CHAPTER

45

Central Maintenance

CHAPTER 45
CENTRAL MAINTENANCE

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

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CENTRAL MAINTENANCE COMPUTING SYSTEM - INTRODUCTION

General

The central maintenance computing system (CMCS) collects and stores maintenance data for most of the airplane systems. The maintenance access terminal (MAT) or portable maintenance access terminal (PMAT) shows the data. The data can also show on the laptop maintenance access terminal (LMAT). Menu selections give access to maintenance functions based on type of task. The CMCS primary functions include:

- Fault processing
- Testing
- Data loading.

The CMCS also does these functions:

- Fault history
- Input monitoring
- Configuration reporting
- Shop faults
- Engine balancing
- PSEU and air/ground rigging
- Report generation.

The MAT also supplies access to on-line help.

Abbreviations and Acronyms

- ACARS - aircraft communications addressing and reporting system
- ACIPS - airfoil and cowl ice protection system
- ACMF - airplane condition monitoring function
- ACMS - airplane condition monitoring system
- ADF - automatic direction finder
- ADIRU - air data inertial reference unit
- ADM - air data module
- AFDC - autopilot flight director computer
- AIMS - airplane information management system
- AMI - airline modifiable information
- AMM - airplane maintenance manual
- AMMA - AIMS MSD manager application
- APU - auxiliary power unit
- APUC - auxiliary power unit controller
- ARINC - Aeronautical Radio, Inc.
- ASCPC - air supply cabin pressure controller
- ASG - ARINC 629 signal gateway
- ATC - air traffic control
- AVM - airborne vibration monitoring
- BPCU - bus power control unit
- BEPS - backup electrical power system
- BSCU - brake system control unit
- CCD - cursor control device

ARO 005-999; ARO 001-004 POST SB 777-23-0369

- CSSL - cabin services system link

ARO ALL

- CMCF - central maintenance computing function
- CMCS - central maintenance computing system
- CMR - certification maintenance requirement
- comm - communication
- CPM - core processor module
- CTC - cabin temperature controller
- DCGF - data conversion gateway function
- DCMF - data communication management function
- DFDAF - digital flight data acquisition function
- DTD - data terminal display
- EDU - electronic display unit
- EEC - electronic engine control
- EEMU - enhanced electronic module unit

- EICAS - engine indication and crew alerting system
- ELMS - electrical load management system
- FDCF - flight deck communication function
- FDE - flight deck effect
- FIM - fault isolation manual
- FMCF - flight management computing function
- FSEU - flap/ slat electronics unit
- GBST - ground based software tool
- GCU - generator control unit
- GPSSU - global positioning system sensor unit
- GPWC - ground proximity warning computer
- HYDIM - hydraulic interface module
- ICAO - international civil aviation organization
- IMM - intermodule memory
- IOM - input/output module
- ISO - International Standards Organization
- LAN - local area network
- LCD - liquid crystal display
- LDI - loadable diagnostic information
- LED - light emitting diode
- LPT - low pressure turbine
- LRM - line replaceable module
- LRU - line replaceable unit
- MAT - maintenance access terminal
- MATA - maintenance access terminal application
- MEC - main equipment center
- MFD - multi-function display
- MO - maintenance memo
- MPS - maintenance page snapshot
- MSD - mass storage device
- MTF - maintenance terminal function
- ND - navigation display
- NVM - non-volatile memory
- OEBS - onboard engine balancing system
- OLAN - onboard local area network
- OMS - onboard maintenance system
- ONS - onboard network system

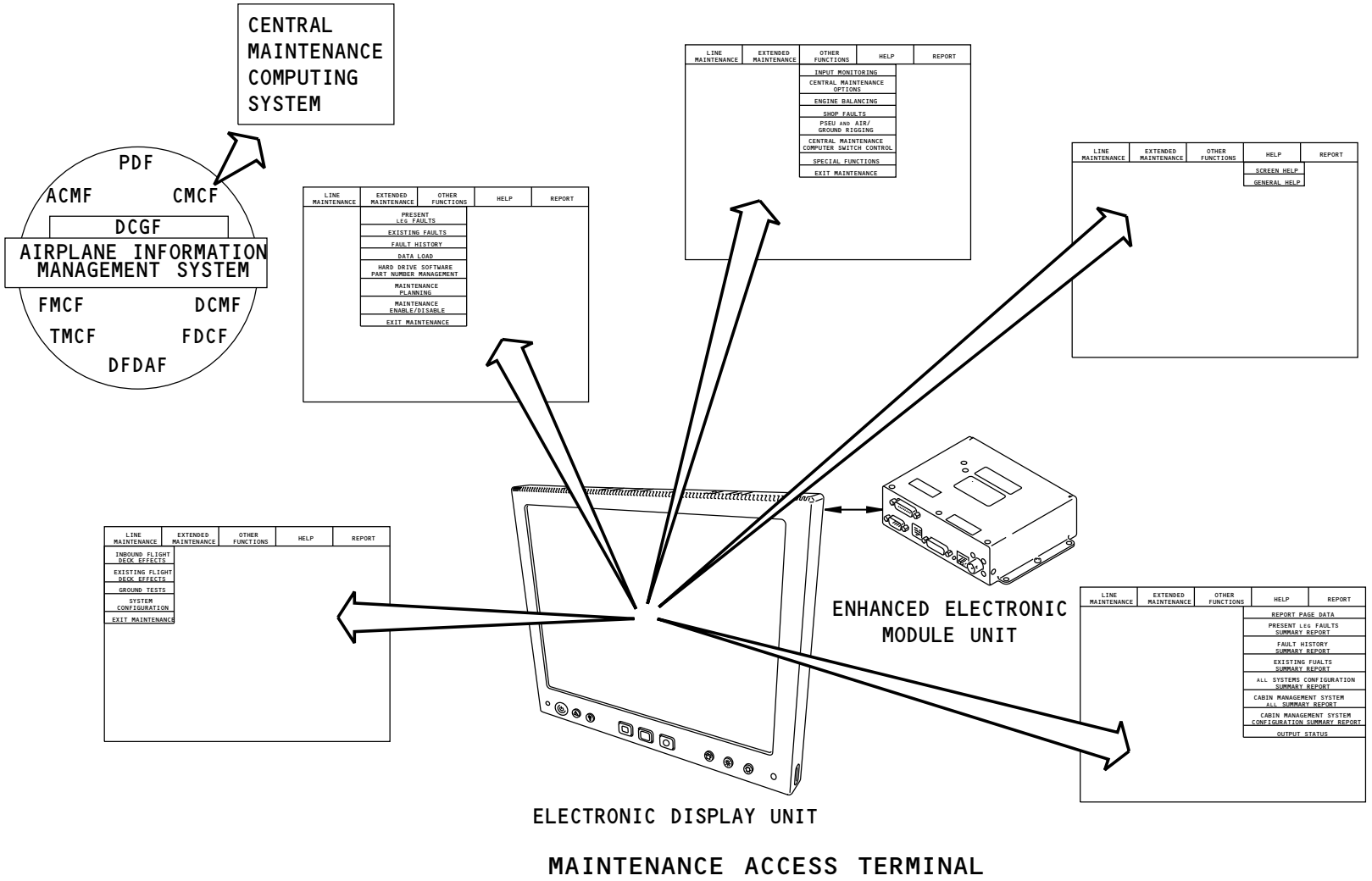
ARO 005-999

- ONSL - onboard network system link

ARO ALL

- OPC - operational program configuration
- OPS - operational program software
- PDF - primary display function
- PDS - primary display system
- PFC - primary flight computer
- PFD - primary flight display
- PMAT - portable maintenance access terminal
- PSEU - proximity sensor electronics unit
- RAM - random access memory
- SAARU - secondary attitude air data reference unit
- SCSI - small computer system interface
- SD - side display
- SDI - source destination indicator
- SDU - satellite data unit
- SMT - scheduled maintenance task
- TCAS - traffic alert and collision avoidance system
- TMCF - thrust management computing function
- UTC - universal time (coordinated)
- UTCF - universal time (coordinated) function
- WHCU - window heat control unit

- WXR - weather radar



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CENTRAL MAINTENANCE COMPUTING SYSTEM - INTRODUCTION

EFFECTIVITY

ARO ALL

45-10-00

CMCS - FAULT PROCESSING CONCEPT

General

The central maintenance computing system (CMCS) does these things:

- Monitors airplane systems for faults
- Processes fault information
- Supplies maintenance messages.

The CMCS also monitors flight deck effect (FDE) activity. The CMCS matches, or correlates, applicable FDEs and maintenance messages.

Flight deck effects (FDEs) tell the flight and ground crews of conditions related to safe operation. The ground crew must find the cause of an FDE to find the corrective action. You use this information along with these manuals to isolate airplane faults

- Fault isolation manual (FIM)
- Airplane maintenance manual (AMM)

Flight Deck Effects

The airplane systems monitor conditions related to loss of a system or function. If a condition exists that requires repair or deferral, the airplane system sends FDE data to the AIMS primary display system (PDS). The PDS shows the FDE.

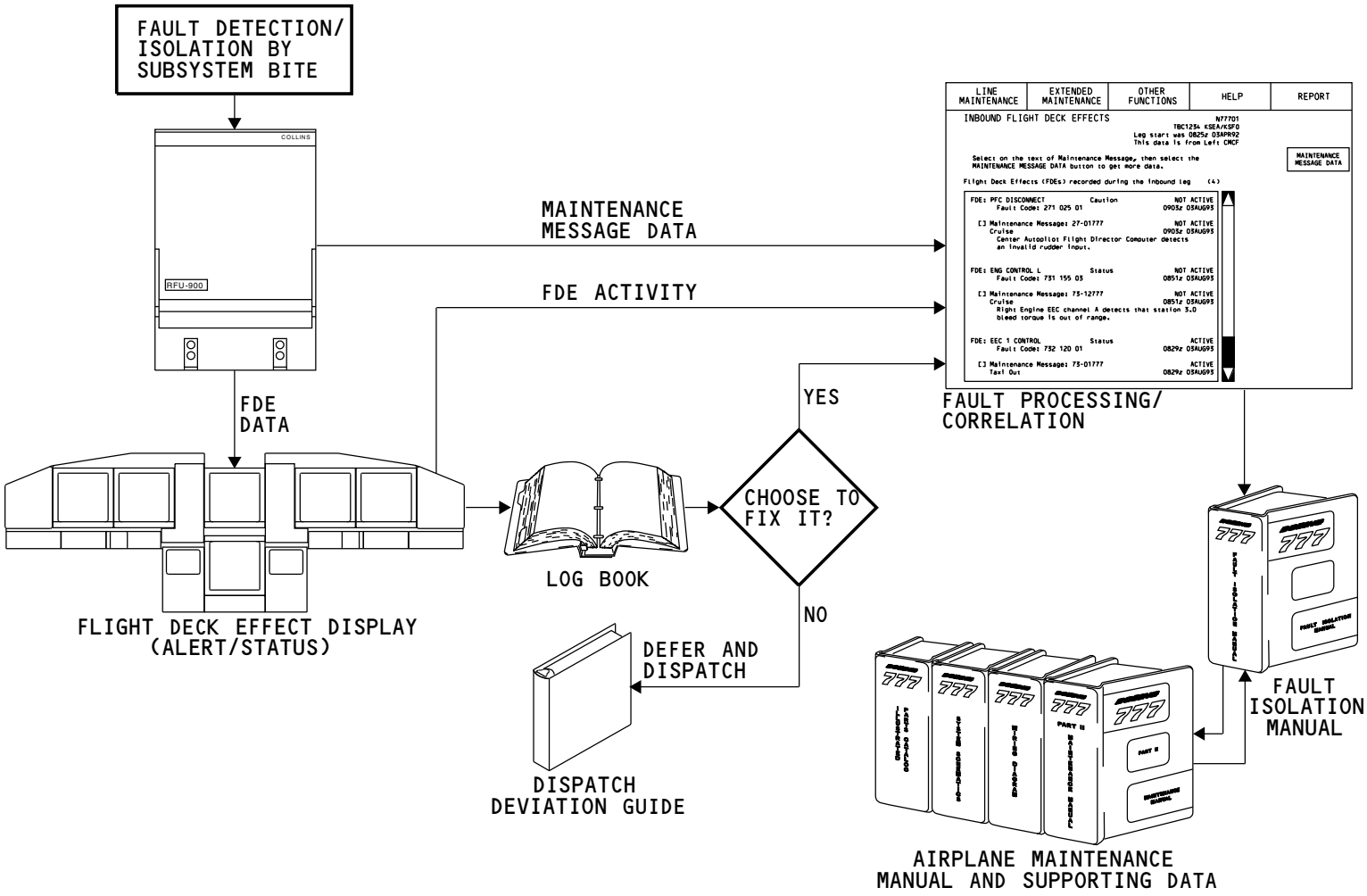
Many flight log entries have an FDE. The ground crew examines and makes an analysis of additional FDEs before they release the airplane.

Maintenance Messages

Maintenance messages supply the ground crew with detailed fault information to help in troubleshooting. Airplane systems monitor for system faults. If an airplane system finds a fault, it sends maintenance message data to the CMCS. The CMCS processes the data and shows a maintenance message so the maintenance crew can examine it and find a corrective action.

FDE/Maintenance Message Correlation

The CMCS has logic that makes a relation between maintenance messages and FDEs. When an FDE occurs and the CMCS receives a maintenance message that has a relation to the FDE, the CMCS correlates the FDE to the message.



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CMCS - FAULT PROCESSING CONCEPT

CMCS - GENERAL DESCRIPTION

General

The central maintenance computing system (CMCS) supports both line maintenance and extended maintenance functions through menu selections on the Maintenance Access Terminal (MAT) or on the Maintenance Laptop MAT (LMAT). Other menu selections support special maintenance functions, supply on-line help, and make reports.

There is a central maintenance computing function (CMCF) in each AIMS cabinet. Only one CMCF operates at a time, the other is a backup.

CMCS Components

The components of the CMCS are the:

- Central maintenance computing function (CMCF) in the AIMS cabinets
- MAT
- MAT keyboard
- Portable maintenance access terminal (PMAT) in the main equipment center (MEC)
- PMAT receptacles (2)
- Ground test switch.
- Multi-function displays in the flight compartment.

In the flight deck, use the MAT, or PMAT, or the LMAT to operate the CMCS.

The PMAT receptacles permit the use of another PMAT. These are the two locations on the airplane that have PMAT receptacles:

- On the P18 panel in the flight deck.
- In the main equipment center (MEC).

CMCS - PlaneNet Interfaces

The MAT (P18) communicates with the Onboard Network System (ONS) which communicates to both the left and right AIMS cabinets through the PlaneNet interfaces.

The PMAT or LMAT (P18-1/MEC) communicates with the CMCF in the right AIMS cabinet through the PlaneNet interfaces.

The left and right CMCFs communicate with each other over a dedicated Ethernet bus (COMM-to-COMM link).

Primary Display System Interface

The CMCF gets fault reports from systems and records this information in a fault history. The primary display system (PDS) shows failure conditions in the form of flight deck effects (FDEs). The primary display function in the AIMS cabinets sends FDEs to the CMCF. The CMCF correlates faults to PDS failure indications.

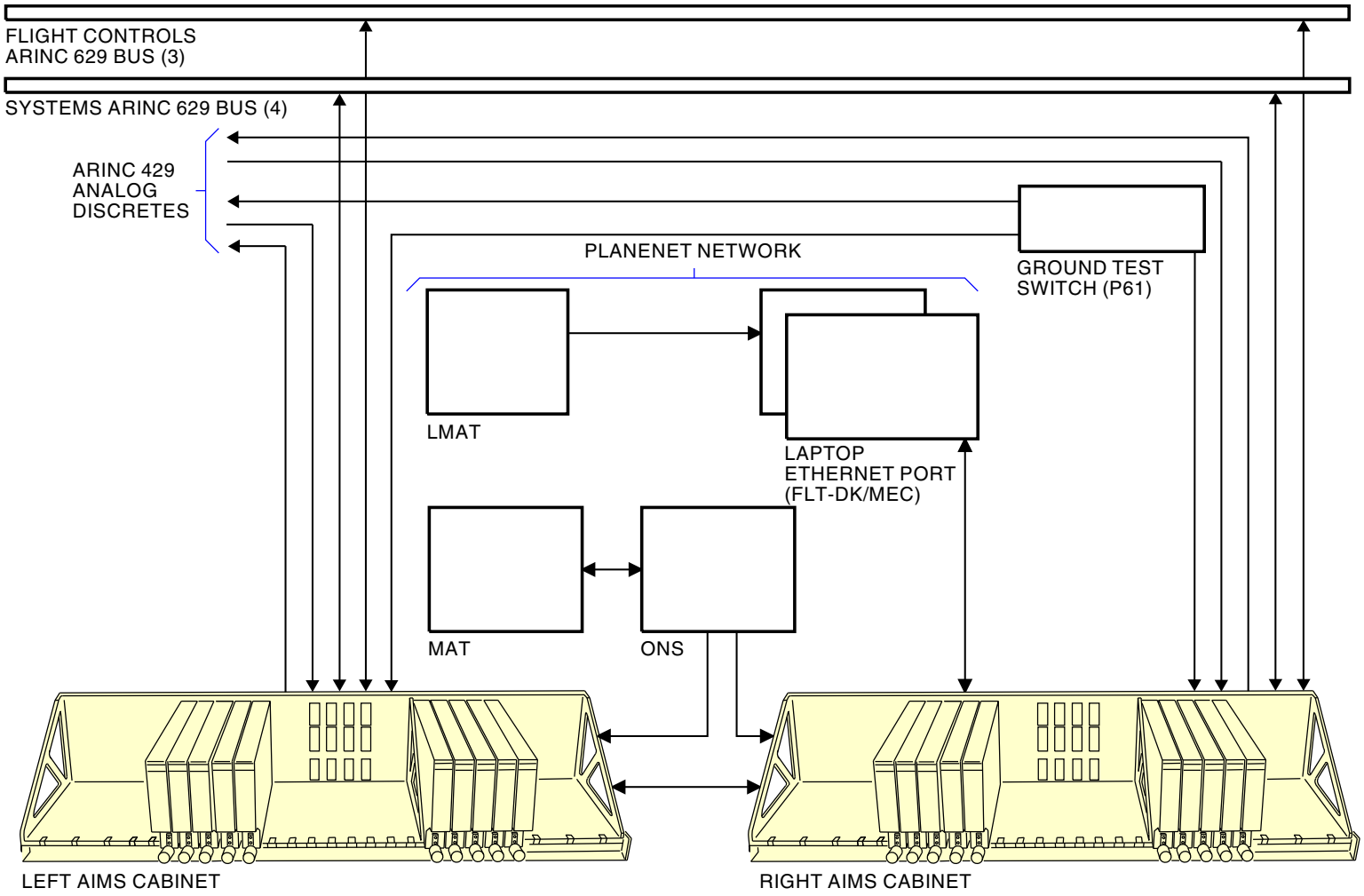
These are the types of FDEs:

- EICAS messages
- PFD flags
- ND flags
- EICAS snapshots
- Scheduled maintenance tasks
- Other display features.

The CMCS lets the maintenance personnel look at faults and correlated FDEs based on flight phases and flight legs.

Ground Test Switch Interface

The GROUND TEST switch on the ground test panel permits certain CMCS ground tests, data loads and special functions. It also provides power to the PMAT in the MEC.



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CMCS - GENERAL DESCRIPTION

Flight Deck

The maintenance access terminal (MAT) is on the P18 panel.

The MAT keyboard is on the P18 panel in front of the MAT.

The portable maintenance access terminal (PMAT) receptacle is on the left side of the MAT on the P18 panel.

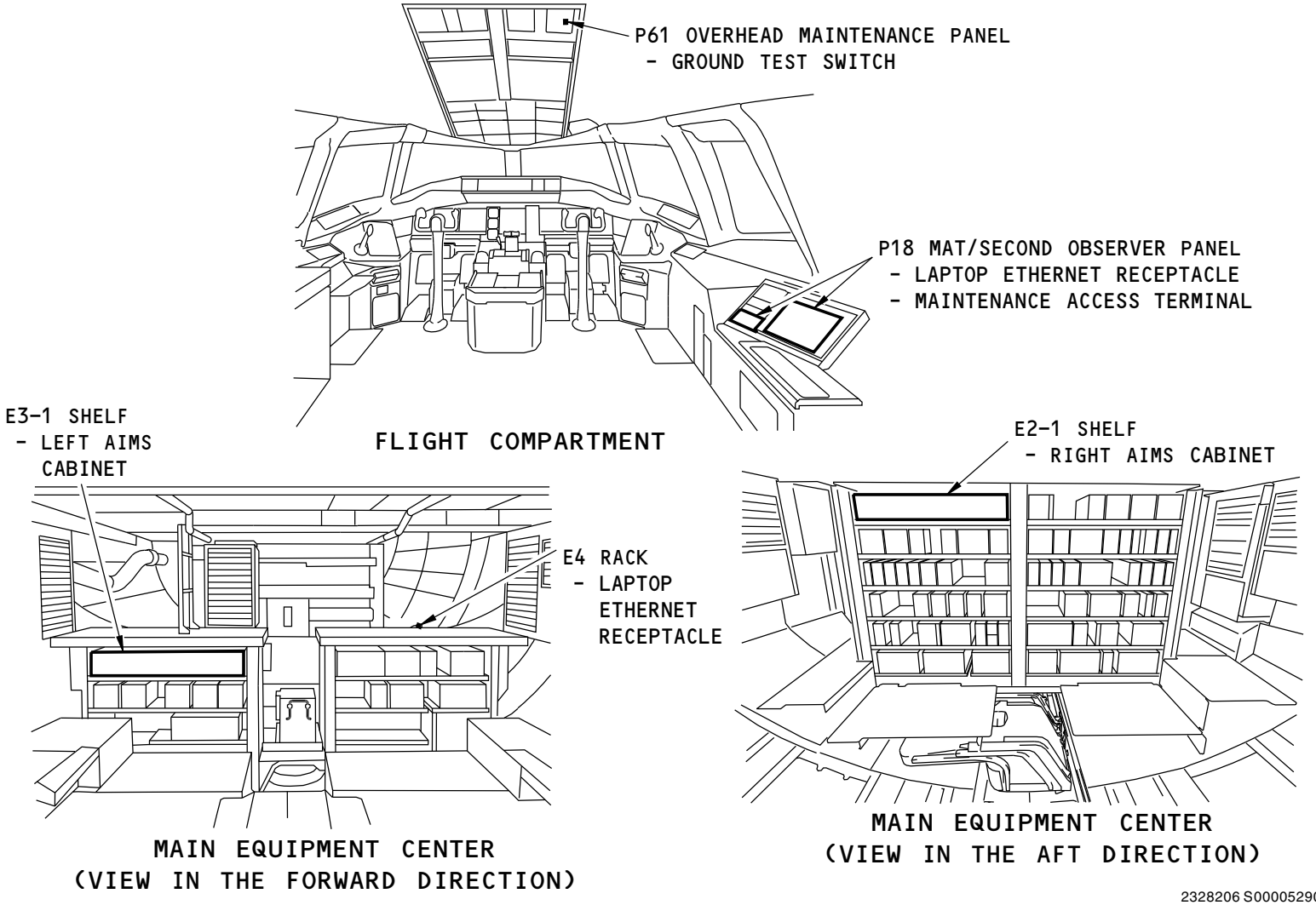
The GROUND TEST switch is on the P61 overhead maintenance panel.

Main Equipment Center

The left AIMS cabinet is on the E3-1 shelf. The right AIMS cabinet is on the E2-1 shelf.

The PMAT is on top of the E-4 rack.

The PMAT receptacle is between the E-3 and E-4 racks.



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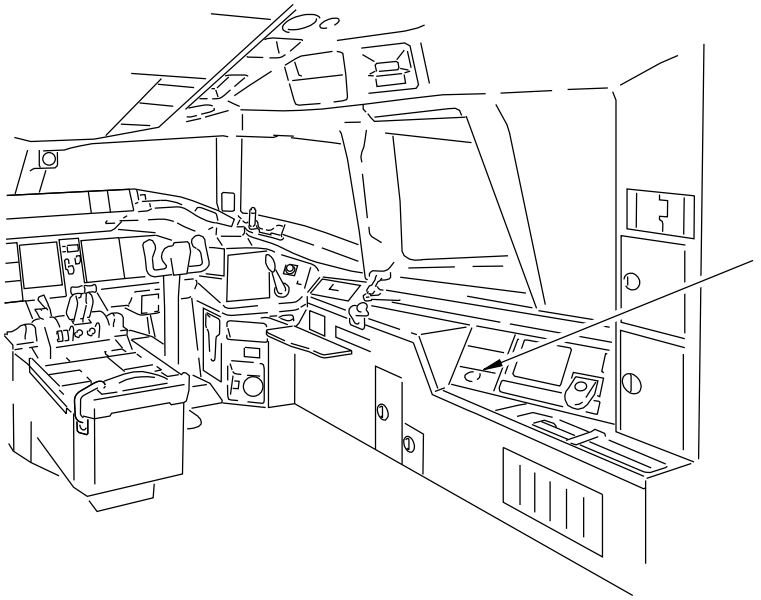
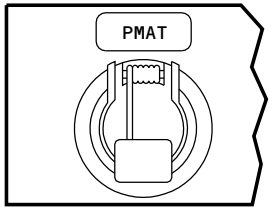
CMCS - COMPONENT LOCATIONS

CMCS - PMAT RECEPTACLE LOCATIONS - 1

Flight Deck

A PMAT receptacle is on the left side of the MAT on the P18 MAT/second observer panel.





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CMCS - PMAT RECEPTACLE LOCATIONS - 1

General

The Enhanced Electronic Module Unit (EEMU) receives 28V dc (volts direct current) from the DC R MAIN bus. The EEMU supplies 18V dc to the Electronic Display Unit (EDU).

The 28V dc R MAIN bus incorporates load shedding functionality which can remove power from the EEMU/MAT. Power will also be removed if the IFE/PASS SEAT switch on the P5 Overhead Panel in the flight compartment is set to OFF. Power may also be removed if there are failures in the R or L Main DC Transformer Rectifier Units (TRUs).

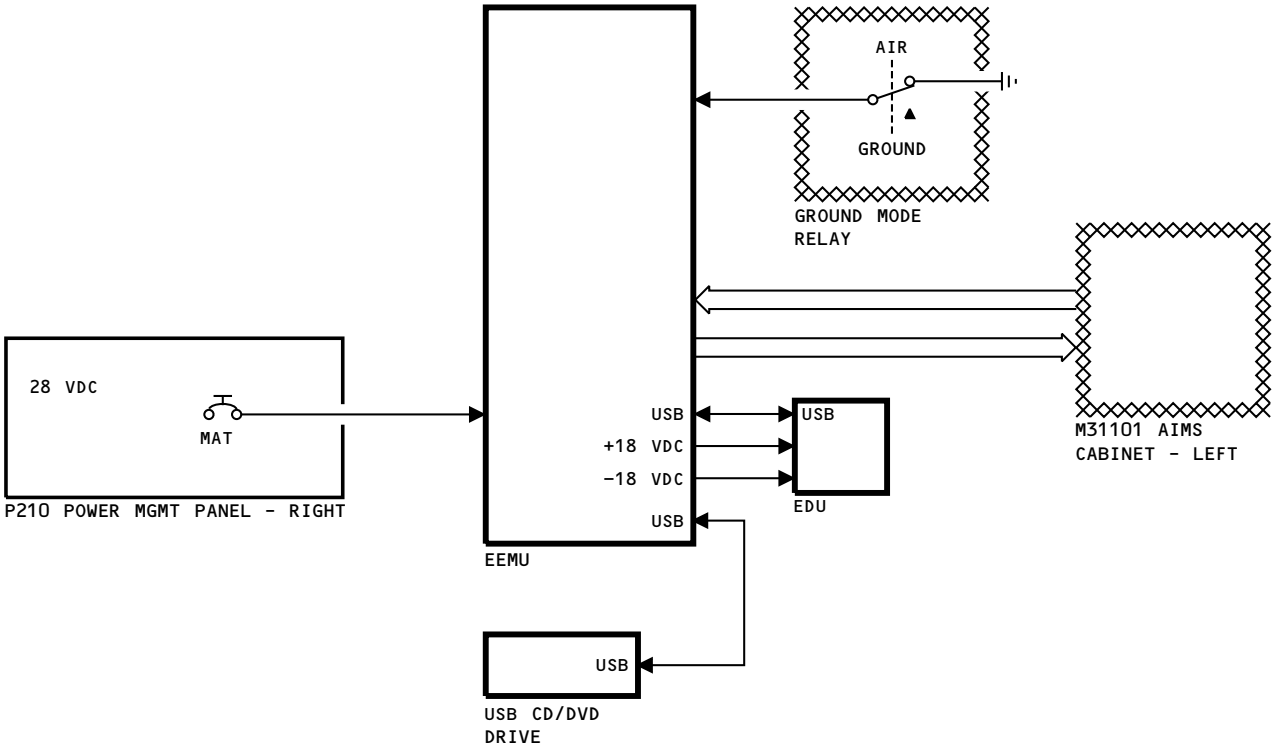
The EEMU has one multiple pin interface (J2) with the EDU (J5). This connection gives 18V dc power, and Universal Serial Bus (USB) input/output data to the EDU.

