST

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**EFB - BRIGHTNESS CONTROLS****Purpose**

The brightness controls permit manual brightness control by the flight crew for the display units.

P5 Overhead Panel

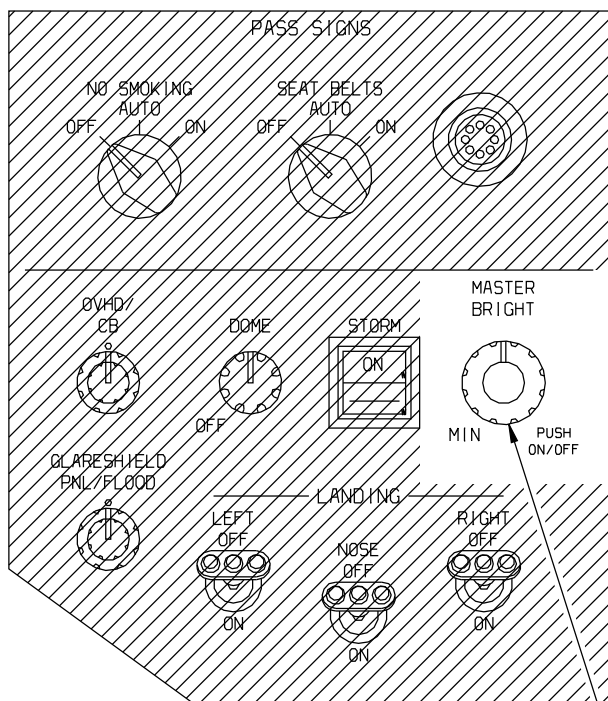
The Electronic Flight Bag (EFB) Display Unit (DU) supports manual brightness adjustments from the master brightness control switch located on the P5 overhead panel.

BRT/DIM Control Rocker Switch

The brightness control rocker switch regulates the screen's brightness and background illumination for the bezel key labels.

DU Back Light Control

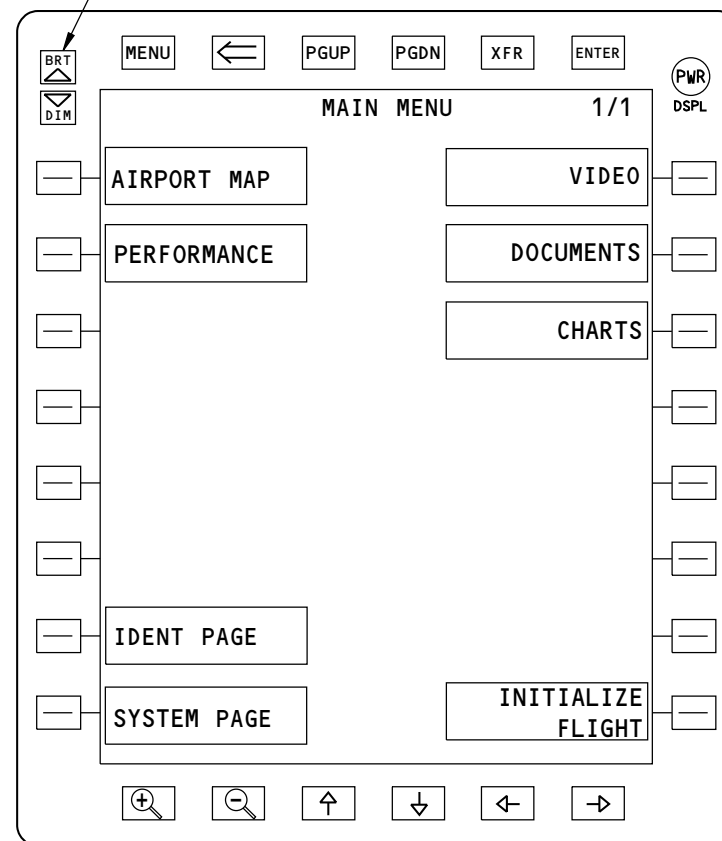
A dedicated push-button switch is provided for turning power on and off to the DU back-light. The EU and the operating system remain on when the DU backlight is turned off.



OVERHEAD PANEL, P5

MASTER BRIGHTNESS CONTROL

BRT/DIM CONTROL
ROCKER SWITCH



DISPLAY UNIT (DU)

NOTE: THE DATA SHOWN ON THE DISPLAY IS ONLY AN EXAMPLE.

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EFB - BRIGHTNESS CONTROLS

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EFB - FUNCTION/APPLICATION SELECTION KEYS

General

The Display Unit (DU) has a bezel frame around the LCD touchscreen with 30 buttons, or keys. The top and bottom horizontal rows are permanent in function. The left and right vertical rows operate in relation to the software shown on the touchscreen.

Function Keys

The twelve push-button function keys are located on the top and bottom portions of the DU.

The top function keys are as follows:

- Menu - selects the MAIN MENU
- Back (<=) - goes back to the previous screen
- PgUp (page up) - in a function or application with more than one page, moves the data up by one page
- PgDn (page down) - in a function or application with more than one page, moves the data down by one page
- XFR (transfer) - allows one DU screen display to be shown on the other DU
- Enter - confirms or activates (currently not supported for all applications)
- PWR (power) - applies and removes power from the DU backlight only
- BRT/DIM (brighten/dim) - rocker switch that changes the brightness level of the DU.

The bottom function keys are:

- Zoom In (+)
- Zoom Out (–)
- Up
- Down
- Left
- Right.

Application Selection Keys

The DU bezel frame has sixteen push-button Line Select Key (LSK)s. The left-hand, and right-hand vertical columns each have eight LSKs.

You can refer to an LSK based on its location. Key 1L is the top key in the left-hand column. Key 8R is the bottom LSK in the right-hand column.

Each Loadable Software Airplane Part (LSAP) controls the functions of each programmable LSK. The function of key 1L changes in relation to which LSAP is in service, and which page shows.

From the EFB MAIN MENU, you can use the LSKs to start these typical applications:

- TERMINAL CHARTS - starts the terminal charts application
- PERFORMANCE - starts the performance application
- DOCUMENTS - starts the e-Documents application
- SYSTEM PAGE - shows the system page and functions
- INITIALIZE FLIGHT - sets the EFB to start flight operation. This button does not show after the flight is initialized, but shows again after the flight is closed.
- FLIGHT CLOSE - sets the EFB to stop flight operation. This button does not show after the flight is closed, but shows again after the flight is initialized.
- IDENT PAGE - shows the airplane tail number and model, current date, current time and source of time, configuration part numbers, and application related information.

NOTE: To access one of the above applications from the MAIN MENU, push the LSK next to the application, or use the touchscreen to select the application. The touchscreen function does not operate in the LOAD MODE. The user must use the bezel LSKs to make a selection when in LOAD MODE.

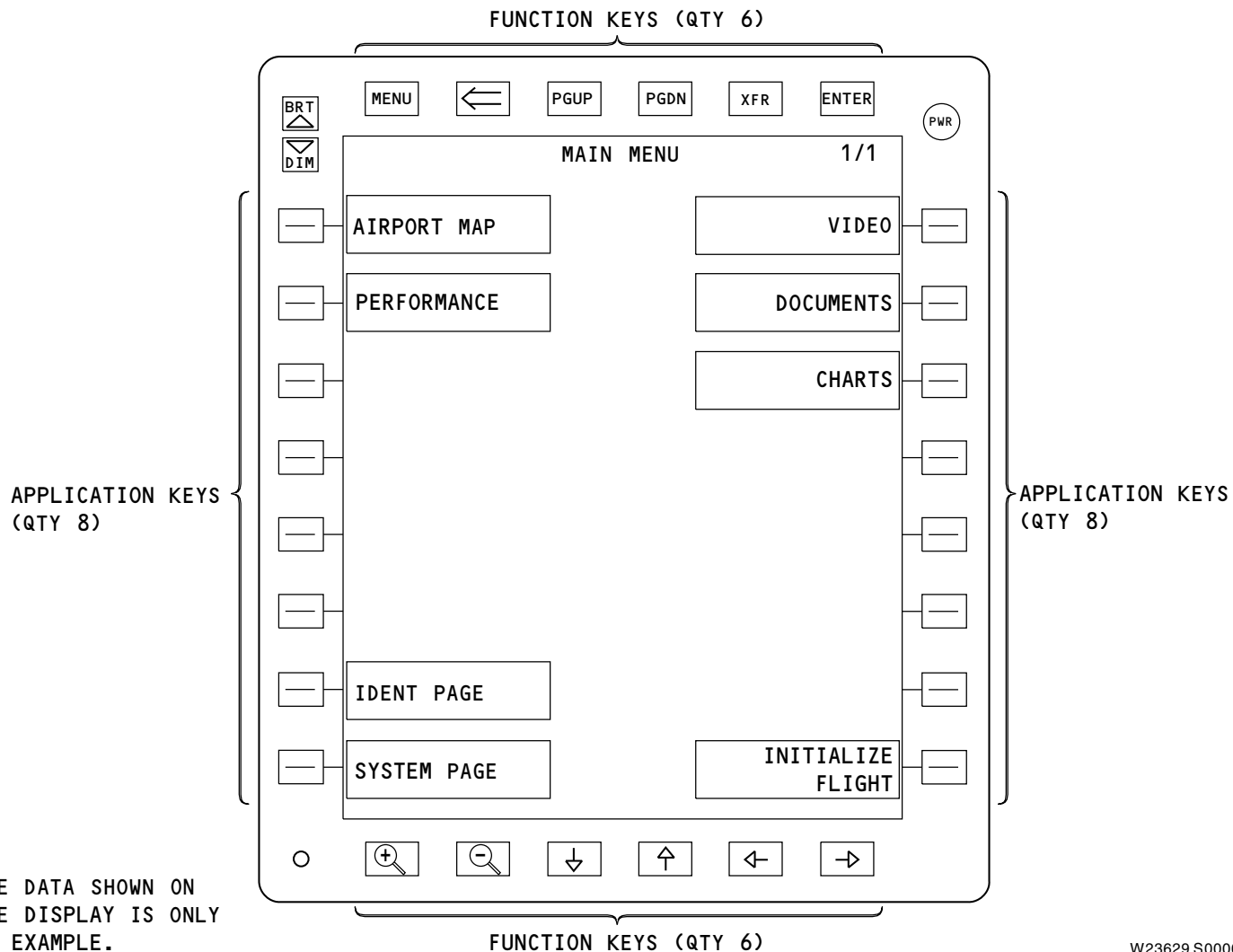
NOTE: Button application backgrounds are dim at first power-up. However, after the application fully loads, the application changes to gray in color to show it is now available for selection.

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EFB - FUNCTION/APPLICATION SELECTION KEYS

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KEY NAME	KEY FUNCTIONS
MENU	Immediately displays the top-level EFB menu, providing the user quick access to all main EFB applications.
Back 	Each actuation of the Back key returns user to previous format or section (not page). Can move between applications or re-trace links of any type.
XFR	First actuation of the View key temporarily slaves the screen to show on opposite EFB unit. No manipulation possible including pan and zoom. Second actuation of the View key returns screen control to home unit. When in view mode, only the Back, and Main Menu keys operate: Back - functions same as second actuation of View key Main Menu - Performs its normal function. The Transfer Mode is active when the word XFR shows green in color.
PG UP	For document applications, conventional paging. For XML documents, page groupings may be large. For other applications, when applicable, moves backward through normal sequence of formats. In menus, displays previous menu choices up the list.
PG DN	For document applications, conventional paging. For XML documents, page groupings may be large. For other applications, when applicable, moves forward through normal sequence of formats. In menus, displays additional menu choices down the list.
ENTER	(Not used, reserved)
Zoom in 	Continuously enlarge image, about the document center point. Operates only in Documents, Airport Map, and Terminal Charts.

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EFB - FUNCTION/APPLICATION SELECTION KEYS

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KEY NAME	KEY FUNCTIONS
Zoom Out 	Continuously decrease image size until entire page is on screen, about the document center point. Operational only in Documents, Airport Map, and Terminal Charts.
Left Arrow	1) Within a format or a horizontally oriented set of selections, moves the focus point left. 2) Within a windows-style expandable outline, contracts tree - (Documents Only)
Right Arrow	Within a format or a horizontally oriented set of selections, moves the focus point right. Functions as tab when selection list are oriented vertically. 2) Within a windows-style expandable outline, expands tree - (Documents Only)
Up Arrow	Within a format or list, moves the focus point up. (When list extends beyond upper edge of screen, list scrolls down so that focus point just remains on screen.) Can increment a value; should be graphically coded.
Down Arrow	1) Within a format or list, moves the focus point down. (When list extends beyond lower edge of screen, list scrolls up so that focus point just remains on screen.) Functions as tab when selection list are oriented horizontally. Can decrement a value; should be graphically coded.

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EFB - FUNCTION/APPLICATION SELECTION KEYS

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EFB - MENU FLOW

General

The menu flow data that follows helps to identify different groups of functions, and how they are organized.

You will see that some of the groups have an overlap. The differences can be because of their operating system, installed location, or other shared property.

Operational Mode

The primary level of EFB operation is referred to as operational (or flight) mode. Operational mode is organized for the flight crew, but is also used by maintenance persons.

The essential level application for operation is the Linux operating system, or Disk Linux. Disk Linux is an approved, certified software part, and is installed on an isolated disk partition.

Disk Linux then gives access to the Windows OS, which operates in parallel with Disk Linux. Windows OS is also installed on an isolated disk partition, and supports the Operational Approved Software (OAS).

The application manager controls the MAIN MENU display screen. Some functions are inhibited when in flight. When a function is inhibited, the touchscreen button is grayed out, and the adjacent Line Select Key (LSK) does not operate.

Operationally Approved Software

OAS is a group of Windows OS based applications that are approved for use in flight.

The OAS partition is an isolated single board computer with a Microsoft Windows operating system. The OAS partition is activated from the Linux operating system.

EFB Maintenance

The EFB MAINTENANCE menu shows functions that do checks, and maintain the EFB. The flight crew, and maintenance personnel each have access to these functions, however some functions are inhibited during flight.

Of the functions shown, most originate from Disk Linux, but some functions are Windows OAS.

Load Mode

Load mode is each a group of maintenance functions, and another isolated Linux operating system referred to as Flash Linux. This system is stored in non-volatile flash-memory chips, and becomes the primary operating system when software is installed or deleted in Disk Linux or Disk Windows.

All load mode functions are inhibited during flight.

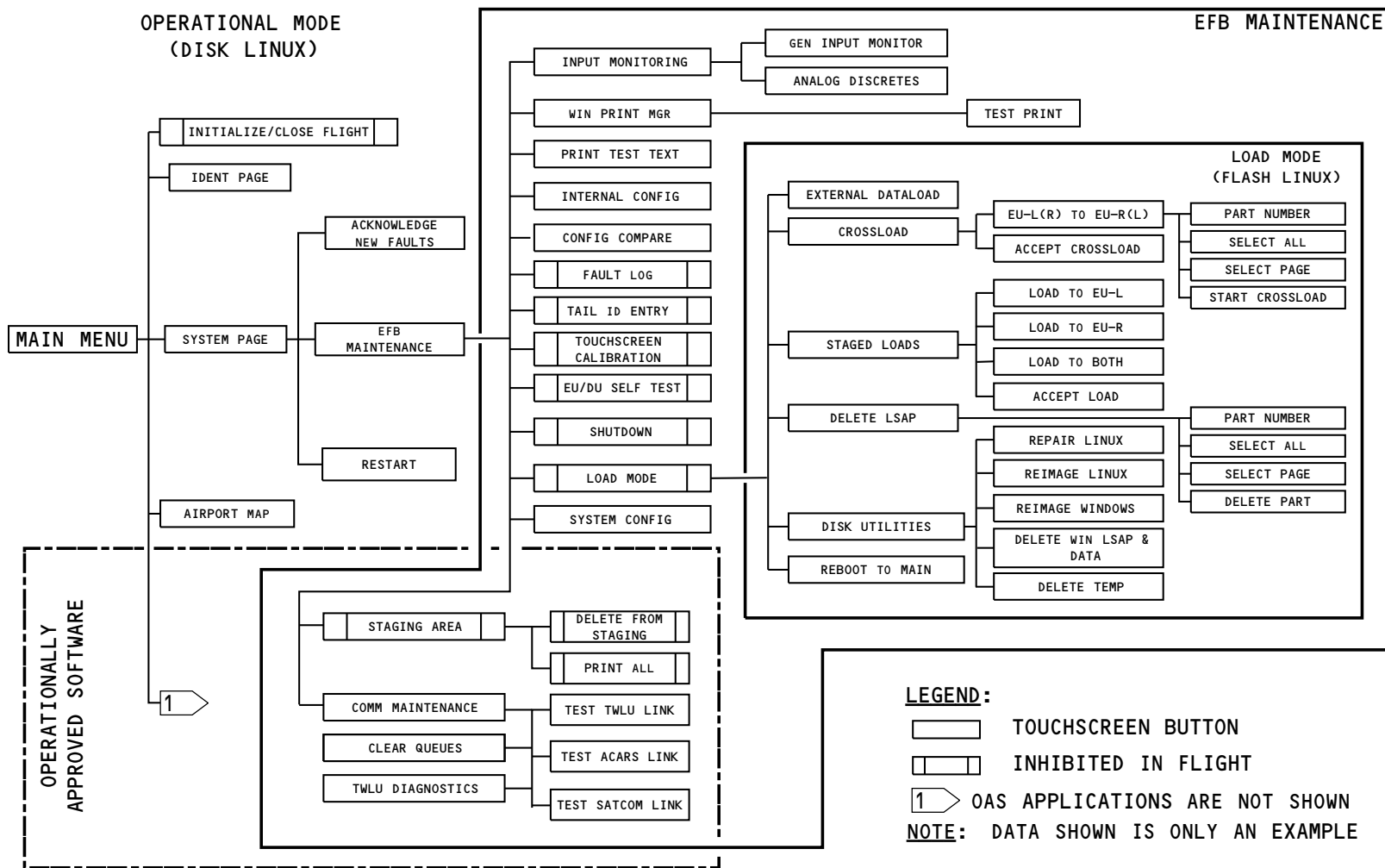
When you exit load mode, the EFB must reboot Disk Linux and Disk Windows.

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EFB MENU FLOW DIAGRAM

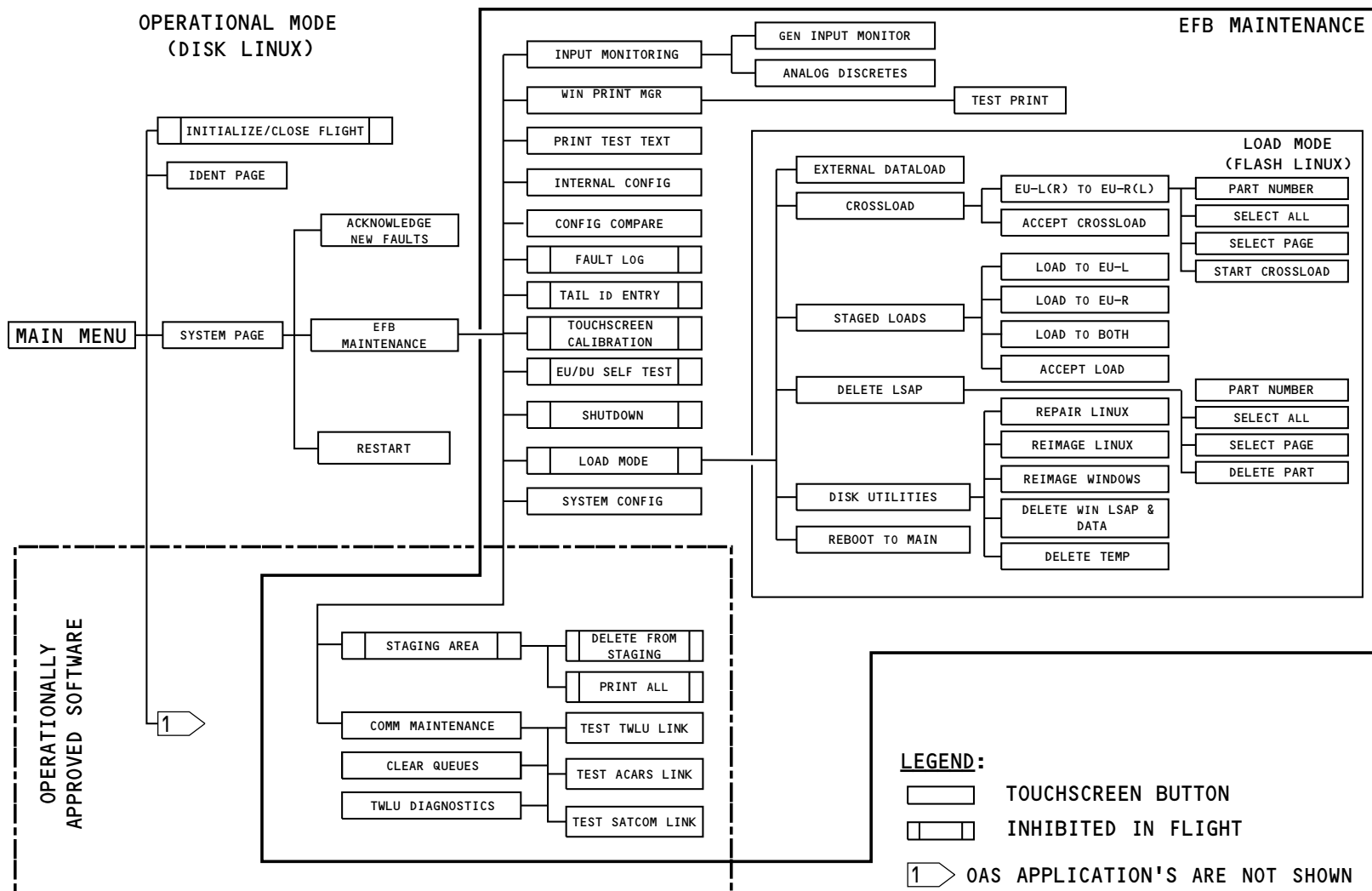
2045314 S0000414441_V1

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EFB MENU FLOW DIAGRAM

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EFB - APPLICATION MANAGER OVERVIEW

General

The application manager is the front-end graphical user interface for both flight operations and maintenance functions.

The application manager provides a central interface for controlling core Electronic Flight Bag (EFB) functions and accessing configuration and status information. It loads automatically upon power up so that it is the first screen users see when they start the EFB. It then sends all necessary messages to all other EFB applications, controlling when they are started, gain focus, are hidden, or are terminated, and monitoring their health status. Upon start up, the application manager launches all the other applications in the order defined in a configuration file, subsequently suspending them until a user activates them by using the menu. As applications load and are ready for use, their corresponding buttons on the application manager main screen turn gray.

The application manager provides a reliable and seamless access path between the two independent operating systems (Linux, Windows) so that the transition between the two operating systems is not apparent to the user.

The application manager controls global EFB services for all applications, including such items as peripheral interfaces, printer functions, QWERTY keyboard, and messaging functions.

Application Manager For The Flight Crews

The flight crews use the application manager to perform the following tasks:

- Access all applications.
- Verify the currency of the applications and data - The IDENT page shows the tail number, current date, current time, airplane major-model provided by program pins, and the airplane minor-model. Also, it shows software effectivity expiration status of all applicable installed software parts (for example, databases, charts, documents, etc.). This allows the crew to quickly assess the operational readiness of the system along with the dispatch ability of all required data and documents required for that flight.
- Review non-normal status - system status of interest to a pilot is annunciated using the FAULT annunciation in the top left hand of the EFB display. The pilot reviews the particulars of the fault by accessing the SYSTEM page. However, responses to many of these messages will still require maintenance.
- Initialize a flight - when a pilot initialize the flight, the application manager notifies the EFB applications to perform necessary operations to prepare for flight.
- Close out a flight - on flight close, the application manager notifies the EFB applications to perform necessary operations at the end of a flight.

EFB - APPLICATION MANAGER OVERVIEW

Application Manager For The Maintenance Personnel

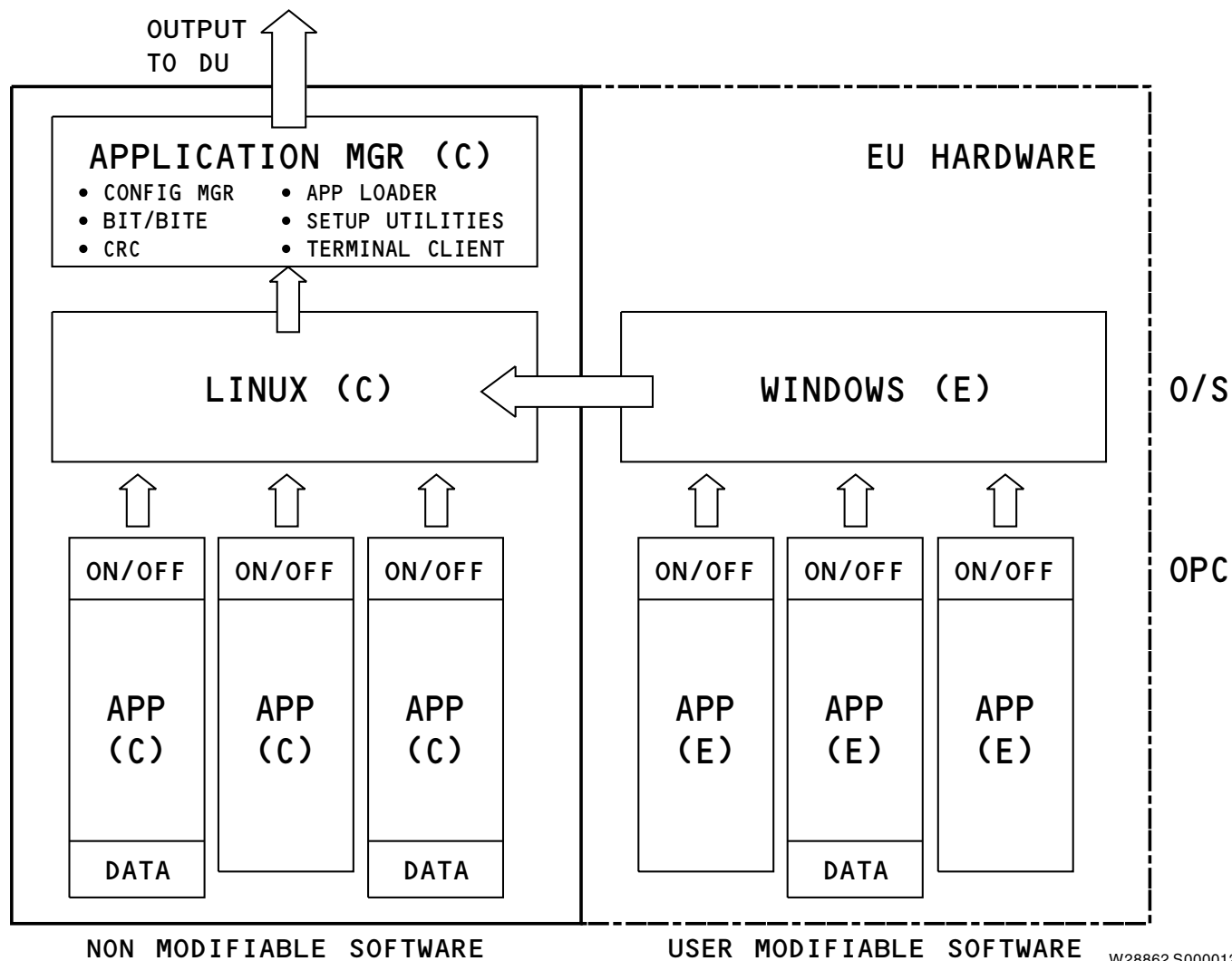
The maintenance personnel use the application manager to perform the following tasks:

- Load and install software, including applications and data - the EFB system accepts new software loads from the distributed data management (DDM) or Portable Data Loader (PDL). These software loads may include operating systems upgrades; applications upgrades, additions or removal; data content updates; or configuration file information from the common administration tool (CAT). Data can be loaded to both EFBs in parallel or if loaded onto any one EFB; the data can then be crossloaded to the other EFB.
- Check fault logs - a continuous log of system errors is maintained by the EFB and can be accessed via the EFB Maintenance page. The log can be downloaded to the PDL for off-aircraft use.
- Manually initiate built-in tests - the application manager provides a variety of built-in tests and monitors to check the status and overall health of the display unit and the electronics unit. These tests run automatically, but can be initiated manually. The open architecture also provides for third-party application tests to be run and display their results through the system maintenance function.
- Check Input Output (I/O) interface connectivity and operability - From the EFB maintenance menu, input monitoring page, the user can view ARINC 429 and Ethernet Line Replaceable Unit (LRU) connectivity status, analog discrete (program pin) status, and Display Unit (DU) connectivity status.
- Verify data integrity - 32 bit Cyclic Redundancy Checking (CRC) for the applications and datasets loaded onto the EFB system provide the required level of integrity checking to ensure that the loads are reliably transferred from their source to the system and the end user without any corruption or loss of data. The application manager verifies the application CRCs prior to launching the application; however, the applications themselves must verify their data CRCs.

Configuration and Setup

Each airline can configure the application manager to their own specification. Typical changes can:

- Specify which flight crew applications to install
- Specify which maintenance applications to install
- Specify the boot-up sequence of the applications
- Assign applications to specific buttons on the main menu
- Sets the EFB screen colors, fonts, and screen dimensions.



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EFB - APPLICATION MANAGER OVERVIEW

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EFB - APPLICATION MANAGER STATUS**Button Color**

The color indicates the status of the function as follows:

- A gray background with white text indicates the function is available for selection
- A green background with white text indicates the function has been selected
- A black background with cyan border and text indicates the function is not an available selection at this time
- When the cursor (Cursor Control Device (CCD) or touchscreen) enters an active function area, the border changes to white in color. When you push the selection switch on the CCD or remove your finger from the touchscreen (when the function is highlighted with the white border), you activate the function.

Screen Title

The application manager owns the top two lines of the display regardless of the application being displayed. It uses this space to display the title of the page being displayed, and to provide information about the state of the Electronic Flight Bag (EFB).

Messages

The EFB generates these messages regarding the states of the EFB as follow:

- FAULT
- MEMO
- MSG
- XFR

FAULT

This message, amber in color, indicates that a fault has occurred in an application or the system. Go to the SYSTEM page for more information.

MEMO

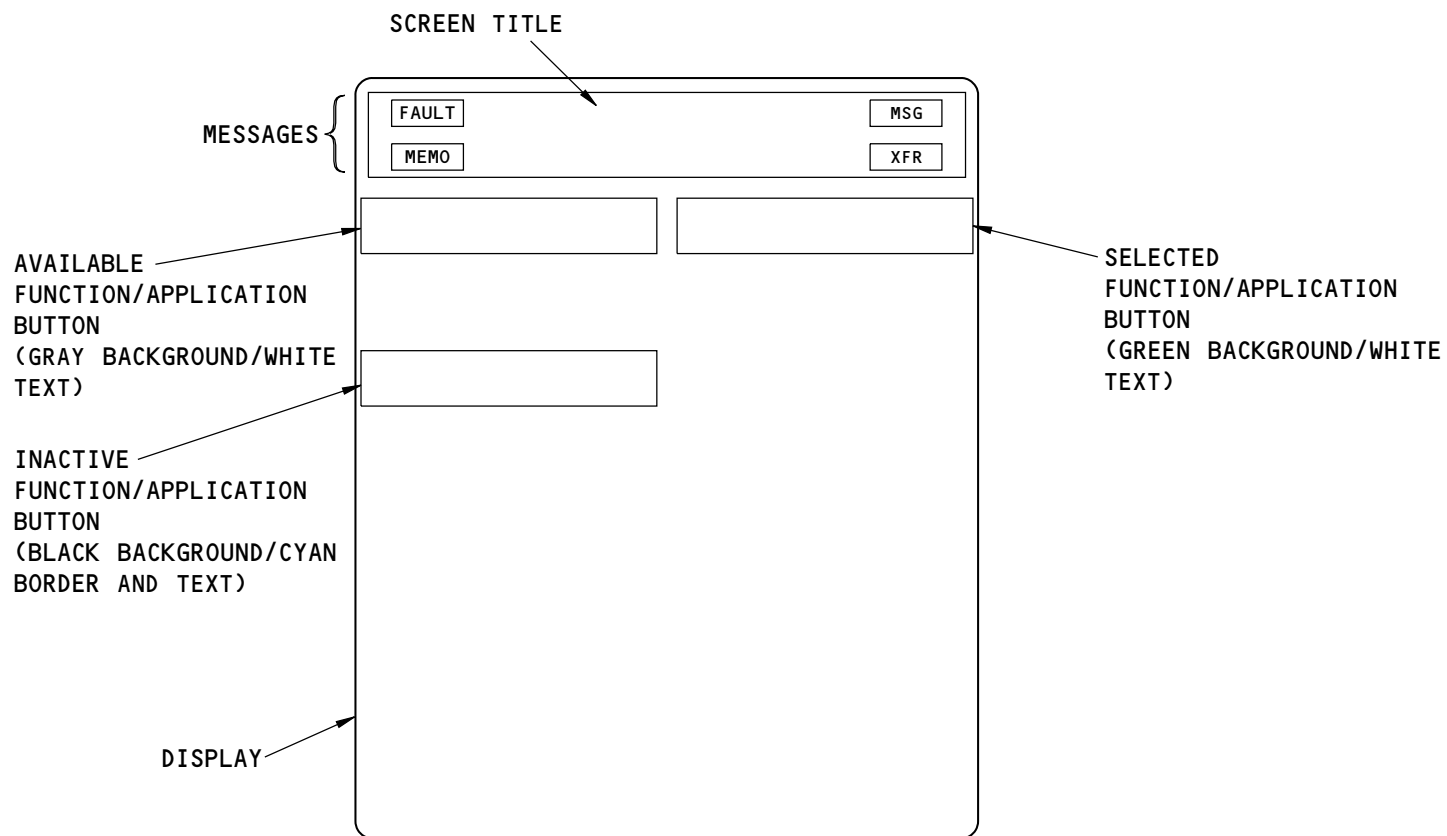
This message, white in color, indicates that an application wants attention for any reason other than a message. When this message is displayed, you should go to the corresponding application to address the issue.

MSG

This message, white in color, indicates that one of the uplink communication applications has a message. This is used only if the EFB system is connected to external communications devices.

XFR

This message, green in color, indicates that the system is currently in transfer mode, viewing the contents of the other EFB in the cockpit. While in this mode, the display can not be manipulated. Press the XFR bezel key to remove the EFB from transfer mode.



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EFB - APPLICATION MANAGER STATUS

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**EFB - SYSTEM PAGE****MAIN MENU Page**

Use the MAIN MENU page to activate these electronic flight bag (EFB) selections:

- IDENT PAGE
- SYSTEM PAGE

| ARO 001-017

- VIDEO

| ARO ALL

- Airline, or operator-installed applications
- INITIALIZE FLIGHT or CLOSE FLIGHT.

SYSTEM PAGE

The SYSTEM PAGE lets you see EFB faults, and do certain functions.

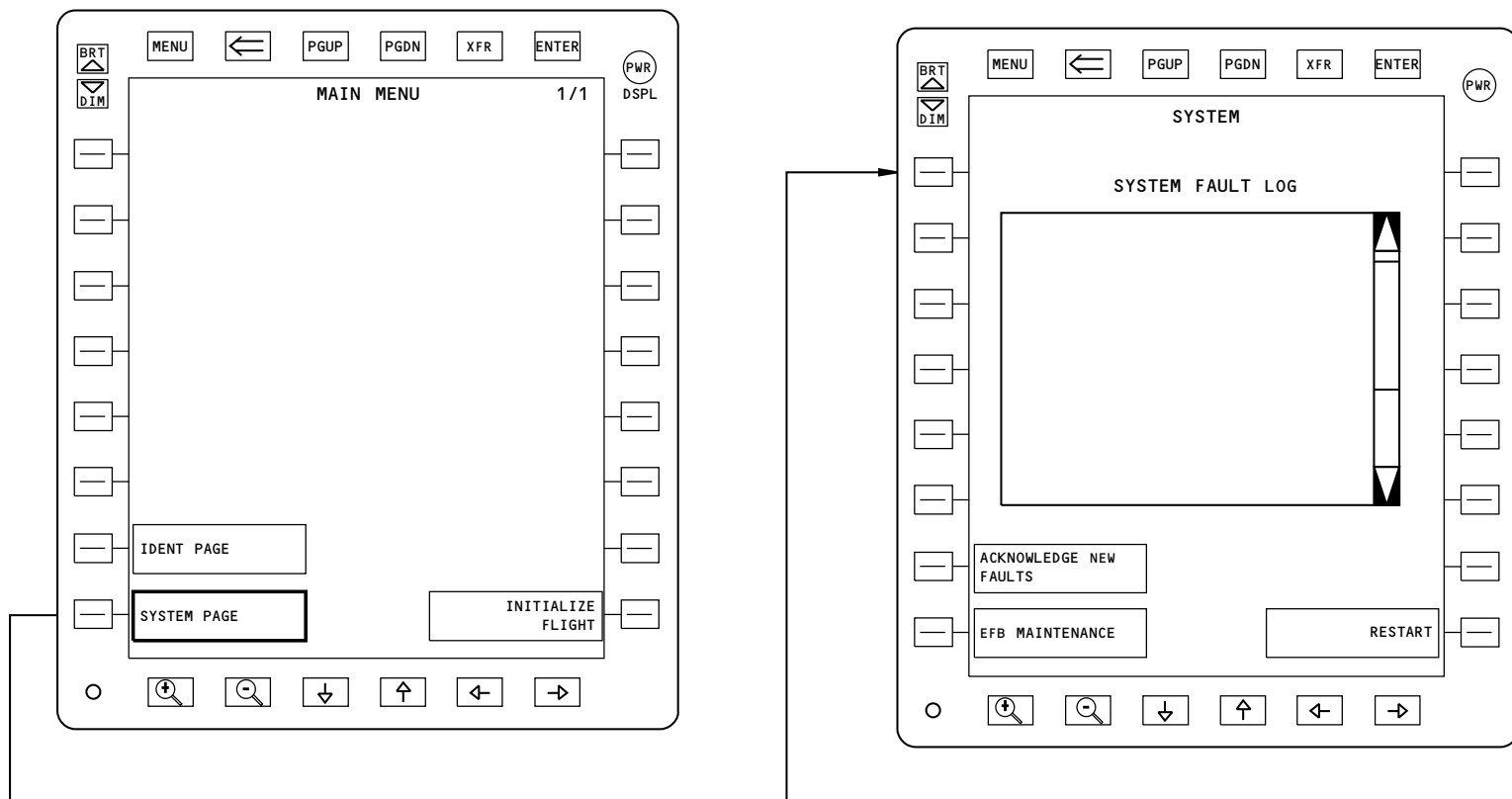
The SYSTEM PAGE shows fault messages from the EFB that require flight crew attention. The fault messages may include names and dates of applications, documents or charts that are not current. The amber FAULT message shows at the top of the screen and adjacent to the SYSTEM PAGE when there are unacknowledged faults on the SYSTEM PAGE.

When a new fault message shows on the SYSTEM PAGE, the amber FAULT message shows at the top of the menu header. It also shows adjacent to the SYSTEM PAGE button. When you go to the SYSTEM PAGE and acknowledge the new faults, the FAULT message in the menu header erases.

These functions are available from the EFB SYSTEM PAGE:

- **ACKNOWLEDGE NEW FAULTS** - Gives the user the ability to acknowledge all faults in the fault list. This button stays inhibited until all unacknowledged faults are viewed. If there are more faults than what are displayed on the SYSTEM page, use the touchscreen arrows or the bezel key arrows to view the remaining faults in the list. Once all faults are acknowledged, the "FAULT" annunciation that shows adjacent to the SYSTEMS button on the MAIN MENU will disappear. Unacknowledged faults show as white in color on the faults list and acknowledged faults show as cyan (blue) in color.
- **EFB MAINTENANCE** - gives access to all system maintenance functions, and all application maintenance functions
- **RESTART** - stops and reboots the Windows OS.

The airline can customize the airline modifiable instruction (AMI) software part. This action can change the appearance or operation of the MAIN MENU.



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EFB SYSTEM PAGE

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EFB - IDENT PAGE

General

The IDENT (identification) page gives you the date, time, aircraft model, and tail number as recorded in the applicable EU and DU.

The IDENT function shows on the EFB MAIN MENU. When selected, the page shows this information:

- Airplane major and minor model
- Airplane tail number
- Current date and time
- EFB effectivity configuration.

NOTE: To change the data for the TAIL ID, refer to the TAIL ID ENTRY page.

EFB Effectivity Configuration

EFB effectivity configuration gives you a table of EFB data files that are date-controlled. Typically, this can be flight crew maps, instructions, or other data. The table shows this information:

- Part name
- Part number
- Effective date
- Expiration date.

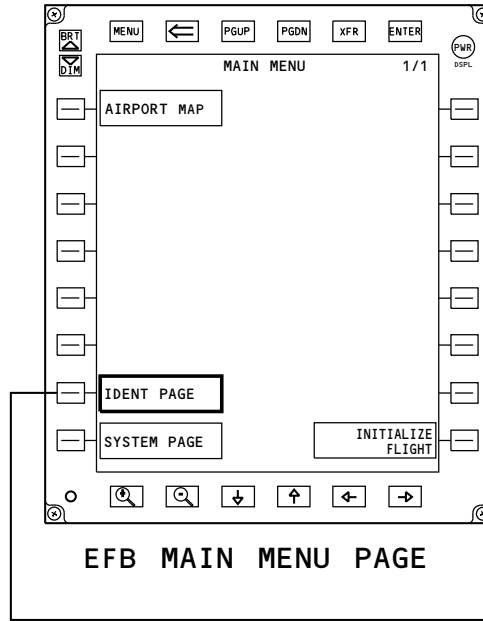
Parts that show white in color are serviceable. Parts that show amber in color are unserviceable (that is, expired).

The table updates when the flight crew selects INITIALIZE FLIGHT from the EFB MAIN MENU.

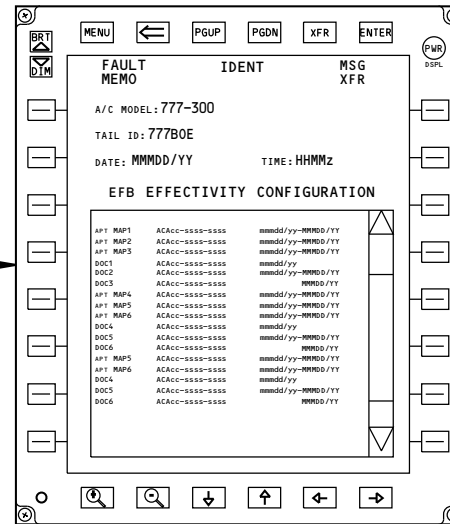
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EFB MAIN MENU PAGE



IDENT PAGE

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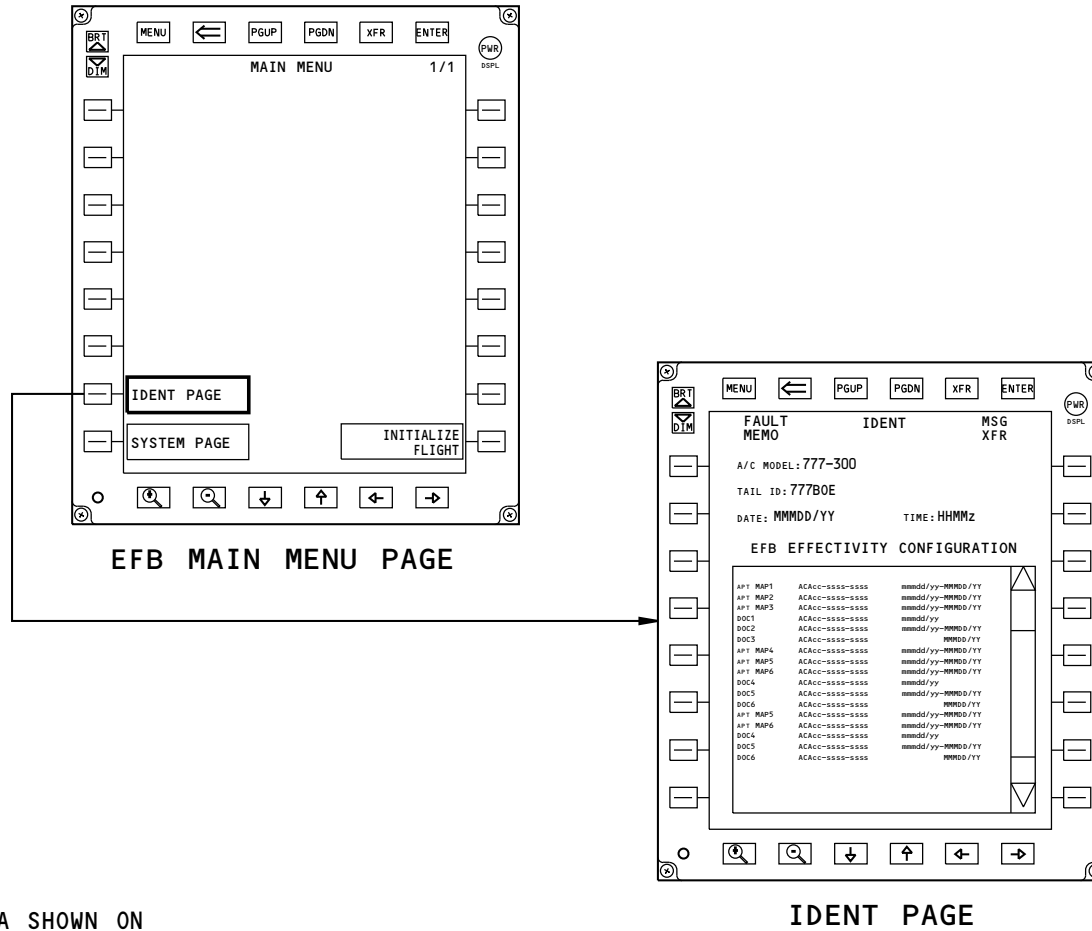
EFB IDENT PAGE

1463248 S0000266929_V2

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EFB IDENT PAGE

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EFB - EFB MAINTENANCE PAGE

EFB MAINTENANCE Page

The EFB MAINTENANCE page provides access to system maintenance functions.

The maintenance page is accessed from the SYSTEM page. All menu pages belonging to maintenance menu tree, unless noted otherwise, should use "back" bezel button in order to return to the previous page.

The functions available from the EFB MAINTENANCE page are:

- SYSTEM CONFIG - shows the system configuration page, with all loadable software parts in the EFB.
- FAULT LOG - shows all recorded faults and events.
- INPUT MONITORING - shows the EFB interfaces, and condition of connections with onboard systems.
- PRINT TEST TEXT - shows a function that makes the EFB print a sample text message, using an ARINC 429 connection.
- TOUCHSCREEN CALIBRATION - gives access to a function that calibrates the touchscreen.
- INTERNAL CONFIG - shows the part numbers for EFB hardware, and non-loadable software.

- LOAD MODE - causes the EFB to terminate the disk Windows and disk Linux operating systems, and then reboot into load mode.

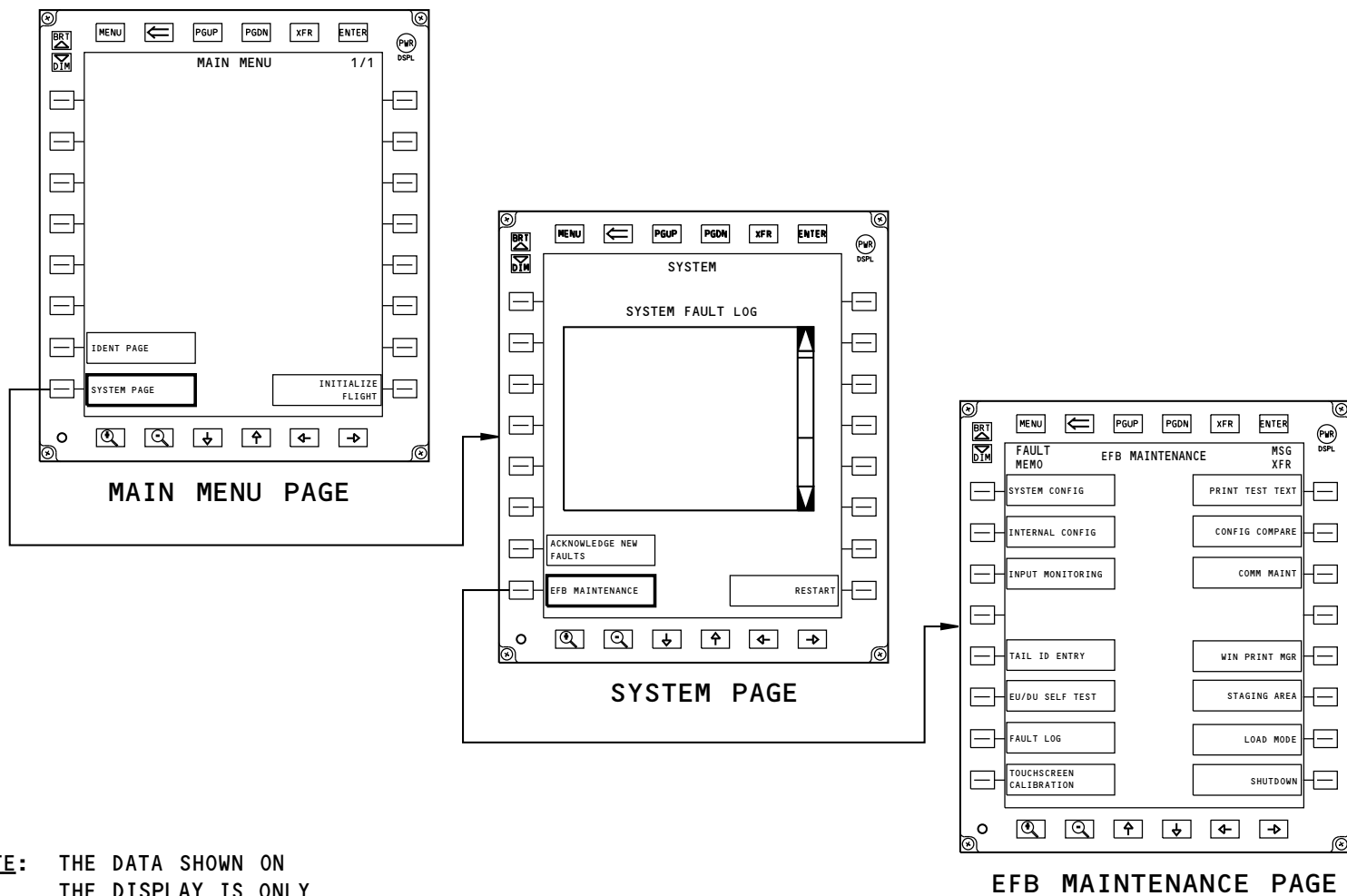
NOTE: The EFB must boot into load mode to install, remove or upgrade software in disk Linux, and disk Windows operating systems.

- SHUTDOWN - causes the EFB to terminate the disk Windows and disk Linux operating systems.

NOTE: After you select SHUTDOWN, all other buttons are inhibited.

- EU/DU SELF TEST - Provides access to a menu that has the keyboard test, Display Unit (DU) pixel test, Input Output (I/O) test and video switch test.
- CONFIG COMPARE - lets the user identify any software mismatch between EU-L and EU-R.
- COMM MAINT - gives the user status and control functions for Electronic Flight Bag (EFB) wireless communication.
- STAGING AREA - gives the user status and control functions for Loadable Software Airplane Part (LSAP) that are staged.
- TAIL ID ENTRY - gives the user status and control functions to add or change the airplane tail number in the EFB DU memory.
- WIN PRINT MGR - shows a function that causes the EFB to print a sample page, that contains graphics images, using an ARINC 744 connection.

NOTE: LOAD MODE, TAIL ID ENTRY, SHUTDOWN, FAULT LOG, TOUCHSCREEN CALIBRATION and EU/DU SELF TEST are inhibited in flight.



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EFB SYSTEM PAGE

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EFB - SYSTEM CONFIGURATION PAGE

General

The SYSTEM CONFIG page is provided to allow the user to access a list of all the software installed on the system. All software titles are listed in the left column with corresponding part numbers listed in the right column.

The color of the software in the list indicates its status, and the color code should follow these rules:

- Cyan indicates that a Cyclic Redundancy Checking (CRC) has not yet been completed on that software.
- White indicates that the CRC check was completed and passed.
- Amber indicates that the CRC check was completed and failed.

PRINT ALL Button

In addition, the SYSTEM CONFIG page provides the user access to the PRINT ALL button. When this button is selected, it will print the content of the SYSTEM CONFIG page on a printer connected to the Electronic Flight Bag (EFB).

When you print the contents of the SYSTEM CONFIG page, a "+" symbol may precede the software part numbers. This indicates all parts that passed the CRC check. Also, a "-" symbol may precede the software part numbers. This identifies all parts that failed the CRC check. If there is no character before the part number, the CRC check is not complete.

NOTE: The header with TIME/DATE, airplane tail number and EU location (CPT = captain and FO = first officer) is embedded in each printout.

Software

Software that shows on the SYSTEM CONFIG page is listed in alphanumerical order, based on part number. Use the scroll up and scroll down touchscreen buttons or the arrow up/arrow down bezel keys to see the complete contents.

When the SYSTEM CONFIG page is selected, the page shows to most recent conditions at the time the page was selected. But after the page is selected, the page does not refresh continuously. To view an updated condition, you must show again the EFB MAINTENANCE PAGE, and then the SYSTEM CONFIGURATION page again.

The EU calculates the software condition continuously, but at a lower priority than some other functions. After an LSAP condition has changed, it can take up to ten (10) minutes before the system configuration page shows the new condition.

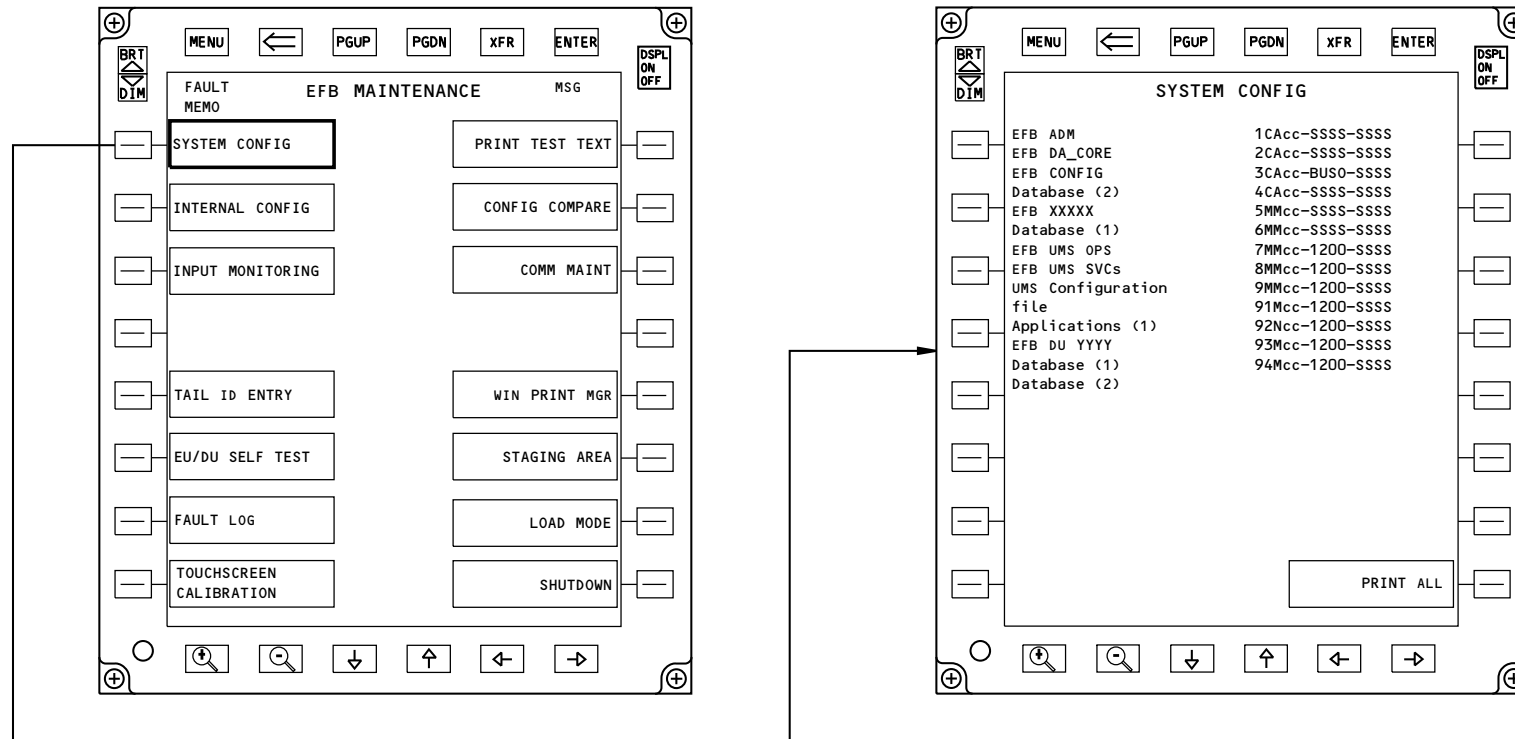
NOTE: There can be a delay of up to ten (10) minutes before the configuration page can show a changed condition. To refresh the data on the page, you must exit SYSTEM CONFIG, and again make the SYSTEM CONFIG selection from the EFB MAINTENANCE page.

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EFB SYSTEM CONFIG PAGE

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**EFB - FAULT LOG PAGE****General**

The FAULT LOG page gives the user access to a record of most recent EFB faults and events, and functions to print, and erase the log data.

The record includes all faults or events shown on the SYSTEM page. Faults and events that show on the fault log page give information for the maintenance technician. In comparison, faults that show on the system page are intended for the flight crew.

The page shows one line for each fault occurrence with a specific fault message, and occurrence time and date.

The page shows the most recent event at the top of the first page. Use the PG UP (page up) and PG DN (page down) bezel keys to see other pages of the fault log.

Print Page Function

The PRINT PAGE button sends the data shown on the display unit (DU) to the flight compartment printer. When you look at the FAULT LOG display, you see the first thirty (30) characters. However, when you print the FAULT LOG, the printed copy shows the first seventy-two (72) characters.

The print function can be activated by pushing the touch-screen, or the adjacent line select key.

Clear Fault Log Function

The CLEAR FAULT LOG function permanently erases all data in the fault.log file. At the same time, the same fault data is added to a file identified as fault.log.archive.

The clear fault log function is activated by pushing the touch-screen, or the adjacent line select key. After CLEAR FAULT LOG button has been selected, the user is asked to confirm or cancel this action.

Both the fault.log and fault.log.archive files are available for download using the portable data loader. When the fault log is downloaded, the content of the FAULT LOG page is not erased.

Fault Messages

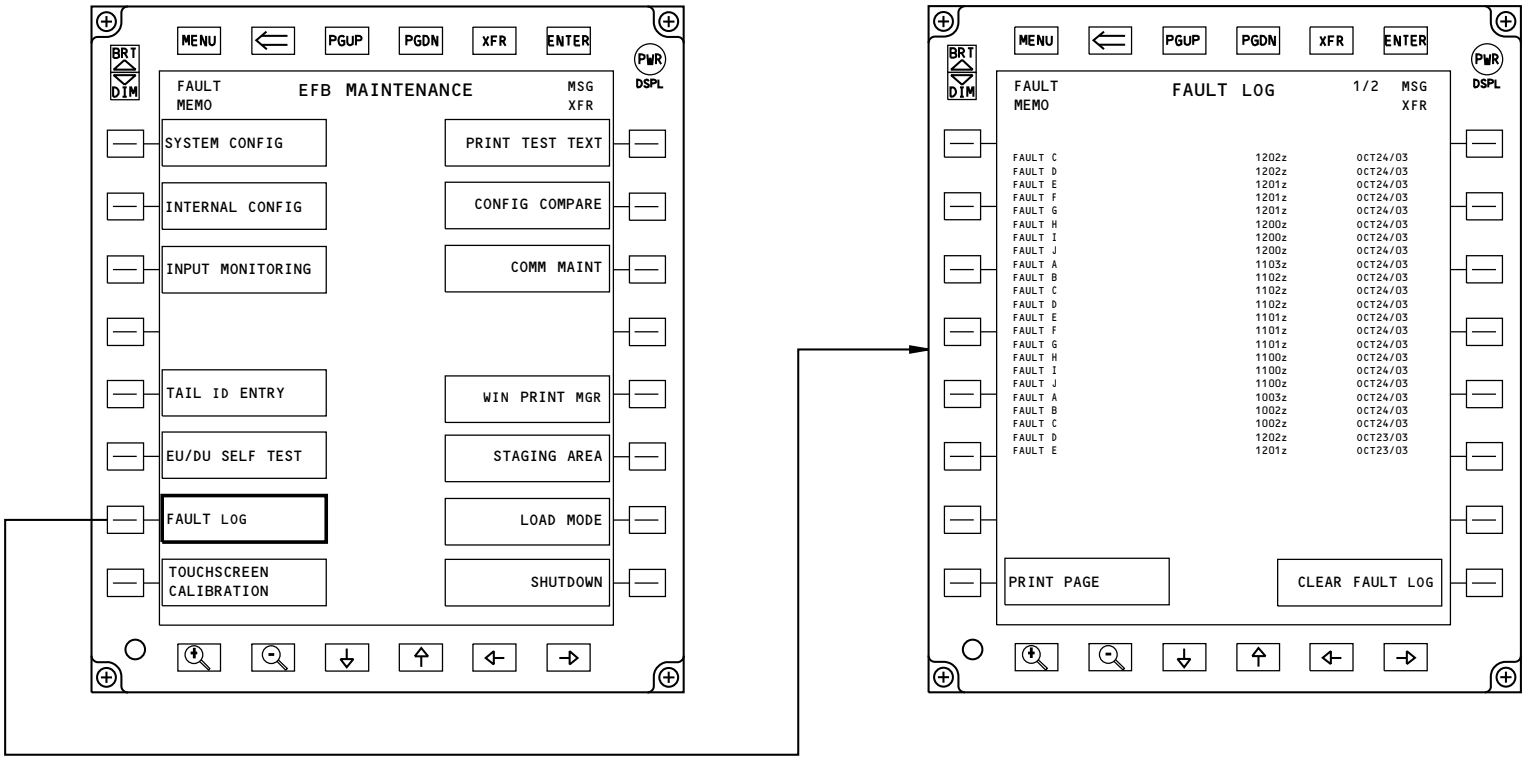
For information about specific EFB fault messages, refer to Fault Isolation Manual (FIM).

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EFB FAULT LOG PAGE

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EFB - INPUT MONITORING PAGE

General

The INPUT MONITORING page lets the maintenance crew monitor the Electronic Flight Bag (EFB) interface activity in real-time. Access to INPUT MONITORING is from the EFB Maintenance page. The input monitoring page gives access to the functions that follow:

- General input monitoring
- Analog discretes.

General Input Monitor

The GEN INPUT MONITOR gives the status of ARINC 429 hardware interfaces to the Electronics Unit (EU). The page shows the status of each interface as present or absent.

The general input monitor page shows the interfaces that follow:

- PR1 - Printer
- CCD - Cursor Control Device
- ACARS - Aircraft Communications Addressing And Reporting System (ACARS), primary channel
- ACARS2 - ACARS, secondary channel
- GN1 - MMR/GPSSU
- IR3 - AIMS IRS
- GP1 - AIMS General Purpose BUS 4
- FM1L - Left AIMS General Purpose BUS 1
- FM1R - RIGHT AIMS General Purpose BUS 1
- AD3 - AIMS General Purpose BUS 3
- NFS - network file server

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- VIDEO - flight deck entry video surveillance system.

ARO ALL

NOTE: The interfaces shown on GEN INPUT MONITOR are set by the EFB operating system, and how it senses inputs from the devices. If a device is not installed, GEN INPUT MONITOR does not show that interface. If an installed device is not serviceable, GEN INPUT MONITOR shows the interface as ABSENT.

Analog Discretes

The analog discretes function shows voltage levels, and condition (ground or open) of the analog interfaces on the electronics unit. The list of analog discretes (program pins) varies depending on the aircraft that the EFB is installed.

NOTE: The program pin code for EU-L is 2F4, and for EU-R is 2F1.

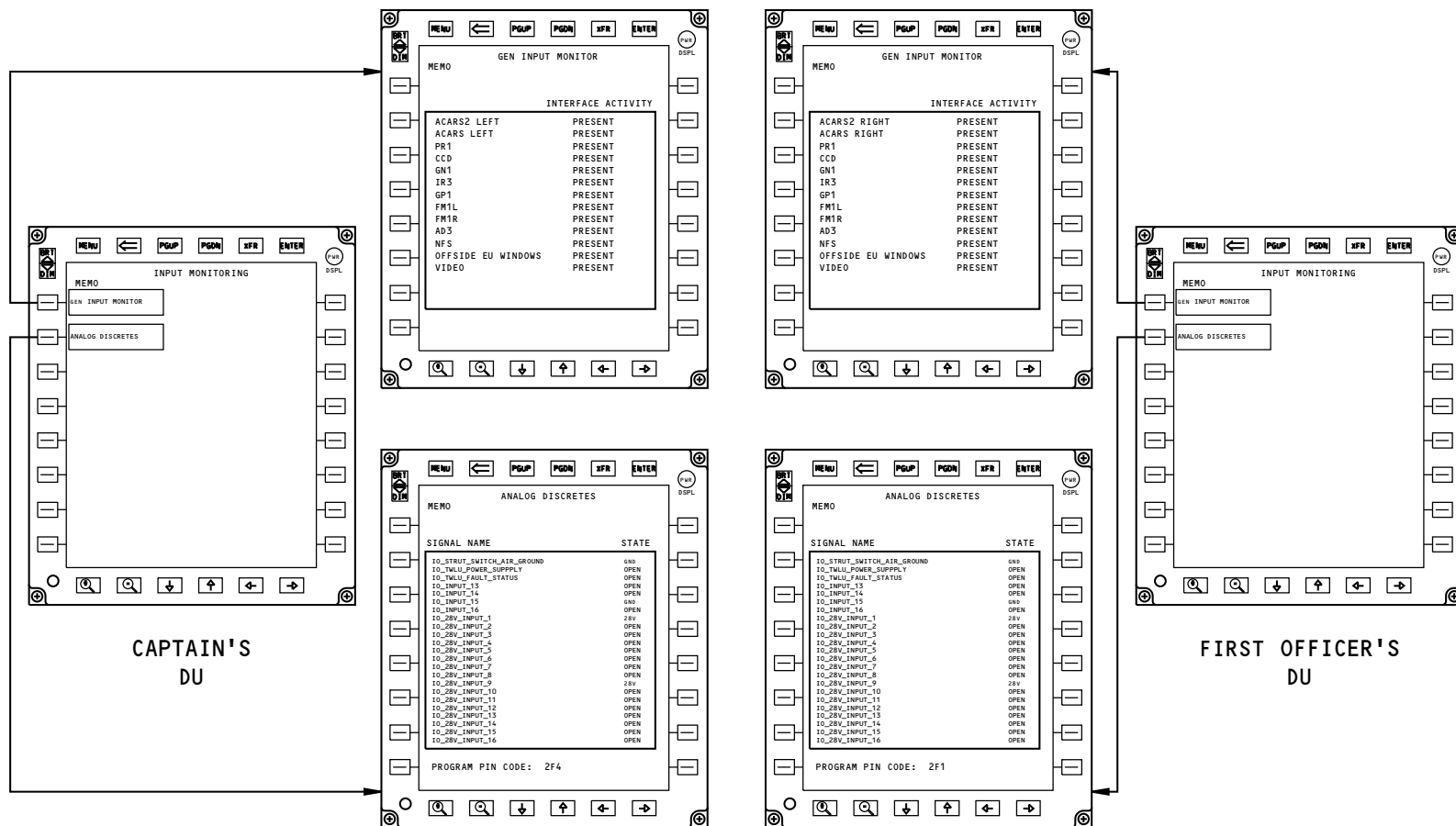
ACARS and ACARS2

The ACARS and ACARS2 channels show the status of the EFB to Airplane Information Management System (AIMS) data communications management function (DCMF) interface.