The EEMU and EDU have USB ports that can connect with these external maintenance tools:

- USB keyboard
- USB CD/DVD ROM drive
- USB 2.0 flash drive.

NOTE: An external power supply for the USB CD/DVD ROM drive can be necessary.

The EEMU has an Ethernet interface with the left Airplane Information Management System (AIMS) cabinet.



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CMCS - MAT INTERFACES

CMCS - GROUND TEST SWITCH INTERFACE

General

The ground test switch does these functions:

- Lets some ground tests operate
- Lets some software load into LRUs
- Provides power to the portable maintenance access terminal (PMAT) in the main equipment center.

The ground test switch sends discrete signals to these components:

- Left and right AIMS cabinets
- PSEU 1 and 2
- Left and right systems card files.

PMAT Interface

The ground test switch sends 115v ac from the left power management panel to the portable maintenance access terminal in the main equipment center.

AIMS Interface

The ground test switch discrete signals go to the M004 IOM and the M003 IOM in the left and the right AIMS cabinets.

The AIMS uses the data conversion gateway function (DCGF) and changes the switch discretes to ARINC 629 formatted signals. The DCGF puts the signals on the systems ARINC 629 buses and the flight controls ARINC 629 buses.

LRUs that connect to the ARINC 629 buses use the data to permit critical tests.

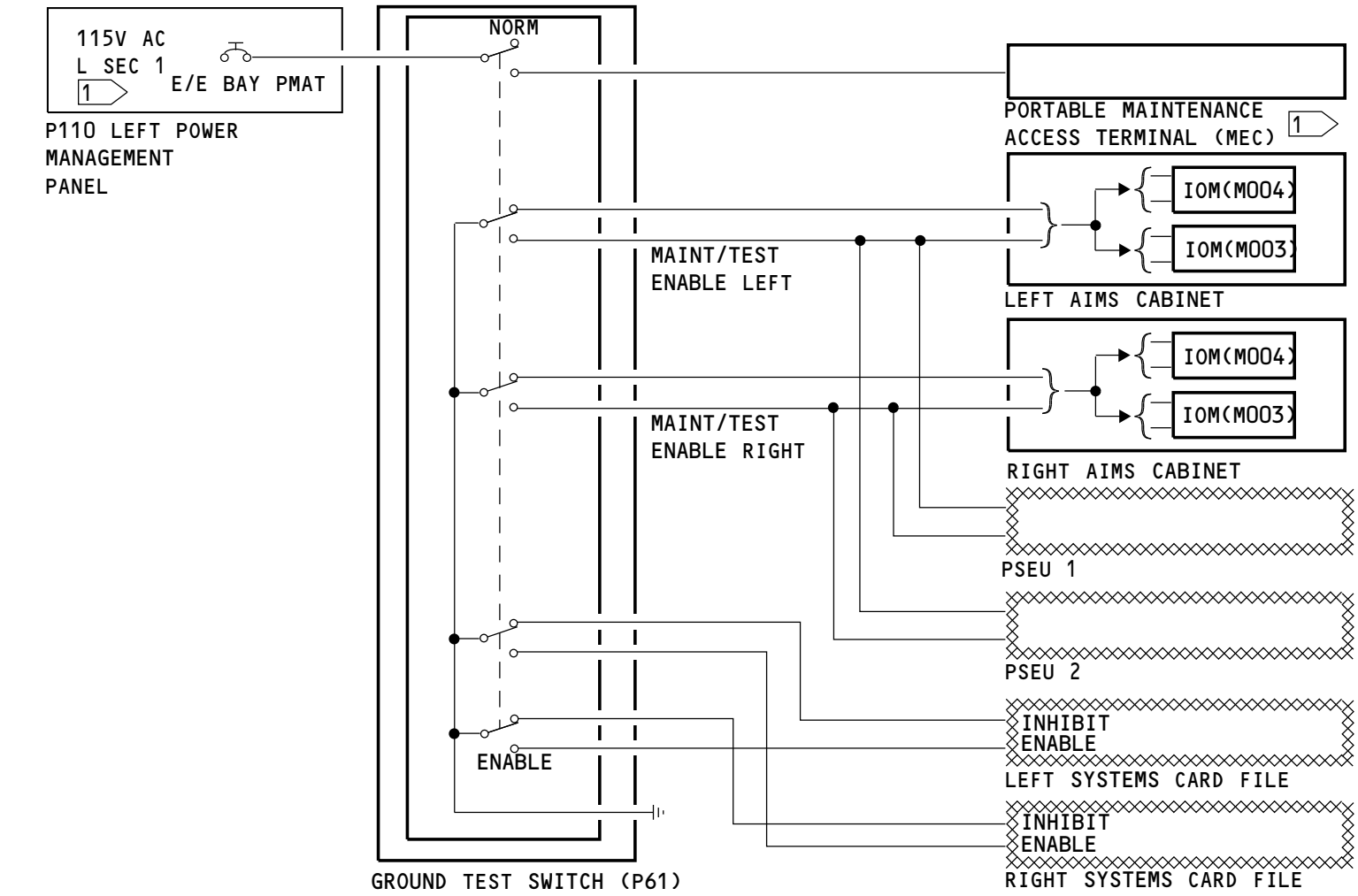
PSEU Interface

The proximity sensor electronics units (PSEU) get a direct input from the switch. The PSEUs use the signal for ground test control.

Systems Card File Interface

The left and right systems card files get switch discretes that show the position of the ground test switch. These are the systems that use the signal to permit ground tests:

- Fire/overheat detection system
- Airfoil and cowl ice protection system
- Duct leak detection system
- Air/ground system
- Hydraulic system
- Environmental control system
- Cargo smoke detection system.



1 IF INSTALLED

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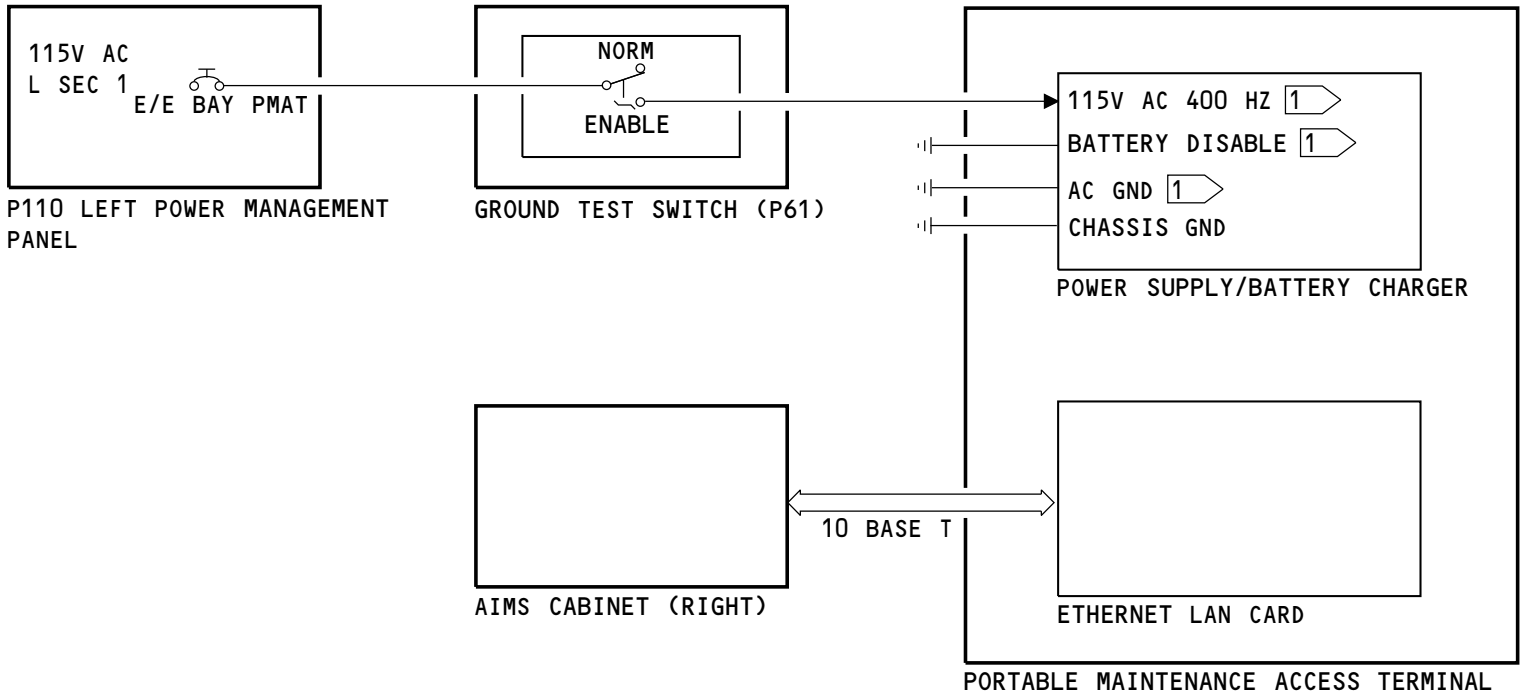
CMCS - GROUND TEST SWITCH INTERFACE

CMCS - PMAT INTERFACES

Power

The portable maintenance access terminal (PMAT) in the main equipment center (MEC) receives 115v ac 400 hz from the E/E BAY PMAT circuit breaker on the P110 left power management panel. The PMAT receives power when the ground test switch is in the enable position.

The PMAT in the MEC has a battery disable discrete to disable the battery.



1 MAIN EQUIPMENT CENTER PMAT ONLY

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CMCS - PMAT INTERFACES

CMCS - PLANENET INTERFACE

General

The left and right AIMS cabinets have an Ethernet interface that supplies direct connections to the MAT and PMAT. The left AIMS cabinet connects to the MAT and the right AIMS cabinet connects to the PMAT. This connection network is called the PlaneNet. The PlaneNet supplies a high speed communication path between the AIMS cabinets and the:

- Maintenance access terminal (MAT) via the onboard network system (ONS)
- Portable maintenance access terminal (PMAT)
- Laptop maintenance access terminal (LMAT)
- Two PMAT receptacles.

The MAT receives data from and transmits data to the left and right AIMS cabinets. The LMAT (location P18-1 or MEC) receives data from and transmits data to the right AIMS cabinet only.

The data communication management function (DCMF) in the left and right AIMS cabinets has the communication protocols that permit the AIMS functions to communicate with the PlaneNet.

The AIMS functions that use the DCMF communication services are the:

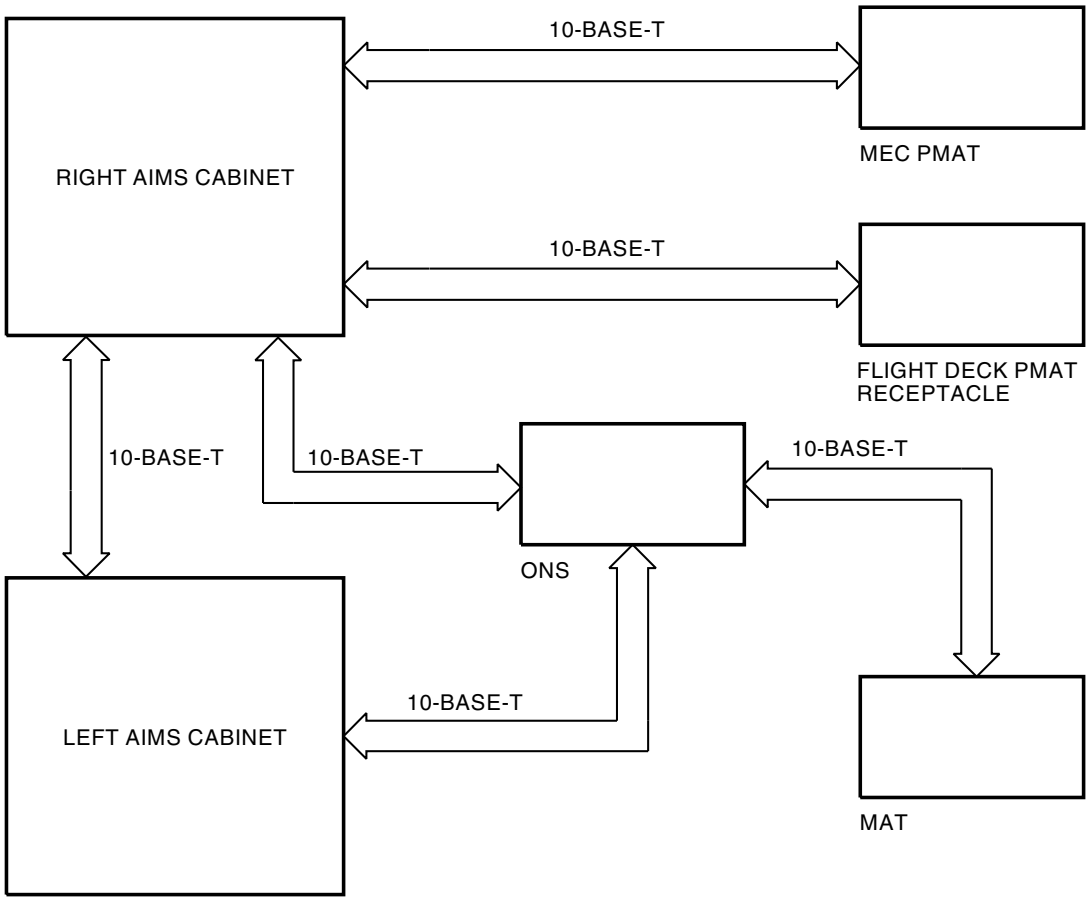
- CMCF for software dataloading from the MAT, LMAT, or PMAT.
- CMCF and ACMF for communications with the maintenance terminal function (MTF) in the MAT, LMAT, or PMAT.
- CMCF for communication with the Onboard Network System (ONS).

ARO 014-999

- CMCF for software dataloading from the ONS Mass Storage Device.

ARO ALL

- CMCF to record PlaneNet faults.



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CMCS - PLANENET INTERFACE

CMCS - ARINC 429 DATA LOAD INTERFACE

General

The central maintenance computing function (CMCF) in the AIMS cabinets supplies data load display formats that appear on the MAT, LMAT or PMAT display unit. The data load display formats let the maintenance crew select the source of the data and the destination of the data.

ARO 001-013

The source of the data is a data file on the hard drive or on a disk in the disk drive. The destination is one of these:

- An ARINC 429 LRU
- An LRU on a systems ARINC 629 bus
- An LRU on a flight controls ARINC 629 bus
- An LRM in the AIMS cabinet.

ARO 014-999

The source of the data is a data file on the hard drive, ONS mass storage device (MSD), or on a disk in the disk drive. The destination is one of these:

- An ARINC 429 LRU
- An LRU on a systems ARINC 629 bus
- An LRU on a flight controls ARINC 629 bus
- An LRM in the AIMS cabinet.

ARO ALL

When the crew selects the source and the destination, the MAT sends the data through the ethernet interface to the CPM/COMM in the left or right AIMS cabinets. The PMAT sends data through the ethernet interface to the CPM/COMM in the right AIMS cabinet. The CMCF sends the data to the correct LRU or SLRM on a designated data load port through an IOM.

ARINC 429

The data goes out on the ARINC 429 data load bus.

Along with the data, load enable discretes go to the ARINC 429 LRUs.

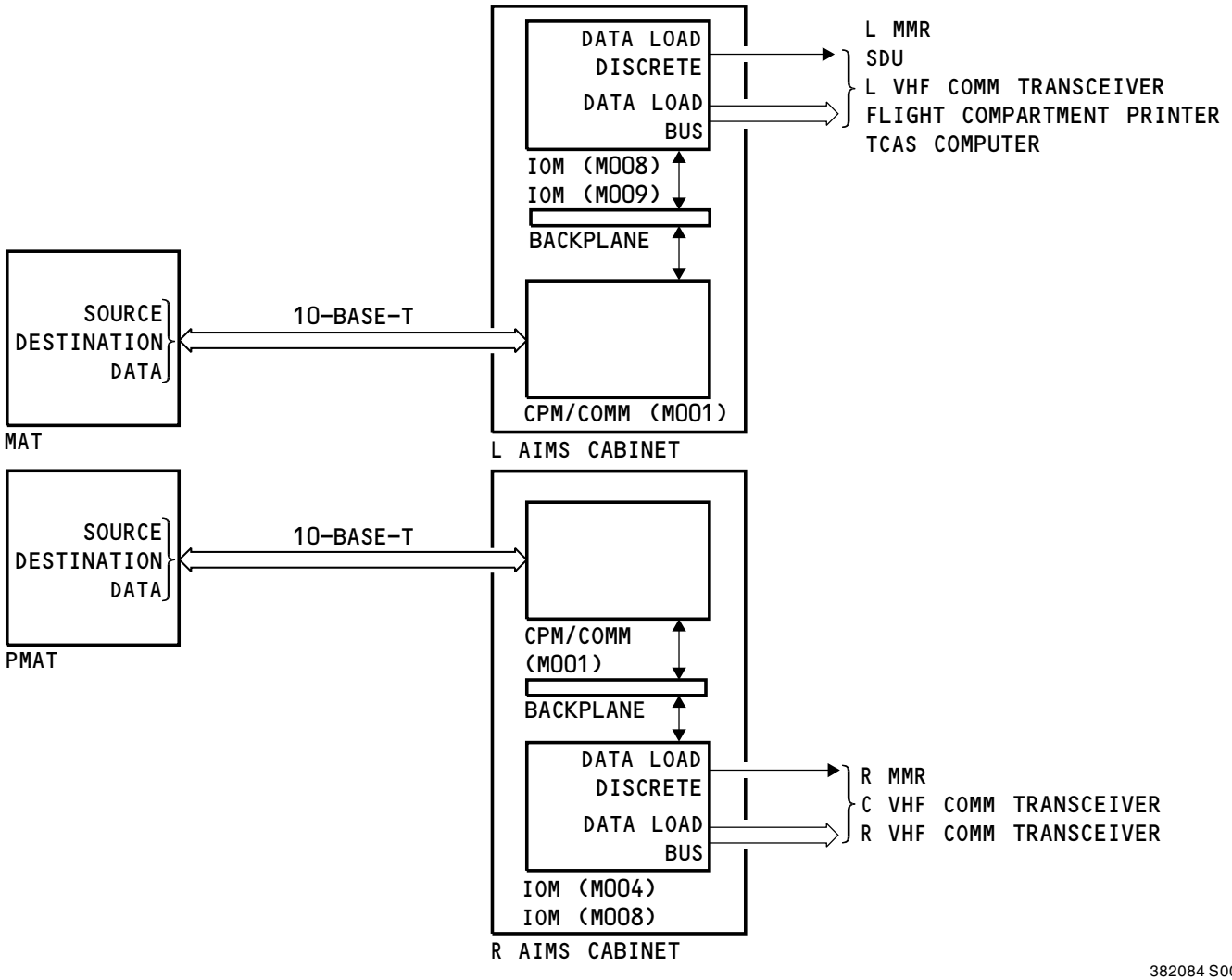
Data and status information comes in from the ARINC 429 LRUs on the 429 data input buses.

Training Information Point

These are the times when you must change the active CMCF to do a data load:

- To load some LRUs on the flight controls ARINC 629 buses
- To load a 429 LRU connected to the right AIMS cabinet when the left CMCF is active.
- To load a 429 LRU connected to the left AIMS cabinet when the right CMCF is active.

Use the central maintenance computer switch control from the other functions menu to switch the active CMCF.



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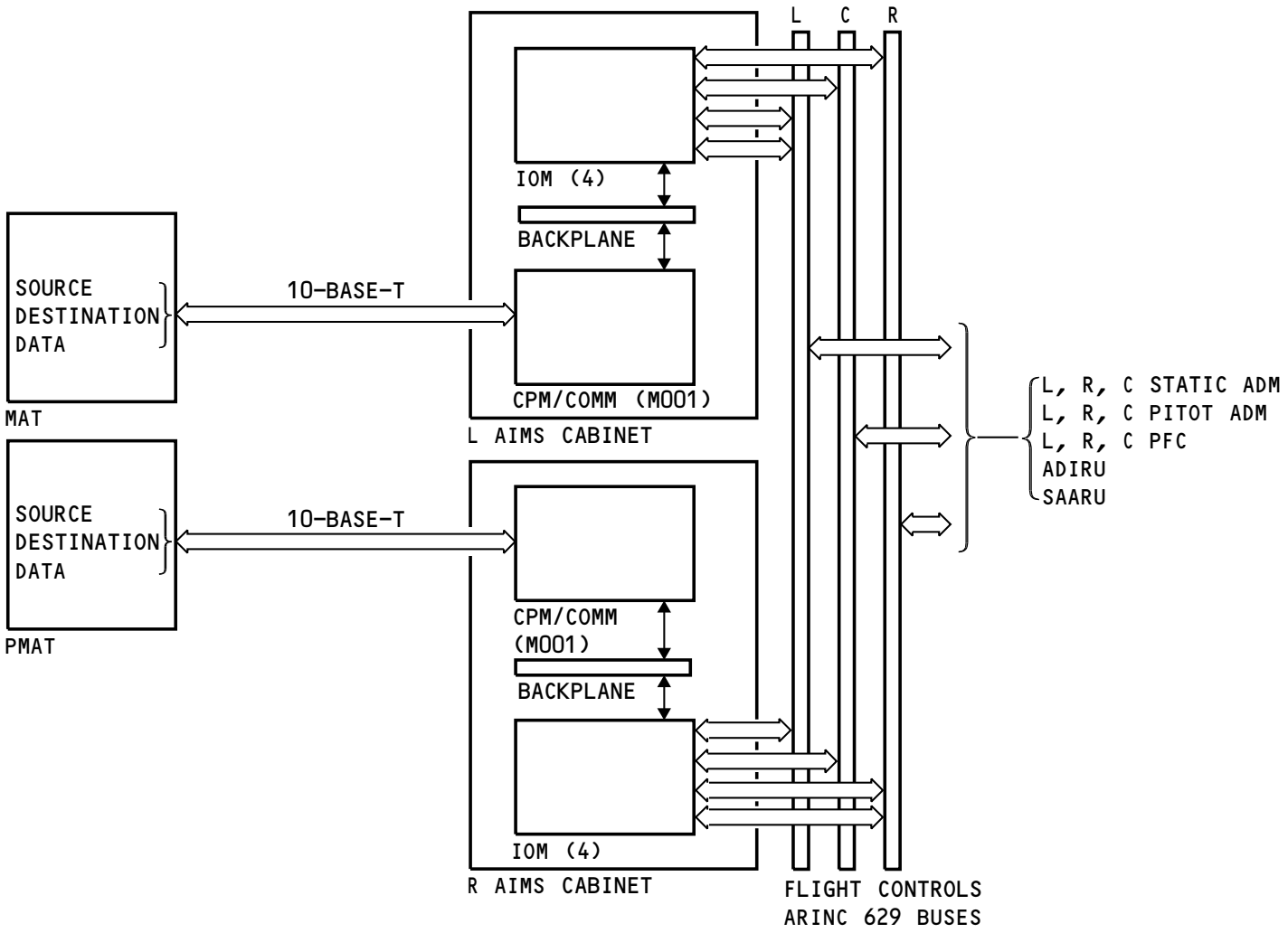
CMCS - ARINC 429 DATA LOAD INTERFACE

Flight Controls ARINC 629 Data Buses

The data load information goes to the flight controls system LRUs on the left, center, or right flight controls ARINC 629 data buses.



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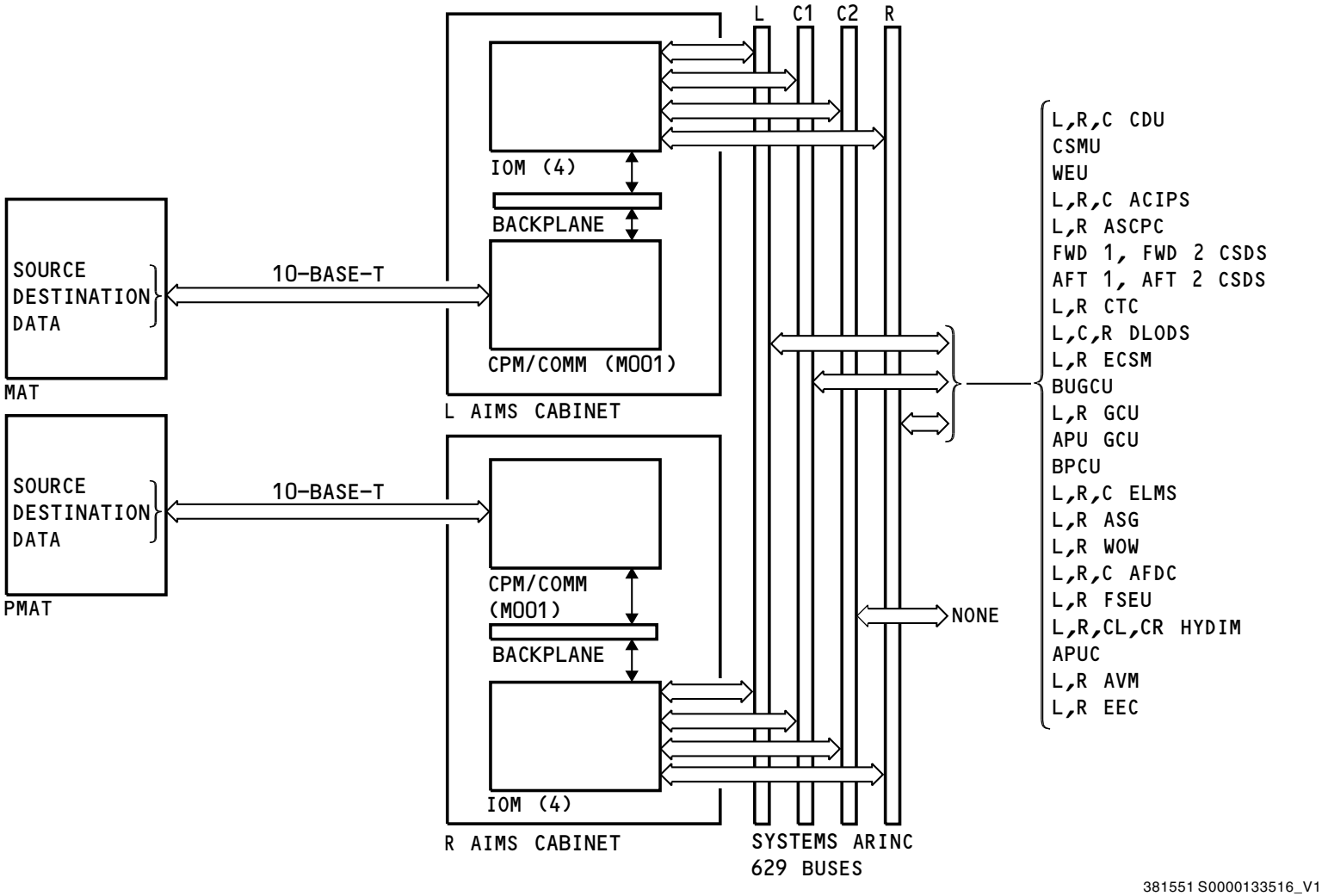
CMCS - FLIGHT CONTROLS ARINC 629 BUS DATA LOAD INTERFACE

Systems ARINC 629 Buses

The data goes to the airplane system LRUs on the left, center 1, or right systems ARINC 629 data bus. No data goes out on the center 2 systems ARINC 629 data bus.



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CMCS - SYSTEMS ARINC 629 BUS DATA LOAD INTERFACE

CMCS ARINC 429 Bus Control

The central maintenance computing system (CMCS) buses connect the left and right AIMS cabinets with LRUs that use the ARINC 429 standard for digital data transfer. The CMCF supplies data to three low speed ARINC 429 transmitters in each AIMS cabinet. Three source select relays in the left AIMS cabinet select between the left and right AIMS cabinets as the data source to the LRUs.

The left CMCF controls the source select relays. If the left CMCF is the primary CMCF, the relays are energized and the left CMCF supplies the outputs on the CMCS buses.

If an IOM fails in the left AIMS cabinet, the relay relaxes in that IOM and the data comes from the right CMCF.