The captain's Display Unit (DU), through EU-L, shows only the status of ACARS-LEFT, and ACARS2-LEFT interfaces.

The first officer's DU, through EU-R, shows only the status of ACARS-RIGHT, and ACARS2-RIGHT interfaces.

An aircraft with active ACARS messaging handling can give the maintenance crew notification of problems before the aircraft has landed. The EFB interface gives data on EFB software configuration, and EFB fault log contents. This advanced information can reduce aircraft turn-around time.



NOTE: THE DATA SHOWN ON THE DISPLAY IS ONLY AN EXAMPLE.

1390721 S0000252179_V1

EFB INPUT MONITORING

46-11-00

EFB - EU/DU SELF TEST - GENERAL DESCRIPTION

General Description

The user gets access to the EU/DU self test function from the EFB MAINTENANCE menu. The EU/DU SELF TEST menu lets the user do these tests:

- Keyboard / Bezel Test
- Pixel test
- DU Test
- EU test
- Video switch test
- Fault icon
- Memo icon
- Msg icon.

NOTE: Most of these self test functions are not line-maintenance level tests and need to be performed only when required by a maintenance action.

EFB Power-Up Test

When the Electronic Flight Bag (EFB) is energized, it does an EU and Display Unit (DU) self-test, or Power-up Built-In Test (P-BIT).

NOTE: If two (2) minutes or less has elapsed since the EFB was last energized, the EFB will bypass the P-BIT.

During the Built-In-Test (BIT) the DU shows the EU SELFTEST page and flashes intermittently. This is a normal system operation and continues for approximately one (1) minute. This test can be cancelled by pushing the MENU bezel key. Refer to the illustration at the end of this pageset.

When the test is complete, the DU shows the MAIN MENU.

Keyboard / Bezel Test

The KEYBOARD/BEZEL TEST is a separate page that gives the ability to test each bezel Line Select Key (LSK), the PS/2 keyboard, and printer input interface.

The applicable bezel lamp comes on when you push the LSK. You can not do a test on some bezel LSK, because they have a special function (MENU, for example).

You can make sure that the keyboard connection is serviceable. When you push any alpha-numeric character on the keyboard, the character shows in the box below PS/2 KEYBOARD.

Exit the test page by pressing the Back (<=) button or Menu LSK.

Pixel Test

The PIXEL TEST function lets the user see if pixels on the DU are damaged.

Fault, Memo and Message Icons

The FAULT ICON, MEMO ICON, and MSG ICON functions do a test of the annunciations at the top of the DU. Each button makes the annunciation come on, or go off.

Use the Back (<=) button or Menu LSK to return to the EFB MAINTENANCE page. When you leave EU/DU SELF TEST, the icons go off automatically.

Video Switch Test

The VIDEO SWITCH test lets you see video input received from the Windows partition.

EU Test

The EU TEST starts the EFB EU initiated BIT. The test result (PASS or FAIL) shows above the EU TEST button.

DU Test

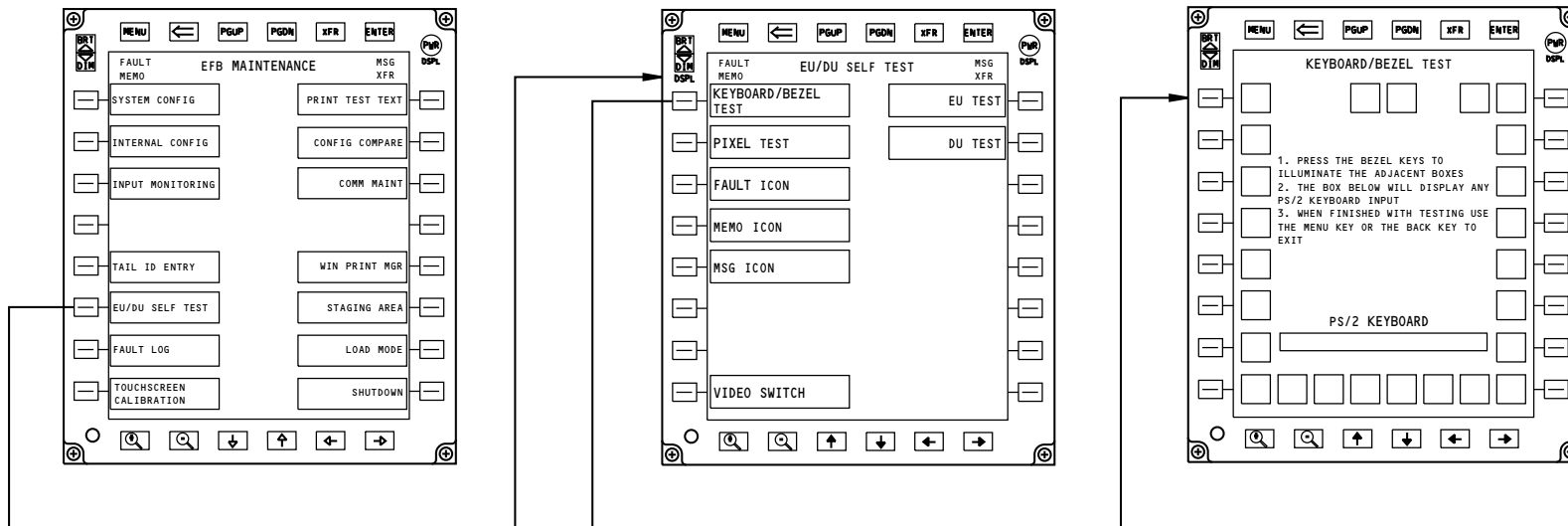
The DU TEST function is a series of display tests. When you select DU TEST, the DU starts a BIT. The DU shows the results (PASS or FAIL) above the DU TEST button.

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1315635 S0000229220_V3

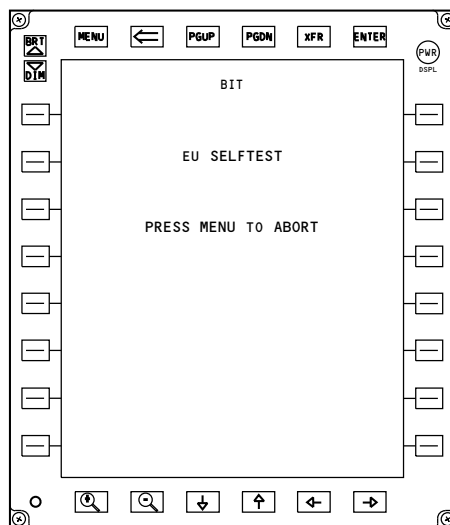
EFB EU/DU SELF TEST

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EFB - POWER-UP BUILT-IN TEST

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EFB - TOUCHSCREEN CALIBRATION - GENERAL DESCRIPTION

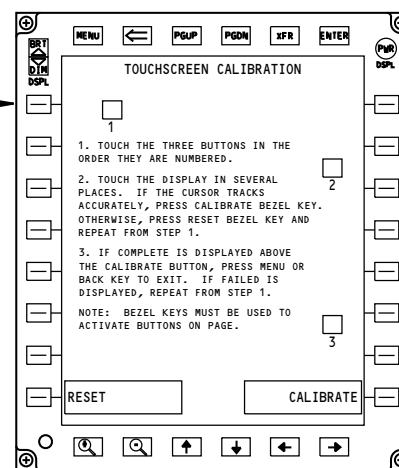
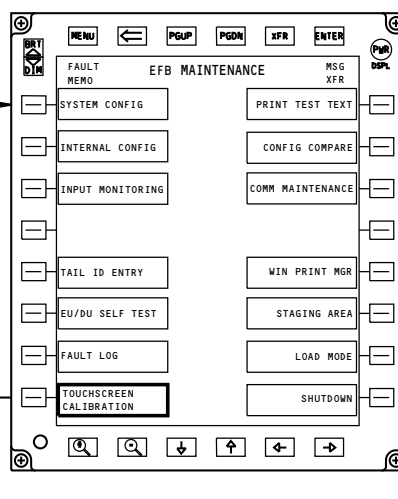
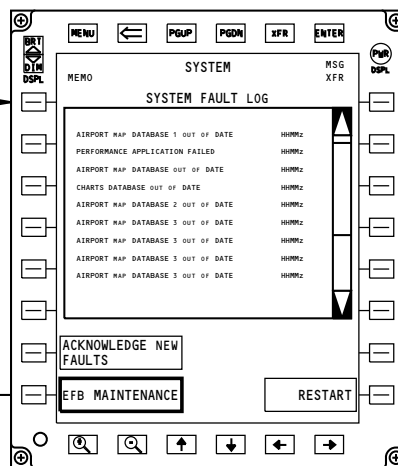
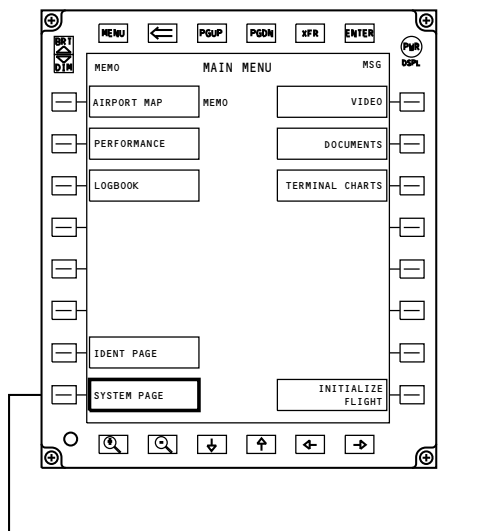
General Description

The Electronic Flight Bag (EFB) Display Unit (DU) lets the user make selections in two ways. You can push the bezel Line Select Key (LSK) to make a selection. Or, you can push the touchscreen to make a selection for most functions and applications.

NOTE: In LOAD MODE, you can only make selections using the bezel LSK. The touchscreen has no effect in LOAD MODE.

You get access to the touchscreen calibration function from the EFB MAINTENANCE menu.

If the button selections on the screen is either not responsive to your touch or is not accurate, the DU requires a touchscreen calibration.



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EVB TOUCHSCREEN CALIBRATION

1315638 S0000229224_V1

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EFB - CONFIG COMPARE

General

The CONFIG COMPARE function compares Loadable Software Airplane Part (LSAP) between EU-L and EU-R. If EU-L and EU-R have the same software parts, the Display Unit (DU) will show NO MISMATCH. When EU-L and EU-R are different, the DU shows the installed software part and which EU has it.

NOTE: All LSAP installed in one EU must also be in the opposite EU. After you replace an EU, or do a software LOAD, CROSSLOAD, or STAGED LOAD, you should compare software between EU-L and EU-R.

Config Compare Function

The CONFIG COMPARE function is shown on the EFB MAINTENANCE page. Before you start, both DUs must be on, and in operational mode. When you select CONFIG COMPARE, The DU will show any of these messages:

- IN PROGRESS - the Electronic Flight Bag (EFB) is comparing configurations
- NO MISMATCH - EU-L and EU-R have the same configuration.
- SOFTWARE MATCH UNABLE - the EFB did not complete the procedure.
- CONFIG COMPARE results - the DU shows the LSAP that are installed in only one EU.

No Mismatch

The NO MISMATCH message shows that the installed LSAP are the same for EU-L and EU-R.

Use the MENU Line Select Key (LSK), or BACK button, to return to the EFB MAINTENANCE page.

Software Match Unable

If the DU shows SOFTWARE MATCH UNABLE, make sure that both EUs are ON and are set to operational mode.

NOTE: If any DU is set to LOAD MODE, the EFB can not compare software parts.

Use the MENU LSK, or BACK (<=) button, to return to the EFB MAINTENANCE page.

Config Compare Results

When there is a software mismatch between EU-L and EU-R, the CONFIG COMPARE page shows. It shows a table of LSAP with name, part number, and which EU has the LSAP installed. This table shows in alphanumerical order based on the part number (does not include the fourth and fifth character - checksum value).

If the result shows LEFT, the LSAP is installed on EU-L but not EU-R.

If the result shows RIGHT, the LSAP is installed on EU-R but not EU-L.

Long lists can be viewed by using the scroll bar to the right of the table. The results table can be sent to the cockpit printer by selecting the PRINT ALL LSK.

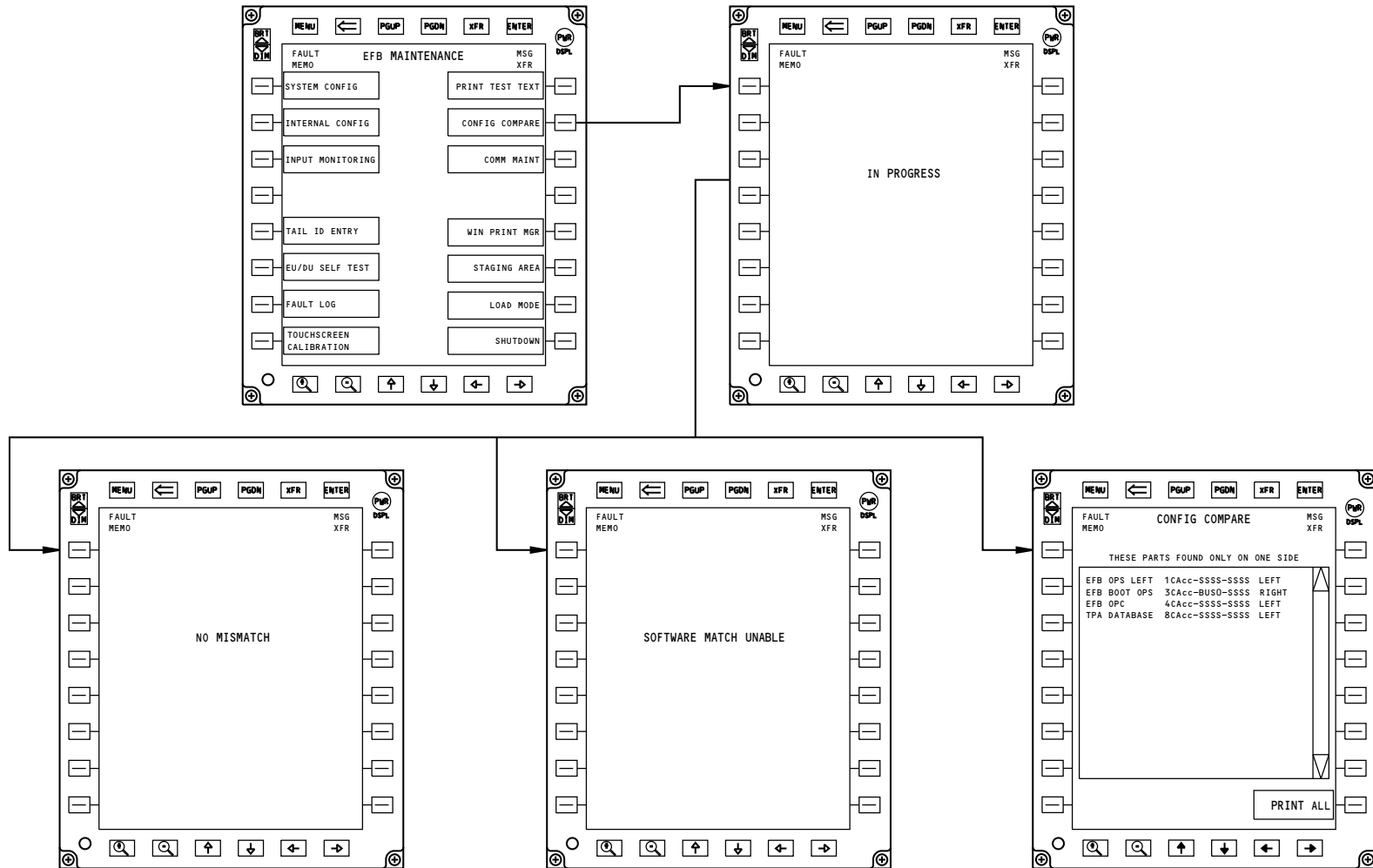
Use the MENU LSK, or BACK (<=) button, to return to the EFB MAINTENANCE page.

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EFB CONFIG COMPARE PAGE

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EFB - TAIL ID ENTRY

General

The TAIL ID ENTRY page records the airplane tail number, or registration number, in the Display Unit (DU) memory.

NOTE: The tail ID must be recorded in DU-L and DU-R each, and they must agree.

Tail ID Entry Function

The TAIL ID ENTRY function is shown on the EFB MAINTENANCE page. The TAIL ID ENTRY page has a touchscreen-based keyboard, with a data field above the keyboard.

NOTE: Make sure that both EU/DU-L and EU/DU-R are ON, and that the opposite DU is in OPERATIONAL MODE, and not in LOAD MODE.

Use the touchscreen to enter the tail ID number. These are some of the special function keys:

- SYMB - makes the keyboard show symbols
- SHIFT - makes the keyboard show capitalized letters
- SP - space
- BKSP - backspace
- CLR FLD - clear field

Tail ID Comparison

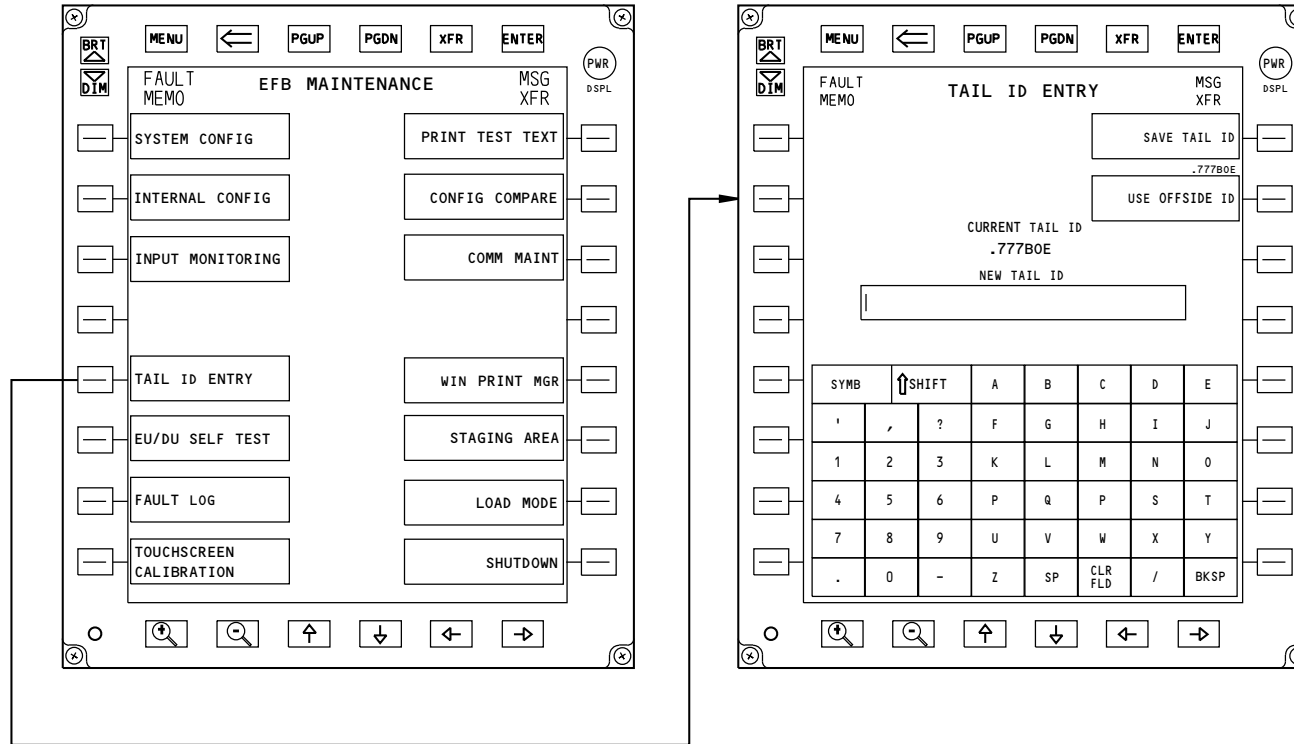
When the tail ID is entered, the EU compares tail ID value with the value entered in the opposite EU. If the two values do not agree, the active DU will show one of these messages:

- ECMF TAIL ID MISMATCH - the opposite DU does not agree with the recorded value.
- TAIL ID MISMATCH - the opposite DU does not agree with the recorded value.
- UNABLE TO COMPARE - the opposite DU must be ON, and not in LOAD MODE

- USE OFFSIDE ID - function sets the TAIL ID using the record from the side-opposite DU.

The Electronic Flight Bag (EFB) compares tail ID values automatically every time that the system is turned ON. Also, EFB records a fault when TAIL ID mismatch is found.

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EFB TAIL ID ENTRY

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**EFB - WINDOWS PRINT MANAGER****General**

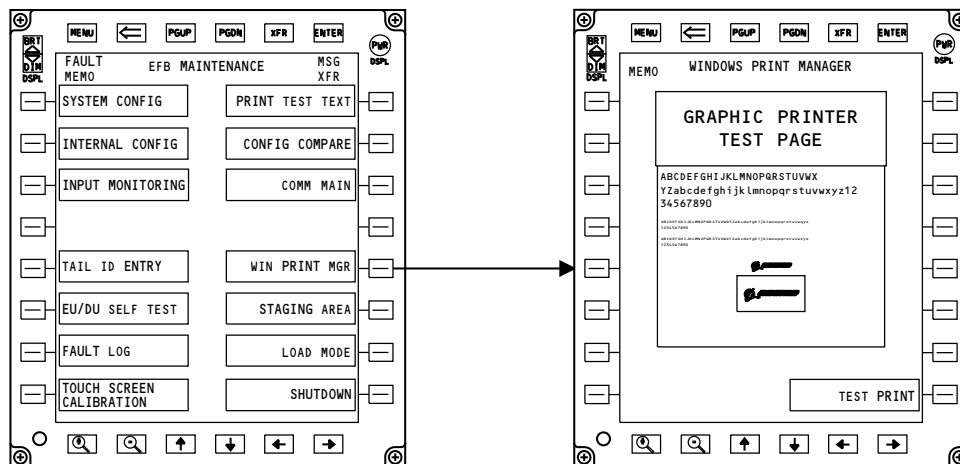
The Windows Print Manager is a page that shows a reference graphical image, and gives access to the TEST PRINT function. The test print function causes the EFB to send the reference image to a graphics-capable printer, using an ARINC 744 connection.

The Windows Print Manager is applicable only to graphical, or bitmap images. The EFB uses a different process to print ARINC 429 text.

Access to the Windows Print Manager page is from the EFB MAINTENANCE page. To return to the EFB MAINTENANCE page, push the BACK (<=) button.

Test Print Function

The TEST PRINT button tells the flight deck printer to print the image shown on the EFB Windows Print Manager page. To print a graphical image successfully, the EFB, and flight deck printer must be serviceable.



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EFB WINDOWS PRINT MANAGER

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EFB - LOAD MODE - GENERAL DESCRIPTION

General

The LOAD MODE menu shows the Electronic Flight Bag (EFB) load mode functions. You get access to the LOAD MODE menu from the EFB MAINTENANCE page.

These functions let you add, delete, transfer, and repair Loadable Software Airplane Part (LSAP) in EU-L and EU-R. You can also replace the complete Linux and Windows operating systems.

When the EFB operates in load mode, the Electronics Unit (EU) uses a Linux operating system kept in flash-memory, and not the operating systems stored on the disk drives.

NOTE: When you exit the normal, flight operational mode and enter the LOAD MODE, the buttons on the screen change to cyan in color, the message "IN PROGRESS" shows above the LOAD MODE button, and then the LOAD MODE page shows.

NOTE: The EFB shows the LOAD MODE page approximately three minutes after you push the LOAD MODE button. During the reboot sequence, the DU can show the words NO INPUT, followed by NO VIDEO. This is its usual operation, and not a fault.

NOTE: When the EU is in load mode, the touchscreen buttons do not operate. You must push the bezel key adjacent to your selection when in load mode, and in all subsequent load mode functions.

Load Mode Functions

The LOAD MODE menu gives access to the functions that follow:

- EXTERNAL DATALOAD
- CROSSLOAD
- DISK UTILITIES
- DELETE LSAP

External Dataload

The EXTERNAL DATALOAD function sets the EU to receive data from, and upload data to an approved Portable Data Loader (PDL).

When you push the Line Select Key (LSK) adjacent to EXTERNAL DATALOAD, the Display Unit (DU) then shows the DATA LOADING page. This page shows that the EU is set to receive data from the PDL.

To exit the DATA LOADING page without changes, press the Back (<=) button or MENU LSK.

Crossload

The CROSSLOAD functions let you install software from one EU into the opposite EU.

When you push the LSK adjacent to CROSSLOAD, the DU shows these functions:

- EU-L TO EU-R (shows only on the captain's DU)
- EU-R TO EU-L (shows only on the first officer's DU)
- ACCEPT CROSSLOAD (shows on each DU).

NOTE: We recommend that you use the crossload functions only when specified by a maintenance action.

To exit the CROSSLOAD page without changes, press the Back (<=) button or MENU LSK.

Disk Utilities

The DISK UTILITIES functions let you repair or delete LSAP, and replace the Linux or Windows operating systems that are installed in each EU.

When you push the LSK adjacent to DISK UTILITIES, the DU shows these functions:

- RE-IMAGE WINDOWS
- RE-IMAGE LINUX
- REPAIR LINUX

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EFB - LOAD MODE - GENERAL DESCRIPTION

- DELETE WIN LSAP AND DATA
- DELETE TEMP.

NOTE: We recommend that you use the disk utilities functions only when specified by a maintenance action.

To exit DISK UTILITIES without changes, press the Back (<=) button or MENU LSK.

Delete LSAP

The DELETE LSAP function lets you erase loadable software parts from the EU.

When you push the LSK adjacent to DELETE LSAP, the DU shows a list of available LSAP. At the end of the last page is the DELETE PARTS function. When you push the LSK adjacent to DELETE PARTS, all highlighted LSAP will be erased permanently. Make your selections carefully.

NOTE: We recommend that you use the delete LSAP functions only when specified by a maintenance action.

To exit the DELETE LSAP page without changes, press the Back (<=) button or MENU LSK.

NOTE: If one or more parts can not be selected and must be removed, refer to the reimage function.

Reboot To Main

The REBOOT TO MAIN function lets you go back to the EFB MAIN MENU.

When you push the LSK adjacent to REBOOT TO MAIN, control of the EU is given to the disk-based Windows and Linux operating systems.

It can take two to three minutes for the system to transfer from load mode to operational (flight) mode. Thus, make sure you complete all LOAD MODE procedures before you exit load mode.

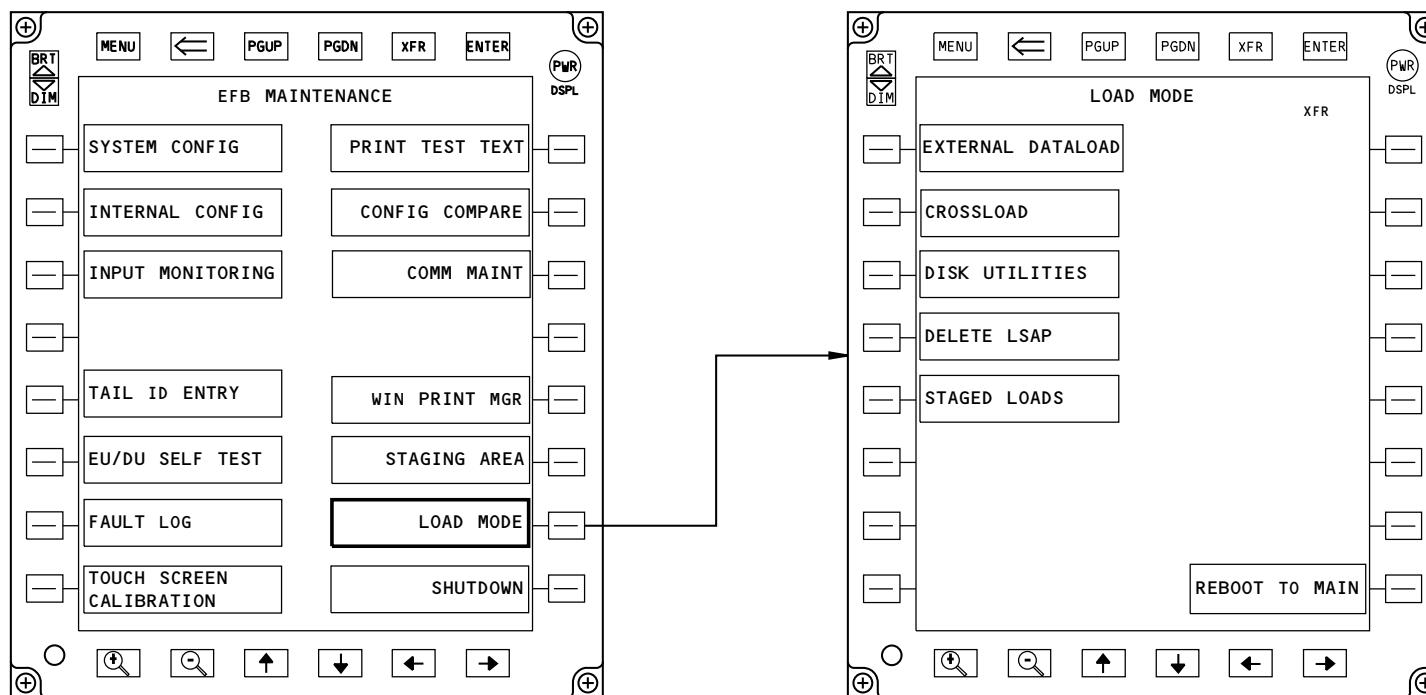
This function is the only approved procedure to stop load mode. The Back (<=) button, and MENU LSK do not operate when the LOAD MODE page shows.

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EFB LOAD MODE

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**EFB - EXTERNAL DATALOAD FUNCTION****General**

The EXTERNAL DATALOAD function sets the Electronic Flight Bag (EFB) to receive data from, and upload data to an approved Portable Data Loader (PDL).

You get access to EXTERNAL DATALOAD function from the LOAD MODE page.

NOTE: When the EFB is in load mode, the touchscreen buttons do not operate. You must push the bezel key adjacent to your selection.

When you push the Line Select Key (LSK) adjacent to EXTERNAL DATALOAD, all buttons on the screen change to cyan in color, and the message "PLEASE WAIT" shows above the EXTERNAL DATALOAD button.

To stop the DATALOAD function before any changes, push the BACK (<=) key, or the MENU bezel key. The Display Unit (DU) then shows the CONFIRM or CANCEL message. Push the LSK adjacent to CONFIRM button to exit, or the LSK adjacent to CANCEL to continue with the software installation.

External Dataload Operation

To install software with this function, you will connect an approved PDL to an RJ-45 connector using an Ethernet cable. The EFB data port is located as follows:

- Flight deck, second observer's panel, P18-1, M23218 (direct to EU-L).

The PDL can install Loadable Software Airplane Part (LSAP) to EU-L, EU-R, or EU-L and EU-R at the same time.

To make a connection between the PDL and EU-L, the captain's DU is set to show the EXTERNAL DATALOAD page. To make a connection between the PDL and EU-R, the captain's DU and first officer's DU are each set to show the EXTERNAL DATALOAD page. The PDL uses the Ethernet between EU-L and EU-R to connect with EU-R.

NOTE: To install software to EU-R only, or to EU-L and EU-R at the same time, EU-L and EU-R must each show the DATA LOAD page.

To install software only to EU-L, then EU-L must show the DATA LOAD page.

Make sure you complete all software installations before you exit LOAD MODE.

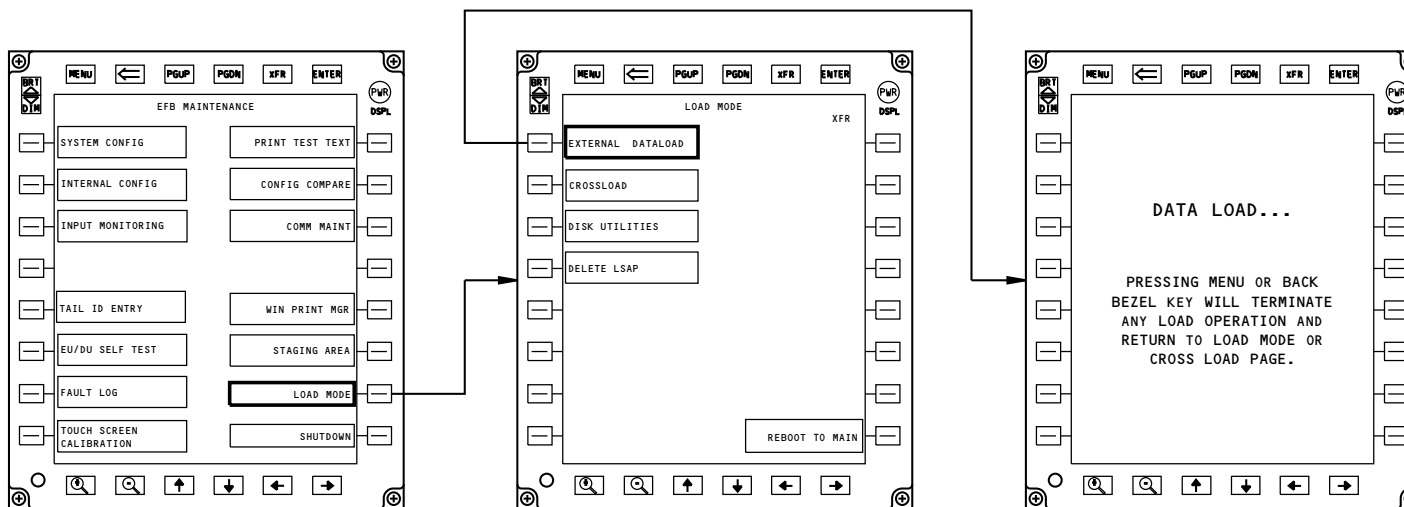
To exit the data load page, and return to the LOAD MODE page, push the BACK (<=) bezel key.

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EFB EXTERNAL DATALOAD PAGE

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EFB - CROSSLOAD FUNCTION

General

The CROSSLOAD functions set the Electronic Flight Bag (EFB) to install Loadable Software Airplane Part (LSAP) from one Electronics Unit (EU) to the side-opposite EU.

You get access to the crossload function from the LOAD MODE page.

NOTE: When the EFB is in load mode, the touchscreen buttons do not operate. You must push the bezel key adjacent to your selection.

The crossload functions set each EFB to be a data load source, or data load destination. The source EFB system is where the LSAPs are installed and which are then used to load the other EU. The destination EFB system (or target) is where the LSAPs are copied.

To stop the DATALOAD function before any changes, push the BACK (<=) key, or the MENU bezel key. The Display Unit (DU) then shows the CONFIRM or CANCEL message. Push the Line Select Key (LSK) adjacent to CONFIRM button to exit, or the LSK adjacent to CANCEL to continue with the software installation.

Crossload Page Functions

From the LOAD MODE menu, when you push the LSK adjacent to CROSSLOAD, the DU shows these functions:

- EU-L TO EU-R, shows only on the captain's DU
- EU-R TO EU-L, shows only on the first officer's DU
- ACCEPT CROSSLOAD.

The EU-L TO EU-R selection sets the EU-L as the source system. This button is labeled EU-R TO EU-L when this function is accessed from the right EU.

ACCEPT CROSSLOAD sets the EU as the destination system (or target). This selection allows the EU to receive the crossload operation from the other EU. When you select this button, the DATA LOAD page shows.

To do the crossload installation correctly, the two DUs must be set in the correct sequence. The target DU must be set to ACCEPT CROSSLOAD before you transmit LSAP from the source DU.

EU-L to EU-R Page Functions

This page lets the user select software part numbers to be crossloaded and to start crossload. The user may select one or all software part numbers. There may be more than one page of software part numbers.

NOTE: To select individual software part number(s), push the LSK adjacent to each individual software part number. To select all software part numbers on the current page, push the SELECT PAGE option. To deselect all software on a page, push the DESELECT PAGE button. To select all software on all pages, push the SELECT ALL button. To deselect all software, push the DESELECT ALL button. To change pages, push the PGUP and PGDN keys. If time is short and you have many software part numbers to load, you can push the SELECT PAGE or SELECT ALL button and then de-select individual software part numbers that you do not want to install.

The software part number buttons allows the user to select or deselect (toggle function) a part number to be loaded.

Buttons on the EU-L TO EU-R page are as follows:

- SELECT ALL allows the user to select or deselect all software part numbers
- SELECT PAGE allows the user to select or deselect all software part numbers on the displayed page only.
- START CROSSLOAD allows the user to install the selected software part numbers. This button shows on the last page of part numbers.

NOTE: Before you select a software part to crossload, START CROSSLOAD is inactive and is cyan in color. The START CROSSLOAD button becomes active (and changes to white in color) when you select a minimum of one software part number.

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EFB - CROSSLOAD FUNCTION

Data Load Page

The Data Load page indicates the EU is communicating with the external data loader, or is crossloading with the other EU. The data load page shows after you make one of selections that follow:

- EXTERNAL DATALOAD from the LOAD MODE page or
- START CROSSLOAD on the EU-L(R) TO EU-R(L) page or
- ACCEPT CROSSLOAD on the CROSSLOAD page.

NOTE: After the crossload operation starts and the DATA LOAD page shows, you see all software parts as they load, one part number at a time.

NOTE: The Data Load page may take 30 to 45 seconds to show after you make one of the selections.

When crossload is complete, the LOAD MODE menu page shows. At data load completion, you must select the REBOOT TO MAIN button to exit the LOAD MODE and return to the operational (flight) mode.

NOTE: Make sure you are complete with all LOAD MODE actions (upload, crossload, delete, etc,) before you select REBOOT TO MAIN and exit the LOAD MODE.

Training Information Points

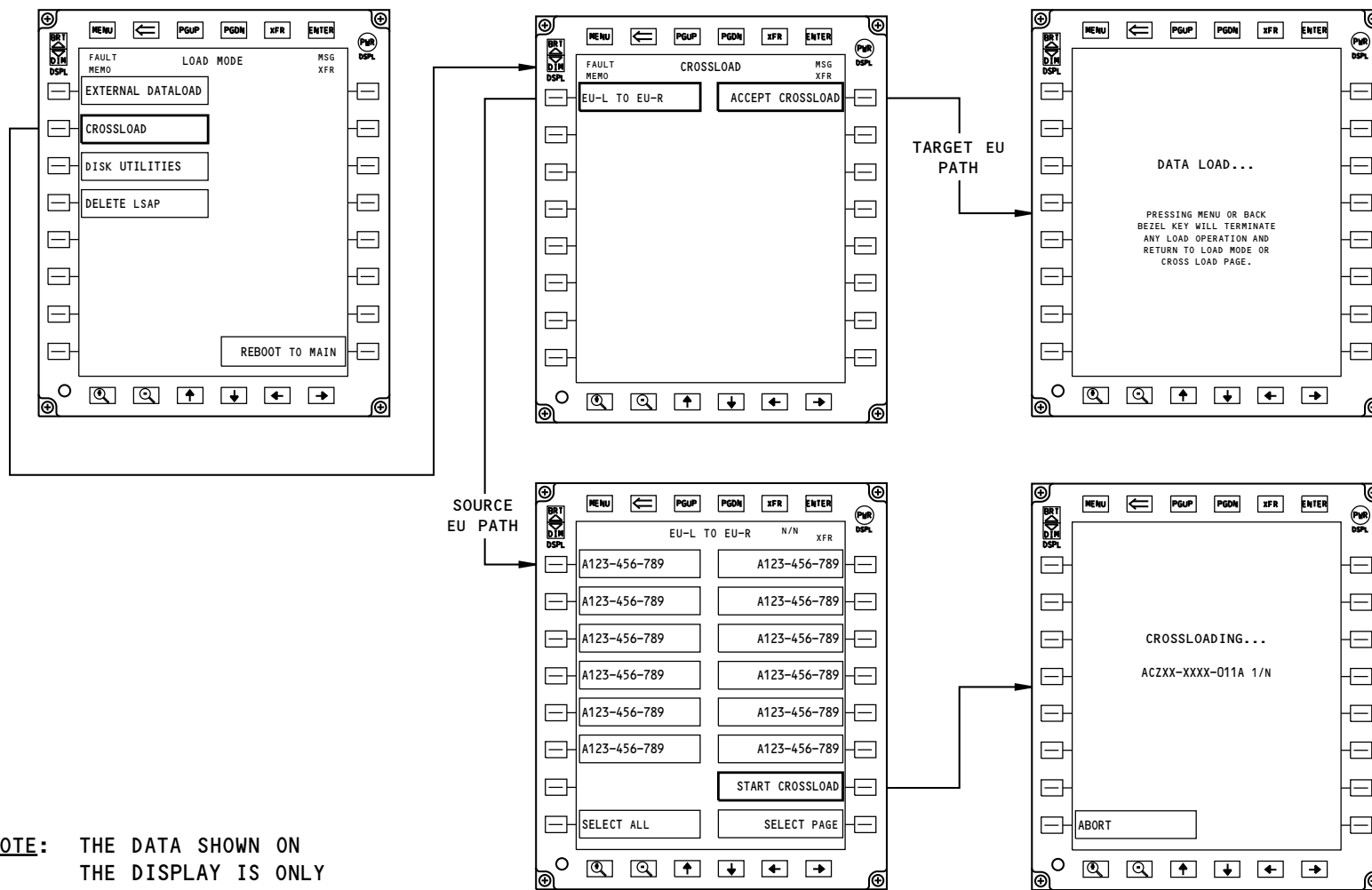
Installation of the Windows operating system requires approximately 15 minutes.

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EFB - CROSSLOAD DIALOG BOX

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EFB - DISK UTILITIES - GENERAL DESCRIPTION

General

The DISK UTILITIES functions can repair or delete Loadable Software Airplane Part (LSAP), and replace the Linux or Windows operating systems that are installed in each Electronics Unit (EU).

You get access to the DISK UTILITIES functions when you make the LOAD MODE selection on the EFB MAINTENANCE menu. Then, on the LOAD MODE menu, push the Line Select Key (LSK) adjacent to DISK UTILITIES.

NOTE: We recommend that you use the disk utilities functions only when specified by a maintenance action.

The disk utilities page gives access to these functions:

- REPAIR LINUX
- REIMAGE LINUX
- REIMAGE WINDOWS
- Delete WIN LSAP and Data
- Delete TEMP.

The repair or reimage operation requires two steps. You must first push the bezel LSK adjacent to the applicable repair or reimage operation. Then, push the bezel LSK adjacent to CONFIRM to continue (or CANCEL to stop).

NOTE: When the EU operates LOAD MODE, which includes Disk Utilities, the touchscreen buttons do not operate. You must push the bezel key adjacent to your selection.

Repair Linux

The REPAIR LINUX function repairs the Linux directory structure.

NOTE: We recommend that you use the REPAIR LINUX function only when specified by a maintenance action.

Reimage Linux

The REIMAGE LINUX function formats the Linux partition and Linux file directories.

When you select the REIMAGE LINUX option, all loadable software residing on the Linux partition will be deleted.

NOTE: We recommend that you use the REIMAGE LINUX function only when specified by a maintenance action.

Because the REIMAGE LINUX function deletes files, make sure you know and follow your airline procedure. Your airline procedure may require you to download all downloadable log files before you reimage Linux. If you do not download all applicable Linux partition data, all files and the data they contain will be deleted.

Reimage Windows

The REIMAGE WINDOWS function formats the Windows drive partitions. This operation erases completely the Windows operating system, all loadable software parts, and all data files.

This operation takes approximately 15 minutes to complete. After the operation is complete, the operating system, and all applicable software parts must be installed.

NOTE: Make sure you follow your airline procedure when using this function. Your airline procedure may require you to copy and save all downloadable data files before using this function. We recommend that you use the REIMAGE WINDOWS only when specified by a maintenance action.

Delete WIN LSAP and Data

The DELETE WIN LSAP AND DATA function removes all LSAP on the operationally approved (Windows) partitions, but not the operating system. All related files are also removed from the Windows partitions such as fault logs, performance calculations, and similar files.

NOTE: The DELETE WIN LSAP AND DATA function does not remove the Windows operating system.

NOTE: Make sure you follow your airline procedure when using this function. Your airline procedure may require you to copy and save all downloadable data files before using this function.

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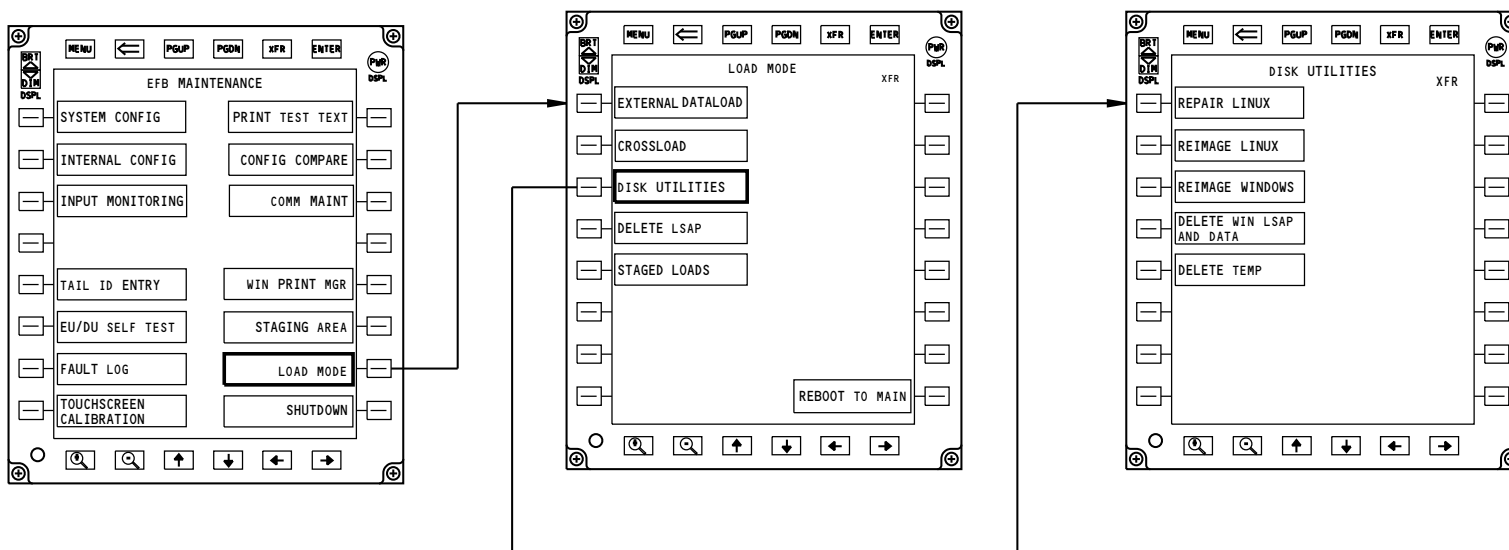
EFB - DISK UTILITIES - GENERAL DESCRIPTION

Delete TEMP

This function erases only the temporary data files (working files, log files, calculation files) from the Windows and Linux partitions, at the same time.

NOTE: Make sure you follow your airline procedure when using this function. Your airline procedure may require you to copy and save all downloadable data files before using this function.

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NOTE: THE DATA SHOWN ON THE DISPLAY IS ONLY AN EXAMPLE.

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EFB DISK UTILITIES

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EFB - DELETE LSAP

General

The DELETE LSAP function lets you erase Loadable Software Airplane Part (LSAP) from the Electronics Unit (EU).

NOTE: We recommend that you use the delete LSAP functions only when specified by a maintenance action.

You get access to the DELETE LSAP function from the LOAD MODE page.

When you push the Line Select Key (LSK) adjacent to DELETE LSAP, the Display Unit (DU) shows a list of available LSAP. Use the PgUp and PgDn keys see the complete list.

The DELETE LSAP page also shows these functions:

- SELECT ALL - highlights all LSAP on all of the pages
- SELECT PAGE - highlights all LSAP only on the page shown
- DELETE PARTS - sets the EFB to erase all highlighted LSAPs.

To exit the DELETE LSAP page without changes, press the Back (<=) button or MENU LSK.

Delete LSAP Operation

To highlight LSAPs, push the LSK adjacent to each part shown. You can highlight one LSAP at a time, one page at a time, or all parts on all of the pages at one time. Make your selections carefully.

When one or more LSAP is highlighted on the DELETE LSAP page, the DELETE PARTS function becomes activated.

When your selections are complete, push the LSK adjacent to DELETE PARTS. A confirmation message then shows. To complete the procedure, push the LSK adjacent to CONFIRM. To stop the procedure, push the LSK adjacent to CANCEL.

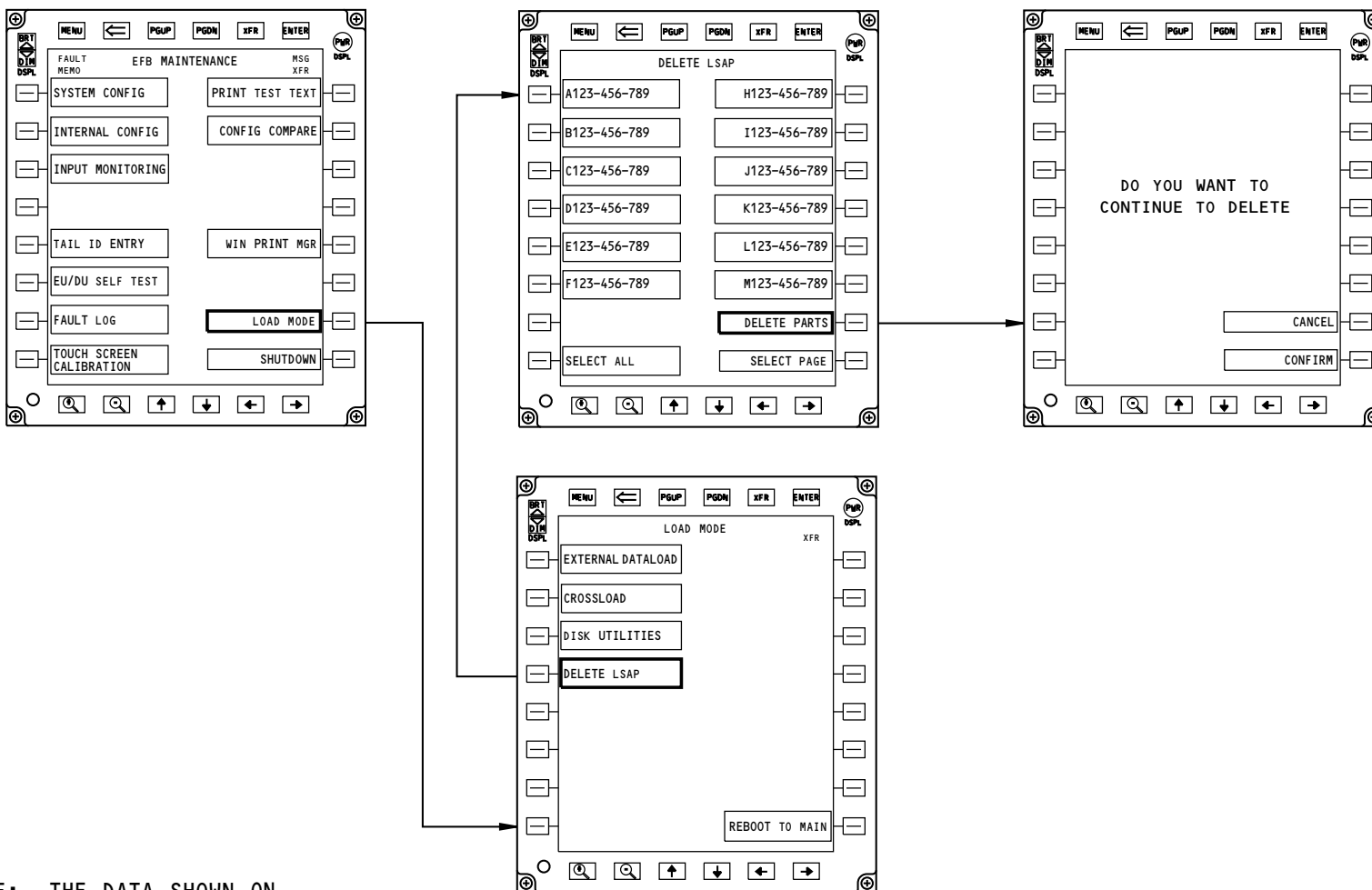
NOTE: When the EU is in LOAD MODE, the touchscreen buttons do not operate. You must push the bezel key adjacent to your selection to make a selection.

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EFB - DELETE LSAP

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EFB - STAGED LOADS - GENERAL DESCRIPTION

General

The STAGED LOADS page shows functions that install Loadable Software Airplane Part (LSAP) from the EU-L staging area to EU-L, EU-R, or EU-L and EU-R at the same time.

NOTE: We recommend that you use the STAGED LOADS functions only when specified by a maintenance action.

The staging area is protected so that LSAPs are separate from the software that is in operation. LSAP are received from a ground access point to EU-L only.

NOTE: DU-L and DU-R each can install staged loads, but only EU-L can receive LSAP from the TWLU. If EU-L and EU-R are interchanged, the wireless function remains with the EU-L tray. Any LSAP that was staged before you interchange EUs moves with the EU.

Staged Load Functions

When you select STAGED LOADS from the LOAD MODE menu, the Display Unit (DU) shows these functions:

- LOAD TO EU-L - installs software from the staging area to EU-L
- LOAD TO EU-R - installs software from the staging area to EU-R
- LOAD TO BOTH - installs software to EU-L and EU-R at the same time
- ACCEPT LOAD - tells the EU to receive software from the opposite EU.

When you push the LSK adjacent to LOAD TO EU-L (or EU-R, or EU-L and EU-R), the DU shows the LOAD TO EU-L (or EU-R, or EU-L and EU-R) page, and gives a list of staged LSAPs.

Load-To Page

The LOAD TO EU-L (or EU-R, or BOTH) page shows these functions:

- A Line Select Key (LSK) for each LSAP
- SELECT PAGE - highlights all LSAP on that page in one step.
- SELECT ALL - highlights all LSAP on all pages in one step.

- START LOAD - starts the installation procedure (shows only on the last page).

Training Information Points

When you install a staged load to the opposite Electronics Unit (EU), set the target EU to ACCEPT LOAD before you continue. The DU then shows the message DATALOADING.

NOTE: When EU-L is the source and EU-R is the target, the user must set EU-R to ACCEPT LOAD first, and then EU-L to LOAD TO EU-R.

When EU-R is the source and EU-L is the target, you must set EU-L to ACCEPT LOAD first, and then set EU-R to LOAD TO EU-L.

In the LOAD TO EU-L (or EU-R or BOTH) page, use the LSK next to each LSAP to select it for installation. To de-select, press the LSK again. The SELECT PAGE and SELECT ALL buttons operate the same way to select and de-select parts from the list.

Press the START LOAD LSK to perform the installation.

NOTE: The START LOAD button shows only on the last page. You must select at least one LSAP to make the START LOAD LSK active.

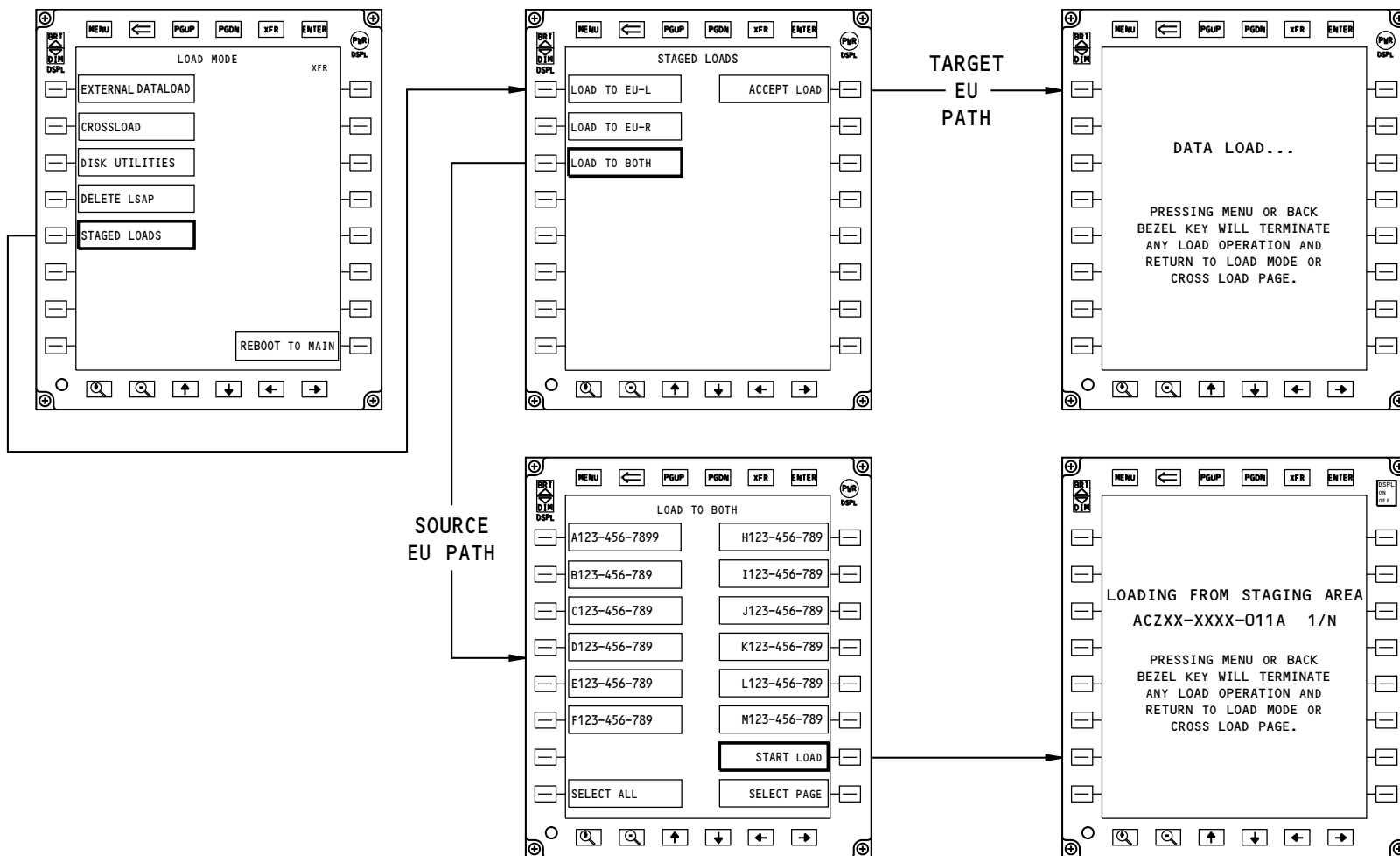
When an installation is in-work, the DU shows PROCESSING. When the installation is finished, the DU shows COMPLETE.

To complete the process, you must return to the LOAD MODE page and select REBOOT TO MAIN.

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EFB - STAGED LOADS

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WIRELESS WAN UNIT

General

The wireless WAN unit (WWU) is a low-power data transceiver that connects the onboard network system (ONS) to off-airplane wireless ground networks. The WWU operates as an ARINC 822 terminal wireless LAN unit (TWLU), and also contains two cellular radio cards.

The aircraft must be on the ground, with the weight-on-wheels discrete grounded to make a network connection.

When the WWU operates using IEEE 802.11b/g, the maximum distance to the ground access point is less than 200 ft (61 m). Using the cellular network connection, the useful distance is much greater.

The WWU communicates with the network file server (NFS) using Ethernet. The WWU sends and receives Radio Frequency (RF) data from the external wi-fi antenna, and the two connector-mounted cellular antennas.

To do a condition check, change WWU settings, or install software, you will use the ONS maintenance browser. The ONS maintenance browser is an onboard web site hosted by the network file server (NFS).

Physical Description

The WWU is in a metal enclosure, approximately 11.45 in. (29.08 cm) long, 6.46 in. (16.41 cm) wide, and 1.82 in. (4.6 cm) tall. The unit weighs approximately 4 lb (2 kg).

The unit has five interface connectors.

- J1 (insert A) connects electrical power and discrettes.
- J1 (insert B) connects to the ARINC 429 data bus, and RS232 maintenance port.
- J2 is the 10/100BASE-T Ethernet interface, and connects to the NFS.
- J3 and J4 are TNC RF coaxial antenna connections for cellular service.
- J5 is a TNC RF connector for wi-fi service, and connects to the aircraft's external antenna.

The WWU requires 115V ac (volts alternating current), 400 Hz (Hertz) electrical power.

The WWU uses passive cooling. It does not require forced air cooling.

The case has three radio power indicator Light Emitting Diode (LED) lamps, one LED for each internal radio card. The three are identified as WF, C1, and C2. The LED shows green in color when the radio card is energized.

Operational Software

The WWU operating system can be installed or replaced using the onboard network system (ONS). Typically, the new software parts are saved to the mass storage device (MSD) for future installation into the WWU.

Operation

The WWU is set to the enabled or disabled condition using the ONS maintenance browser.

NOTE: When the WWU is set to RF disabled, the unit remains energized. To remove electrical power, you must open the correct circuit breaker.

When the Weight-On-Wheels (WOW) discrete is true (grounded), the NFS automatically sets a second output discrete that enables RF wireless communications.

When in service, the NFS senses possible network signals from the WWU, and initializes a handshake sequence to create a network connection. When an authorized connection is serviceable, the transfer of data is automatic.

Communication Security

For cellular service, the two cellular radio cards, in the WWU, require one SIM card each. The SIM card can limit service to a specific service carrier, or specific regions. A serviceable SIM card is necessary to make a cellular network connection.

If the WWU has SIM1 or SIM2 not installed, the SIM cover label will show the words ICCID: NOT INSTALLED. This condition makes the specified cellular radio card unserviceable.

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**WIRELESS WAN UNIT**

For aircraft-to-ground network security, the NFS requires a serviceable, digitally signed, airplane credential. This credential is a software part. You will use the ONS browser to generate a key. The key is then signed by the network administrator and returned. You then install the serviceable part.

NOTE: To make WWU communications serviceable, you must do a check of, or generate new airplane credentials.

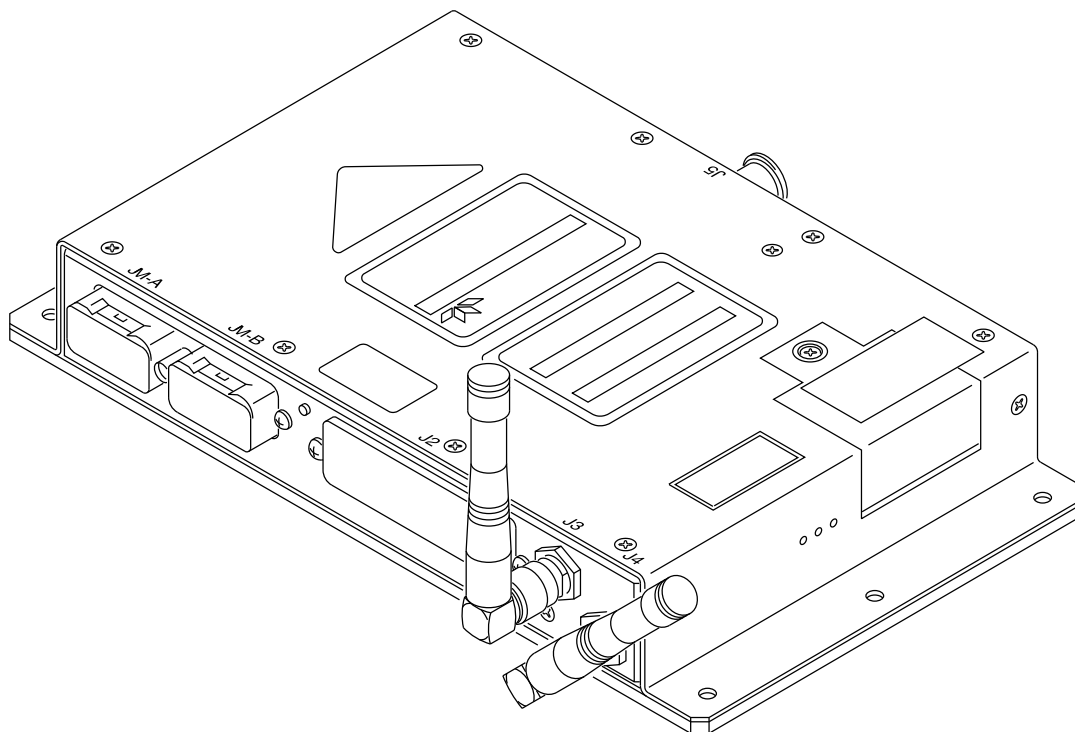
A serviceable airplane credential (.AMI/UMS file) is necessary only for the conditions that follow.

- To let the WWU communicate using wi-fi with the ground access point.

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WIRELESS WAN UNIT (WWU)

WIRELESS WAN UNIT - DESCRIPTION

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ONBOARD NETWORK SYSTEM INTRODUCTION

General

The onboard network system (ONS) is a computer based information system that supports flight, maintenance, and cabin operations.

The main hardware component of this system is the network file server (NFS). The server controls communications between connected airplane systems. With optional communications equipment installed, NFS supports network connections between airplane systems and ground-based networks.

The NFS hosts the mass storage device (MSD) function. The MSD gives software parts and data storage capacity.

The NFS can operate installed applications that support maintenance actions, and cabin operations.

The ONS user interface is a website. You can get access to this website using a maintenance laptop computer, electronic portable terminal (EPT), or using the newer model maintenance access terminal (MAT) when configured correctly.

The maintenance laptop (ML), or electronic portable terminal (EPT) is connected to a network data port using an Ethernet cable.

Acronyms and Abbreviations**ARO 014-999; ARO 011-013 POST SB 777-46-0066**

- ACMS - airplane condition monitoring system

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- ADIRU - air data inertial reference unit

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- AIMS - airplane information management system

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- AIS - Airplane Information System
- AMI - Airline-modifiable instruction
- APP - application

- ARINC - Aeronautical Radio Incorporated
- ATA - Airline Transport Association
- ATC - air traffic control
- AVM - airborne vibration monitor
- BEDS - Boeing electronic distribution (of) software
- CPU - central processing unit
- CRL - certificate revocation list
- CSR - certificate signing request
- DEU - display electronic unit
- DHCP - dynamic host configuration protocol
- DNS - domain name server
- EGPWS - Enhanced ground proximity warning system
- EVSC - engine vibration signal conditioner
- FMC - flight management computer
- GB - gigabyte
- GUI - graphic user interface
- ICAO - International Civil Aviation Organization
- ID - identification

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- IFE - in-flight entertainment

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- IP - internet protocol
- LAN - local area network
- LED - light emitting diode
- LRU - line replaceable unit
- LSP - loadable software part
- LSAP - loadable software airplane part
- Mb - megabyte
- ML - maintenance laptop
- MMR - multiple mode receiver

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ONBOARD NETWORK SYSTEM INTRODUCTION

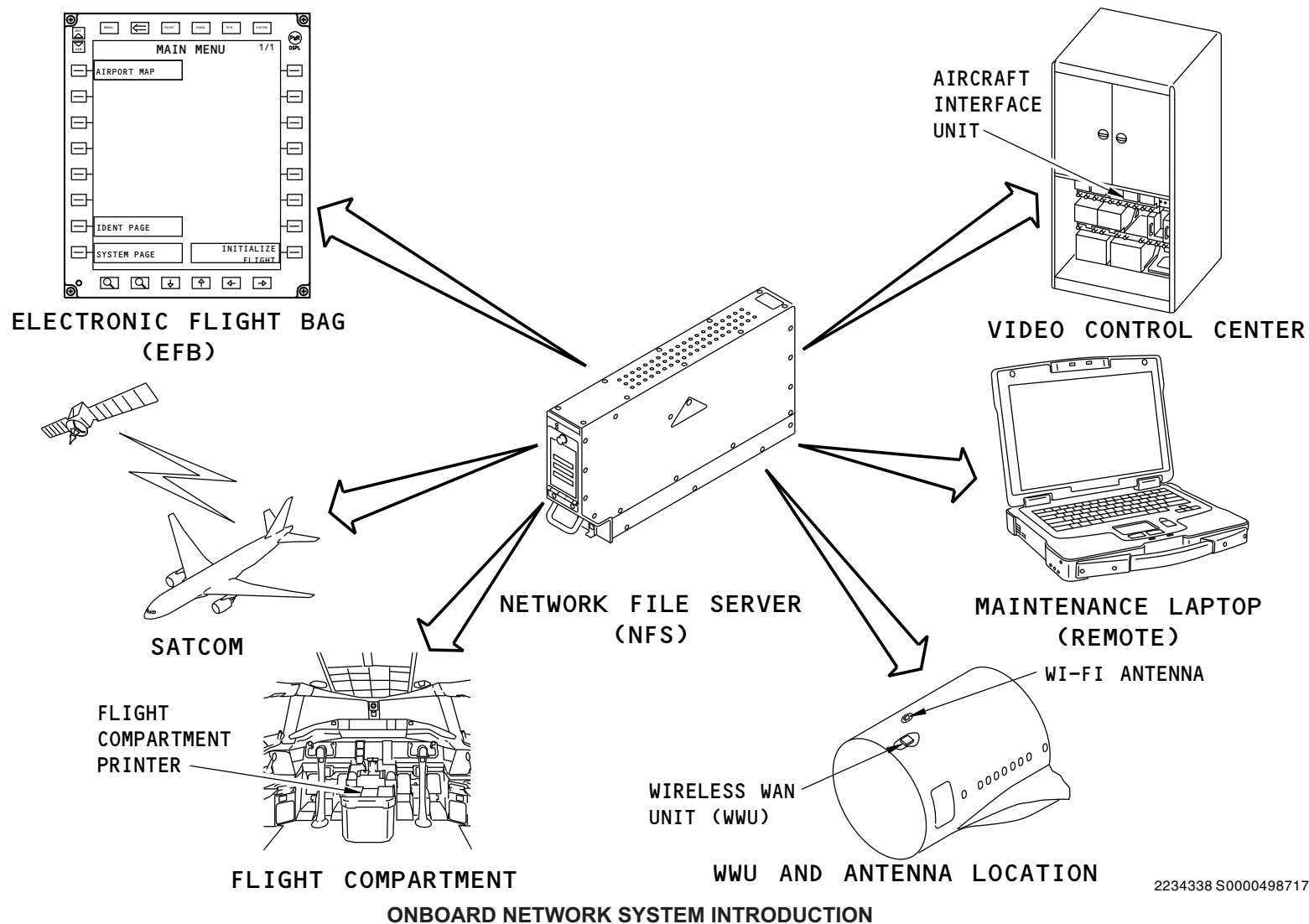
- MSD - mass storage device
- NED - network extension device
- NFS - network file server
- NTP - network time protocol
- OAS - operationally approved software
- OBEDS - onboard Boeing electronic distribution (of) software
- ODLF - onboard data load function
- ONS - onboard network system
- OPC - operational program configuration
- OPS - operational program software
- OS - operating system
- PMD - portable Maintenance Device
- ROM - read-only memory
- SAPS - standard airline parameter service
- SBC - single board computer
- SDRAM - synchronous dynamic random access memory
- SIM - subscriber identity module
- SPD - serial presence detect
- SSD - solid state drive
- TLS - transport layer security
- TWLU - terminal wireless LAN unit
- UDS - uplink-downlink service
- UMS - user modifiable software
- URL - uniform resource locator
- V ac - volts, alternating current
- V dc - volts, direct current
- VPN - virtual private network
- WAN - wide area network
- WWU - wireless WAN unit
- WoW - weight on wheels.

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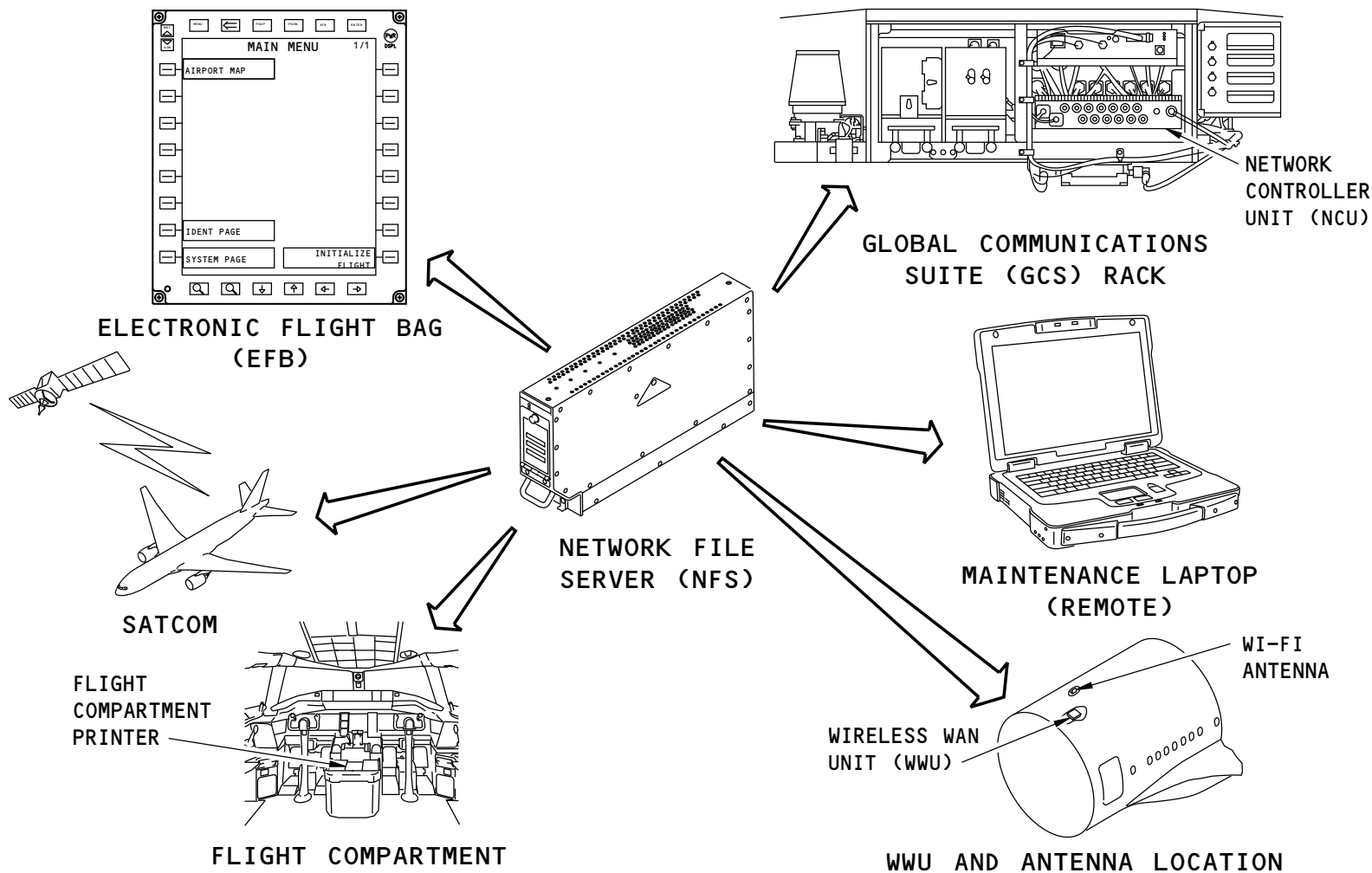
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NETWORK FILE SERVER (NFS) - INTRODUCTION

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ONBOARD NETWORK SYSTEM DESCRIPTION

General

The Onboard Network System (ONS) is connected to specific non flight-critical systems in the flight deck and cabin.

ARO 001-013**Network File Server**

The central component is the network file server (NFS), M46009. The server is rack-installed in the E/E bay, at location E4-2.

ARO 014-999**Network File Server**

The central component is the network file server (NFS), M46013. The server is rack-installed in the E/E bay, at location E4-2.

ARO ALL**Aircraft Ethernet Connectivity**

The NFS is connected to the systems that follow, using Internet Protocol (IP) over Ethernet wiring:

- Electronic Flight Bag (EFB)
- In-Flight Entertainment (IFE)

ARO 005-999

- Network extension device-domain guard (NED-DG)

ARO ALL

- Print services (flight deck, and optional cabin printer)
- Satellite Data Unit (SDU)
- Wireless Wide Area Network Unit (WWU)
- Maintenance laptop (remote connection)

The NFS also uses analog discrete signals for awareness and control.

- WWU Radio enable/disable

- Weight on wheels.

ARO 001-013**Mass Storage Device**

The mass storage device (MSD) is a partition on the server available for file and data storage. For example, loadable software airplane parts (LSAP) are saved (or, staged) to the MSD for future installation into the NFS, or other systems on the network.

Parts can be transferred manually or automatically to or from the MSD. A method of manual transfer can be with a maintenance laptop. An automatic transfer can use a laptop (application), or wireless connection.

ARO 014-999**Mass Storage Device**

The mass storage device (MSD) is a partition on the server available for software part storage. Separate MSDs are provided for the ONS and AIMS. Loadable software airplane parts (LSAP) are saved to the ONS MSD for installation at a later date into the NFS, or other ONS loadable systems on the network. LSAPs are saved to the AIMS MSD for installation at a later date into the AIMS, or other AIMS loadable systems.

Parts can be transferred manually or automatically to or from the MSD. A maintenance laptop can be used for manual transfer. An automatic transfer can use a laptop (application), or wireless connection.

ARO ALL**Application Data Processing**

The NFS can host operationally approved software (OAS) that support the cabin crew, the maintenance crew, or other airline interests. Determined by customer selection, an example is:

- Cabin logbook.

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ONBOARD NETWORK SYSTEM DESCRIPTION

Off-Aircraft Communication

The server can control, trouble-shoot, and report link condition for these off-aircraft communication services:

- Cellular and Gatelink Service using the WWU

Print Service

ARO 001-010; ARO 011-013 PRE SB 777-46-0066

The NFS supports graphics printing from applications that show on the EFB main menu to the flight deck, or cabin printer (if installed).

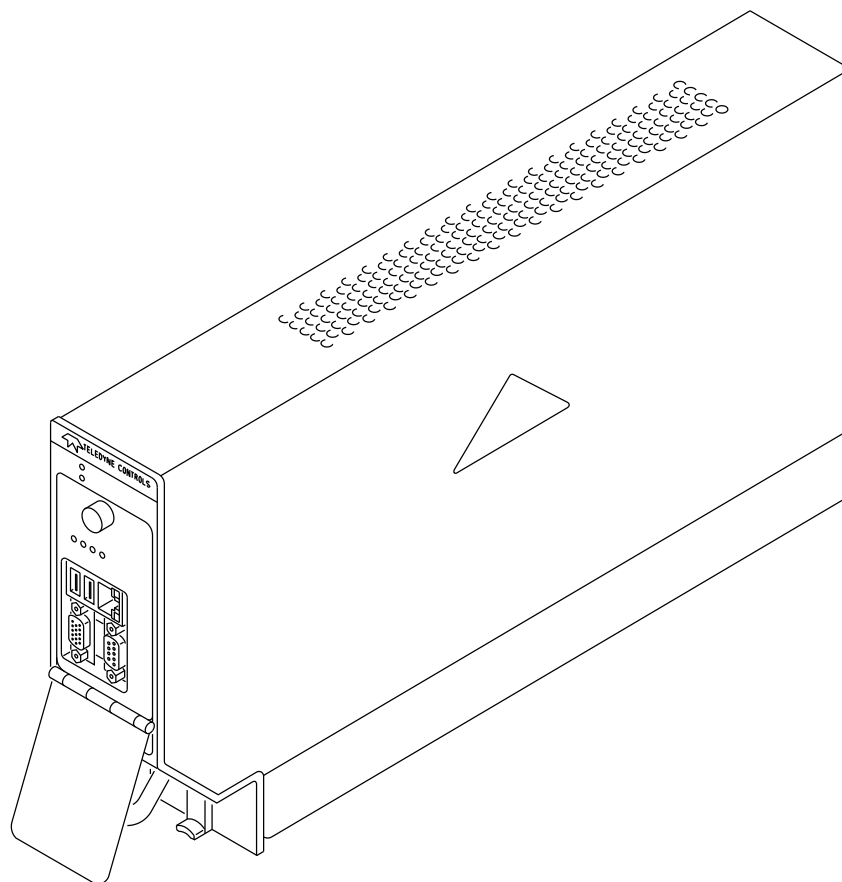
The NFS supports printing to a cabin printer from applications hosted by the NFS.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

The NFS Supports text based printing to the Flight Deck or cabin printer (if installed) from applications hosted by the NFS, or systems configured to use NFS services, such as Class 2 EFBs.

ARO ALL

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NETWORK FILE SERVER DESCRIPTION

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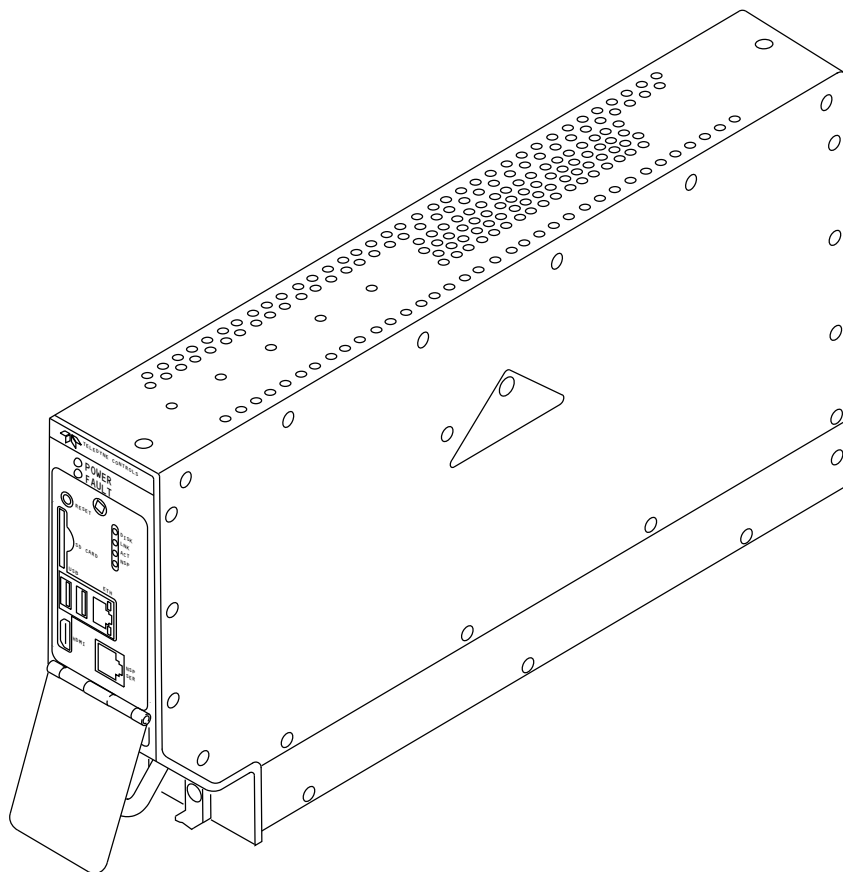
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NETWORK FILE SERVER GENERAL DESCRIPTION

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ONBOARD NETWORK SYSTEM FUNCTIONAL DESCRIPTION

General

The primary hardware unit of the onboard network system is the network file server (NFS). The NFS contains two isolated computer systems. They are as follows:

- Network file server (NFS, single board computer)
- Network extension device (NED, single board computer).

There is one internal power supply that operates the two computers.

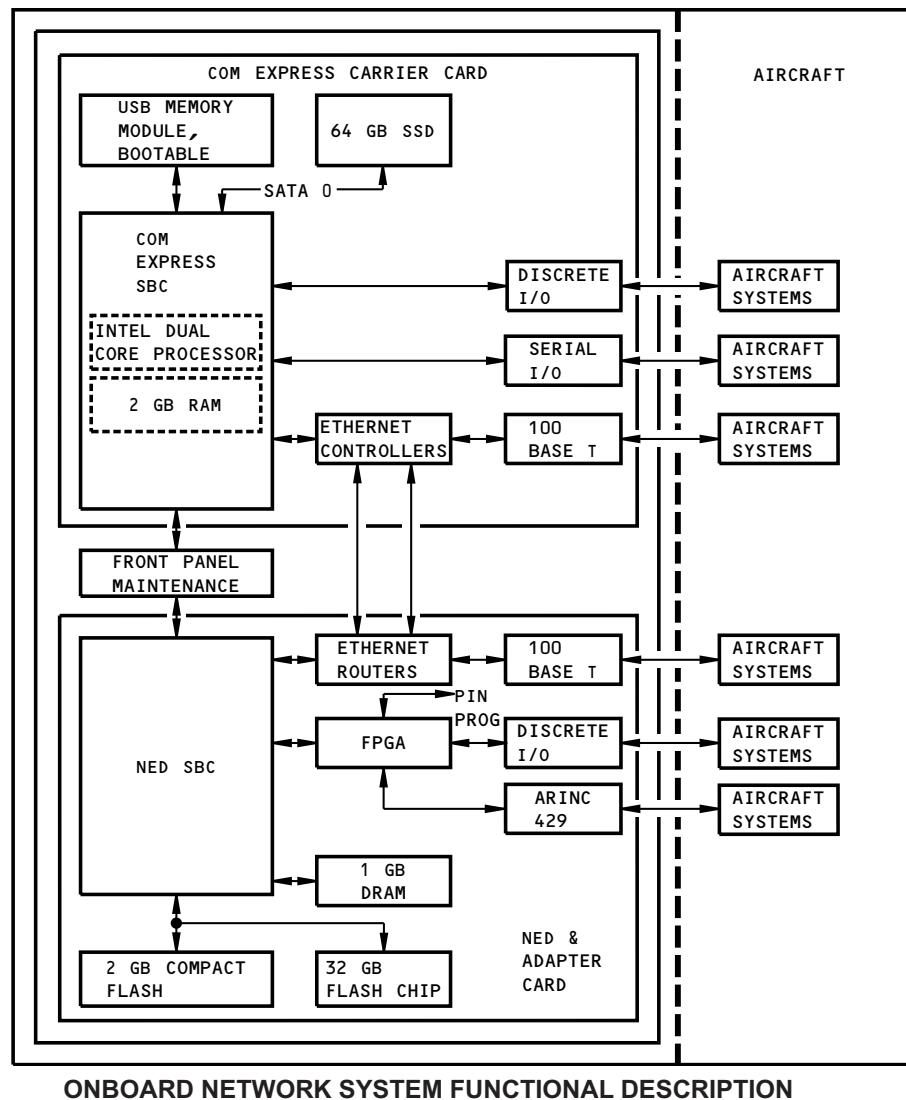
NFS Server

The NFS server has an Intel™ processor with two isolated drives. The boot-drive is a 256 MB (megabyte) flash memory drive. The operational drive is a minimum 64 GB (gigabyte) solid state drive (SSD).

NED Router

The NED router has a Cavium™ processor. Software parts for the NED are recorded in flash read-only memory (ROM). The NED receives and transmits three types of data:

- ARINC 429
- Discrete
- Ethernet.



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**ONBOARD NETWORK SYSTEM FUNCTIONAL DESCRIPTION****General**

The onboard network system hardware includes a network file server and network extension device – domain guard (NED-DG) as basic equipment. Optionally, a second NED (NED-2) may be installed when interfaces to the passenger network domain is desired. The onboard network may be expanded to include wireless devices through the installation of optional wireless access points. The onboard network may be connected to ground services through connections to the wireless WAN unit or SATCOM system. The ONS can send ACARS messages for class 2 EFB devices.

The ONS provides file storage services to enable QAR style recording of ARINC 717/RS422 and/or AIMS continuous parameter logging functions, and can provide these services to class 2 EFB or cabin crew functions hosted on portable devices.

The ONS provides a means to data load the system software for the NFS and NEDs, the WAPs, WWU and EGPWS.

The ONS provides on board storage for loadable software parts for systems loaded by the ONS, and for systems loaded by the AIMS. It provides a means for operators on the aircraft to add, remove and collect reports of the parts that are stored, and if an offboard link is configured, a means to perform these functions from a boeing approved set of ground system software.

The ONS provides a means for the airline operators to configure preferences and manage the security of the offboard connections.

Maintenance control and monitoring functionality is provided on ONS screens.



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ONBOARD NETWORK SYSTEM INTERFACES

ARO 001-013

General

The network file server (NFS) communicates with other network equipment primarily through 10/100Base-T. The NFS has isolated channels for each connected device. All interface connections to the NFS unit go through the ARINC 767 connector on the rear face of the unit.

The server is rack-installed in the E/E bay, at location E4-2.

ARO 014-999

General

The network file server (NFS) communicates with other network equipment primarily through 10/100Base-T or 1000Base-T Ethernet. The NFS has isolated channels for each connected device. All interface connections to the NFS unit go through the ARINC 717 connector on the rear face of the unit.

The server is rack-installed in the E/E bay, at location E4-2.

ARO 001-013

Ethernet 10/100 Base-T Interfaces

The NFS also uses internet protocol (IP) and 10/100 Base-T Ethernet for network communication. The devices that follow are on the network:

- Captain's Electronic Flight Bag (EFB) Electronics Unit (EU), N46102, on shelf E1-3
- First officer's EFB EU, N46202, on shelf E4-2
- Flight deck printer, M31004
- Wireless wide area network unit (WWU), M44360

ARO 005-013

- Aircraft interface, M25800, at the video control center (VCC).

ARO 001, 002

- SATCOM high speed data unit (HSDU) L#1, M23995, on shelf E1-11

ARO 005-013

- Network extension device-domain guard (NED-DG), M46010

ARO 014-999

Ethernet 10/100 Base-T or 1000Base-T Interfaces

The NFS also uses internet protocol (IP) and 10/100 Base-T Ethernet or 1000Base-T Ethernet for network communication. The devices that follow are on the network:

- Captain's EFB EU, N46102, on shelf E1-3
- First officer's EFB EU, N46202, on shelf E4-2
- Flight deck printer, M31004
- Wireless wide area network unit (WWU), M44360
- Aircraft interface, M25800, at the video control center (VCC).
- Network extension device-domain guard (NED-DG), M46010

ARO ALL

ONS Maintenance User Interface

An approved maintenance laptop (ML), or electronic portable terminal (EPT) gives access to the ONS user interface.

The tool is connected to a network data port using an Ethernet cable. The NFS operates as a web server, and hosts the ONS maintenance browser interface. This web-page based system lets you examine and control all available functions, installed software, and log files.

RJ-45 data ports are provided in the flight deck, E/E bay, and cabin locations that follow:

ARO 001-013

- E/E bay, front face of the NFS, M46009, shelf E4-2.

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ONBOARD NETWORK SYSTEM INTERFACES

ARO 014-999

- E/E bay, front face of the NFS, M46013, shelf E4-2.

ARO 005-010

- Flight deck, second observer's panel, P18-1, M25935.

ARO 005-999

- Flight deck, second observer's panel, P18, M23218.

ARO ALL

NOTE: The flight deck port, and the port on the front face of the NFS LRU, give direct access to the NFS computer. If the NFS internal router is unserviceable, use one of these two data ports to get access to ONS Maintenance.

NOTE: Some cabin ports have additional security features that can prevent specific maintenance functions.

Discretes

The NFS has isolated channels for input, and output analog discretes. A discrete is a continuous voltage signal that shows that a device is in one of two specified conditions (for example, up or down, energized or not, enabled or disabled).

The NFS transmits one discrete to set the enabled / disabled condition of the WWU.

The NFS receives one discrete from the air-ground relay to sense aircraft Weight-On-Wheels (WOW). When the aircraft is airborne, the circuit is open, and certain NFS functions are disabled.

Printer Service

The ONS provides flight deck print services for software applications hosted by the optional electronic flight bag (EFB), or by network file server (NFS).

- Flight deck applications are those that show on the captain's or first officer's EFB display unit.

- IFE cabin printing service refers applications hosted by the network file server (for example; cabin logbook, which is optional).

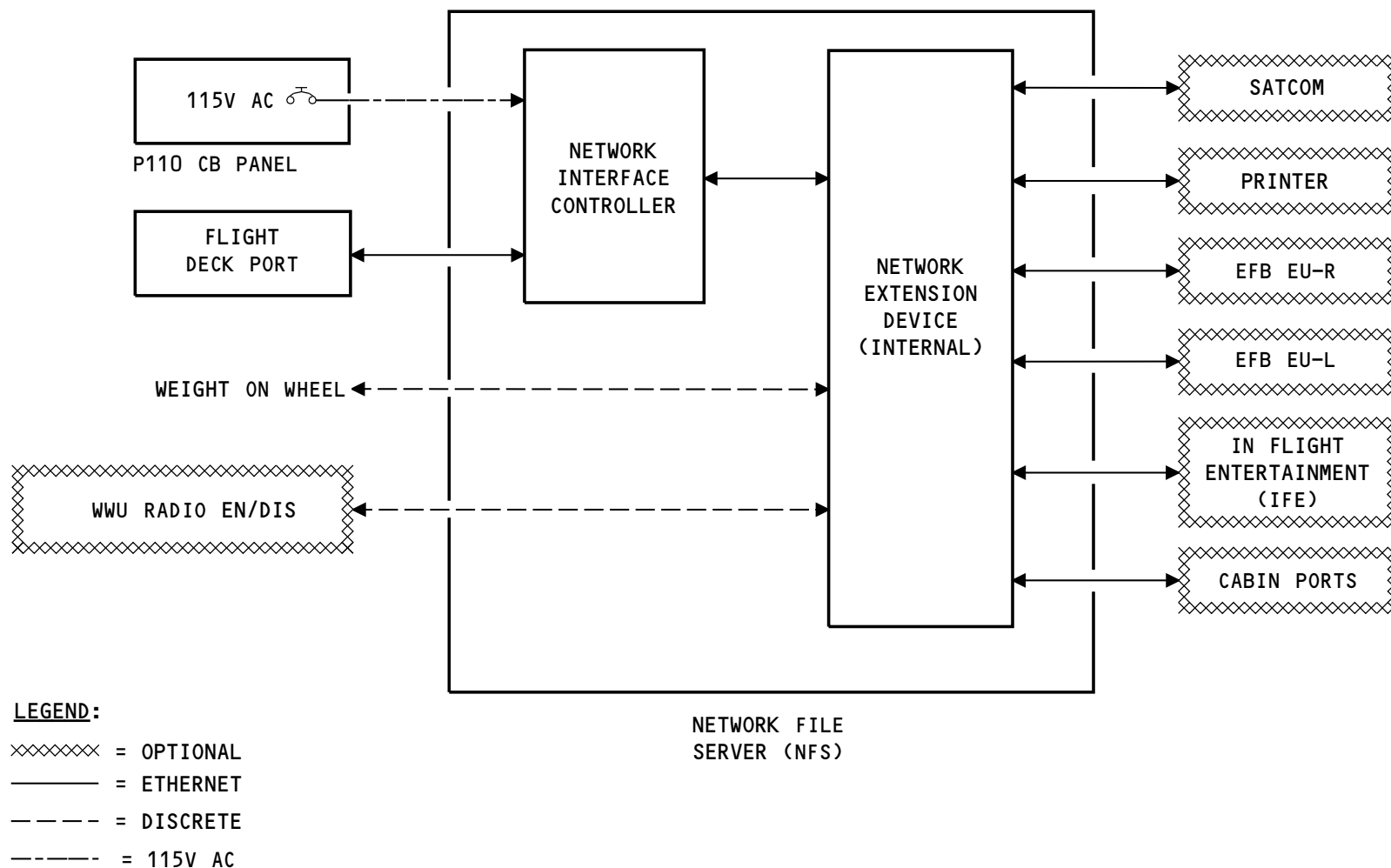
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ONBOARD NETWORK SYSTEM INTERFACES

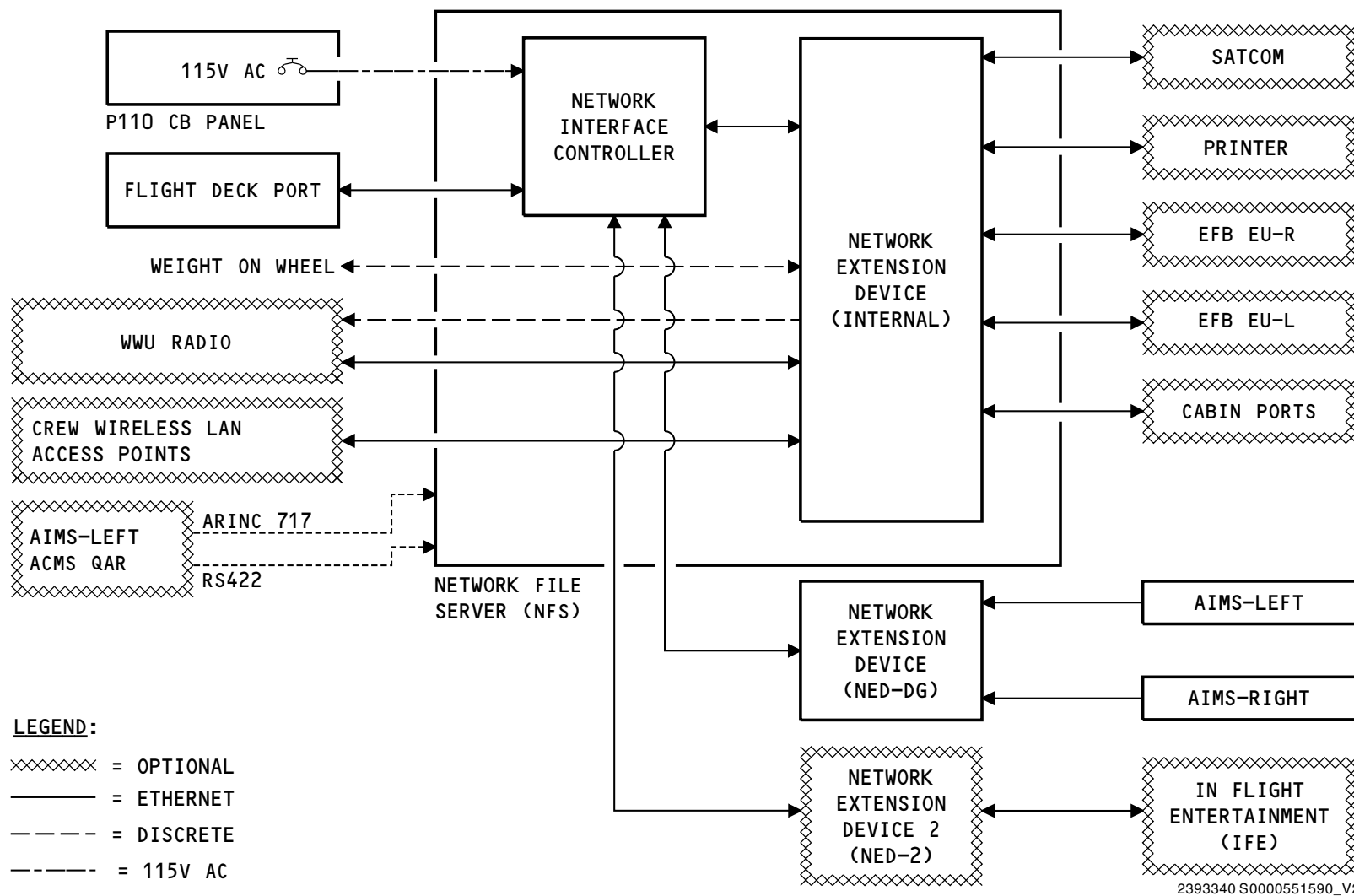
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ONBOARD NETWORK SYSTEM INTERFACES

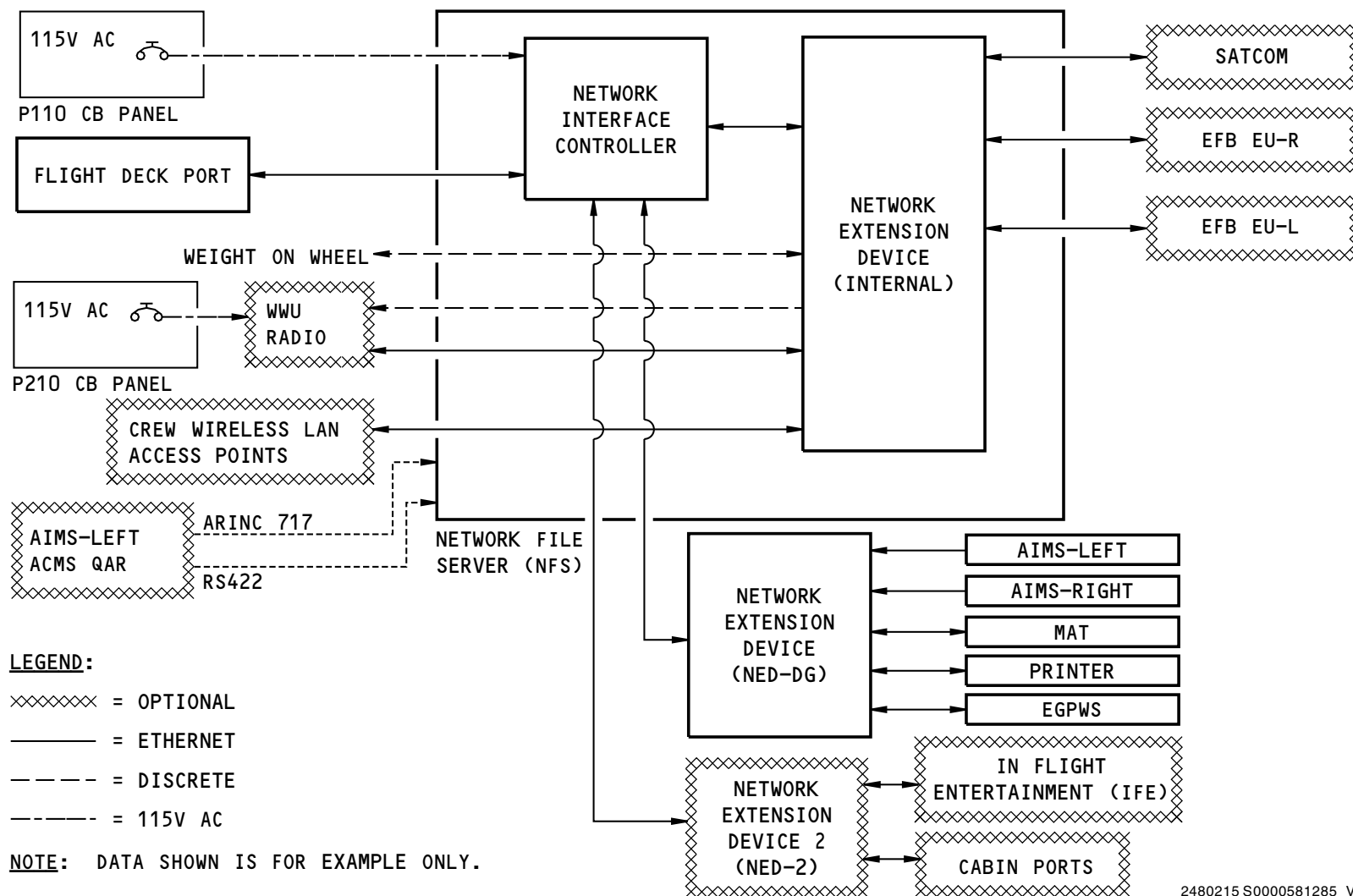
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ONBOARD NETWORK SYSTEM DESCRIPTION

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ONBOARD NETWORK SYSTEM SOFTWARE

General

The network file server (NFS) requires software to operate the two internal single-board computers; which are the server, and a network extension device (NED). When the system is serviceable, additional applications and software parts can be installed.

The NFS is delivered to the customer with a specific record of software parts. These parts are required as part of the aircraft certification.

Software parts required by the airline or operator are referred to as operationally approved software (OAS). For information that describes operationally approved software (OAS), refer to FAA Advisory Circular (AC) 120-76A.

Minimum Software Parts

Six software parts must be installed to boot and operate the NFS. These parts can not be erased, but they can be installed again, or replaced with new LSAPs. Four parts operate the server, and two parts operate the internal NED card. They are as follows:

NFS Software Parts

LSAP Nomenclature	Computer	Location
46 NFS BOOT OS	Server	Boot drive
46 NFS SERVER OS	Server	Operational drive
46 NFS NETMANAGER APP	Server	Operational drive
46 NFS OPC	Server	Operational drive
46 NED OPS	Router	NED flash memory
46 NED OPC	Router	NED flash memory
ARO 011-013 POST SB 777-46-0066		
46 NFS MEF OPS	Server	Operational drive
ARO 001-013		

Boot Software

The LSAP identified as NFS Boot OS contains the basic boot-up instructions. During the normal boot sequence, the NFS Boot OS is activated, and launches the Operational OS to complete the boot sequence. The NFS Boot OS part then stops running. During normal operation, the NFS operational disk is the primary drive.

To do maintenance on the operational drive, NFS Boot OS is activated but does not hand-off to the Operational OS. The flash memory remains the primary drive.

For each of the two conditions, the maintenance laptop is the user-interface.

NFS Boot OS can be replaced only after the NFS has booted completely in Operational OS.

NED Software

The NED Boot software is sufficient to boot-up the NED computer. The parts are recorded in internal memory on the NED card. These parts can not be erased, but they can be installed again, or replaced with new LSAPs.

The NED operational program software (OPS) runs the NED during normal operation.

Operational OS Software

During normal service, the NFS is controlled by a group of parts referred to as the operational OS (operating system). These parts are recorded in a partition on the solid state (operational) drive. Specifically, the parts are identified as:

- 46 NFS SERVER OS
- 46 NFS NETMANAGER APP
- 46 NFS OPC.

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ONBOARD NETWORK SYSTEM SOFTWARE

ARO 011-013 POST SB 777-46-0066

- 46 NFS MEF OPS

ARO 001-013

Airline Modifiable Information (AMI) Parts

Airline modifiable information (AMI) parts add functions to the server that support airline operations or business purposes. Typically, AMI parts can contain account information, airport data for the TWLU, or other configuration data. One part, for example is:

LSAP Nomenclature	Purpose
46 NFS EXCOMM AMI	Inmarsat service, TWLU service activation

ARO 011-013

User Modifiable Software (UMS) Parts

ARO 011-013 PRE SB 777-46-0066

User modifiable software (UMS) parts, and airline modifiable information (AMI) parts refer to the same kind of parts. Typically, UMS parts can contain account information, airport data for the TWLU, or other configuration data.

ARO 011-013 POST SB 777-46-0066

User modifiable software (UMS) parts, and airline modifiable information (AMI) parts refer to the same kind of parts. Typically, UMS parts can contain account information, airport data for the TWLU, security certificates, or other configuration data.

ARO 001-004

Framework Software Parts

Framework software parts let the ONS operate airline-created applications. These parts are included in the delivery-configuration of the airplane from Boeing.

LSAP Nomenclature	Purpose
46 NS CNAS AFMW OPS	Supports OAS applications.
46 NS CNAS COMM OPS	Supports OAS applications.
46 NS CNAS SCFG OSS	Supports OAS applications.
46 NS CNAS CCFG UMS	Supports OAS applications.

ARO 001-013

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ONBOARD NETWORK SYSTEM SOFTWARE

General

The Network File Server (NFS-L) and Network Extension Device(s) (NED-DG, NED-2) each contain separately configuration controlled, airplane loadable software parts.

Software parts necessary for the airline or operator are referred to as operationally approved software (OAS). For information that describes operationally approved software (OAS), refer to FAA Advisory Circular (AC) 120-76A.

Network File Server Software

The Network File Server has a minimum set of software parts necessary to perform basic functionality. These parts cannot be uninstalled, but they can be installed again or replaced with new LSAPs. Optional airline created configuration parts can be loaded to enable connections, define security credentials and choose preferences. Applications that perform model specific or optional functions can also be loaded depending on customer options. In the NFS, there are two main subsystems that use airplane loadable software, the Server Subsystem and NED Subsystem.

NFS Software Parts

LSAP Nomenclature	Computer	Type Cert Required	Removable
46 NFS BOOT OS	Server Subsystem	Yes	No
46 NFS SERVER OS	Server Subsystem	Yes	No
46 NFS NETMANAGER APP	Server Subsystem	Yes	No
46 NFS MEF OPS	Server Subsystem	Yes	No
46 NFS OPC	Server Subsystem	Yes	No
46 NFS NSP OPC	NED Subsystem	Yes	No

LSAP Nomenclature	Computer	Type Cert Required	Removable
46 NFS NSP OPS	NED Subsystem	Yes	No
46 NFS AIMS OPS	Server Subsystem	Yes	Yes
46 NFS EXCOMM UMS	Server Subsystem	No (OAS)	Yes
46 NFS AIRLINE CERTS UMS	Server Subsystem	No (OAS)	Yes
46 NFS AIRLINE CRL UMS	Server Subsystem	No (OAS)	Yes
46 NFS AIRPLANE KEYS UMS	Server Subsystem	No (OAS)	Yes
46 NFS MEF UMS	Server Subsystem	No (OAS)	Yes
46 NFS DATA RECORDER OPS	Server Subsystem	No (OAS)	Yes
46 NFS DATA RECORDER OSS	Server Subsystem	No (OAS)	Yes
46 NFS DATA MONITOR OPS	Server Subsystem	No (OAS)	Yes

46 NFS BOOT OS

The Boot OS is the first software that is run when the NFS powers up. It's function is to validate the operational software and transfer control to the other NFS applications. If no valid software is present, the Boot OS provides the Initial Data Load function interface when the user attempts to access the ONS maintenance pages. From the Initial Data Load pages, the primary server application software can be installed. The Boot OS itself is loadable, but only by the application software after it has been loaded.

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ONBOARD NETWORK SYSTEM SOFTWARE

46 NFS NETMANAGER APP, 46 NFS SERVER OS, 46 NFS MEF OPS and 46 NFS NSP OPS

These are the required application pieces of software that provide the ONS functionality and services as described in the AMM.

46 NFS OPC and 46 NFS NSP OPC

These parts define and activate the system interfaces and optional functionality that is enabled or disabled for a particular configuration.

46 NFS AIMS OPS

This part translates between ONS and AIMS protocols for ACMS and CMCF data reports, software part management via on board ONS screens or remote ground based tools, ONS Fault Reporting to CMCF, ONS Configuration Reporting to CMCF and remote ground based access to CMCF input monitoring data. It also records ACMS Continuous Parameter Logging data streams, and provides the capability to downlink stored data reports at the end of a flight, or ACARS style datalinks during a flight. AIMS reports, CPL and datalink functionality is configured by AIMS OPCs and AMI parts.

46 NFS DATA RECORDER OSS and 46 NFS DATA RECORDER OPS

These parts when installed, enable the recording of all ARINC 429 and ARINC 717 bus inputs to the NFS. In current production airplanes, the ARINC 717 bus is connected to the Flight Data Recorder. The data storage is limited and older data is automatically removed to make room for newer data as needed. If the airplane configuration contained offboard links, the ARINC 717 data may be configured to be automatically downlinked via the UMS parts. These parts may be removed if the airline has no use for the data.

46 NFS DATA MONITOR OPS

This part provides access to all input data received by the NFS. Standard Parameters are provided in engineering units. Non-standard parameters may be specified and decoded with user entries, and previous user entry configurations may be stored and retrieved. This part may be removed if the airline has no use for the function.

46 NFS MEF UMS

The MEF UMS part is required to define and activate the following services. ACARS (portable device use of EFB terminal on AIMS), LSAPL (software part and data downlink services), OSSLOP (portable device tunnel to airline portal) and BEGGS (EFB application and services ground server). Enables Auto Transfer of Security Logs and Data Recorder files.

46 NFS EXCOMM UMS

The EXCOMM UMS part is required to define and activate the priority of available offboard links. It defines the airports where WIFI or CELLULAR is active, and whether SATCOM and BOSS are available in the Air, on the Ground or both. If this part is not loaded, no offboard links will be enabled.

46 NFS OAS AIRLINE CERTS UMS

The OAS AIRLINE CERTS UMS part is required to establish communication for all ground servers, to enable software parts to be sent to the airplane, to enable reports to be sent to the ground, and to enable usage of portable device connections to onboard wireless networks or secured wired ports.

46 NFS OAS AIRPLANE KEYS UMS

The OAS AIRPLANE KEYS UMS part is required to enable the airplane to connect to airport WIFI servers, and to enable onboard device authentication via wireless or secure wired port connections.



ONBOARD NETWORK SYSTEM SOFTWARE

46 NFS OAS AIRLINE CRL UMS

The OAS AIRLINE CRL UMS part is required to enable connections to WIFI, BEGGS and OSSLOP ground servers, and Crew Wireless portable devices. It contains a list of compromised certificates that should no longer be accepted. The part is required even if there are no compromised certificates.

Network Extension Device Software

The NED-DG, and NED-2 if installed, each contain two pieces of software. The 46 NED OPS and 46-NED-DG OPC parts are required, they are included in the airplane type cert definition and none of the two can be removed after installation.



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ONBOARD NETWORK SYSTEM USER INTERFACE

General

The network file server (NFS) is host to a web site called Onboard Network System (ONS). Access to the web site is by using a maintenance laptop computer and web browser application (for example; Microsoft Explorer, or Mozilla Firefox). With a serviceable connection to ONS, the browser application shows the ONS menu bar, with these three selections:

ARO 001-010

- Line maintenance functions
- Condition monitoring functions
- Report functions.

ARO 011-999

- Line Maintenance functions
- Extended Maintenance functions
- Other Functions.

ARO ALL**Data Ports**

On the aircraft, you will connect the maintenance laptop to the ONS using an Ethernet cable connected to an available RJ-45 data port.

In the airplane's electrical compartment, the network file server (NFS) has one data port on the face of the LRU. This port, and the flight deck data port give direct access to the internal computer. For the cabin data ports to be serviceable, the internal NED router of the NFS must be serviceable.

On some airplanes, some data ports in the cabin can be inhibited from performing specific software maintenance functions.

Laptop

Access to the maintenance browser is by using a specified maintenance laptop computer, with an standard web browser application installed.

ARO 005-999**Maintenance Access Terminal**

Access to the maintenance browser can be made using the maintenance access terminal. The MAT uses a web browser set to kiosk mode, which prevents access to the usual PC desktop functions.

ARO ALL**Maintenance Browser**

Typically, there is a desktop icon that will automatically connect the web browser and launch the maintenance site. If there is no icon, you can manually type the URL into web browser's address bar.

ARO 001-010

NOTE: The URL for the maintenance application is:
<http://ms.ons.pnet:8080>.

ARO 011-999

NOTE: The URL for ONS access is: <http://ms.ons.pnet>.

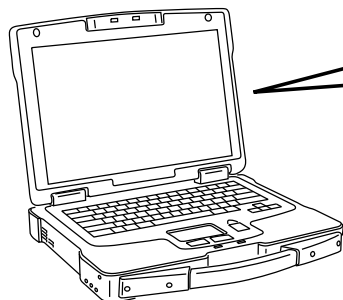
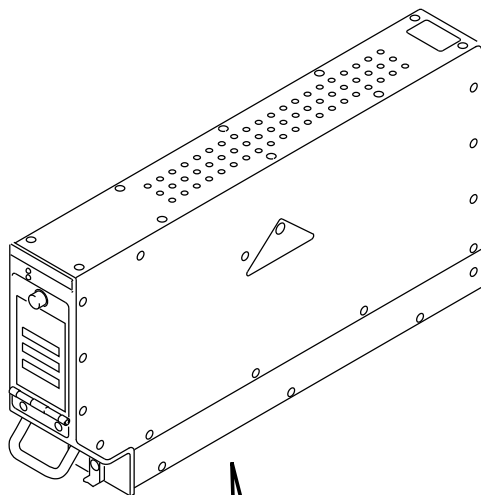
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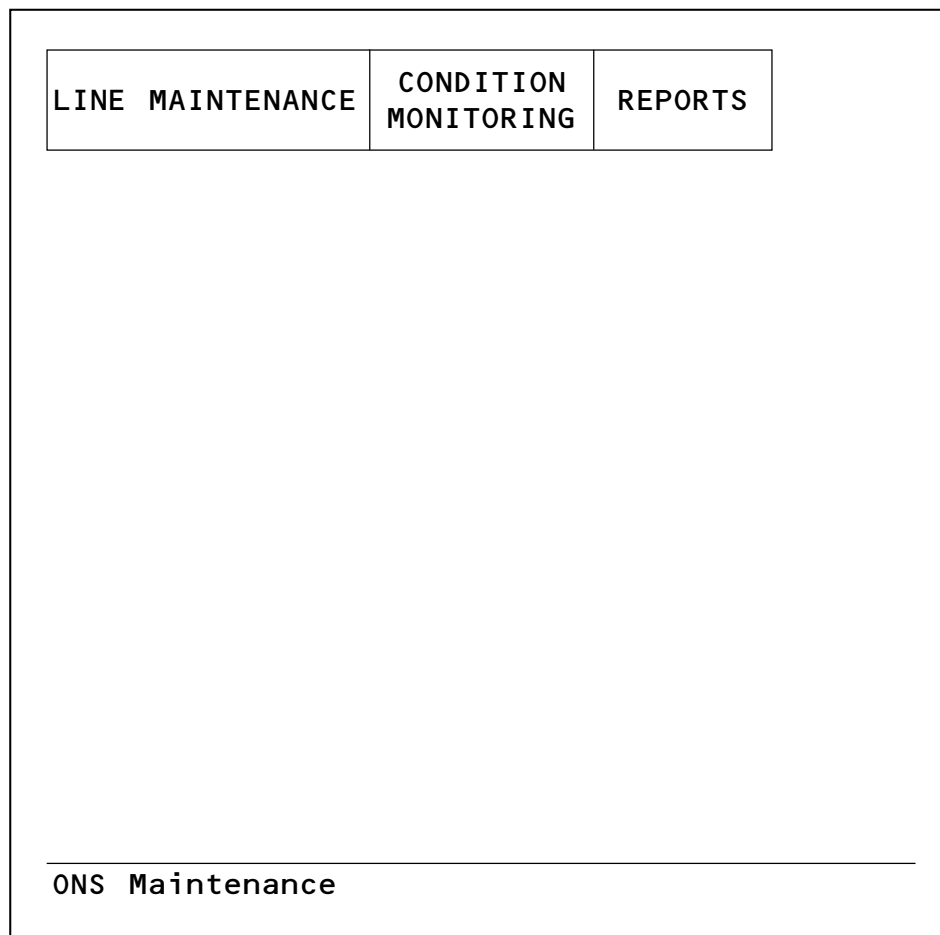
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MAINTENANCE LAPTOP



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ONS MAINTENANCE - MENU BAR

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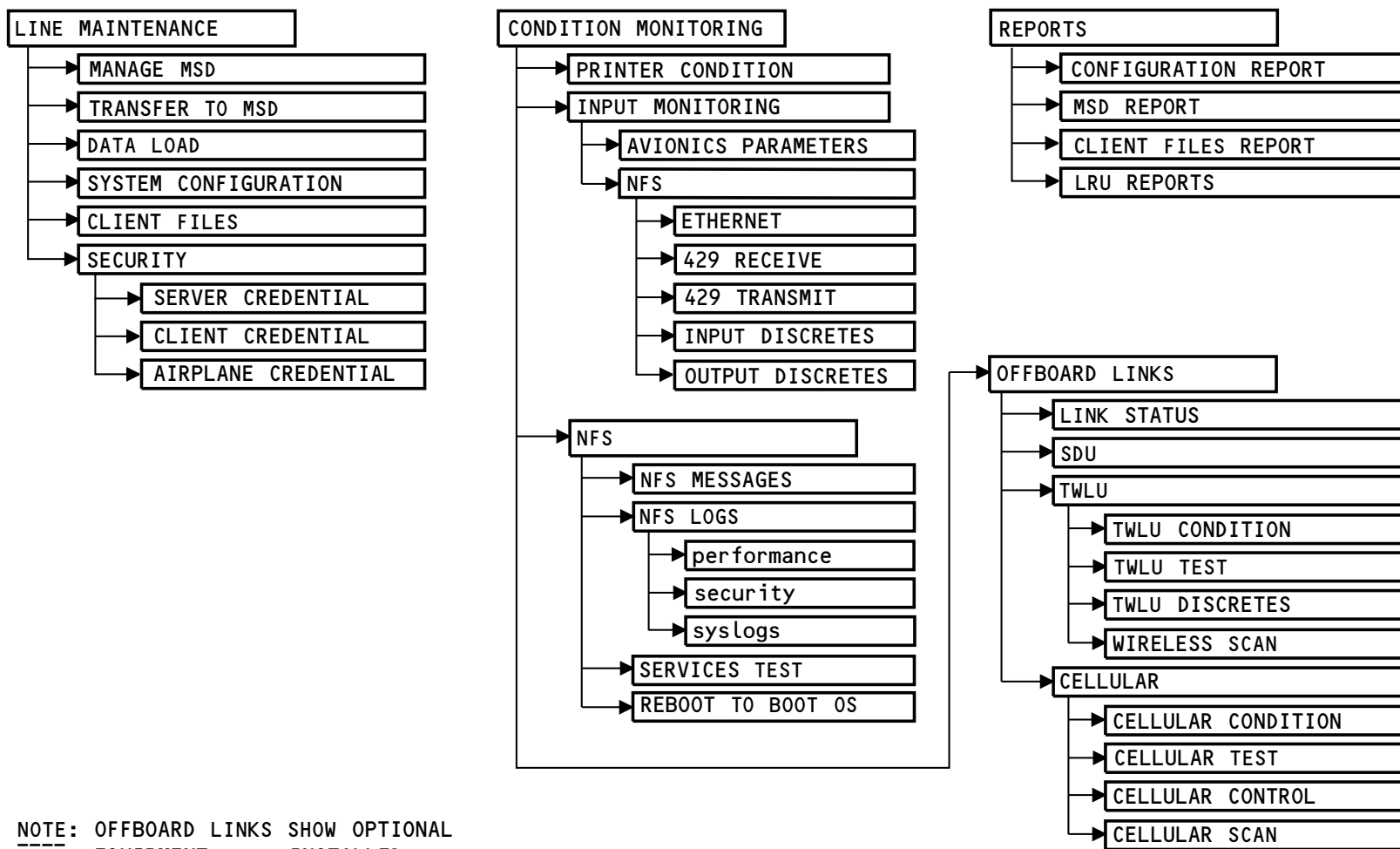
ARO 001-010 EFFECTIVITY

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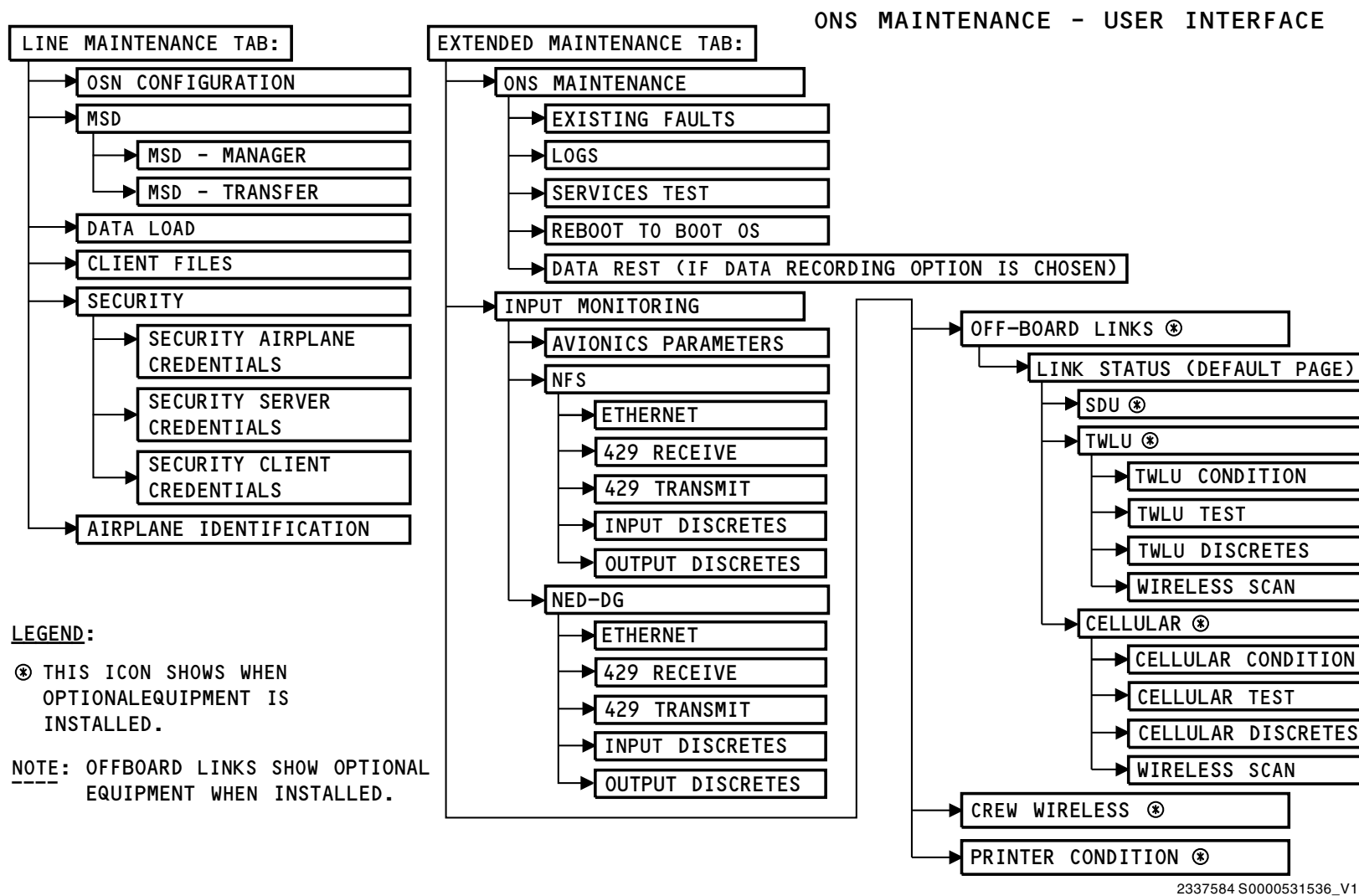
ONS MAINTENANCE - USER INTERFACE



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ONS MAINTENANCE - MENU FLOW CHART

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ONS MAINTENANCE - MENU FLOW CHART

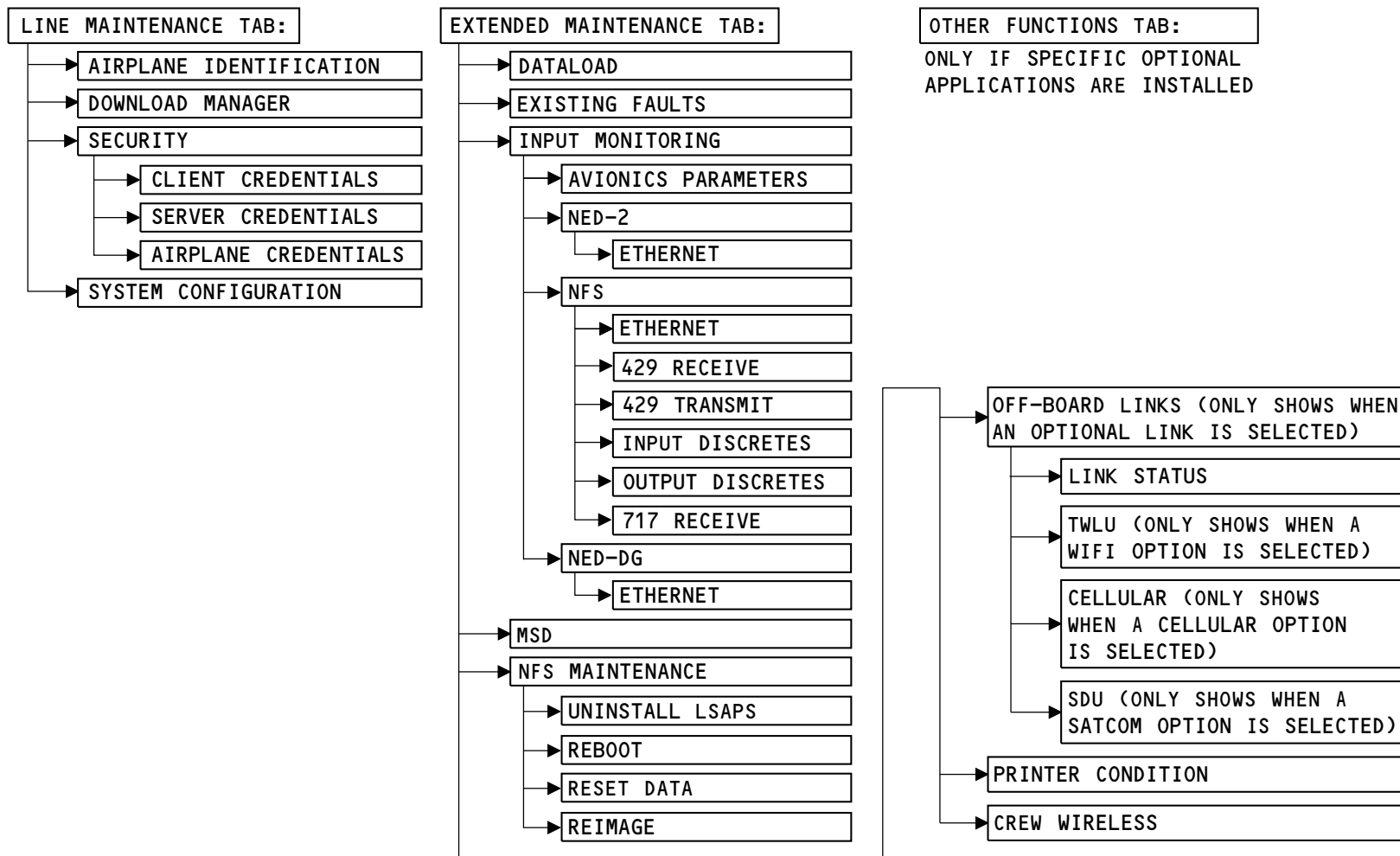
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ARO 011-013 PRE SB 777-46-0066

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ONS MAINTENANCE - USER INTERFACE



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ONS MAINTENANCE - MENU FLOW CHART

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ONS MAINTENANCE - LINE MAINTENANCE FUNCTIONS

General

The main menu tab of the browser gives access to the line maintenance functions, which are as follows:

- Manage Mass Storage Device (MSD)
- Transfer to MSD
- Data Load
- System Configuration
- Client Files
- Security (server, and client credentials).

NOTE: For the discussion that follows, the > symbol refers to the sequence of your selection in the ONS Maintenance drop-down menu.

Manage MSD

The MANAGE MSD page lets the user examine the software parts on the MSD, print or download a record of the parts, and erase parts from the MSD.

You get access to the page by making the selection: LINE MAINTENANCE > MANAGE MSD.

These are the columns that show on the MANAGE MSD page:

- Air Transport Association (ATA) CHAPTER
- SOFTWARE PART NUMBER
- NOMENCLATURE.