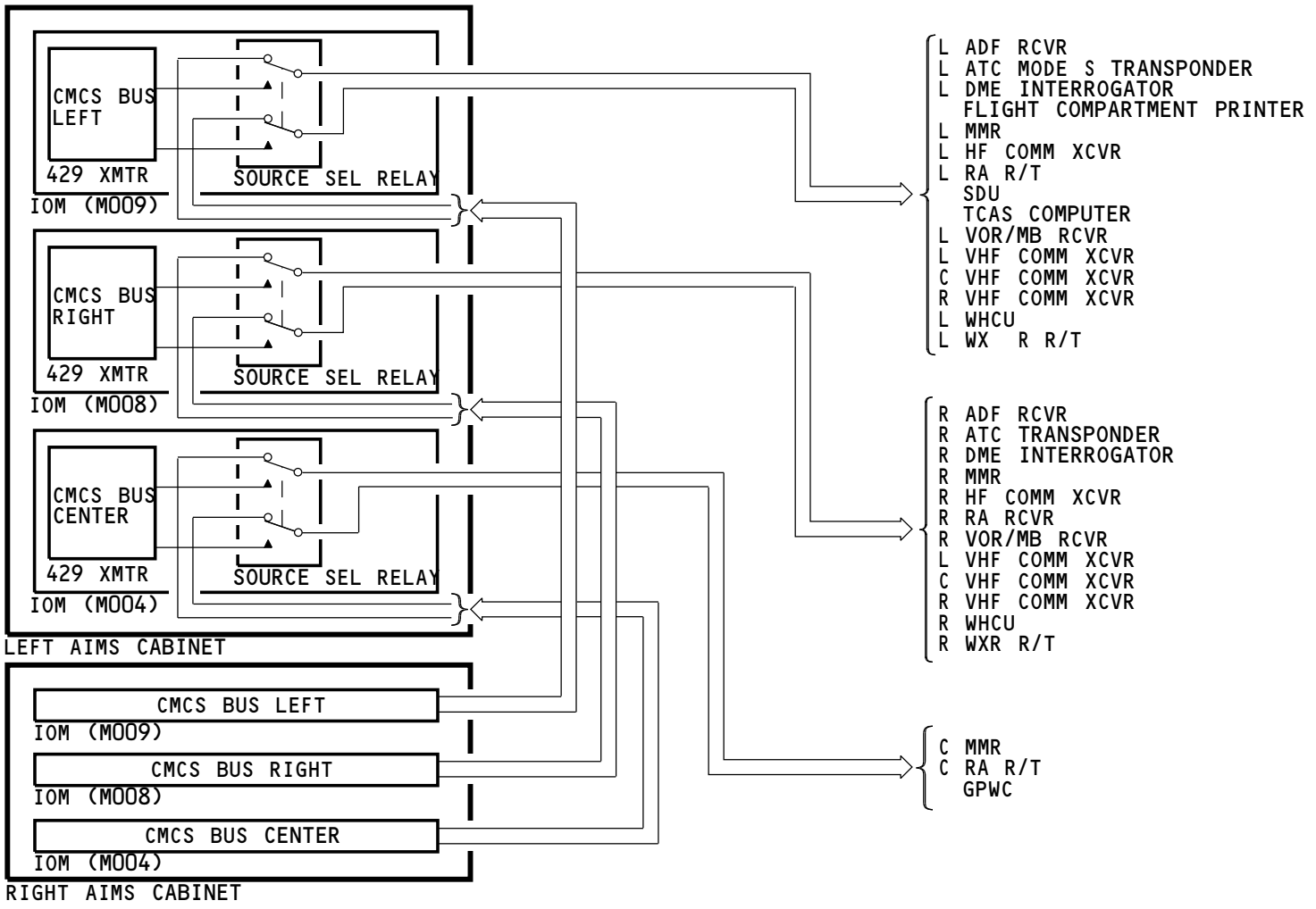
If the left CMCF fails, all three relays relax and the data on the CMCS buses comes from the right CMCF.

CMCS ARINC 429 Outputs

The LRUs that receive data on the CMCS buses are the:

- ATC mode S transponder; left and right
- ADF receiver; left and right
- DME interrogator; left and right
- Flight compartment printer
- GPWC
- HF communication transceiver; left and right
- Multi-mode receivers (MMRs); left, right and center
- Radio altimeter receiver/transmitter; left, right and center
- Satellite data unit
- TCAS computer
- VHF communication transceiver; left, right and center
- VOR/MB receiver; left and right
- Weather radar receiver/transmitter; left and right
- Window heat control unit; left and right.

The CMCS data includes maintenance test command data and flight phase data.



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CMCS - ARINC 429 INTERFACES

CMCS - MAINTENANCE ACCESS TERMINAL

Purpose

The maintenance access terminal (MAT) gives access to the central maintenance computing system (CMCS) and the airplane condition monitoring system (ACMS).

General Description

The MAT system is in the flight compartment. It has a touch screen to let you operate with the Aircraft Information Management System (AIMS). It has Universal Serial Bus (USB) ports use to connect compatible Ground Support Equipment (GSE). The Maintenance Access Terminal has these components:

- Electronic Display Unit (EDU)
- Enhanced Electronic Module Unit (EEMU)

Electronic Display Unit (EDU)

The Electronic Display Unit (EDU) is a component of the Maintenance Access Terminal (MAT). The EDU is installed in the second observers console, P18. It has a 12 inch touch screen and interfaces with the Enhanced Electronic Module Unit (EEMU). These are the following interfaces with the Enhanced Electronic Module Unit (EEMU):

- Universal Serial Bus (USB)
- 18 Volts Direct Current (VDC) electrical power.

The Electronic Display Unit (EDU) has two external Universal Serial Bus (USB) ports. Use these ports to connect external Ground Support Equipment (GSE) devices. These are the front panel controls on the Electronic Display Unit (EDU):

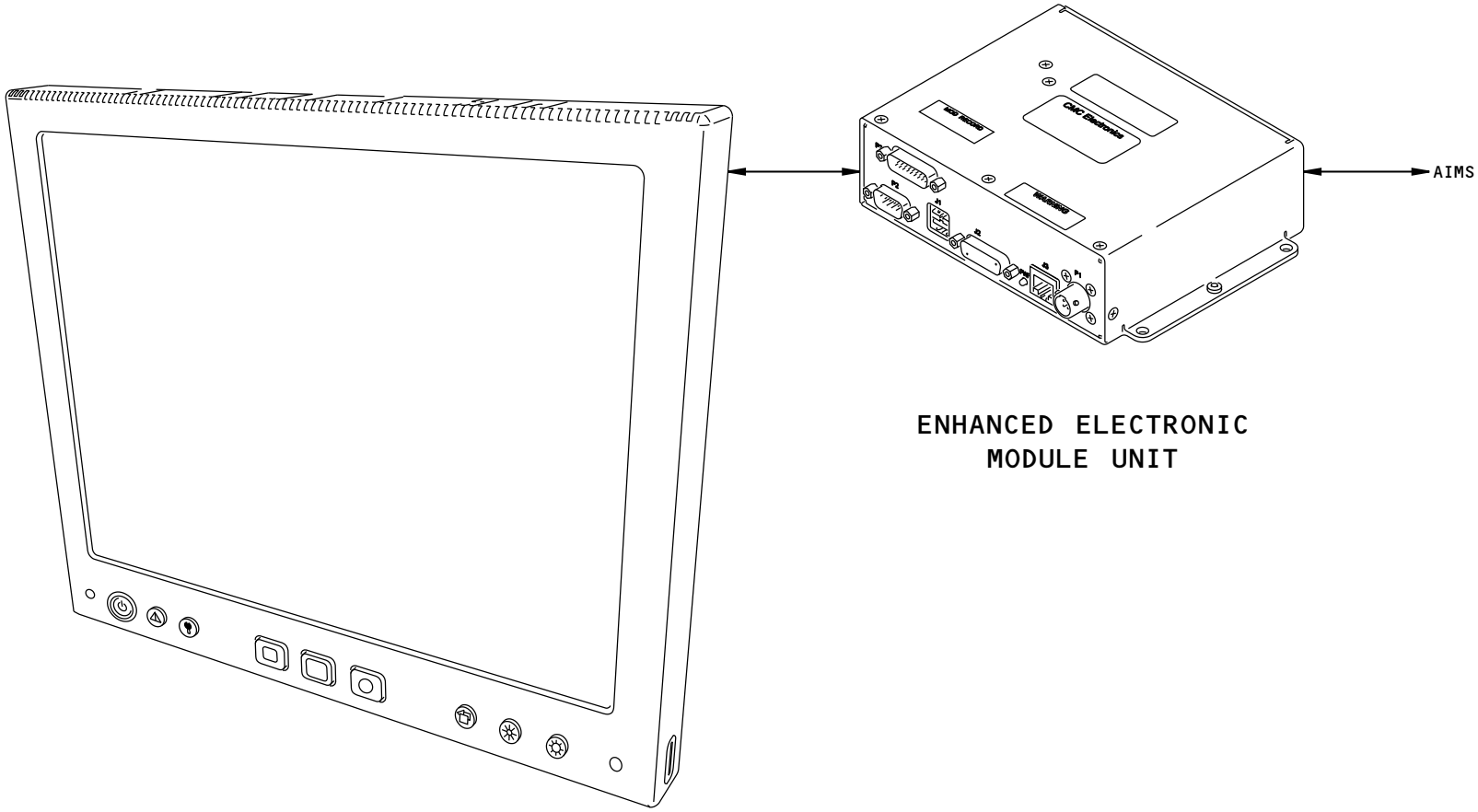
- Power – alternate push on, push off
- Health and monitor – status of the Electronic Display Unit (EDU)
- Return to Main Menu
- Virtual keyboard
- Brightness

Enhanced Electronic Module Unit (EEMU)

The Enhanced Electronic Module Unit (EEMU) is a component of the Maintenance Access Terminal (MAT). The EEMU is installed in the second observers panel, P18. It has an Ethernet status indicator and interfaces with the Electronic Display Unit (EDU). These are the connections on the Enhanced Electronic Module Unit (EEMU):

- P3 – Aeronautical Radio Incorporated (ARINC) 429
- P2 – RS232
- J1 – 2 Universal Serial Bus (USB)
- J2 - Electronic Display Unit (EDU) interface
- 10/100 T Base Ethernet
- P1 – 28 Volts Direct Current (VDC) electrical power.

The Enhanced Electronic Module Unit (EEMU) has 2 external Universal Serial Bus (USB) ports (J1). One external Universal Serial Bus (USB) port connects to the CD/DVD ROM Drive, std 13362. The internal USB port connects to the Electronic Display Unit (EDU), and one analog discrete interface connects to an air/ground signal. The Enhanced Electronic Module Unit (EEMU) sends power to the Electronic Display Unit (EDU).



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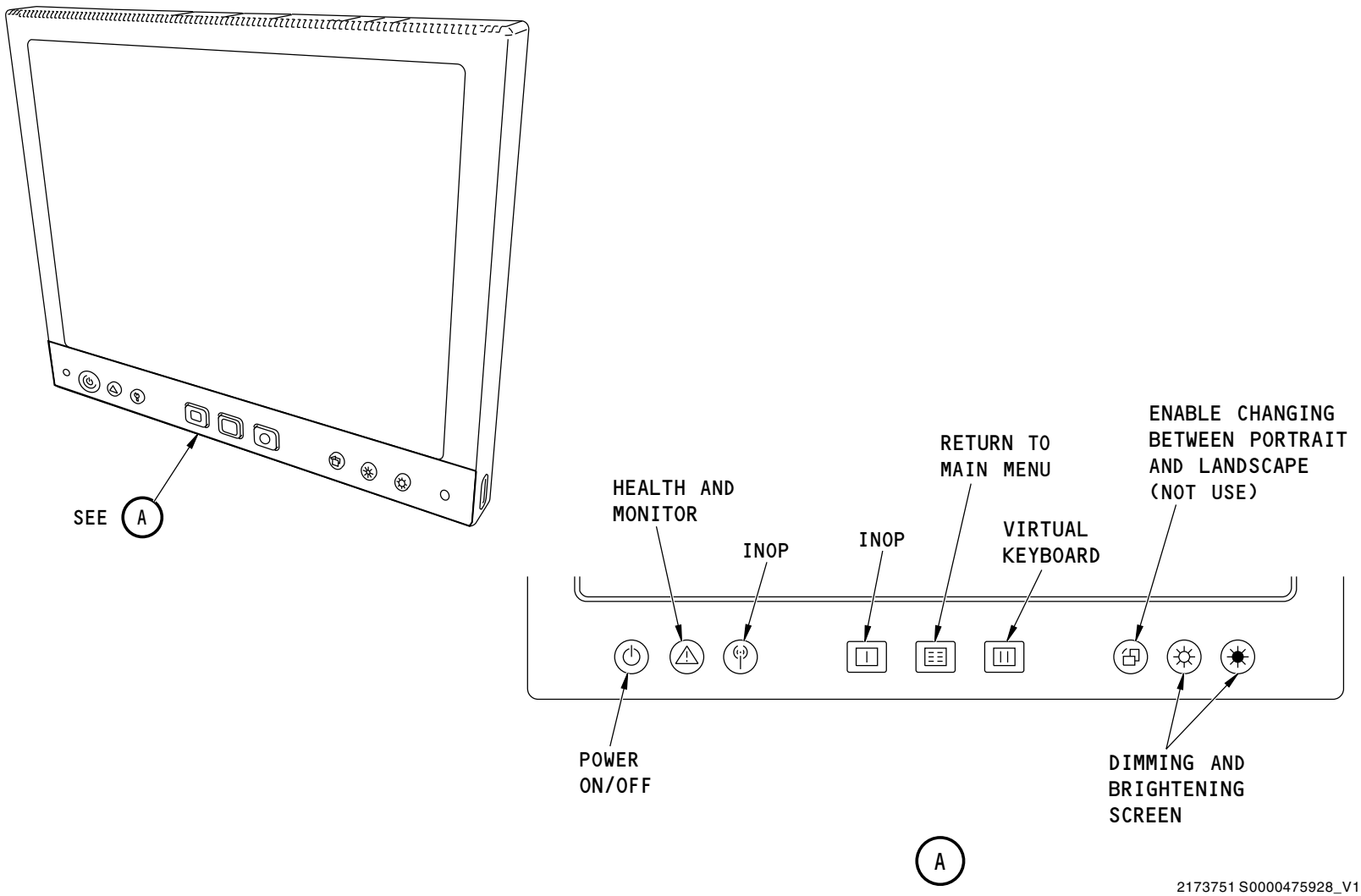
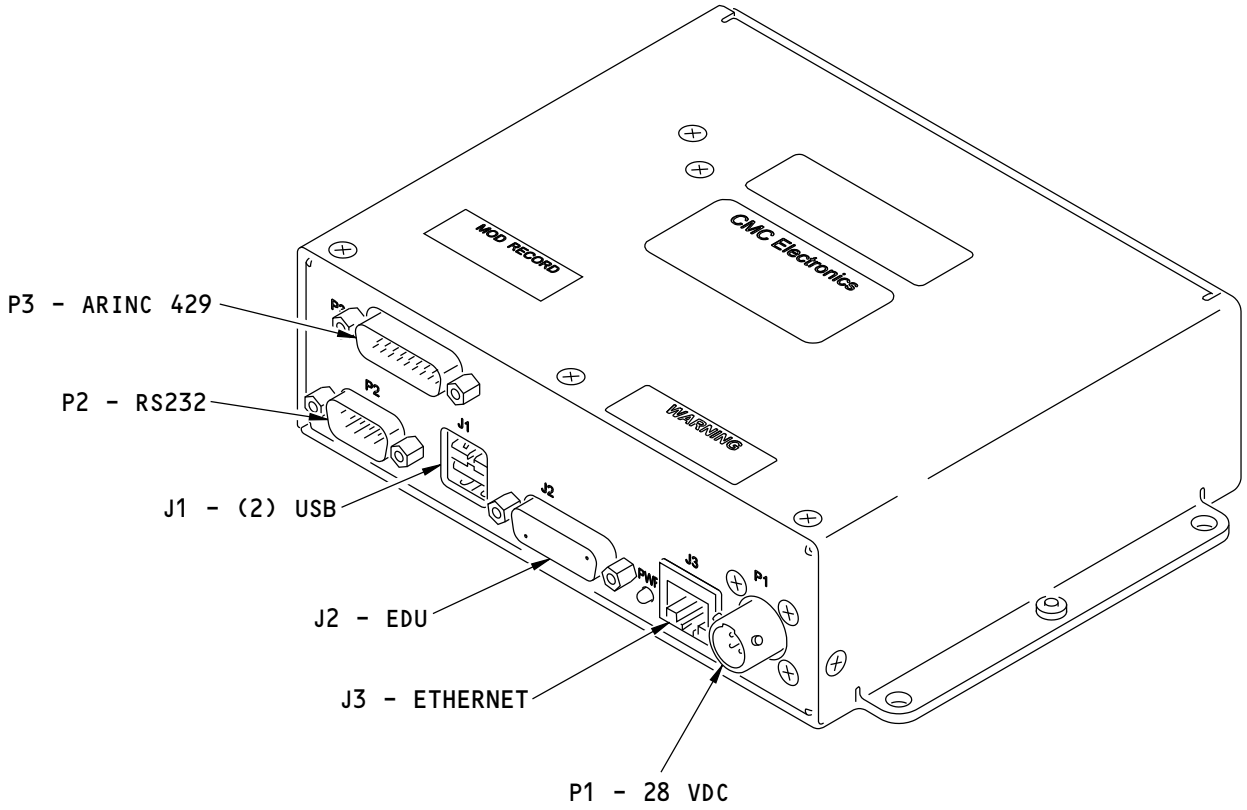
CMCS - MAINTENANCE ACCESS TERMINAL



CMCS - MAINTENANCE ACCESS TERMINAL



ENHANCED ELECTRONIC MODULE UNIT

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CMCS - MAINTENANCE ACCESS TERMINAL

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CMCS - FUNCTIONAL DESCRIPTION

General

The CMCF is software in the IOM that does many operations.

The CMCF divides the software into many sub-functions. The software sub-functions supply these:

- Redundancy management
- BITE
- Power-up configuration checks
- Power-up hardware failure detection
- Fault data processing
- Fault and FDE correlation
- Data tables
- Flight leg and flight phase calculations
- Ground tests
- Input monitoring
- Special functions
- PSEU and air/ground rigging/calibration
- On-board engine balancing
- System configuration
- Software controlled options
- Shop faults processing
- Airline database
- Report generation
- Data load gateway
- Interface protocol.

There is CMCF software in each IOM.

Redundancy Management

Each CMCF supplies a redundancy management sub-function which does:

- Dual CMCF configuration checks
- CMCF fault history database synchronization
- Central maintenance source switching
- Offside CMCF data access.

After power-up, if both the CMCFs are operational then the primary CMCF is the left CMCF. The secondary CMCF is the right CMCF. The primary CMCF controls all the CMCF outputs to the airplane systems. The right CMCF becomes the primary CMCF if the left CMCF fails or if changed by the central maintenance source switching selection on the MAT/LMAT.

The CMCFs do configuration checks continuously after a power-up. During dual operation, the CMCFs do configuration checks for these:

- Operational program configuration files (OPC)
- Operational program software (OPS)
- Airline modifiable information (AMI)
- Fault history databases
- Manual flight leg enabled/disabled condition.

In case of a configuration check difference between the two CMCFs, the CMCF shows a warning dialog box on the MAT/LMAT.

For different AMIs between the two CMCFs, the CMCFs:

- Record a shop fault message
- Generate a fault report
- Continue to operate normally.

The primary CMCF automatically cross loads the flight leg enabled/disabled condition to the secondary CMCF when the two CMCFs manual flight leg enable/disable conditions are different.

The CMCF supplies an automatic way to maintain an identical fault history database in both CMCFs at all times. The primary CMCF cross loads the fault history database to the secondary CMCF automatically whenever the two databases are different. The primary CMCF cross loads the fault history database in 1 minute.

The primary CMCF can be switched from one CMCF to the other CMCF. The MAT/LMAT supplies the central maintenance source switching operation. The central maintenance source switching is inhibited during these conditions:

- Ground tests operation
- Data load operation
- One CMCF failure
- Onboard engine balancing system operation.

Each CMCF gets data from the other CMCF for input monitoring and reports from the AIMS intercabinet buses.

CMCF BITE

Each CMCF has BITE which detects any CMCF software partition failures. A CMCF fails if the CMCF BITE detects one of these:

- Bad data tables
- Loss of maintenance message correlation to flight deck effects (FDEs)
- Bad stored fault history database
- Loss of MAT, LMAT, or PMAT communications.

The CMCF BITE records a shop fault message when a failure occurs. After a CMCF failure, the failed CMCF if in control, loses control to the offside CMCF. The offside CMCF becomes the primary CMCF.

Single CMCF Power-up Configuration Checks

Each CMCF does configuration checks during power-up or after the software load of an OPS, OPC, data table, or airline database. The CMCF does configuration checks for an:

- Invalid or missing OPC
- Invalid or missing OPS
- OPC that is incompatible with the OPS
- Invalid or missing AMI
- AMI that is incompatible with the OPS.

If a configuration check finds a failure the CMCF records a shop fault message. The CMCF also shows a warning dialog box for each failure.

Single and Dual Hardware Power-up Failures

The CMCFs check for hardware failures at power-up. A failure indication, R CMCF or L CMCF Initialization Failed, shows on the MAT/LMAT if one of the CMCFs has a hardware failure at power-up. The CMCF also records a shop fault message. The CMCF with no failures is the primary CMCF and supplies the CMCF outputs.

If both CMCFs have hardware failures at power up, Initialization Failed shows on the MAT/LMAT. The CMCFs record a shop fault message.

Fault Data Processing

The CMCF fault processing sub-function:

- Processes inputs
- Inhibits invalid fault reports
- Creates limited fault reports
- Removes cascaded effects of failures
- Correlates FDEs and maintenance messages
- Stores FDEs and maintenance messages.

Loadable Diagnostic Information

The CMCF requests data from the loadable diagnostic information (LDI) to operate. The LDI contains:

- Fault data
- FDEs data
- MOs data
- Maintenance page snapshots (MPSs) data
- Fault correlation algorithms
- LRUs that the CMCF has access to for shop faults information
- Options

- LRU/LRM installation data.

Flight Leg and Flight Phase Calculations

The CMCF calculates the airplane flight legs. The flight legs are calculated as:

- Present leg = leg 0
- Last leg = leg -1
- Previous legs = legs -2, -3, -4, etc. to -99.

The CMCF calculates the airplane flight phases, which are:

- Power on
- Engine start
- Taxi out
- Takeoff roll
- Initial climb
- Climb
- Cruise
- Descent
- Approach
- Go around
- Flare
- Rollout
- Taxi in
- Shutdown
- Maintenance.

Ground Tests

The CMCF controls ground tests for the airplane systems. These are the three types of ground tests:

- System test
- Operational test
- LRU replacement test.

System tests make sure the system meets all tolerances and specifications for in-service use.

Operational tests are short tests that find if the system is operational.

LRU replacement tests make sure that you installed an LRU correctly and it does a check of airplane system interfaces.

Some of the grounds tests are interactive tests. Interactive tests require interaction on the MAT/LMAT to complete the test.

The CMCF transmits test commands and receives test replies from the airplane systems on the:

- ARINC 629 buses
- ARINC 429 buses
- Onboard local area network (OLAN).

System Configuration

The CMCF supplies equipment and software identification (ID) data from many LRUs and LRMs to show on the MAT (or LMAT). The CMCF transmits ID data to and receives system configuration data from LRUs and LRMs connected to the:

- ARINC 629 buses
- ARINC 429 buses
- OLAN.

Input Monitoring

The CMCF has an input monitoring sub-function which receives input signals and supplies the signals for display on the MAT. The CMCF monitors these five signal input types:

- ARINC 629
- ARINC 429

- Analog variable
- Analog discrete
- AIMS intermodule memory (IMM).

Onboard Engine Balancing

The CMCF, with the left and right airborne vibration monitoring units, supplies the onboard engine balancing system (OEBS). The airbone vibration monitoring units transmit data to the CMCF for the OEBS.

The CMCF starts and controls the engine balancing procedure. The CMCF also supplies the displays for the engine balancing procedure.

PSEU and Air/Ground Rigging/Calibration

Rigging is a procedure where a mechanic uses information shown on the PSEU and air/ground rigging/calibration display to make sure a sensor installation is correct. The manual mechanical rerigging of a sensor installation is also possible with the information shown on the display.

Rigging calibration permits the mechanic to change the sensor operation range from the MAT. This feature permits compensation for small differences in sensor installations.

The PSEU and air/ground rigging/calibration sub-function receives data from the:

- Left proximity sensor electronics unit (PSEU)
- Right PSEU
- Left weight on wheels (WOW) card
- Right WOW card.

You can rig or calibrate only one sensor at a time per PSEU or WOW card.

The CMCF supplies rigging and rigging calibration information for:

- Air/ground sensors
- Nose gear sensors
- Left and right main gear sensors
- Tail strike sensors
- Left and right thrust reversers indication sensors
- Forward and aft cargo doors control sensors
- Forward and aft cargo doors indication sensors
- Passenger entry doors flight lock sensors
- Passenger doors indication sensors
- Forward access door sensor
- Electrical/electronic access door sensor.

Special Functions

The CMCF supplies special functions for certain LRUs and LRMs. The protocols for special functions is the same as the protocols for ground tests. The CMCF transmits data to and receives data from the LRUs and the LRMs to show special function displays on the MAT.

Data Load Gateway

The data load gateway sub-function supplies the transfer of data between a data loader and an LRU or LRM. The data load gateway sub-function permits only one software data loading or recording session at a time.

The data load gateway sub-function moves the data between a source and a destination. The sources and destinations are LRUs and LRMs.

The sources of data for data loading are the:

- MAT
- PMAT.

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- ONS MSD

ARO ALL

The data load gateway sub-function can update a destination software configuration or record data from an LRU.

The data load gateway sub-function permits data transfers when weight is on the wheels for 5 minutes and computed airspeed is less than 40 knots.

The data load gateway sub-function supplies data to show that a destination LRU is being loaded by the data load gateway sub-function. This permits the fault processing sub-function not to show that the destination LRU has failed due to lack of response or incorrect output due to the load process. The data load gateway sub-function sends control and status data, and receives control and status data from the:

- ARINC 629 buses
- ARINC 429 buses
- PlaneNet LAN

Software Controlled Options

The CMCF identifies software controlled options by the:

- Operational program configuration (OPC) file
- Airline modifiable information (AMI)
- CMCF options display on the MAT or LMAT
- Fault table software inhibits in the data tables.

Shop Faults

The CMCF shop faults sub-function supplies a way for maintenance personnel to show and to report shop fault data stored in LRUs and LRMs, including the AIMS functions.

Shop fault data is a combination of LRU maintenance information and failure information that the LRU detects by BITE. The LRU stores the maintenance and failure information in non-volatile memory (NVM) for use during shop maintenance.

The CMCF supplies access to the shop faults data on the MAT/LMAT.

Airline Modifiable Information

These are the types of data which the airline modifiable information (AMI) supplies for the CMCF:

- Notes text for maintenance messages, ground test displays, and configuration displays
- Help text for CMCF dialog boxes and displays
- The types of reports available
- Event triggers for automatically generated reports
- Tail number cross reference table which gets the specific tail number associated with the received international civil aviation organization (ICAO) number from the ATC transponder.

Report Generation

The CMCF report generation sub-function processes requests for CMCF reports from:

- The MAT dialog boxes or displays
- The PMAT dialog boxes or displays
- A ground station via datalink
- The flight deck communication function (FDCF)
- The MAT disk drive.

ARO 014-999

- The ONS

ARO ALL

The CMCF also generates event triggered reports. The CMCF generates reports of the requested data and transmits the data to:

- The flight compartment printer
- A ground station
- The MAT disk drive
- The PMAT disk drive
- A USB flash drive in the MAT.
- The ONS MSD

The print driver sub-function in the data communication management function (DCMF) receives the CMCF report data for the flight deck printer. The ACARS datalink sub-function in the DCMF receives the CMCF report data for transmission to a ground station. The OLAN sub-function in the DCMF receives the CMCF report data for transmission to the MAT, LMAT or PMAT over the AVLAN or PlaneNet.

The CMCF supplies one report at a time. The CMCF generates reports automatically at selected CMCF flight events. The flight events are program selectable and deselectable on the GBST. The CMCF transmits the flight event data to ground stations via datalink.

CMCF Interface Protocol

The CMCF interface protocol supplies the communications with the:

- DCMF
- PDF EICAS sub-function
- FMCF
- ARINC 629 buses
- ARINC 429 buses
- PlaneNet

The CMCF transmits data to and receives data from the DCMF. The data is used for:

- Downlink and uplink communications
- PlaneNet
- Flight deck printer communications.

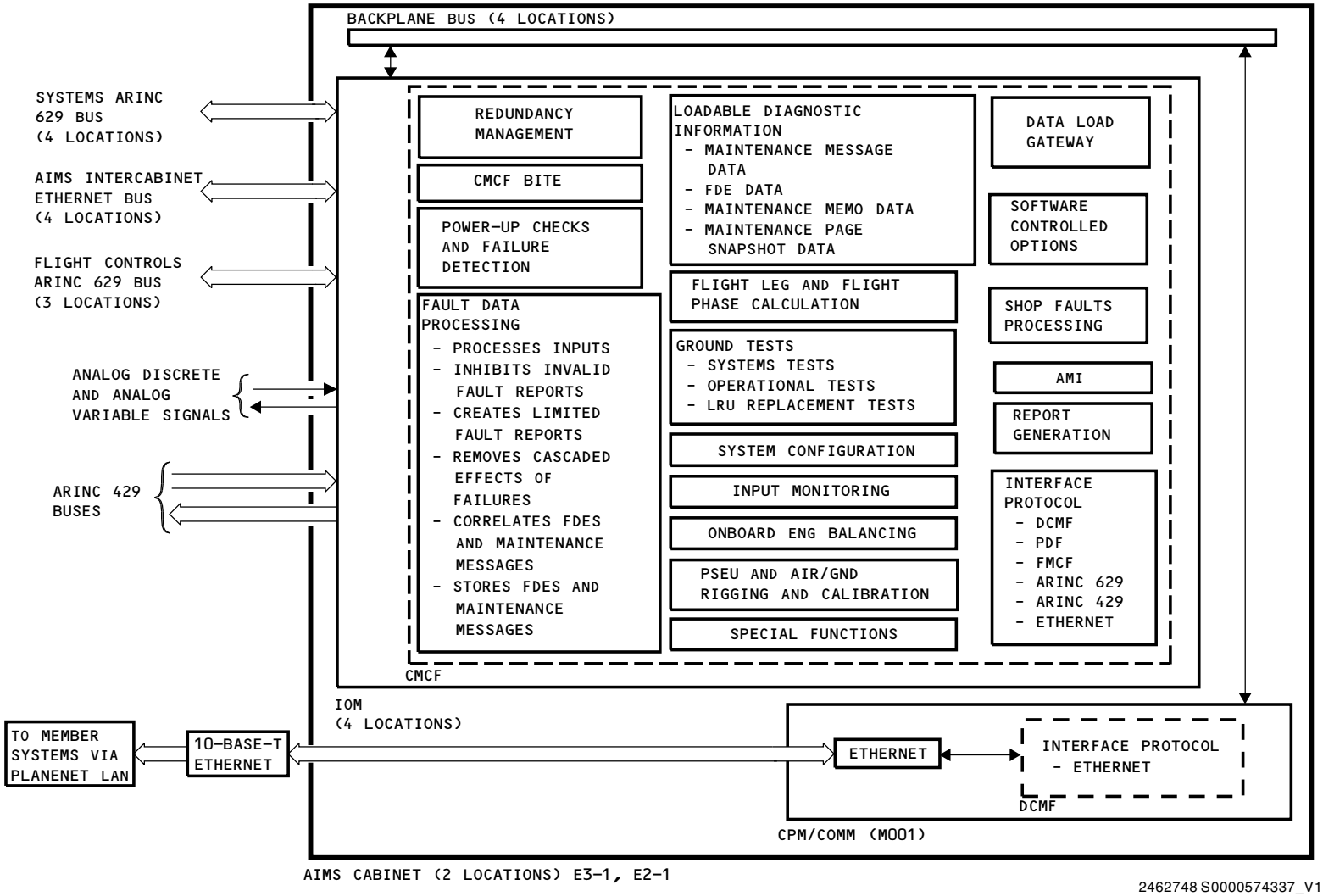
The PDF EICAS sub-function supplies FDE status data to the CMCF, which indicates the active, inactive and latched states of the FDEs.

The FMCF transmits data to the CMCF. The CMCF receives:

- Flight phase
- Flight number
- City pair
- Top of descent.

The CMCF transmits data to and receives data from many LRUs and LRMs. The CMCF supplies three interface protocols for communications with the LRUs and LRMs:

- ARINC 629 protocol
- ARINC 429 protocol
- PlaneNet protocol



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CMCS - FUNCTIONAL DESCRIPTION

CMCS - FAULT PROCESSING - FUNCTIONAL DESCRIPTION

Fault Processing

The CMCF fault processing sub-function does:

- Input processing
- Inhibits and special case BITE
- Cascaded effect removal
- Consolidation
- Maintenance message and FDE correlation
- Maintenance message and FDE storage.

The fault processing sub-function uses loadable diagnostic information (LDI). The LDI is the set of rules the fault processing sub-function uses to process these faults:

- Airplane configuration
- LRU relations
- Fault report inhibit conditions
- LRUs that do and do not report faults
- Maintenance message definitions
- Correlation information.

The fault processing sub-function receives:

- Fault reports from airplane systems
- Flight deck effects (FDEs) from the primary display system (PDS)
- Discrete signals.

It isolates the failures that caused the messages to airplane LRUs and interconnects. The failure information is related or correlated to the applicable FDEs. This information is kept for use by the mechanic for troubleshooting.

The fault processing sub-function also prevents incorrect fault reports caused by transient and normal airplane conditions from being processed.

Input Processing

The CMCF fault processing sub-function can process up to 5000 fault reports per second. It can receive up to 25000 faults per second. When the fault processing sub-function receives more than 5000 faults reports per second, it stores the reports and processes them at a later time.

The CMCF fault processing sub-function also identifies if the fault reports are correct and if the LRUs sending the fault reports are currently active.

Inhibits and Special Case BITE

The fault processing sub-function removes fault reports caused by these normal airplane conditions:

- When you first apply power to the airplane
- When you start an engine
- When you remove power from the airplane
- When an engine is shutdown.

The fault processing sub-function also makes fault reports for systems that do not monitor for faults.

Cascaded Effect Removal

The fault processing sub-function supplies software to stop fault reports that are cascaded effects of upstream failures. This prevents the mechanic from troubleshooting faults which are side effects of real faults.

Consolidation

The fault data processing sub-function puts fault reports into groups and relates them to a single maintenance message. The maintenance messages are kept and displayed for troubleshooting.

Maintenance Message and FDE Correlation

The CMCF correlates active maintenance messages to active or latched Flight deck effects (FDEs) and maintenance memos (MOs).

The CMCF has logic that makes a relation between maintenance messages and FDEs. When an FDE occurs and the CMCF receives a maintenance message that has a relation to the FDE, the CMCF correlates the FDE to the message. The CMCF correlates the maintenance message and the FDE, or MO if the two are active or latched at the same time.

The CMCF also correlates active maintenance messages with active MOs.

The CMCF receives the airplane system maintenance message data and maintenance memo messages from these:

- ARINC 629 buses
- ARINC 429 buses
- Onboard local area network.

The PDF contains about 1800 FDEs. The airplane systems can supply about 200 MOs and about 15,000 maintenance message data.

The CMCF can correlate active, inactive, or latched maintenance messages to FDEs or MOs of:

- 5000 correlations for fault history
- 7000 correlations for existing faults.

Maintenance Message & FDE Storage

The CMCF keeps a fault history database that has:

- Fault or maintenance message data
- FDE data
- MO data.

Fault information for each maintenance message in the fault history database includes:

- Message number
- ATA chapter number
- Symptom text
- Activity
- Intermittence
- Intermittence number
- Flight phase
- Date and time
- Correlated FDE, MO, MPS
- Flight leg
- Equipment ID.

The CMCF can store 1000 maintenance messages in fault history memory and 2000 maintenance messages for existing faults.

Each FDE and MO in the fault history database includes:

- Text
- Level
- FRM code
- Activity
- Date and time
- Flight phase.

The CMCF supplies fault correlation history storage for:

- 100 FDEs
- 100 MOs
- 50 MPSs.

The CMCF stores FDE and MO correlations only once per fault per flight leg.

The CMCF keeps the fault history database for as many legs as required to fill the database.

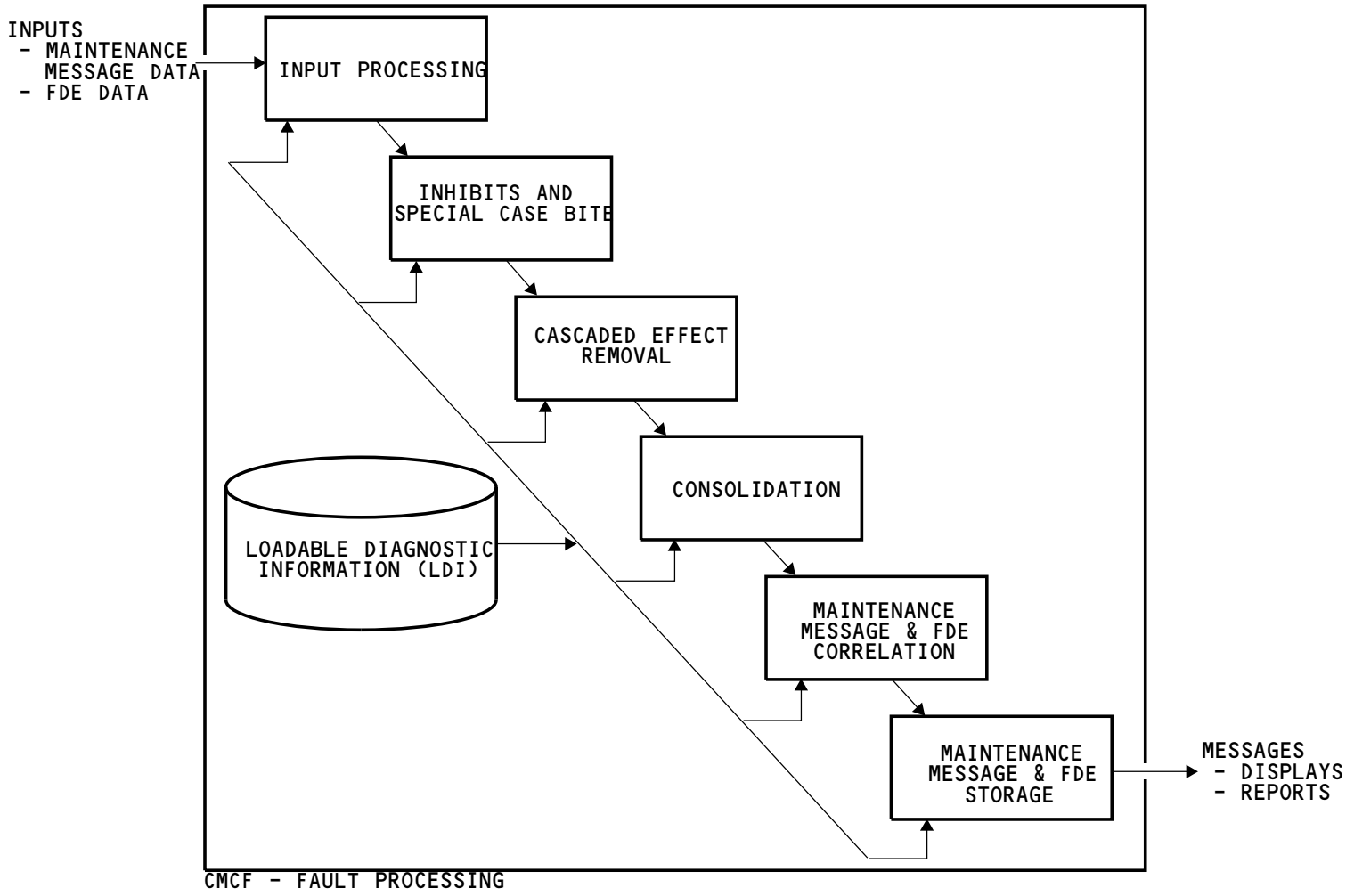
The CMCF manages the flight leg transitions of the fault database, where the present flight leg is leg 0.

When manually done from the MAT, the CMCF removes all:

- Occurrences of a fault from the fault database

- Occurrences of faults related to an ATA chapter
- Faults from the fault database.

The CMCF can supply a download of the fault history database to the MAT disk drive module or USB flash drive. The CMCF can also accept an upload of a fault history database from the MAT disk drive module or USB flash drive.



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CMCS - FAULT PROCESSING - FUNCTIONAL DESCRIPTION

CMCS - AIRLINE MODIFIABLE INFORMATION

General

The design of the 777 airplane lets the airlines customize certain functions in the central maintenance computing system (CMCS). You customize these functions through airline modifiable information (AMI). You use the ground based software tool (GBST) to make the modifications.

The CMCS system comes with a baseline AMI. The baseline AMI for this system has HELP pages only.

The total memory available for the CMCS AMI is one megabyte. This total includes the baseline AMI and any modifications you make using the GBST.

You use the GBST to modify these:

- Help
- Reports selections
- Tail number cross reference table.

Baseline Help

The baseline AMI provides help screens for displays and dialog boxes.

Modifiable Functions

You can modify the baseline AMI and show help for most displays and most dialog boxes.

You can use the GBST to specify a selection for an automatic downlink of CMCF reports. You can specify these:

- Type of report to downlink
- Trigger for the report
- Destination (VHF or SATCOM)
- Downlink label and sublabel.

You can have a table to define the airplane tail identification. This table correlates to the ICAO addresses with tail numbers to allow proper identification for downlinked messages. This table has all the tail numbers for the airplanes in your 777 fleet.

Training Information Point

The CMCS AMI supplies the airplane tail identification to the data communication management system (DCMS). The DCMS aircraft communication addressing and reporting system (ACARS) sub-function must have this information to operate.

BASELINE AMI

HELP PAGES

MODIFIABLE FUNCTIONS

HELP PAGES
REPORTS SELECTION
TAIL NUMBER CROSS REFERENCE TABLE

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CMCS - AIRLINE MODIFIABLE INFORMATION

CMCS - FLIGHT LEG LOGIC

General

You can review fault data on the MAT by flight legs. The CMCF computes the flight legs.

The flight leg logic defines the flight leg period. There are no time gaps between flight legs. When one flight leg ends, the next flight leg begins.

Flight Leg Transition Logic

The CMCF transitions or increments the flight leg when all of these conditions are true:

- The airplane is on the ground
- Either one of the engines is running after both have been shut down or one or both engines are running and the last door transitions from open to closed
- The flight leg transition is enabled.

Flight Leg Enable Logic

The flight leg enable logic prevents nuisance flight legs because of engine starts and shutdowns or doors open and closed.

A flight leg enable occurs when either of these are true:

- You manually enable the flight leg on the MAT
- The CMCF detects parking brakes off, engine at takeoff thrust, and a ground speed of more than 80 knots.

After the enable occurs, The CMCF stores it until the next flight leg transition logic becomes true.

When the CMCF uses the enable, a new flight leg enable must occur before the next flight leg can transition.

When the flight leg transition occurs, the CMCF generates a transition inhibit. This inhibit resets the enable logic. You can also manually set the transition inhibit on the MAT.

The next flight leg enable causes the inhibit to go away.

Flight Leg Calculations

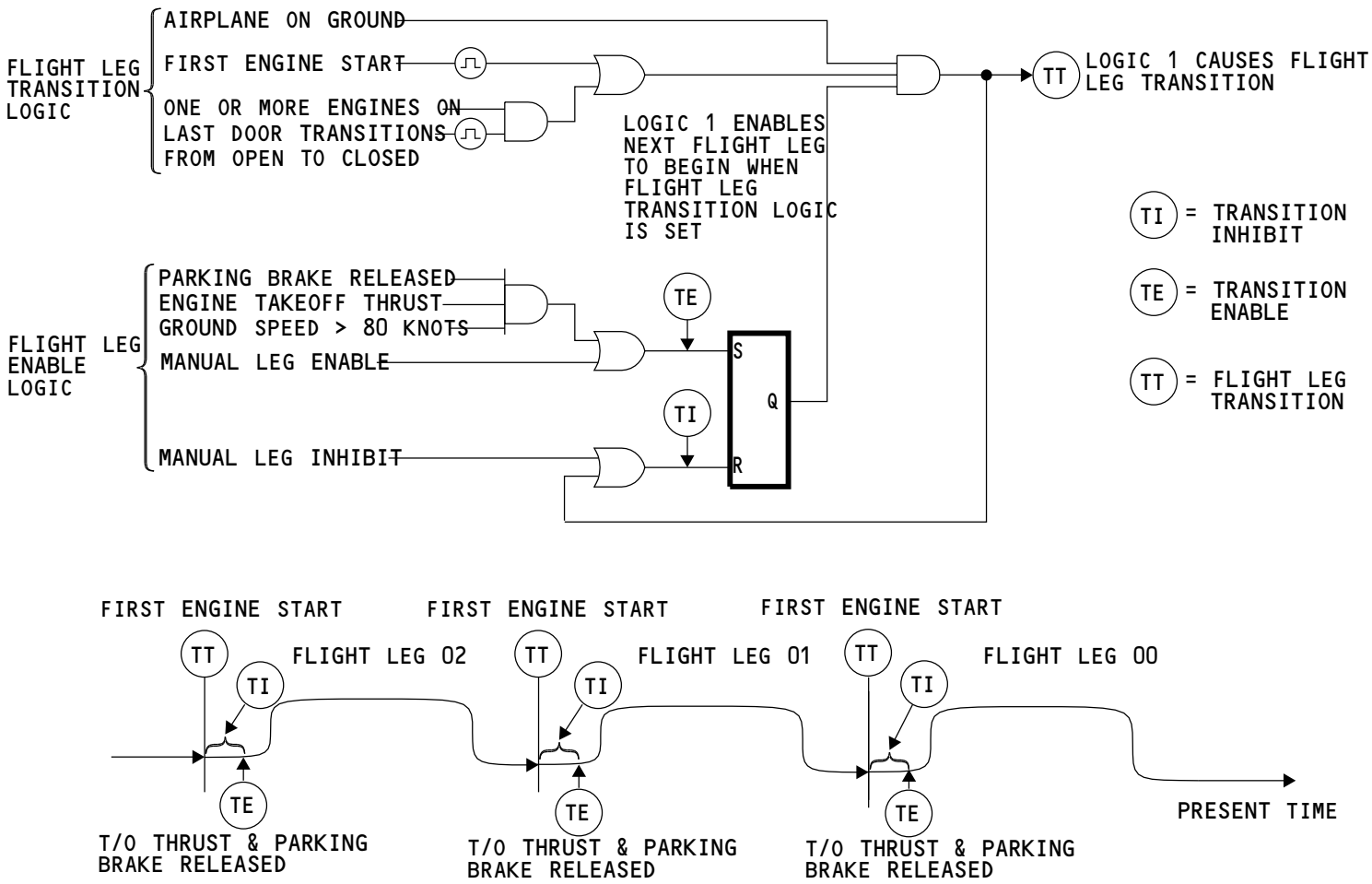
The current flight leg shows as flight leg 00.

The previous flight leg shows as flight leg 01.

Other flight legs show as 02, 03, 04,...99. The CMCF stores the most recent 100 flight legs.

Flight legs help identify faults stored for these:

- Inbound flight deck effects
- Present leg faults
- Fault history.



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CMCS - FLIGHT LEG LOGIC

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CMCS - FLIGHT PHASES - 1

Flight Phase Logic

The CMCF in AIMS calculates flight phases. A flight leg has several flight phases. The CMCF uses specific logic for these calculations. The logic includes:

- Only one flight phase is active at any time
- A flight phase remains active until conditions for a new flight phase exist
- The maintenance (MT) flight phase has priority over all other flight phases
- The engine start (ES) flight phase has priority over all flight phases except MT
- The shutdown (SD) flight phase has priority over all flight phases except ES and MT
- The go around (GA) flight phase has priority over all flight phases except MT, ES, SD and climb (CL)
- The approach (AP) and flare (FL) flight phases have priority over descent (DC).

Flight Phase Calculations

The CMCF uses specific inputs to calculate and transition flight phases. There are fifteen flight phases.

Flight phases show on various CMCS displays to show the part of the flight that a fault first becomes active.

Power On (PO) Flight Phase

PO is the CMCF default flight phase. The CMCF transitions to PO when both of these are true:

- There is power on the airplane
- No other flight phase conditions are true.

Engine Start (ES) Flight Phase

The CMCF transitions to ES when these are true:

- The airplane is on the ground
- An engine's starter air valve transitions from closed to open.
- The engines fuel switch is in the RUN position
- N2 is less than idle.

Taxi Out (TA) Flight Phase

The CMCF transitions to TA when all of these are true:

- At least one engine has N2 equal to or greater than idle
- The airplane is on the ground
- The airplanes ground speed (GS) is less than 80 knots
- The flight leg transition is disabled.

Takeoff Roll (TO) Flight Phase

The CMCF transitions to TO when all of these are true:

- Both engines are running
- The airplane is on the ground
- The thrust resolver angle (TRA) for both engines is at takeoff
- Flaps/slats are set for takeoff
- GS is greater than 80 knots.

Initial Climb (IC) Flight Phase

The CMCF transitions to IC when all of these are true:

- The airplane is in the air
- Flaps/slats are set for takeoff
- Mode control panel (MCP) altitude is above the airplane's current altitude.

Climb (CL) Flight Phase

The availability of FMCF flight phase data determines how the CMCF transitions to CL.

When FMCF flight phase data is available, the CMCF transitions to CL when the FMCF flight phase transitions to CL.

When FMCF flight phase data is not available, the CMCF transitions to CL when all of these are true:

- The airplane is in the air
- The airplane climbs at more than 400 feet per minute.
- Radio altitude (RA) data shows that RA is greater than 1500 feet or RA data is not available and IC or go around (GA) has been active for two minutes.

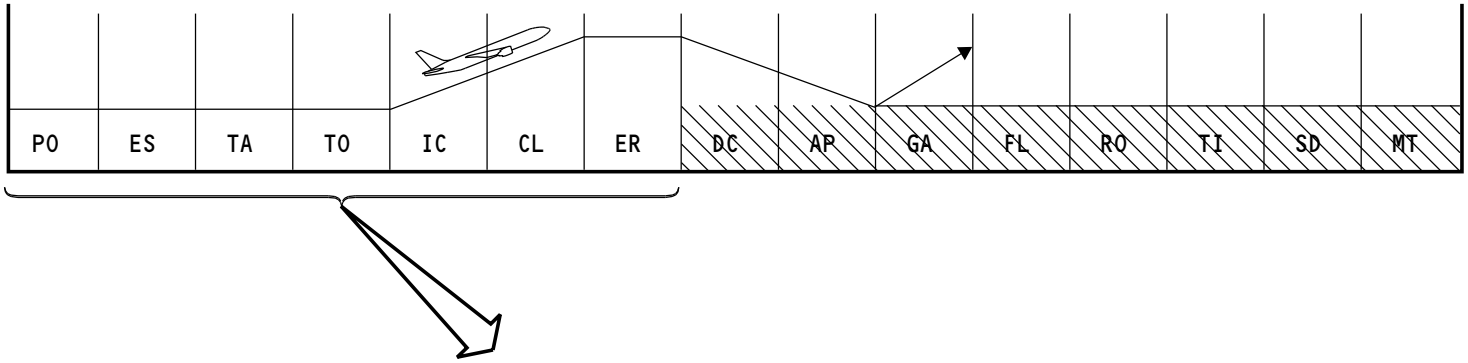
Cruise (ER) Flight Phase

The availability of FMCF flight phase data determines how the CMCF transitions to ER.

When FMCF flight phase data is available, the CMCF transitions to ER when the FMCF flight phase transitions to cruise.

When FMCF flight phase data is not available, the CMCF transitions to ER when both of these are true:

- The airplane is in the air
- The airplane either climbs or descends at a rate less than 400 feet per minute.



FLIGHT PHASE	CONDITION
PO (POWER ON)	POWER TO AIRPLANE AND NO OTHER FLIGHT PHASE
ES (ENGINE START)	AIRPLANE ON GROUND AND STARTER VALVE FROM CLOSED TO OPEN AND FUEL SWITCH IN RUN AND N2 IS LESS THAN IDLE
TA (TAXI OUT)	ONE ENGINE RUNNING (N2 > IDLE) AND AIRPLANE ON GROUND AND GS < 80 KNOTS AND FLIGHT LEG TRANSITION DISABLED
TO (TAKEOFF ROLL)	BOTH ENGINES RUNNING AND AIRPLANE ON GROUND AND TRA SET TO TAKEOFF AND FLAPS/SLATS IN TAKEOFF AND GS > 80 KNOTS
IC (INITIAL CLIMB)	AIRPLANE IN AIR AND FLAPS/SLATS AT TAKEOFF AND MCP ALTITUDE IS ABOVE CURRENT ALTITUDE
CL (CLIMB)	FMCF FLIGHT PHASE TRANSITIONS TO CLIMB OR FMCF FLIGHT PHASE DATA NOT AVAILABLE AND AIRPLANE IN AIR AND AIRPLANE CLIMBS AT MORE THAN 400 FEET/MINUTE AND RA > 1500 FEET OR IC OR GA FOR TWO MINUTES
ER (CRUISE)	FMCF FLIGHT PHASE DATA AVAILABLE AND FMCF TRANSITIONS TO CRUISE OR FMCF FLIGHT PHASE DATA NOT AVAILABLE AND AIRPLANE IN AIR AND AIRPLANE CLIMBS OR DESCENDS AT A RATE LESS THAN 400 PER MINUTE.

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CMCS - FLIGHT PHASES - 1

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CMCS - FLIGHT PHASES - 2

Descent (DC) Flight Phase

The availability of FMCF flight phase data determines how the CMCF changes to DC.

With FMCF flight phase data available, the CMCF changes to DC when the FMCF flight phase changes to descent.

With FMCF flight phase data not available, the CMCF changes to DC when both of these conditions are true:

- The airplane is in the air
- The airplane descends at more than 400 feet per minute.

Approach (AP) Flight Phase

The CMCF changes to AP when all of these are true:

- The airplane is in the air
- The flaps are set for landing
- The landing gear is down.

Go-Around (GA) Flight Phase

There are two conditions that cause the CMCF to change to GA.

For the first condition, the CMCF changes to GA when both of these are true:

- The airplane is in the air
- The TOGA switch is set.

For the second condition, the CMCF changes to GA when all these are true:

- The airplane is in the air
- The flaps have changed from landing to takeoff
- The TRA for both engines is set for takeoff.

Flare (FL) Flight Phase

The CMCF changes to FL when all of these are true:

- The airplane is in the air
- The flaps are set for landing
- Radio altitude is less than 50 feet.

Rollout (RO) Flight Phase

The CMCF changes to RO when all of these are true:

- The airplane is on the ground
- Ground speed is more than 80 knots.

Taxi In (TI) Flight Phase

The CMCF changes to TI when all of these are true:

- The airplane is on the ground
- At least one engine is running
- Ground speed is less than 80 knots
- The flight leg transition is enabled.

Shutdown (SD) Flight Phase

The CMCF changes to SD when all of these are true:

- The airplane is on the ground
- The starter air valve is closed
- Either engine fuel switch changes from RUN to CUTOFF and the EEC is active.

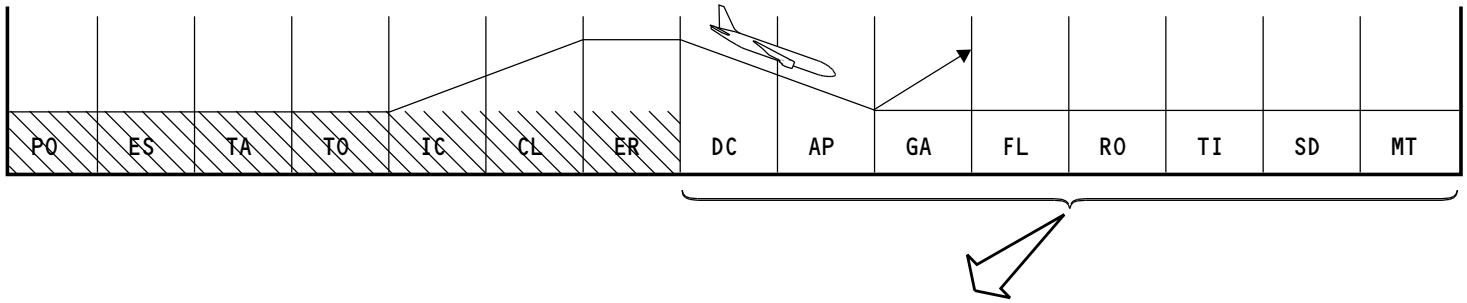
Maintenance (MT) Flight Phase

There are two conditions that cause the CMCF to change to MT.

For the first condition, the CMCF changes to MT when both of these are true:

- Aircraft vibration monitoring (AVM) onboard engine balancing system (OEBS) on the MAT is in test
- The airplane is on the ground.

For the second condition, the CMCF changes to MT when the maintenance phase is selected on the maintenance enable/disable dialog box on the MAT.



FLIGHT PHASE	CONDITION
DC (DESCENT)	FMCF FLIGHT PHASE CHANGES TO DESCENT OR FMCF FLIGHT PHASE DATA NOT AVAILABLE AND AIRPLANE IN AIR AND AIRPLANE DESCENDS AT MORE THAN 400 FEET/MINUTE
AP (APPROACH)	AIRPLANE IN AIR AND FLAPS SET FOR LANDING AND LANDING GEAR DOWN
GA (GO AROUND)	AIRPLANE IN AIR AND TOGA SWITCH IS ENABLED OR AIRPLANE IN AIR AND FLAPS SET FOR LANDING AND TRA SET TO TAKEOFF
FL (FLARE)	AIRPLANE IN AIR AND FLAPS SET FOR LANDING AND RADIO ALTITUDE < 50 FT
RO (ROLLOUT)	AIRPLANE ON GROUND AND GROUND SPEED > 80 KNOTS
TI (TAXI IN)	AIRPLANE ON GROUND AND AT LEAST ONE ENGINE RUNNING AND GROUND SPEED < 80 KNOTS AND FLIGHT LEG TRANSITION ENABLED
SD (SHUTDOWN)	AIRPLANE ON GROUND AND THE STARTER AIR VALVE CLOSED AND EITHER FUEL SWITCH CHANGES FROM RUN TO CUTOFF/EEC ACTIVE
MT (MAINTENANCE)	AVM OEBS SELECTED ON MAT AND AIRPLANE ON GROUND OR MAINTENANCE ENABLE MODE IS SELECTED ON MAT

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CMCS - FLIGHT PHASES - 2

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CMCS - CMCF CORRELATION

General

The central maintenance computing function (CMCF) in the AIMS cabinets monitors systems for failures and reports these failures as maintenance messages.

The primary display function (PDF) in the AIMS cabinets also monitors systems for faults that show on these displays:

- PFD
- ND
- EICAS
- MFD.

These faults show as failure flags, messages, or non-normal displays. The PDF groups these indications and calls them flight deck effects (FDEs). The flight crews report these FDEs as log book entries. The PDF sends the FDEs to the CMCF.

The CMCF correlates or associates these maintenance messages with an FDE and makes displays that show on the MAT.

Correlated maintenance messages also relate to and cause maintenance memos.