The ATA column refers to the ATA chapter assignment of the Line Replaceable Unit (LRU), for the specified software part. If two or more LRUs share the part, the ATA of the first LRU is specified.

The SOFTWARE PART NUMBER column refers to the software, or media set part number. The data shown comes from the software part header, when provided.

The NOMENCLATURE column refers to the software part's description. When the part format is Aeronautical Radio Incorporated (ARINC) 665-3, then the part header gives the nomenclature data. For all other formats, the part description comes from the packaging data from the Boeing Ground Tools. If the packaging data is not available, the ATA and the system type of the first LRU applicable with the software sets the part description.

The MSD SUMMARY section shows the amounts of available, and storage used.

When one or more parts is selected, the SELECTED LSAP SUMMARY section shows the quantity of LSAPs selected, and the amount of storage they occupy.

The PRINT REPORT function sends a record of the MSD configuration to the printer.

The DOWNLOAD function makes a record of the MSD configuration.

The ERASE function removes the highlighted software part from the MSD.

Transfer to MSD

The selection LINE MAINTENANCE > TRANSFER TO MSD shows a function to transfer a file to the mass storage device (MSD) from the laptop's internal or external drive.

The upper section of page shows:

- The words: Select a file with parts to transfer:
- A box that will show the directory path - you can manually type the path into this box, or use the Browse button.
- The Browse button - lets you navigate to the target file, and make your selection.
- The Transfer button - executes the transfer function.

The lower portion of the page shows the Transfer Results table. The data shows as follows:

- File name
- Part number

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ONS MAINTENANCE - LINE MAINTENANCE FUNCTIONS

- Status.

NOTE: The transfer function will accept only files that meet strict engineering conditions.

Dataload

The selection LINE MAINTENANCE > DATALOAD shows a function that installs software parts automatically into a specific LRU. The NFS always shows as an available target. Additional LRU-systems can show when specified.

The dataload function lets you select a target LRU for software installation, and make the target LSAP selection. When the LRU and LSAP are selected, the function completes the software installation. The target LSAP must be present on the MSD. The function lets you select and install one, or more parts at the same time.

When the installation is complete, the page then shows the DATA LOAD RESULT page. This page shows the part number and load status (or condition) of the installed LSAP. A serviceable installation will show the LOAD STATUS: SUCCESS.

System Configuration

The selection LINE MAINTENANCE > SYSTEM CONFIGURATION gives data about each target LRU, and a function to remove installed software.

The page gives a record of software part number, and the part nomenclature.

The UNINSTALL PARTS function gives a record of LSAPs available for removal. When an LSAP shows, the part is optional, and can be removed from the NFS without a system requirement to install it again. If this record has no data, then no optional parts are available for removal.

The PRINT REPORT function makes a paper copy of the data shown on the system configuration page.

The DOWNLOAD REPORT function makes a record of all of the system configuration data shown, and lets you save it to an available media drive (for example, an internal hard drive, or memory stick). The steps to save the file are specified by the maintenance laptop configuration (that is; web browser, operating system, available drives).

Client Files

The CLIENT FILES function gives access to the ONS file store service. There is a store for each configured client which can contain files or data. You can manually download or remove files from each store. The table is organized as follows:

- CLIENT NAME - represents the store for each configured client.
- TOTAL NUMBER OF FILES - the quantity of files in that store.
- USED SPACE - the quantity of bytes occupied by files in the store.
- FREE SPACE - the quantity of bytes available in the store.
- TOTAL SPACE - the quantity of bytes that the store occupies.

Below that data is the File Store Summary. This summary shows the combined capacities of all stores on NFS.

When you make a selection of a client name, the CONTINUE button operates. Click the CONTINUE button to show the client files store screen.

The screen for the selected client files store shows this data for the files in the client file store:

- FILE NAME
- FILE SIZE (BYTES)
- DATETIME OF CREATION.

On the bottom of the screen for the client files store is a summary of the client file store. The summary has this data:

- Total number of files in the client file store
- Total used space in bytes
- Total free space in bytes

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**ONS MAINTENANCE - LINE MAINTENANCE FUNCTIONS**

- Total client file store space in bytes.

From the client store screen, these are the available functions:

- SELECT ALL
- UNSELECT ALL
- DOWNLOAD
- DELETE.

The table of client files can show one or more pages of data. Each page can show up to 100 file names. Use the vertical scroll bar to examine all of the records on the page. Use the four buttons (FIRST, PREVIOUS, NEXT and LAST) to show each page of data.

Security > Server Credentials

The SERVER CREDENTIALS function gives the condition of the most recent server credential, and a function to make a new credential.

Security > Client Credentials

The CLIENT CREDENTIALS function gives a record of clients with the credential condition, and a function that makes new credentials. There are three functional buttons:

- SELECT ALL
- UNSELECT ALL
- GENERATE CREDENTIALS.

To operate the GENERATE CREDENTIALS function, one or more target clients must be selected (or, highlighted). The result of the process is shown in a status box.

LINE MAINTENANCE	OTHER FUNCTIONS	CONDITION MONITORING	REPORTS
MANAGE MSD			
TRANSFER TO MSD			
DATALOAD			
SYSTEM CONFIGURATION			
CLIENT FILES			
SECURITY			
ONS Maintenance			

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
Select LSAP(s) to erase from ONS:		
ATA	SOFTWARE PART NUMBER	NOMENCLATURE
46	AMI4D-CRLS-T00R	46 NFS
46	CAT39-CERT-T0AJ	46 NFS OAS AIRLINE CERT AMI
46	AM131-KEYS-L1LA	46 NFS
46	OPT4C-HCMB-4061	46 NFS
46	BCG4D-0000-0128	46 NFS OPC
46	BCG-Z-NFS0-0PCG	46 NFS OPC
46	BCG-Z-NFS0-0PCR	46 NFS OPC
46	OPMT4A-HCMB-040M1	46 NS CNAS COMM OPS
46	TDY3B-7117-900K	46 WWU OPS
46	TDY3D-7117-900M	46 WWU OPS
46	777-Z-77A4-0001	46 WWU OPC
MSD Summary:		Selected LSAP Summary:
MSD free space (bytes): 3,278,446,592		Number of files: 1
MSD used storage (bytes): 1,734,742,241		Total Size (bytes): 94,772,173
LINE MAINTENANCE > MANAGE MSD		

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ONS MAINTENANCE - MANAGE MSD

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ONS MAINTENANCE - LINE MAINTENANCE - CLIENT FILES

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS
Select part number(s) to load to the selected LRU(s): NFS		
BACK		
SOFTWARE PART NUMBER	NOMENCLATURE	
777-Z-77N4-0000	46 NED OPC	
777-Z-77S4-0000	46 NFS OPC	
BCG26-0000-00Y9	46 NFS BOOT OS	
BCG2A-U000-00DM	46 NFS BOOT OS	
BCG2B-U000-00DL	46 NFS SERVER OS	
BCG2C-U000-00DK	46 NFS NETMANAGER APP	
SELECT		

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
Select part number(s) to load to the selected LRU(s): NFS		
BACK		
SOFTWARE PART NUMBER	NOMENCLATURE	
BFB4F-NSSC-0004	46 NS CNAS SCFG OSS	
BFB59-NSSC-0002	46 NFS	
BFB5A-NSSC-0001	46 NS CNAS CCFG UMS	
BFB5F-NSSC-0004	46 NS CNAS CCFG UMS	
CAT4F-777C-ALW7	46 NFS	
SELECT		

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
Select part number(s) to load to the selected LRU(s): NFS		
BACK		
SOFTWARE PART NUMBER	NOMENCLATURE	
777-Z-77N4-0000	46 NED OPC	
777-Z-77S4-0000	46 NFS OPC	
BCG26-0000-00Y9	46 NFS BOOT OS	
BCG2A-U000-00DM	46 NFS BOOT OS	
BCG2B-U000-00DL	46 NFS SERVER OS	
BCG2C-U000-00DK	46 NFS NETMANAGER APP	
Selected Parts		
BFB5F-NSSC-0004	46 NS CNAS CCFG UMS	UNSELECT
BFB4F-NSSC-0004	46 NS CNAS SCFG OSS	CONTINUE
CAT4F-777C-ALW7	46 NFS	

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ONS MAINTENANCE - LINE MAINTENANCE - DATA LOAD PAGE

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS
System Configuration		
LRU NAME	SOFTWARE PART NUMBER	NOMENCLATURE
NFS	BCG44-0000-0103	46 NFS SERVER OS
NFS	777-Z-77S4-0000	46 NFS OPC
NFS	BCG4E-0000-0109	46 NFS NETMANAGER APP
NFS	CAT4F-777C-ALW7	46 NFS EXCOMM AMI
NFS	OPT4C-HCMB-0407	46 NS CNAS COMM OPS
NFS	TET5E-NAFP-0002	46 NS CNAS AFMW OPS
NFS	BCB5F-NSSC-0004	46 NS CNAS CCFG UMS
NFS	BFB4F-NSSC-0004	46 NS CNAS SCFG OSS
NFS	BCG26-0000-00Y9	46 NFS BOOT OS

UNINSTALL

PRINT REPORT

DOWNLOAD REPORT

LINE MAINTENANCE > SYSTEM CONFIGURATION

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
System Configuration		
LRU NAME	SOFTWARE PART NUMBER	NOMENCLATURE
NFS	BCG44-0000-0103	46 NFS SERVER OS
NFS	777-Z-77S4-0000	46 NFS OPC
NFS	BCG4E-0000-0109	46 NFS NETMANAGER APP
NFS	CAT4F-777C-ALW7	46 NFS EXCOMM AMI
NFS	OPT4C-HCMB-0407	46 NS CNAS COMM OPS
NFS	TET5E-NAFP-0002	46 NS CNAS AFMW OPS
NFS	BCB5F-NSSC-0004	46 NS CNAS CCFG UMS
NFS	BFB4F-NSSC-0004	46 NS CNAS SCFG OSS
NFS	BCG26-0000-00Y9	46 NFS BOOT OS

UNINSTALL

PRINT REPORT

DOWNLOAD REPORT

Details of Selected Hardware

Hardware Part Number

2246900-01

Hardware Serial Number

0E00088

LINE MAINTENANCE > SYSTEM CONFIGURATION

ONS MAINTENANCE - LINE MAINTENANCE FUNCTIONS - SYSTEM CONFIGURATION

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS												
Select part number(s) to uninstall														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">SOFTWARE PART NUMBER</th> <th style="width: 50%;">NOMENCLATURE</th> </tr> </thead> <tbody> <tr> <td>TET5D-NAFP-0001</td> <td>46 NS CNAS AFMW OPS</td> </tr> <tr> <td>OPT5C-HCMB-046P</td> <td>46 CNAS COMM OPS</td> </tr> <tr> <td>BF859-NSSC-000</td> <td></td> </tr> <tr> <td>BF849-NSSC-000</td> <td></td> </tr> <tr> <td>BCG4D-0000-01M</td> <td></td> </tr> </tbody> </table>	SOFTWARE PART NUMBER	NOMENCLATURE	TET5D-NAFP-0001	46 NS CNAS AFMW OPS	OPT5C-HCMB-046P	46 CNAS COMM OPS	BF859-NSSC-000		BF849-NSSC-000		BCG4D-0000-01M		SYSTEM CONFIGURATION Uninstalling selected parts Elapsed time: 00:25 System shut down. Waiting for system restart...  SELECT UNSELECT	
SOFTWARE PART NUMBER	NOMENCLATURE													
TET5D-NAFP-0001	46 NS CNAS AFMW OPS													
OPT5C-HCMB-046P	46 CNAS COMM OPS													
BF859-NSSC-000														
BF849-NSSC-000														
BCG4D-0000-01M														
CONTINUE														
LINE MAINTENANCE > SYSTEM CONFIGURATION														

LINE MAINTENANCE	CONDITION MONITORING	REPORTS								
Results of loading to the following LRU's:		LRU STATUS								
NFS										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">PART NUMBER</th> <th style="width: 50%;">LOAD STATUS</th> </tr> </thead> <tbody> <tr> <td>BCG5C-0000-01MV</td> <td>SUCCESS</td> </tr> </tbody> </table>	PART NUMBER	LOAD STATUS	BCG5C-0000-01MV	SUCCESS						
PART NUMBER	LOAD STATUS									
BCG5C-0000-01MV	SUCCESS									
Load details for part BCG5C-0000-01MV										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 50%;">LRU Name</td> <td>NFS</td> </tr> <tr> <td>Load Status</td> <td>SUCCESS</td> </tr> <tr> <td>System Message</td> <td>Success</td> </tr> <tr> <td colspan="2">- - - - -</td> </tr> </tbody> </table>			LRU Name	NFS	Load Status	SUCCESS	System Message	Success	- - - - -	
LRU Name	NFS									
Load Status	SUCCESS									
System Message	Success									
- - - - -										
LINE MAINTENANCE > DATA LOAD RESULT										

ONS MAINTENANCE - LINE MAINTENANCE FUNCTIONS - SOFTWARE UNINSTALLATION

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS
Server Credentials Status credentials last generated on 2002-01-01 00:15 GENERATE CREDENTIALS		
LINE MAINTENANCE > SECURITY > SERVER CREDENTIALS		

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
Server Credentials Status credentials last generated on 2010-10-20 17:26 NFS1 : Successfully retrieved and installed credentials		
LINE MAINTENANCE > SECURITY > SERVER CREDENTIALS RESULT		

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ONS MAINTENANCE - LINE MAINTENANCE FUNCTIONS

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS
Select client(s) to generate new credentials		
CLIENT NAME	CREDENTIALS STATUS	
NFS1	Last generated: 2010-10-20 17:28	
		SELECT ALL
		UNSELECT ALL
		GENERATE CREDENTIALS
LINE MAINTENANCE > SECURITY > CLIENT CREDENTIALS		

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
Select client(s) to generate new credentials		
CLIENT NAME	CREDENTIALS STATUS	
NFS1	Last generated: 2010-10-20 17:28	
		SELECT ALL
		UNSELECT ALL
		GENERATE CREDENTIALS
Credentials Generation Status		
CLIENT NAME	CREDENTIALS GENERATION STATUS	
Overall Credentials Generation Status	All keys were successfully generated.	
NFS1	Successfully retrieved and installed credentials	
LINE MAINTENANCE > SECURITY > CLIENT CREDENTIALS		

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ONS MAINTENANCE - LINE MAINTENANCE FUNCTIONS

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ONS MAINTENANCE - CONDITION MONITORING FUNCTIONS

General

The maintenance browser gives access to the condition monitoring functions, which are as follows:

- Printer Condition
- Input Monitoring (avionics parameters, and NFS)
- NFS (network file server messages, logs, services test, and reboot to boot OS)
- Offboard Links (SDU, and TWLU - if installed).

NOTE: For the discussion that follows, the > symbol refers to the sequence of your selection in the ONS Maintenance drop-down menu.

Printer Condition

The printer condition function shows all printers on the network. The page lets you examine the condition of an active job. When two or more printers are connected, the page lets you set the primary (or, default) printer.

Input Monitoring > Avionics Parameters

The INPUT MONITORING selection, followed by the Avionics Parameters selection shows selected avionics data. The data shown (or, parameters), can include:

- Aircraft tail ID
- Time
- Date
- Origin
- Destination
- Weight on Wheels condition.

These parameters can be helpful for ONS troubleshooting.

Input Monitoring > NFS

The INPUT MONITORING selection, followed by the NFS selection shows a page with five buttons, as follows:

- ETHERNET
- 429 RECEIVE
- 429 TRANSMIT
- INPUT DISCRETES
- OUTPUT DISCRETES.

These functions are the databus and discrete interfaces of the NFS. Each button shows the condition and settings for that interface.

Input Monitoring > NFS > Ethernet

The Ethernet page shows each Ethernet port of the rear connector on NFS. The configuration as described in the End Connection column will match the system wiring diagram, and the present status of the interface is provide with the following definitions:

- UP - the interface is serviceable.
- DOWN - the interface is unserviceable.
- ADMIN DOWN - the interface is set to OFF in the configuration software part.
- UNAVAILABLE - unserviceable, in that the protocol to read the condition was unsuccessful.

NOTE: The UNAVAILABLE condition can suggest that the client keys and server keys do not agree.

Input Monitoring > NFS > 429 Receive

The 429 RECEIVE page shows a record with each NFS 429 receive bus, the interface connection name, and the interface condition (or status).

The data below END CONNECTION is the interface name. The interface name shown, and the same interface name on the wiring diagram shall agree.

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ONS MAINTENANCE - CONDITION MONITORING FUNCTIONS

The data below STATUS gives the condition of the interface at the time the page was selected. The condition can be as follows:

- High - the interface is serviceable, with a high-speed connection.
- Low - the interface is serviceable, with a low-speed connection.
- Failed - the interface is unserviceable (specifically, the input signal label does not agree with the OPC specified label).
- Disabled - the interface is unserviceable (specifically, turned off in the configuration part).
- Unavailable - the protocol to read the condition was unsuccessful.

NOTE: The UNAVAILABLE condition can suggest that the client keys and server keys do not agree.

Input Monitoring > NFS > 429 Transmit

The 429 TRANSMIT page shows a record with each NFS 429 transmit bus, the interface connection name, and the interface condition (or, status).

The data below END CONNECTION is the interface name, The interface name shown, and the same interface on the wiring diagram shall agree.

The data below STATUS gives the condition of the interface at the time the page was selected. The condition can be as follows:

- High - the interface is serviceable, with a high-speed connection.
- Low - the interface is serviceable, with a low-speed connection.
- Failed - the interface is unserviceable (specifically, an internal fault prevents the data transmission).
- Disabled - the interface is unserviceable (specifically, turned off in the configuration part).
- Unavailable - the protocol to read the condition was unsuccessful.

NOTE: The UNAVAILABLE condition can suggest that the client keys and server keys do not agree.

Input Monitoring > NFS > Input Discretes

The INPUT DISCRETES page shows a record with each NFS input discrete, the interface connection name, and the interface condition (or, status).

The data below END CONNECTION is the interface name, The interface name shown, and the same interface on the wiring diagram shall agree.

The data below STATUS gives the condition of the interface at the time the page was selected. The condition can be as follows:

- Open - the interface has no path to aircraft ground.
- Ground - the interface senses a path to aircraft ground.
- Unavailable - the protocol to read the condition was unsuccessful.

NOTE: The UNAVAILABLE condition can suggest that the client keys and server keys do not agree.

Input Monitoring > NFS > Output Discretes

The OUTPUT DISCRETES page shows a record with each NFS output discrete, the interface connection name, and the interface condition (or, status).

The data below END CONNECTION is the interface name, The interface name shown, and the same interface on the wiring diagram shall agree.

The data below STATUS gives the condition of the interface at the time the page was selected. The condition can be as follows:

- Open - the interface has no path to aircraft ground.
- Ground - the interface senses a path to aircraft ground.
- Unavailable - the protocol to read the condition was unsuccessful.

NFS > NFS Messages

The selection CONDITION MONITORING > NFS > NFS MESSAGES gives a record of internal and external system faults.

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ONS MAINTENANCE - CONDITION MONITORING FUNCTIONS

For each LRU shown, there can be one or more messages. If an LRU has no messages, it does not show on the page. To refresh the fault results data, the user can select a different page, and then return to the NFS MESSAGES page or can select refresh on the browser.

When an LRU is selected, the message shows in box below the words Fault Details. Use the scroll bar to examine all of the messages.

When a fault does show, the same fault code will show in the Fault Isolation Manual.

When no LRU shows, with no messages, then the ONS (system) is serviceable.

NFS > NFS LOGS

The selection CONDITION MONITORING > NFS > NFS LOGS gives access to these types of log files. The types are as follows.

- Dataload
- Security
- Syslog
- Performance

To examine all of the log names on the page, use the vertical scroll bar

When the table of data exceeds 100 records, then four page selection buttons show. Use the page navigation buttons, and the vertical scroll bar, to examine all files in the log. The buttons are as follows:

- FIRST - shows the initial page of log files.
- PREV - shows the previous page of log files.
- NEXT - shows the following page of log files.
- LAST - shows the last page of log files.

When one or more log files is highlighted, use the DOWNLOAD function to copy the file to an internal drive, or removable media.

When one or more log files is highlighted, use the DELETE function to erase the file from the ONS.

NFS > NFS Logs > Dataload

The selection CONDITION MONITORING > NFS > NFS LOGS > dataload shows a record of log files, and functions to download or erase them.

Dataload log files contain a record of specified operations that can help troubleshoot dataload problems.

NFS > NFS Logs > Security

The selection CONDITION MONITORING > NFS > NFS LOGS > SECURITY shows a record of log files, and functions to download or erase them.

Security log files contain a record of specified operations that can help identify security violations.

All log files can be downloaded. However, certification rules require that log files be kept onboard for a specified minimum time. Therefore, logs that do not meet that minimum can not be erased.

NFS > NFS Logs > Syslogs

The selection CONDITION MONITORING > NFS > NFS LOGS > SYSLOGS shows a record of log files, and functions to download or erase them.

Syslog files contain a record of specified operations that can help troubleshoot software problems.

Syslog files can be downloaded or erased. There is no system restriction.

The function GET LATEST LOGS is an automated feature to isolate the newest syslog files for download.

NFS > NFS Services Test

The selection CONDITION MONITORING > NFS > NFS SERVICES TEST shows the services test confirmation box. The result of this test gives the condition of four network protocols, as follows:

- DHCP - dynamic host configuration protocol
- DNS - domain name server

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**ONS MAINTENANCE - CONDITION MONITORING FUNCTIONS**

- NTP - network time protocol
- Syslog.

NOTE: NTP requires an initial input of network time from an external source. This occurs automatically when the source is serviceable.

NFS > Reboot to Boot OS

The selection CONDITION MONITORING > NFS > REBOOT TO BOOT OS shows the function to shutdown the NFS OS and boot into Boot OS.

NOTE: After a technician has selected the Reboot to Boot OS function, the system is not available to other users.

This causes the NFS to boot completely from NFS Boot OS recorded in protected memory, and will let modifications be made to the primary NFS operational disk. For example, you must reboot into Boot OS to reformat the drive.

OFFBOARD LINKS - LINK STATUS

The selection CONDITION MONITORING > OFFBOARD LINKS > LINK STATUS gives the condition of the network connections between ONS and off-airplane networks. There are functions to set and test the connections.

The page shows this data for each network connection.

- Aircraft Location
- LINK
- STATUS
- DEFAULT LINK
- LOCATION.

Aircraft Location shows a manually set location. The data shows when you manually override it on an individual controller page.

LINK refers to the link name and type, as specified by the software part 46 NFS OPC.

NOTE: The link name and type specified by the parts 46 NFS OPC, and 46 NFS EXCOMM AML, must agree.

STATUS refers to the present link condition. If the word Active shows, then the link is serviceable. If the words Not Active shows, the link can be not available, or unserviceable.

DEFAULT LINK shows the selection for all ONS off-airplane network connections. The result can be blank (or, show no words), or show the words DEFAULT, or PREFERRED. The condition DEFAULT shows that all ONS communications will use that link first. The condition PREFERRED shows that the link is the default lot, but has been overridden manually. When the result is blank, that link is not used.

The LINK STATUS page shows two function buttons:

- Test Default Link
- Set Default Link.

The Test Default Link function will confirm that the link is serviceable.

The Set Default Link function lets you override the default link selection. The selections available show only when the optional equipment has been installed. Typically, the selections can be:

- Terminal Wireless LAN Unit (TWLU)
- Satellite Data Unit (SDU)
- Cellular (using a wireless wide area network unit, WWU).

TWLU - TWLU Condition

The selection CONDITION MONITORING > OFFBOARD LINKS > TWLU > TWLU Condition shows a table with six parameters and their condition. The parameters are as follows:

- Link State
- Active Profile

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ONS MAINTENANCE - CONDITION MONITORING FUNCTIONS

- Associated SSID
- Power Status
- RF Status
- Controller State.

The TEST LINK button does a check of the link condition. If the TEST LINK button gives the result SUCCESS, then the TWLU link condition is serviceable.

TWLU - TWLU Test

The selection CONDITION MONITORING > OFFBOARD LINKS > TWLU > TWLU Test shows a page with 16 internal TWLU parameters, and their values. The data can help troubleshoot TWLU and gatelink problems.

This data also shows on the electronic flight bag (EFB) comm maintenance page.

TWLU - TWLU Discretes

The selection CONDITION MONITORING > OFFBOARD LINKS > TWLU > TWLU Discretes gives access to a page of TWLU control functions.

Power Status is a discrete that sets the TWLU power to ON, or OFF. The adjacent button changes the setting.

The TWLU Profile Control functions let you set the aircraft location, and active profile. The available locations and profiles are specified in the related AMI software part.

RF Status is a discrete that sets the TWLU transceiver condition to ON or OFF. The adjacent button changes the setting.

TWLU power and RF discretes to be determined, and changed to support engineering troubleshooting. The state will only remain until the next automatic transition that disagrees with the overridden state.

NOTE: The UNAVAILABLE condition can suggest that the client keys and server keys do not agree.

TWLU - Wireless Scan

The selection CONDITION MONITORING > OFFBOARD LINKS > TWLU > TWLU Wireless Scan gives access to a page of TWLU wireless networks. The page shows all active wi-fi networks available to the TWLU.

CELLULAR - Cellular Condition

The selection CONDITION MONITORING > OFFBOARD LINKS > CELLULAR > CELLULAR CONDITION shows five conditions and their value.

- Link State
- Active Profile
- Associated Network Specification
- RF Status
- Controller State.

The TEST LINK function makes the WWU do a check of the cellular link, using the active profile shown in the box. If the result show the word SUCCESS, then the WWU communication link is serviceable.

CELLULAR - Cellular Test

The selection CONDITION MONITORING > OFFBOARD LINKS > CELLULAR > CELLULAR TEST shows up to 15 parameters and their value. The data shown can be used to evaluate the cellular link condition. The parameters shown are as follows.

NOTE: Some parameters can show with no value, or blank.

- Active profile
- Link state
- Associated network specification
- Phone number
- User name
- SIM IMSI
- SIM serial number

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**ONS MAINTENANCE - CONDITION MONITORING FUNCTIONS**

- Assigned IP address
- Assigned netmask
- Assigned gateway
- DNS address(es)
- System mode
- Signal strength (dBm)
- Bytes received/sent
- Connect Time (seconds).

CELLULAR - Cellular Control

The selection **CONDITION MONITORING > OFFBOARD LINKS > CELLULAR > CELLULAR CONTROL** gives three functions.

- RF ON or OFF
- SELECT LOCATION
- SELECT PROFILE.

The radio frequency (RF) ON selection sets the WWU RADIO discrete to ENABLE. The RF OFF selection sets the same discrete to DISABLED.

The location sets the WWU to use only settings that are applicable to that geographical area. Use the SELECT LOCATION function to set the correct location. The location data is coded into the .AMI software part.

The profile data contains the settings to connect to a specific network. You must select the correct profile to connect to the wireless network available. Use the SELECT PROFILE function to set the WWU to agree with the available network. The profile data is coded into the .AMI software part.

CELLULAR - Cellular Scan

Cellular Scan is a function that shows network connections that the WWU can detect.

The menu path to this function is: **CONDITION MONITORING > OFFBOARD LINKS > CELLULAR > CELLULAR SCAN**. This selection makes the system show a confirmation box to begin the scan. There is no specific page in the ONS browser.

Once the confirmation has been selected, the scan can take several minutes. During this time, all cellular communications is unserviceable.

NOTE: If the WWU has a serviceable cellular connection, the cellular scan function causes that connection to terminate.

When the scan is complete, the ONS maintenance browser then shows the results as follows.

- Access point name
- Network Specification
- Status
- Network type.

When the result shows one or more access point names, then the WWU cellular hardware is serviceable. To make sure that the WWU communications is serviceable, also refer to **CELLULAR CONDITION > TEST LINK**.

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS
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Printer Condition

PRINTER	PENDING JOBS	STATUS	FAULT TYPE
ex2_a	0	Not Available	No Communication
FlightDeck	0	Not Available	No Communication

SHOW JOBS

SET DEFAULT

Select row for printer details

CONDITION MONITORING > PRINTER CONDITION

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
------------------	----------------------	---------

Avionics Parameters

PARAMETER	VALUE
Aircraft Tail Id	Not Available
Time	Not Available
Date	Not Available
Origin	Not Available
Destination	Not Available
Distance to Destination	Not Available
Weight On Wheels	true

CONDITION MONITORING > INPUT MONITORING > Avionics Parameters

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
------------------	----------------------	---------

INPUT MONITORING

Please select an item to monitor:

Avionics Parameters

NFS

CONTINUE

CANCEL

CONDITION MONITORING > INPUT MONITORING

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
------------------	----------------------	---------

NFS

ETHERNET

429 RECEIVE

429 TRANSMIT

INPUT DISCRETES

OUTPUT DISCRETES

CONDITION MONITORING > INPUT MONITORING > NFS

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ONS MAINTENANCE - CONDITION MONITORING FUNCTIONS

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS
	PRINTER CONDITION	
	INPUT MONITORING	
	NFS	NFS MESSAGES
	SDU	NFS LOGS
	TWLU	SERVICES TEST
		REBOOT TO BOOT OS

ONS Maintenance

LINE MAINTENANCE	CONDITION MONITORING	REPORTS

NFS LOGS

Please select a log type:

dataLoad
security
syslogs

CONTINUE
CANCEL

CONDITION MONITORING > NFS > NFS LOGS

LINE MAINTENANCE	CONDITION MONITORING	REPORTS

Fault Results

LRU NAME	MESSAGE
EU-L	1 Message, Select for more Details
EU-R	1 Message, Select for more Details
HSDU	1 Message, Select for more Details
IFE	1 Message, Select for more Details
NFS1	2 Messages, Select for more Details
PRINTER	1 Message, Select for more Details
PRINTER2	1 Message, Select for more Details

Fault Details

Device Name	NFS1
Flight Log	0
Timestamp	2010-10-20 17:28:57.325
Fault Code	46-166
Occurrences	0
Fault Data	The Satellite data in the EXCOMM AMI fails validation
- - - - -	

CONDITION MONITORING > NFS > NFS MESSAGES

LINE MAINTENANCE	CONDITION MONITORING	REPORTS

Select log(s) to manage: security

LOG NAME	ELIGIBLE FOR DELETION	DATE/TIME OF CREATION
2002-01-01-SecurityEvents.log	YES	Tue Jan 01 00:02:00 UTC 2002
2010-10-19-SecurityEvents.log	NO	Tue Oct 19 23:59:54 UTC 2010
2010-10-19-SecurityEvents.log	NO	Wed Oct 20 17:39:42 UTC 2010

SELECT ALL
UNSELECT ALL
DOWNLOAD
DELETE

Log Summary (security logs):
Total number of log files: 3
Total log storage used (bytes): 10,772,192
Total free secure log storage (bytes): 984,969,504

Log Summary (all other log types):
Total number of log files: 5
Total log storage used (bytes): 306,509
Total free filestore log storage (bytes): 314,266,291

CONDITION MONITORING > NFS > NFS LOGS > security

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ONS MAINTENANCE - CONDITION MONITORING FUNCTIONS

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS
	PRINTER CONDITION	
	INPUT MONITORING	
	NFS	▷
	OFFBOARD LINKS	▷
		LINK STATUS
		SDU
		TWLU
		CELLULAR

ONS MAINTENANCE

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
CELLULAR CONDITION	CELLULAR TEST	CELLULAR CONTROL
	CELLULAR SCAN	
PARAMETER		VALUE
Link State		Idle
Active Profile		
Associated Network Specification		
RF Status		On
Controller State		Running

TEST LINK

CONDITIONING MONITORING > OFFBOARD LINKS > CELLULAR

ONS MAINTENANCE - CELLULAR CONTROL

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS																																
CELLULAR CONDITION	CELLULAR TEST	CELLULAR CONTROL																																
<table border="1"> <thead> <tr> <th>PARAMETER</th> <th>VALUE</th> </tr> </thead> <tbody> <tr> <td>Active Profile</td> <td></td> </tr> <tr> <td>Link State</td> <td>Idle</td> </tr> <tr> <td>Associated Network Specification</td> <td></td> </tr> <tr> <td>Phone Number</td> <td>13102929471</td> </tr> <tr> <td>User Name</td> <td></td> </tr> <tr> <td>SIM IMSI</td> <td>310410384383063</td> </tr> <tr> <td>SIM Serial Number</td> <td>89014103243843830636</td> </tr> <tr> <td>Assigned IP Address</td> <td></td> </tr> <tr> <td>Assigned Netmask</td> <td></td> </tr> <tr> <td>Assigned Gateway</td> <td></td> </tr> <tr> <td>DNS Address(es)</td> <td></td> </tr> <tr> <td>System Mode</td> <td></td> </tr> <tr> <td>Signal Strength (dBm)</td> <td></td> </tr> <tr> <td>Bytes Received/Sent</td> <td></td> </tr> <tr> <td>Connect Time (sec)</td> <td></td> </tr> </tbody> </table>			PARAMETER	VALUE	Active Profile		Link State	Idle	Associated Network Specification		Phone Number	13102929471	User Name		SIM IMSI	310410384383063	SIM Serial Number	89014103243843830636	Assigned IP Address		Assigned Netmask		Assigned Gateway		DNS Address(es)		System Mode		Signal Strength (dBm)		Bytes Received/Sent		Connect Time (sec)	
PARAMETER	VALUE																																	
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CONDITIONING MONITORING > OFFBOARD LINKS > CELLULAR > CELLULAR TEST																																		

LINE MAINTENANCE	CONDITION MONITORING	REPORTS
CELLULAR CONDITION	CELLULAR TEST	CELLULAR CONTROL
Cellular Status: Disabled CLEAR PROFILE(S) AirLAN Discrete Status: On RF ON Aircraft Location: null SELECT LOCATION Active Profile: SELECT PROFILE Detail Status Location is unknown No profile loaded		
CONDITIONING MONITORING > OFFBOARD LINKS > CELLULAR > CELLULAR CONTROL		

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ONS MAINTENANCE - CELLULAR CONTROL

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**ONS MAINTENANCE - REPORTS FUNCTIONS****General**

The maintenance browser gives access to the reports functions, which are as follows:

- Configuration Report
- MSD Report
- Client Files Report
- LRU Reports.

Configuration Report

The selection of REPORTS > CONFIGURATION REPORT shows the same functions as the LINE MAINTENANCE > SYSTEM CONFIGURATION page. For additional information, refer to 46-13-00-010.

MSD Report

The selection of REPORTS > MSD REPORT shows the same function as the LINE MAINTENANCE - MANAGE MSD page. For additional information, refer to 46-13-00-010.

Client File Report

The selection of REPORTS > CLIENT FILES REPORT shows the same function as the LINE MAINTENANCE - CLIENT FILES page. For additional information, refer to 46-13-00-010.

LRU Reports

This button gives access to the ONS ARINC 615A and ARINC 615 data loader function that can download report data from an interfacing LRU system. Currently, no 777 interfacing systems are configured.

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LINE MAINTENANCE	CONDITION MONITORING	REPORTS
		CONFIGURATION REPORT
		MSD REPORT
		CLIENT FILES REPORT
		LRU REPORTS
ONS Maintenance		

2033851 S0000408103_V1

ONS MAINTENANCE - REPORTS FUNCTIONS

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NETWORK FILE SERVER - DESCRIPTION

General

The Network File Server (NFS) is an Aeronautical Radio Incorporated (ARINC) 763 integrated network server unit.

The NFS operates as a server and a computer.

When the NFS operates as a server, it does these operations:

- Ethernet router between connected devices
- Controller switch to two transceiver types - Satellite Communication (SATCOM), Terminal Wireless LAN Unit (TWLU)
- Data storage unit.

When the NFS operates as a computer, it operates these types of software:

- Operating systems
- Operates specified Boeing software applications
- Operates third-party software applications.

The NFS is a part of the data network for the aircraft to ground. It uses interfaces to specified onboard Ethernet devices. With the applicable equipment, you can replace digital files between the NFS and a ground network with these procedures:

- During flight - with the SATCOM to a Ground Earth Station (GES)
- On the ground - with the TWLU to a wireless Local Area Network (LAN) at an airport with a terminal access point
- On the ground - with a maintenance laptop.

The NFS gives network support for the Electronic Flight Bag (EFB) and the flight compartment printer. The NFS also has interfaces that monitor flight and navigation data.

The primary user interface is through a maintenance laptop. Use the maintenance laptop to do these operations:

- Install software
- Erase software
- Examine software.

Physical Description

These are the dimensions and weight of the NFS:

- Height 7.62 in. (19.35 cm)
- Width 2.27 in. (5.77 cm)
- Depth 15.12 in. (38.40 cm)
- Weight 6.75 lb (3.06 kg) maximum.

Mass Storage Device

The Mass Storage Device (MSD) is a software function of the Onboard Network System (ONS). The storage is on the 64 Gigabyte (GB) Solid State Drive (SSD). The MSD is 5 GB of that space.

Front Panel

These are the front panel indications on the NFS:

- Power - green Light Emitting Diode (LED)
- Fault - amber LED
- Disk - green LED
- Network Extension Device (NED) - green LED
- Link - green LED
- ACT - green LED
- RJ45 link - green LED
- RJ45 activity - green or amber LED.

The power indicator is on when the internal power supply of the NFS has power from the airplane. The power indicator is off when there is a power supply fault or no power to the NFS.

The fault indicator is on when the initialization operation of the Boot Operating Software (OS) is not correct or done. This light stays on during the normal initial Boot up, and goes off after two minutes. The light stays on, for more than 1 power cycle, if it is necessary for the NFS, to have the Boot OS installed, or there is a hardware fault. The LED does not come on when you do a software reboot from the maintenance screens.

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NETWORK FILE SERVER - DESCRIPTION

When the power light is off, or the Fault light is on, there will be a maintenance message in the Central Maintenance Computer (CMC).

The DISK indicator is on when the Server subsystem reads or writes to the Serial Advanced Technology Attachment (SATA) hard drive.

The NED indicator is on when the NED subsystem is on. These operation cause the NED indicator to go on and off quickly:

- When the Boot OS for the subsystem operates
- While the NFS is dataloading, the 46 NED Operational Program Software (OPS)
- While the NFS is dataloading, the 46 NED Operation Program Code (OPC).

The frequency the indicator goes on and off will go down to approximately one time during each second if the NED system is operational. This occurs when the unit changes from boot/dataload mode to a normal operational condition. The indicator stays on if the subsystem for the NED has a fault.

The LINK indicator is on when the Ethernet for the NFS subsystem is connected to the NED subsystem. It is typical for this to be solid green during normal operation. It is typical for this light to be off when the unit is running in the Boot OS, because the interface to the NED subsystem does not operate in the Boot OS. If the communication with the internal NED has a fault, this light is off and there will be an applicable NFS Fault Message for the internal NED.

The ACT indicator is on when Ethernet data moves between the internal NED subsystem and the server subsystem. It is typical for this indicator to go on and off during normal operation. It is typical for this light to be off when the unit is running in the Boot OS, because the interface to the NED subsystem does not operate in the Boot OS. If the communication with the internal NED has a fault, this light is off and there will be an applicable NFS Fault Message for the internal NED.

There are two LEDs for the RJ45 connection behind the front panel. These indications are equivalent to a standard link and an activity on a laptop connection. They will be off during these conditions:

- There is no cable connected

- The cable is defective
- The interface is disabled by an internal server or connected computer.

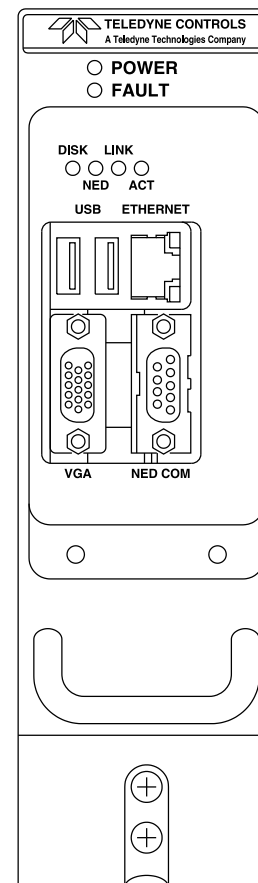
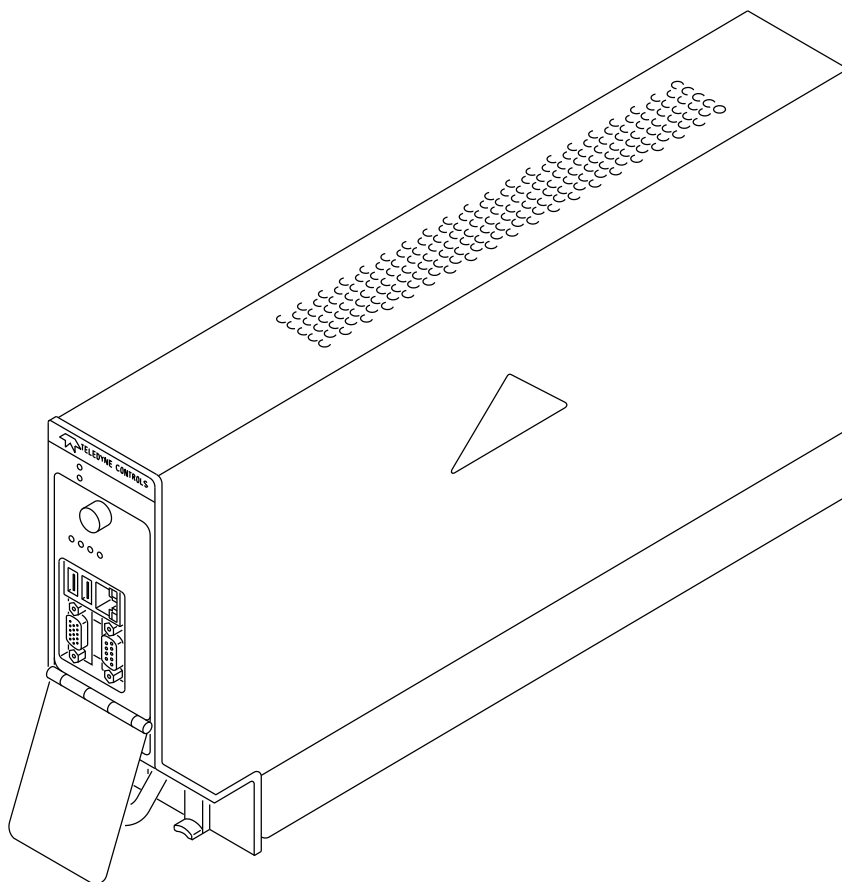
The activity light will go on and off when there is a data transfer on the interface. The activity light can be amber or green.

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NETWORK FILE SERVER - DESCRIPTION

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NETWORK FILE SERVER - DESCRIPTION

General

The network file server (NFS) is a LRU that performs functions similar to an aeronautical radio incorporated (ARINC) 763 integrated network server unit.

The NFS contains two computing subsystems, identified as the server subsystem and network extension device subsystem.

The server subsystem is an Intel based system with a minimum processing capability of a dual core I7, 8 GB of DDR error correcting RAM, and three hard drives – one is a USB flash drive used to store and execute the 46 NFS BOOT OS part. The other two drives are SATA solid state devices with a minimum of 256 GB of storage space. The use of space on these drives is determined by the software operating system during the initial data load. The server subsystem has six Ethernet NICs, including one gigabit copper interface to the front panel, one gigabit copper interface to the rear connector, which is wired to the flight deck RJ45 port, one gigabit copper interface to the network extension device (NED) subsystem, two 1 GB fiber interfaces to the rear connector, and one 10 GB fiber interface to the rear connector. The server subsystem has USB and RS422 interfaces to the rear connector. The server subsystem has a video to ARINC 818 conversion capability for two video channels, using fiber outputs on the rear connector. The server subsystem connects to three of the six input discretes on the rear connector (one discrete is a special function discrete shared with the NED subsystem).

The NED subsystem has two computing subsystems. The operational software and Linux based routing system is hosted on a Cavium based processor. The NED subsystem has three Ethernet NICs. One gigabit copper that interfaces with the server subsystem, one gigabit copper interface to the rear connector, and one gigabit fiber interface to the rear connector. The NED subsystem interfaces with two Marvell switches to provide an additional sixteen interfaces to the rear connector. One GB fiber, two GB copper, and thirteen 10/100 Base-T copper interfaces. The NED subsystem connects to the 12 output discretes and four of the six input discretes. The NED subsystem connects to the sixteen ARINC 429 receivers, six ARINC 429 transmitters, and one ARINC 717 receiver port on the rear connector. ARINC 429 data received is made available to the Cavium computing system and to a System on Module subsystem that manages the ARINC 429 and ARINC 717 to Ethernet streaming data interfaces. The SOM contains no airplane loadable parts. The Cavium subsystem is responsible for the ACARS protocols, and ARINC 615 dataload protocols (which are not presently used on the 777 ONS implementation).

Physical Description

These are the dimensions and weight of the network file server (NFS):

- Height 7.62 in. (19.35 cm)
- Width 2.27 in. (5.77 cm)
- Depth 15.12 in. (38.40 cm)
- Weight 8 lb (3.63 kg) maximum.

Mass Storage Device

The mass storage device (MSD) is a software function of the onboard network system (ONS). The storage is on the 64 GB solid state drive (SSD). The MSD is 5 GB of that space.

Front Panel

These are the front panel indications on the network file server (NFS):

- POWER - green light emitting diode (LED)

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NETWORK FILE SERVER - DESCRIPTION

- FAULT - amber LED
- DISK - green LED
- NSP - green LED
- LINK - green LED
- ACT - green LED
- RJ45 link - green LED
- RJ45 activity - green or amber LED.

The power indicator is on when the internal power supply of the NFS has power from the airplane. The power indicator is off when there is a power supply fault or no power to the NFS.

The fault indicator is on when the initialization operation of the boot operating software (OS) is not correct or done. This light should stay on during the normal initial boot up, and goes off after 2 minutes. If the light stays on for more than 5 minutes then a power cycle is necessary. If the light stays on after that power cycle for more than 2 minutes then its is necessary for the NFS to have the Boot OS installed, the OS is corrupted, or there is a hardware fault. The LED does not come on when you do a software reboot from the maintenance screens.

When the power light is off, or the fault light is on, there will be a maintenance message in the central maintenance computer (CMC).

The DISK indicator is on when the server subsystem reads or writes to the serial advanced technology attachment (SATA) hard drive.

The NSP indicator is on when the network extension device NED subsystem is on. These operations can cause the NSP indicator to go on and off quickly:

- When the boot OS for the subsystem operates
- While the NFS is dataloading, the 46 NFS NSP OPS
- While the NFS is dataloading, the 46 NFS NSP OPC.

The frequency the indicator goes on and off will go down to approximately one time during each second if the NED system is operational. This occurs when the unit changes from boot/dataload mode to a normal operational condition. The indicator stays on if the subsystem for the NED has a fault.

The LINK indicator is on when the Ethernet for the NFS subsystem is connected to the NED subsystem. It is typical for this to be solid green during normal operation. It is typical for this light to be off when the unit is running in the Boot OS, because the interface to the NED subsystem does not operate in the Boot OS. If the communication with the internal NED has a fault, this light is off and there will be an applicable NFS fault message for the internal NED.

The ACT indicator is on when Ethernet data moves between the internal NED subsystem and the server subsystem. It is typical for this indicator to go on and off during normal operation. It is typical for this light to be off when the unit is running in the Boot OS, because the interface to the NED subsystem does not operate in the Boot OS. If the communication with the internal NED has a fault, this light is off and there will be an applicable NFS fault Message for the internal NED.

There are two LED for the RJ45 connection behind the front panel. These indications are equivalent to a standard link and an activity on a laptop connection. They will be off during these conditions:

- There is no cable connected
- The cable is defective
- The interface is disabled by an internal server or connected computer.

The activity lights will go on and off when there is a data transfer on the interface. The activity light can be amber or green.

There is a RESET (push-button) switch on the front panel which can reset the NFS server subsystem processor and the NFS subsystem processor. It is done by pushing the RESET switch for greater than 5 seconds so the NSP light begins blinking 2 times per second. This method is used if a 46 NFS NSP OPC is loaded and there is no communication between the server subsystem and the NSP.

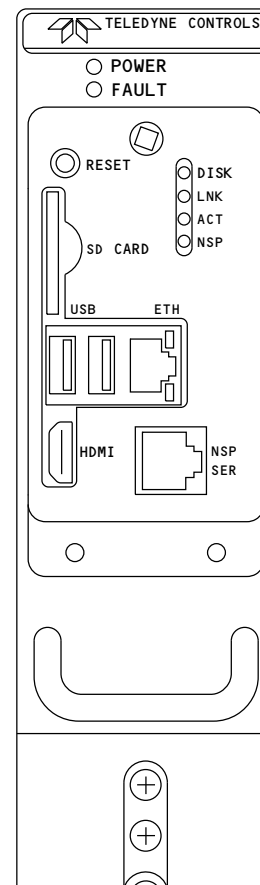
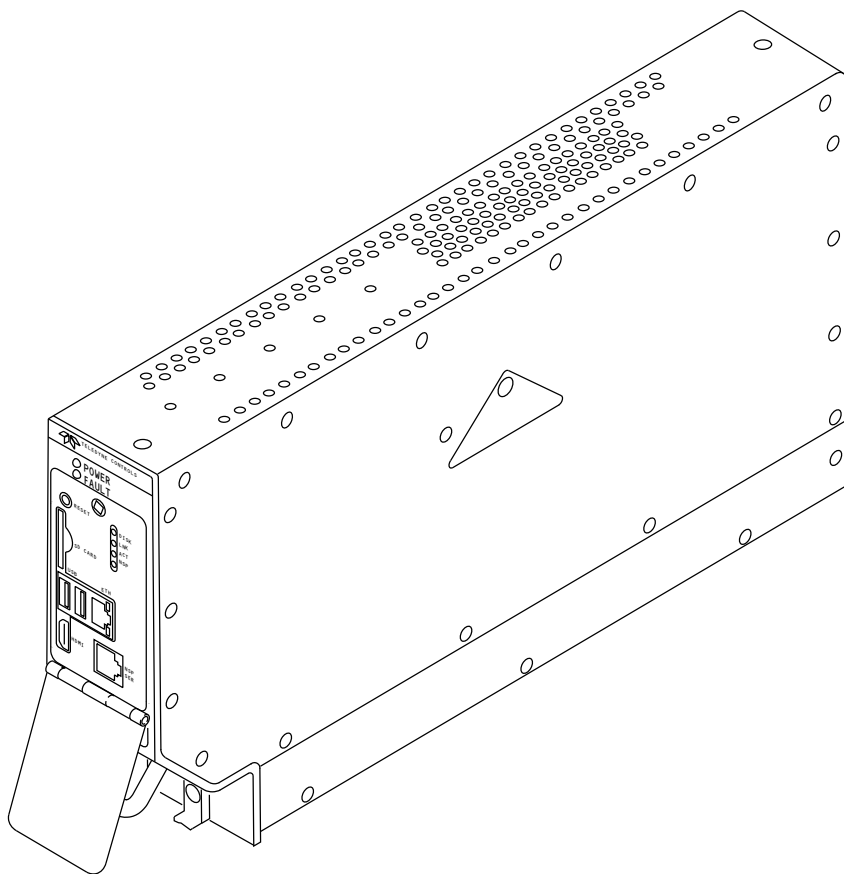
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NETWORK FILE SERVER

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EFFECTIVITY
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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE

General

The default home page for the ONS maintenance browser is the Line Maintenance page. This is a web page you access using a standard web browser.

Navigation Bar

The system navigation bar is near the top of the page, and has these selections:

- Extended Maintenance
- Line Maintenance

ARO 011-013 PRE SB 777-46-0066

- Other Functions.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- Other Functions (Only if specific optional applications are installed).

ARO 011-999

All ONS functions are organized into one of these groups.

ARO 011-013 PRE SB 777-46-0066

NOTE: The system description pages that follow are organized by the navigation bar and icon nomenclature. The > symbol refers to the path that shows a specific screen. For example, Line Maintenance > Client Files shows the necessary selections to show the Client Files page.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

NOTE: The system description pages that follow are organized by the navigation bar and icon nomenclature. The > symbol refers to the path that shows a specific screen. For example, Line Maintenance > Download Manager shows the necessary selections to show the Download Manager page.

ARO 011-999**Line Maintenance Selections**

The Line Maintenance selection shows these icons:

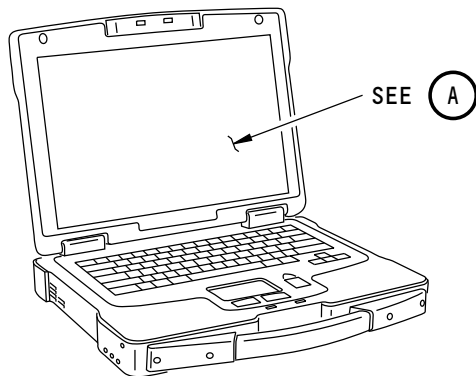
ARO 011-013 PRE SB 777-46-0066

- Airplane Identification
- Client Files
- Data Load
- MSD (mass storage device)
- ONS Configuration
- Security.

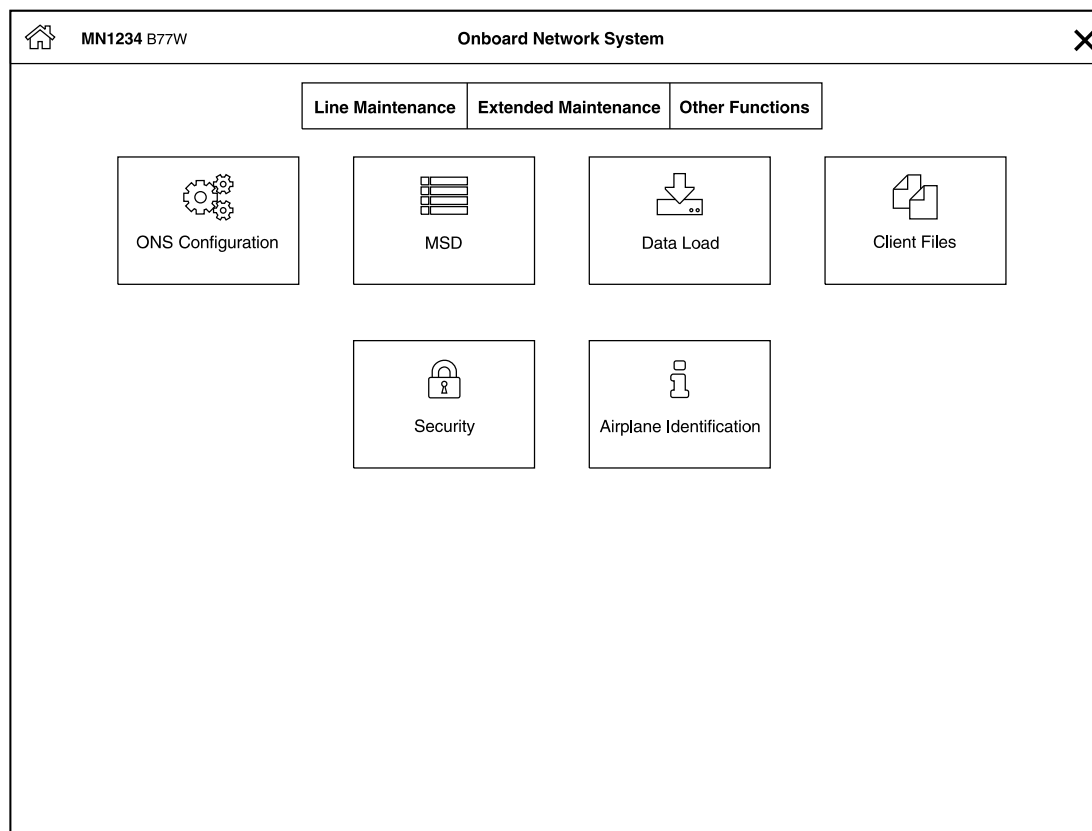
To again show the main menu, click on the home icon, in the upper left-hand corner.

When using the maintenance laptop, to exit the web browser and show the laptop's desktop, click on the X in the upper right-hand corner.

ARO 011-999



MAINTENANCE LAPTOP



(A)

2335160 S0000531131_V2

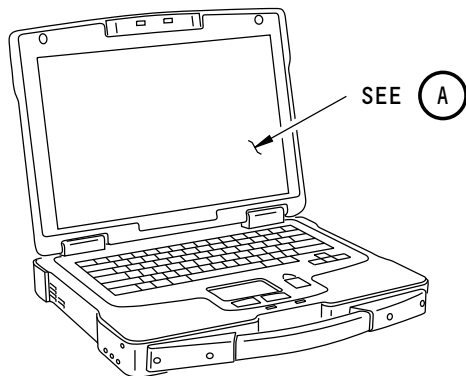
ONBOARD NETWORK SYSTEM - LINE MAINTENANCE MENU

46-13-00

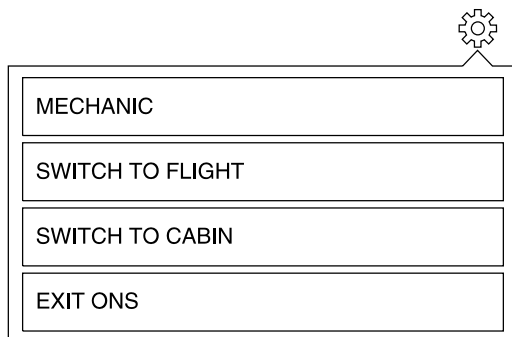
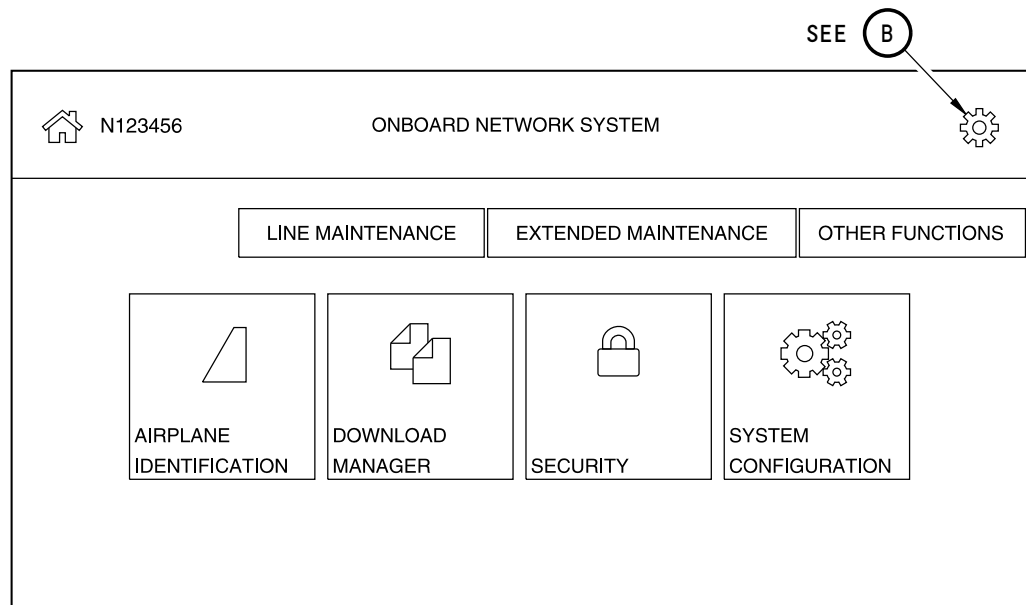
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ARO 011-013 PRE SB 777-46-0066

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MAINTENANCE LAPTOP



B

ONBOARD NETWORK SYSTEM - LINE MAINTENANCE MENU

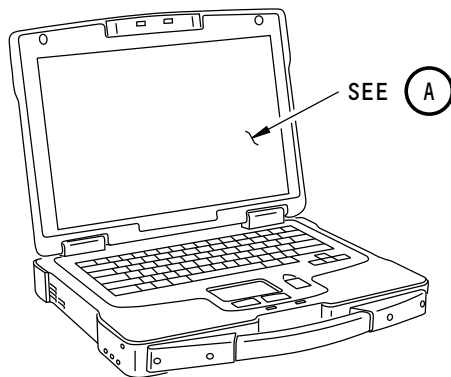
2408834 S0000557104_V2

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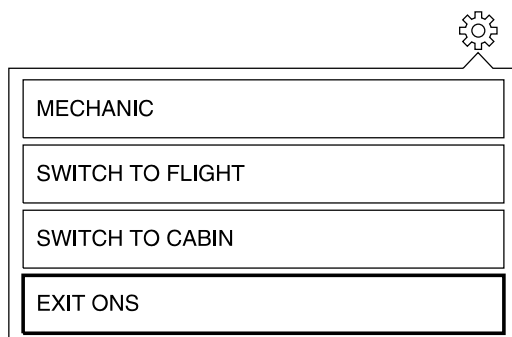
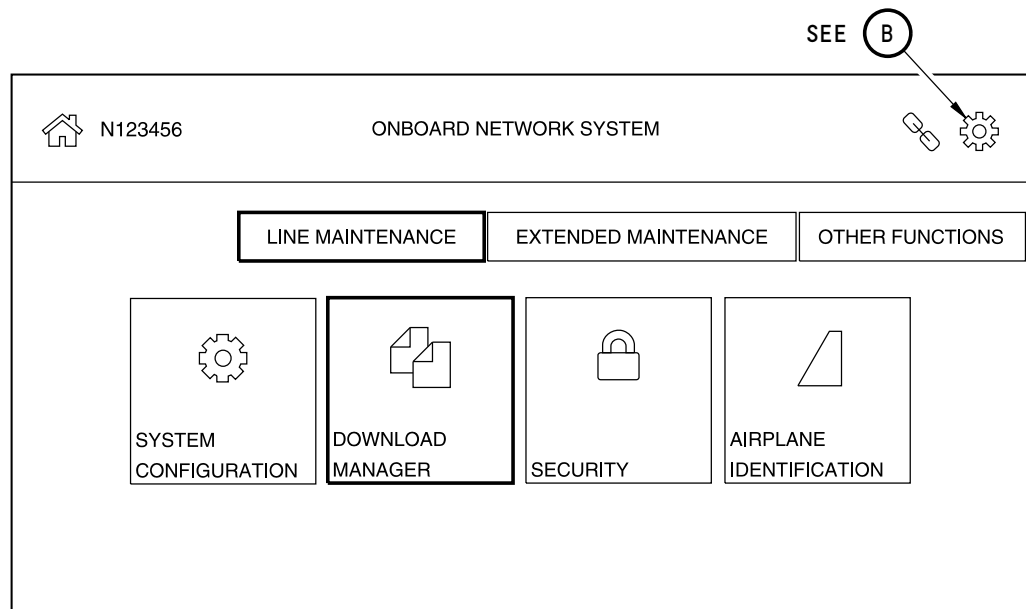
EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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MAINTENANCE LAPTOP



B

ONBOARD NETWORK SYSTEM - LINE MAINTENANCE MENU

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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - ONS CONFIGURATION

General

The ONS CONFIGURATION page gives a record of connected LRUs, and the software parts installed in network file server that support the specified line replaceable unit (LRU). There are functions to print or download a record of the installed parts, and a function that removes these parts from the network file server (NFS).

Using the ONS maintenance browser, access to the page is by the selection: LINE MAINTENANCE > ONS CONFIGURATION.

The page shows a table of LRUs. Each LRU shown represents a folder, or container of software parts. These are the data columns:

- LRU NAME
- SOFTWARE PART NUMBER
- NOMENCLATURE.

The ONS configuration page gives access to these functions:

- UNINSTALL NFS PARTS
- PRINT REPORT
- DOWNLOAD REPORT

To exit ONS CONFIGURATION, and return to the main menu, click once on the Home icon, at the upper left corner of the page.

Details of Selected Hardware

ONS CONFIGURATION shows a data box below the words: Details of Selected Hardware. When a single LRU is highlighted, the data box shows the hardware part number, and hardware serial number.

UNINSTALL NFS PARTS

The UNINSTALL PARTS function gives a record of LSAPs available for removal. When an LSAP shows, the part is optional, and can be removed from the NFS without a system requirement to install it again. If this record has no data, then no optional parts are available for removal.

To erase an LSAP, find the part in the ONS Configuration table and click once on it to highlight the row. You can select one or more parts at a time. Then, click on the UNINSTALL NFS PARTS button.

If the target part is in use, or not available for removal, a pop-up window can show, with a message indicating the problem.

If the target part is available for removal, the display shows a new page with the words: Select part number(s) to uninstall. The table shows the highlighted parts available for removal. Again select one or more parts to erase, and then click on the SELECT button. The page then shows another box with the words SELECTED PARTS.

If an LSAP was added to the Selected Parts in error, then highlight the part, and click on the UNSELECT button.

To complete the removal, highlight the target part in the Selected Parts box, then click on CONTINUE. A confirmation pop-up then shows. Make your selection CONTINUE. The page then shows a progress pop-up.

The result shows on a new page with the words: Uninstallation results for the selected parts(s). The status SUCCESS shows that the part was erased completely.

ARO 011-013 PRE SB 777-46-0066

PRINT REPORT

To print a record of all LSAP installed in NFS, use the PRINT REPORT function.

ARO 001-010; ARO 011-013 PRE SB 777-46-0066

DOWNLOAD REPORT

The download report function makes a digital record of the hardware and software configuration of the NFS. The report includes the configuration of each network-connected system.

When selected, the ONS browser lets you save the file to the maintenance laptop, or to an external storage device.

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MN1234 B77W

ONS Configuration


ONS Configuration

LRU NAME	SOFTWARE PART NUMBER	NOMENCLATURE
NFS	BCG40-0000-01DC	46 NFS SERVER OS
NFS	BCG41-0000-01DC	46 NFS BOOT OS
NFS	NET-Z-NFS1-55FE	46 NFS OPC
NFS	NET-Z-NFS1-53CE	46 NFS OPC
NFS	777-Z-DNFS-53CC	46 NFS OPC
NFS	777-Z-DNFS-53CM	46 NFS OPC
NFS	ONS-Z-NM05-400A	46 NFS NETMANAGER APP
NFS	ONS-Z-ADM5-4A0E	46 NFS DATA MONITOR OPS
NFS	ONS-Z-BS05-300A	46 NFS BOOT OS
NFS	ONS-Z-ADR5-4A0E	46 NFS DATA RECORDER OPS

UNINSTALL NFS PARTS

PRINT REPORT

DOWNLOAD REPORTS

Details of Selected Hardware

Hardware Part Number	2246900-1
Hardware Serial Number	**123456**

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335214 S0000531132_V1

ONS CONFIGURATION PAGE

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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - MASS STORAGE DEVICE

General

Select the MANAGE MSD display button to control the software parts that are on the Mass Storage Device (MSD). The MANAGE MSD function shows a list of software parts and their attributes.

The page starts with the ATA CHAPTER column in a sequence from lowest to highest. Click on the underlined column title to change the sequence of the list. You can use the three columns to change the sequence.

These are the columns that shows on the MANAGE MSD screen:

- Air Transport Association (ATA) CHAPTER
- Software part number
- Nomenclature.

For an Aeronautical Radio Incorporated (ARINC) 615 formatted part this data shows:

- Media Set part number
- Loadable Software Airplane Part (LSAP) part numbers - indented below the Media Set part number.

NOTE: These are only available when the parts have been packaged using the Boeing Ground Tools.

The ATA CHAPTER column is the ATA chapter for the Line Replaceable Unit (LRU) for the applicable software part. If more than one LRU is applicable, the list uses the ATA of the first LRU.

The SOFTWARE PART NUMBER column is the part number of the software on the MSD or the media set part. The data comes from the part header if the format contains the data. For ARINC 615 parts, the part number comes from the packaging data. The packaging data comes from the Boeing Ground Tools. If the packaging data is not available, the part number shows as the top directory name in the archive file uploaded.

The NOMENCLATURE column is the description of the part of the software on the MSD or media set part. The data comes from the part header if the format is ARINC 665-3. For all other formats, the part description comes from the packaging data from the Boeing Ground Tools. If the packaging data is not available, the ATA and the system type of the first LRU applicable with the software sets the part description.

The MSD SUMMARY section shows this data:

- The quantity of free space of the space applicable to the MSD function
- Total used storage.

When you make a selection of one or more parts, the SELECTED LSAP SUMMARY section shows. The summary data is for the selection of the LSAP or LSAPs. The summary shows the number of files and the total quantity in bytes.

The MANAGE MSD screen has the Onboard Network System (ONS) Maintenance Web Graphical User Interface (GUI) user an options for these functions:

- DOWNLOAD REPORT
- ERASE.

ARO 011-013 PRE SB 777-46-0066

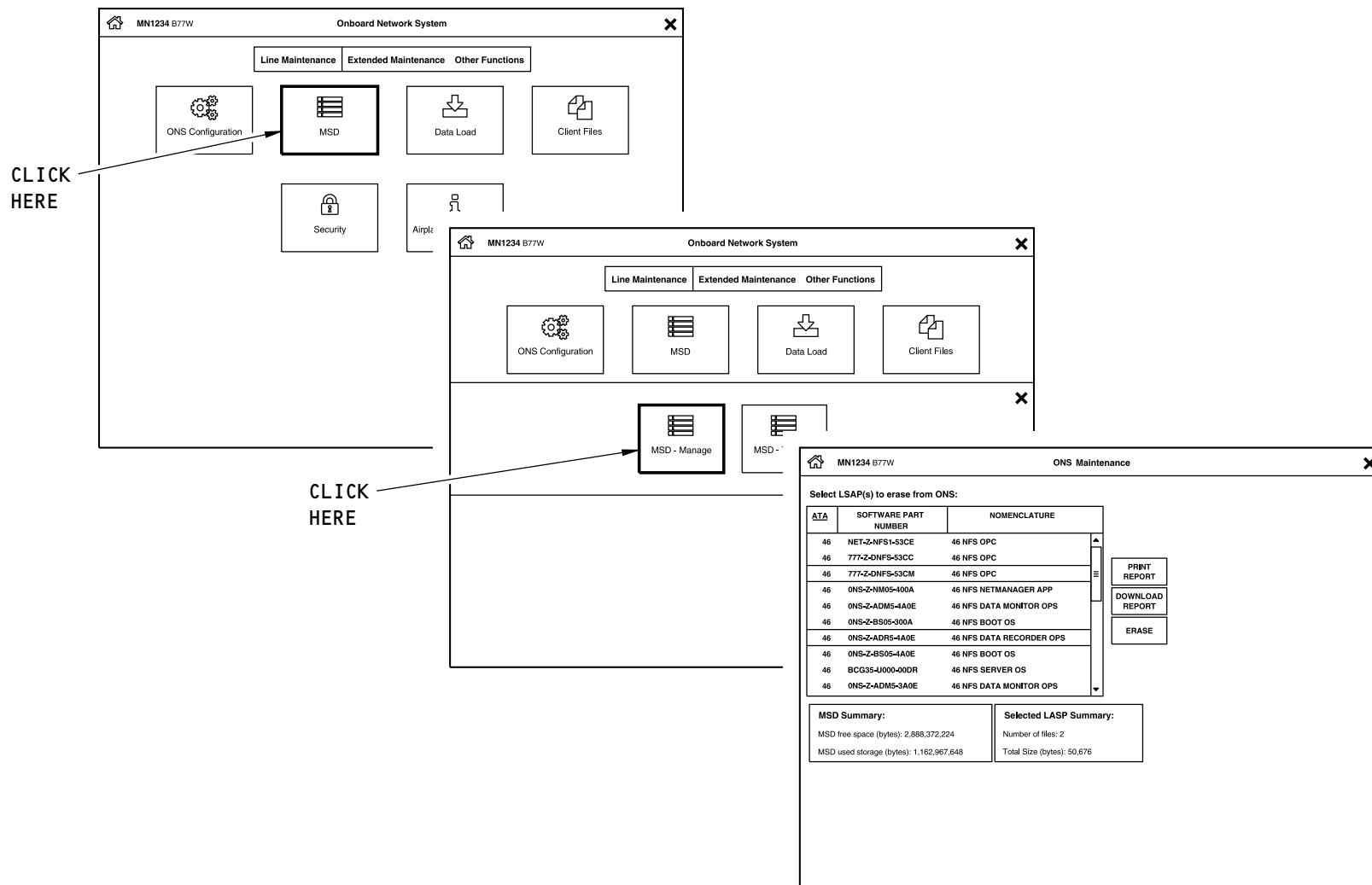
- PRINT REPORT

Use the PRINT REPORT button to send a report of the MSD configuration data to a printer.

ARO 001-010; ARO 011-013 PRE SB 777-46-0066

Use the DOWNLOAD button to send a report of the system configuration data to the laptop or to media that is connected to the laptop.

Use the ERASE button to remove the LSAP from the MSD.



NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335220 S0000531133_V1

ONS MASS STORAGE DEVICE PAGE

ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - MSD - MANAGE**General**

The mass storage device (MSD) manage page shows a table of loadable software airplane parts (LSAP). These parts shown are not in service. They are available for future installation into the applicable LRU.

The MSD - Manage page has functions to print, or download a configuration report. There is also a function to erase one or more LSAP from the MSD.

To show MSD - MANAGE from the ONS menu bar, make the selections: Line Maintenance > MSD > MSD - Manage.

MSD - Manage

These are the columns that show on the MANAGE MSD page:

- ATA - refers to ATA (or, Air Transport Association) chapter number
- SOFTWARE PART NUMBER
- NOMENCLATURE.

The ATA column refers the chapter number assigned by the Air Transport Association, for that Line Replaceable Unit (LRU), for the specified software part. If two or more LRUs share the part, the ATA of the first LRU is specified.

The SOFTWARE PART NUMBER column refers to the software, or media set part number. The data shown comes from the software part header, when provided.

The NOMENCLATURE column refers to the software part's description. When the part format is Aeronautical Radio Incorporated (ARINC) 665-3, then the part header gives the nomenclature data. For all other formats, the part description comes from the packaging data from the Boeing Ground Tools. If the packaging data is not available, the Air Transport Association (ATA) and the system type of the first LRU applicable with the software sets the part description.

The MSD SUMMARY section shows the amounts of available, and storage used.

When one or more parts is selected, the SELECTED LSAP SUMMARY section shows the quantity of LSAPs selected, and the amount of storage they occupy.

The PRINT REPORT function sends a record of the MSD configuration to the printer.

The DOWNLOAD function makes a record of the MSD configuration.

The ERASE function removes the highlighted software part from the MSD.

LINE MAINTENANCE > MSD > MSD MANAGE

MN1234 B77W

ONS Maintenance

Select LSAP(s) to erase from ONS:

ATA	SOFTWARE PART NUMBER	NOMENCLATURE
46	NET-Z-NFS1-53CE	46 NFS OPC
46	777-Z-DNFS-53CC	46 NFS OPC
46	777-Z-DNFS-53CM	46 NFS OPC
46	ONS-Z-NM05-400A	46 NFS NETMANAGER APP
46	ONS-Z-ADM5-4A0E	46 NFS DATA MONITOR OPS
46	ONS-Z-BS05-300A	46 NFS BOOT OS
46	ONS-Z-ADR5-4A0E	46 NFS DATA RECORDER OPS
46	ONS-Z-BS05-4A0E	46 NFS BOOT OS
46	BCG35-U000-00DR	46 NFS SERVER OS
46	ONS-Z-ADM5-3A0E	46 NFS DATA MONITOR OPS

PRINT REPORT

DOWNLOAD REPORT

ERASE

MSD Summary:
MSD free space (bytes): 2,888,372,224
MSD used storage (bytes): 1,162,967,648

Selected LASP Summary:
Number of files: 2
Total Size (bytes): 50,676

SELECTION

SELECTION

SHOWS RESULT OF SELECTION

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335224 S0000531134_V1

MSD - MANAGE PAGE

46-13-00

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ARO 001-010; ARO 011-013 PRE SB 777-46-0066

D633W101-ARO

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**ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - MSD - TRANSFER****General**

The mass storage device (MSD) transfer page is the function that moves digital files from the maintenance laptop to the MSD.

To get access to the page, use the ONS maintenance browser menu bar, and make the selections: Line Maintenance > MSD > MSD - Transfer.

To exit the MSD functions, and return to the ONS main menu, click on the home icon, in the upper left-hand corner.

- Use the Browse function to find and select the source file.
- Make sure the transfer page accepts the part for transfer.
- Make the Transfer selection.
- Make sure the part shows the transfer status: Success.

MSD - Transfer

The page shows with no initial information.

The upper section of page shows:

- The words: Select a file with parts to transfer:
- An empty box - that will show the directory path. You can manually type the path into this box, or use the Browse button.
- The Browse button - lets you navigate to the target file, and make your selection.
- The Transfer button - executes the transfer function.

The lower portion of the page shows the Transfer Results table. The data shows as follows:

- File name
- Part number
- Status.

NOTE: The transfer function accepts only files that meet strict engineering conditions.

Transfer Process

The process to add a file to the MSD is as follows.

- Connect the maintenance laptop to ONS.
- Show the MSD - Transfer page.

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D633W101-ARO

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LINE MAINTENANCE > MSD > MSD-TRANSFER

LINE MAINTENANCE > MSD > MSD-TRANSFER > BROWSE > (FIND LSAP)

2335227 S0000531135_V1

MSD - TRANSFER PAGE


MN1234 B77W

ONS Maintenance


Select a file with parts to transfer:

Transfer Results to: ONS

FILE NAME	PART NUMBER	STATUS
crateS_0NS-Z-0S05-4A0E.zip		TRANSFERRING

TRANSFER TO MSD

Please wait...

File is being uploaded...2%



LINE MAINTENANCE > MSD > MSD-TRANSFER > BROWSE > (FILE SELECTION) > OPEN

2335230 S0000531718_V1

MSD - TRANSFER PAGE

46-13-00

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 MN1234 B77W

ONS Maintenance



Select a file with parts to transfer:

C:\Parts for upload\crateS_0NS-Z-0S05-4A0E.zip

Browse

TRANSFER

Transfer Results to: ONS

FILE NAME	PART NUMBER	STATUS
crateS_0NS-Z-0S05-4A0E.zip	0NS-Z-0S05-4A0E	SUCCESS

LINE MAINTENANCE > MSD > MSD-TRANSFER > TRANSFER > SUCCESS STATUS
2335234 S0000531719_V1

MSD - TRANSFER PAGE

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**ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - DATA LOAD****General**

Dataload refers to the software installation process into connected onboard network system (ONS) devices.

Using the maintenance browser, the selection LINE MAINTENANCE > DATALOAD shows a function that installs software parts automatically into a specific LRU. The NFS always shows as an available installation target. Additional LRU-systems can show when installed.

Dataload Process

The dataload function lets you select a target LRU for software installation, and make the target LSAP selection. When the LRU and LSAP are selected, the function completes the software installation. The target LSAP must be present on the mass storage device (MSD).

When you install to the NFS only, you can install one part, or multiple parts at the same time. When you install into an LRU other than NFS, you can install only one selection at a time.

When the installation is complete, the page then shows the DATA LOAD RESULT page. This page shows the part number and load status (or condition) of the installed LSAP. A serviceable installation will show the LOAD STATUS: SUCCESS.

DATA LOAD

Please select a LRU type:

NED

NFS

WAP

WWU

CONTINUE

CANCEL

ONS Maintenance

Select part number(s) to load to the selected LRU(s):
NFS

BACK

SELECT

SOFTWARE PART NUMBER	NOMENCLATURE
ONS-Z-0S05-3A0E	46 NFS SERVER OS
ONS-Z-0S05-400A	46 NFS SERVER OS
ONS-Z-0S05-4A0E	46 NFS SERVER OS
ONS-Z-ADM5-3A0E	46 NFS DATA MONITOR OPS
ONS-Z-ADM5-4A0E	46 NFS DATA MONITOR OPS

CLICK HERE

CLICK HERE

LINE MAINTENANCE > DATA LOAD:

LSAP TO INSTALL INTO SELECTED LRU.

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335241 S0000531136_V1

ONS DATA LOAD PAGE

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MN1234 B77W
ONS Maintenance
✕

Select part number(s) to load to the selected LRU(s):

CMU

BACK

DATA LOAD > CMU

Installing parts to CMU

Elapsed time: 00:00:15

PART NUMBER	LRU NAME	STATUS	DESCRIPTION
831-7075-F17cr(MSP)	CMU	RUNNING	Load Status in Progress Load Ration UNAVAILABLE Description Initializing

Installation in process

STOP

DATA LOAD PROGRESS INDICATOR POP-UP


MN1234 B77W
Data Load
✕

Results of loading to the following LRUs:

NFS

LRU STATUS

SOFTWARE PART NUMBER	LOAD STATUS
0NS-Z-0SBL-000F	SUCCESS

DATA LOAD DETAILED RESULTS VIEW (SUCCESS)

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335336 S0000531722_V1

ONS DATA LOAD PAGE

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MN1234 B77W **ONS Maintenance** ✕

Select part number(s) to load to the selected LRU(s):
NFS

SOFTWARE PART NUMBER	NOMENCLATURE
831-7075-F17cr(MSP) Contained LSAPs: 815-4545-17E 815-5679-117 832-9929-17E	CMU COMBINED EW

MN1234 B77W **ONS Maintenance** ✕

Select part number(s) to load to the selected LRU(s):
NFS

SOFTWARE PART NUMBER	NOMENCLATURE
ONS-Z-0S05-3A0E	46 NFS SERVER OS
ONS-Z-0S05-400A	46 NFS SERVER OS
ONS-Z-0S05-4A0E	46 NFS SERVER OS
ONS-Z-ADM5-3A0E	46 NFS DATA MONITOR OPS
ONS-Z-ADM5-4A0E	46 NFS DATA MONITOR OPS

Selected Parts

ONS-Z-0S05-4A0E	46 NFS SERVER OS	UNSELECT
-----------------	------------------	---

MEDIA SET PART NUMBER WITH INCLUDED LSAP PART NUMBERS

LSAP SELECTED WILL SHOW HERE.

CLICK HERE

PART SELECTION COMPLETE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

ONS DATA LOAD PAGE

2335346 S0000531723_V1

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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - CLIENT FILES

General

A client file refers to digital file made by a network client, and stored on the network file server (NFS). Typically, client files are saved in the file store for the specified client.

You use the client files page to get access to these files. These are examples of client files:

- Certificate signing request - a digital file created using server credential page.
- LRU Report - a digital file created using the LRU Reports page.
- ONS client file - one or more digital files created by a client LRU on the network.

A certificate signing request (CSR) is a file saved to the client files store. An LRU Report can be saved to the client files store. When specified by a maintenance action, you will download files like these to the maintenance laptop using the Client Files page.

In contrast to client files, for example, a loadable software airplane part (LSAP) is not stored in the client files store. LSAP are found in the mass storage device (MSD).

From the menu bar, you get access to the Client Files page by making the selections: Line Maintenance > Client Files. To exit Client Files, and show the Line Maintenance menu, click on the home icon, in the upper left-hand corner.

Client Files Page

The client files screen shows a list of client stores available in the File Store. The client files screen has this data:

- CLIENT NAME
- TOTAL NUMBER OF FILES
- USED SPACE (BYTES)
- FREE SPACE (BYTES)
- TOTAL SPACE (BYTES).

Below the words File Store Summary is the result of all files in all stores combined. The summary has this data:

- Total number of files in the file store
- Total used space in bytes
- Total free space in bytes
- Total file store space in bytes.

When you make a selection of client name, the CONTINUE button becomes serviceable. Click the CONTINUE button to show the client files store screen.

The screen for the client files store shows this data for the files in the client file store:

- FILE NAME
- FILE SIZE (BYTES)
- DATE/TIME OF CREATION.

On the bottom of the screen for the client files store is a summary of the client file store. The summary has this data:

- Total number of files in the client file store
- Total used space in bytes
- Total free space in bytes
- Total client file store space in bytes.

These are the three functions you can do from the screen for the client files store:

- List
- Copy
- Delete.

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ARO 001-010; ARO 011-013 PRE SB 777-46-0066

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LINE MAINTENANCE > CLIENT FILES:


MN1234 B77W

Client Files

×

Select a client from the list below and press CONTINUE to proceed to the selected file store:

CLIENT NAME	TOTAL NUMBER OF FILES	USED SPACE (BYTES)	FREE SPACE (BYTES)	TOTAL SPACE (BYTES)
NFS.OAS	0	0	52,428,800	52,428,800
NFS.ONSMaintApp	1	3,209	52,425,591	52,428,800

MAKE SELECTION

File Store Summary (across all clients):

Total number of files in file store: 1

Total used space (bytes): 3,209

Total free space (bytes): 104,854,391

Total space (bytes): 104,857,600

CONTINUE

CLICK HERE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335347 S0000531137_V1

ONS CLIENT FILES PAGE

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LINE MAINTENANCE > CLIENT FILES > CLIENT FILE STORE


MN1234 B77W

Client Files

×

Select from NFS.ONSMaintApp client files:

FILE NAME	FILE SIZE (BYTES)	DATA/TIME OF CREATION
ACP_20140130_213357.zip	3,209	2094-01-30 21:34:37

SELECT ALL

UNSELECT ALL

DOWNLOAD

DELETE

File Details for ACP_20140130_213357.zip

File Size (bytes): 3,209

Date/Time of Creation: 2014-01-30 21:34:37

Time until expiration (minutes): File never expires

BACK

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335348 S0000531741_V1

ONS CLIENT FILES PAGE

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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - DOWNLOAD MANAGER

General

The DOWNLOAD manager transfers data and logs files to a portable maintenance device.

To show the DOWNLOAD MANAGER page, use the ONS maintenance browser to make the selection: LINE MAINTENANCE > DOWNLOAD MANAGER

The FILTERS screen allows for the selection of one or more types of data or logs. The table that follows describes the filter types:

- LOG:PERFORMANCE: These files track detailed server performance data on a daily basis. They do not need to be monitored. But they may be requested by engineering to troubleshoot problems.
- LOG:SECURITY: These files track specific security related events. And are a certification requirement to be monitored and maintained.
- LOG:SYSTEM: These files track detailed system interactions and events. They do not need to be monitored. But they may be requested by engineering to troubleshoot problems.
- NFS:OAS: The file contained in this filter is the Certificate Signing Request. It must be signed by a certificate authority. Then the signed certificate is included in the 46 NFS AIRPLANE KEYS UMS part.
- NFS:ONSMANTAPP: This filter type will not have any files present in this airplane configuration.
- MEF:LOG: These files track detailed system interactions and events related to the 46 NFS MEF OPS software part. They do not need to be monitored, but they may be requested by engineering to troubleshoot problems

ARO 014-999

- AIMS:IMS: The input monitoring streaming (IMS) data is generated by the AIMS during flight. This data includes user specified signals that are monitored as part of a troubleshooting activity.
- AIMS:IPDOWNLINK ACMF-R: This folder would temporarily hold reports generated by the airplane condition monitoring function (ACMF) in the right AIMS cabinet. These reports are then moved to the LSAP librarian using an available and configured ONS offboard link.

- AIMS:IPDOWNLINK ACMF-L: This folder would temporarily hold reports generated by the ACMF in the left AIMS cabinet. These reports are then moved to the LSAP librarian, using an available and configured ONS offboard link.
- AIMS:IPDOWNLINK CMCF: This folder would temporarily hold reports generated by the central maintenance computer function (CMCF). These reports are then moved to the LSAP librarian, using an available and configured ONS offboard link.
- AIMS: CPL-R: This data is recorded by the continuous parameter logging (CPL) function in the right AIMS cabinet. The data will either remain within this folder until a mechanic downloads it via USB or it will be sent wirelessly to the LSAP librarian using an available and configured ONS offboard link.
- AIMS:CPL-L: This data is recorded by the CPL function in the left AIMS cabinet. The data will either remain within this folder until a mechanic downloads it via USB or it will be sent wirelessly to the LSAP librarian using an available and configured ONS offboard link.
- AIMS:REPORTS CMCF: This folder contains reports generated by the CMCF. The reports in the "REPORTS" folders remain on the aircraft until a mechanic downloads them via USB.
- AIMS:REPORTS ACMF-R: This folder contains reports generated by the ACMF-R. The reports in the "REPORTS" folders remain on the aircraft until they are downloaded via USB.
- AIMS:REPORTS ACMF-L: This folder contains reports generated by the ACMF-L. The reports in the "REPORTS" folders remain on the aircraft until they are downloaded via USB.

EFFECTIVITY

ARO 014-999; ARO 011-013 POST SB 777-46-0066

D633W101-ARO

46-13-00



ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - DOWNLOAD MANAGER

ARO 014-999 (Continued)

- AIMSMSD:INVALIDPARTS: The ONS has a mass storage device (MSD) for storage of software parts that can be dataloaded by AIMS. If one of those parts becomes corrupted, the part will be moved from the MSD to this directory.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

When a filter type is selected, the FILES tab will turn white and be selectable. Click the FILES tab to display the available files for the filter type.

The FILES screen shows a table of all the files on the system that meet the filter setting. The parameters for the table are described as follows:

- FILE TYPE: The source of the file.
- FILE NAME: The name of the file.
- DATE/TIME: The time the file was written by the DOWNLOAD MANAGER function.
- TRANSFERRED: Indicates that the file was transferred to a PMD or downlinked via other optional electronic methods.

The FILES page gives access to these functions:

- GET CURRENT: This function will be available if the file type is able to get current data. The selection of this function will give a new file and display it for selection and transfer.
- DETAILS: This function will display a file size summary and the total size of the selected files.
- DELETE: This function will remove the selected files from the system. All log files can be downloaded. But certification rules require that security log files be kept onboard for a for a specified minimum time. Logs that do not meet that requirement cannot be deleted.

ARO 011-013 POST SB 777-46-0066

- TRANSFER: This function will package all selected files into a single compressed file and enable download to a PMD. Click SEND and use the browser dialog boxes to choose a location to save the file.

ARO 014-999

- REPORT: This function will package all selected files into a single compressed file and enable download to a PMD. Click SEND and use the browser dialog boxes to choose a location to save the file.

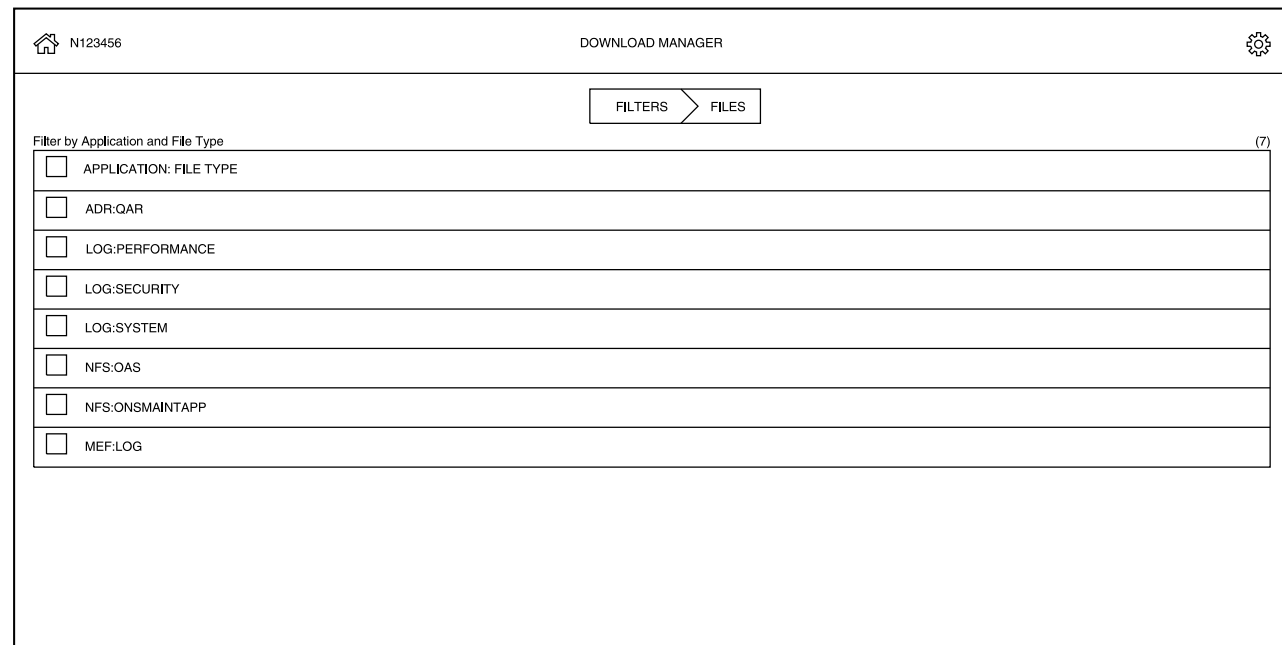
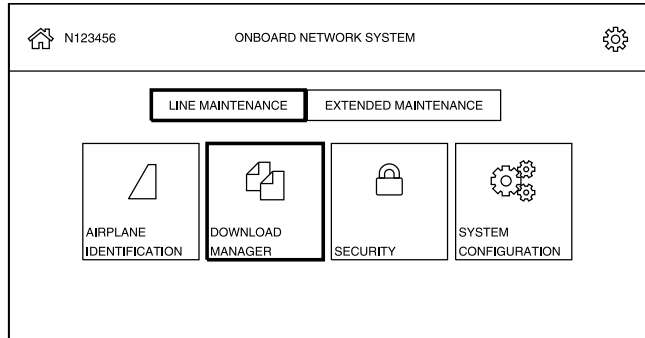
ARO 014-999; ARO 011-013 POST SB 777-46-0066

EFFECTIVITY

ARO 014-999; ARO 011-013 POST SB 777-46-0066

D633W101-ARO

46-13-00



NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409138 S0000557135_V1

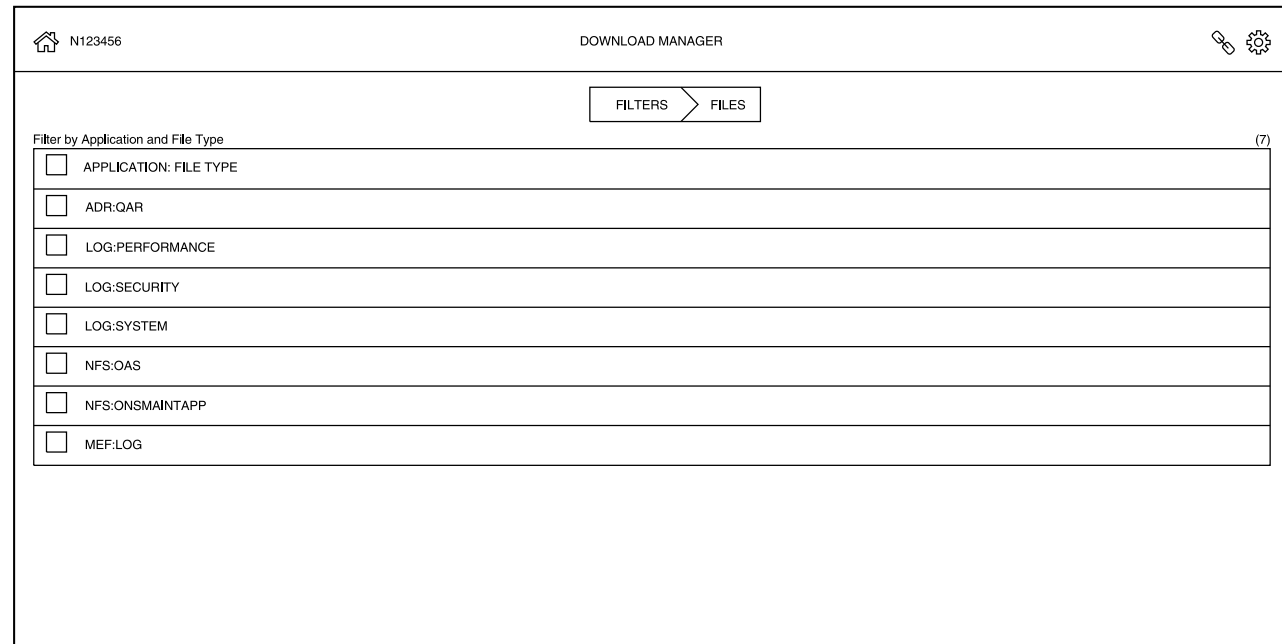
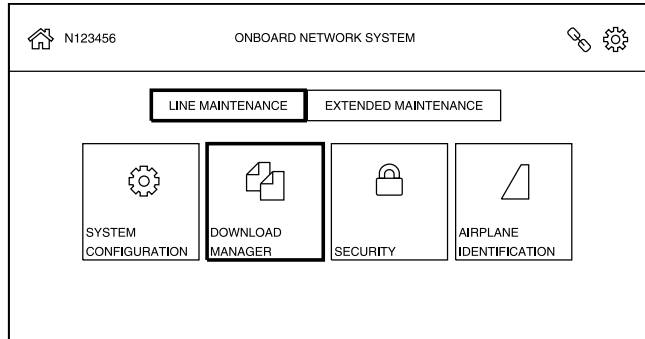
ONS DOWNLOAD MANAGER

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480442 S0000581686_V1

ONS DOWNLOAD MANAGER

46-13-00

N123456

DOWNLOAD MANAGER

FILTERS

FILES

Filter by Application and File Type

(7)

☐	APPLICATION: FILE TYPE
☐	ADR:QAR
☐	LOG:PERFORMANCE
☐	LOG:SECURITY
☐	LOG:SYSTEM
☒	NFS:OAS
☐	NFS:ONSMINTAPP
☐	MEF:LOG

N123456

DOWNLOAD MANAGER

FILTERS

FILES

Filtered Files

(1)

☐	FILE TYPE	FILE NAME	DATE/TIME	TRANSFERRED
☒	NFS:OAS	150216-171627-N123456-CSR	2015-02-16 17:16	

GET CURRENT
 DETAILS

DELETE
 TRANSFER

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409113 S0000557130_V1

ONS DOWNLOAD MANAGER - FILTER AND FILES

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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HB-JNA

DOWNLOAD MANAGER

FILTERS

FILES

Filter by Application and File Type

☐	APPLICATION-FILE TYPE
☒	ADR:ALL
☒	ADR:QAR
☐	LOG:SYSTEM
☐	LOG:SECURITY
☐	LOG:PERFORMANCE
☐	NFS:OAS
☐	NFS:ONSMaintApp
☐	mef.log
☐	omf.edd

CONTINUE

HB-JNA

DOWNLOAD MANAGER

FILTERS

FILES

Filter by Application and File Type

☐	APPLICATION-FILE TYPE
☐	ADR:QAR
☐	AIMS:IMS
☐	AIMS:IPDOWNLINK ACMF-R
☐	AIMS:REPORTS CMCF
☐	AIMS:IPDOWNLINK ACMF-L
☐	AIMS:IPDOWNLINK CMCF
☐	AIMS:CPL-R
☐	AIMS:REPORTS ACMF-R
☐	AIMS:REPORTS ACMF-L
☐	AIMS:CPL-L
☐	AIMS:SD:INVALIDPARTS
☐	LOG:SYSTEM
☐	LOG:SECURITY
☐	LOG:PERFORMANCE

CONTINUE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480443 S0000581687_V1

ONS DOWNLOAD MANAGER - FILTER AND FILES

46-13-00

EFFECTIVITY
ARO 014-999

D633W101-ARO

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N123456

DOWNLOAD MANAGER

FILTERS

FILES

Filtered Files

FILE TYPE	FILE NAME	DATE/TIME	TRANSFERRED
☐ NFS:OAS	150216-171627-N123456-CSR	2015-02-16 17:16	(1)

GET CURRENT
 DETAILS

DELETE
 TRANSFER

N123456

DOWNLOAD MANAGER

Filtered Files

FILE TYPE	FILE NAME
☐ NFS:OAS	150216-171627-N11

TRANSFER

Select Destination

☐ Portable Maintenance Device

CANCEL

STOP

SEND

TRANSFERRED

(1)

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409095 S0000557131_V1

ONS DOWNLOAD MANAGER - TRANSFER

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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HB-JNA
DOWNLOAD MANAGER

☐ FILTERS ☒ FILES

FILE TYPE ▾	FILE NAME ▴▾	DATE/TIME ▴▾	TRANSFERRED ▴▾
☐ LOG-SYSTEM	HB-JNA-LOG-SYSTEM-20160105-184001.tgz	2016-01-05 18:40	
☐ LOG-SYSTEM	HB-JNA-LOG-SYSTEM-20160105-214001.tgz	2016-01-05 21:40	
☐ LOG-SYSTEM	HB-JNA-LOG-SYSTEM-20160106-172002.tgz	2016-01-06 17:20	
☐ LOG-SYSTEM	HB-JNA-LOG-SYSTEM-20160106-200002.tgz	2016-01-06 20:00	
☐ LOG-SYSTEM	HB-JNA-LOG-SYSTEM-20160106-202001.tgz	2016-01-06 20:20	
☐ LOG-SYSTEM	HB-JNA-LOG-SYSTEM-20160106-214001.tgz	2016-01-06 21:40	
☐ LOG-SYSTEM	HB-JNA-LOG-SYSTEM-20160106-230001.tgz	2016-01-06 23:00	
☐ LOG-SYSTEM	HB-JNA-LOG-SYSTEM-20160107-002002.tgz	2016-01-07 00:20	
☐ LOG-SYSTEM	HB-JNA-LOG-SYSTEM-20160107-014001.tgz	2016-01-07 01:40	

GO BACK
 GET CURRENT
 DETAILS
 DELETE
 REPORT

2480444 S0000581690_V1

46-13-00

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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - SECURITY

General

The page named SECURITY is a sub-menu within the selection Line Maintenance. These are the functions shown on the Security menu.

ARO 011-013 PRE SB 777-46-0066

- Security Airplane Credentials
- Security Server Credentials
- Security Client Credentials.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- CLIENT CREDENTIALS
- SERVER CREDENTIALS
- AIRPLANE CREDENTIALS

ARO 011-013 PRE SB 777-46-0066

To get access to the Security menu, from the main menu bar, make the selections: Line Maintenance > Security. To exit the security menu, and show the Line Maintenance menu, click on the home icon in the upper right-hand corner.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

To get access to the Security menu, from the main menu bar, make the selection: Line Maintenance > Security. To exit the security menu, and show the Line Maintenance menu, click on the home icon in the upper left-hand corner.

ARO 011-999**46-13-00**

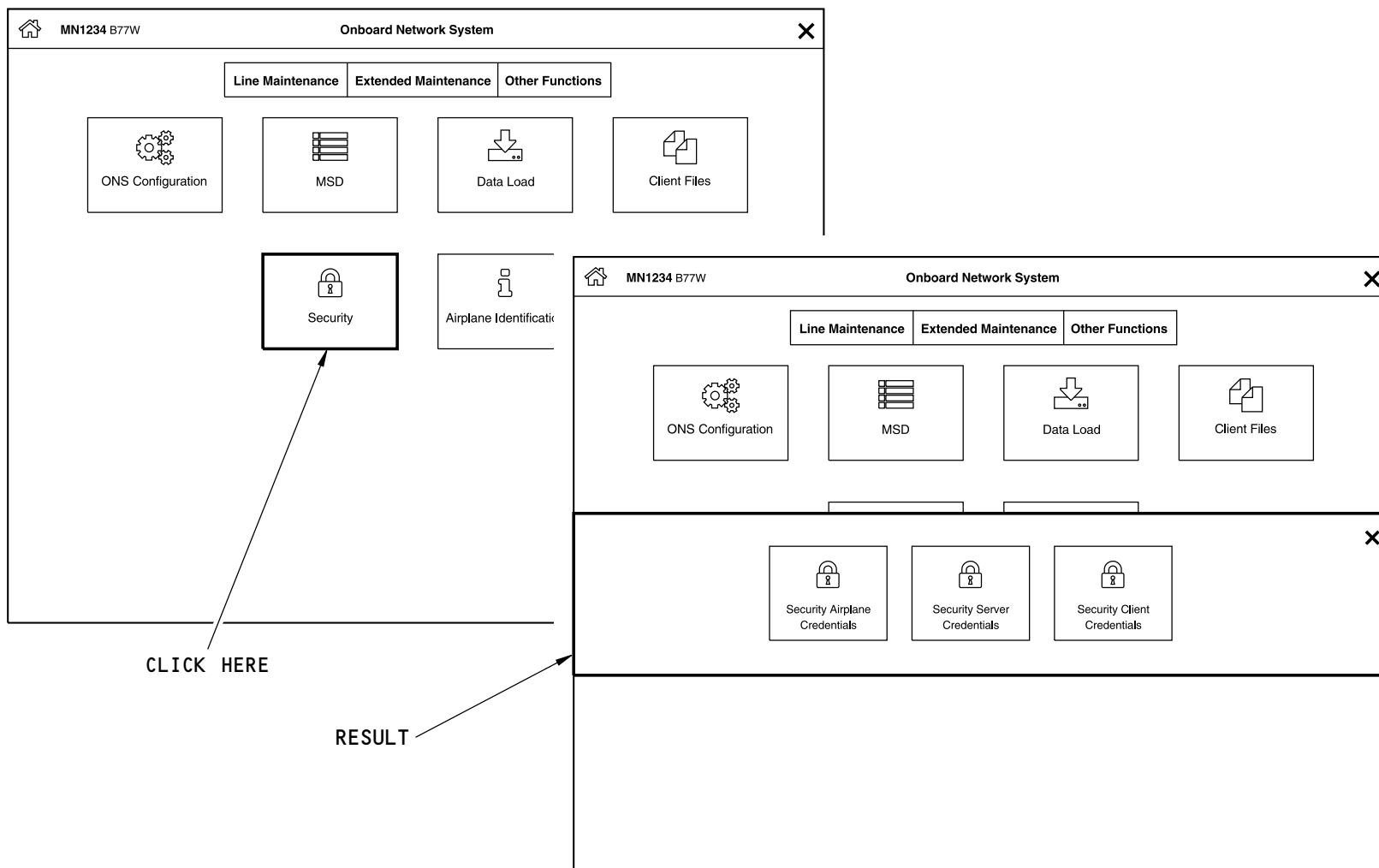
EFFECTIVITY

ARO 011-999

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LINE MAINTENANCE > SECURITY



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ONS SECURITY PAGE

2335392 S0000531181_V1

N123456

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

AIRPLANE IDENTIFICATION

DOWNLOAD MANAGER

SECURITY

SYSTEM CONFIGURATION

N123456

SECURITY

CLIENT CREDENTIALS

SERVER CREDENTIALS

AIRPLANE CREDENTIALS

Select the client(s) to generate new credentials

☐ CLIENT NAME	CREDENTIAL STATUS
☐ NED-2	Last generated: 2015-01-14 15:39
☐ NED-DG	Last generated: 2015-01-14 08:51
☐ NES1	Last generated: 2015-01-14 08:51
☐ WWU	No credentials exist

Credentials Generation Status

CLIENT NAME	CREDENTIALS GENERATION STATUS
-------------	-------------------------------

GENERATE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408716 S0000557134_V1

ONS SECURITY PAGE

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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N123456

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

SYSTEM CONFIGURATION

DOWNLOAD MANAGER

SECURITY

AIRPLANE IDENTIFICATION

N123456

SECURITY

CLIENT CREDENTIALS

SERVER CREDENTIALS

AIRPLANE CREDENTIALS

Select the client(s) to generate new credentials

☐ CLIENT NAME	CREDENTIAL STATUS
☐ NED-2	Last generated: 2015-01-14 15:39
☐ NED-DG	Last generated: 2015-01-14 08:51
☐ NES1	Last generated: 2015-01-14 08:51
☐ WWU	No credentials exist

Credentials Generation Status

CLIENT NAME	CREDENTIALS GENERATION STATUS
-------------	-------------------------------

GENERATE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480220 S0000581417_V1

ONS SECURITY PAGE

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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - SECURITY - SECURITY AIRPLANE CREDENTIALS

General

The airplane credential is a necessary digital data file for encrypted network communication. The airplane credential refers to airplane identification, for use by the onboard network system (ONS). In contrast, client credentials refer to the connected client devices. And the server credential identifies the unique NFS LRU. The airplane, server and client credential files all must agree for serviceable ONS communications.

The Airplane Credentials page lets you see the condition of the security credentials of an airplane, and generate a new set of credentials.

ARO 011-013 PRE SB 777-46-0066

To show the airplane credentials page, use the ONS menu bar, and make the selections: Line Maintenance > Security > Security Airplane Credentials.

ARO 011-999

To show the airplane credentials page, use the ONS menu bar, and make the selections: LINE MAINTENANCE > SECURITY > AIRPLANE CREDENTIALS.

Airplane Credentials

These are the conditions of the airplane credentials that show on the airplane credentials screen:

- A successful credential request was generated on (Date, Time) but no certificates exist on the aircraft
- A valid certificate exists
- A valid certificate exists and another credential request was made on (Date, Time)
- No valid certificate exists nor has a credential request been made
- A credential request could not be processed due to unavailability of required aircraft parameters from the Standard Airplane Parameter Service (SAPS) service.

ARO 011-013 PRE SB 777-46-0066

The GENERATE CREDENTIALS button will operate only if SAPS parameters are available. The SAPS parameters are necessary to make a self-signed certificate and key pair. The SAPS gives the Onboard Network System (ONS) clients access to airplane parameters. These are the airplane parameters that the SAPS give to the ONS clients for the Certificate Signing Request (CSR):

ARO 014-999; ARO 011-013 POST SB 777-46-0066

The GENERATE button will operate only if SAPS parameters are available. The SAPS parameters are necessary to make a self-signed certificate and key pair. The SAPS gives the ONS clients access to airplane parameters. These are the airplane parameters that the SAPS give to the ONS clients for the CSR:

ARO 011-999

- Date
- Time
- Tail identification (ID).

ARO 011-013 PRE SB 777-46-0066

If you click the GENERATE CREDENTIALS button and a CSR is in the system, then the overwrite confirmation pop-up shows.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

If you click the GENERATE button and a CSR is in the system, then the overwrite confirmation pop-up shows.

ARO 011-999

The overwrite confirmation pop-up has CONTINUE button and a CANCEL button. Click on the CONTINUE button to continue the overwrite operation. Click the CANCEL button to go back to the airplane credentials screen.

46-13-00

EFFECTIVITY

ARO 011-999

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**ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - SECURITY - SECURITY AIRPLANE CREDENTIALS**

If you click the CONTINUE button on the overwrite confirmation pop-up, then the generate credentials confirmation pop-up shows. This is the data on the generate credentials confirmation:

- System date - from SAPS
- System time - from SAPS
- Tail number - from SAPS

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- Airline ID
- Aircraft Type

ARO 011-013 PRE SB 777-46-0066

- CONTINUE button

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- CANCEL button

ARO 011-013 PRE SB 777-46-0066

- CANCEL button.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

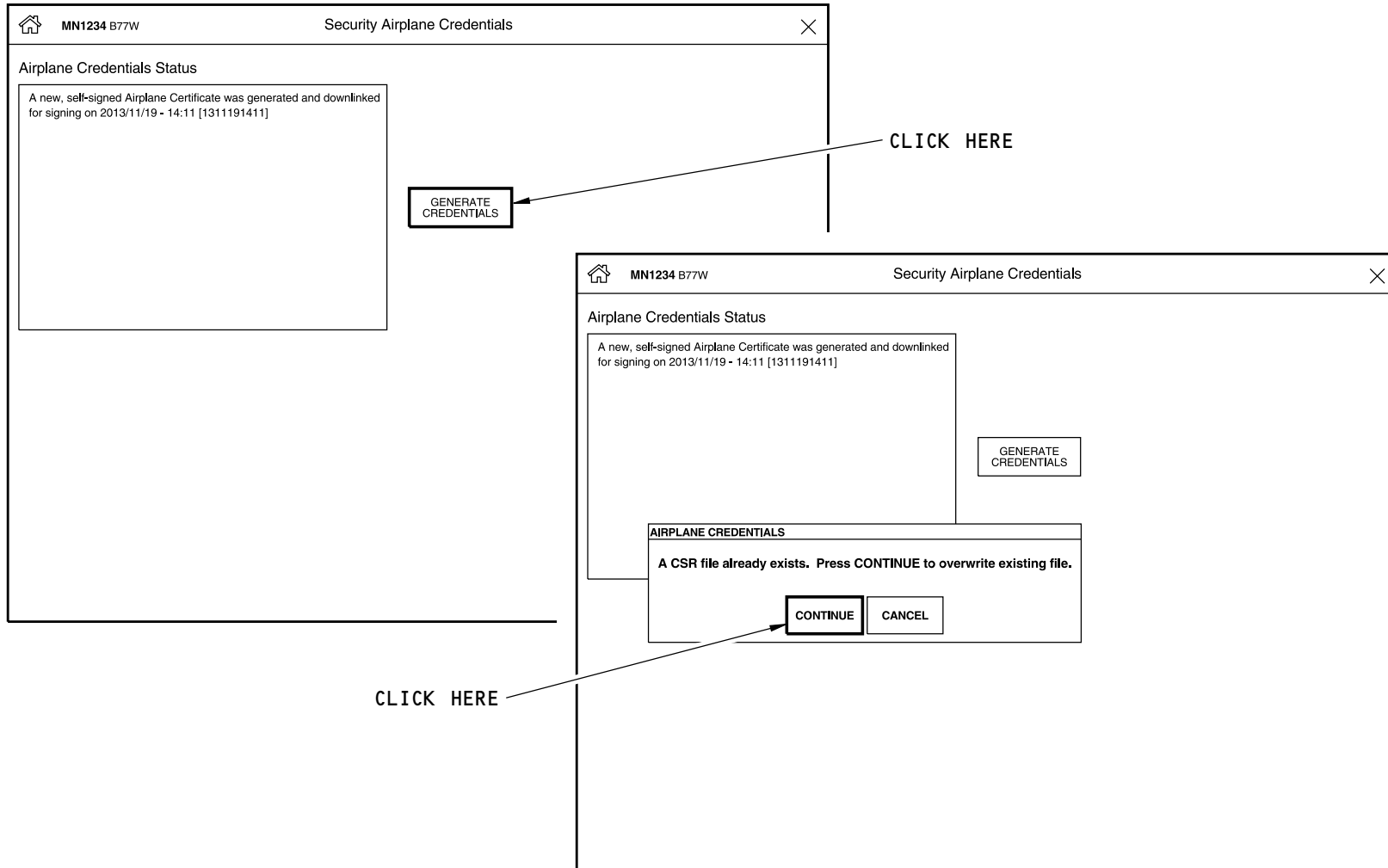
- CONTINUE button

ARO 011-999

Click on the CONTINUE button to continue the overwrite operation. Click the CANCEL button to go back to the airplane credentials screen.

If you click the CONTINUE button on the generate credentials pop-up, the progress indicator pop-up shows. The progress indicator pop-up shows until the overwrite function completes. The result screen shows when the overwrite function completes.

LINE MAINTENANCE > SECURITY > SECURITY AIRPLANE CREDENTIALS



The screenshot displays the 'Security Airplane Credentials' interface for aircraft MN1234 B77W. The main window shows a status message: 'A new, self-signed Airplane Certificate was generated and downlinked for signing on 2013/11/19 - 14:11 [1311191411]'. A 'GENERATE CREDENTIALS' button is visible. A second window, titled 'AIRPLANE CREDENTIALS', is overlaid, displaying the message: 'A CSR file already exists. Press CONTINUE to overwrite existing file.' with 'CONTINUE' and 'CANCEL' buttons.

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335412 S0000531183_V1

ONS - AIRPLANE CREDENTIALS PAGE

46-13-00-025

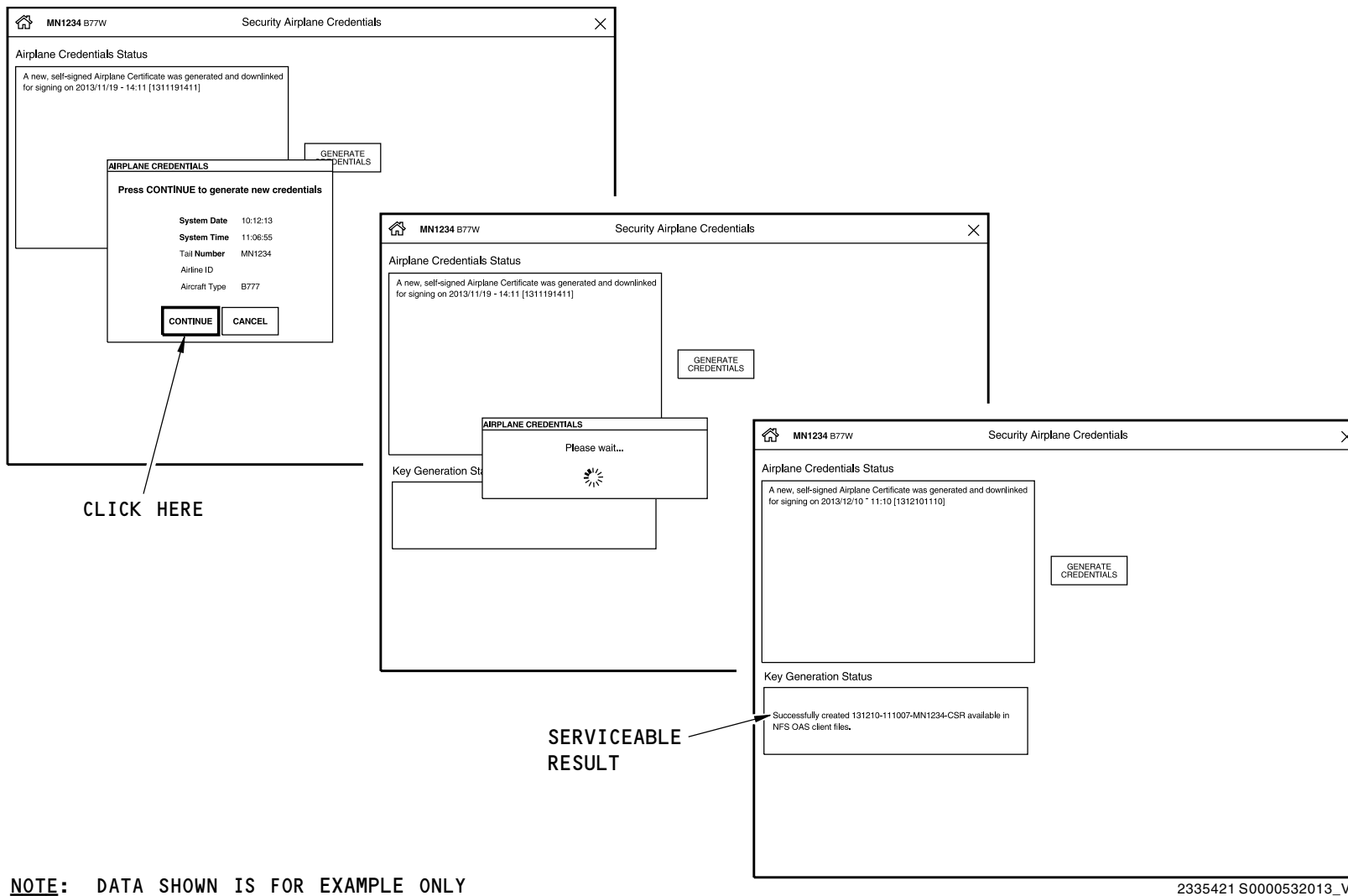
EFFECTIVITY
ARO 011-013 PRE SB 777-46-0066

46-13-00

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2335421 S0000532013_V1

ONS - AIRPLANE CREDENTIALS PAGE

46-13-00

EFFECTIVITY
ARO 011-013 PRE SB 777-46-0066

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 N123456
 SECURITY
 

CLIENT CREDENTIALS

SERVER CREDENTIALS

AIRPLANE CREDENTIALS

Credentials Status

No valid Airplane Certificate exists

Credentials Generation Status

GENERATE NEW AIRPLANE CREDENTIALS
 Press CONTINUE to create a new file, or overwrite the existing file with the following data.

System Date

16:02:15

System Time

17:14:53

Tail Number

N123456

Airline ID

JW

Aircraft Type

B77W

CANCEL

CONTINUE



NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408691 S0000557206_V1

ONS SECURITY - AIRPLANE CREDENTIALS PAGE

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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 HB-JNA

SECURITY




CLIENT CREDENTIALS

SERVER CREDENTIALS

AIRPLANE CREDENTIALS

Credentials Status

A valid, CA-signed Airplane Certificate exists and a new self-signed certificate was generated and downlinked for signing on 2016/01/21 - 16:36 [1601211636]

Credentials Generation Status

GENERATE AIRPLANE CREDENTIALS

A CSR file already exists. Press CONTINUE to overwrite the existing file with the following data.

System Date: 21:01:16
System Time: 16:40:21
Tail Number: HB-JNA
Airline ID: BO
Aircraft Type: B773

CANCEL

CONTINUE



GENERATE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480424 S0000582361_V1

ONS SECURITY - AIRPLANE CREDENTIALS PAGE

46-13-00

EFFECTIVITY
ARO 014-999

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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - SECURITY - SECURITY SERVER CREDENTIALS

General

A server credential is a necessary digital data file for encrypted network communication. The server credential refers to network file server. In contrast, the client files refer to the connected client devices. The server and client files must agree for serviceable ONS communications.

The server credentials page has a function to generate all-new server and client credentials in one action.

Server Credentials Page**ARO 011-013 PRE SB 777-46-0066**

To show the server credentials page, begin from the ONS menu bar, and make the selections: Line Maintenance > Security > Security Server Credentials. The weight-on-wheels discrete must be in the ground condition.

ARO 011-999

To show the server credentials page, begin from the ONS menu bar, and make the selections: Line Maintenance > LINE MAINTENANCE > SECURITY > SERVER CREDENTIALS. The weight-on-wheels discrete must be in the ground condition.

The Security Server Credentials page shows the presence of the server credential, and it's date and time stamp.

Generate Credentials Function**ARO 011-013 PRE SB 777-46-0066**

The Generate Credentials button is adjacent to the credentials status. This function makes the server credential, and all client credentials unserviceable, and makes all new ones.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

The Generate button is adjacent to the credentials status. This function makes the server credential, and all client credentials unserviceable, and makes all new ones.

ARO 011-999

NOTE: When you generate a new server credential, ONS installs all-new client credentials at the same time. The server and client credentials must agree.

ARO 011-013 PRE SB 777-46-0066

Click on the GENERATE CREDENTIALS button on the server credentials display to start the generate credentials operation. The pop-up for confirmation shows when the operation starts. The pop-up for confirmation has a CONTINUE button and a CANCEL button. Click on the CONTINUE button to continue the generate credentials operation. Click on the CANCEL button to cancel the generate credentials operation.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

Click on the GENERATE button on the server credentials display to start the generate credentials operation. The pop-up for confirmation shows when the operation starts. The pop-up for confirmation has a CONTINUE button and a CANCEL button. Click on the CONTINUE button to continue the generate credentials operation. Click on the CANCEL button to cancel the generate credentials operation.

ARO 011-013 PRE SB 777-46-0066

When the generate credentials operation starts to operate the pop-up for progress shows this data:

- Header – Generating new sever credentials
- A time counter of the generate credentials operation
- Generating credentials in process.

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EFFECTIVITY

ARO 011-999

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**ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - SECURITY - SECURITY SERVER CREDENTIALS****ARO 014-999; ARO 011-013 POST SB 777-46-0066**

When the generate credentials operation starts to operate the Credentials Generation Status field shows this data.

- A time counter of the generate credentials operation
- Generating credentials in process.
- Server shutdown warning

ARO 011-999**Access Denied Problems**

Access to the server credential page is blocked when another application is in service and has control.

Each of these operations that follow can prevent access to the server credential page.

ARO 011-013 PRE SB 777-46-0066

- Dataload
- Uninstall NFS Parts
- Reboot To Boot OS
- Client Credentials
- Server Credentials.

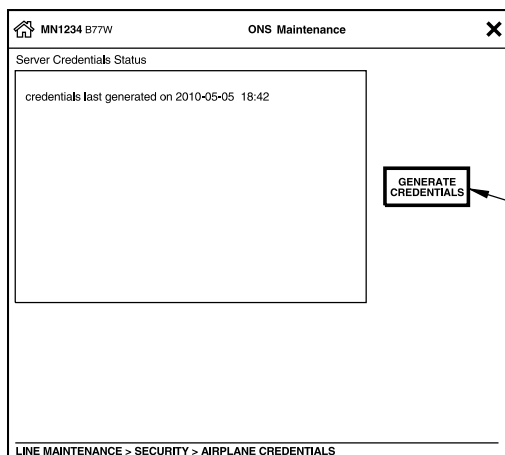
ARO 014-999; ARO 011-013 POST SB 777-46-0066

- DATA LOAD
- NFS MAINTENANCE – UNINSTALL LSAPS
- NFS MAINTENANCE – REBOOT
- CLIENT CREDENTIALS

• SERVER CREDENTIALS**ARO 011-999**

The access denied pop-up for server credentials shows when an operation, that does not agree with the server credentials function, is in operation. The access denied pop-up for server credentials has a OK button. Click on the OK button to return to the server credentials screen.

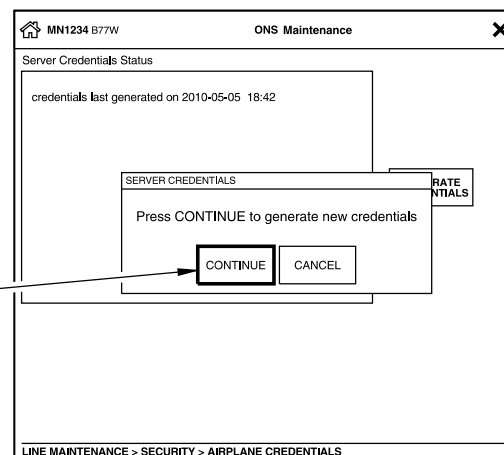
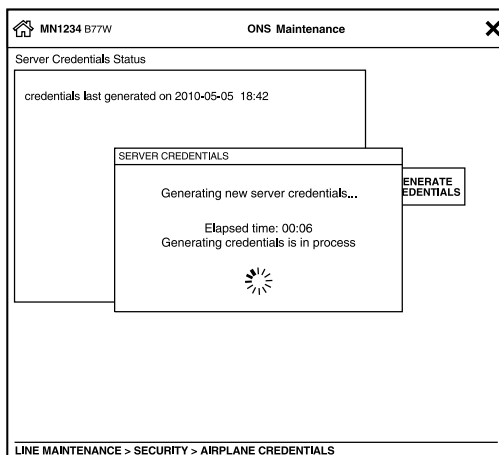
To resolve the problem and get access, the in-service operation must be stopped or closed.



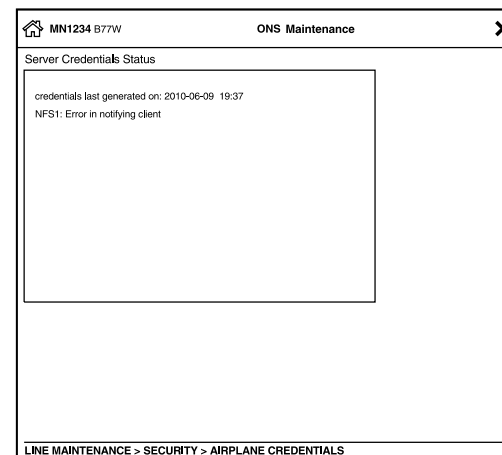
SERVER CREDENTIALS

CLICK HERE

CLICK HERE


SERVER CREDENTIALS
CONFIRMATION POP-UP


PROGRESS POP-UP



RESULTS

2335522 S0000531220_V1

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

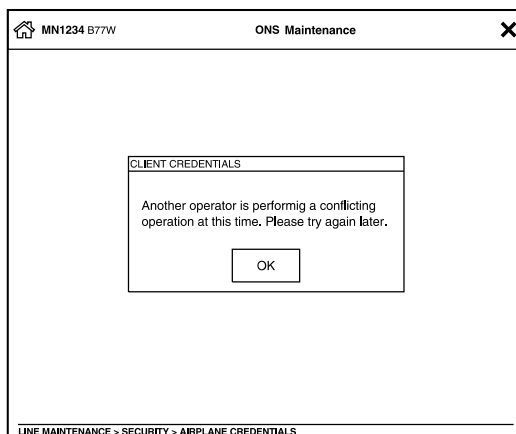
ONS SECURITY SERVER CREDENTIALS PAGE

46-13-00

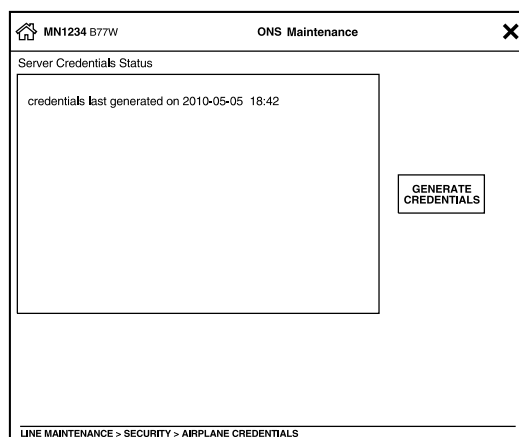
EFFECTIVITY
ARO 011-013 PRE SB 777-46-0066

D633W101-ARO

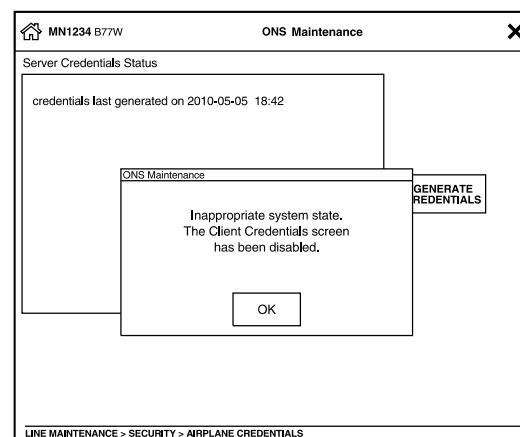
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SERVER CREDENTIALS - ACCESS DENIED



SERVER CREDENTIALS



SERVER CREDENTIALS NOT AVAILABLE POP-UP

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

ONS SECURITY SERVER CREDENTIALS PROBLEMS

2335451 S0000532046_V1

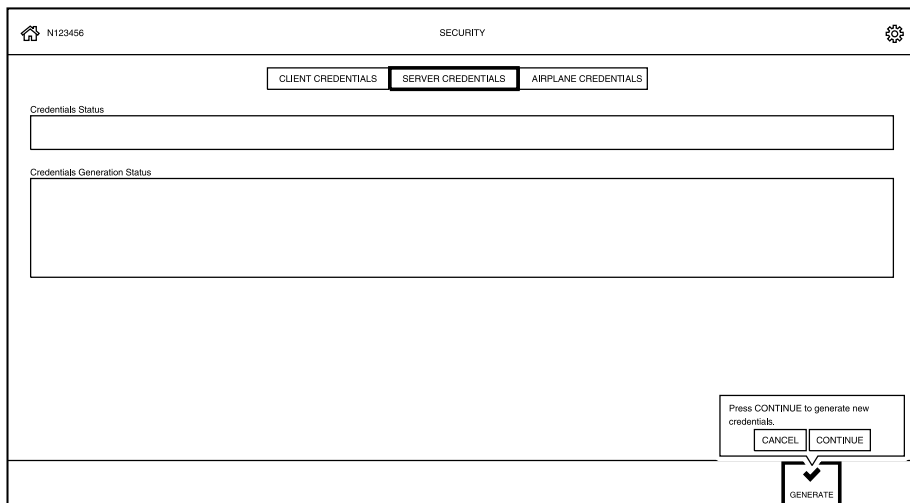
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EFFECTIVITY
ARO 011-013 PRE SB 777-46-0066

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Home N123456 SECURITY Settings

CLIENT CREDENTIALS **SERVER CREDENTIALS** AIRPLANE CREDENTIALS

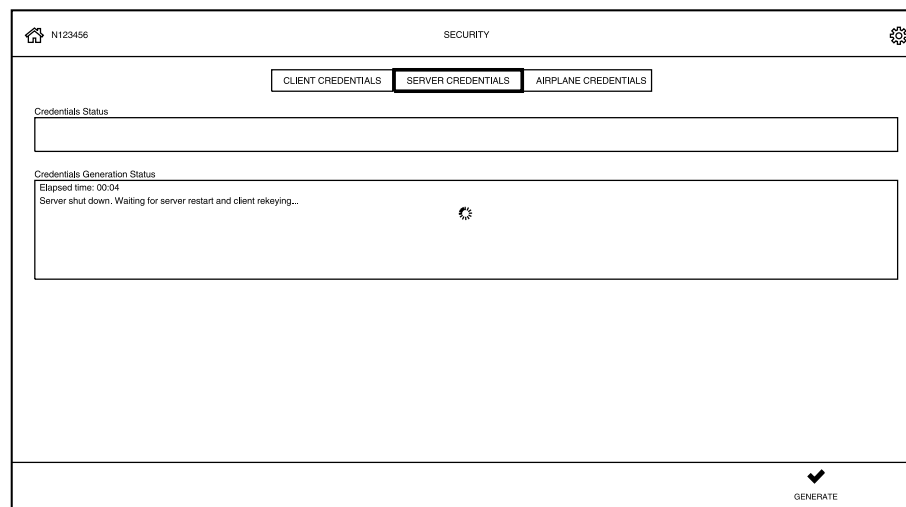
Credentials Status

Credentials Generation Status

Press CONTINUE to generate new credentials.