The CMCF also generates non-correlated maintenance messages. These messages do not relate to an FDE but provide useful maintenance data.

Correlated Maintenance Messages

Correlated maintenance messages are those messages that are directly linked to a FDE or a maintenance memo (MO). These are the requirements to correlate a message to an FDE:

- They must both be active or latched at the same time
- The FDE and maintenance message must match on a CMCS correlation list.

Flight Deck Effects

These are the nine categories of flight deck effects:

- EICAS warning messages
- EICAS caution messages
- EICAS advisory messages
- EICAS status messages
- PFD flags
- ND flags
- EICAS snapshots
- Displays (exceedances, etc.)
- Scheduled maintenance tasks.

The primary display function (PDF) sends the flight deck effects to the CMCF. The CMCF then correlates the FDE to a maintenance message.

Scheduled Maintenance Tasks

Scheduled maintenance task messages relate to certification maintenance requirement items (CMR) or maintenance review board (MRB) items with time exposure limits.

These messages relate to those that show on the maintenance task maintenance page on the MFD.

These messages are available in the maintenance planning function as:

- Inbound scheduled maintenance tasks (from maintenance planning menu)
- Existing scheduled maintenance tasks (from maintenance planning menu).

One or more correlated maintenance messages cause a scheduled maintenance task. There is no requirement to check these messages prior to flight.

CMCS - CMCF CORRELATION

Maintenance Memos

Maintenance memos (MO) are a special category of CMCS messages. The purpose of these messages is to report failures in fault tolerant parts of systems. If another failure in that system occurs, it may affect function of the system. They let maintenance organizations plan appropriate actions before a system or component becomes not airworthy.

These messages are available in the maintenance planning function as:

- Inbound maintenance memos (from maintenance planning menu)
- Existing maintenance memos (from maintenance planning menu).

One or more correlated maintenance messages cause a maintenance memo. There is no requirement to check these messages prior to flight.

Maintenance Message Storage

The CMCF stores maintenance messages differently for the different flight phases. This is called flight phase screening. If the maintenance message occurred during a storable flight phase, it is kept in static random access memory (SRAM). The maintenance messages may show on one of these:

- Inbound flight deck effects
- Present leg faults
- Fault history
- Inbound scheduled maintenance tasks (from maintenance planning menu)
- Inbound maintenance memos (from maintenance planning menu).

Maintenance messages that do not occur during a storable flight phase are also kept in SRAM. But, these messages are erased when they become not active or unlatched. They show on these:

- Existing flight deck effects
- Existing faults
- Existing scheduled maintenance tasks (from maintenance planning menu)
- Existing maintenance memos (from maintenance planning menu).

Training Information Point

More than one maintenance message may correlate to an FDE or MO. Find the corrective action for the maintenance message nearest in time to the FDE or MO. If the display does not show the time of the maintenance message, find the corrective action for the maintenance message that shows first below the FDE or MO.

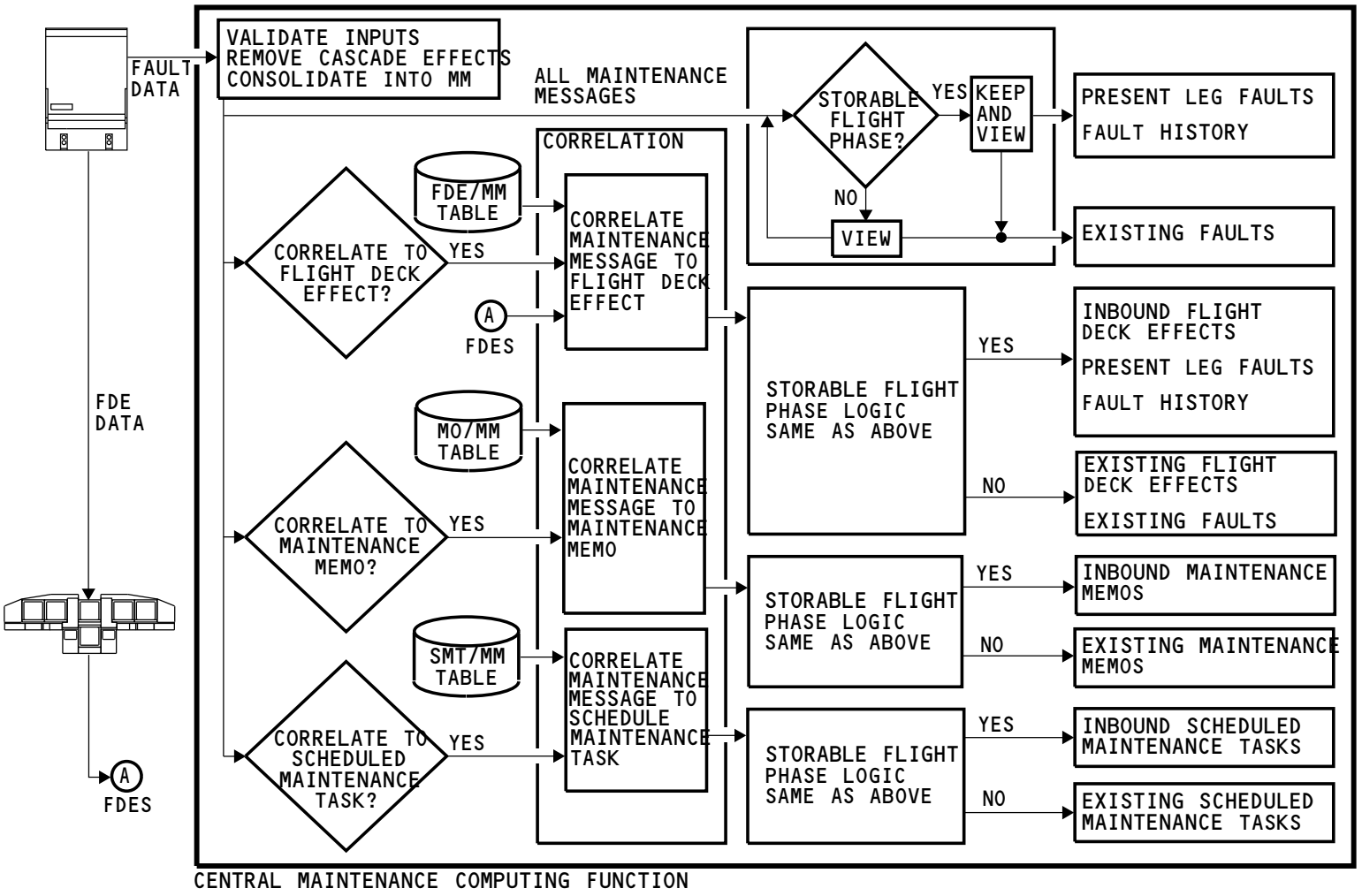
The CPM/COMM SRAM is kept by the hot battery bus. Use the backup fault database function from the fault history summary display to backup the fault history to diskettes or a USB flash drive if you are going to disconnect the hot battery bus.

Non-Correlated Maintenance Messages

Non-correlated maintenance messages are those messages that do not relate to a FDE but provide useful diagnostic information. The MAT reports these messages as non-FDE messages.

These messages show in these areas:

- Present leg faults
- Existing faults
- Fault history.



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CMCS - CMCF CORRELATION

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CMCS - CMCF FLIGHT PHASE SCREENING

General

The CMCF uses the flight phase to make a decision about where to store maintenance messages and where to show them on the MAT. This is called flight phase screening.

Flight phase screening prevents the CMCF from storing nuisance or false maintenance messages. Every maintenance message is storable during some flight phases.

Maintenance Message Correlation

The CMCF receives active or latched fault data and changes it to a maintenance message. The CMCF may correlate a maintenance message to one or more of these flight deck effects (FDEs):

- EICAS warning message
- EICAS caution message
- EICAS advisory message
- EICAS status message
- PFD Flag
- ND FLag
- EICAS auto snapshot
- Display (exceedance, etc.)
- Scheduled maintenance task (SMT).

The CMCF may also correlate a maintenance message to a maintenance memo (MO).

Storable Flight Phase Logic

The CMCF stores the active or latched maintenance message and correlation in temporary memory. The CMCF calculates the flight phase. If the maintenance message is active or latched during a storable flight phase, the CMCF also stores the maintenance message and correlation in fault history memory.

Maintenance Message Display - Temporary Memory

The CMCF will always show an active or latched maintenance message on the MAT. This chart shows which MAT displays show the maintenance message when it is active or latched and stored in temporary memory:

Maintenance message is active or latched and correlates to:	**Shows on display(s):**
None	Existing Faults
FDE	Existing Flight Deck Effects
	Existing Faults
Maintenance Memo (MO)	Existing Maintenance Memos
	Existing Faults
Scheduled Maintenance Task (SMT)	Existing Scheduled Maintenance Tasks
	Existing Faults

If a maintenance message becomes not active, the CMCF removes the maintenance message and correlation from temporary memory. It no longer shows on the above displays.

Maintenance Message Display - Fault History Memory

If the maintenance message is active or latched during a storable flight phase, the maintenance message and correlation is also in fault history memory. The maintenance message and correlation shows on the above displays when it is active or latched. This chart shows which other MAT displays show the maintenance message when it is stored in fault history memory:

Maintenance message is active or latched during a storable flight phase and correlates to:	**Shows on display(s):**
None	Present Leg Faults
	Fault History

(Continued)

Maintenance message is active or latched during a storable flight phase and correlates to:	Shows on display(s):
FDE	Inbound Flight Deck Effects
	Present Leg Faults
	Fault History
Maintenance Memo	Inbound Maintenance Memos
	Present Leg Faults
	Fault History
Scheduled Maintenance Tasks	Inbound Scheduled Maintenance Tasks
	Present Leg Faults
	Fault History

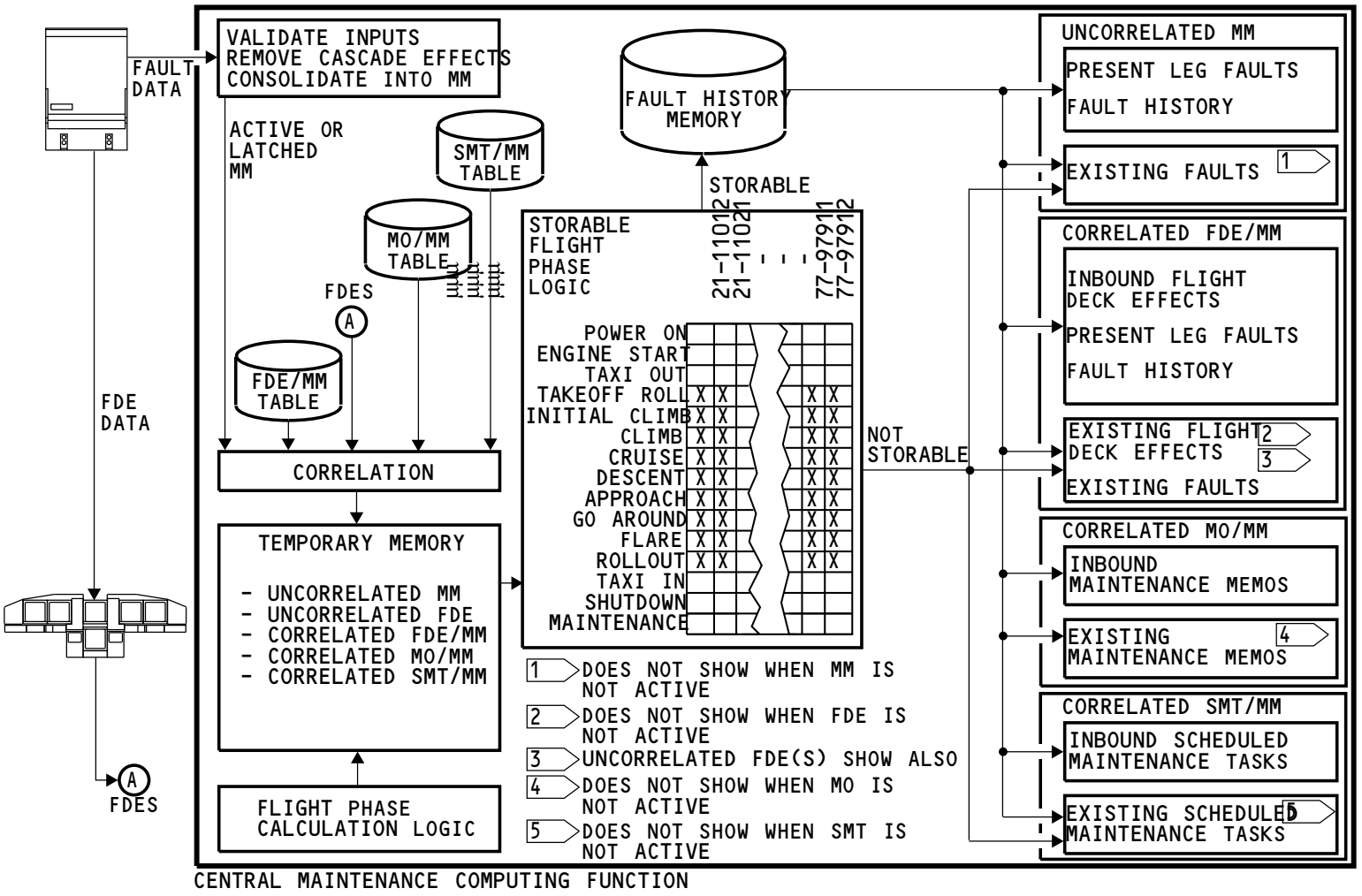
If a maintenance message becomes not active, the CMCF keeps the maintenance message and correlation in fault history memory. It changes the maintenance message activity to not active.

Training Information Point

Some FDEs with no correlated maintenance messages show on the existing flight deck effects display. Normal conditions on the ground, such as engine shutdown, usually cause these FDEs.

Latched EICAS status messages stay on the inbound and existing flight deck effects display after the correlated maintenance message becomes not active. When you erase the status message from the maintenance task maintenance page:

- The CMCF changes the status message activity to not active on the inbound flight deck effects display.
- The CMCF removes the status message from the existing flight deck effects display.



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CMCS - CMCF FLIGHT PHASE SCREENING

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CMCS - FAULT DISPLAY SUMMARY

General

You can see flight deck effects (FDEs) and maintenance message (fault) data on many different CMCS displays.

You use the different displays for different work on the airplane. You use the fault isolation manual (FIM) to find the cause of maintenance messages.

These displays show FDEs and their correlated maintenance messages:

- Inbound flight deck effects
- Existing flight deck effects.

These displays show maintenance messages and their correlated FDEs:

- Present leg faults
- Existing faults
- Fault history.

These displays show maintenance memos (MOs) and their correlated maintenance messages:

- Inbound maintenance memos
- Existing maintenance memos.

These displays show scheduled maintenance tasks (SMTs) and their correlated maintenance messages:

- Inbound scheduled maintenance tasks
- Existing scheduled maintenance tasks.

Ground test displays show maintenance messages when a ground test fails.

Inbound Flight Deck Effects Display

The inbound flight deck effects display shows the flight deck effects and correlated maintenance messages from the last flight. Flight phase screening occurs, so maintenance messages must have been active or latched during a storable flight phase to show on this display. The CMCF shows the FDEs by time. The most recent FDE shows first.

Existing Flight Deck Effects Display

The existing flight deck effects display shows all active and latched flight deck effects. There is no flight phase screening. Flight deck effects that show because of airplane system problems have correlated maintenance messages. Some EICAS messages which are not failure related or which show a pilot selected condition do not have correlated maintenance messages. Many EICAS messages which are not failure related show when the airplane is parked on the ground. These are examples of EICAS messages which are not failure related:

- FUEL PUMP R AFT
- HYD PRESS SYS C
- ENG SHUTDOWN
- ICING WING.

These are examples of EICAS messages which show a pilot selected condition:

- PARKING BRAKE SET
- APU RUNNING
- AUTOBRAKE 3.

The CMCF shows the FDEs by time. The most recent FDE shows first.

Present Leg Faults Display

The present leg faults display shows the maintenance messages from the last flight. Flight phase screening occurs so maintenance messages must have been active or latched during a storable flight phase to show on this display. Maintenance messages with correlated flight deck effects show on the display. Maintenance messages which are not correlated to flight deck effects show in a separate group on the display. These are for airplane system problems which are not critical. These are called non-correlated maintenance messages.

CMCS - FAULT DISPLAY SUMMARY

The CMCF shows the maintenance messages and correlated FDEs by time. The maintenance message with the most recent FDE shows first. The group of non-correlated maintenance messages shows last. In this group, the most recent non-correlated maintenance message shows first. You can also select the maintenance messages by ATA chapter.

Existing Faults Display

The existing faults display shows active and latched maintenance messages. There is no flight phase screening. You select the maintenance messages by ATA chapter. You can also show the maintenance messages and FDEs by time. The maintenance message with the most recent FDE shows first. The group of non-correlated maintenance messages shows last. In this group, the most recent non-correlated maintenance message shows first.

Fault History Display

The fault history display shows the maintenance messages from the last 100 flight legs. Flight phase screening occurs so maintenance messages must have been active or latched during a storable flight phase to show on this display. You select the maintenance messages by ATA chapter. You can also show the maintenance messages and FDEs by flight leg. The maintenance message with the most recent FDE of the flight leg shows first. The group of non-correlated maintenance messages shows last. In this group, the most recent non-correlated maintenance message shows first.

Inbound Maintenance Memos Display

The inbound maintenance memo display shows the maintenance memos and correlated maintenance messages from the last flight. Maintenance memos and their correlated maintenance messages give data about the condition of redundant LRUs and systems. Flight phase screening occurs so maintenance messages must have been active or latched during a storable flight phase to show on this display. The CMCF shows the maintenance memos by time. The most recent maintenance memo shows first.

Existing Maintenance Memos Display

The existing maintenance memos display shows all active and latched maintenance memos. There is no flight phase screening. Maintenance memos and their correlated maintenance messages give data about the conditions of redundant LRUs and systems. The CMCF shows the maintenance memos by time. The most recent maintenance memo shows first.

Inbound Scheduled Maintenance Tasks Display

The inbound scheduled maintenance tasks display shows the scheduled maintenance tasks and correlated maintenance messages from the last flight. Scheduled maintenance tasks and their correlated maintenance messages relate to certification maintenance requirement (CMR) items or maintenance review board (MRB) items. These items have time exposure limits. Flight phase screening occurs so maintenance messages must have been active or latched during a storable flight phase to show on this display. Some inbound scheduled maintenance tasks which are not failure related do not have correlated maintenance messages. The CMCF shows the scheduled maintenance tasks by time. The most recent scheduled maintenance task shows first.

Existing Scheduled Maintenance Tasks Display

The existing scheduled maintenance tasks display shows all active scheduled maintenance tasks. There are no latched scheduled maintenance tasks. There is no flight phase screening. Scheduled maintenance tasks and their correlated maintenance messages relate to certification maintenance requirement (CMR) items or maintenance review board (MRB) items with time exposure limits. Some existing scheduled maintenance tasks which are not failure related do not have correlated maintenance messages. The CMCF sorts the scheduled maintenance tasks by time. The most recent scheduled maintenance task shows first.

Ground Tests Display

Maintenance messages that cause a ground test to fail show on the ground test tests display. The CMCF shows the maintenance messages by ATA chapter.

FUNCTION	FLIGHT PHASE SCREENING	CORRELATED MAINTENANCE MESSAGES	NON-CORRELATED MAINTENANCE MESSAGES	NON-CORRELATED FDES (MO OR SMT)	SORT BY FDE (MO OR SMT)	SORT BY ATA	SORT BY FLIGHT LEG
INBOUND FDES	YES	YES	NO	NO	YES	NO	NO
EXISTING FDES	NO	YES	NO	YES	YES	NO	NO
PRESENT LEG FAULTS	YES	YES	YES	NO	YES 1	YES	NO
EXISTING FAULTS	NO	YES	YES	NO	YES	YES 1	NO
FAULT HISTORY	YES	YES	YES	NO	YES	YES 1	YES
INBOUND MAINTENANCE MEMOS	YES	YES	NO	NO	YES	NO	NO
EXISTING MAINTENANCE MEMOS	NO	YES	NO	NO	YES	NO	NO
INBOUND SCHEDULED MAINTENANCE TASKS	YES	YES	NO	YES	YES	NO	NO
EXISTING SCHEDULED MAINTENANCE TASKS	NO	YES	NO	YES	YES	NO	NO
GROUND TESTS	NO	YES	YES	NO	NO	YES	NO

1 SEQUENCE THAT SHOWS FIRST

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CMCS - FAULT DISPLAY SUMMARY

Initial Power-Up

At initial power-up of the airplane, the maintenance access terminal (MAT) shows a MAT main menu display. The MAT main menu display supplies access to these functions:

- Central maintenance computing system (CMCS)
- Airplane conditioning monitoring system (ACMS)

Software Requirements

The operational software for the MAT supplies the displays on the MAT display module. It is in the memory of the MAT display module. This software is called the 46 MAT OPS.

The operational software for the central maintenance computing function (CMCF) is in memory in the AIMS cabinets.

Buttons

ONBOARD MAINTENANCE and CONDITION MONITORING can be selected by first selecting AIMS from the MAT Main Menu.

Select ONBOARD MAINTENANCE to send a request for CMCS information from the CMCF in the AIMS cabinets. The CMCF sends the data to the MAT and the CMCF main menu shows.

Select CONDITION MONITORING to send a request for ACMS data from the airplane condition monitoring function (ACMF) in the left AIMS cabinet. The ACMF sends the data to the MAT and the ACMF main menu shows.

Select SYSTEM FUNCTIONS to access the following MATA System Functions:

- Software Configuration
- Device Status
- MSD MAT HDD Transfer

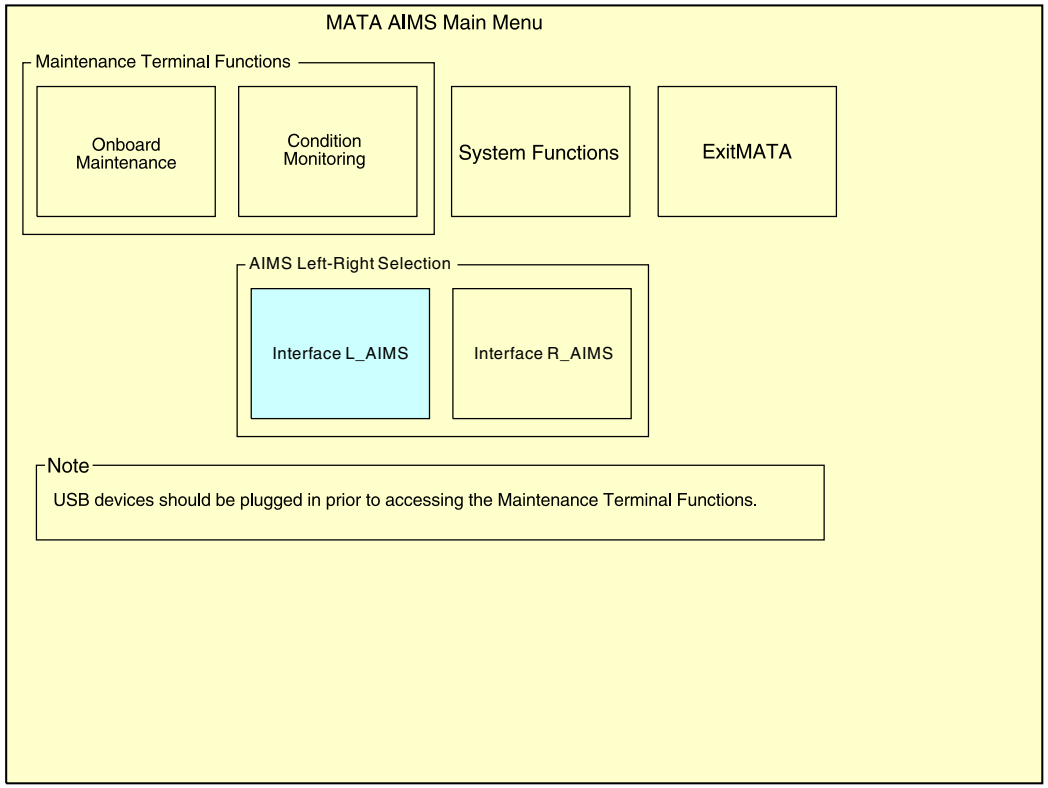
Select Software Configuration to display MATA application configuration.

Select Device Status to see the status of external devices connected to USB interfaces.

Select MSD MAT HDD Transfer to specify if the transfer software parts will be between an external USB device and the internal MSD or vice versa.

Training Information Point

As many as three technicians can use the CMCS at the same time. Only one technician can use the ACMS at a time. You can also use a portable maintenance access terminal (PMAT) or maintenance laptop (ML) to use the CMCS and ACMS.



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CMCS - MAT MAIN MENU DISPLAY

CMCS - MAIN MENU SELECTIONS

General

The CMCF menus supply access to functions that are task oriented. The menus also supply access to functions based on when and how often technicians do certain tasks. As many as three technicians can use the CMCS at the same time.

Main Menu Bar

Select ONBOARD MAINTENANCE from the MAT or LMAT main menu display to cause the CMCS main menu bar to show at the top of the MAT or LMAT display. ONBOARD MAINTENANCE and the CMCF in control shows in the center of the MAT or LMAT. All the menu items are available for selection except when a dialog box shows on the display.

You can use the CMCS from three maintenance access terminals at the same time. These are the maintenance access terminals:

- the maintenance access terminal in the flight compartment
- the portable maintenance access terminal (PMAT) in the main equipment center
- a PMAT at one of the PMAT receptacles.

The multi-function displays (MFD) in the flight compartment can also be used to access the CMCF menus.

NOTE: Not all menu selections are available with CMCF on MFD.

These are the main menu selections:

- LINE MAINTENANCE
- EXTENDED MAINTENANCE
- OTHER FUNCTIONS
- HELP
- REPORT.

LINE MAINTENANCE Selection

Select LINE MAINTENANCE to get access to maintenance functions generally done during quick turnarounds at the gate.

Select LINE MAINTENANCE to cause another menu to show. These are the selections available on this menu:

- INBOUND FLIGHT DECK EFFECTS
- EXISTING FLIGHT DECK EFFECTS
- GROUND TESTS
- SYSTEM CONFIGURATION
- EXIT MAINTENANCE.

INBOUND FLIGHT DECK EFFECTS gives a summary of the faults correlated to flight deck effects (FDEs) for the present flight leg (0). The CMCF shows the FDEs in the reverse order of occurrence.

EXISTING FLIGHT DECK EFFECTS shows all currently active and latched FDEs. The CMCF shows the FDEs in the reverse order of when the FDEs occurred.

GROUND TESTS supplies access to:

- System tests
- Operational tests
- LRU replacement tests.

SYSTEM CONFIGURATION gives access to configuration data for system LRUs. This data includes hardware and software part numbers.

EXIT MAINTENANCE ends the CMCF session on the MAT/LMAT and shows the MAT/LMAT main menu display.

EXTENDED MAINTENANCE Selection

The EXTENDED MAINTENANCE selection supplies access to functions performed when more time is needed such as during overnight maintenance.

Select EXTENDED MAINTENANCE to cause another menu to show. These are the selections available on this menu:

- PRESENT LEG FAULTS
- EXISTING FAULTS

- FAULT HISTORY
- DATA LOAD
- HARD DRIVE SOFTWARE PART NUMBER MANAGEMENT
- MAINTENANCE PLANNING
- MAINTENANCE ENABLE/DISABLE
- EXIT MAINTENANCE.

PRESENT LEG FAULTS shows maintenance messages for the current flight leg. These maintenance messages are grouped by FDE and the most recent maintenance messages shows first. Non-correlated maintenance messages show at the end of the FDEs. The present leg faults display also shows the faults by ATA chapter number and ATA name.

EXISTING FAULTS show maintenance messages for each ATA chapter that has active and latched faults in memory. The user can also group the faults by FDE.

FAULT HISTORY supplies access to faults by ATA chapter or by flight leg. Also, you can use FAULT HISTORY to erase single faults, all faults for an ATA or all faults from the fault history database.

Use DATA LOAD to load LRU software. Menu selections permit the selection of the source of the software and the destination LRU.

HARD DRIVE SOFTWARE PART NUMBER MANAGEMENT lets you change, examine, and do a check of LRU software on the maintenance access terminal hard drive.

MAINTENANCE PLANNING supplies access to inbound maintenance memos, existing maintenance memos, inbound scheduled maintenance tasks (SMT), and existing scheduled maintenance task messages.

MAINTENANCE ENABLE/DISABLE permits the selections to enable or to disable the flight leg or the maintenance phase.

EXIT MAINTENANCE ends the CMCF session on the MAT/LMAT and shows the MAT/LMAT main menu display.

OTHER FUNCTIONS Selection

The OTHER FUNCTIONS selection supplies access to more complex maintenance functions. Special training is necessary to do these complex functions.

Select OTHER FUNCTIONS to cause another menu to show. These are the selections available on this menu:

- INPUT MONITORING
- CENTRAL MAINTENANCE OPTIONS
- ENGINE BALANCING
- SHOP FAULTS
- PSEU AND AIR/GROUND RIGGING
- CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL
- SPECIAL FUNCTIONS
- EXIT MAINTENANCE.

INPUT MONITORING lets you analyze specific interface signals. The types of signals available for analysis include analog discretes, analog variables, ARINC 429 words and ARINC 629 words.