CANCEL CONTINUE

GENERATE



Home N123456 SECURITY Settings

CLIENT CREDENTIALS **SERVER CREDENTIALS** AIRPLANE CREDENTIALS

Credentials Status

Credentials Generation Status

Elapsed time: 00:04
Server shut down. Waiting for server restart and client rekeying...

GENERATE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408643 S0000557200_V1

ONS SECURITY SERVER CREDENTIALS PAGE

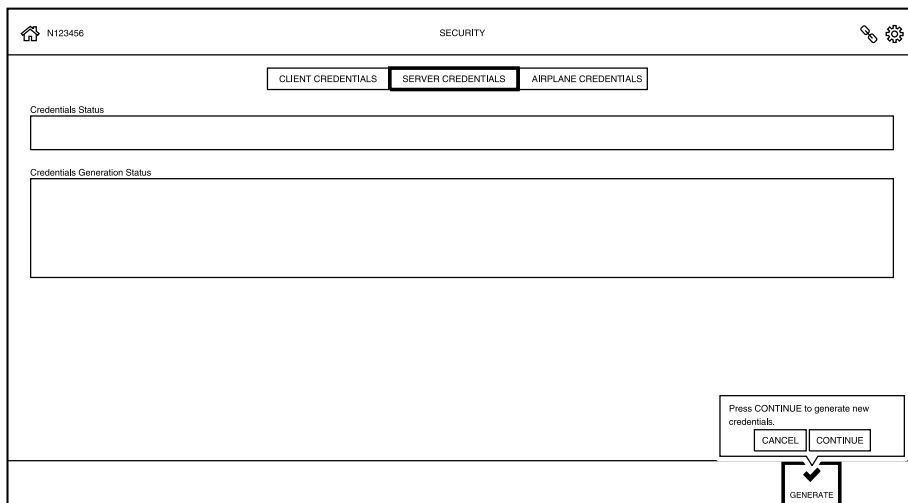
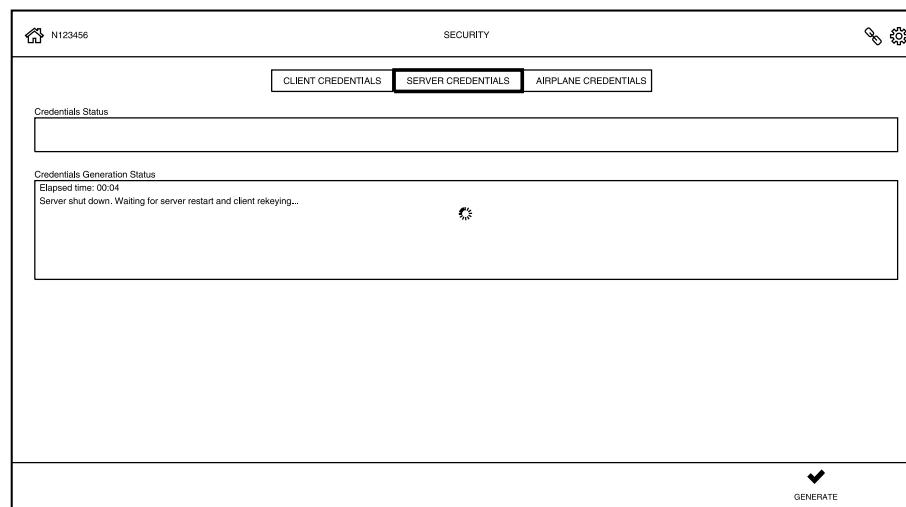
46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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2480425 S0000581867_V1

ONS SECURITY SERVER CREDENTIALS PAGE

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EFFECTIVITY
ARO 014-999

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**ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - SECURITY - SECURITY CLIENT CREDENTIALS****General**

A client credential is a necessary digital data file for ONS network security. The client credential refers to the network-connected line replaceable unit (LRU). In contrast, the server credential refers to the network file server (NFS). The server and client credentials must agree for serviceable ONS communications.

Typically, the client credential is generated after LRU installation, or to resolve an ONS fault log message.

The client credential is serviceable when the NFS fault log shows no messages or faults for the specified LRU.

Client Credentials Page**ARO 011-013 PRE SB 777-46-0066**

To show the Client Credentials page, use the ONS maintenance browser to make the selections: Line Maintenance > Security > Security Client Credentials.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

To show the Client Credentials page, use the ONS maintenance browser to make the selections: LINE MAINTENANCE > SECURITY > CLIENT CREDENTIALS.

ARO 011-999

The page shows a table with columns for client name, and credential status.

Adjacent to the data, are three function buttons:

ARO 011-013 PRE SB 777-46-0066

- SELECT ALL
- UNSELECT ALL
- GENERATE CREDENTIALS.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- Select All: Check the selection box next to the CLIENT NAME column.

- Unselect All: Uncheck the selection box next to the CLIENT NAME column.
- Generate Credentials: Click the GENERATE button.

ARO 011-999**Generate Credentials Function****ARO 011-013 PRE SB 777-46-0066**

To operate the GENERATE CREDENTIALS function, one or more target clients must be selected (or, highlighted). Click once on the GENERATE CREDENTIALS button, and follow the instructions in the pop-up windows.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

To operate the GENERATE CREDENTIALS function, one or more target clients must be selected (or, highlighted). Click once on the GENERATE button, and follow the instructions in the pop-up windows.

When complete, the Security Client Credentials page shows the credential with a new date and time stamp.

To make sure the new credential is serviceable, examine the NFS fault log for messages. The credential is serviceable when no NFS fault log messages show.

ARO 011-999**Access Denied Problems**

Access to the client credential page is blocked when another operation, or application, is in service and has control.

Each of these operations that follow can prevent access to the client credential page.

ARO 011-013 PRE SB 777-46-0066

- Dataload
- Uninstall NFS Parts
- Reboot To Boot OS

46-13-00

EFFECTIVITY
ARO 011-999

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**ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - SECURITY - SECURITY CLIENT CREDENTIALS****ARO 011-013 PRE SB 777-46-0066 (Continued)**

- Client Credentials
- Server Credentials.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- DATA LOAD
- NFS MAINTENANCE – UNINSTALL LSAPS
- NFS MAINTENANCE – REBOOT
- CLIENT CREDENTIALS
- SERVER CREDENTIALS

ARO 011-999

The access denied pop-up for client credentials shows when an operation, that does not agree with the client credentials function, is in operation. The access denied pop-up for client credentials has a OK button. Click on the OK button to return to the client credentials screen.

To resolve the problem and get access, the in-service operation must be stopped or closed.

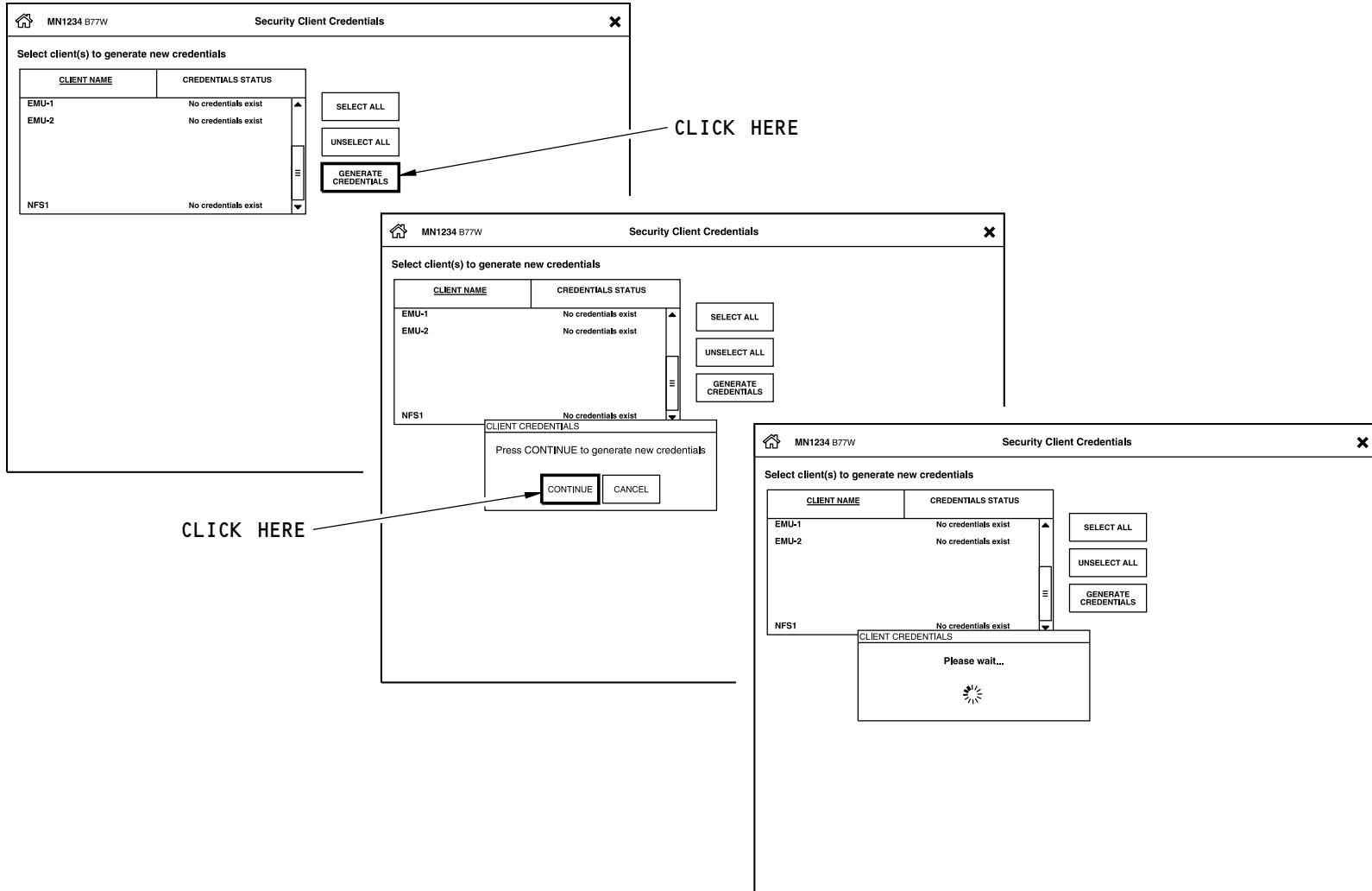
46-13-00

EFFECTIVITY

ARO 011-999

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Security Client Credentials

Select client(s) to generate new credentials

CLIENT NAME	CREDENTIALS STATUS
EMU-1	No credentials exist
EMU-2	No credentials exist
NFS1	No credentials exist

SELECT ALL
UNSELECT ALL
GENERATE CREDENTIALS

Security Client Credentials

Select client(s) to generate new credentials

CLIENT NAME	CREDENTIALS STATUS
EMU-1	No credentials exist
EMU-2	No credentials exist
NFS1	No credentials exist

SELECT ALL
UNSELECT ALL
GENERATE CREDENTIALS

CLIENT CREDENTIALS

Press CONTINUE to generate new credentials

CONTINUE CANCEL

Security Client Credentials

Select client(s) to generate new credentials

CLIENT NAME	CREDENTIALS STATUS
EMU-1	No credentials exist
EMU-2	No credentials exist
NFS1	No credentials exist

SELECT ALL
UNSELECT ALL
GENERATE CREDENTIALS

CLIENT CREDENTIALS

Please wait...

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335493 S0000531205_V1

ONS SECURITY CLIENT CREDENTIALS

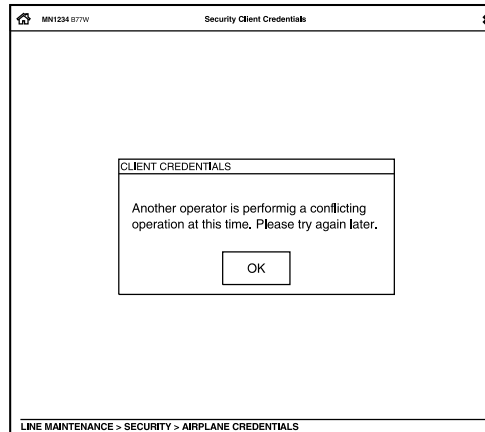
46-13-00

EFFECTIVITY
ARO 011-013 PRE SB 777-46-0066

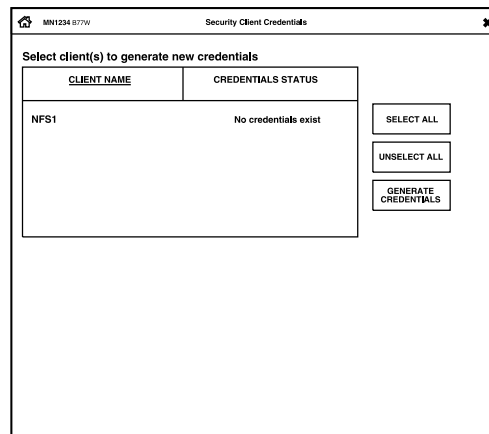
D633W101-ARO

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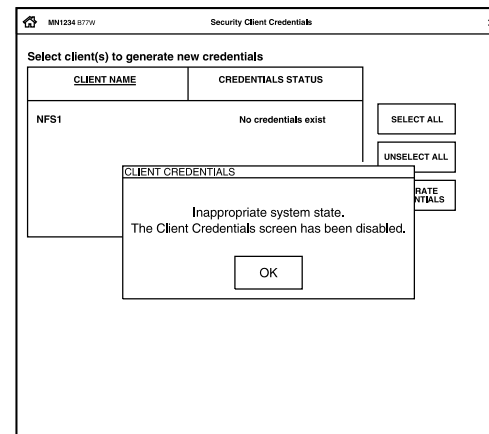
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**CLIENT CREDENTIALS
NOT AVAILABLE POP-UP**



CLIENT CREDENTIALS



**CLIENT CREDENTIALS -
ACCESS DENIED**

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

ONS SECURITY CLIENT CREDENTIAL PROBLEMS

2335454 S0000532092_V1

N123456

SECURITY

CLIENT CREDENTIALS

SERVER CREDENTIALS

AIRPLANE CREDENTIALS

Select the client(s) to generate new credentials

☐ CLIENT NAME	CREDENTIAL STATUS
☐ NED-2	Last generated: 2015-01-14 15:39
☒ NED-DG	Last generated: 2015-01-14 8:51
☒ NFS1	Last generated: 2015-01-14 8:51
☐ WWU	No credentials exist

Credentials Generation Status

CLIENT NAME	CREDENTIALS GENERATION STATUS
-------------	-------------------------------

Press CONTINUE to generate new credentials.

CANCEL

CONTINUE

GENERATE

Credentials Generation Status

CLIENT NAME	CREDENTIALS GENERATION STATUS
-------------	-------------------------------

Credentials Generation Status

CLIENT NAME	CREDENTIAL GENERATION STATUS
Overall Status	All keys were successfully generated.
NEDO	Successfully retrieved and installed credentials

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409101 S0000557208_V1

ONS SECURITY - CLIENT CREDENTIALS PAGE

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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N123456

SECURITY

CLIENT CREDENTIALS

SERVER CREDENTIALS

AIRPLANE CREDENTIALS

Select the client(s) to generate new credentials

☐ CLIENT NAME	CREDENTIAL STATUS
☐ NED-2	Last generated: 2015-01-14 15:39
☒ NED-DG	Last generated: 2015-01-14 8:51
☒ NFS1	Last generated: 2015-01-14 8:51
☐ WWU	No credentials exist

Credentials Generation Status

CLIENT NAME	CREDENTIALS GENERATION STATUS
-------------	-------------------------------

Press CONTINUE to generate new credentials.

CANCEL

CONTINUE

GENERATE

Credentials Generation Status

CLIENT NAME	CREDENTIALS GENERATION STATUS
-------------	-------------------------------

Credentials Generation Status

CLIENT NAME	CREDENTIAL GENERATION STATUS
Overall Status	All keys were successfully generated.
NEDO	Successfully retrieved and installed credentials

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480426 S0000581942_V1

ONS SECURITY - CLIENT CREDENTIALS PAGE

46-13-00

46-13-00-027

EFFECTIVITY
ARO 014-999

D633W101-ARO

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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - SYSTEM CONFIGURATION

General

The ONS SYSTEM CONFIGURATION page gives a record of connected LRUs, and the software parts installed in network file server that support the specified line replaceable unit (LRU). There are functions to print or download a record of the installed parts.

To show the SYSTEM CONFIGURATION page, use the ONS maintenance browser to make the selection: LINE MAINTENANCE > SYSTEM CONFIGURATION

The ATA SYSTEM page shows a listing of supported systems that the ONS will collect configuration information from. When the radio button, 46 Onboard Network System, is selected, the CONFIGURATION tab at the top of the screen will turn white. Then CLICK the CONFIGURATION tab to collect and display configuration information for all LRUs that are managed by the ONS.

These are the data items for the LRU configuration:

- Hardware Part Number
- Serial Number
- Software Location Description
- Part Number is repeated for each software item that is installed

The SYSTEM CONFIGURATION page gives access to these functions:

ARO 011-013 POST SB 777-46-0066

- TRANSFER

ARO 014-999

- REPORT

ARO 011-013 POST SB 777-46-0066Transfer

When TRANSFER is selected, a prompt will appear to allow the operator to send a report to the Portable Maintenance Device, or if configured, a Printer. If a device is not presently capable of receiving the report, it will show in blue text and will not be selectable. Otherwise, it will show in white text.

After selection of the device, click SEND to transfer the report. When complete, click CANCEL to clear the dialog.

ARO 014-999Report

When REPORT is selected, a prompt will appear to allow the user to send two report formats to the Portable Maintenance Device. One is XML and the other a printable text format. When a printer is configured, it is also listed for sending reports directly to the printer.

After selection of the device, click SEND to transfer the report. When complete, click CLOSE to clear the dialog.

ARO 014-999; ARO 011-013 POST SB 777-46-0066**46-13-00**

EFFECTIVITY

ARO 014-999; ARO 011-013 POST SB 777-46-0066

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N123456

ONBOARD NETWORK SYSTEM



LINE MAINTENANCE

EXTENDED MAINTENANCE



AIRPLANE
IDENTIFICATION



DOWNLOAD
MANAGER



SECURITY



SYSTEM
CONFIGURATION


N123456

SYSTEM CONFIGURATION



ATA SYSTEM

CONFIGURATION

Select ATA System

☐ 46 Onboard Network System


N123456

SYSTEM CONFIGURATION



ATA SYSTEM

CONFIGURATION

Select ATA System

☒ 46 Onboard Network System

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409408 S0000557214_V1

ONS SYSTEM CONFIGURATION PAGE

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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N123456

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

SYSTEM CONFIGURATION

DOWNLOAD MANAGER

SECURITY

AIRPLANE IDENTIFICATION

N123456

SYSTEM CONFIGURATION

ATA SYSTEM

CONFIGURATION

Select ATA System

(1)

☐ 46 Onboard Network System

N123456

SYSTEM CONFIGURATION

ATA SYSTEM

CONFIGURATION

Select ATA System

(1)

☒ 46 Onboard Network System

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480445 S0000581281_V1

ONS SYSTEM CONFIGURATION PAGE

46-13-00

EFFECTIVITY
ARO 014-999

D633W101-ARO

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 N123456
SYSTEM CONFIGURATION


46 Onboard Network System

ATA SYSTEM

CONFIGURATION

(7)

NFS Configuration

Hardware Part Number:
NOT-AVAILABLE

Serial Number:
NOT-AVAILABLE

Software Location Description:
NETWORK FILE SERVER

46 NFS SERVER OS Part Number:
ONS-Z-0SG0-003K

46 NFS BOOT OS Part Number:
BCG30-U000-00VE

46 NFS OPC Part Number:
JAR-Z-KLM7-SE0T

46 NFS NETMANAGER APP Part Number:
ONS-Z-NMG0-003K

Console Enable OSS Part Number:
ONS-Z-CONS-000A

46 NFS MEF OPS Part Number:
OPT-Z-MEFB-060X

46 NED OPS Part Number:
TDY47-7109-4005

46 NED OPC - Mod by John Part Number:
JRW-Z-KLM7-NE0F

NED-DG Configuration

Hardware Part Number:

 N123456
SYSTEM CONFIGURATION


46 Onboard Network System

TRANSFER

(7)

NFS Configuration

Hardware Part Number:
NOT-AVAILABLE

Serial Number:
NOT-AVAILABLE

Software Location Description:
NETWORK FILE SERVER

46 NFS SERVER OS Part Number:
ONS-Z-0SG0-003K

46 NFS BOOT OS Part Number:
BCG30-U000-00VE

46 NFS OPC Part Number:
JAR-Z-KLM7-SE0T

Select Destination

☐ Portable Maintenance Device

☐ FlightDeck

CANCEL STOP SEND

TRANSFER


NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409042 S0000557217_V1

ONS SYSTEM CONFIGURATION - TRANSFER

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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N123456
 SYSTEM CONFIGURATION

46 Onboard Network System

ATA SYSTEM

CONFIGURATION

(7)

NFS Configuration

Hardware Part Number:
NOT-AVAILABLE
Serial Number:
NOT-AVAILABLE
Software Location Description:
NETWORK FILE SERVER
46 NFS SERVER OS Part Number:
ONS-Z-0SG0-003K
46 NFS BOOT OS Part Number:
BCG30-U000-00VE
46 NFS OPC Part Number:
JAR-Z-KLM7-SE0T
46 NFS NETMANAGER APP Part Number:
ONS-Z-NMG0-003K
Console Enable OSS Part Number:
ONS-Z-CONS-000A
46 NFS MEF OPS Part Number:
OPT-Z-MEFB-060X
46 NED OPS Part Number:
TDY47-7109-4005
46 NED OPC - Mod by John Part Number:
JRW-Z-KLM7-NE0F

NED-DG Configuration

Hardware Part Number:

REPORT

N123456
 SYSTEM CONFIGURATION

46 Onboard Network System

NFS Configuration

REPORT

Select Destination

☐ Portable Maintenance Device

☐ FlightDeck

CLOSE

STOP

SEND

Hardware Part Number:
NOT-AVAILABLE
Serial Number:
NOT-AVAILABLE
Software Location Description:
NETWORK FILE SERVER
46 NFS SERVER OS Part Number:
ONS-Z-0SG0-003K
46 NFS BOOT OS Part Number:
BCG30-U000-00VE
46 NFS OPC Part Number:
JAR-Z-KLM7-SE0T

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480446 S0000581286_V1

ONS SYSTEM CONFIGURATION - REPORT

46-13-00

EFFECTIVITY
ARO 014-999

D633W101-ARO

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ONBOARD NETWORK SYSTEM - LINE MAINTENANCE - AIRPLANE IDENTIFICATION

General**ARO 011-013 PRE SB 777-46-0066**

The airplane identification (ID) page is the data entry page. The page tells ONS specific information about the airline and airplane. ONS uses this information for network communications and security.

ARO 011-013 POST SB 777-46-0066

The airplane identification (ID) page is the data entry page. The page tells ONS specific information about the airplane. ONS uses this information for network communications and security.

ARO 011-999

You get access to the page from the main menu bar by making the selections: LINE MAINTENANCE > AIRPLANE IDENTIFICATION.

NOTE: The data shown on ONS Airplane Identification must agree with the airplane data plate, and airworthiness certificate.

Typically, you will examine the airplane identification data every time you install a network file server (NFS).

Airplane Identification page.**ARO 014-999; ARO 011-013 PRE SB 777-46-0066**

The airplane identification page shows three data fields.

ARO 011-013 POST SB 777-46-0066

The airplane identification page shows one data field.

ARO 011-999**ARO 014-999; ARO 011-013 PRE SB 777-46-0066**

- Airplane ID

ARO 011-999

- Aircraft type

ARO 014-999; ARO 011-013 PRE SB 777-46-0066

- Airline ID.

The airplane ID is the airplane registration number. Use between four and seven uppercase alphanumeric characters. The dash character can also be used.

ARO 011-999

The aircraft type is the major-minor model of the airplane. The data field uses a predefined drop-down menu. The available selections will show as four uppercase alphanumeric characters (for example; B77W).

ARO 014-999; ARO 011-013 PRE SB 777-46-0066

The airline ID is a two-letter code. Use uppercase alpha-characters only, and not numeric.

ARO 011-999

During regular maintenance, only the Aircraft Type can be changed. To edit the Aircraft Type, use the laptop's cursor to make a selection from the drop-down menu. Then click on the icon to save the data to memory.

ARO 014-999

If the Airline ID and Airplane ID fields are blue, the data is being received from the airplane and cannot be changed. If the fields are empty, then the user can add temporary data to be used until the airplane data is available.

ARO 011-999**46-13-00**

EFFECTIVITY

ARO 011-999

D633W101-ARO

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LINE MAINTENANCE > AIRPLANE IDENTIFICATION:


MN1234 B77W

Airplane Identification

✕

Airplane ID

N777BO



Aircraft Type

B77W (777-300ER)





Airline ID

BO



Cancel

Submit


MN1234 B77W

Airplane Identification

✕

Airplane ID

N777BO



Aircraft Type

B77W (777-300ER)





Airline ID

--

B736 (737-600)

B737 (737-700)

B738 (737-800)

B739 (737-900)

B748 (747-8)

B76C (767-2C)

B772 (777-200)

B772 (777-200ER)

B77L (777-200ER)

B77L (777-F)

B773 (777-300)

B77W (777-300ER)



NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335514 S0000531221_V1

ONS AIRPLANE IDENTIFICATION PAGE

N123456

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

AIRPLANE IDENTIFICATION

DOWNLOAD MANAGER

SECURITY

SYSTEM CONFIGURATION

AIRPLANE IDENTIFICATION

*Aircraft Type

B77W (777-300ER)

Select (→)

B736 (737-600)

B737 (737-700)

B738 (737-800)

B739 (737-900)

B748 (747-8)

B76C (767-2C)

B772 (777-200)

B772 (777-200ER)

B77L (777-200LR)

B77L (777-F)

B773 (777-300)

B77W (777-300ER)

AIRPLANE IDENTIFICATION

*Aircraft Type

B77W (777-300ER)

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409096 S0000557218_V1

ONS AIRPLANE IDENTIFICATION PAGE

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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N123456

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

SYSTEM CONFIGURATION

DOWNLOAD MANAGER

SECURITY

AIRPLANE IDENTIFICATION

WE576

AIRPLANE IDENTIFICATION

*Airline ID

BO

*Aircraft Type

B773

*Airplane ID

WE576

CANCEL

SAVE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480427 S0000581378_V1

ONS AIRPLANE IDENTIFICATION PAGE

46-13-00-028

EFFECTIVITY
ARO 014-999

46-13-00

D633W101-ARO

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE

General

On the ONS main menu bar, the second selection is Extended Maintenance.

ONS Extended Maintenance shows a menu with these selections:

ARO 011-013 PRE SB 777-46-0066

- ONS Maintenance
- Input Monitoring
- Off-board Links - (future or optional configuration)
- Crew Wireless - (future or optional configuration)
- Printer Condition - (future or optional configuration).

ARO 011-013 POST SB 777-46-0066

- DATA LOAD
- EXISTING FAULTS
- INPUT MONITORING
- MSD
- NFS MAINTAINANCE
- OFF-BOARD LINKS - (Only Shows when an optional link is selected)
- PRINTER CONDITION
- CREW WIRELESS

ARO 014-999

- EXISTING FAULTS
- DATA LOAD
- NETWORK FILE SERVER
- MASS STORAGE DEVICE
- INPUT MONITORING
- OFF-BOARD LINKS - (Only Shows when an optional link is selected)
- CREW WIRELESS

- PRINTER CONDITION

ARO 011-999

To see the Extended Maintenance menu, use the Extended Maintenance selection in the navigation bar.

ARO 011-013 POST SB 777-46-0066

To exit the ONS maintenance session and show the laptop's desktop, click on the gear icon in the upper right-hand corner, and select EXIT ONS, and then CONFIRM EXIT.

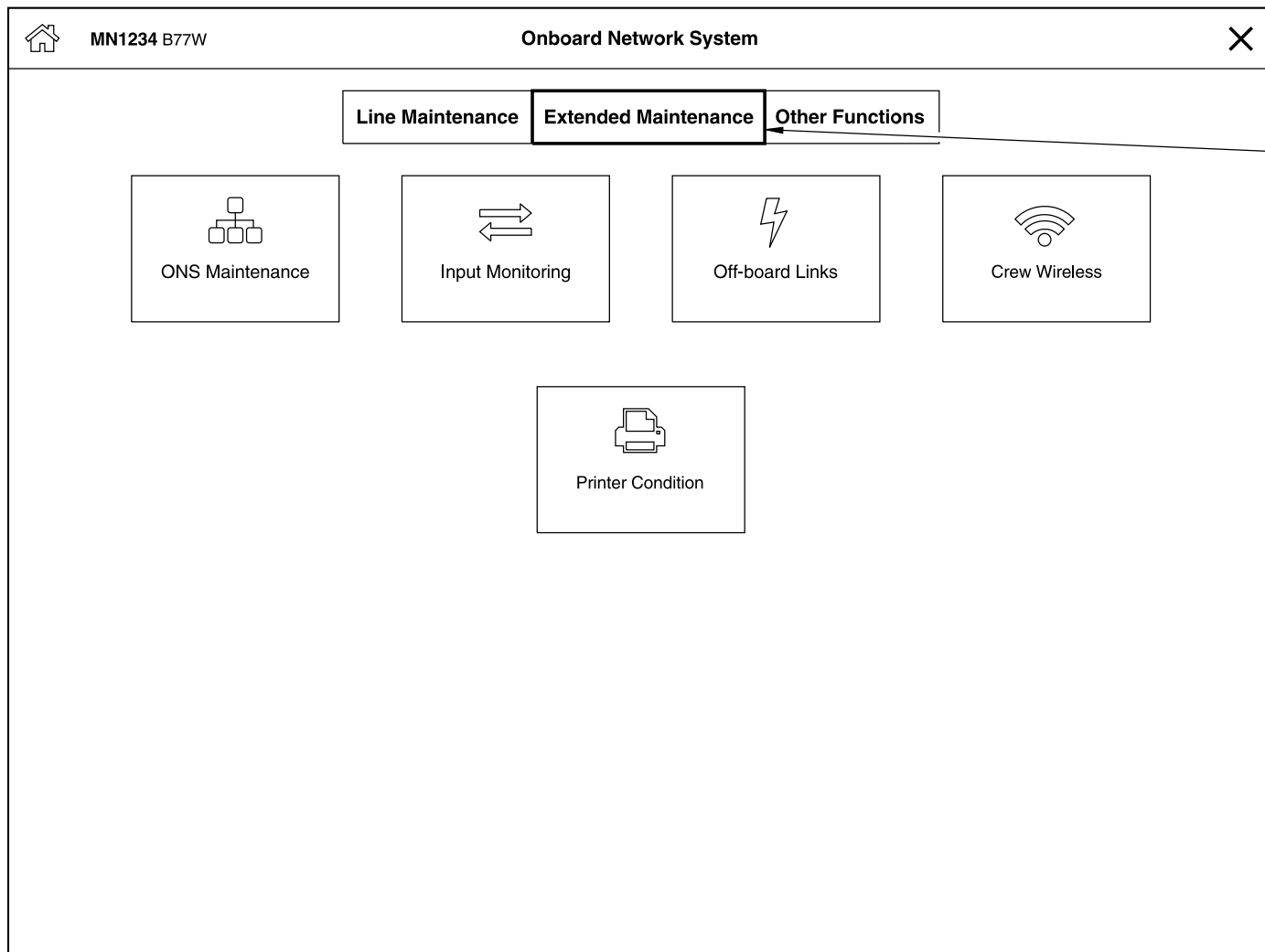
ARO 011-999**46-13-00**

EFFECTIVITY

ARO 011-999

D633W101-ARO

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CLICK
HERE

2335669 S0000531232_V1

ONS EXTENDED MAINTENANCE MENU

46-13-00-029

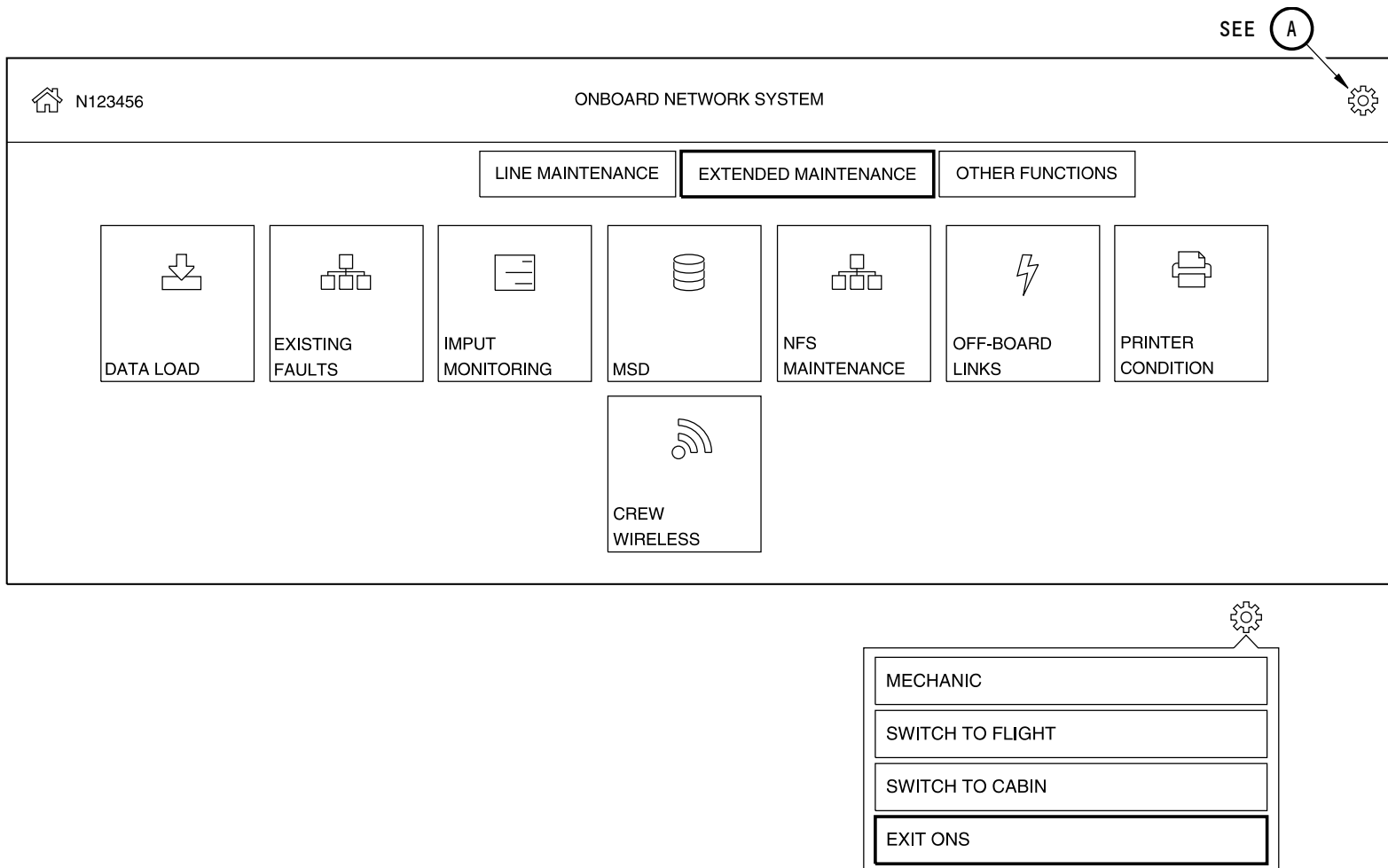
EFFECTIVITY
ARO 011-013 PRE SB 777-46-0066

46-13-00

D633W101-ARO

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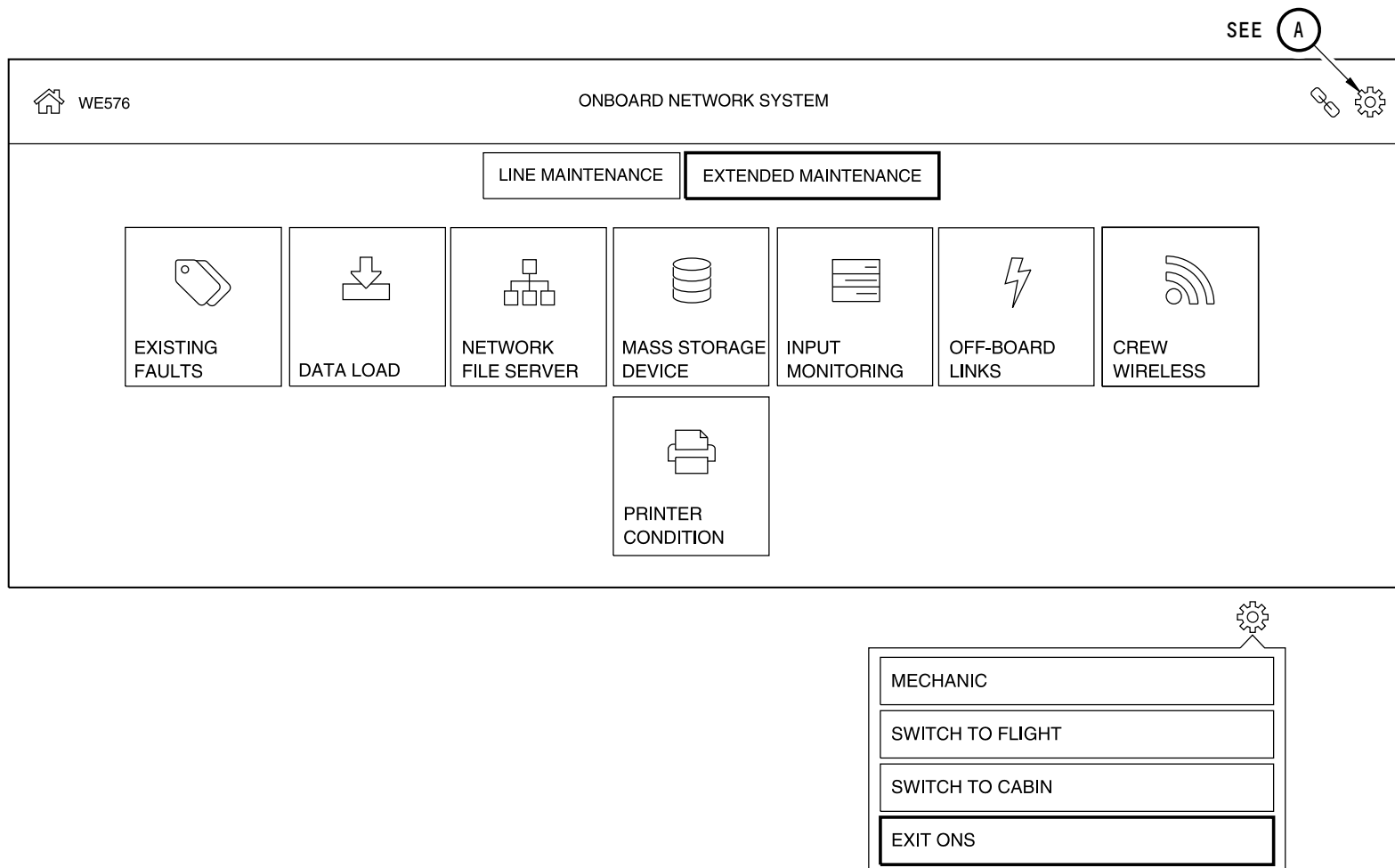


NOTE: OFF-BOARD LINKS ONLY SHOWS WHEN OPTIONAL LINK IS SELECTED.

ONS EXTENDED MAINTENANCE MENU

2409077 S0000557219_V1

A



NOTE: OFF-BOARD LINKS ONLY SHOWS WHEN OPTIONAL LINK IS SELECTED.

ONS EXTENDED MAINTENANCE MENU

2480428 S0000581377_V1



ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - DATA LOAD

General

The data load page is used to load software into LRUs.

To show the data load page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > DATA LOAD.

A screen will display with a list of systems that are loadable by the ONS. The ONS only loads the ONS and ONS member systems, so there is only one selection.

Select the 46 Onboard Network System radio button. A list of available LRUs will display. When an LRU is selected, all LRUs that may not be loaded concurrently will turn blue and become non-selectable. LRUs that may be loaded at the same time will remain white.

After the LRU(s) selection occurs, click the LSP tab to display a list of available parts for that LRU type.

When at least one part is selected, the SUMMARY tab turns white. If the LRU type supports multiple part loads, the remaining parts will stay selectable. If the LRU type only supports loading one part at a time, the other parts will turn blue and be non-selectable.

Click the SUMMARY tab to view a list of the selected parts to load. The PRECONDITIONS tab turns white to enable selection. Review the preconditions message for the LRU to load.

ARO 011-013 POST SB 777-46-0066

Click the LOAD tab or the START LOAD button to start loading for the LRU.

ARO 014-999

Click the LOAD tab and the START LOAD button to start loading for the LRU.

ARO 011-013 POST SB 777-46-0066

NOTE: Both the LOAD tab and the START LOAD button perform the same LRU load function.

After the LOAD tab or START LOAD button is clicked, they will not be selectable. The system status messages are specific to the load protocol and LRU type. A spinner icon will appear while the load is in progress.

ARO 014-999

After the START LOAD button is clicked, it will not be selectable. The system status messages are specific to the load protocol and LRU type. A spinner icon will appear while the load is in progress.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

When the load completes, the spinner icon will disappear and the LOAD tab and START LOAD button will be selectable. When the status message indicates a NFS reboot required, it will perform this task automatically and no operator action is required.

46-13-00**EFFECTIVITY****ARO 014-999; ARO 011-013 POST SB 777-46-0066**

D633W101-ARO

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N123456

ONBOARD NETWORK SYSTEM



LINE MAINTENANCE

EXTENDED MAINTENANCE



DATA LOAD



EXISTING FAULTS



INPUT MONITORING



MSD



NFS MAINTENANCE



OFF-BOARD LINKS



PRINTER CONDITION



CREW WIRELESS


N123456

DATA LOAD



DESTINATION

LSP

SUMMARY

PRECONDITIONS

LOAD

Select ATA System (1)

☒ 46 Onboard Network System

Select LRU (0)

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409100 S0000557224_V1

ONS DATA LOAD PAGE

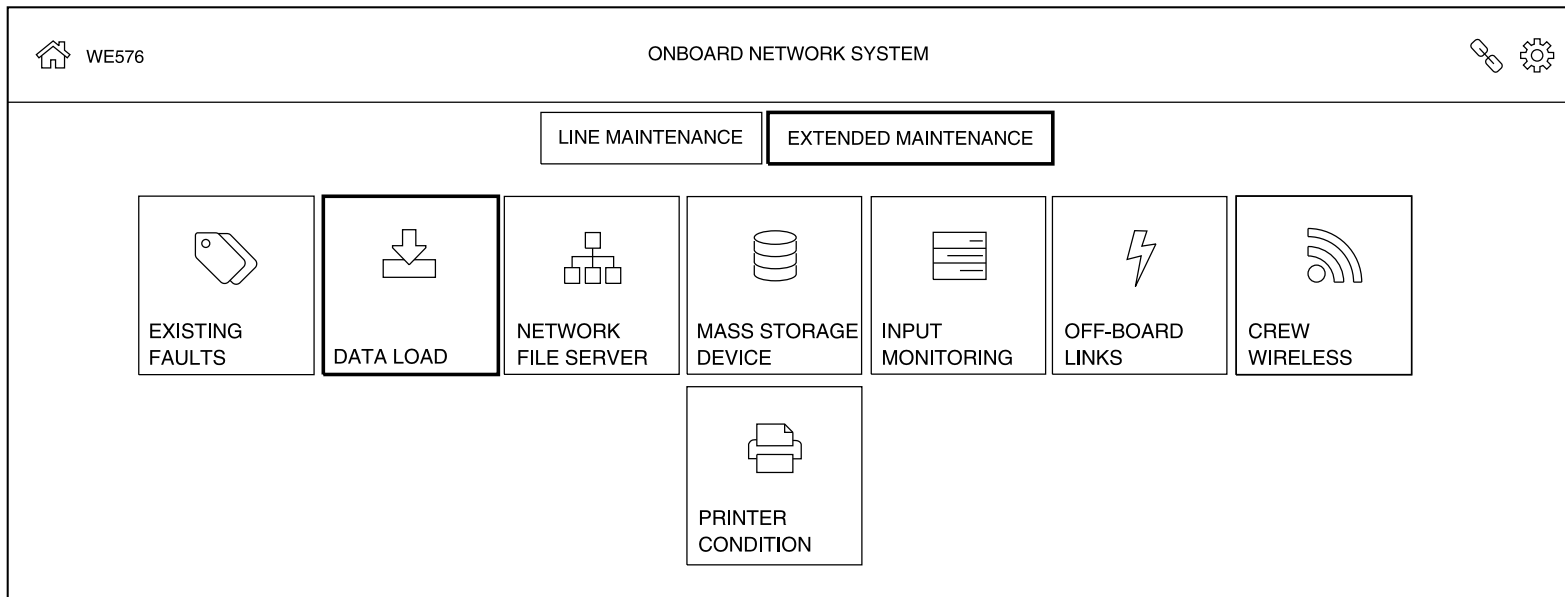
46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480447 S0000581560_V1

ONS DATA LOAD PAGE

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EFFECTIVITY
ARO 014-999

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WE576

DATA LOAD

DESTINATION

LSP

SUMMARY

PRECONDITIONS

LOAD

Select ATA System (2)

☐	34 EGPWS
☒	46 ONS

Select LRU (7)

☐	NFS-L
☐	NED-DG
☐	NED-2
☐	WWU
☐	WAP-1
☐	WAP-2
☐	WAP-3

CONTINUE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480448 S0000581572_V1

ONS DATA LOAD PAGE

46-13-00

EFFECTIVITY
ARO 014-999

D633W101-ARO

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 N123456
 DATA LOAD
 

DESTINATION

LSP

SUMMARY

PRECONDITIONS

LOAD

Select ATA System

☒ 46 Onboard Network System

Select LRU

☐ NED-DG

☐ NED-2

☒ NFS

☐ WWU

☐ WAP-1

 N123456
 DATA LOAD
 

DESTINATION

LSP

SUMMARY

PRECONDITIONS

LOAD

Select the Load Part Number

☐	PART NUMBER	NOMENCLATURE
☐	OPT-ZMEFB-060W	46 NFS MEF OPS
☐	ONS-Z-NMG0-002W	46 NFS NETMANAGER APP
☐	JAR-Z-KLM7-SE0M	46 NFS OPC
☐	ONS-Z-0SG0-002W	46 NFS SERVER OS
☐	ONS-Z-C0NS-000A	46 NFS CONSOLE ENABLE OSS

SELECT LRU

SELECT THE LOAD
PART NUMBER

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409347 S0000557221_V1

ONS DATA LOAD PAGE - LRU AND PART NUMBER

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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WE576

DATA LOAD

DESTINATION

LSP

SUMMARY

PRECONDITIONS

LOAD

Select ATA System

(2)

☐

34 EGPWS

☒

46 ONS

Select LRU

(7)

☐

NFS-L

☐

NED-DG

☐

NED-2

☐

WWU

☐

WAP-1

☐

WAP-2

☐

WAP-3

WE576

DATA LOAD

DESTINATION

LSP

SUMMARY

PRECONDITIONS

LOAD

Select MSD Load Part Number

(5)

☐

0NS-Z-0SN2-N06H

46 NFS SERVER OS

☐

0NS-Z-NMN2-N06H

46 NFS NETMANAGER APP

☐

JRW-Z-NFS2-S017

46 NFS OPC

☐

JRW-Z-NSP7-0001

46 NFS NSP OPC

☐

OPT34-MEFB-070D

46 NFS MEF OPS

GO BACK

CONTINUE

SELECT LRU

SELECT THE LOAD PART NUMBER

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480449 S0000581577_V1

ONS DATA LOAD PAGE - LRU AND PART NUMBER

46-13-00

EFFECTIVITY
ARO 014-999

D633W101-ARO

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N123456

DATA LOAD

DESTINATION

LSP

SUMMARY

PRECONDITIONS

LOAD

Source Mass Storage Device

Destination 46 Onboard Network System > NFS (1)

PART NUMBER	NOMENCLATURE
☒ 0NS-Z-C0NS-000A	46 NFS CONSOLE ENABLES OSS

N123456

DATA LOAD

DESTINATION

LSP

SUMMARY

PRECONDITIONS

LOAD

46 Onboard Network System

NFS

No LRU Precondition Message was reported

START LOAD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409133 S0000557222_V1

ONS DATA LOAD PAGE - SUMMARY AND PRECONDITIONS

46-13-00-049

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

46-13-00

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N123456

DATA LOAD




DESTINATION > LSP > SUMMARY > PRECONDITIONS > LOAD

Source Mass Storage Device

Destination 46 Onboard Network System > NFS (1)

PART NUMBER	NOMENCLATURE
☒ 0NS-Z-C0NS-000A	46 NFS CONSOLE ENABLES OSS


N123456

DATA LOAD




DESTINATION > LSP > SUMMARY > PRECONDITIONS > LOAD

46 Onboard Network System

NFS

No LRU Precondition Message was reported


START LOAD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480450 S0000581853_V1

ONS DATA LOAD PAGE - SUMMARY AND PRECONDITIONS

46-13-00

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ARO 014-999

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N123456
DATA LOAD


DESTINATION
LSP
SUMMARY
PRECONDITIONS
LOAD

Destination 46 Onboard Network System > NFS (1)

PART NUMBER	NOMENCLATURE	STATUS
0NS-Z-CONS-000A	46 NFS CONSOLE ENABLE OSS	5% INPROGRESS > performing Part checks


N123456
DATA LOAD


DESTINATION
LSP
SUMMARY
PRECONDITIONS
LOAD

Destination 46 Onboard Network System > NFS (1)

PART NUMBER	NOMENCLATURE	STATUS
0NS-Z-CONS-000A	46 NFS CONSOLE ENABLE OSS	Success > Loaded to disk Reboxed required


N123456
DATA LOAD


DESTINATION
LSP
SUMMARY
PRECONDITIONS
LOAD

Destination 46 Onboard Network System > NFS (1)

PART NUMBER	NOMENCLATURE	STATUS
0NS-Z-CONS-000A	46 NFS CONSOLE ENABLE OSS	Success


START LOAD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409373 S0000557223_V1

ONS DATA LOAD PAGE - LOAD, STATUS, AND COMPLETION

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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 N123456

DATA LOAD




DESTINATION

LSP

SUMMARY

PRECONDITIONS

LOAD

Progress

46 ONS > NFS-L

JRW-Z-NSP7-0001

46 NFS NSP OPC

Status: 0% READY

Details:



GO BACK



START LOAD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480451 S0000581579_V1

ONS DATA LOAD PAGE - LOAD, STATUS, AND COMPLETION

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - ONS MAINTENANCE

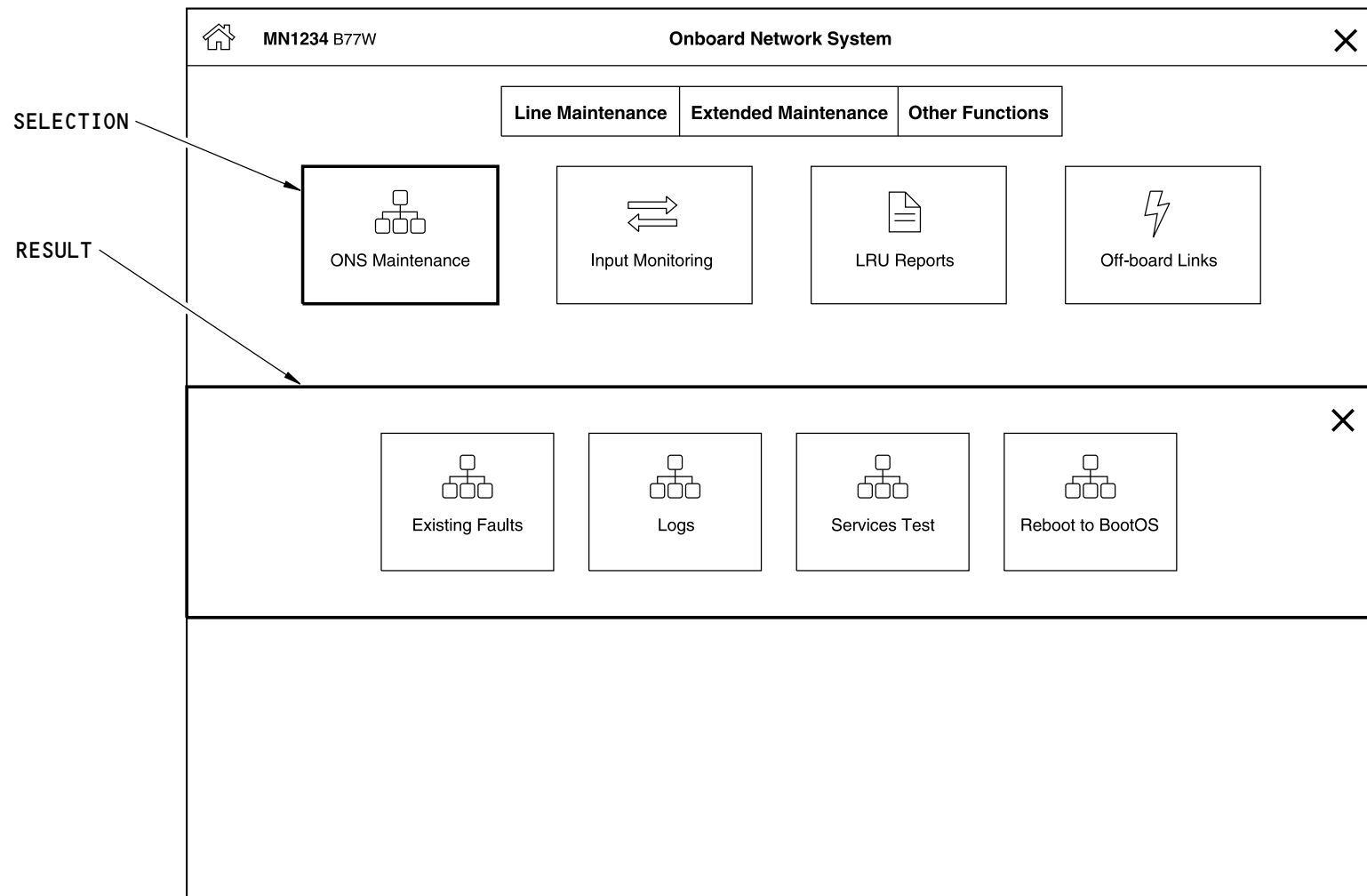
General

The page named ONS Maintenance is a sub-menu within the selection Extended Maintenance. These are the functions shown on the ONS Maintenance menu:

- Existing Faults
- Logs
- Services Test
- Reboot to BootOS

To get access to the ONS Maintenance menu, from the main menu bar make the selections: Extended Maintenance > ONS Maintenance.

EXTENDED MAINTENANCE > ONS MAINTENANCE



2337412 S0000532437_V1

ONS MAINTENANCE PAGE

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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - ONS MAINTENANCE - EXISTING FAULTS****General**

The existing faults page gives a record of NFS-to-LRU communication problems.

To get access to this page from the ONS menu bar, make your selections: Extended Maintenance > ONS Maintenance > Existing Faults.

Fault Results

The Existing Faults page shows the words Fault Results, and a table with two columns:

- LRU NAME
- MESSAGE.

When the NFS senses a communication problem with the LRU, the LRU name shows, with the quantity of messages. If a network-connected LRU has no messages, it does not show in the table. To refresh the fault results data, the user can select a different page, and then return to the NFS MESSAGES page or can select refresh on the browser.

When no LRU shows, with no messages, then the ONS (system) is serviceable.

Fault Details

When the LRU row is selected, the message shows in box below the words Fault Details. Use the scroll bar to examine all of the messages.

When a fault does show, refer to the same fault code number in the Fault Isolation Manual.

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EXTENDED MAINTENANCE > ONS MAINTENANCE > EXISTING FAULTS:

Existing Faults																			
 MN1234 B77W																			
Fault Results <table> <tr> <th>LRU NAME</th><th>MESSAGE</th></tr> <tr> <td>AIRLAN</td><td>1 Messages, Select for more Details.</td></tr> <tr> <td>CWLU-1</td><td>1 Messages, Select for more Details.</td></tr> <tr> <td>CWLU-2</td><td>1 Messages, Select for more Details.</td></tr> <tr> <td>CWLU-3</td><td>1 Messages, Select for more Details.</td></tr> <tr> <td>FLIGHT_DECK_PRINTER</td><td>1 Messages, Select for more Details.</td></tr> <tr> <td>NED1</td><td>1 Messages, Select for more Details.</td></tr> <tr> <td>NED2</td><td>1 Messages, Select for more Details.</td></tr> <tr> <td>NFS1</td><td>5 Messages, Select for more Details.</td></tr> </table>		LRU NAME	MESSAGE	AIRLAN	1 Messages, Select for more Details.	CWLU-1	1 Messages, Select for more Details.	CWLU-2	1 Messages, Select for more Details.	CWLU-3	1 Messages, Select for more Details.	FLIGHT_DECK_PRINTER	1 Messages, Select for more Details.	NED1	1 Messages, Select for more Details.	NED2	1 Messages, Select for more Details.	NFS1	5 Messages, Select for more Details.
LRU NAME	MESSAGE																		
AIRLAN	1 Messages, Select for more Details.																		
CWLU-1	1 Messages, Select for more Details.																		
CWLU-2	1 Messages, Select for more Details.																		
CWLU-3	1 Messages, Select for more Details.																		
FLIGHT_DECK_PRINTER	1 Messages, Select for more Details.																		
NED1	1 Messages, Select for more Details.																		
NED2	1 Messages, Select for more Details.																		
NFS1	5 Messages, Select for more Details.																		

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335683 S0000531234_V1

ONS EXISTING FAULTS PAGE

46-13-00

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - ONS MAINTENANCE - LOGS

General

The network file server (NFS) has three types of log files:

- Performance
- Security
- Syslog.

There is a separate page for each log type. Each of the three log pages has the same functions, and operates the same way.

To get access to these pages from the onboard network server (ONS) main menu, make the selections: Extended Maintenance > ONS Maintenance > Logs.

To exit the Logs page, and return to the main menu, click once on the Home icon in the upper left-hand corner. To exit the maintenance browser, and show the laptop's desktop, click once on the X in the upper right-hand corner.

Logs Page

To examine all of the log names on the page, use the vertical scroll bar.

When the table of data exceeds 100 records, then four page selection buttons show. Use the page navigation buttons, and the vertical scroll bar, to examine all files in the log. The buttons are as follows:

- FIRST - shows the initial page of log files.
- PREV - shows the previous page of log files.
- NEXT - shows the following page of log files.
- LAST - shows the last page of log files.

When one or more log files is highlighted, use the DOWNLOAD function to copy the file to an internal drive, or removable media.

When one or more log files is highlighted, use the DELETE function to erase the file from the ONS.

Performance Logs

The selection Extended Maintenance > ONS Maintenance > Performance shows a record of performance log files, and functions to download or erase them.

Performance log files contain a record of specified operations that can help troubleshoot data-load problems.

Security Logs

The selection Extended Maintenance > ONS Maintenance > Security shows a record of network security log files, and functions to download or erase them.

Security log files contain a record of specified operations that can help identify security violations.

All log files can be downloaded. However, certification rules require that log files be kept onboard for a specified minimum time. Therefore, logs that do not meet that minimum can not be erased.

Syslogs Logs

The selection Extended Maintenance > ONS Maintenance > Syslogs shows a record of system log files, and functions to download or erase them.

Syslog files contain a record of specified operations that can help troubleshoot software problems.

Syslog files can be downloaded or erased. There is no system restriction.

The function GET LATEST LOGS is an automated feature to isolate the newest syslog files for download.

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EXTENDED MAINTENANCE > ONS MAINTENANCE > LOGS:

The diagram illustrates the process of selecting log types and viewing logs. It consists of three main components:

- Please select a log type:** A dialog box with a list of log types: performance, security, and syslogs. Below the list are buttons for CONTINUE and CANCEL.
- Logs:** A page titled "Logs" showing a table of log entries. The table has columns for LOG NAME, ELIGIBLE FOR DELETION, and DATE/TIME OF CREATION. The log entries are categorized by log type (syslogs, security, etc.).
- Log Summary (security logs):** A section providing summary statistics for security logs, including the total number of log files, total log storage used, and total free secure log storage.

Annotations highlight specific elements:

- LOG TYPE:** Points to the dropdown menu in the "Select log(s) to manage: syslogs" section.
- SELECT BUTTONS:** Points to the buttons (SELECT ALL, UNSELECT ALL, DOWNLOAD, DELETE, GET LATEST LOGS) on the right side of the Logs page.
- SHOWS ONLY ON SYSLOGS PAGE.:** Points to the "GET LATEST LOGS" button.

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335705 S0000531296_V1

ONS MAINTENANCE - LOGS PAGE

LOGS > SYSLOGS > DOWNLOAD:

Logs

Select log(s) to manage: syslogs

LOG NAME	ELIGIBLE FOR DELETION	DATE/TIME OF CREATION
syslogs-20130331033725-UNKNOWN_2013-03-31_03-37-25 .tgz	Yes	2013-03-31 03:37:25
syslogs-20130331212001-UNKNOWN_2013-03-31_21-20-03.tgz	Yes	2013-03-31 21:20:03
syslogs-20130401035001-UNKNOWN_2013-04-01_03-50-08.tgz	Yes	2013-04-01 03:50:08

SELECT ALL
UNSELECT ALL
DOWNLOAD
DELETE
GET LATEST LOGS

Log Summary (security logs)
Total number of log files: 33
Total log storage used (bytes): 13,956,972
Total free secure log storage (bytes): 981,784,724
Log Summary (all other log types):
Total number of log files: 1
Total log storage used (bytes): 25,136,069
Total free filestore log storage (bytes): 289,436,731

Log Summary (security logs)
Total number of log files: 33
Total log storage used (bytes): 13,956,972
Total free secure log storage (bytes): 981,784,724
Log Summary (all other log types):
Total number of log files: 1
Total log storage used (bytes): 25,136,069
Total free filestore log storage (bytes): 289,436,731

HIGHLIGHT THE LOG NAME,
THEN MAKE A SELECTION.

NAVIGATION FUNCTIONS
SHOW WHEN 100 RECORDS
OR MORE ARE PRESENT.

Logs

Select log(s) to manage: syslogs

LOG NAME	ELIGIBLE FOR DELETION	DATE/TIME OF CREATION
syslogs-20130331033725-UNKNOWN_2013-03-31_03-37-25 .tgz	Yes	2013-03-31 03:37:25
syslogs-20130331212001-UNKNOWN_2013-03-31_21-20-03.tgz	Yes	2013-03-31 21:20:03
syslogs-20130401035001-UNKNOWN_2013-04-01_03-50-08.tgz	Yes	2013-04-01 03:50:08

SELECT ALL
UNSELECT ALL
DOWNLOAD
DELETE
GET LATEST LOGS

Log Summary (security logs)
Total number of log files: 33
Total log storage used (bytes): 13,956,972
Total free secure log storage (bytes): 981,784,724
Log Summary (all other log types):
Total number of log files: 1
Total log storage used (bytes): 25,136,069
Total free filestore log storage (bytes): 289,436,731

Log Summary (security logs)
Total number of log files: 33
Total log storage used (bytes): 13,956,972
Total free secure log storage (bytes): 981,784,724
Log Summary (all other log types):
Total number of log files: 1
Total log storage used (bytes): 25,136,069
Total free filestore log storage (bytes): 289,436,731

SAVE THE FILE TO THE
MAINTENANCE LAPTOP

Logs

Select log(s) to manage: syslogs

LOG NAME	ELIGIBLE FOR DELETION	DATE/TIME OF CREATION
syslogs-20130331033725-UNKNOWN_2013-03-31_03-37-25 .tgz	Yes	2013-03-31 03:37:25
syslogs-20130331212001-UNKNOWN_2013-03-31_21-20-03.tgz	Yes	2013-03-31 21:20:03
syslogs-20130401035001-UNKNOWN_2013-04-01_03-50-08.tgz	Yes	2013-04-01 03:50:08

SELECT ALL
UNSELECT ALL
DOWNLOAD
DELETE
GET LATEST LOGS

Log Summary (security logs)
Total number of log files: 33
Total log storage used (bytes): 13,956,972
Total free secure log storage (bytes): 981,784,724
Log Summary (all other log types):
Total number of log files: 1
Total log storage used (bytes): 25,136,069
Total free filestore log storage (bytes): 289,436,731

Log Summary (security logs)
Total number of log files: 33
Total log storage used (bytes): 13,956,972
Total free secure log storage (bytes): 981,784,724
Log Summary (all other log types):
Total number of log files: 1
Total log storage used (bytes): 25,136,069
Total free filestore log storage (bytes): 289,436,731

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

ONS MAINTENANCE - LOGS PAGE - DOWNLOAD SYSLOG STEPS

2335721 S0000532163_V1

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LOGS > SYSLOGS > DELETE:

The sequence of screenshots illustrates the log deletion process:

- Initial State:** A window titled "MN1234 B77W" shows a list of logs. The "LOG NAME" column lists "syslog-", "20130331033725-", "UNKNOWN_2013-03-31", and "_03-07-25.tgz". The "ELIGIBLE FOR DELETION" column shows "Yes" for the first three and "No" for the last. The "DATE/TIME OF CREATION" column shows "2013-03-31 03:37:25" for the first three and "2013-03-31 21:20:03" for the last. Buttons "SELECT ALL" and "UNSELECT ALL" are visible.
- Confirmation:** A dialog box titled "Press CONTINUE to delete log(s)" appears, with "CONTINUE" and "CANCEL" buttons.
- Summary:** A window titled "Log Summary (all other log types):" displays the following information:
 - Total number of log files: 276
 - Total log storage used (bytes): 25,136,069
 - Total free filesystem log storage (bytes): 289,436,731
- Final Confirmation:** A dialog box titled "Press CONTINUE to get latest logs" appears, with "CONTINUE" and "CANCEL" buttons.

2335724 S0000532164 V1

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

ONS MAINTENANCE - LOGS PAGE - DELETE SYSLOG STEPS

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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - ONS MAINTENANCE - SERVICES TEST****General**

The ONS Services Test is a function that examines each installed network service, and reports the condition.

To show the page from the ONS menu bar, make the selections: Extended Maintenance > ONS Maintenance > Services Test.

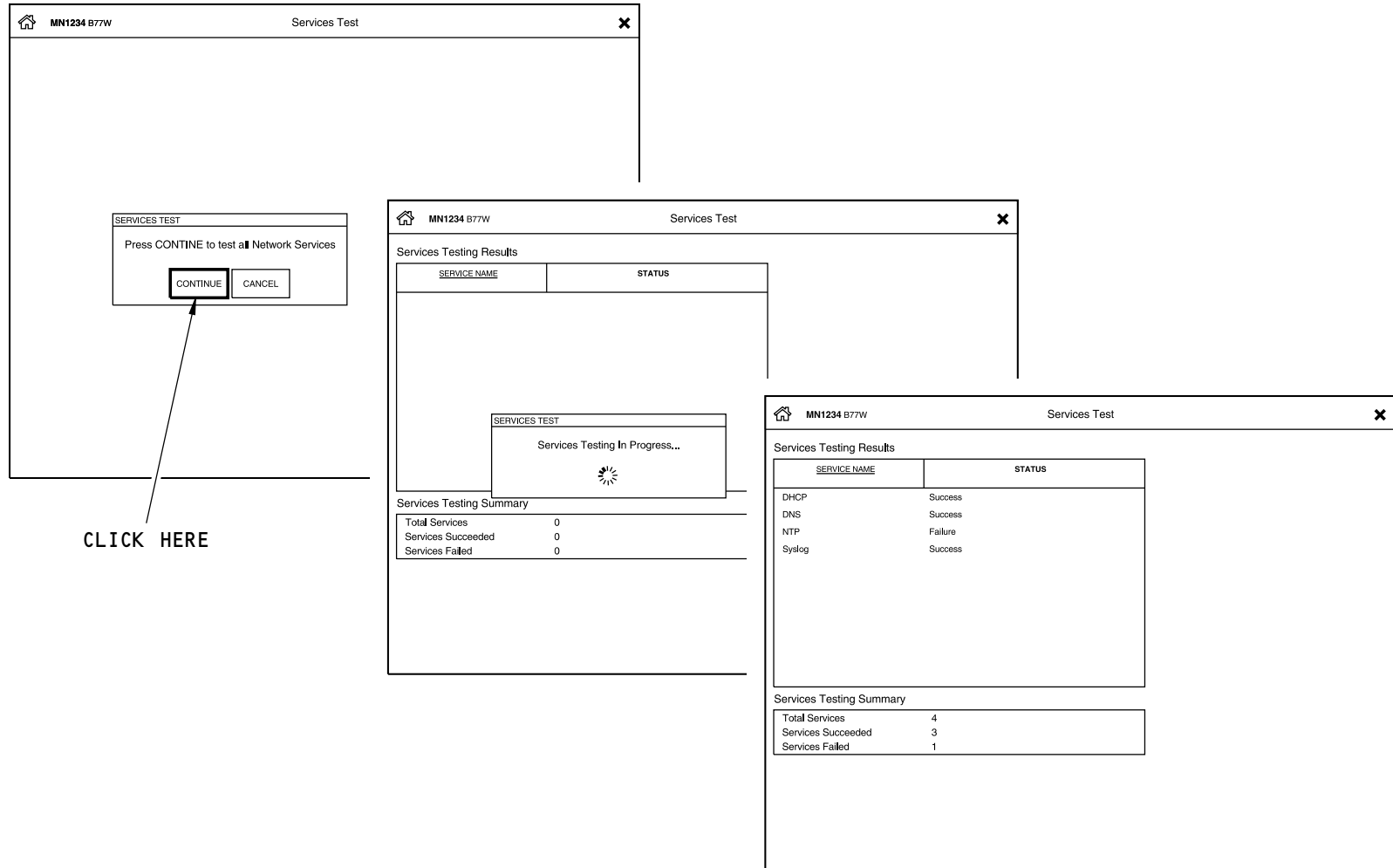
Services Test

The Services Test page shows the results in a table with the headings SERVICE NAME, and STATUS. Typically, these are the names of the services installed:

- DHCP (dynamic host configuration protocol)
- DNS (domain name server)
- NTP (network time protocol)
- Syslog (system log).

Operation of the test is automatic. The results of the test shows below the word STATUS. A serviceable result shows the word Success. If the word Failure shows, then a maintenance action can be required.

EXTENDED MAINTENANCE > ONS MAINTENANCE > SERVICES TEST:



Services Test Window 1:

SERVICES TEST

Press CONTINUE to test all Network Services

CONTINUE **CANCEL**

CLICK HERE (points to CONTINUE button)

Services Test Window 2:

SERVICES TEST

Services Testing In Progress...

Services Test Window 3:

SERVICES TEST

Services Testing Results

SERVICE NAME	STATUS
DHCP	Success
DNS	Success
NTP	Failure
Syslog	Success

Services Testing Summary

Total Services	4
Services Succeeded	3
Services Failed	1

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335782 S0000532169_V1

ONS MAINTENANCE - SERVICES TEST PAGE

**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - ONS MAINTENANCE - REBOOT TO BOOT OS****General**

BootOS (operating system) is a minimum, temporary operating system for use during network file server (NFS) OS maintenance. BootOS is stored in NFS firmware.

The Reboot to BootOS (operating system) function sets the network file server (NFS) to transfer control from NFS OS to BootOS. When BootOS is in service, then maintenance can be done to NFS OS software parts. BootOS is not serviceable during flight.

From the main menu bar, you can get access to Reboot to BootOS using these selections: Extended Maintenance > ONS Maintenance > Reboot to BootOS.

Reboot to Boot OS

The Reboot to BootOS page has two buttons: REBOOT, and BACK.

To complete the BootOS process, make your selections REBOOT, followed by CONTINUE on the confirmation pop-up window.

To exit, and show the ONS maintenance menu, you can click once on the BACK button, or click once on the home icon, in the upper left-hand corner.

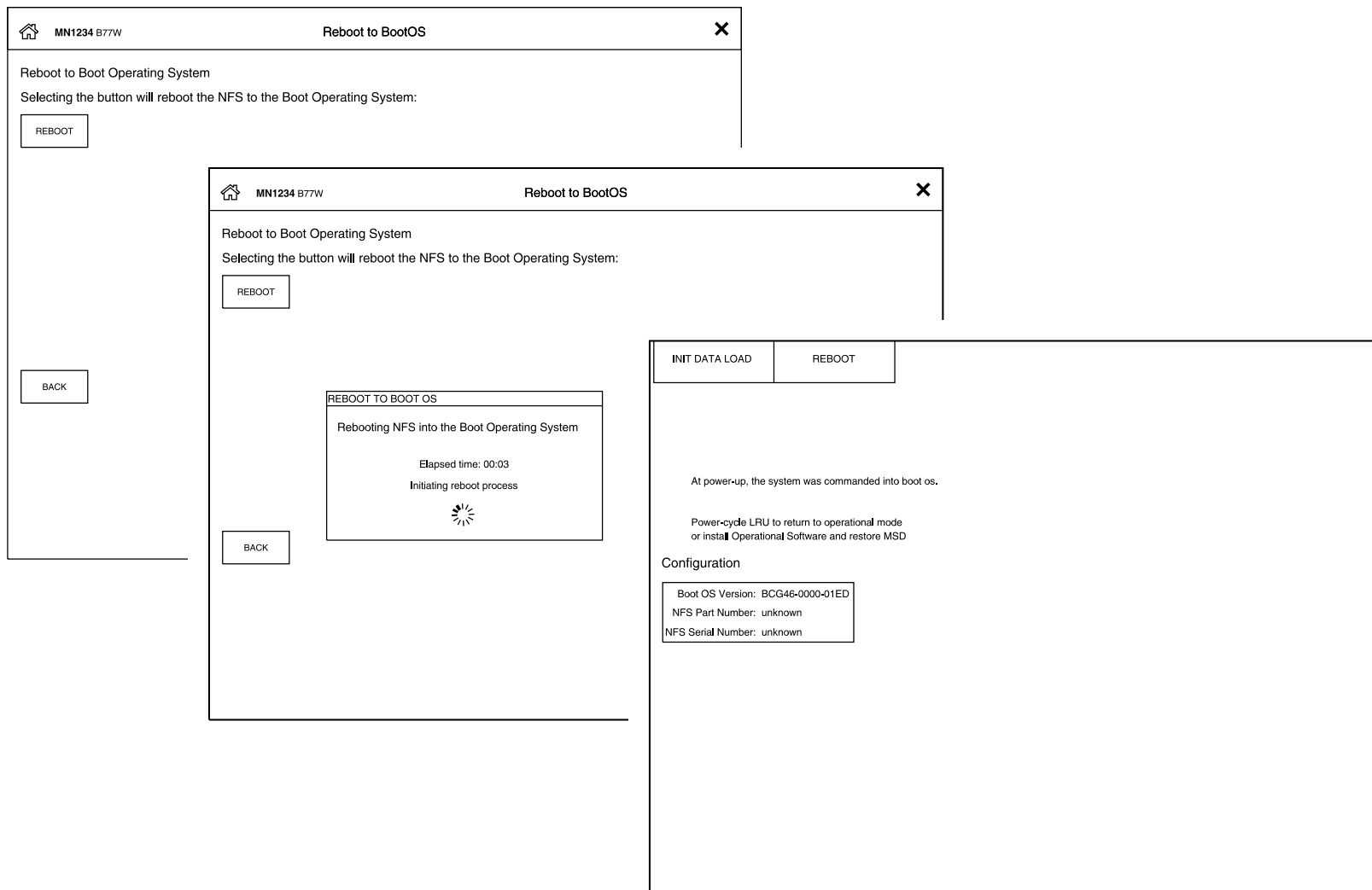
Reboot to Boot OS Problems

The Reboot to BootOS function can be unserviceable when another function is already in service. A pop-up window will show the words Access Denied. These are operations that do not agree with the Reboot to BootOS sequence:

- Client Credentials
- Dataload
- Reboot To BootOS
- Server Credentials.
- Uninstall NFS Parts.

The access denied window shows when an operation, that does not agree, is in operation. On the pop-up window, click on the OK button to show again the Reboot to BootOS page. These steps can make the Reboot to BootOS function serviceable again:

- Go to another screen, but not one shown on the list.
- Close or terminate the ONS browser.
- Begin a new session with the ONS Maintenance website.



NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335807 S0000532184_V1

ONS MAINTENANCE - REBOOT TO BOOTOS AND IDL PAGES

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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - EXISTING FAULTS****General**

The existing faults page is used to determine whether there are any conditions that the ONS determines to be abnormal. These are the conditions for the existing faults:

- Actual hardware failures
- Software configuration mismatches
- Interfacing system faults caused by wiring
- Power or hardware failures in the ONS or interfacing system.
- Warnings about future expiration or full capacity of logs.
- Warnings about future expiration or full capacity of MSD storage space.

To show the existing faults page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > EXISTING FAULTS

The ATA SYSTEM page shows a list of supported systems that the ONS will collect fault information. When the radio button 46 Onboard Network System is selected the FAULTS tab at the top of the screen will turn white. Click the FAULTS tab to display fault information managed by the ONS.

These are the data items for the existing faults:

- Maintenance Message
- Device Name
- Timestamp
- Occurrences
- Fault Data

Faults Display

Active faults will be identified by ACTIVE label in the message. If a fault clears while on the page, the label will change to NOT ACTIVE. A condition exists where the fault is ACTIVE and then changes from ACTIVE to NOT ACTIVE. If this condition exists, then the Occurrences count in the message will increase by one.

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EXTENDED MAINTENANCE > EXISTING FAULTS:

 N123456

ONBOARD NETWORK SYSTEM



LINE MAINTENANCE

EXTENDED MAINTENANCE



DATA LOAD



EXISTING FAULTS



INPUT MONITORING



MSD



NFS MAINTENANCE



OFF-BOARD LINKS



PRINTER CONDITION



CREW WIRELESS

 N123456

EXISTING FAULTS



ATA SYSTEM

FAULTS

Select ATA System

☐ 46 Onboard Network System

(1)

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409054 S0000557251_V1

ONS EXISTING FAULTS PAGE

46-13-00

EFFECTIVITY
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EXTENDED MAINTENANCE > EXISTING FAULTS:

WE576

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

EXISTING FAULTS

DATA LOAD

NETWORK FILE SERVER

MASS STORAGE DEVICE

INPUT MONITORING

OFF-BOARD LINKS

CREW WIRELESS

PRINTER CONDITION

N777B0

EXISTING FAULTS

N777BO -----/----

The time is: 2142z 07JAN2016

Data Source: OMF

Select ATA System

☒ 46 Onboard Network System

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480730 S0000581691_V1

ONS EXISTING FAULTS PAGE

46-13-00

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EXTENDED MAINTENANCE > EXISTING FAULTS:


N123456

EXISTING FAULTS



ATA SYSTEM

FAULTS

46 Onboard network System

(21)

Maintenance Message 46002

Device Name:

46 Onboard Network System

Timestamp:

2015-02-16T19:18:04 +00:00

Occurrences:

1

Fault Data:

SDU-NFS1 ETHERNET BUS FAIL

NOT ACTIVE

Maintenance Message 46048

Device Name:

46 Onboard Network System

Timestamp:

2015-02-16T19:18:04 +00:00

Occurrences:

1

Fault Data:

AIMS-L-NFS1 'IRS' BUS FAIL

ACTIVE

Maintenance Message 46049

Device Name:

46 Onboard Network System

Timestamp:

2015-02-16T19:18:04 +00:00

Occurrences:

1

ACTIVE


N123456

EXISTING FAULTS



ATA SYSTEM

FAULTS

46 Onboard network System

(22)

Maintenance Message 46002

Device Name:

46 Onboard Network System

Timestamp:

2015-02-16T19:26:57 +00:00

Occurrences:

2

Fault Data:

SDU-NFS1 ETHERNET BUS FAIL

ACTIVE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409087 S0000557250_V1

ONS EXISTING FAULTS PAGE - FAULTS

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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EXTENDED MAINTENANCE > EXISTING FAULTS:

N777BO

EXISTING FAULTS

N777BO ---/---/---
The time is: 2142z 07JAN2016
Data Source: OMF

(21)

Network File Server (Left) has no input from Right AIMS on General Purpose #1 Bus (429)
Maintenance Message: 46-16120
Network File Server (Left) has no input from Right AIMS on General Purpose #3 Bus (429)
Maintenance Message: 46-16130
Network File Server (Left) has no input from Right AIMS on General Purpose #4 Bus (429)
Maintenance Message: 46-16140
Network File Server (Left) has no input from Right AIMS on IRS Bus (429)
Maintenance Message: 46-16150
Network File Server (Left) has no input from Right AIMS on DCMF Output Bus (429)

ACTIVE
ACTIVE
NOT ACTIVE
NOT ACTIVE

SELECT NEW ATA

N777BO

EXISTING FAULTS

46 - Onboard Network System
NETWORK FILE SERVER (LEFT) HAS NO INPUT FROM RIGHT AIMS ON GENERAL PURPOSE #4 BUS (429)

18 of 21
NEXT MESSAGE
PREVIOUS MESSAGE

Maintenance Message: 46-16130
NOT ACTIVE

Recommended Maintenance Action:
1.) See Fault Isolation Procedure

Correlated Flight Deck Effects: (0)

GO BACK

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480869 S0000581692_V1

ONS EXISTING FAULTS PAGE - FAULTS

46-13-00

EFFECTIVITY
ARO 014-999

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - INPUT MONITORING

General

The input monitoring function gives the condition of ONS communications between network file server (NFS) and the connected system or device.

To get access from the main menu bar, make your selections: Extended Maintenance > Input Monitoring.

ARO 011-013 PRE SB 777-46-0066

A pop-up window will show with the available network devices.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

A set of radio buttons will show with the available network devices.

ARO 011-999

Of the possible selections, avionics parameters and NFS always will show. If an additional system or device shows, the pages will look and operate the same as the NFS descriptions that follow.

ARO 011-013 PRE SB 777-46-0066

To exit this menu and show the main menu, click on the home icon in the upper left-hand corner. To exit the ONS maintenance session and show the laptop's desktop, click on the X in the upper right-hand corner.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

To exit this menu and show the main menu, click on the home icon in the upper left-hand corner. To exit the ONS maintenance session and show the laptop's desktop, click on the gear icon in the upper right-hand corner, and select EXIT ONS, and then CONFIRM EXIT.

ARO 011-999**Input Monitoring > Avionics Parameters**

The INPUT MONITORING selection, followed by the Avionics Parameters selection shows selected avionics data. The data shown (or, parameters) shows:

- Aircraft tail identification (ID)

- Aircraft Type
- Airline ID
- International Civil Aviation Organization (ICAO)
- Time
- Date
- Origin
- Destination
- Weight on Wheels.
- cmcFlightPhase
- systemState

These parameters can be helpful for ONS troubleshooting.

Input Monitoring > NFS**ARO 011-013 PRE SB 777-46-0066**

The INPUT MONITORING selection, followed by the NFS selection, shows a page with five buttons as follows:

ARO 014-999; ARO 011-013 POST SB 777-46-0066

The INPUT MONITORING selection, followed by the NFS selection, shows a page with six buttons as follows:

ARO 011-999

- ETHERNET
- 429 RECEIVE
- 429 TRANSMIT
- INPUT DISCRETES
- OUTPUT DISCRETES.

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EFFECTIVITY
ARO 011-999

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - INPUT MONITORING

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- 717 RECEIVE

ARO 011-999

These functions are the data bus and discrete interfaces of the NFS. Each button shows the condition and settings for that interface.

Input Monitoring > NFS > Ethernet

The Ethernet page shows each Ethernet port of the rear connector on NFS. The configuration as described in the End Connection column will match the system wiring diagram, and the present status of the interface is provide with the following definitions:

- UP - the interface is serviceable.
- DOWN - the interface is unserviceable.
- ADMIN DOWN - the interface is set to OFF in the configuration software part.
- UNAVAILABLE - unserviceable, in that the protocol to read the condition was unsuccessful.

NOTE: The UNAVAILABLE condition can suggest that the client and server credentials do not agree.

Input Monitoring > NFS > 429 Receive

The 429 RECEIVE page shows a record with each NFS 429 receive bus, the interface connection name, and the interface condition (or status).

The data below END CONNECTION is the interface name. The interface name shown, and the same interface name on the wiring diagram shall agree.

The data below STATUS gives the condition of the interface. The condition can be as follows:

- High - the interface is serviceable, with a high-speed connection.
- Low - the interface is serviceable, with a low-speed connection.

- Failed - the interface is unserviceable (specifically, the input signal label does not agree with the OPC specified label).
- Disabled - the interface is unserviceable (specifically, turned off in the configuration part).
- Unavailable - the protocol to read the condition was unsuccessful.

NOTE: The UNAVAILABLE condition can suggest that the client and server credentials do not agree.

Input Monitoring > NFS > 429 Transmit

The 429 TRANSMIT page shows a record with each NFS 429 transmit bus, the interface connection name, and the interface condition (or, status).

The data below END CONNECTION is the interface name, The interface name shown, and the same interface on the wiring diagram shall agree.

The data below STATUS gives the condition of the interface. The condition can be as follows:

- High - the interface is serviceable, with a high-speed connection.
- Low - the interface is serviceable, with a low-speed connection.
- Failed - the interface is unserviceable (specifically, an internal fault prevents the data transmission).
- Disabled - the interface is unserviceable (specifically, turned off in the configuration part).
- Unavailable - the protocol to read the condition was unsuccessful.

NOTE: The UNAVAILABLE condition can suggest that the client and server credentials do not agree.

Input Monitoring > NFS > Input Discretes

The INPUT DISCRETES page shows a record with each NFS input discrete, the interface connection name, and the interface condition (or, status).

The data below END CONNECTION is the interface name, The interface name shown, and the same interface on the wiring diagram shall agree.

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EFFECTIVITY

ARO 011-999

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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - INPUT MONITORING**

The data below STATUS gives the condition of the interface. The condition can be as follows:

- Open - the interface has no path to aircraft ground.
- Ground - the interface senses a path to aircraft ground.
- Unavailable - the protocol to read the condition was unsuccessful.

NOTE: The UNAVAILABLE condition can suggest that the client and server credentials do not agree.

Input Monitoring > NFS > Output Discretes

The OUTPUT DISCRETES page shows a record with each NFS output discrete, the interface connection name, and the interface condition (or, status).

The data below END CONNECTION is the interface name, The interface name shown, and the same interface on the wiring diagram shall agree.

The data below STATUS gives the condition of the interface. The condition can be as follows:

- Open - the interface has no path to aircraft ground.
- Ground - the interface senses a path to aircraft ground.
- Unavailable - the protocol to read the condition was unsuccessful.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

Input Monitoring > NFS > 717 RECEIVE

The 717 RECEIVE page shows a record of the ARINC 717 Receive Bus input to the NFS.

The data below END CONNECTION is the interface name. The interface name shown, and the same interface on the wiring diagram shall agree.

The data below STATUS gives the condition of the interface. The condition can be as follows:

- UP – The interface is configured and receiving data.

- FAILED – The interface is configured but is not receiving data.
- UNCONFIGURED – The interface is not configured and no data is expected.

ARO 011-999

46-13-00**EFFECTIVITY****ARO 011-999****D633W101-ARO**

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EXTENDED MAINTENANCE > INPUT MONITORING


MN1234 B77W

Input Monitoring

✕

INPUT MONITORING

Please select an item to monitor:

Avionics Parameters

NED-1
NED-2
NFS

CONTINUE

CANCEL

SELECTION:
AVIONICS PARAMETERS


MN1234 B77W

Input Monitoring

✕

Avionics Parameters

PARAMETER	VALUE
Airline ID	Not Available
Aircraft Type	Not Available
Aircraft Tail ID	Not Available
ICAO	123456
Time	19:41:26
Date	28:01:14
Origin	KEWR
Destination	KYKM
Weight On Wheels	false

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2335835 S0000531320_V1

ONS INPUT MONITORING PAGE (AVIONICS PARAMETERS)

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EFFECTIVITY
ARO 011-013 PRE SB 777-46-0066

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SELECTION

🏠 MN1234 B77W
Input Monitoring
✕

ETHERNET

429 RECEIVE

429 TRANSMIT

INPUT DISCRETES

OUTPUT DISCRETES

CLIENT NAME AND CONNECTION TYPE

🏠 MN1234 B77W
Input Monitoring
✕

NFS :: Ethernet

PORT	END CONNECTION	STATUS
1	DFDAU	Unavailable
2	FMC-R	Unavailable
3	EIU-L	Unavailable
4	EIU-C	Unavailable
5	EIU-R	Unavailable
6	NED-1 PORT 1	Unavailable
7	FLIGHT DECK CREW PORT	UP
8	SUPERNUMERARY CREW PORT	Unavailable
9	FLIGHT DECK PRINTER	Unavailable
10	GROUND PROX WARN	UP
11	NED-2 PORT 1	Unavailable

BACK

EXTENDED MAINTENANCE >
INPUT MONITORING >
NFS (MENU):

EXTENDED MAINTENANCE > INPUT MONITORING > NFS > ETHERNET:

2335848 S0000532195_V1

ONS INPUT MONITORING PAGE (NFS)

46-13-00

EFFECTIVITY
ARO 011-013 PRE SB 777-46-0066

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 N123456
 INPUT MONITORING
 

Select an item to monitor: (4)

☒ Avionics Parameters
 ☐ NED-2
 ☐ NFS
 ☐ NED-DG

PARAMETER	VALUE
Airline ID	JW
Aircraft Type	B77W
Aircraft Tail ID	N123456
ICAO Address	Unavailable
Time	19:29:07
Date	16:02:15

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409073 S0000557253_V1

ONS INPUT MONITORING PAGE - AVIONICS PARAMETERS

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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N123456

INPUT MONITORING




Select an item to monitor: (4)

☒ Avionics Parameters
 ☐ NED-2
 ☐ NFS
 ☐ NED-DG

PARAMETER	VALUE
Airline ID	JW
Aircraft Type	B77W
Aircraft Tail ID	N123456
ICAO Address	Unavailable
Time	19:29:07
Date	16:02:15

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480429 S0000581580_V1

ONS INPUT MONITORING PAGE - AVIONICS PARAMETERS

46-13-00-036

EFFECTIVITY

ARO 014-999

46-13-00

D633W101-ARO

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 N123456
 INPUT MONITORING
 

Select an item to monitor: (4)

☐ Avionics Parameters
 ☐ NED-2
 ☒ NFS
 ☐ NED-DG

PORT	END CONNECTION	STATUS
1	SDU	UP
2	MAT	DOWN
3	FLIGHT DECK PRINTER	DOWN
4	EFB-CAPT	DOWN
5	EFB-F/O	DOWN
6	WWU	DOWN

ETHERNET

429 RECEIVE

429 TRANSMIT

INPUT DISCRETES

OUTPUT DISCRETES

717 RECEIVE

2408706 S0000557254_V1

ONS INPUT MONITORING PAGE - NFS

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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 N123456
INPUT MONITORING
 

Select an item to monitor: (4)

☐ Avionics Parameters

☐ NED-2

☒ NFS

☐ NED-DG

PORT	END CONNECTION	STATUS	
1	SDU	UP	▲
2	MAT	DOWN	
3	FLIGHT DECK PRINTER	DOWN	
4	EFB-CAPT	DOWN	
5	EFB-F/O	DOWN	
6	WWU	DOWN	▼


 ETHERNET


 429 RECEIVE


 429 TRANSMIT


 INPUT DISCRETES


 OUTPUT DISCRETES


 717 RECEIVE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480430 S0000581581_V1

ONS INPUT MONITORING PAGE - NFS

46-13-00-036

46-13-00

EFFECTIVITY
ARO 014-999

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - MSD

General

The MSD function manages the software parts that are on the Mass Storage Device (MSD).

To show the MSD page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > MSD

The page shows a list of supported MSDs that the ONS will collect configuration information from. When the radio button, ONS MSD, is selected, a list of software parts will display with check boxes to select for further information or action.

Click the checkbox in the column heading to select or de-select all software parts. Sortable fields are indicated by arrows next to the column heading.

These are the columns that shows on the MANAGE MSD screen:

- ATA
- PART NUMBER
- NOMENCLATURE

The ATA column is the ATA chapter for the Line Replaceable Unit (LRU) for the selected software part. If more than one LRU is selected, the list uses the ATA of the first LRU.

The PART NUMBER column is the part number of the software on the MSD or the media set part. The part number comes from the header information of the software part (if the software part contains this data).

The NOMENCLATURE column is the description of the software part on the MSD or media set part. The description comes from the header information of the software part if the format is ARINC 665-3. For all other formats, the part description comes from the packaging data from the Boeing Ground Tools. If the packaging data is not available, the ATA and the system type of the first LRU applicable with the software sets the part description.

The MSD page gives access to these functions:

- STORAGE
- DETAILS

- TRANSFER
- DELETE
- ADD

When STORAGE is selected, a pop up message will provide the statistics of used and available space on the selected MSD.

When one or more parts are selected, the DETAILS function will turn white and a pop-up message will provide the size of the selected parts.

When one or more parts are selected, the DELETE function will turn white and will allow the user to remove selected parts from the MSD. Click DELETE to display the confirmation window. Then click CONTINUE to delete one or more parts from the MSD.

N123456

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

DATA LOAD

EXISTING FAULTS

INPUT MONITORING

MSD

NFS MAINTENANCE

OFF-BOARD LINKS

PRINTER CONDITION

CREW WIRELESS

N123456

MSD

Select the MSD (1)

☐ ONS MSD

Select the Load Part Number (0)

☐ ATA PART NUMBER NAMECLATURE

STORAGE
 DETAILS

TRANSFER
 DELETE
 ADD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408962 S0000557256_V1

ONS MSD PAGE

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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N123456

MSD

Select the MSD

(1)

☒ ONS MSD

Select the Load Part Number

(16)

☐	ATA	PART NUMBER	NOMENCLATURE
☐	46	ONS-Z-C0NS-000A	46 NFS CONSOLE ENABLE OSS
☐	46	ONS-Z-NMG0-005D	46 NFS NET MANAGER APP
☐	46	ONS-Z-NMG0-005Y	46 NFS NET MANAGER APP
☐	46	BCG28-U000-00SX	46 NFS OPC

STORAGE
 DETAILS

TRANSFER
 DELETE
 ADD

N123456

MSD

Select the MSD

(1)

☒ ONS MSD

Select the Load Part Number

(7)

☐	ATA	PART NUMBER	NOMENCLATURE
☐		ONS-Z-C0NS-000A	46 NFS CONSOLE ENABLE OSS
☒		ONS-Z-0SG0-003J	46 NFS SERVER OS
☒		JAR-Z-KLM7-SE0T	46 NFS OPC
☐		ONS-Z-NMG0-003J	46 NFS NET MANAGER APP

Are you sure you want to delete the selected LSAPs?

STORAGE
 DETAILS

TRANSFER
 DELETE
 ADD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

ONS MSD PAGE - PART NUMBER SELECTION AND DELETE FUNCTION

2408975 S0000557257_V1

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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2409406 S0000558014_V1

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - MASS STORAGE DEVICE

General

The MASS STORAGE DEVICE function manages the software parts that are on the Mass Storage Device (MSD).

To show the MASS STORAGE DEVICE page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > MASS STORAGE DEVICE.

The page shows a list of supported MSDs that the ONS will collect configuration information from. When the radio button, ONS MSD, is selected, a list of software parts will display with check boxes to select for further information or action.

Click the checkbox in the column heading to select or de-select all software parts. Sortable fields are indicated by arrows next to the column heading.

These are the columns that shows on the MASS STORAGE DEVICE screen:

- ATA
- PART NUMBER
- NOMENCLATURE

The ATA column is the ATA chapter for the Line Replaceable Unit (LRU) for the selected software part. If more than one LRU is selected, the list uses the ATA of the first LRU.

The PART NUMBER column is the part number of the software on the MSD or the media set part. The part number comes from the header information of the software part (if the software part contains this data).

The NOMENCLATURE column is the description of the software part on the MSD or media set part. The description comes from the header information of the software part if the format is ARINC 665-3. For all other formats, the part description comes from the packaging data from the Boeing Ground Tools. If the packaging data is not available, the ATA and the system type of the first LRU applicable with the software sets the part description.

The MASS STORAGE DEVICE page gives access to these functions:

- STORAGE

- DETAILS
- REPORT
- DELETE
- ADD

When STORAGE is selected, a pop up message will provide the statistics of used and available space on the selected MSD.

When one or more parts are selected, the DETAILS function will turn white and a pop-up message will provide the size of the selected parts.

When one or more parts are selected, the DELETE function will turn white and will allow the user to remove selected parts from the MSD. Click DELETE to display the confirmation window. Then click CONTINUE to delete one or more parts from the MSD.

WE576

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

EXISTING FAULTS

DATA LOAD

NETWORK FILE SERVER

MASS STORAGE DEVICE

INPUT MONITORING

OFF-BOARD LINKS

CREW WIRELESS

PRINTER CONDITION

HB~JNA

MASS STORAGE DEVICE

Select the MSD (2)

ONS MSD

AIMS MSD

Select the Load Part Number (0)

ATA PART NUMBER NOMENCLATURE

No Parts Available

STORAGE

DETAILS

REPORT

DELETE

ADD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480452 S0000581937_V1

ONS MASS STORAGE DEVICE PAGE

46-13-00

EFFECTIVITY
ARO 014-999

D633W101-ARO

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HB-JNA

MASS STORAGE DEVICE

Select the MSD (2)

☒ ONS MSD
 ☐ AIMS MSD

Select the Load Part Number (34)

ATA	PART NUMBER	NOMENCLATURE
☐ 46	ONS-Z-0YSS-ENGB	46 NFS OS SSH for Yocto Test/Engineering Support for NF S2
☐ 46	ONS-Z-AMN2-N0AZ	46 NFS AIMS OPS
☐ 46	ONS-Z-ZCONS-000A	46 NFS CONSOLE ENABLE OSS
☐ 46	BC G23-0ADR-0002	46 NFS DATA RECORDER OPS
☐ 46	BC G38-U000-00YB	46 NFS OPC
☐ 46	BC G3E-U000-00YD	46 NED-DG OPC
☐ 46	BC G41-U000-014W	46 NFS NETMANAGER APP
☐ 46	BC G41-U000-02W7	46 NED-DG OPC
☐ 46	BC G42-U000-015U	46 NFS OAS AIRLINE CRL UMS
☐ 46	BC G43-U000-015T	46 NFS OAS AIRLINE CERTS UMS
☐ 46	BC G44-U000-015S	46 NFS MEF UMS
☐ 46	BC G45-U000-015R	46 NFS EXCOMM UMS

STORAGE

DETAILS

REPORT

DELETE

ADD

HB-JNA

MASS STORAGE DEVICE

Select the MSD (2)

☒ ONS MSD
 ☐ AIMS MSD

Select the Load Part Number (34)

ATA	PART NUMBER	NOMENCLATURE
☐ 46	ONS-Z-0YSS-ENGB	46 NFS OS SSH for Yocto Test/Engineering Support for NF S2
☐ 46	ONS-Z-AMN2-N0AZ	46 NFS AIMS OPS
☒ 46	ONS-Z-ZCONS-000A	46 NFS CONSOLE ENABLE OSS
☒ 46	BC G23-0ADR-0002	46 NFS DATA RECORDER OPS
☐ 46	BC G38-U000-00YB	46 NFS OPC
☐ 46	BC G3E-U000-00YD	46 NED-DG OPC
☐ 46	BC G41-U000-014W	46 NFS NETMANAGER APP
☐ 46	BC G41-U000-02W7	46 NED-DG OPC
☐ 46	BC G42-U000-015U	46 NFS OAS AIRLINE CRL UMS
☐ 46	BC G43-U000-015T	46 NFS OAS AIRLINE CERTS UMS
☐ 46	BC G44-U000-015S	46 NFS MEF
☐ 46	BC G45-U000-015R	46 NFS EXCOMM UMS

STORAGE

DETAILS

REPORT

DELETE

ADD

Are you sure you want to delete the selected LSAPs?

CANCEL

CONTINUE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

ONS MASS STORAGE DEVICE - PART NUMBER SELECTION

2480453 S0000581941_V1



HB-JNA

MASS STORAGE DEVICE

Select the MSD (2)

☒ ONS MSD
 ☐ AIMS MSD

Select the Load Part Number (34)

☐ ATA	PART NUMBER	NOMENCLATURE
☐ 46	0NS-Z-0YSS-ENGB	46 NFS OS SSH for Yocto Test/Engineering Support for NF S2
☐ 46	0NS-Z-AMN2-N0AZ	46 NFS AIMS OPS
☒ 46	0NS-Z-ZCONS-000A	46 NFS CONSOLE ENABLE OSS
☒ 46	BC G23-0ADR-0002	46 NFS DATA RECORDER OPS
☐ 46	BC G38-U000-00YB	46 NFS OPC
☐ 46	BC G3E-U000-00YD	46 NED-DG OPC
☐ 46	BC G41-U000-014W	46 NFS NETMANAGER APP
☐ 46	BC G41-U000-02W7	46 NED-DG OPC
☐ 46	BC G42-U000-015U	46 NFS OAS AIRLINE CRL UMS
☐ 46	BC G43-U000-015T	46 NFS OAS AIRLINE CERTS UMS
☐ 46		46 NFS MEF UMS
☐ 46		46 NFS EXCOMM UMS

File Summary

Total LSAPs: 2

Estimated Size: 6,22 MB

STORAGE

DETAILS

REPORT

DELETE

ADD

2480454 S0000581944 V1

ONS MASS STORAGE DEVICE - STORAGE SUMMARY AND DETAILS - FILE SUMMARY

46-13-00

**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - MSD - TRANSFER****General**

The MSD transfer function allows the operator to send a report to the Portable Maintenance Device, or if configured, a Printer. These are the data items in the ONS MSD configuration report.

- Hardware Part Number (MSD)
- Hardware Serial Number (MSD)
- Hardware Mod Level (MSD)
- ATA Chapter (for each software part)
- Software Part Number (for each software part)
- SIZE (BYTES) (or each software part)
- MSD Free Space (bytes)
- MSD Used Storage (bytes)

To show the MSD page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > MSD

MSD TRANSFER

Click the TRANSFER button. A prompt will appear to allow the operator to send a report to the Portable Maintenance Device, or if configured, a Printer. If a device is not presently capable of receiving the report, it will show in blue text and will not be selectable. Otherwise, it will show in white text.

After selecting the device, select SEND to transfer the report. When complete, select CANCEL to clear the dialog.

N123456

MSD

Select the MSD

(1)

☒ ONS MSD

Select the Load Part Number

☐	ATA	PART NUMBER	NAMECLATURE
☐	46	0NS-Z-C0NS-000A	46 NFS CONSOLE ENABLE OSS
☐	46	0NS-Z-NMG0-005D	46 NFS NET MANAGER APP
☐	46	0NS-Z-NMG0-005Y	46 NFS NET MANAGER APP
☐	46	BCG28-U000-00SX	46 NFS OPC

STORAGE
 DETAILS

TRANSFER
 DELETE
 ADD

N123456

MSD

Select the MSD

(1)

☒ ONS MSD

Select the Load Part Number

☐	ATA	PART NUMBER	NAMECLATURE
☐	46	0NS-Z-C0NS-000A	46 NFS CONSOLE ENABLE OSS
☐	46	0NS-Z-NMG0-005D	46 NFS NET MANAGER APP

TRANSFER
 DELETE
 ADD

Select Destination

☐ Portable Maintenance Device
 ☐ Flight Deck

CANCEL STOP SEND

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408950 S0000557259_V1

ONS MSD - TRANSFER

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - MASS STORAGE DEVICE - REPORT****General**

The MASS STORAGE DEVICE report function allows the operator to send a report to the Portable Maintenance Device, or if configured, a Printer. These are the data items in the ONS MSD configuration report.

- Hardware Part Number (MSD)
- Hardware Serial Number (MSD)
- Hardware Mod Level (MSD)
- ATA Chapter (for each software part)
- Software Part Number (for each software part)
- SIZE (BYTES) (or each software part)
- MSD Free Space (bytes)
- MSD Used Storage (bytes)

To show the MASS STORAGE DEVICE page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > MASS STORAGE DEVICE.

MASS STORAGE DEVICE REPORT

Click the REPORT button. A prompt will appear to allow the operator to send a report to the Portable Maintenance Device, or if configured, a Printer. If a device is not presently capable of receiving the report, it will show in blue text and will not be selectable. Otherwise, it will show in white text.

After selecting the device, select SEND to transfer the report. When complete, select CLOSE to clear the dialog.

N123456

MASS STORAGE DEVICE

Select the MSD (1)

☒ ONS MSD

Select the Load Part Number

☐	ATA	PART NUMBER	NAMECLATURE
☐	46	0NS-Z-C0NS-000A	46 NFS CONSOLE ENABLE OSS
☐	46	0NS-Z-NMG0-005D	46 NFS NET MANAGER APP
☐	46	0NS-Z-NMG0-005Y	46 NFS NET MANAGER APP
☐	46	BCG28-U000-00SX	46 NFS OPC

STORAGE

DETAILS

REPORT

DELETE

ADD

N123456

MASS STORAGE DEVICE

Select the MSD

☒ ONS MSD

Select the Load Part Number

☐	ATA	PART NUMBER	NAMECLATURE
☐	46	0NS-Z-C0NS-000A	46 NFS CONSOLE ENABLE OSS
☐	46	0NS-Z-NMG0-005D	46 NFS NET MANAGER APP

REPORT

Select Destination

☐ Portable Maintenance Device
☐ Flight Deck

CLOSE

STOP

SEND

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480455 S0000581694_V1

ONS MASS STORAGE DEVICE - REPORT

46-13-00-064

EFFECTIVITY

ARO 014-999

D633W101-ARO

46-13-00

**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - MSD - ADD****General**

The MSD - ADD function allows the operator to upload software parts to the MSD and view status of other recently uploaded parts.

To show the MSD page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > MSD

MSD - ADD

When the ADD button is clicked, a new screen will appear with a BROWSE button. You use the Browse function to find and select the source file. After the file is selected an upload status window is displayed. After the upload is completed, make sure the status field displays the label: SUCCESS.



 N123456

MSD

 Back to ONS MSD LSAPs

Uploading part...

FILE NAME	PART NUMBER	CANCEL	STATUS
ONS-Z-0SG0-003K.zip			Uploading: 38%
BCG43-0000-0151.zip	BCG43-0000-0151		SUCCESS

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

ONS MSD - ADD

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - MASS STORAGE DEVICE - ADD****General**

The MASS STORAGE DEVICE - ADD function allows the operator to upload software parts to the mass storage device (MSD) and view status of other recently uploaded parts.

To show the MSD page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > MASS STORAGE DEVICE

MASS STORAGE DEVICE - ADD

When the ADD button is clicked, a new screen will appear with a BROWSE button. You use the Browse function to find and select the source file. After the file is selected an upload status window is displayed. After the upload is completed, make sure the status field displays the label: SUCCESS.

HB-JNA

MASS STORAGE DEVICE

Select the MSD (2)

☐ ONS MSD
 ☐ AIMS MSD

Select the Load Part Number (0)

☐ ATA #
 ☐ PART NUMBER #
 ☐ NOMENCLATURE #

HB-JNA

MASS STORAGE DEVICE

Select the MSD (2)

☒ ONS MSD
 ☐ AIMS MSD

Select the Load Part Number (34)

ATA #	PART NUMBER #	NOMENCLATURE #
☐ 46	ONS-Z-0YSS-ENGB	46 NFS OS SSH for Yocto Test/Engineering Support for NF S2
☐ 46	ONS-Z-AMN2-NOAZ	46 NFS AIMS OPS
☐ 46	ONS-Z-ZCONS-000A	46 NFS CONSOLE ENABLE OSS
☐ 46	BCG23-0ADR-0002	46 NFS DATA RECORDER OPS
☐ 46	BCG38-U000-00YB	46 NFS OPC
☐ 46	BCG3E-U000-00YD	46 NED-DG OPC
☐ 46	BCG41-U000-014W	46 NFS NETMANAGER APP

HB-JNA

MASS STORAGE DEVICE

Back to ONS MSD LSAPs

Select a file with software parts to load.

FILE NAME	PART NUMBER	STATUS
TDY3D-7123-144B_1452620742986_8_498017419169567.zip	TDY3D-7123-144B	SUCCESS
TDY3A-7123-143B_1449766298122_2_699245418206766.zip	TDY3A-7123-143B	SUCCESS
JRW-Z-01F6-000B.zip	JRW-Z-01F6-000B	SUCCESS
JRW-Z-01F6-000A.zip	JRW-Z-01F6-000A	SUCCESS
BCG52-U000-016F.zip	BCG52-U000-016F	SUCCESS
BCG51-U000-016E.zip	BCG51-U000-016E	SUCCESS

HB-JNA

MASS STORAGE DEVICE

Select the MSD (2)

☒ ONS MSD
 ☐ AIMS MSD

Select the Load Part Number (34)

ATA #	PART NUMBER #	NOMENCLATURE #
☐ 46	ONS-Z-0YSS-ENGB	46 NFS OS SSH for Yocto Test/Engineering Support for NF S2
☐ 46	ONS-Z-AMN2-NOAZ	46 NFS AIMS OPS
☒ 46	ONS-Z-ZCONS-000A	46 NFS CONSOLE ENABLE OSS
☒ 46	BCG23-0ADR-0002	46 NFS DATA RECORDER OPS
☐ 46	BCG38-U000-00YB	46 NFS OPC
☐ 46	BCG3E-U000-00YD	46 NED-DG OPC
☐ 46	BCG41-U000-014W	46 NFS NETMANAGER APP
☐ 46	BCG41-U000-02W7	46 NED-DG OPC
☐ 46	BCG42-U000-015U	46 NFS OAS AIRLINE CRL UMS
☐ 46	BCG43-U000-015T	46 NFS OAS AIRLINE CERTS UMS
☐ 46	BCG44-U000-015S	46 NFS MEF 1
☐ 46	BCG45-U000-015R	46 NFS EXCC

Are you sure you want to delete the selected LSAPs?

CANCEL

CONTINUE

STORAGE

DETAILS

REPORT

DELETE

ADD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

MASS STORAGE DEVICE ADD PAGE DURING A TRANSFER, AND SHOWING A PREVIOUSLY SUCCESSFUL PART

2480456 S0000581696_V1

ONS MASS STORAGE DEVICE - ADD

46-13-00-065

EFFECTIVITY

ARO 014-999

D633W101-ARO

46-13-00



ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - NFS MAINTENANCE

General

The NFS MAINTENANCE function manages functions on the network file server (NFS). The NFS MAINTENANCE page gives access to these functions:

- UNINSTALL LSAPS – Uninstall loadable software parts.
- REBOOT – Reboot the NFS.
- RESET DATA – Remove application data and system logs.
- REIMAGE - Remove all customer data, logs, and software parts from the server and return the NFS to a near-factory state.

To show the NFS MAINTENANCE page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > NFS MAINTENANCE.

The page defaults to the UNINSTALL LSAPS function which is the software part uninstallation screen. In addition, REBOOT, RESET DATA and REIMAGE functions are provided.

UNINSTALL LSAPS

Applications that are not required for basic ONS functionality maybe removed without replacement.

If there are applications that can be uninstalled, they will show under the UNINSTALL LSAPS tab. Select the part or parts to uninstall and click the DELETE button. Click CONTINUE to uninstall the software part. A pop-up window will provide status messages for the LSAP uninstallation. After the software part is uninstalled, the NFS will reboot.

When the uninstall LSAP process is completed, the pop-up window will go away. An updated list of LSAPs will be displayed, or be empty if there are no more parts for uninstallation.

NOTE: There may be a delay to update the software part number list. But it not necessary to wait for the list to update

REBOOT

If access to the EE Bay is not convenient, and a NFS server reboot is provided for troubleshooting purposes. You use the REBOOT function from the ONS web browser.

NOTE: The REBOOT function will not reboot the internal NED.

Click the REBOOT button to display the confirmation window. Then click CONTINUE to reboot the NFS.

RESET DATA

The reset data screen is a function that allows for the deletion of all application data and system logs. This operation will not remove Security Logs and Certificate Signing Request Files that cannot be deleted. This function will not remove software parts from the Mass Storage Device.

Click the RESET DATA button to display the confirmation window. Then click CONTINUE to perform the RESET function.

N123456

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

DATA LOAD

EXISTING FAULTS

INPUT MONITORING

MSD

NFS MAINTENANCE

OFF-BOARD LINKS

PRINTER CONDITION

CREW WIRELESS

N777BO

NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

Select the Load Part Number

☐ PART NUMBER	NAMECLATURE
☐ 0NS-Z-00NS-000A	Console Enables OSS
☐ BCG2D-U000-00VX	46 NFS DATA RECORDER OSS
☐ BCG4B-0ADM-000E	46 NFS DATA MONITOR OPS
☐ BCG57-0ADR-000F	46 NFS DATA RECORDER OPS
☐ JAR37-MEFU-700B	46 NFS MEF UMS

DELETE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408876 S0000557265_V1

ONS NFS MAINTENANCE

46-13-00

46-13-00-054

EFFECTIVITY

ARO 011-013 POST SB 777-46-0066

D633W101-ARO

N123456

NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

Select the Load Part Number

PART NUMBER	NAMECLATURE
☐ 0NS-Z-C0NS-000A	Console Enables OSS
☐ BCG2D-U000-00VX	46 NFS DATA RECORDER OSS
☒ BCG4B-0ADM-000E	46 NFS DATA MONITOR OPS
☐ BCG57-0ADR-000F	46 NFS DATA RECORDER OPS
☐ JAR37-MEFU-700B	46 NFS MEF UMS

Are you sure you want to delete the selected LSAPs?

CANCEL

CONTINUE

DELETE

N123456

NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

Select the Load Part Number

☐ PART NUMBER	UNINSTALL LSAPS The uninstall LSAPs process is running.
☐ 0NS-Z-C0NS-000A	
☐ BCG2D-U000-00VX	
☐ BCG4B-0ADM-000E	
☐ BCG57-0ADR-000F	
☐ JAR37-MEFU-700B	46 NFS MEF UMS

DELETE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408838 S0000557266_V1

ONS NFS MAINTENANCE - UNINSTALL LSAPS PAGE

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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 N123456
 NFS MAINTENANCE
 

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
RESET NFS DATA	Reboot the NFS.

Are you sure you want to reset NFS data?

CANCEL

CONTINUE


RESET

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408885 S0000557267_V1

ONS NFS MAINTENANCE - REBOOT PAGE

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NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
RESET NFS DATA	Return NFS to the initial software configuration; remove application data and system logs; retain loaded software, MSD data, security credentials, and security logs. An NFS reboot will be done as part of the Reset Data process.

Are you sure you want to reset NFS data?

CANCEL

CONTINUE

RESET

N123456

NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
RESET NFS DATA	Return NFS to the initial software configuration; remove application data and system logs; retain loaded software, MSD data, security credentials, and security logs. An NFS reboot will be done as part of the Reset Data process.

RESET DATA

NFS is rebooting as part of the Reset Data process.

N123456

NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
RESET NFS DATA	Return NFS to the initial software configuration; remove application data and system logs; retain loaded software, MSD data, security credentials, and security logs. An NFS reboot will be done as part of the Reset Data process. success

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

THE SCREEN WILL DISPLAY SUCCESS WHEN THE PROCESS IS COMPLETE.

2408563 S0000557268_V1

ONS NFS MAINTENANCE - RESET DATA PAGE

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - NETWORK FILE SERVER

General

The NETWORK FILE SERVER function manages functions on the network file server (NFS). The NETWORK FILE SERVER page gives access to these functions:

- UNINSTALL LSAPS – Uninstall loadable software parts.
- REBOOT – Reboot the NFS.
- RESET DATA – Remove application data and system logs.
- REIMAGE - Remove all customer data, logs, and software parts from the server and return the NFS to a near-factory state.

To show the NETWORK FILE SERVER page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > NETWORK FILE SERVER.

The page defaults to the UNINSTALL LSAPS function which is the software part uninstallation screen. In addition, REBOOT, RESET DATA and REIMAGE functions are provided.

UNINSTALL LSAPS

Applications that are not required for basic ONS functionality maybe removed without replacement.

If there are applications that can be uninstalled, they will show under the UNINSTALL LSAPS tab. Select the part or parts to uninstall and click the DELETE button. Click CONTINUE to uninstall the software part. A pop-up window will provide status messages for the LSAP uninstallation. After the software part is uninstalled, the NFS will reboot.

When the uninstall LSAP process is completed, the pop-up window will go away. An updated list of LSAPs will be displayed, or be empty if there are no more parts for uninstallation.

NOTE: There may be a delay to update the software part number list. But it not necessary to wait for the list to update.

REBOOT

If access to the EE Bay is not convenient, and a NFS server reboot is provided for troubleshooting purposes. You use the REBOOT function from the ONS web browser.

NOTE: The REBOOT function will not reboot the internal NED.

Click the REBOOT button to display the confirmation window. Then click CONTINUE to reboot the NFS.

RESET DATA

The reset data screen is a function that allows for the deletion of all application data and system logs. This operation will not remove security logs and certificate signing request files that cannot be deleted. This function will not remove software parts from the mass storage device.

Click the RESET DATA button to display the confirmation window. Then click CONTINUE to perform the RESET function.

N123456

ONBOARD NETWORK SYSTEM

LINE MAINTENANCE

EXTENDED MAINTENANCE

EXISTING FAULTS

DATA LOAD

NETWORK FILE SERVER

MASS STORAGE DEVICE

INPUT MONITORING

OFF-BOARD LINKS

CREW WIRELESS

PRINTER CONDITION

N777BO

NETWORK FILE SERVER

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

Select the Load Part Number

☐ PART NUMBER	NOMENCLATURE
☐ 0NS-Z-00NS-000A	Console Enables OSS
☐ BCG2D-U000-00VX	46 NFS DATA RECORDER OSS
☐ BCG4B-0ADM-000E	46 NFS DATA MONITOR OPS
☐ BCG57-0ADR-000F	46 NFS DATA RECORDER OPS
☐ JAR37-MEFU-700B	46 NFS MEF UMS

DELETE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480457 S0000581379_V1

ONS NETWORK FILE SERVER

46-13-00

46-13-00-069

EFFECTIVITY
ARO 014-999

D633W101-ARO

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N123456

NETWORK FILE SERVER

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

Select the Load Part Number

PART NUMBER	NOMENCLATURE
☐ 0NS-Z-C0NS-000A	Console Enables OSS
☐ BCG2D-U000-00VX	46 NFS DATA RECORDER OSS
☒ BCG4B-QADM-000E	46 NFS DATA MONITOR OPS
☐ BCG57-QADR-000F	46 NFS DATA RECORDER OPS
☐ JAR37-MEFU-700B	46 NFS MEF UMS

Are you sure you want to delete the selected LSAPs?

CANCEL

CONTINUE

DELETE

N123456

NETWORK FILE SERVER

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

Select the Load Part Number

PART NUMBER	NOMENCLATURE
☐ 0NS-Z-C0NS-000A	Console Enables OSS
☐ BCG2D-U000-00VX	46 NFS DATA RECORDER OSS
☐ BCG4B-QADM-000E	46 NFS DATA MONITOR OPS
☐ BCG57-QADR-000F	46 NFS DATA RECORDER OPS
☐ JAR37-MEFU-700B	46 NFS MEF UMS

UNINSTALL LSAPS

The uninstal LSAPs process is runing.

↻

DELETE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480458 S0000581381_V1

ONS NETWORK FILE SERVER - UNINSTALL LSAPS PAGE

46-13-00

EFFECTIVITY
ARO 014-999

D633W101-ARO

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 N777BO

NETWORK FILE SERVER
 


UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
RESET NFS	Reboot the Network File Server



REBOOT

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480478 S0000581392_V1

ONS NETWORK FILE SERVER - REBOOT PAGE

46-13-00

EFFECTIVITY
ARO 014-999

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NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
RESET NFS DATA	Return NFS to the initial software configuration; remove application data and system logs; retain loaded software, MSD data, security credentials, and security logs. An NFS reboot will be done as part of the Reset Data process.

Are you sure you want to reset NFS data?

CANCEL

CONTINUE

RESET

N123456

NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
RESET NFS DATA	Return NFS to the initial software configuration; remove application data and system logs; retain loaded software, MSD data, security credentials, and security logs. An NFS reboot will be done as part of the Reset Data process.

RESET DATA

NFS is rebooting as part of the Reset Data process.

N123456

NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
RESET NFS DATA	Return NFS to the initial software configuration; remove application data and system logs; retain loaded software, MSD data, security credentials, and security logs. An NFS reboot will be done as part of the Reset Data process.

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

THE SCREEN WILL DISPLAY SUCCESS WHEN THE PROCESS IS COMPLETE.

2480479 S0000581395_V1

ONS NETWORK FILE SERVER - RESET DATA PAGE

46-13-00

EFFECTIVITY
ARO 014-999

D633W101-ARO

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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - NFS MAINTENANCE - REIMAGE****General**

The NFS maintenance reimage function removes all customer data, logs, and software parts from the server and returns it to a near-factory state. After the reimage function is performed, the NFS will remain in the Boot OS on all subsequent power cycles. This will force the Initial Data Load (IDL) process to be performed prior to NFS use.

To show the NFS MAINTENANCE page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > NFS MAINTENANCE.

Click the REIMAGE button to display the confirmation window. Then click CONTINUE to perform the reimage function.

The reimage function will erase all program and application data and leave only the part numbers that follow:

- 46 NFS BOOT OS
- 46 NED OPS
- 46 NED OPC

When the REIMAGE function is completed, the Boot OS Initial Data Load screen will show.

INITIAL DATA LOAD (IDL)

The IDL screen is shown whenever software is not installed onto the NFS Server. Spare units may be delivered with the older block-4 or newer OS6 Boot OS.

For the OS6 Boot OS, four parts must be selected before executing the initial load:

- 46 NFS SERVER OS
- 46 NFS NETMANAGER APP
- 46 NFS OPC
- 46 NFS MEF OPS

Click the BROWSE button to upload the software part. Then select the crated LSAP from a directory on the maintenance laptop. After the part is selected, it turns white on the screen and displays the part number. When all required parts are uploaded, the DATA LOAD icon turns white and may be selected to perform the installation.

If starting from the block-4 Boot OS, only the software parts that follow will be loadable from the Boot OS.

- 46 NFS SERVER OS
- 46 NETMANAGER APP
- 46 NFS OPC

After the unit reboots, a REIMAGE alert pop-up window will be displayed describing the missing 46 NFS MEF OPS part. This part is needed to complete the initial data load process.

You click Cancel, then Browse to add the 46 NFS MEF OPS part. Then the MEF OPS part number will display and turn white, and the DATA LOAD icon will turn white. You then click the DATA LOAD icon to complete the IDL process. When the IDL process completes, the ONS Main Menu page will display.

N123456

NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
REIMAGE NFS CONFIGURATION & DATA	Removed all software and data; return to BootOS ready for Initial Data Load.

Are you sure you want to reimage NFS?

CANCEL

CONTINUE

REIMAGE

N777BO

NFS MAINTENANCE

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
REIMAGE NFS CONFIGURATION & DATA	REIMAGE NFS

REIMAGE NFS

NFS is rebooting into the Boot Operating System's Initial Data Load Screen.

()

Data Load.

A pop-up window is displayed while reimagining.

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408699 S0000557270_V1

ONS NFS MAINTENANCE - REIMAGE PAGE

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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NFS MAINTENANCE

UNINSTALL LSAPS
REBOOT
RESET DATA
REIMAGE

Configuration

NFS
Boots OS Version BCG33-U000-00WG
NFS Part Number P/N: 2246900-01
NFS Serial Number S/N: OE00002

Select a file with parts to import

NFS
NFS OS Part Number
NETMAN Part Number
OPC Part Number
MEF Part Number

Data Load Status

BROWSE

DATA LOAD

NFS MAINTENANCE

UNINSTALL LSAPS
REBOOT
RESET DATA
REIMAGE

Configuration

NFS
Boots OS Version BCG33-U000-00WG
NFS Part Number P/N: 2246900-01
NFS Serial Number S/N: OE00002

Select a file with parts to import

NFS
NFS OS Part Number BCG3C-U000-00WH
NETMAN Part Number BCG3E-U000-00WJ
OPC Part Number JAR-Z-KLM7-SE1D
MEF Part Number OPT-Z-MEFB-061A

Data Load Status

Installation complete - Rebooting

INSTALLATION COMPLETE - REBOOTING

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

ONS NFS MAINTENANCE - REIMAGE - INITIAL DATA LOAD PAGE

2408814 S0000557271_V1



REIMAGE Alert

Missing part: OPTMEFB

CANCEL



Configuration

NFS

Boot OS Version
NFS Part Number P/N: 2246900-01
NFS Serial Number S/N: OE00002

Select a file with parts to import

NFS

NFS OS Part Number 0NS-Z-0SG0-004Y
NETMAN Part Number 0NS-Z-NMG0-004Y
OPC Part Number BCG28-U000-00SX
MEF Part Number

Data Load Status

...
BROWSE


DATA LOAD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408720 S0000557272_V1

ONS NFS MAINTENANCE - REIMAGE ALERT

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - NETWORK FILE SERVER MAINTENANCE - REIMAGE**General**

The NETWORK FILE SERVER maintenance reimage function removes all customer data, logs, and software parts from the server and returns it to a near-factory state. After the reimage function is performed, the NFS will remain in the Boot OS on all subsequent power cycles. This will force the Initial Data Load (IDL) process to be performed prior to NFS use.

To show the NETWORK FILE SERVER MAINTENANCE page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > NETWORK FILE SERVER MAINTENANCE.

Click the REIMAGE button to display the confirmation window. Then click CONTINUE to perform the reimage function.

The reimage function will erase all program and application data and leave only the part numbers that follow:

- 46 NFS BOOT OS
- 46 NED OPS
- 46 NED OPC

When the REIMAGE function is completed, the Boot OS Initial Data Load screen will show.

INITIAL DATA LOAD (IDL)

The IDL screen is shown whenever software is not installed onto the NFS Server. Spare units may be delivered with the older block-4 or newer OS6 Boot OS.

For the OS6 Boot OS, four parts must be selected before executing the initial load:

- 46 NFS SERVER OS
- 46 NFS NETMANAGER APP
- 46 NFS OPC
- 46 NFS MEF OPS

Click the BROWSE button to upload the software part. Then select the crated LSAP from a directory on the maintenance laptop. After the part is selected, it turns white on the screen and displays the part number. When all required parts are uploaded, the DATA LOAD icon turns white and may be selected to perform the installation.

If starting from the block-4 Boot OS, only the software parts that follow will be loadable from the Boot OS.

- 46 NFS SERVER OS
- 46 NETMANAGER APP
- 46 NFS OPC

After the unit reboots, a REIMAGE alert pop-up window will be displayed describing the missing 46 NFS MEF OPS part. This part is needed to complete the initial data load process.

You click Cancel, then Browse to add the 46 NFS MEF OPS part. Then the MEF OPS part number will display and turn white, and the DATA LOAD icon will turn white. You then click the DATA LOAD icon to complete the IDL process. When the IDL process completes, the ONS Main Menu page will display.

N777BO

NETWORK FILE SERVER

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
REIMAGE NFS CONFIGURATION & DATA	Returns Network File Server to the initial factory configuration, ready for Initial Data Load; removes all software and data. Use the Download Manager to save security logs before reimaging.

Are you sure you want to reimage NFS?

CANCEL

CONTINUE

REIMAGE

N777BO

NETWORK FILE SERVER

UNINSTALL LSAPS

REBOOT

RESET DATA

REIMAGE

FUNCTION	DESCRIPTION
REIMAGE NFS CONFIGURATION & DATA	REIMAGE NFS NFS is rebooting into the Boot Operating System's Initial Data Load Screen.

A POP-UP WINDOW IS DISPLAYED WHILE REIMAGING.

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480693 S0000582950_V1

ONS NETWORK FILE SERVER - REIMAGE PAGE

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REIMAGE Alert

Missing part: OPTMEFB

CANCEL




Configuration

NFS

Boot OS Version

NFS Part Number P/N: 2246900-01

NFS Serial Number S/N: OE00002

Select a file with parts to import

NFS

NFS OS Part Number 0NS-Z-0SG0-004Y

NETMAN Part Number 0NS-Z-NMG0-004Y

OPC Part Number BCG28-U000-00SX

MEF Part Number

Data Load Status

...

BROWSE



DATA LOAD

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480695 S0000582951_V1

ONS NETWORK FILE SERVER - REIMAGE - INITIAL DATA LOAD PAGE

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NETWORK FILE SERVER

UNINSTALL LSAPS
REBOOT
RESET DATA
REIMAGE

Configuration

NFS

Boots OS Version BCG33-U000-00WG
NFS Part Number P/N: 2246900-01
NFS Serial Number S/N: OE00002

Select a file with parts to import

NFS

NFS OS Part Number
NETMAN Part Number
OPC Part Number
MEF Part Number

Data Load Status

...

BROWSE

DATA LOAD

NETWORK FILE SERVER

UNINSTALL LSAPS
REBOOT
RESET DATA
REIMAGE

Configuration

NFS

Boots OS Version BCG33-U000-00WG
NFS Part Number P/N: 2246900-01
NFS Serial Number S/N: OE00002

Select a file with parts to import

NFS

NFS OS Part Number BCG3C-U000-00WH
NETMAN Part Number BCG3E-U000-00WJ
OPC Part Number JAR-Z-KLM7-SE1D
MEF Part Number OPT-Z-MEFB-061A

Data Load Status

Installation complete - Rebooting

INSTALLATION COMPLETE - REBOOTING

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480694 S0000582952_V1

ONS NETWORK FILE SERVER - REIMAGE ALERT

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - OFF-BOARD LINKS

General

The name OFF-BOARD LINKS refers to data communication between the onboard network system (ONS) and a ground-based data network.

The OFF-BOARD LINKS button is serviceable when one or more optional communication interfaces is installed and enabled.

ARO 011-013 PRE SB 777-46-0066

When no optional system is installed, the off-board links button shows on the Extended Maintenance menu, but is not selectable.

ARO 011-999Link Status Page**ARO 011-013 PRE SB 777-46-0066**

The top of the Link Status page shows the words Aircraft Location, with an automated result. The result is a function of off-board link controllers. This data is used to configure settings for available services at specified aircraft destinations.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

The selection EXTENDED MAINTENANCE > OFF-BOARD LINKS presents a page with two or more tabbed pages. LINK STATUS is the default page and is always present.

ARO 011-999

A table of data shows each available link with status information. The columns of the table are as follows:

ARO 011-013 PRE SB 777-46-0066

- Communication link button - with the name of the specified LRU. A button that shows the LRU name is selectable, and gives access to the condition monitoring page.

ARO 011-999

TYPE - Gives the name of the specified LRU.

- LINK - Gives the type and configuration of the specified link.
- STATUS - Gives the current condition of that communication link.

ARO 011-013 PRE SB 777-46-0066

- DEFAULT LINK - when the word Default shows, ONS selects that specified link as the primary connection method.

ARO 011-999

DEFAULT - When the word Default shows, the ONS selects that specified link as the primary connection method.

- TEST - Gives a check-mark (✓) to indicate that the link was successfully tested. Gives an X to indicate that the link was not successfully tested.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- LOCATION - Gives the data that is specific to the link. Or operator-specified override when triggered by the current aircraft location.

ARO 011-999

Below that table, the Link Status page shows two functional buttons:

- Test Default Link - This function begins the link verification test for the default link.
- Set Default Link - This function lets you set the default link.

Test Default Link Function

The test default link button initiates a link verification test using the currently-specified default link.

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ARO 011-999

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - OFF-BOARD LINKS

When selected, a confirmation pop-up shows with the selections CONTINUE, or CANCEL. To initiate the check, click on CONTINUE. To escape the test and show the Link Status page, click CANCEL.