CENTRAL MAINTENANCE OPTIONS supplies access to user interface controlled options. The central maintenance options display permits the selections to activate or to deactivate up to fifty CMCF options.

ENGINE BALANCING supplies access to the onboard engine balancing system (OEBS) menus. Use the OEBS menus to do in-depth engine maintenance and to show engine data stored in memory.

Use SHOP FAULTS to show internal LRU faults. Data is available by ATA and by LRU.

Use PSEU AND AIR/GROUND RIGGING to rig and to calibrate sensors for the PSEU and air/ground functions.

Use CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL to set the control source of CMCF data.

SPECIAL FUNCTIONS supplies access to unique functions within certain ATA chapters. Use special functions to set conditions that aid in specific maintenance tasks.

EXIT MAINTENANCE ends the CMCF session on the MAT/LMAT and shows the MAT/LMAT main menu display.

HELP Selection

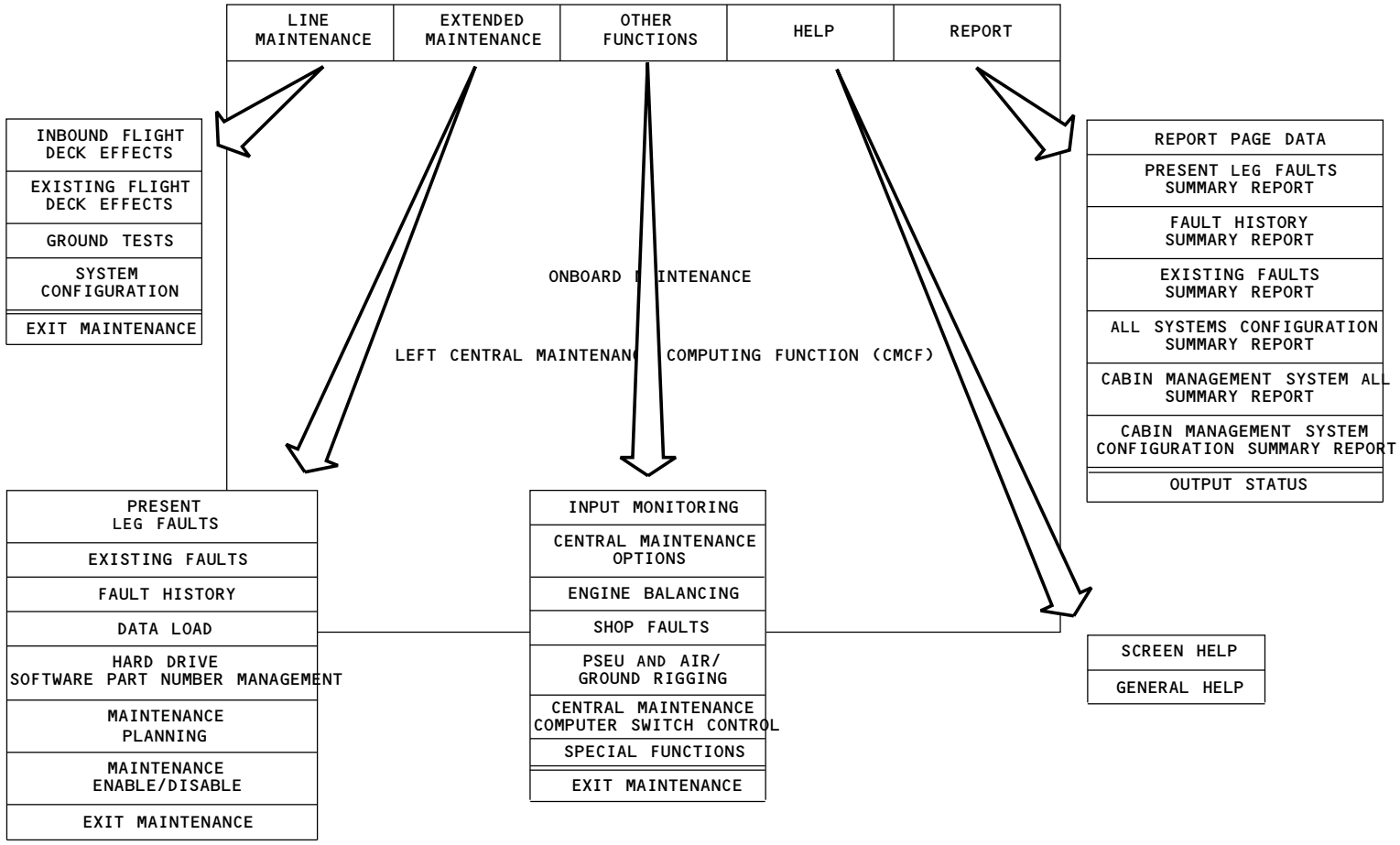
The HELP selection supplies access to SCREEN HELP or GENERAL HELP. The help that is available is defined in the airline modifiable information (AMI) using the ground based software tool (GBST).

REPORT Selection

The REPORT selection lets the user send predefined reports to the printer, to the disk drive, or by datalink to a ground station.

These are the selections available on the REPORT menu:

- REPORT PAGE DATA
- PRESENT LEG FAULTS SUMMARY REPORT
- FAULT HISTORY SUMMARY REPORT
- EXISTING FAULTS SUMMARY REPORT
- ALL SYSTEMS CONFIGURATION SUMMARY REPORT
- CABIN MANAGEMENT SYSTEM ALL SUMMARY REPORT
- CABIN MANAGEMENT SYSTEM CONFIGURATION SUMMARY REPORT
- OUTPUT STATUS.



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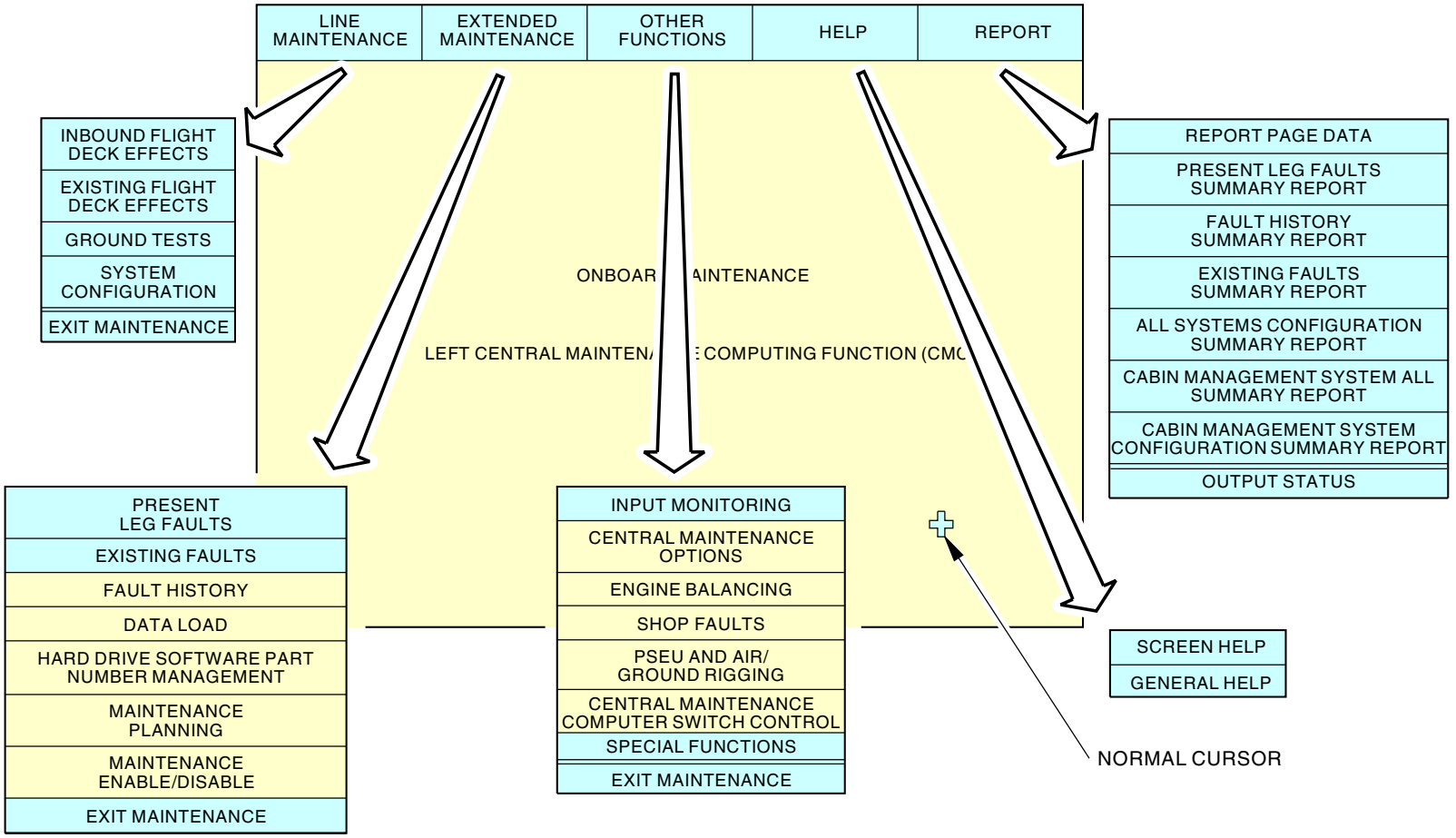
CMCS - MAIN MENU SELECTIONS



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CMCS - MAIN MENU SELECTIONS ON MFD

General

To do specific functions, several categories of controls show on the MAT. These categories are:

- MAT menu functions
- Cursor functions
- Dialog boxes
- Buttons
- Selection options
- Scroll bar.

Basic MAT Menu Functions

All the text on the displays is white. When the cursor is in an area, a white solid border highlights the area. Other colors, such as blue and green show on the MAT displays.

The main menu bar normally shows on the display at all times. In some cases, a dialog box can hide it. The selection of an item on the main menu bar causes a pull-down menu to show. This pull-down menu supplies additional selections within the main menu category.

The selection of an item on the pull-down menu causes a new display to appear. If the new display is a dialog box, the dialog box shows on top of the display. Portions of the original display remain visible but the data does not update.

Make main menu selections at any time except when dialog boxes show. Dialog box functions must be completed before access to the main menu returns.

When the dialog box goes away, the data on the original display continues to update.

Cursor Functions

The cursor on the display shows as one of three symbols. The symbols are:

- A plus (+) symbol for the normal cursor
- A wrist watch symbol for the wait cursor
- An I-beam symbol for the text entry cursor.

Cursor control device selections and keyboard selections have no effect when the wait cursor is active.

To highlight or make a selection, use the cursor control device. Place the cursor over any part of a message or command selection and select using any of the activation switches on top of the cursor control device. This highlights a message or chooses the command.

Dialog Boxes

There are several types of dialog boxes. In general, dialog boxes supply additional instructions or information about the current function. Dialog boxes show on top of the previous display.

The list box is a special type of dialog box. It is a list of scrollable items in a text box. Use the cursor control device to select an item. When you select an item, it highlights.

If a dialog box has only one possible choice, that choice is automatically made.

Command Buttons

Select a command button (button) to start a process or change a display or dialog box on the MAT. Most buttons are located at the bottom of displays and dialog boxes. A button dims when selection is not possible. Deactivated buttons do not highlight when the cursor goes over them.

Selection Options

Selection options show as a group of possible label selections. These selections are exclusive or non-exclusive.

Exclusive selections have a diamond symbol that comes before the selections.

Non-exclusive selections have a square symbol that comes before the selections.

When a selection is made, the square or diamond shows the selected state. You can select only one exclusive selection at a time. You can select none, one, or more than one non-exclusive selection at a time.

A crosshatch covers selections that are not active. Deactivated selections do not highlight as the cursor passes over them.

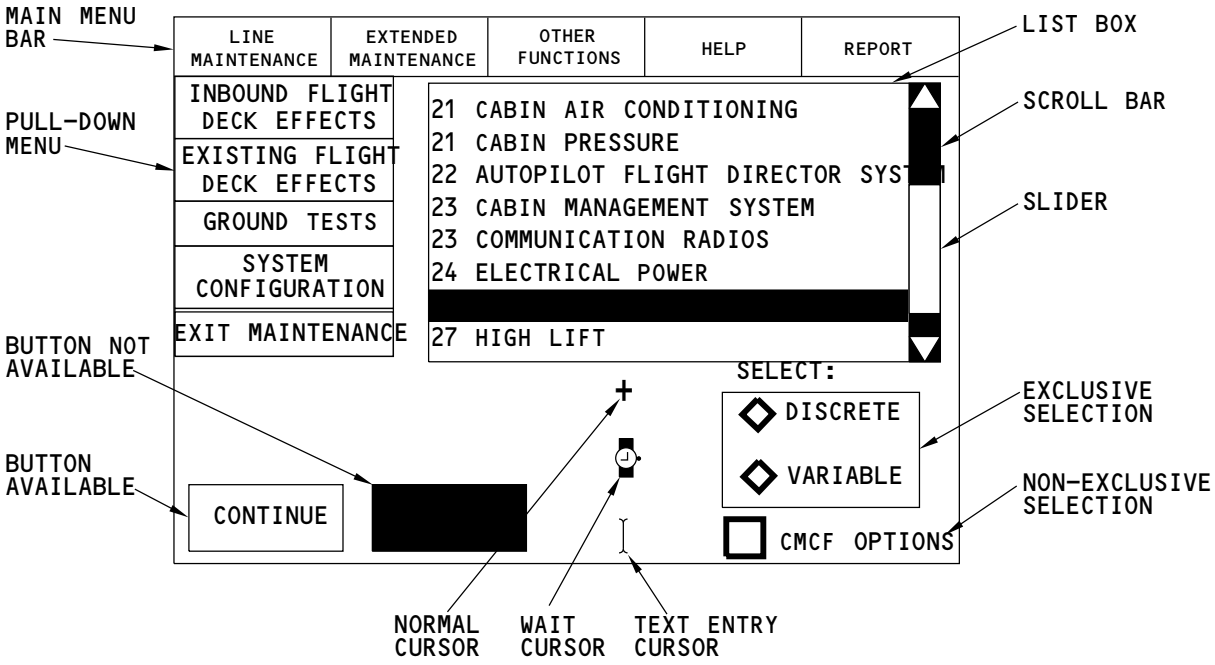
Scroll Bar

The scroll bar has a triangle that represents an arrow that points away from the center of the scroll bar.

The activation of the cursor over the triangle causes the visible area to move one increment in the direction of the arrow.

The slider is a variable length box that shows on the scroll bar. The position of the slider represents the position of the visible area in the entire data field. The length of the slider represents how much of the text is visible in the text box.

The slider moves along the scroll bar. The activation of the cursor in the scroll bar above the slider causes the visible area to move up one length of the visible area. The activation of the cursor in the scroll bar below the slider causes the visible area to move down one length of the visible area.



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CMCS - HELP DIALOG BOXES

Help Dialog Box

The help dialog box is available from the main menu at the top of the MAT display or from HELP buttons on these dialog boxes or displays:

- ATA chapter selection dialog box
- Ground test selection dialog box
- Test inhibit dialog box
- Test interference dialog box
- Precondition dialog box
- Configuration selection dialog box
- System configuration dialog box
- Existing faults dialog box
- Fault history erase dialog box
- Fault history erase confirmation dialog box
- Fault history ATA dialog box
- Fault history leg dialog box
- Backup fault database dialog box
- Source selection dialog box
- Destination selection dialog box
- Load message dialog box
- Destination LRU not enabled dialog box
- Change diskette dialog box
- Wrong diskette in disk drive dialog box
- Diskette access error dialog box
- Load in progress activity indication dialog box
- Destination LRU incompatibility dialog box
- Data storage error dialog box
- Data transfer completion dialog box
- Data load completion and verification dialog box
- Are you sure dialog box
- Data load function not enabled dialog box
- Check disk dialog box
- Data load function already in use dialog box
- Hard drive main menu
- Cannot get disk drive connection
- Hard drive in air
- No hard drive
- Hard drive partially updated
- Hard drive unknown configuration
- Hard drive part number removed
- Need good disk
- Hard drive source selection
- Adding part number
- Hard drive change disk
- Checking part number
- Done adding passed
- Done adding failed
- Stop are you sure
- Not added
- Part number already there
- Not enough room
- Hard drive wrong disk
- Disk problem
- Hard drive faulted
- Remove part number
- Remove are you sure
- Removing part number
- Show part numbers
- Hard drive change name
- Check part number
- Checking part number

CMCS - HELP DIALOG BOXES

- Stop checking are you sure
- Hard drive check passed
- Hard drive check failed
- Maintenance planning dialog box
- Maintenance enable/disable dialog box
- Input monitoring main menu dialog box
- Input monitoring signals dialog box
- Input monitoring ARINC 429 dialog box
- Input monitoring ARINC 629 dialog box
- Input monitoring analog dialog box
- Input monitoring AIMS IMM dialog box
- Input monitoring units dialog box
- Input monitoring alias pages dialog box
- Invalid entry dialog box
- Shop faults selection dialog box
- Shop faults contents dialog box
- Shop faults LRU configuration dialog box
- CMCF options dialog box
- Status dialog box
- PSEU and air/ground rigging/calibration menu dialog box
- PSEU and air/ground rigging/calibration dialog box
- OEBS main menu dialog box
- Edit dialog box
- Calibration condition dialog
- Edit error dialog box
- Ground run dialog box
- Keep coefficients dialog box
- Exit approval dialog box
- Menu abort dialog box
- Special functions selection dialog box
- Special functions interactive dialog box
- Report output device dialog box.

A scroll bar shows on the help dialog box if there is more text than can fit in the visible area.

Help text for a subject must exist in the CMCF AMI for the HELP button to show on a dialog box.

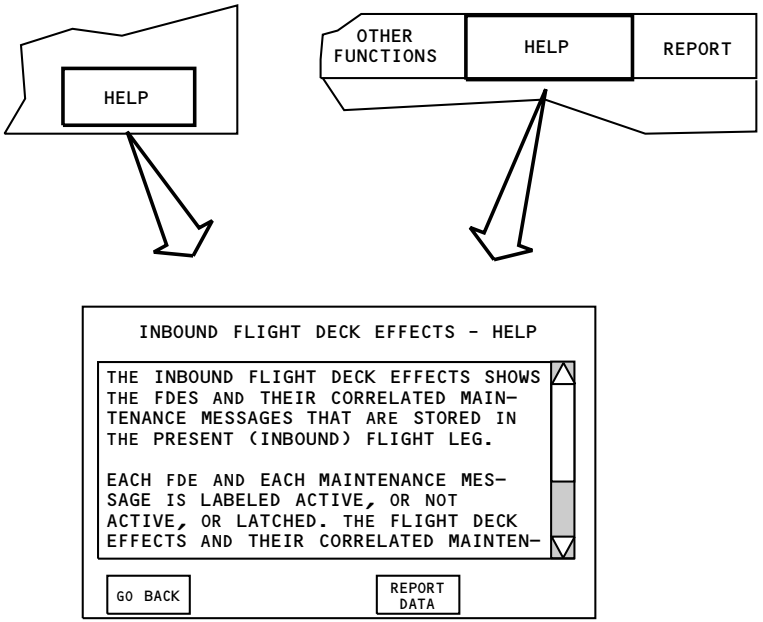
Help Buttons

Select REPORT DATA to show the report dialog box.

Select GO BACK to remove the dialog box and return to the previous page.

Main Menu Help Selection

The main menu HELP selection will be discussed later.



HELP DIALOG BOX

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CMCS - HELP DIALOG BOXES

CMCS - ATA CHAPTER SELECTION DIALOG BOX

General

The ATA CHAPTER selection dialog box permits the selection of an ATA system. Select the ATA system to show the maintenance message summary groups or system configuration information for that system.

The ATA chapter selection dialog box is available from these displays:

- Present leg faults
- Existing faults
- Fault history.

The ATA chapter selection dialog box also shows when you make these CMCS main menu selections:

- System configuration
- Existing faults
- Fault history.

The ATA chapter selection dialog box shows:

- Dialog box title
- List box
- Number of items
- Buttons.

Dialog Box Title

The dialog box title shows the main display title of the display that the SORT BY ATA command selection was made from.

List Box

The list box shows the ATA systems that have faults in memory when you select these displays:

- Present leg faults
- Existing faults
- Fault history.

The list box shows the ATA systems that can show hardware and software part numbers when you select system configuration.

Number of Items

The number of items that show in the list box shows at the top of the list box.

Buttons

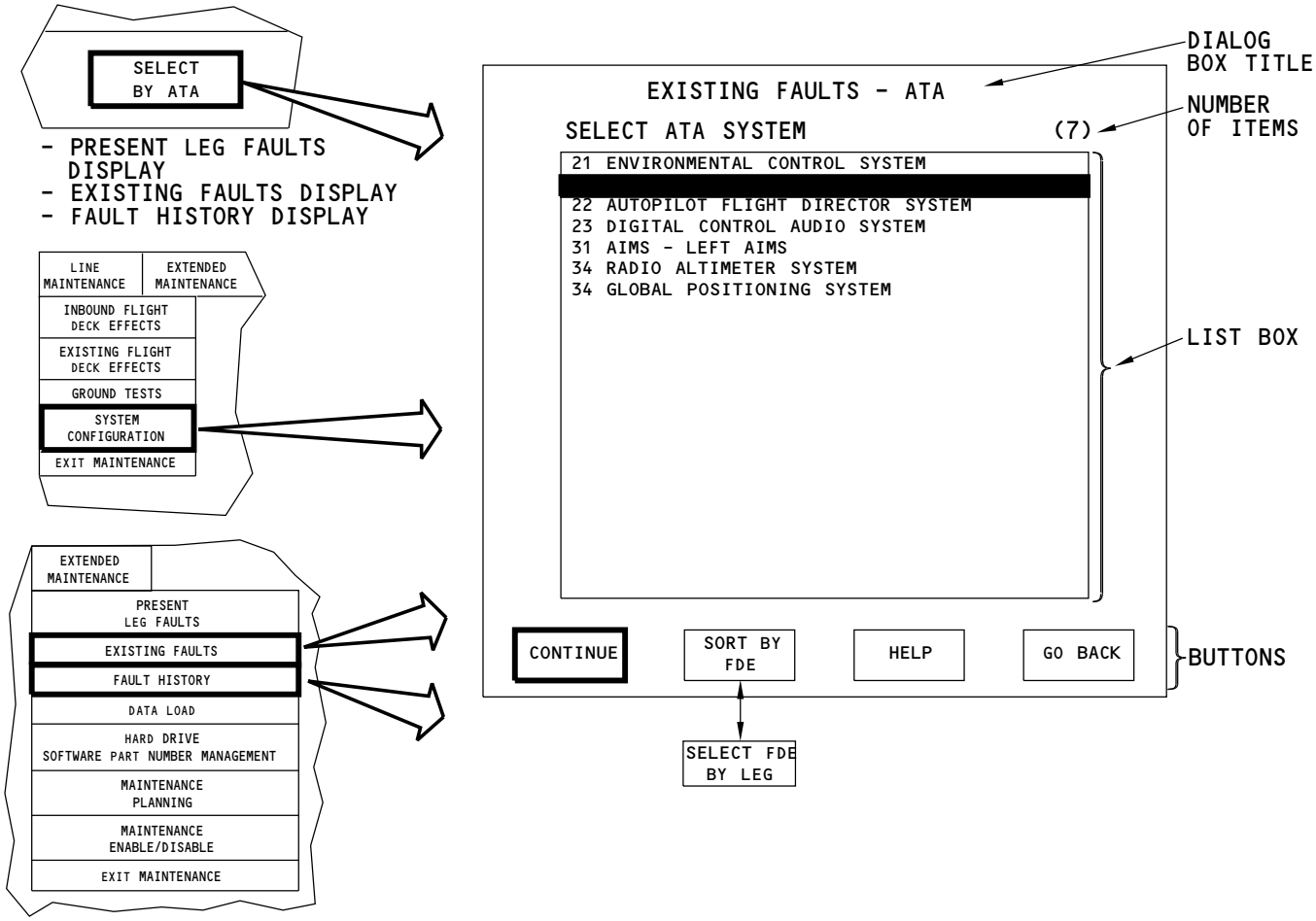
Select an ATA system and then select CONTINUE to show fault information about that system.

Select SORT BY FDE to show all selected faults by FDE summary groups and maintenance message summary groups. This button shows when you select present leg faults or existing faults.

Select SELECT FDE BY LEG to show all selected faults by FDE summary groups and maintenance message summary groups for one leg from fault history. This button shows when you select fault history.

Select HELP to show the HELP dialog box for the ATA CHAPTER selection dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the ATA CHAPTER selection dialog box and return to the previous display.



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CMCS - ATA CHAPTER SELECTION DIALOG BOX

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CMCS - INBOUND FLIGHT DECK EFFECTS DISPLAY

General

The purpose of inbound flight deck effects is to help the line maintenance technician repair the airplane during quick turnarounds at the gate.

Use inbound flight deck effects (FDEs) to look at FDEs and their correlated maintenance messages for the current flight leg (0).

The CMCF sorts the FDEs and any correlated maintenance messages by time. The most recent FDE shows first.

Use the maintenance message data button to show the single maintenance message display for a maintenance message summary group.

This shows on the inbound flight deck effects summary display:

- Header information
- Instructions field
- Fault summary field title
- Number of items
- Fault summary field
- Buttons.

Header Information

This data shows under the main menu bar on the right side:

- Tail identification
- Flight number from the FMCF
- Leg ID, departure airport and arrival airport identifiers from the FMCF
- Leg start time and date from the CMCF
- CMCF source field.

Fault Summary Field Title

The number of flight deck effects in the fault summary field shows at the top of the scroll bar.

The fault summary field has the FDE summary groups.

Each FDE summary group includes this data:

- Flight deck effect
- FDE and maintenance message activity
- Fault code
- FDE time and date
- Maintenance message summary groups.

FDE and Maintenance Message Activity

The activity of an FDE shows as one of these:

- Active
- Latched
- Not Active.

An active FDE is an FDE that currently shows in the flight deck.

A latched FDE can only be a status message or a scheduled maintenance task. Scheduled maintenance tasks are discussed elsewhere in this section.

A failure that causes a status message may impact dispatch and may be intermittent or detectable only under certain conditions. The PDS holds a status message to make sure that you see it on the ground. You must do a task to clear a latched FDE.

An FDE is not active if it can not currently show on the flight deck.

The activity of a maintenance message also shows as one of these:

- Active
- Latched
- Not Active.

A maintenance message is active if a system can continuously monitor for a fault condition, and the fault exists.

CMCS - INBOUND FLIGHT DECK EFFECTS DISPLAY

A maintenance message is latched for these reasons:

- If a system detects a fault and no longer uses the related equipment as part of its operational function
- To ensure correlation with an FDE
- If a system can not always detect if the fault exists.

You must do something to clear a latched maintenance message.

A maintenance message is not active if a system can continuously monitor for a fault condition, and the fault does not exist.

Maintenance Message Summary Groups

Each maintenance message summary group includes this data:

- Maintenance message number
- Maintenance message activity
- Flight phase
- Fault time and date
- Maintenance message symptom.

One or more maintenance messages may be correlated to each FDE and shows with an FDE summary group.

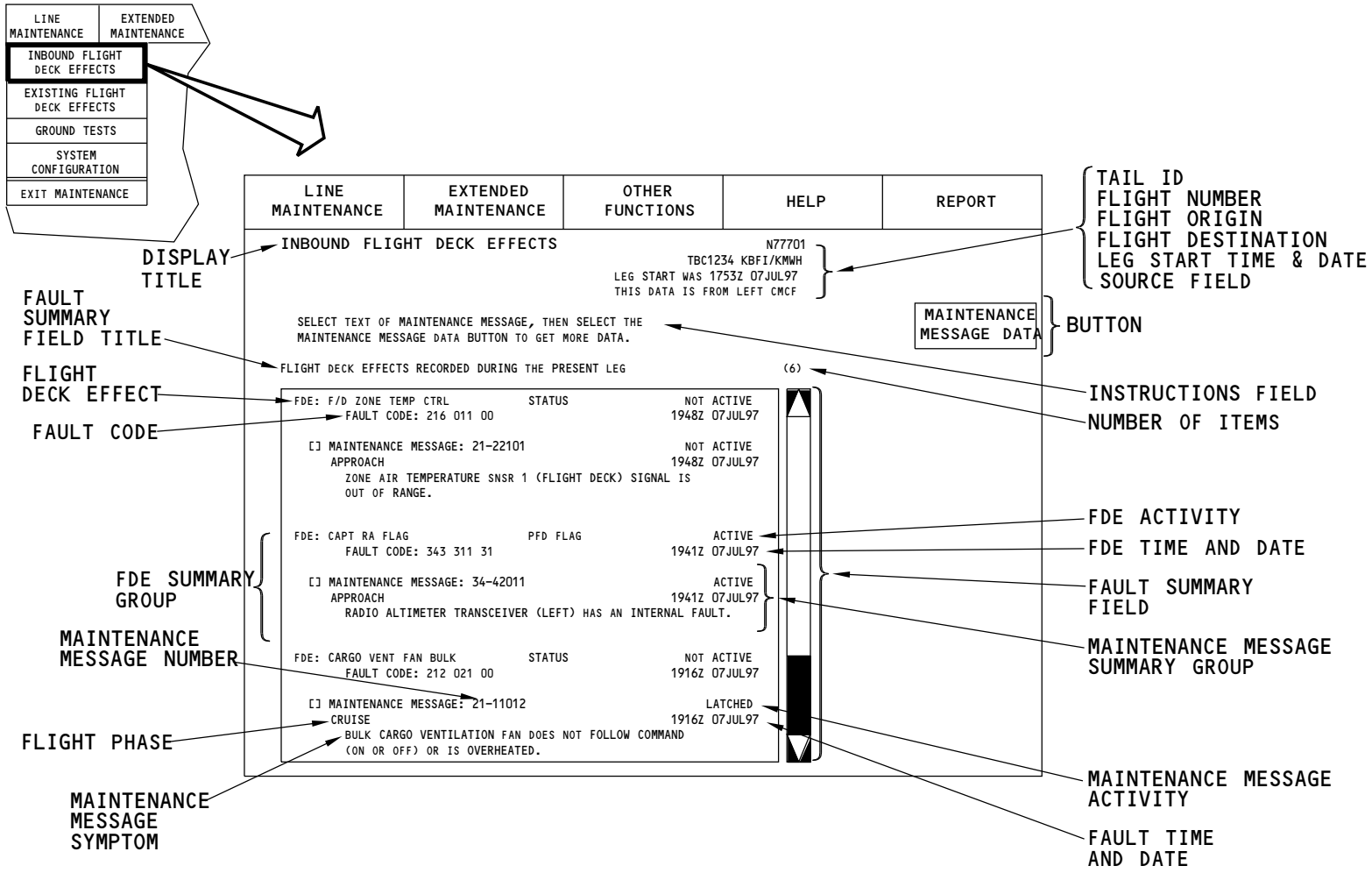
Button

Highlight and select a maintenance message summary group. Next, select MAINTENANCE MESSAGE DATA to show the single maintenance message display.