ARO 011-013 PRE SB 777-46-0066

When the test is complete, a pop-up shows with one of these three results:

ARO 011-999

When the test is complete, the TEST column in the link status table shows with one of these results:

ARO 011-013 PRE SB 777-46-0066

- SUCCESS - serviceable

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- Check-mark (✓) - serviceable

ARO 011-013 PRE SB 777-46-0066

- FAILED - Snserviceable

ARO 014-999; ARO 011-013 POST SB 777-46-0066

- X - Unserviceable

ARO 011-013 PRE SB 777-46-0066

- Test Unavailable, no default off-board link. This means that the default link is not found and must be set.

ARO 011-999**Set Default Link Function****ARO 011-013 PRE SB 777-46-0066**

The Set Default Link button lets you manually set the default link from a list of active links. When selected, a pop-up box shows with the words Select Link. Click once on the target selection to highlight, then click on Continue.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

The Set Default Link button lets you manually set the default link from a list of active links. Select the link from the radio-button next to the link type on the link status table. Then click on the SET DEFAULT button. A confirmation pop-up shows up with the selections CONTINUE or CANCEL. To set the default link, click on CONTINUE. To escape and show the Link Status page, select CANCEL.

When a link has been set manually, the Link Status page shows a check-mark (✓) in the column for DEFAULT.

ARO 011-013 PRE SB 777-46-0066

When a link has been set manually, the Link Status page shows the words Manually Set in the column for DEFAULT LINK. The word Preferred refers to it's usual default setting, which is overridden.

One of the link selections uses the name: Clear Default Override. This selection erases the previous or override setting, and returns the unit to automatic default selection.

If the default link has been overridden, and all links are not active, then when you click the Set Default Link button the only available selection is Clear Default Override.

If you make the selection Set Default Link and the pop-up shows only one selection (Clear Default Override), then the default link is has been overridden, and all links are unserviceable. To correct this, continue and clear the default override settings. The Link Status page will then show the words Active for the Status, and Default for the default link.

ARO 011-999**46-13-00**

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ARO 011-999

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MN1234 B77W

Off-board Links

✕

Aircraft Location:

	LINK	STATUS	DEFAULT LINK	LOCATION
TWLU	TWLU GATELINK822	Not Active		
CELLULAR	CELLULAR OSM	Not Active		
SDU	Satcom SBB:BACKGROUND	Not Active		

Test Default Link

Set Default Link

2337453 S0000532508_V1

ONS OFF-BOARD LINKS PAGE

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EFFECTIVITY
ARO 011-013 PRE SB 777-46-0066

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N777BO

OFF-BOARD LINKS


LINK STATUS

TWLU

CELLULAR

SDU

TYPE	LINK	STATUS	DEFAULT	TEST	LOCATION
☐ TWLU	GATELINK822	Not Active			
☐ CELLULAR	GSM	Not Active			
☐ SATCOM	SBB:BACKGROUND	Active	✓	X	


SET DEFAULT


TEST DEFAULT


N777BO

OFF-BOARD LINKS


LINK STATUS

TWLU

CELLULAR

SDU

TYPE	LINK	STATUS	DEFAULT	TEST	LOCATION
☐ TWLU	GATELINK822	Not Active			
☐ CELLULAR	GSM	Not Active			
☒ SATCOM	SBB:BACKGROUND	Active	✓	✓	


SET DEFAULT


TEST DEFAULT

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408256 S0000557373_V1

ONS OFF-BOARD LINKS PAGE - LINK STATUS - SET DEFAULT

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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N777BO

OFF-BOARD LINKS



		LINK STATUS	WI-FI	CELLULAR	SATCOM			
TYPE	LINK	STATUS	DEFAULT	TEST	LOCATION			
☐ TWLU	GATELINK822	Not Active						
☐ CELLULAR	GSM	Not Active						
☐ SATCOM	SBB:BACKGROUND	Active	✓	X				


SET DEFAULT

TEST DEFAULT


N777BO

OFF-BOARD LINKS




SET DEFAULT

TEST DEFAULT

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480431 S0000581688_V1

ONS OFF-BOARD LINKS PAGE - LINK STATUS - SET DEFAULT

N777BO
 OFF-BOARD LINKS

LINK STATUS

TWLU

CELLULAR

SDU

TYPE	LINK	STATUS	DEFAULT	TEST	LOCATION
☐ TWLU	GATELINK822	Not Active			
☐ CELLULAR	GSM	Not Active			
☒ SATCOM	SBB:BACKGROUND	Active	✓	✗	

Press CONFIRM to test the link with the ground.

CANCEL

CONTINUE

SET DEFAULT
 TEST DEFAULT

N777BO
 OFF-BOARD LINKS

LINK STATUS

TWLU

CELLULAR

SDU

TYPE	LINK	STATUS	DEFAULT	TEST	LOCATION
☐ TWLU	GATELINK822	Not Active			
☐ CELLULAR	GSM	Not Active			
☒ SATCOM	SBB:BACKGROUND	Active	✓	✗	

SET DEFAULT
 TEST DEFAULT

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409481 S0000557374_V1

ONS OFF-BOARD LINKS PAGE - LINK STATUS - TEST DEFAULT

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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N777BO
 OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

TYPE	LINK	STATUS	DEFAULT	TEST	LOCATION
☐ TWLU	GATELINK822	Not Active			
☐ CELLULAR	GSM	Not Active			
☒ SATCOM	SBB:BACKGROUND	Active	✓	✗	

Press CONFIRM to test the link with the ground.

CANCEL

CONFIRM

✓

⚡

SET DEFAULT

TEST DEFAULT

N777BO
 OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

TYPE	LINK	STATUS	DEFAULT	TEST	LOCATION
☐ TWLU	GATELINK822	Not Active			
☐ CELLULAR	GSM	Not Active			
☒ SATCOM	SBB:BACKGROUND	Active	✓	✗	

✓

⚡

SET DEFAULT

TEST DEFAULT

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480432 S0000581689_V1

ONS OFF-BOARD LINKS PAGE - LINK STATUS - TEST DEFAULT

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EFFECTIVITY
ARO 014-999

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - OFF-BOARD LINKS - TWLU

General

The OFF-BOARD LINKS TWLU page manages the status and control information for configured wireless connections.

To show the OFF-BOARD LINKS TWLU page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > OFF-BOARD LINKS > TWLU.

This will present a page with several buttons along the bottom of the screen which is defaulted to the CONDITION screen.

- CONDITION
- TEST LINK
- DIAGNOSTICS
- DISCRETES
- CLEAR PROFILE
- SCAN

CONDITION

The CONDITION selection shows a table with six parameters and their condition. The parameters are as follows:

- Link State
- Active Profile
- Associated SSID
- RF Status
- Controller State

TEST LINK

The TEST LINK selection does a check of the link condition. If the TEST LINK button gives the result SUCCESS, then the TWLU link condition is serviceable.

DIAGNOSTICS

The DIAGNOSTICS selection shows a page with several internal TWLU parameters, and their values. The data can help troubleshoot TWLU and Gatelink problems. This data also shows on the electronic flight bag (EFB) communication maintenance page.

DISCRETES

The DISCRETES selection shows a page that allows status and manual control of the power and RF settings of the TWLU function.

RF Status is a function that sets the TWLU RF output to ON, or OFF. The adjacent button changes the setting.

Aircraft Location displays the current location used in the profile. And lets the operator choose an alternate value for troubleshooting by clicking the > on the right. The available locations are specified in the 46 NFS EXCOMM UMS part.

Active Profile displays the current profile in use by the controller. And lets the operator choose an alternate value for troubleshooting by clicking the > on the right. The available profiles are specified in the 46 NFS EXCOMM UMS part.

NOTE: Overridden states will only remain until the next automatic transition that disagrees with the overridden state. The UNAVAILABLE condition can suggest that the client keys and server keys do not agree.

CLEAR PROFILE

The clear profile selection clears the active profile.

SCAN

The SCAN selection shows a page which displays all active Wi-Fi networks available to the TWLU. A confirmation pop-up shows up with the selections CONTINUE or CANCEL. To start the scan, click on CONTINUE. To escape and show the off-board links page, select CANCEL.

46-13-00

N777BO

OFF-BOARD LINKS

LINK STATUS

TWLU

CELLULAR

SDU

PARAMETER	VALUE
Link State	Connected-Default
Active Profile	Boeing_Field
Associated SSID	GATELINK822-C-KMWH
RF Status	On
Controller State	Running

CONDITION

Press CONFIRM to test the link with the ground.

CANCEL

CONTINUE

TEST LINK

N777BO

OFF-BOARD LINKS

LINK STATUS

TWLU

CELLULAR

SDU

PARAMETER	VALUE
Link State	Testing Link
Active Profile	Success
Associated SSID	CONTINUE
RF Status	On
Controller State	Running

CONDITION

TEST LINK

DIAGNOSTICS

DISCRETES

CLEAR PROFILE

SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408528 S0000557277_V1

ONS OFF-BOARD LINKS PAGE - TWLU - TEST LINK

46-13-00-056

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

46-13-00

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 N777BO

OFF-BOARD LINKS



LINK STATUS

TWLU

CELLULAR

SDU

PARAMETER	VALUE
Active Profile	Boeing_Field
Link State	Connected-Default
Associated SSID	GATELINK822-C-KMWH
Security Mode	WPA2-Enterprise
Country Code	N/A
TWLU MAC ID	00:0E:8E:30:BC:08
AP MAC ID	00:12:01:E5:14:42
Assigned IP Address	10.239.83.52



CONDITION



TEST LINK



DIAGNOSTICS



DISCRETES



SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408545 S0000557280_V1

ONS OFF-BOARD LINKS PAGE - TWLU - DIAGNOSTICS

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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N777BO

OFF-BOARD LINKS

LINK STATUS

TWLU

CELLULAR

SDU

Discrete Control	
ITEM	CONTROL
Power Status	☐ OFF
RF Status	☒ ON
Profile Control	
ITEM	VALUE
Aircraft Location	KBFI
Active Profile	Boeing_Field
Details	
PARAMETER	VALUE
Connection State	Connected-Default

CONDITION

TEST LINK

DIAGNOSTICS

DISCRETES

CLEAR PROFILE

SCAN

Press CONFIRM to test the link with the ground.

CANCEL

CONTINUE

SELECT AIRPORT LOCATION

N777BO

OFF-BOARD LINKS

Back To TWLU Discrettes

Select Airport Location

Airport Location

☐ EHAM
☒ **KBFI**
☐ KMWH
☐ KPAE
☐ KSEA

SELECT ACTIVE PROFILE

N777BO

OFF-BOARD LINKS

Back To TWLU Discrettes

Select Active Profile

PROFILE NAME

SSID

☒ **Boeing_Field**

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

ONS OFF-BOARD LINKS PAGE - TWLU - DISCRETES AND CLEAR PROFILE

2408616 S0000557281_V1

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - OFF-BOARD LINKS - WI-FI

General

The OFF-BOARD LINKS WI-FI page manages the status and control information for configured wireless connections.

To show the OFF-BOARD LINKS WI-FI page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > OFF-BOARD LINKS > WI-FI.

This will present a page with several buttons along the bottom of the screen which is defaulted to the CONDITION screen.

- CONDITION
- TEST LINK
- DIAGNOSTICS
- DISCRETES
- SCAN

CONDITION

The CONDITION selection shows a table with six parameters and their condition. The parameters are as follows:

- Link State
- Active Profile
- Associated SSID
- RF Status
- Controller State
- Device Type

TEST LINK

The TEST LINK selection does a check of the link condition. If the TEST LINK button gives the result SUCCESS, then the Wi-Fi link condition is serviceable.

DIAGNOSTICS

The DIAGNOSTICS selection shows a page with several internal Wi-Fi parameters, and their values. The data can help troubleshoot Wi-Fi and Gatelink problems. This data also shows on the electronic flight bag (EFB) communication maintenance page.

DISCRETES

The DISCRETES selection shows a page that shows the status and allows manual control of the power discrete and RF discrete settings of the Wi-Fi function.

RF Discrete Status is a function that sets the Wi-Fi RF output to ON, or OFF. The adjacent button changes the setting.

Aircraft Location displays the current location used in the profile. And lets the operator choose an alternate value for troubleshooting by clicking the > on the right. The available locations are specified in the 46 NFS EXCOMM UMS part.

Active Profile displays the current profile in use by the controller. And lets the operator choose an alternate value for troubleshooting by clicking the > on the right. The available profiles are specified in the 46 NFS EXCOMM UMS part.

NOTE: Overridden states will only remain until the next automatic transition that disagrees with the overridden state. The UNAVAILABLE condition can suggest that the client keys and server keys do not agree.

CLEAR PROFILE

The CLEAR PROFILE selection clears the active profile.

SCAN

The SCAN selection shows a page which displays all active Wi-Fi networks. A confirmation pop-up shows up with the selections CONTINUE or CANCEL. To start the scan, click on CONTINUE. To escape and show the off-board links page, select CANCEL.

N777BO

OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

PARAMETER	VALUE
Link State	Disconnected
Active Profile	
Associated SSID	
RF Status	Unknown
Controller State	Unconfigured
Device Type	AIRLAN

CONDITION

TEST LINK

DIAGNOSTICS

DISCRETES

SCAN

N777BO

OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

PARAMETER	VALUE
Link State	Connected-Default
Active Profile	Newark
Associated SSID	
RF Status	
Controller State	
Device Type	AIRLAN

CONDITION

TEST LINK

DIAGNOSTICS

DISCRETES

SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480480 S0000581964_V1

ONS OFF-BOARD LINKS PAGE - WI-FI - TEST LINK

46-13-00-067

EFFECTIVITY
ARO 014-999

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N777BO
 OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

PARAMETER	VALUE
Active Profile	Newark
Link State	Connected-Default
Associated SSID	GATELINK822-B-KEWR
Security Mode	WPA2-Enterprise
Country Code	N/A
TWLU MAC ID	00:0E:8E:30:BC:04
AP MAC ID	00:12:01:E5:14:42
Assigned IP Address	10.239.75.52
Assigned Netmask	255.255.255.0
Assigned Gateway	10.239.75.1
DNS Address(es)	10.239.73.11, 10.239.192.2
RF Protocol	G
RF Channel	6
RF Signal Strength (dBm)	-51

CONDITION

TEST LINK

DIAGNOSTICS

DISCRETES

SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480481 S0000581970_V1

ONS OFF-BOARD LINKS PAGE - WI-FI - DIAGNOSTICS

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EFFECTIVITY

ARO 014-999

D633W101-ARO

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N777BO
 OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

DISCRETE & PROFILE CONTROL

RF Discrete Status

ON

Power Discrete Status

OFF

WOW Discrete Status

Ground

Aircraft Location

KEWR

>

Active Profile

Newark

>

CLEAR PROFILE

PARAMETER DETAILS

Connection State

Connected-Default

Airport ID

KEWR

Airport Name

Newark

SSID

GATELINK822-B-KEWR

CONDITION

TEST LINK

DIAGNOSTICS

DISCRETES

SCAN

SELECT
AIRPORT
LOCATION

SELECT ACTIVE PROFILE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

ONS OFF-BOARD LINKS PAGE - WI-FI - DISCRETES AND CLEAR PROFILE

N777BO
 OFF-BOARD LINKS

Back To TWLU Discretes

Select Airport Location

Airport Location

EHAM

KBFI

KMWH

KPAE

KSEA

Back To TWLU Discretes

Select Active Profile

PROFILE NAME

SSID

Boeing_Field

2480482 S0000582033_V1

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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - OFF-BOARD LINKS - CELLULAR****General**

The OFF-BOARD LINKS CELLULAR pages manages the status and control information for configured cellular connections.

To show the OFF-BOARD LINKS CELLULAR page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > OFF-BOARD LINKS > CELLULAR.

The selection will present a page with several buttons along the bottom of the screen which is defaulted to the CONDITION screen.

- CONDITION
- TEST LINK
- DIAGNOSTICS
- DISCRETES
- CLEAR PROFILE
- SCAN

CONDITION

The CONDITION selection shows six conditions and their value.

- Link State
- Active Profile
- Associated Network Specification
- RF Discrete Status
- WOW Discrete Status
- Controller State

TEST LINK

The TEST LINK function makes the WWU do a check of the CELLULAR link, using the active profile shown in the box. If the result show the word SUCCESS, then the WWU communication link is serviceable.

DIAGNOSTICS

The DIAGNOSTICS selection several parameters and their value. The data shown can be used to evaluate the CELLULAR link condition. The parameters shown are as follows.

- Active profile
- Link state
- Associated Network Specification
- Phone Number
- User Name
- SIM IMSI
- SIM Serial Number
- Assigned IP Address
- Assigned Netmask
- Assigned gateway
- DNS Address(es)
- System Mode
- Signal Strength (dBm)
- Bytes Received/sent
- Connect Time (seconds)

DISCRETES

The DISCRETES selection provides status information and gives three control functions.

RF Discrete Status is a control that sets the CELLULAR RF output to ON, or OFF. The adjacent button changes the setting.

Aircraft Location displays the current location used in the profile. And lets the operator choose an alternate value for troubleshooting by clicking the > on the right. The available locations are specified in the 46 NFS EXCOMM UMS part.

**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - OFF-BOARD LINKS - CELLULAR**

Active Profile displays the current profile in use by the controller. And lets the operator choose an alternate value for troubleshooting by clicking the > on the right. The available profiles are specified in the 46 NFS EXCOMM UMS part.

NOTE: Overridden states will only remain until the next automatic transition that disagrees with the overridden state.

CLEAR PROFILE

The clear profile selection clears the active profile.

SCAN

The SCAN selection shows a page which displays all active cellular networks available to the WWU. To start the scan, click on CONTINUE. To escape and show the off-board links page, select CANCEL.

NOTE: Initiating a cellular scan will cause an active cellular connection to disconnect.

 N777BO
OFF-BOARD LINKS 

LINK STATUS
TWLU
CELLULAR
SDU

PARAMETER	VALUE
Link State	Idle
Active Profile	SIM_1_Profile
Associated Network Specification	
RF Discrete Status	On
WOW Discrete Status	Ground
Controller State	Running

 CONDITION
 TEST LINK

 N777BO
OFF-BOARD LINKS 

LINK STATUS
TWLU
CELLULAR
SDU

PARAMETER	VALUE
Link State	Home network-default
Active Profile	SIM_1_Profile
Associated Network Specification	310410
RF Discrete Status	On
WOW Discrete Status	Ground
Controller State	Running

Press CONFIRM to test the link with the ground.

CANCEL
CONTINUE

 CONDITION
 TEST LINK
 DIAGNOSTICS
 DISCRETES
 SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408014 S0000557283_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - TEST LINK

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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N777BO
 OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

PARAMETER	VALUE
Link State	Idle
Active Profile	SIM_1_Profile
Associated Network Specification	
RF Status	On
AirLAN WOW	Unknown
Controller State	Running

CONDITION
 TEST LINK

N777BO
 OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

PARAMETER	VALUE
Link State	Home network-default
Active Profile	SIM_1_Profile
Associated Network Specification	310410
RF Status	On
AirLAN WOW	Unknown
Controller State	Running

CONDITION
 TEST LINK
 DIAGNOSTICS
 DISCRETES
 SCAN

Press CONFIRM to test the link with the ground.

CANCEL

CONFIRM

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480484 S0000581777_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - TEST LINK

46-13-00-057

EFFECTIVITY

ARO 014-999

D633W101-ARO

46-13-00

 N777BO

OFF-BOARD LINKS


LINK STATUS
TWLU
CELLULAR
SDU

PARAMETER	VALUE
Active Profile	SIM_1_Profile
Link State	Home Network-Default
Associated Network Specification	310410
Phone Number	
User Name	username
SIM IMSI	
SIM Serial Number	
Assigned IP Address	32.178.217.20


CONDITION


TEST LINK


DIAGNOSTICS


DISCRETES


SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408288 S0000557284_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - DIAGNOSTICS

46-13-00

EFFECTIVITY
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 N777BO
 OFF-BOARD LINKS
 


LINK STATUS

WI-FI

CELLULAR

SATCOM

PARAMETER	VALUE
Active Profile	SIM_1_Profile
Link State	Home Network-Default
Associated Network Specification	310410
Phone Number	
User Name	username
SIM IMSI	
SIM Serial Number	
Assigned IP Address	32.178.217.20


CONDITION


TEST LINK


DIAGNOSTICS


DISCRETES


SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480485 S0000581778_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - DIAGNOSTICS

46-13-00-057

EFFECTIVITY

ARO 014-999

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 N777BO
 OFF-BOARD LINKS
 

LINK STATUS

TWLU

CELLULAR

SDU

Discrete Control

ITEM

CONTROL

Profile Status

ENABLED

RF Discrete Status

ON

WOW Discrete Status

Ground

Profile Control

ITEM

VALUE

Aircraft Location

Active Profile

Details

CONDITION

TEST LINK

 N777BO
 OFF-BOARD LINKS
 

LINK STATUS

TWLU

CELLULAR

SDU

WOW Discrete Status

Ground

Profile Control

ITEM

VALUE

Aircraft Location

CELL

Active Profile

SIM_1_Profile

Details

PARAMETER

VALUE

Link State

Home Network-Default

Airport ID

CELL

Airport Name

SIM_1_Profile

CONDITION

TEST LINK

DIAGNOSTICS

DISCRETES

CLEAR PROFILE

SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408375 S0000557286_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - DISCRETES

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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N777BO

OFF-BOARD LINKS




LINK STATUS

WI-FI

CELLULAR

SATCOM

DISCRETE & PROFILE CONTROL

WWU RF Discrete Status

OFF

WOW Discrete Status
Unknown

Profile Status
DISABLED

Aircraft Location
KBFI
>

Active Profile
>


CLEAR PROFILE

PARAMETER DETAILS

Cellular service is not enabled
No profile loaded


CONDITION


TEST LINK


DIAGNOSTICS


DISCRETES


SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480486 S0000581779_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - DISCRETES

46-13-00-057

EFFECTIVITY

ARO 014-999

D633W101-ARO

46-13-00

 N777BO
OFF-BOARD LINKS 

LINK STATUS

TWLU

CELLULAR

SDU

WOW Discrete Status	Ground
Profile Control	
ITEM	VALUE
Aircraft Location	CELL
Active Profile	SIM_1_Profile
Details	
PARAMETER	VALUE
Link State	Home Network-Default
Airport ID	CELL
Airport Name	SIM 1 Profile

Press CONFIRM to test the link with the ground.

CANCEL

CONTINUE


CONDITION


TEST LINK


DIAGNOSTICS


DISCRETES


CLEAR PROFILE


SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408381 S0000557285_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - CLEAR PROFILE

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EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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N777BO

OFF-BOARD LINKS




LINK STATUS

WI-FI

CELLULAR

SATCOM

DISCRETE & PROFILE CONTROL

WWU RF Discrete Status	☐ OFF
WOW Discrete Status	Unknown
Profile Status	DISABLED
Aircraft Location	KBFI >
Active Profile	>

CLEAR PROFILE

PARAMETER DETAILS

Cellular service is not enabled	No profile loaded


CONDITION


TEST LINK


DIAGNOSTICS


DISCRETES


SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480487 S0000581780_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - CLEAR PROFILE

46-13-00-057

EFFECTIVITY

ARO 014-999

D633W101-ARO

46-13-00

N777BO

OFF-BOARD LINKS

LINK STATUS

TWLU

CELLULAR

SDU

WOW Discrete Status

Ground

Profile Control

ITEM

VALUE

Aircraft Location

CELL

Active Profile

Details

PARAMETER

VALUE

Profile was manually unloaded

Initiating a cellular scan will cause an active cellular connection to disconnect.

Press CONFIRM to initiate a scan.

CANCEL

CONTINUE

CONDITION

TEST LINK

DIAGNOSTICS

DISCRETES

CLEAR PROFILE

SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2408192 S0000557287_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - SCAN

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EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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N777BO

OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

DISCRETE & PROFILE CONTROL

WWU RF Discrete Status	☐ OFF
WOW Discrete Status	Unknown
Profile Status	DISABLED
Aircraft Location	KBFI >
Active Profile	>

CLEAR PROFILE

PARAMETER DETAILS

Cellular service is not enabled	No profile loaded

Initiating a cellular scan will cause an active cellular connection to disconnect.

Press CONFIRM to initiate a scan.

CANCEL

CONFIRM

CONDITION

TEST LINK

DIAGNOSTICS

DISCRETES

SCAN

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480488 S0000581781_V1

ONS OFF-BOARD LINKS PAGE - CELLULAR - SCAN

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EFFECTIVITY
ARO 014-999

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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - OFF-BOARD LINKS - SDU****General**

The OFF-BOARD LINKS SDU page manages the status and control information for the configured SATCOM connections.

To show the OFF-BOARD LINKS SDU page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > OFF-BOARD LINKS > SDU.

The selection will present a page for condition and control and SDU details. A TEST LINK button is display on bottom of the screen.

These are the items for the Condition and Control section.

- ITEM:
SDU link name set by the 46 NFS OPS and 46 NED OPC.
- SERVICE TYPE:
Service type chosen by the customer and set by the 46 NFS OPS and 46 NED OPC.
- CONTROL:
OFF: The service is disconnected.
ON: The service is connected. This value will be set by the preferences in the 46 NFS EXCOMM UMS part, but they may be overridden on this page.
- STATUS:
In Lock: Shows that the connection and communication with the SATCOM is established.
Details: When the interface is on, additional details about the link may be observed by selecting the > next to Details.

These are the parameters for the SDU Details section:

- Acquired IP Address
- Acquired DNS IP Address
- Input Bytes
- Output Bytes

The TEST LINK function makes the SATCOM controller do a check of the link. If the result shows the word SUCCESS, then the SATCOM communication link is serviceable.

N777BO

OFF-BOARD LINKS

LINK STATUS

TWLU

CELLULAR

SDU

Condition and Control

ITEM	SERVICE TYPE	CONTROL	STATUS	
☐ SDU-L	SBB:BACKGROUND	☐ OFF	In lock	Details >

SDU Details

PARAMETER	VALUE
Acquired IP Address	
Acquired DNS IP Address	10,239,65,11, 10,239,73,11
Input Bytes	
Output Bytes	

TEST LINK

N777BO

OFF-BOARD LINKS

LINK STATUS

TWLU

CELLULAR

SDU

Condition and Control

ITEM	SERVICE TYPE	CONTROL	STATUS	
☐ SDU-L	SBB:BACKGROUND	☒ ON	In lock	Details >

SDU Details

PARAMETER	VALUE
Acquired IP Address	11.0.0.13
Acquired DNS IP Address	10,239,65,11, 10,239,73,11
Input Bytes	

Press CONFIRM to test the link with the ground.

CANCEL

CONTINUE

TEST LINK

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2407963 S0000557290_V1

ONS OFF-BOARD LINKS PAGE - SDU PAGE - TEST LINK

46-13-00-058

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

46-13-00

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N777BO

OFF-BOARD LINKS



← Back to SDU

Selective Active Profile

PARAMETER	VALUE
System Health Status	pass
Satellite Ocean Region	Not available
Satellite Network Name	BGAN
Satellite State	In lock
Satellite Handover Pending	false

AVAILABLE SERVICES	NUMBER AVAILABLE	MAX BW PER CHANNEL
SBB:BACKGROUND	10	512
SBB:STREAM8K	10	8
SBB:STREAM16K	10	16
SBB:STREAM32K	7	32

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2407982 S0000557291_V1

ONS OFF-BOARD LINKS PAGE - SDU PAGE - TEST LINK - RESULTS

46-13-00-058

EFFECTIVITY

ARO 011-013 POST SB 777-46-0066

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46-13-00



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**ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - OFF-BOARD LINKS - SATCOM****General**

The OFF-BOARD LINKS SATCOM page manages the status and control information for the configured SATCOM connections.

To show the OFF-BOARD LINKS SATCOM page, use the ONS maintenance browser to make the selection: EXTENDED MAINTENANCE > OFF-BOARD LINKS > SATCOM.

The selection will present a page for condition and control and SATCOM details. A TEST LINK button is display on bottom of the screen.

These are the items for the Condition and Control section.

- ITEM:
SATCOM link name set by the 46 NFS OPS and 46 NED OPC.
- SERVICE TYPE:
Service type chosen by the customer and set by the 46 NFS OPS and 46 NED OPC.
- CONTROL:
OFF: The service is disconnected.
ON: The service is connected. This value will be set by the preferences in the 46 NFS EXCOMM UMS part, but they may be overridden on this page.
- STATUS:
In Lock: Shows that the connection and communication with the SATCOM is established.
Details: When the interface is on, additional details about the link may be observed by selecting the > next to Details.

These are the parameters for the SATCOM Details section:

- Acquired IP Address
- Acquired DNS IP Address
- Input Bytes
- Output Bytes

The TEST LINK function makes the SATCOM controller do a check of the link. If the result shows the word SUCCESS, then the SATCOM communication link is serviceable.

N777BO
 OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

Condition and Control

ITEM	SERVICE TYPE	CONTROL	STATUS	
☐ SDU-L	SBB:BACKGROUND	☒ ON ☐	In lock	Details >

SDU-L Services Details

SERVICE TYPE	CONTROL	STATUS	
☐ SBB-BACKGROUND	☐ OFF ☒	off	Details >

TEST LINK

N777BO
 OFF-BOARD LINKS

LINK STATUS

WI-FI

CELLULAR

SATCOM

Condition and Control

ITEM	SERVICE TYPE	CONTROL	STATUS	
☐ SDU-L	SBB:BACKGROUND	☒ ON ☐	In lock	Details >

SDU-L Services Details

SERVICE TYPE	CONTROL	STATUS	
☐ SBB-BACKGROUND	☐ OFF ☒	off	Details >

Press CONFIRM to test the link with the ground.

CANCEL

CONFIRM

TEST LINK

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480520 S0000581968_V1

ONS OFF-BOARD LINKS PAGE - SATCOM PAGE - TEST LINK

 N777BO

OFF-BOARD LINKS




 Back to SATCOM Services

Selective Active Profile

PARAMETER	VALUE
System Health Status	pass
Satellite Ocean Region	Not available
Satellite Network Name	BGAN
Satellite State	In lock
Satellite Handover Pending	false

AVAILABLE SERVICES	NUMBER AVAILABLE	MAX BW PER CHANNEL
SBB:BACKGROUND	10	512
SBB:STREAM8K	10	8
SBB:STREAM16K	10	16
SBB:STREAM32K	7	32

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480489 S0000581969_V1

ONS OFF-BOARD LINKS PAGE - SATCOM PAGE - TEST LINK - RESULTS

46-13-00-066

EFFECTIVITY

ARO 014-999

D633W101-ARO

46-13-00



ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - PRINTER CONDITION

General

The Printer Condition page lets you examine the condition of ONS-connected printers, and the work sent to them.

Using the ONS maintenance browser, access to the page is by the selection: Extended Maintenance > Printer Condition.

ARO 011-013 PRE SB 777-46-0066

To exit the page, and show the ONS maintenance menu, click once on the Home icon, in the upper left-hand corner.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

To exit the ONS maintenance session and show the laptop's desktop, click on the gear icon in the upper right-hand corner, and select EXIT ONS, and then CONFIRM EXIT.

ARO 011-999**Printer Condition**

The main page shows a data table with a row for each connected printer. The columns are as follows:

- PRINTER - shows the printer name.
- PENDING JOBS - shows the quantity of jobs in the queue.
- STATUS - shows the printer condition.
- FAULT TYPE - can show what kind of problem has occurred.

ARO 011-013 PRE SB 777-46-0066

The page shows two function buttons adjacent to the table; Show Jobs, and Set Defaults.

ARO 011-999**Printer Details - Data**

When a printer row is highlighted, a data box shows with the words Printer Details. The box shows this information about the printer:

- Location - of the printer on the aircraft.
- IP Address - the internet protocol (IP), or network address
- Description - typically, the make and model of the printer.
- Vendor - typically the source or supplier.

The data shown is set by an airline modifiable instruction (or, .AMI) software part installed in the network file server (NFS).

ARO 011-013 PRE SB 777-46-0066**SHOW JOBS**

The Show Jobs button is adjacent to the printer condition table. When a printer is highlighted, this function shows a new page with the words [printer name] Pending Jobs.

The Pending Jobs page shows a table with these columns:

- FILE - shows the file name of the print job.
- STATUS - shows the condition of the print job.
- SUBMITTED - shows the date that the print job was made.

Below this table, a summary shows with a total of all of pending, and completed jobs.



ONBOARD NETWORK SYSTEM - EXTENDED MAINTENANCE - PRINTER CONDITION

ARO 011-013 PRE SB 777-46-0066 (Continued)

SET DEFAULTS

The Set Defaults function is adjacent to the printer condition table. When two or more printers are in service, use this function to select the preferred ONS printer.

When selected, a pop-up window shows with the words: Select row to set default printer. Highlight the target printer, and make your selection: Continue.

If you find that one printer is unserviceable, then use the Set Default function to send print a job to another printer.

ARO 014-999; ARO 011-013 POST SB 777-46-0066

Printer Jobs

When a printer row is selected, the PENDING JOBS and COMPLETED JOBS tabs are enabled for selection. The Pending Jobs page shows a table with these columns:

- FILES - shows the file name of the print job.
- STATUS - shows the condition of the print job.
- SUBMITTED - shows the date that the print job was made.

Any of these jobs may be deleted from the table by selecting one or more files, and clicking DELETE.

Completed jobs show on the COMPLETED JOBS tab with a status of Completed.

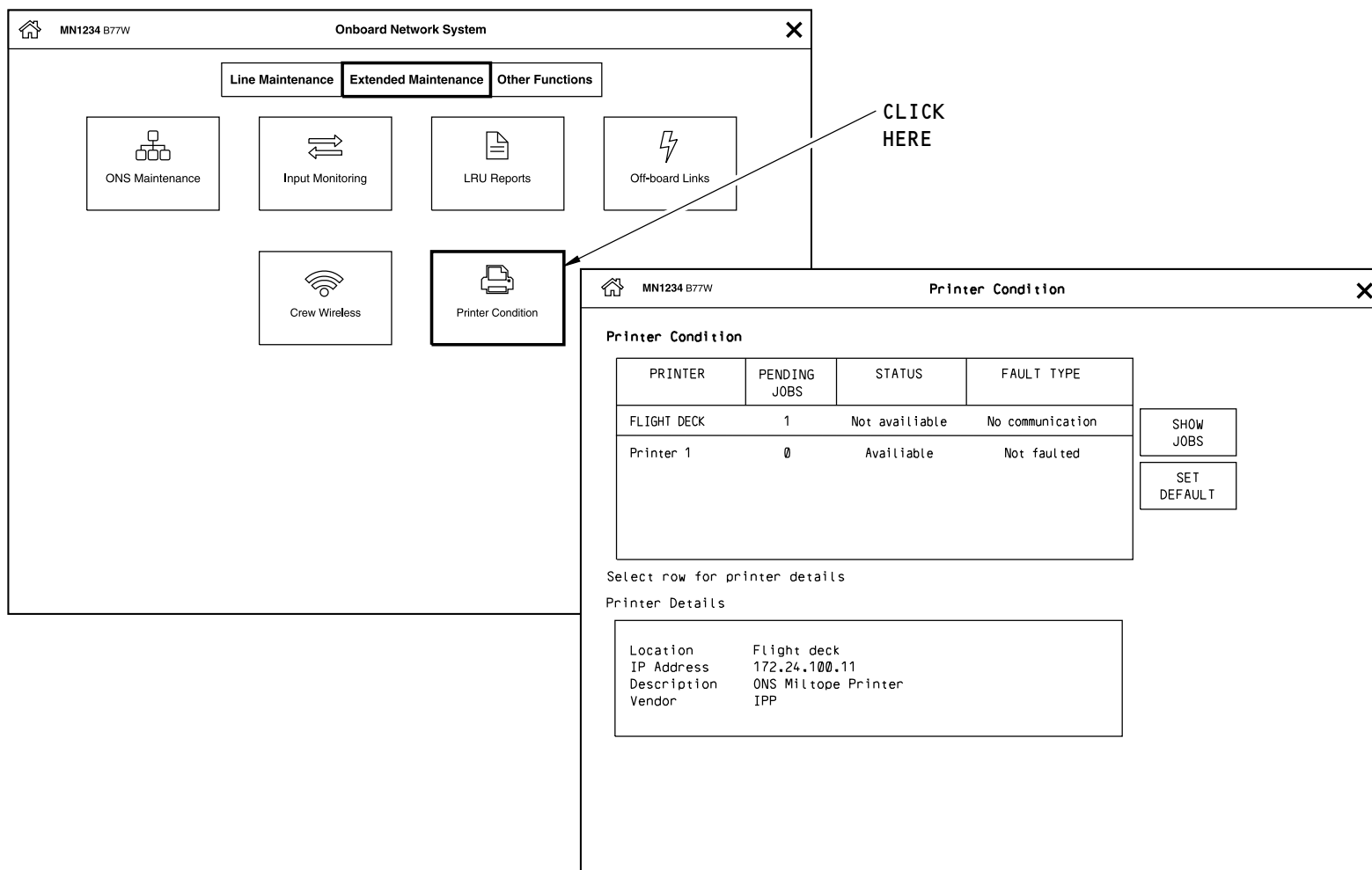
ARO 011-999

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ARO 011-999

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2342728 S0000533565_V1

ONS PRINTER CONDITION

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PRINTER CONDITION


PRINTERS
PENDING JOBS
COMPLETED JOBS

PRINTER	PENDING JOBS	STATUS	FAULT TYPE
○ FlightDeck	0	Not Available	No Communication

Printer Details

Location:
IP Address:
Description:
Vendor:


N777BO

PRINTER CONDITION


PRINTERS
PENDING JOBS
COMPLETED JOBS

PRINTER	PENDING JOBS	STATUS	FAULT TYPE
● FlightDeck	0	Not Available	No Communication

Printer Details

Location: Flight deck
IP Address: 172.23.6.2
Description: 777 Thales Printer
Vendor: ThC12349

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409358 S0000557298_V1

ONS PRINTER CONDITION - PRINTERS

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EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

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PRINTER CONDITION
 


PRINTERS

PENDING JOBS

COMPLETED JOBS

PRINTER	PENDING JOBS	STATUS	FAULT TYPE
○ FlightDeck	0	Not Available	No Communication

Printer Details

Location:
 IP Address:
 Description:
 Vendor:

 N777BO

PRINTER CONDITION
 


PRINTERS

PENDING JOBS

COMPLETED JOBS

PRINTER	PENDING JOBS	STATUS	FAULT TYPE
● FlightDeck	0	Not Available	No Communication

Printer Details

Location: Flight deck
 IP Address: 172.23.6.2
 Description: 777 Thales Printer
 Vendor: ThC12349

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480437 S0000581697_V1

ONS PRINTER CONDITION - PRINTERS

46-13-00

EFFECTIVITY
ARO 014-999

D633W101-ARO

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PRINTER CONDITION

PRINTERS

PENDING JOBS

COMPLETED JOBS

	FILES	STATUS	SUBMITTED
☐			
☐	configReport_13595	completed	Unknown
☐	configReport_13159	completed	Unknown
☐	msdReport_21457	completed	Unknown
☐	msdReport_7493	completed	Unknown

Print Job Details

Filename:

Status:

Origin:

Owner:

DELETE

N777BO

PRINTER CONDITION

PRINTERS

PENDING JOBS

COMPLETED JOBS

	FILES	STATUS	SUBMITTED
☒	configReport_6232	completed	Unknown
☐	configReport_13595	completed	Unknown
☐	configReport_13159	completed	Unknown
☐	msdReport_21457	completed	Unknown

Print Job Details

Filename: configReport_6232

Status: completed

Origin: nts,aiaid,p

Owner: tomcat

Are you sure you want to delete the selected print job(s)?

CANCEL

CONTINUE

DELETE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409368 S0000557299_V1

ONS PRINTER CONDITION - PRINTERS - PENDING JOBS

46-13-00

EFFECTIVITY
ARO 011-013 POST SB 777-46-0066

D633W101-ARO

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PRINTER CONDITION

PRINTERS **PENDING JOBS** COMPLETED JOBS

FILES	STATUS	SUBMITTED
☐ configReport_13595	completed	Unknown
☐ configReport_13159	completed	Unknown
☐ msdReport_21457	completed	Unknown
☐ msdReport_7493	completed	Unknown

Print Job Details

Filename:

Status:

Origin:

Owner:

DELETE

PRINTER CONDITION

PRINTERS **PENDING JOBS** COMPLETED JOBS

FILES	STATUS	SUBMITTED
☒ configReport_6232	completed	Unknown
☐ configReport_13595	completed	Unknown
☐ configReport_13159	completed	Unknown
☐ msdReport_21457	completed	Unknown

Print Job Details

Filename: configReport_6232

Status: completed

Origin: nts,aiaid,p

Owner: tomcat

Are you sure you want to delete the selected print job(s)?

CANCEL CONTINUE

DELETE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480438 S0000581848_V1

ONS PRINTER CONDITION - PRINTERS - PENDING JOBS

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EFFECTIVITY
ARO 014-999

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 N777BO
 PRINTER CONDITION


PRINTERS

PENDING JOBS

COMPLETED JOBS

☐	FILES	STATUS	SUBMITTED
☐	configReport_13595	completed	Unknown
☐	configReport_13159	completed	Unknown
☐	msdReport_21457	completed	Unknown
☐	msdReport_7493	completed	Unknown

Print Job Details

Filename:
 Status:
 Origin:
 Owner:



DELETE

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY

2409339 S0000558013_V1

ONS PRINTER CONDITION - PRINTERS - COMPLETED JOBS

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EFFECTIVITY
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PRINTER CONDITION




PRINTERS
PENDING JOBS
COMPLETED JOBS

FILES	STATUS	SUBMITTED
☐ _stdin_	completed	Unknown
☐ BFBWPMA_07Jan19125000	completed	Unknown
☐ _stdin_	completed	Unknown

Print Job Details

Filename:
Status:
Origin:
Owner:

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

2480439 S0000581702_V1

ONS PRINTER CONDITION - PRINTERS - COMPLETED JOBS

46-13-00

EFFECTIVITY
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ONBOARD NETWORK SYSTEM - OTHER FUNCTIONS

General

On the ONS main menu bar, the third selection is named Other Functions. The Other Functions is serviceable when one or more optional functions is installed and activated.

When no optional function is installed, the Other Links button shows on the main menu bar, but is not selectable.

When one or more of the options is installed, the Other Functions button shows a menu. For example, the functions that follow can be available for future installation.

- Airplane Data Monitor

ARO 011-013 PRE SB 777-46-0066

- Airplane Data Recorder

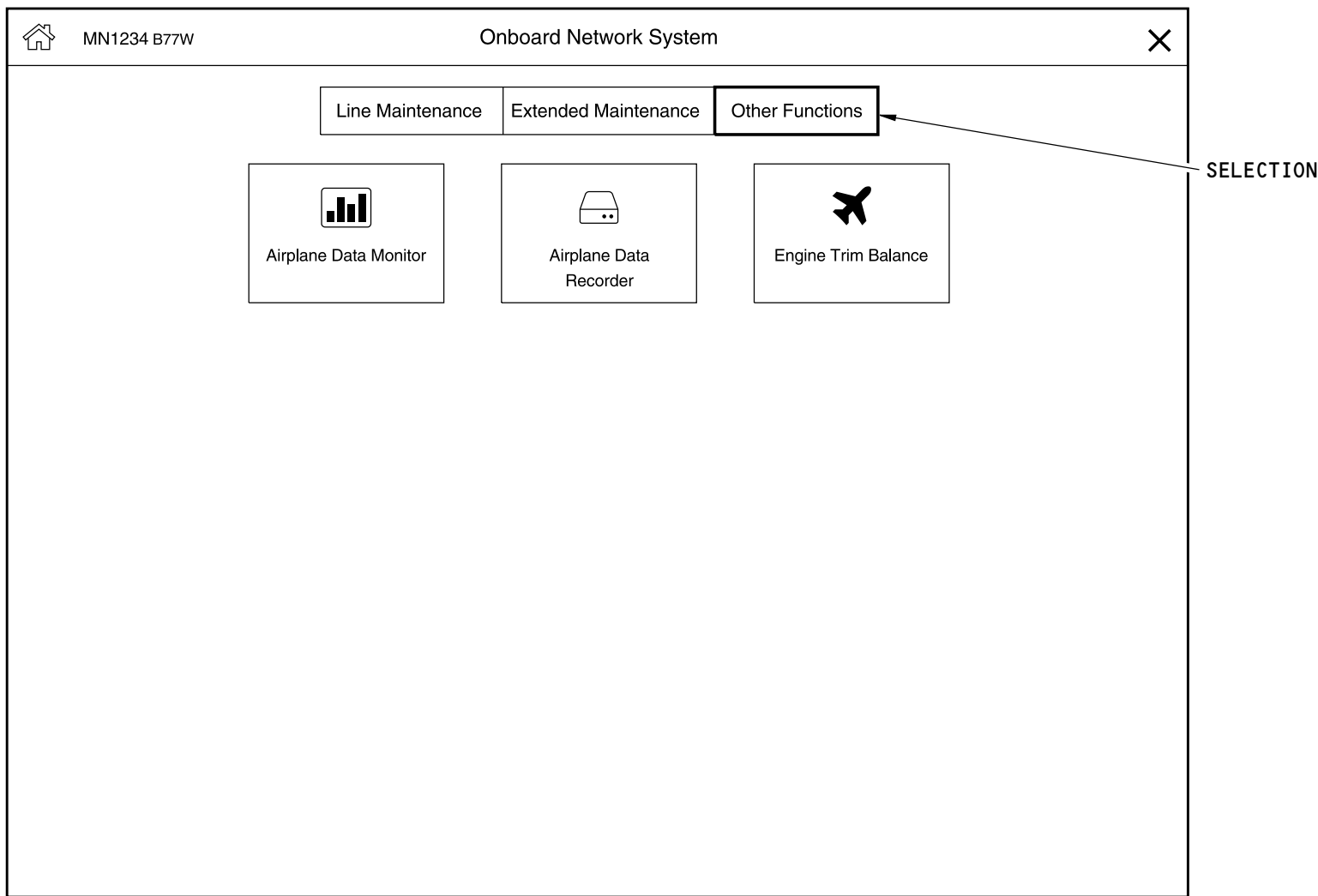
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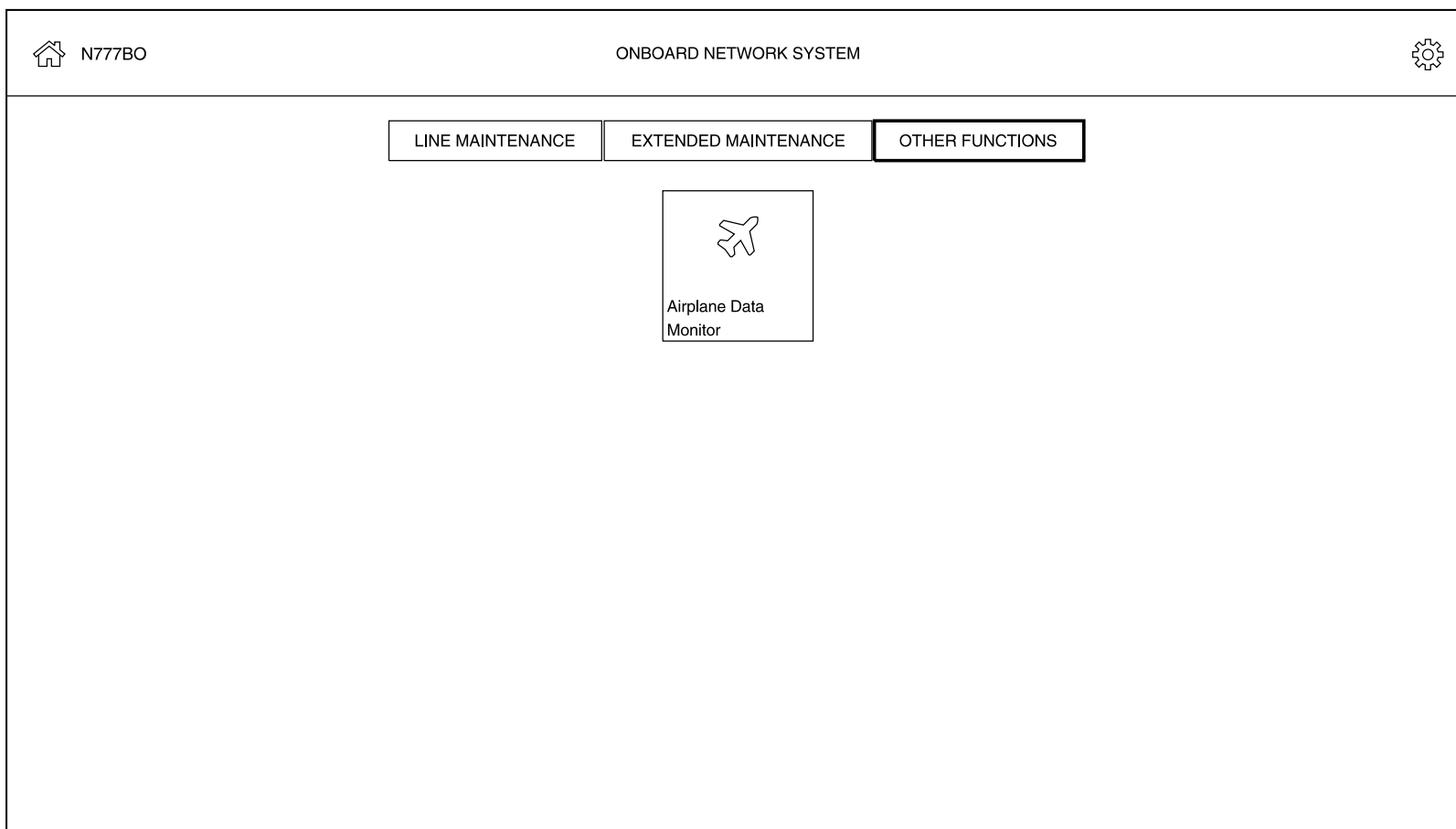
ONS OTHER FUNCTIONS

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NOTE: THE OTHER FUNCTION TAB WILL NOT SHOW IF THERE ARE NO OPTIONAL FUNCTIONS INSTALLED.

NOTE: DATA SHOWN IS FOR EXAMPLE ONLY.

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ONS OTHER FUNCTIONS PAGE

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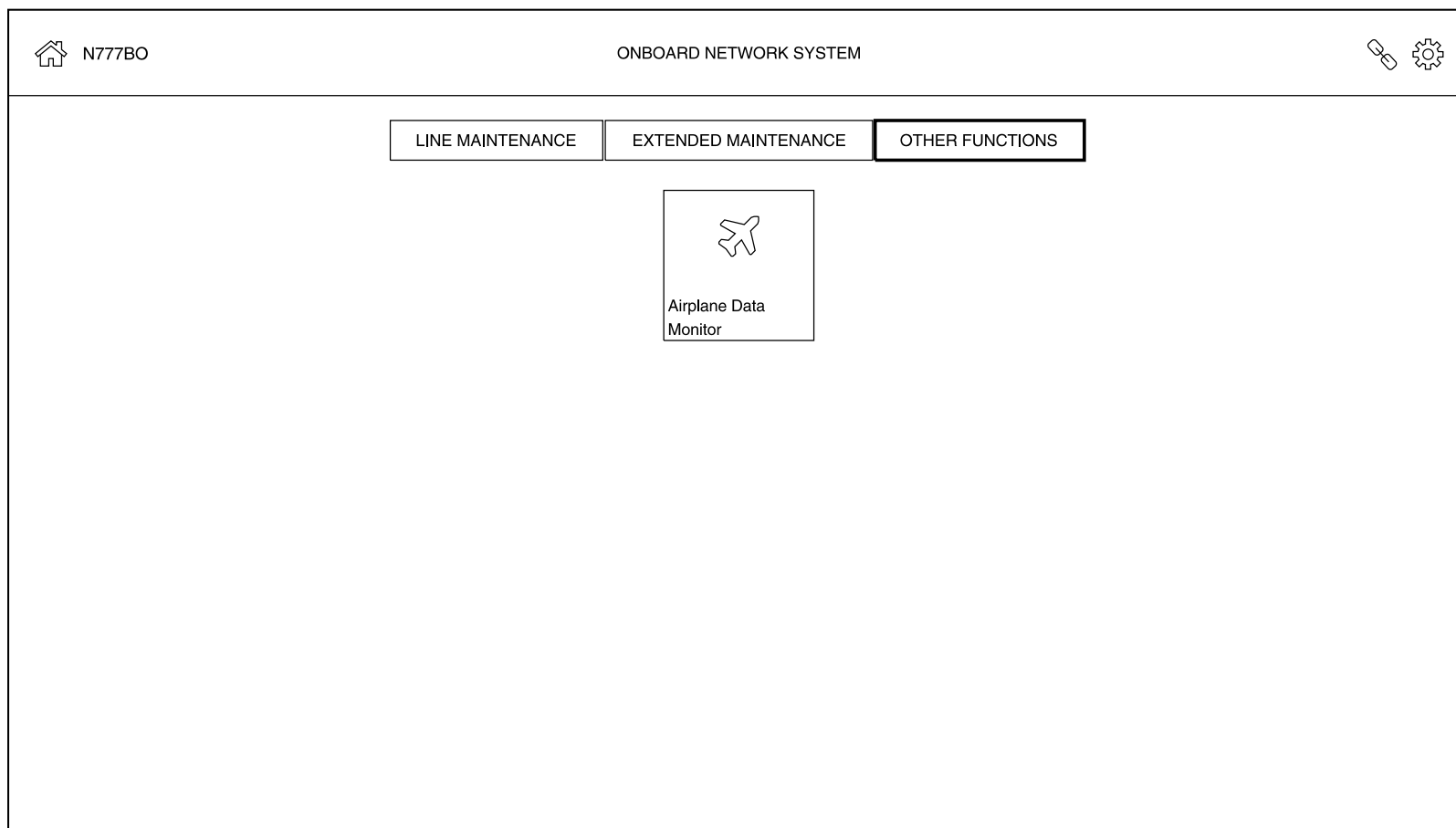
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NOTE: THE OTHER FUNCTION TAB WILL NOT SHOW IF THERE ARE NO OPTIONAL FUNCTIONS INSTALLED.
DATA SHOWN IS FOR EXAMPLE ONLY.

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ONS OTHER FUNCTIONS PAGE

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**NETWORK EXTENSION DEVICE-DOMAIN GUARD - DESCRIPTION****General**

The Network Extension Device is an Ethernet router and switch device. The name Domain Guard is included to emphasize a primary function.

Purpose

The Network Extension Device (NED) does these functions:

- Routes and switches data for the Onboard Network System (ONS)
- Has interfaces with systems on Aeronautical Radio Incorporated (ARINC) buses
- Has discrete interfaces with the ONS.

General Description

There is one NED onboard.

The NED has these four connectors:

- J1-A - power, discretes,
- J1-B - ARINC 429, RS-232
- J2- 10/100BASE-T Ethernet
- J3 - is not used on 777.

The NED has these interfaces to the aircraft:

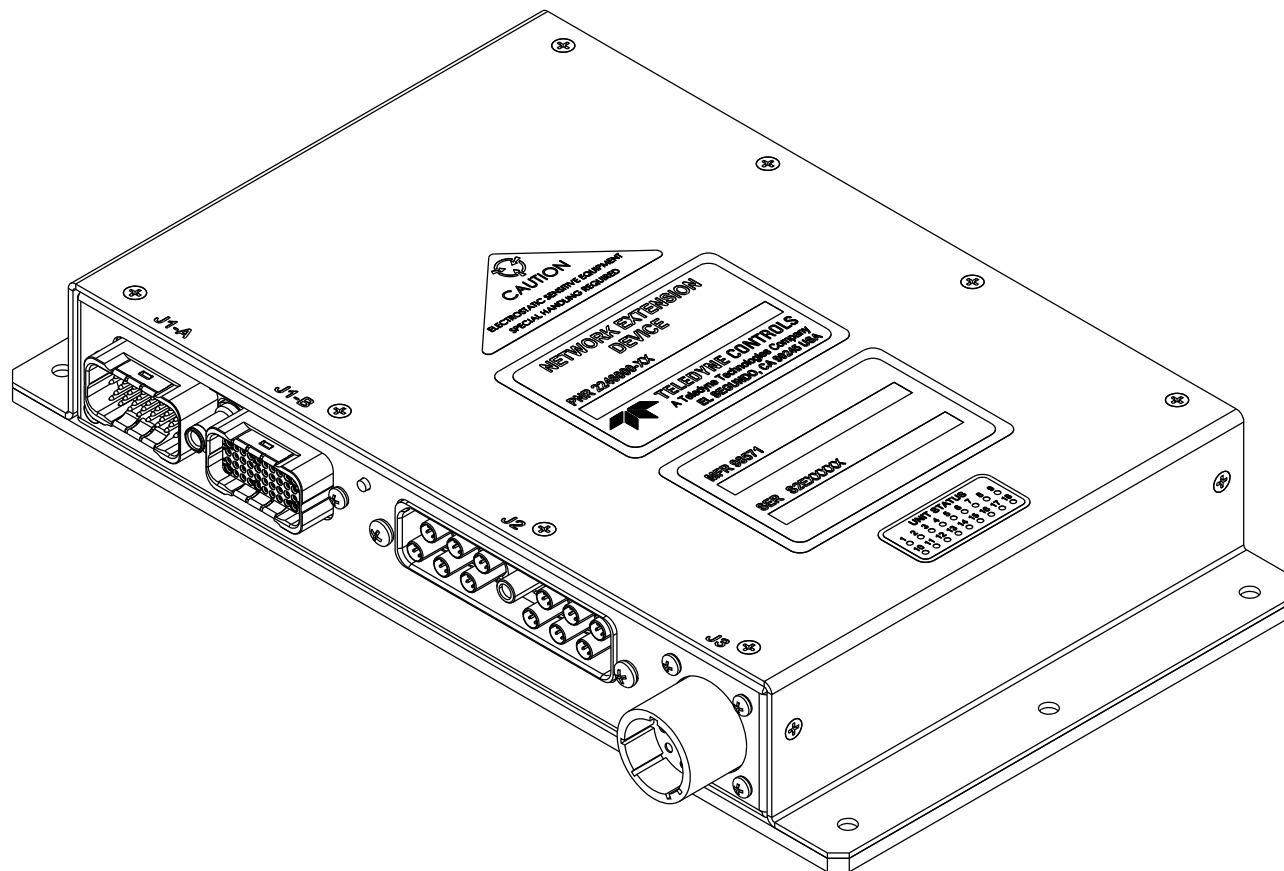
- Program pins (3)
- Discrete inputs (8)
- Discrete outputs (8)
- RS-232 port (1)
- RS-485 auxiliary interface (1)
- USB 1.1 auxiliary interface
- ARINC 429 inputs (12)
- ARINC 429 outputs (4)
- 10BASE-T/100BASE-TX Ethernet ports (12)

The NED is a flange-mounted unit. Input power is 115 Volts Alternating Current (VAC), 400 Hz (Hertz) aircraft input power, with maximum power consumption of less than 30 watts. The NED has passive cooling.

The NED weighs 3.5 lb (1.6 kg). The NED dimensions are 1.8 in. (4.6 cm) in height, 11.45 in. (29.08 cm) in length, and 6.46 in. (16.41 cm) in width.

Controls and Indications

The NED has no front panel controls or indications.



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NETWORK EXTENSION DEVICE-DOMAIN GUARD

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NETWORK EXTENSION DEVICE-DOMAIN GUARD - FUNCTIONAL DESCRIPTION

General

The Network Extension Device (NED) has these three cards:

- Power supply circuit card
- Single Board Computer (SBC) circuit card
- Input/Output Connector (IOC) circuit card.

Power Supply

The power supply gets 115V ac (volts alternating current), 400Hz (Hertz) power. The power supply makes these voltages for operation of the SBC:

- +3.3V dc (volts direct current)
- +12V dc
- -12V dc.

The power supply has these functions:

- Voltage monitor circuit to find over voltage conditions
- Temperature sensor to find over-temperature conditions
- Fault detection circuitry.

Single Board Computer

The SBC is a Central Processing Unit (CPU) card. The SBC has these functions:

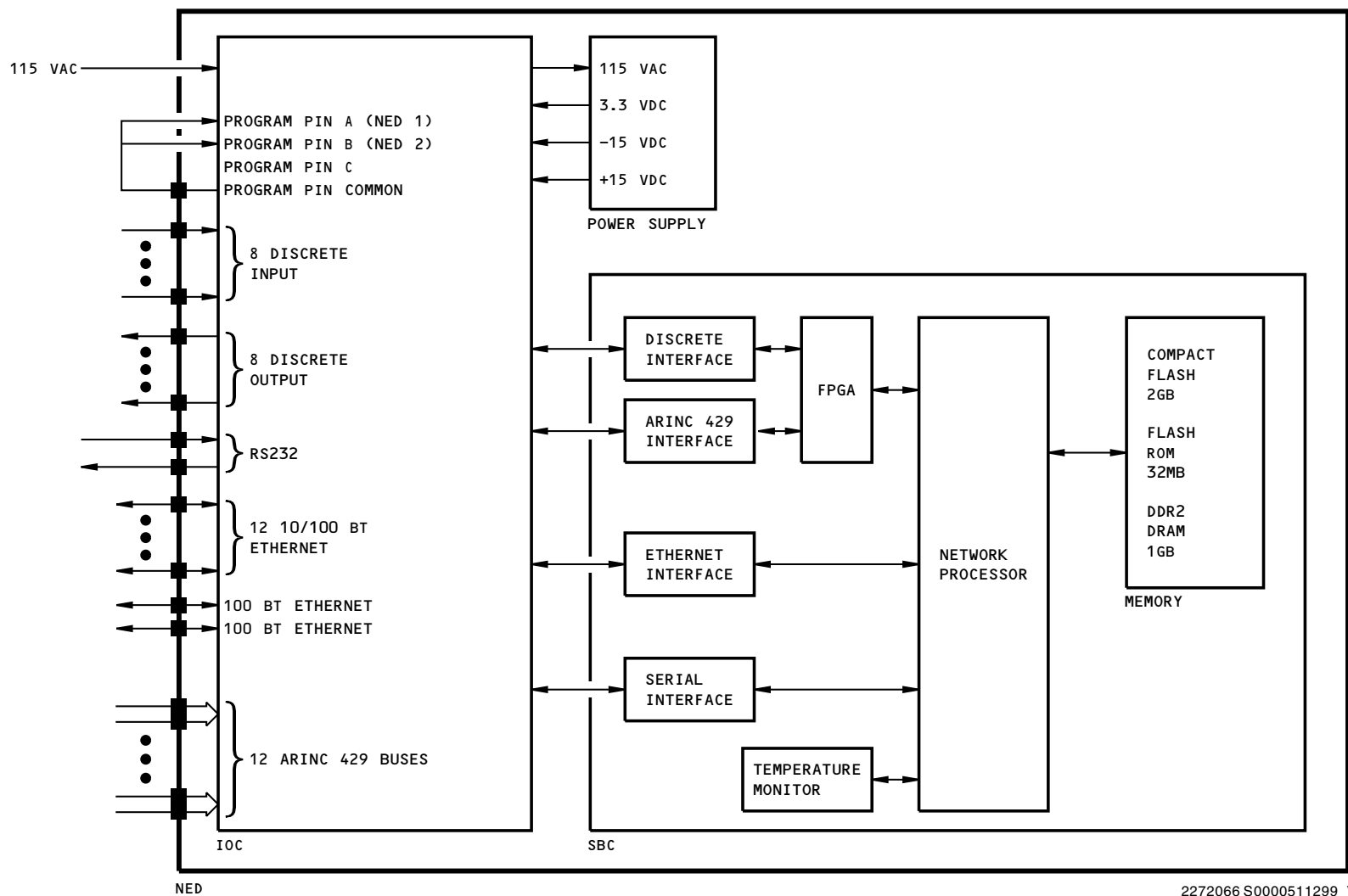
- Control logic - network processor and Field Programmable Gate Array (FPGA)
- Local power supply and voltage monitor
- Temperature monitor
- Memory - Synchronous Dynamic Random Access Memory (SDRAM), Boot Read Only Memory (ROM), Compact Flash
- Ethernet controllers
- Reset generator.

The network processor does these functions:

- Has an interface between the control logic and onboard SDRAM
- Controls the data between the control logic and the on-board Ethernet Interface
- Has an interface between the control logic and onboard boot ROM during SBC boot-up
- Controls the acquisition of temperature data from the temperature monitor circuit
- Gives the clock and data interface for the SDRAM Serial Presence Detect (SPD)
- Medium Dependent Interface (MDI) clock and data path for the Ethernet interface
- Gives the control signals and data path for the on-board serial interface
- Monitors the signal outputs from the onboard power monitor, reset generator circuits and start reset
- Operates with the FPGA to provide the interface between the SBC discrete interface, Aeronautical Radio Incorporated (ARINC) 429 interface and the onboard memory, and the external discrete and the ARINC 429 devices.

Input/Output Connector

The IOC card has the connectors and filters necessary to connect the power supply with the SBC and to connect the NED with airplane systems.



NETWORK EXTENSION DEVICE-DOMAIN GUARD - FUNCTIONAL DESCRIPTION

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**NETWORK EXTENTION DEVICE-DOMAIN GUARD - OPERATIONAL DESCRIPTION****Normal Mode**

During flight, the network extension device-domain guard (NED-DG) operates in NORMAL mode. When the NED-DG is energized, and set to NORMAL mode, then operation is automatic.

Normal mode is set by a toggle switch installed below the NED-DG, in the Electrical/Electronics (E/E) bay. This switch serves to restrict unauthorized network access during flight because of its physical location.

Condition Reporting

The condition of the NFS is observed using the ONS maintenance browser. The ONS maintenance can give you this information that follows:

- Do a check for faults or maintenance messages.
- Report the software or firmware part numbers, or version.

When the required software is present, and ONS shows no NED-DG fault condition or messages, then the NED-DG is serviceable.

Load Mode

To install software into the NED-DG, the unit is rebooted into load mode. The unit is de-energized using the circuit breaker. Then, the NORMAL/LOAD mode switch, just below the NED-DG, is set to LOAD. Then, electrical power is restored by closing the circuit breaker. Typically, the time to reboot is approximately two minutes.

Software Installation

You will use the onboard network system (ONS) maintenance browser to install software.

After software installation the NED-DG is rebooted again, into normal mode.

Client Credentials

The NED-DG requires the use of digital certificates, or credentials, to enable network communications with connected devices. After maintenance to the software is performed, you must either do a check, or generate new client credentials for the NED-DG.

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