Training Information Point

If a flight leg transition occurs while the inbound flight deck effect display shows, this happens:

- If a fault summary field shows, it goes away
- A text dialog box shows with Flight Leg Has Changed. To See Data from Before, Go to Fault History Leg-1.
- Select CONTINUE on the text box to remove the text box and to show the Inbound Flight Deck Effects display again.



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CMCS - INBOUND FLIGHT DECK EFFECTS DISPLAY

EFFECTIVITY

ARO ALL

CMCS - SINGLE MAINTENANCE MESSAGE DATA DISPLAY

General

The single maintenance message data display shows this data on one page:

- Title
- Fault information
- Maintenance message information
- Activity
- Occurrence field
- Leg information
- Recommended maintenance actions
- Correlated flight deck effects
- Buttons.

The single maintenance message data display is available from one of these displays:

- Inbound flight deck effects display
- Existing flight deck effects display
- Ground tests display
- Present leg faults display
- Existing faults display
- Maintenance planning displays.

Within these displays, the single maintenance message data display supplies data for a maintenance message summary group from a one of these:

- FDE summary group
- Maintenance message summary group
- Non-FDE summary group.

Title

The title shows the original source of the message and previous display title of the page that showed the maintenance message.

Fault Information

The fault information field shows specific fault data and shows the source of the data.

Maintenance Message Information

The maintenance message number field contains the unique number associated with that specific maintenance message.

FDE, Maintenance Message, or Maintenance Memo Activity

The CMCF receives LRU fault information for display on the single maintenance message display that refers to these:

- FDEs
- Maintenance messages
- Maintenance memos.

The CMCF stores the information in the fault database.

The condition of an FDE shows as one of these:

- Active
- Latched
- Not Active.

An active FDE is an FDE that currently shows in the flight deck.

A latched FDE can only be a status message or a scheduled maintenance task. A failure that causes a status message may impact dispatch and may be intermittent or detectable only under certain conditions. The PDS holds a status message to make sure that you can see it on the ground.

An FDE is not active if it can not currently show on the flight deck

CMCS - SINGLE MAINTENANCE MESSAGE DATA DISPLAY

The activity of a maintenance message and maintenance memo also shows as one of these:

- Active
- Latched
- Not Active.

A maintenance message or maintenance memo is active if a system can continuously monitor for a fault condition, and the fault exists.

A maintenance message or maintenance memo is latched for one of these reasons:

- If a system detects a fault and no longer uses the related equipment as part of its operational function
- To ensure correlation with an FDE (maintenance message only)
- If a system can not always detect if the fault exists.

You must do something to clear a latched maintenance message.

A maintenance message or maintenance memo is not active if a system can continuously monitor for a fault condition, and the fault does not exist.

Occurrence Field

The occurrence field tells where the fault occurred, the time of the occurrence and the flight phase.

The occurrence field also tells if the fault is one of these:

- Hard
- Intermittent
- Message is ACTIVE only during operational mode shown in FIM.

A fault shows as hard if a system can currently monitor the fault condition, the fault exists, and it has not become not active.

A fault shows intermittent if a system can currently monitor the fault condition and the fault condition has gone away at least once. The fault condition may or may not currently exist. The number of times the fault has become active also appears.

A fault shows as "Message is ACTIVE only during operational mode shown in FIM" if the system has modes in which it can not tell if the fault is active. Use the initial evaluation paragraph of the fault isolation task in the FIM to see if it is active.

The occurrence field only shows when you select the maintenance message display from the inbound flight deck effects display or the present leg faults display.

- Inbound flight deck effects display
- Present leg faults display
- Fault history display.

Leg Information

The leg field shows information about the message and tells if the message occurred in a previous leg.

Recommended Maintenance Action Field

The recommended maintenance action field shows possible causes for the maintenance message.

The cause number shows in the order of probability. Causes with the same number have the same probability.

Training Information Point

The fault isolation manual (FIM) may show the fault isolation steps in a different order than the items in the recommended maintenance action field. The FIM considers ease of access and cost of component replacement in addition to probability.

Correlated Flight Deck Effects Field

The correlated flight deck effects field shows all the FDEs correlated to the message. This field updates as FDEs change.

Buttons

Select NEXT MESSAGE to show the next maintenance message in the FDE summary group. NEXT MESSAGE shows when viewing a maintenance messages selected from an FDE summary group.

Select PREVIOUS MESSAGE to show the previous maintenance message in the FDE summary group. PREVIOUS MESSAGE shows when viewing a maintenance messages selected from an FDE summary group.

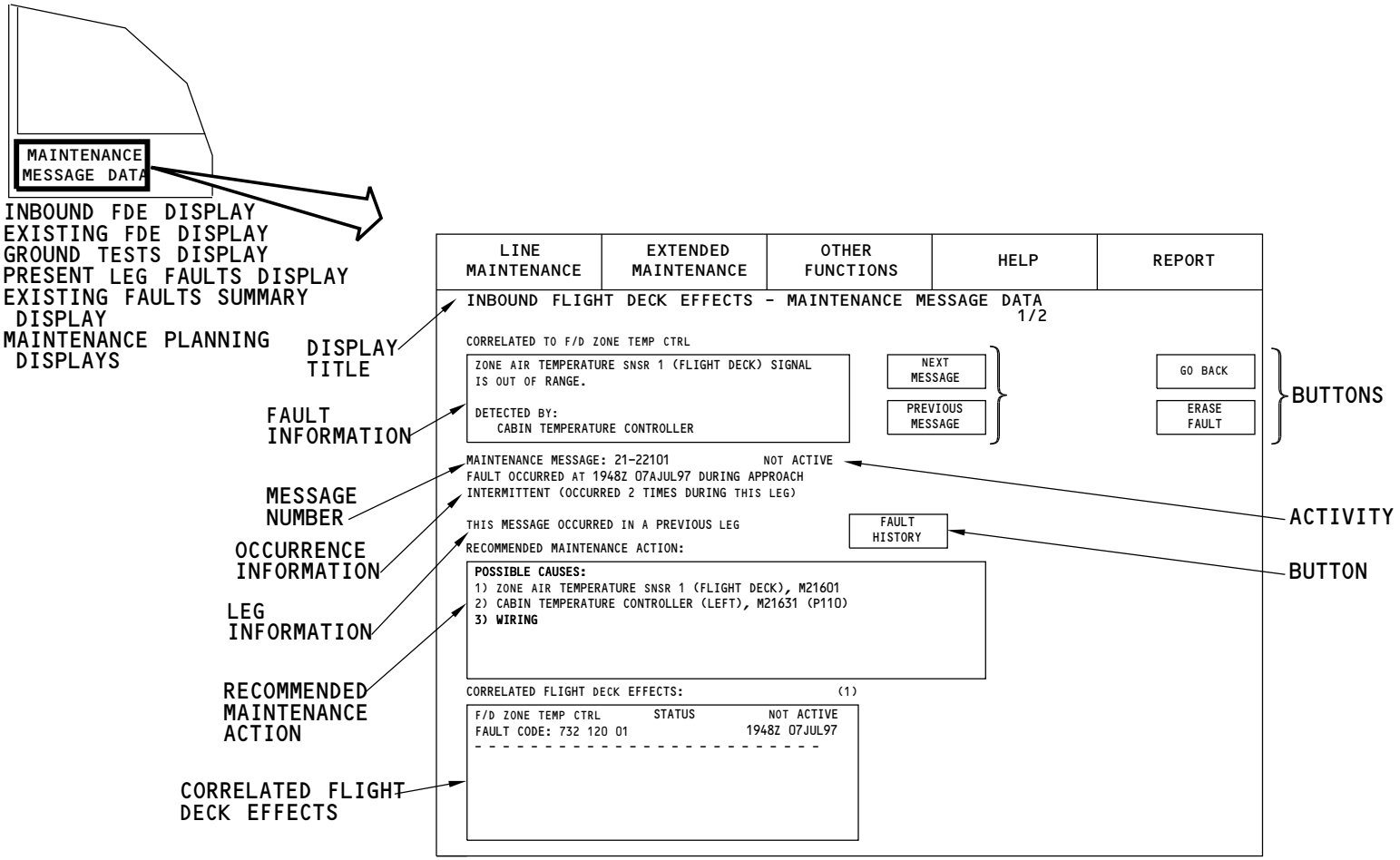
FAULT HISTORY shows only when you access the single maintenance message display through one of these displays:

- INBOUND FLIGHT DECK EFFECTS
- PRESENT LEG FAULTS
- INBOUND MAINTENANCE MEMOS
- INBOUND SCHEDULED MAINTENANCE TASKS.

Select FAULT HISTORY to show the fault history summary display for the applicable maintenance message.

Select GO BACK to return to the page from which the single maintenance message display was selected.

ERASE FAULT shows only when you access the single maintenance message page through fault history. Select ERASE FAULT to show the fault history erase confirmation dialog box.



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CMCS - SINGLE MAINTENANCE MESSAGE DATA DISPLAY

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CMCS - EXISTING FLIGHT DECK EFFECTS DISPLAY

General

The purpose of the existing flight deck effects display is to help the line maintenance technician repair the airplane during quick turnarounds at the gate.

Use the existing flight deck effects display to get access to any existing FDEs and their correlated maintenance messages. The FDEs may be active or latched.

The CMCF sorts the FDEs and any correlated maintenance messages by time and the most recent FDE shows first.

The user has the option to show the single maintenance message display.

The existing flight deck effects display shows this data:

- Header information
- Instructions field
- Fault summary field title
- Number of items
- Fault summary field
- Buttons.

Header Information

The data under the main menu bar on the right side shows this data:

- Tail identification
- Time and date from the CMCF
- CMCF source field.

Fault Summary Field

The number of flight deck effects in the fault summary field shows at the top of the scroll bar.

The fault summary field has the FDE summary groups.

Each FDE summary group includes this data:

- Flight deck effect
- Flight deck effect activity
- Fault code
- Maintenance message summary groups.

FDE and Maintenance Message Activity

The CMCF receives LRU fault information for display on the existing flight deck effects display that refers to:

- FDEs
- Maintenance messages.

The CMCF stores the information in the fault database. The information shows in FDE summary groups.

The condition of an FDE shows as one of these:

- Active
- Latched.

An active FDE is an FDE that currently shows in the flight deck.

A latched FDE can only be a status message or a scheduled maintenance task. A failure that caused a status message may impact dispatch and may be intermittent or detectable only under certain conditions. The PDS holds a status message to make sure it can be seen on the ground.

The condition of a maintenance message shows as one of these:

- Active
- Latched
- Not Active.

A maintenance message is active if a system can continuously monitor for a fault condition, and the fault exists.

CMCS - EXISTING FLIGHT DECK EFFECTS DISPLAY

A maintenance message is latched for one of these reasons:

- If a system detects a fault and no longer uses the related equipment as part of its operational function
- To ensure correlation with an FDE
- If a system can not always detect if the fault exists.

You must do something to clear a latched maintenance message.

A maintenance message is not active if a system can continuously monitor for a fault condition, and the fault does not exist.

Maintenance Message Summary Group

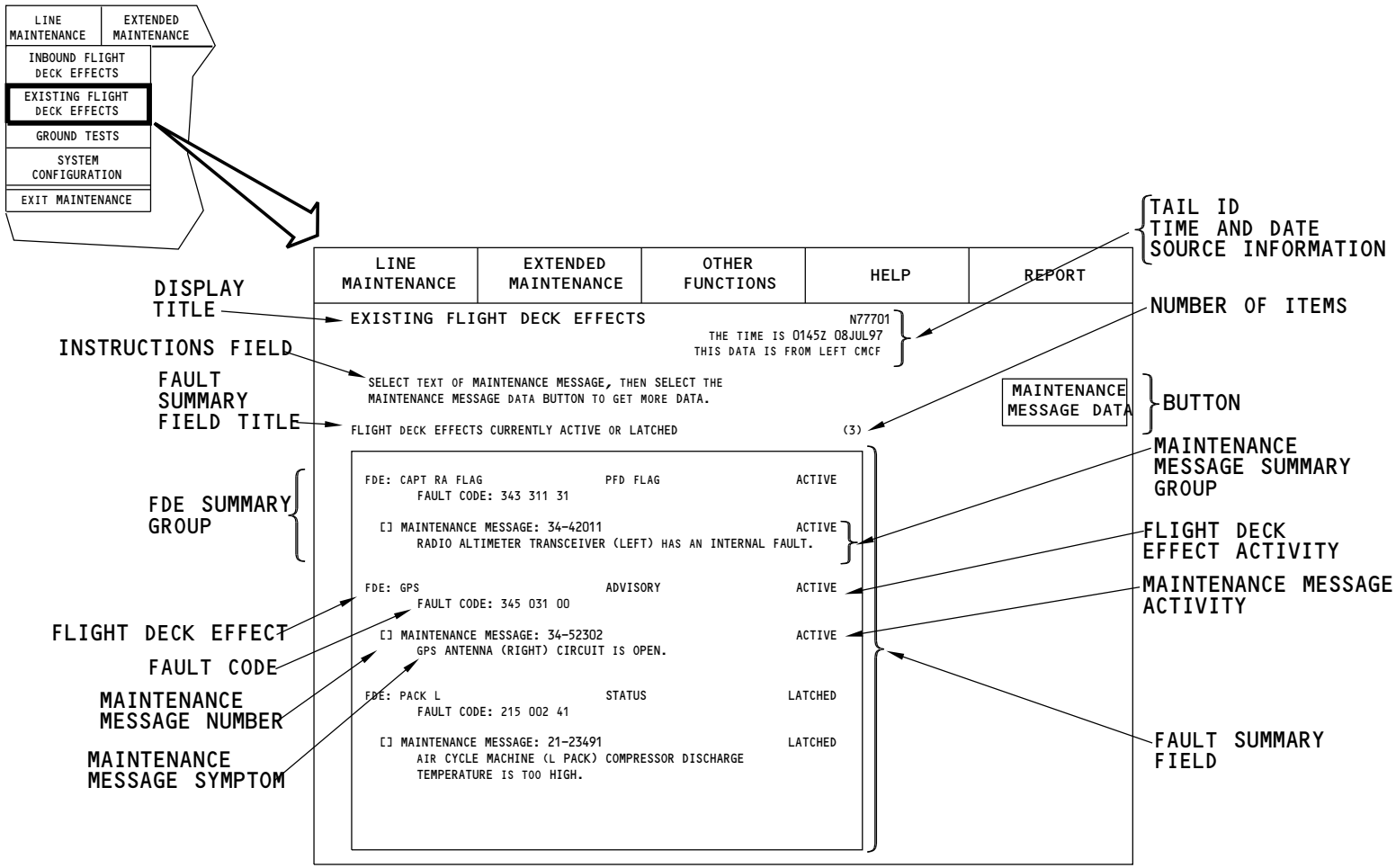
Each maintenance message summary group includes:

- Maintenance message symptom
- Maintenance message number
- Maintenance message activity.

One or more maintenance messages may be correlated to each FDE.

Button

Select MAINTENANCE MESSAGE DATA to show the single maintenance message display for the selected maintenance message.



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CMCS - EXISTING FLIGHT DECK EFFECTS DISPLAY

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CMCS - GROUND TESTS SELECTION DIALOG BOX

General

The GROUND TESTS selection supplies access to airplane systems with ground tests. In this ground test selection dialog box, you select this data:

- ATA system
- Type of test
- LRU in that system.

Many ATA systems and LRU have unique requirements that cause additional dialog boxes to show before the test actually starts. The types of dialog boxes include these:

- Precondition dialog boxes
- Inhibit dialog boxes
- Interference dialog boxes
- Interactive dialog boxes
- Menu abort dialog boxes.

When all requirements are met, the ground tests display shows the status and instructions for the test.

Buttons on the ground tests display and the dialog boxes supply:

- Specific instructions
- Help
- Report capability
- Access to the single maintenance message page.

The ground test selection dialog box shows this data:

- Dialog box title
- List box titles
- ATA system list box
- Test type exclusive selections
- Test list box
- Buttons.

ATA System List Box

The ATA System list box lists the airplane systems in ATA order. Select an ATA system first. This highlights the selection. This selection causes the test types for that ATA to become available. Those test types that are not available show dim or gray.

Test Type Exclusive Selections

These are the test types that are exclusive selections:

- SYSTEM TEST
- OPERATIONAL TEST
- LRU REPLACEMENT TEST.

A system test contains all adjustment specifications and tolerances to maintain systems or units at maximum efficiency. It is self-contained and may duplicate other tests.

An operational test determines only that a system or unit is operational. These tests require no special test equipment.

An LRU replacement test determines only that the interfaces to the LRU are operational.

The selection of a test type causes the test list box to show.

Test List Box

The title of the test list box matches the test type. The test list box shows all LRUs in the ATA that have the appropriate test available. The selection of an LRU in the test list box causes that LRU to highlight.

The selection of the LRU also makes the CONTINUE command available.

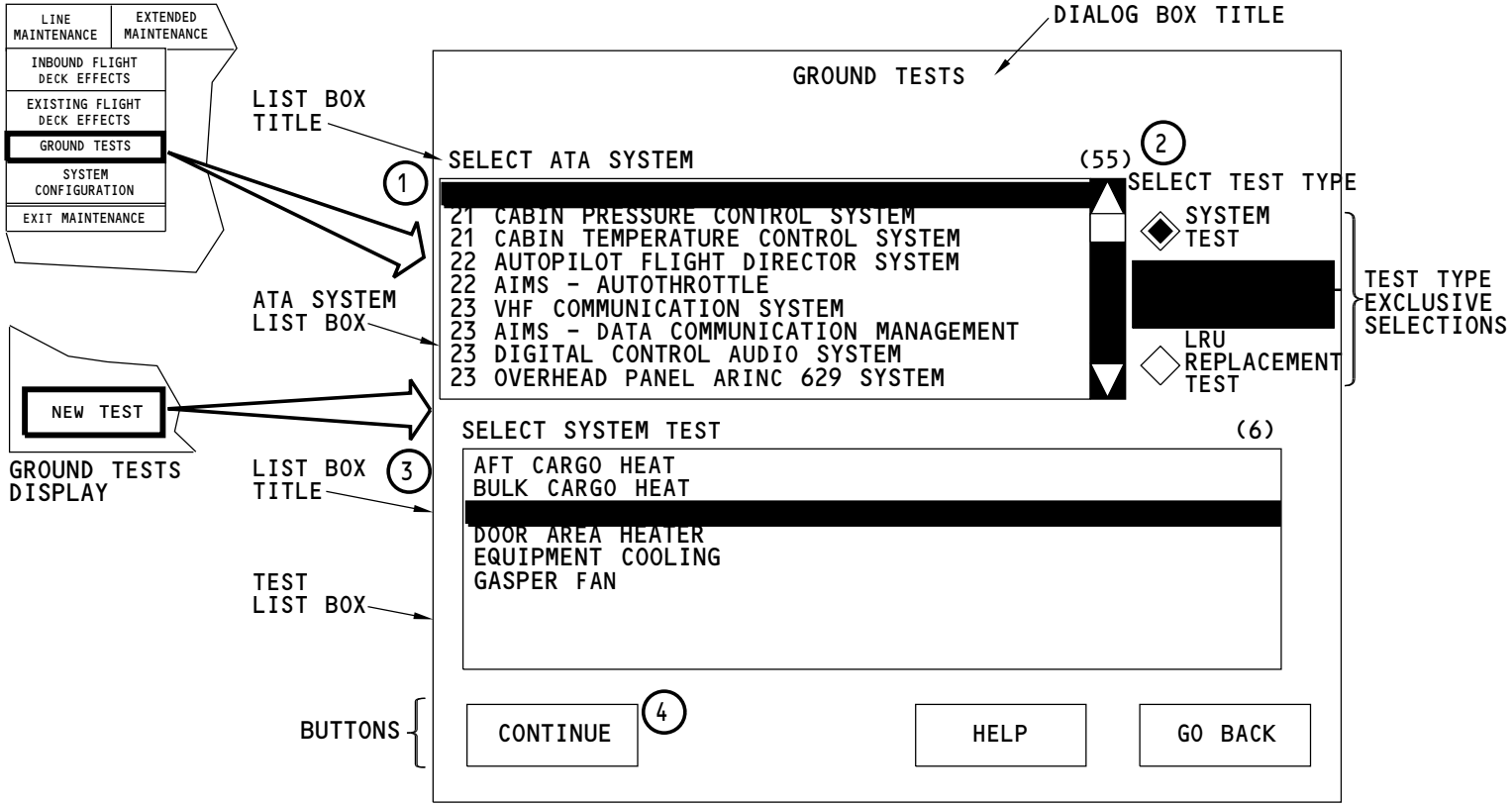
Buttons

Select CONTINUE to show the precondition dialog box on top of the ground test selection dialog box for the selected test.

CMCS - GROUND TESTS SELECTION DIALOG BOX

Select HELP to show the help dialog box for the ground tests selection dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the ground test selection dialog box and to show the previous display.



1 - 4 TEST SELECTION SEQUENCE

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CMCS - GROUND TESTS SELECTION DIALOG BOX

CMCS - GROUND TESTS PRECONDITION DIALOG BOX

General

The precondition dialog box has a description for each test and special instructions for each test (if required).

The precondition dialog box shows this data:

- Display title
- Test title
- Test description
- Precondition list
- Buttons.

Test Title

The test title shows the test name from the selection you make on the ground test selection dialog box.

Test Description

The test description briefly tells you about the test.

Precondition List

The precondition list gives instructions for you to follow before the test is run.

The precondition display database stores the test description and the precondition list.

Buttons

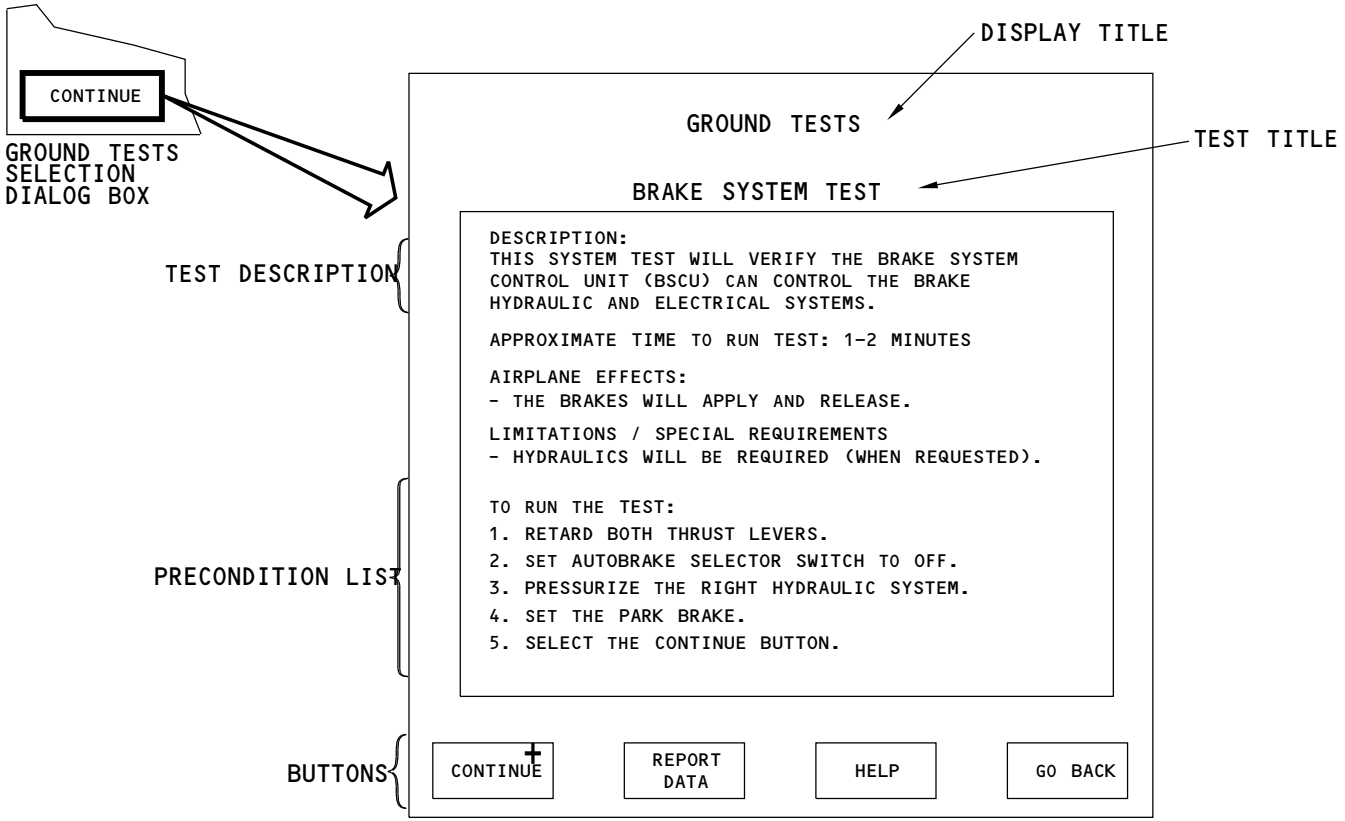
The precondition dialog box shows four buttons.

Select CONTINUE to close the ground test selection dialog box (if open), to close the precondition dialog box, and to cause the test display to show.

Select REPORT DATA to show the report dialog box.

Select HELP to show the help dialog box for the precondition dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the precondition dialog box to show the previous display.



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CMCS - GROUND TESTS PRECONDITION DIALOG BOX

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CMCS - GROUND TESTS TEST DISPLAY

General

The ground tests test display supplies status information and control for ground tests.

The ground tests test display shows:

- Display title
- ATA chapter and name
- Test type title
- Test title
- Test condition messages
- Test control buttons
- Text field
- Text field title
- Buttons.

ATA Chapter and Name

This field shows the ATA chapter and system name from the initial selection on the ground tests selection dialog box.

Test Type Title

This field shows the test type title from the initial selection on the ground tests selection dialog box.

Test Title

This field shows the test title from the initial selection on the ground tests selection dialog box.

Test Condition Messages and Test Control Buttons

The TEST CONDITION messages field can show these messages:

- READY
- INHIBITED
- CAN NOT OPERATE
- OPERATING
- PASSED
- FAILED
- STOPPED.

These are the possible test control buttons:

- START TEST
- STOP TEST
- OPERATE TEST AGAIN
- TO TEST.

READY shows when no inhibit conditions or no interference conditions exist. START TEST shows next to the READY message.

START TEST causes the CMCF to begin the test. OPERATING shows as the message.

When OPERATING shows, the button changes to STOP TEST.

The selection of STOP TEST causes the message STOPPED to show.

At the completion of the test, PASSED or FAILED shows.

With STOPPED, PASSED or FAILED as the message, OPERATE TEST AGAIN shows as the button.

OPERATE TEST AGAIN causes the precondition to show.

INHIBITED shows when a test inhibit condition exists. The TO TEST control selection shows next to the message. Select TO TEST to show the test inhibit dialog box.

CAN NOT OPERATE shows as the message if a test interference condition exists. The TO TEST control selection shows next to the message. Select TO TEST to show the test interference dialog box.

Text Field

The text field shows the maintenance message summary group and reported test results when a test fails.

If the message STOPPED shows in the test condition field, and you stop the test, or the system in test stops the test, then the text field shows one of these messages:

- Test stopped due to user request
- Test stopped due to member system request.

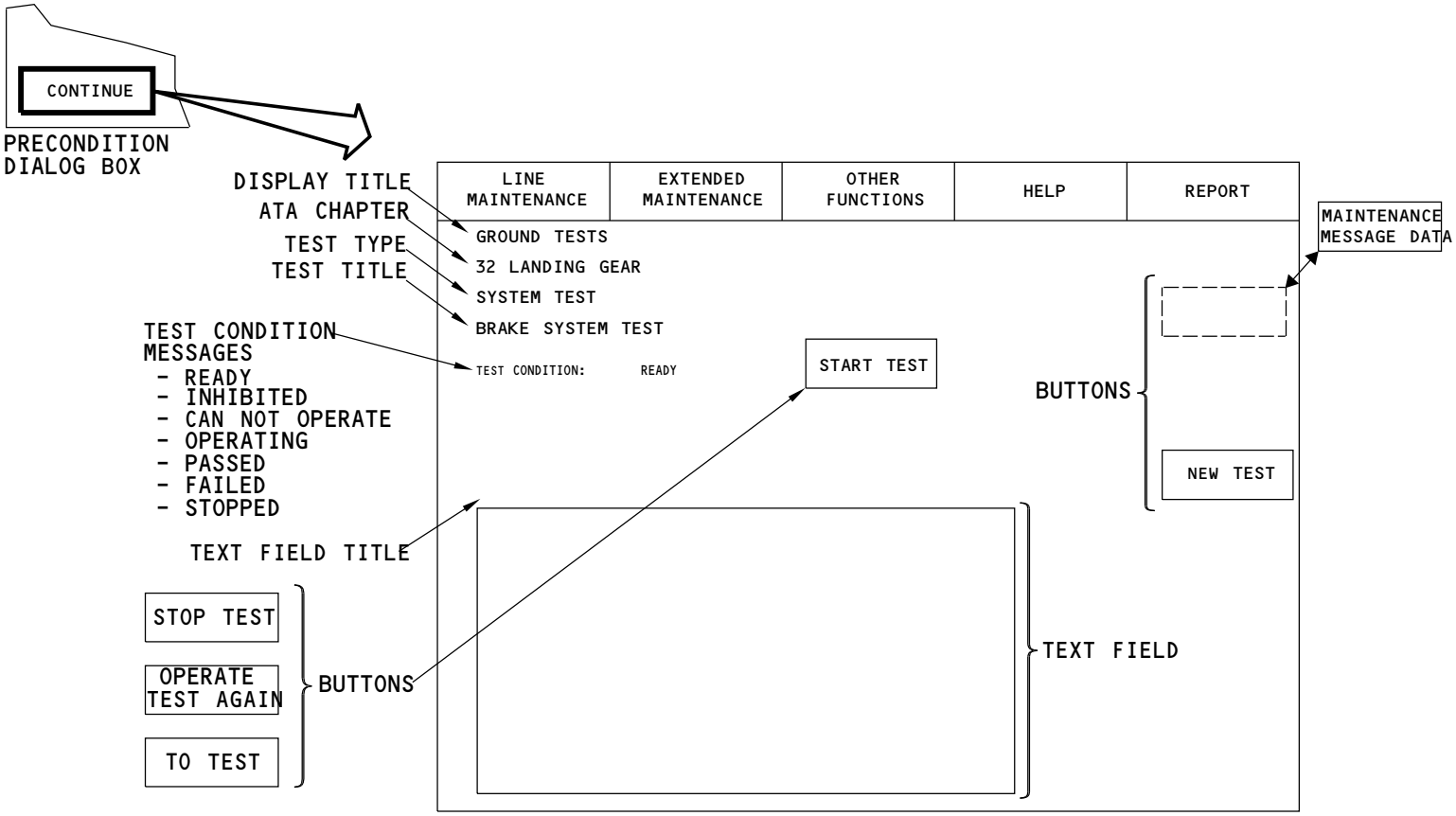
Text Field Title

When FAILED or STOPPED shows in the test condition field, the title of the text field is CAUSE.

Buttons

The MAINTENANCE MESSAGE DATA button is available when a maintenance message summary group shows for a failed test.

Select NEW TEST to show the ground tests selection dialog box.



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CMCS - GROUND TESTS TEST DISPLAY

CMCS - GROUND TESTS DISPLAYS - 2

General

The test condition messages and the test control button show the current status of the test and give the next control selection.

These are the two possible displays that show:

- Test failed display
- Test stopped display.

Test Failed Display

The test failed display shows the test condition message FAILED and gives the operator the control command to OPERATE TEST AGAIN.

The title of the variable text field is CAUSE and the variable text field shows the maintenance message groups or messages associated with the failure.

The MAINTENANCE MESSAGE DATA button lets you see a single maintenance message after the selection of that maintenance message.

The NEW TEST function remains the same.

Test Stopped Display

After a tests starts, the test condition message changes to OPERATING and the control command changes to STOP TEST.

The test can be stopped by you or by the system.

When you stop the test, the test condition message changes to STOPPED and the button changes to OPERATE TEST AGAIN. The variable text field title is CAUSE and the variable text field shows the message:

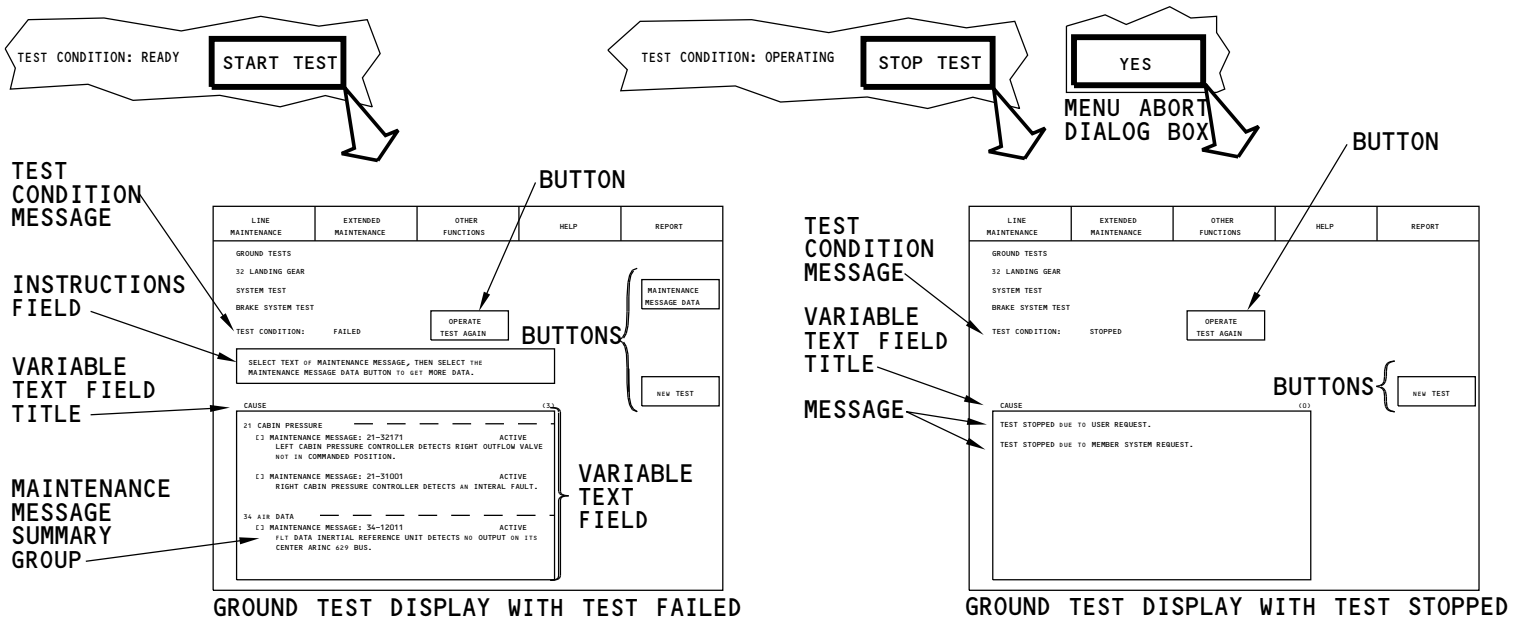
- Test stopped due to user request.

When the system stops the test, the test condition message changes to STOPPED and the button changes to OPERATE TEST AGAIN. The variable text field title is CAUSE and the variable text field shows the message:

- Test stopped due to member system request.

The MAINTENANCE MESSAGE DATA button is not available from this display.

The NEW TEST function remains the same.



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CMCS - GROUND TESTS DISPLAYS - 2

CMCS - GROUND TEST INTERACTIVE DIALOG BOX

General

The ground test interactive dialog boxes show only if your interaction is necessary to complete the test.

The member systems control the interactive displays. LRUs in the member systems send a control signal that tells the CMCF to show the interactive displays as necessary. When the CMCF gets the control signal, it removes the current interactive display that shows.

Each interactive dialog box shows:

- Dialog box title
- Test title
- Messages
- Exclusive selections
- Buttons.

Test Title

The test title shows the title of the test from the initial selection on the Ground Tests selection dialog box.

Messages

The messages area shows directions to successfully run and complete the test.

The message area also shows any warnings for the test.

If there is more text to show than can fit in the message area, a scroll bar shows.

Exclusive Selections

The member systems define the exclusive selections. The selections permit communication between you and the LRU under test.

Each interactive dialog box can show a maximum of ten exclusive selections.

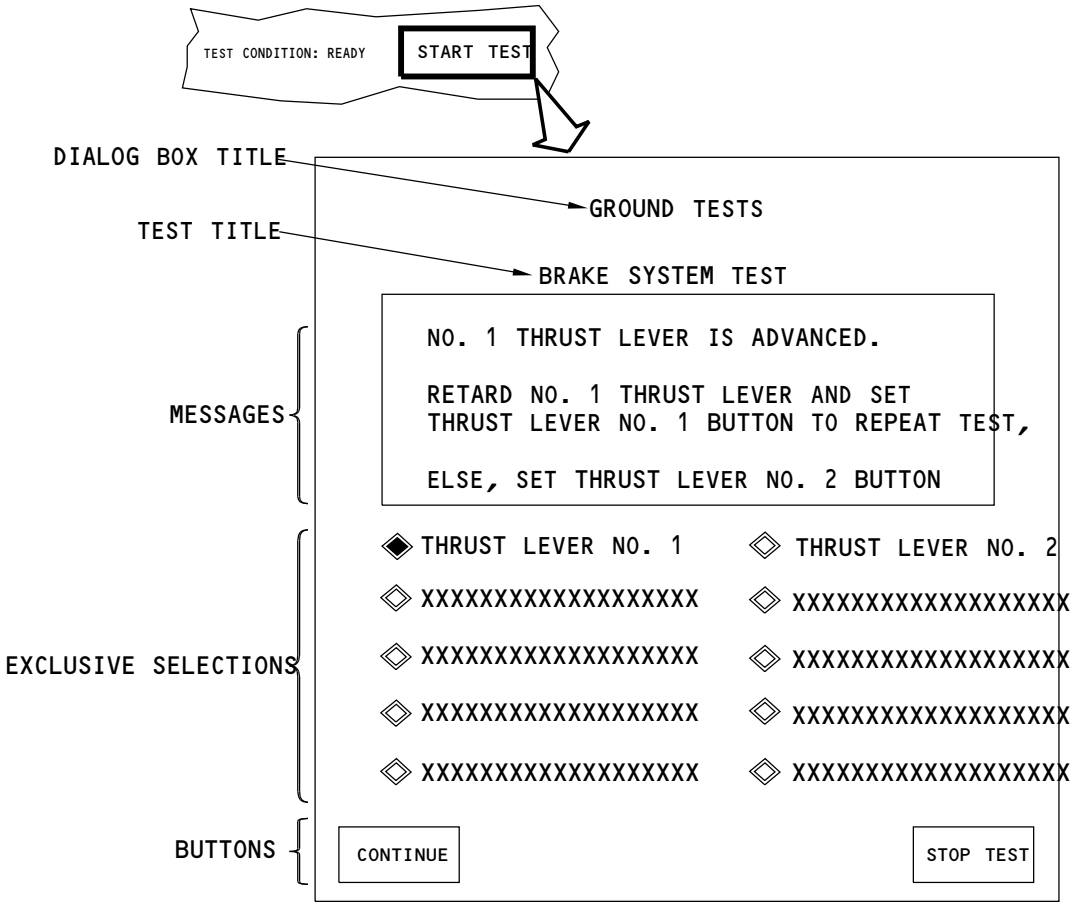
Only the required number of exclusive selections show for each test. The ground test interactive dialog box grows to fit the buttons.

Buttons

The CONTINUE button shows dim or is not available if exclusive selections are not available or until you make an exclusive selection.

After you make an exclusive selection, select CONTINUE to cause that selection to go to the LRU. The CMCF removes the interactive dialog box. The CMCF then starts the test.

Select STOP TEST to remove the interactive dialog box and cause the TEST CONDITION message on the system test screen to show STOPPED. The control selection shows OPERATE TEST AGAIN.



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CMCS - GROUND TEST INTERACTIVE DIALOG BOX

CMCS - GROUND TESTS INHIBIT AND INTERFERENCE DIALOG BOXES

Test Inhibit Dialog Box

When the TEST CONDITION message shows INHIBITED, the control button changes to TO TEST.

Select TO TEST to show the ground tests test inhibit dialog box.

The ground tests test inhibit dialog box shows:

- Dialog box title
- Test title
- Instructions to continue the test
- Buttons.

The test title shows the title from the original selection on the ground test selection dialog box.

The instructions tell why the test is inhibited and how to enable the test.

After the inhibit condition goes away, select CONTINUE to remove the dialog box and permit the test to continue.

Select REPORT DATA to show the report dialog box.

Select HELP to show the help dialog box for the dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the test inhibit dialog box.

Test Interference Dialog Box

When the TEST CONDITION message shows CAN NOT OPERATE, the control button changes to TO TEST.

Select TO TEST to show the ground tests test interference dialog box.

The ground tests test interference dialog box shows:

- Dialog Box title
- Test title
- Test interference information
- Buttons.

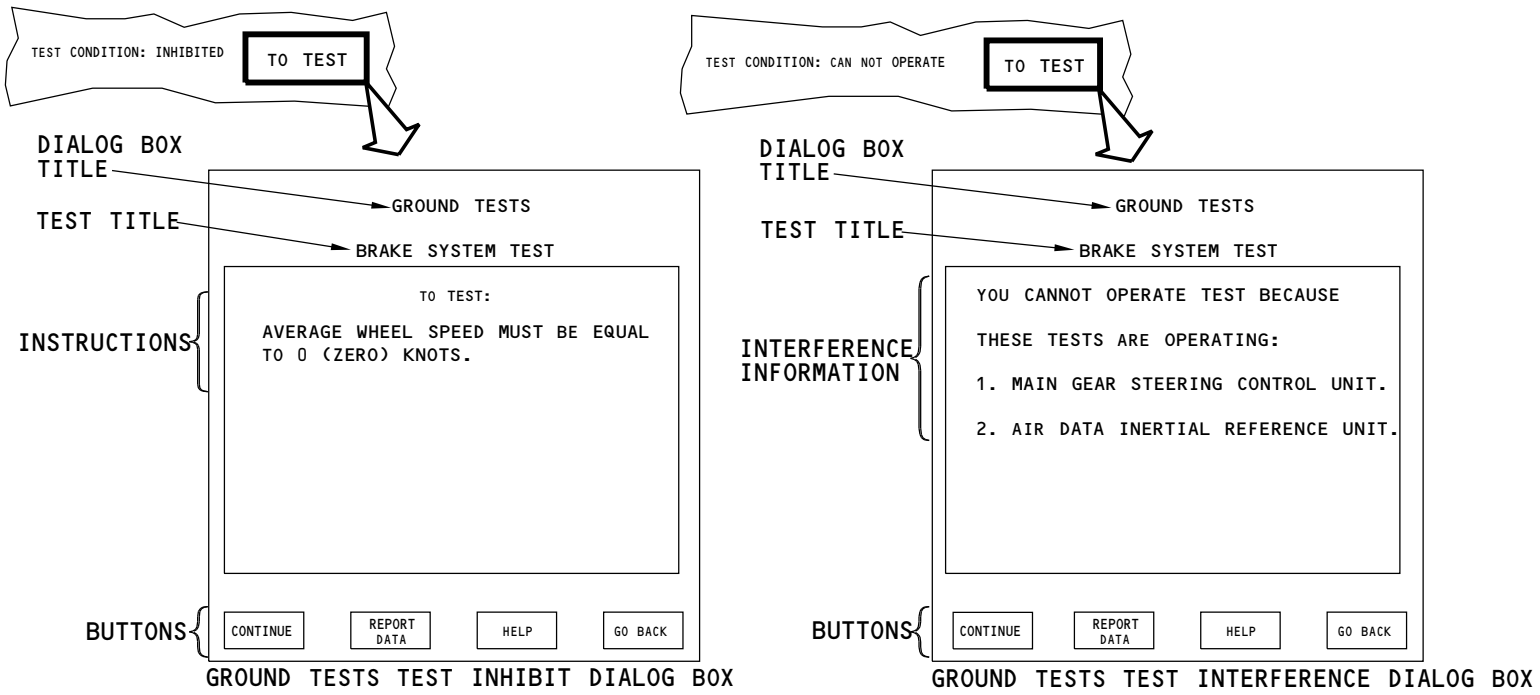
The test title shows the title from the original selection on the ground test selection dialog box.

The test interference information has the header "You cannot operate this test because these tests are operating" and a numbered list of the causes of the interference. After the interference condition goes away, select CONTINUE to remove the dialog box and permit the test to continue.

Select REPORT DATA to show the report dialog box.

Select HELP to show the help dialog box for the dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to close the test interference dialog box.



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CMCS - GROUND TESTS INHIBIT AND INTERFERENCE DIALOG BOXES

CMCS - GROUND TESTS MENU ABORT AND NO TEST ABORT DIALOG BOXES

Ground Tests Menu Abort Dialog Box

The ground tests menu abort dialog box shows when a selection other than HELP is made from the main menu bar or the user selects NEW TEST with a test in progress.

The menu abort dialog box shows:

- Dialog box title
- Message text
- Buttons.

The message text shows:

- Do you wish to STOP the Test?

Select YES to do these:

- Stop the test
- Remove the menu abort dialog box
- Show the main menu bar selection or the NEW TEST button.

Select GO BACK to remove the menu abort dialog box.

Ground Tests No Menu Abort Dialog Box

The ground tests no menu abort dialog box shows when a selection other than help is made from the main menu bar or the user selects NEW TEST with a test in progress.

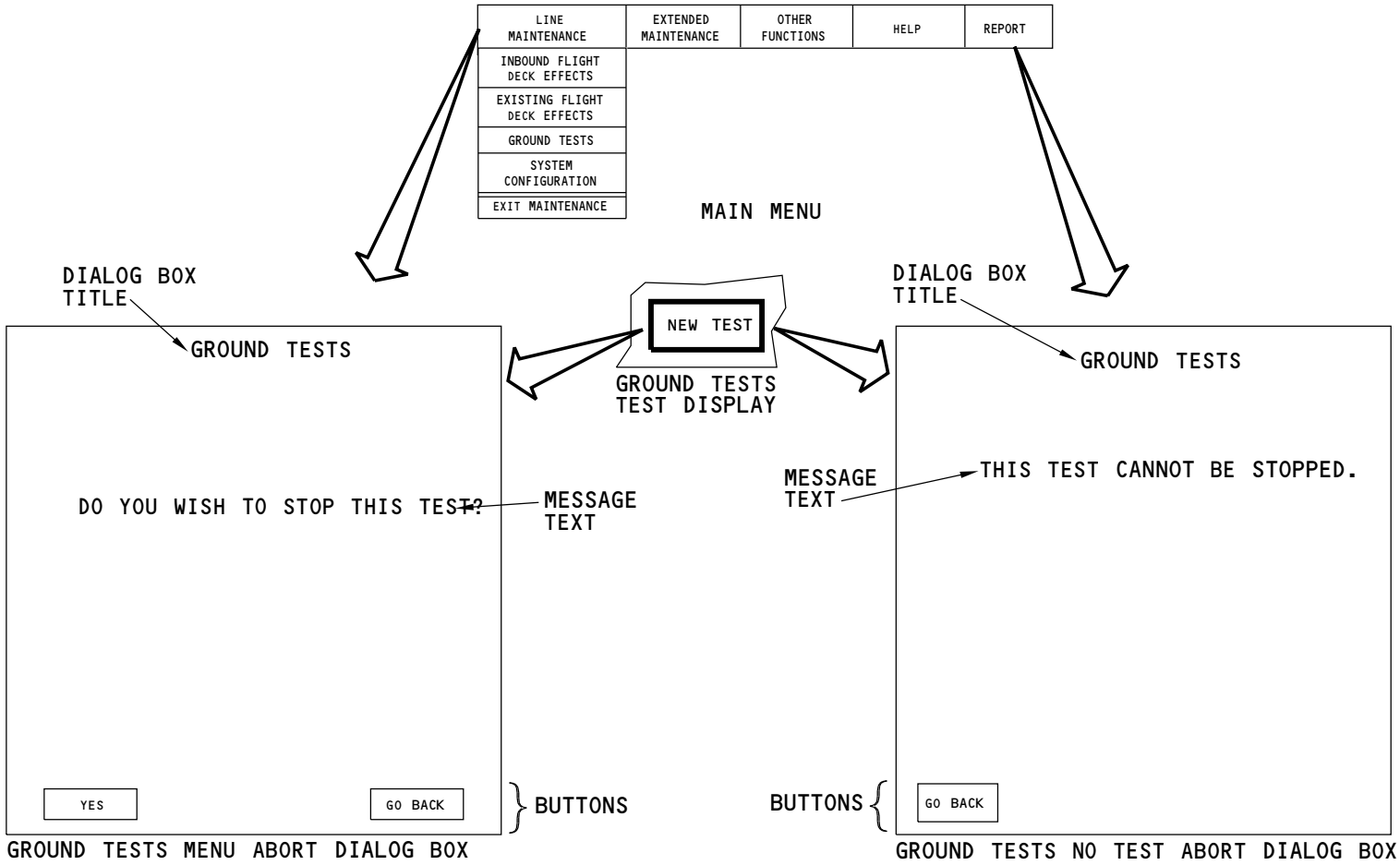
The no menu abort dialog box has:

- Dialog box title
- Message text
- Buttons.

The message text shows:

- This test cannot be stopped.

Select GO BACK to remove the no menu abort dialog box and return to the previous display.



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CMCS - GROUND TESTS MENU ABORT AND NO TEST ABORT DIALOG BOXES

CMCS - SYSTEM CONFIGURATION SELECTION DIALOG BOX

General

The system configuration selection dialog box shows ATA chapters and ATA system names for access to hardware and software configuration information for different LRUs and LRMs in the ATA systems.

The system configuration selection dialog box shows:

- Dialog box title
- List box title
- Number of items
- List box
- Buttons.

The list box shows a list of ATA chapter numbers and ATA chapter names. The list box shows the ATA systems sorted in order of ATA chapter number.

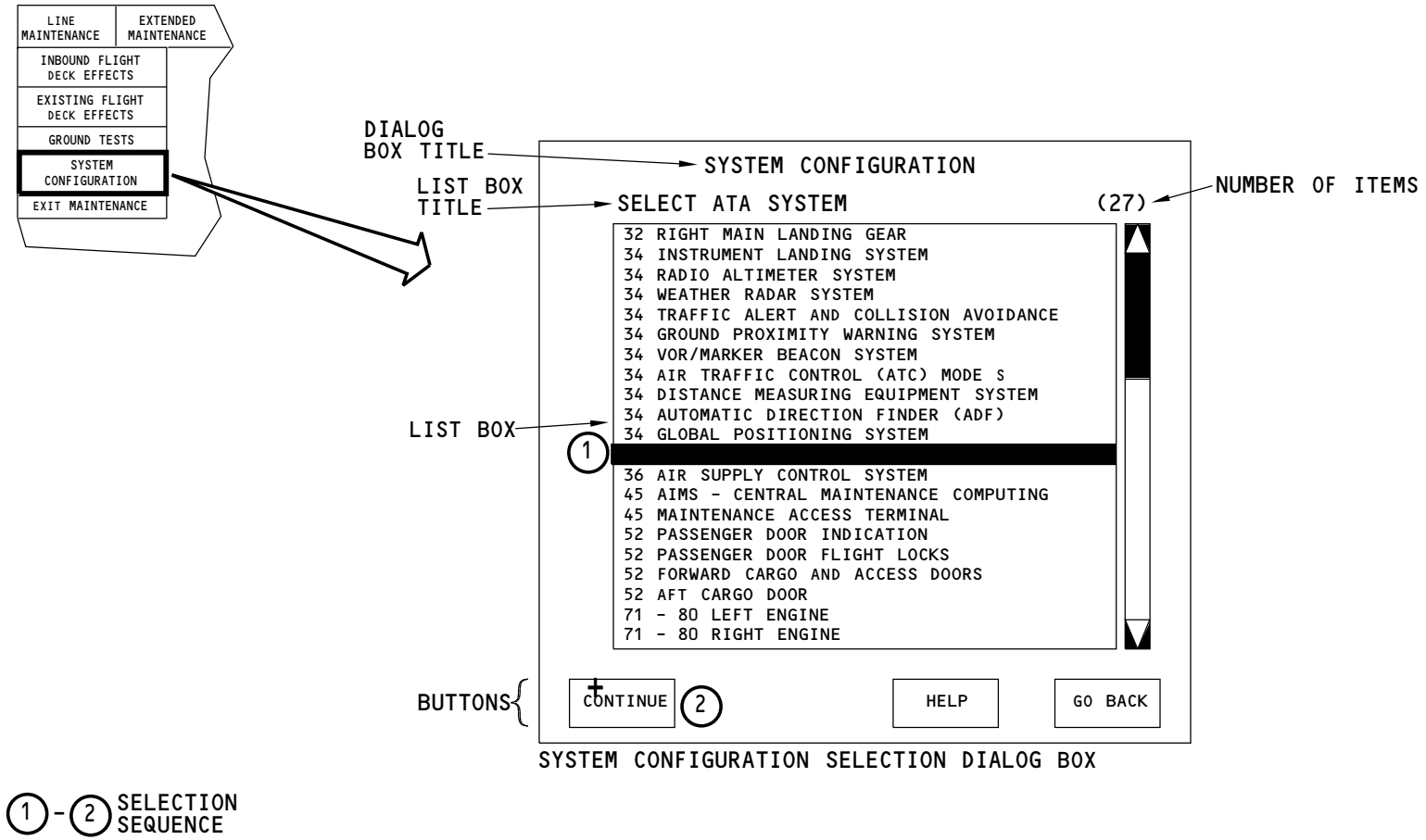
The selected item highlights. The total number of ATA chapter numbers and systems items shows at the top of the list box.

Buttons

Select CONTINUE to remove the system configuration selection dialog box and show the system configuration dialog box. The CONTINUE selection is not available until an ATA system is highlighted.

Select GO BACK to close the system configuration selection dialog box and return to the previous display.

Select HELP to show the help dialog box for the system configuration selection dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.



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CMCS - SYSTEM CONFIGURATION SELECTION DIALOG BOX

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CMCS - SYSTEM CONFIGURATION DIALOG BOX

General

The system configuration dialog box shows hardware and software configuration information for different ATA systems.

The system configuration dialog box shows:

- Dialog box title
- List box title
- Number of items
- List box
- Buttons.

The title of the list box is the ATA chapter number and system selected from the system configuration selection dialog box.

The total number of LRM/LRU items shows at the top of the list box.

List Box

The list box shows the:

- System identifiers
- LRU/LRM identifiers for the system
- Configuration data identifiers
- Configuration data
- Configuration data not available text.

The system identifiers and the LRU/LRM identifiers show for the ATA chapter number and system that shows on top of the list box.

Configuration Data

The configuration data identifiers are:

- Hardware Part Number
- Software #n Part Number
- LRU Part Number
- Serial Number
- Options
- Other Item.

Configuration data shows to the right of the configuration data identifiers.

If an LRU/LRM cannot supply configuration data to the CMCF, the configuration data identifiers and configuration data do not show. The list box shows one of four text blocks in the place of the configuration data identifiers and configuration data.

If there is no response from an LRU/LRM the text block shows:

- CONFIGURATION DATA NOT AVAILABLE. CANNOT CONNECT TO THIS SYSTEM. THIS SYSTEM DOES NOT GIVE A REPLY.

If the CMCF receives data from an LRU/LRM, but no configuration information is in the data received, the text block shows:

- CONFIGURATION DATA NOT AVAILABLE.

If an LRU/LRM is inactive, the text block shows:

- CONFIGURATION DATA NOT AVAILABLE. CANNOT CONNECT TO THIS SYSTEM. THIS SYSTEM IS INACTIVE/FAULTED.

An LRU/LRM can only do one system configuration request at a time. If the CMCF receives a second request to show a system configuration dialog box for the same LRU/LRM the text block shows:

- CONFIGURATION DATA NOT AVAILABLE. CANNOT CONNECT TO XXXX. SYSTEM CONFIGURATION IS ALREADY CONNECTED TO XXXX.

The XXXX is the LRU/LRM that system configuration information was requested for. For example:

- CONFIGURATION DATA NOT AVAILABLE. CANNOT CONNECT TO AIR DATA SYSTEM. SYSTEM CONFIGURATION IS ALREADY CONNECTED TO AIR DATA SYSTEM.

CMCS - SYSTEM CONFIGURATION DIALOG BOX

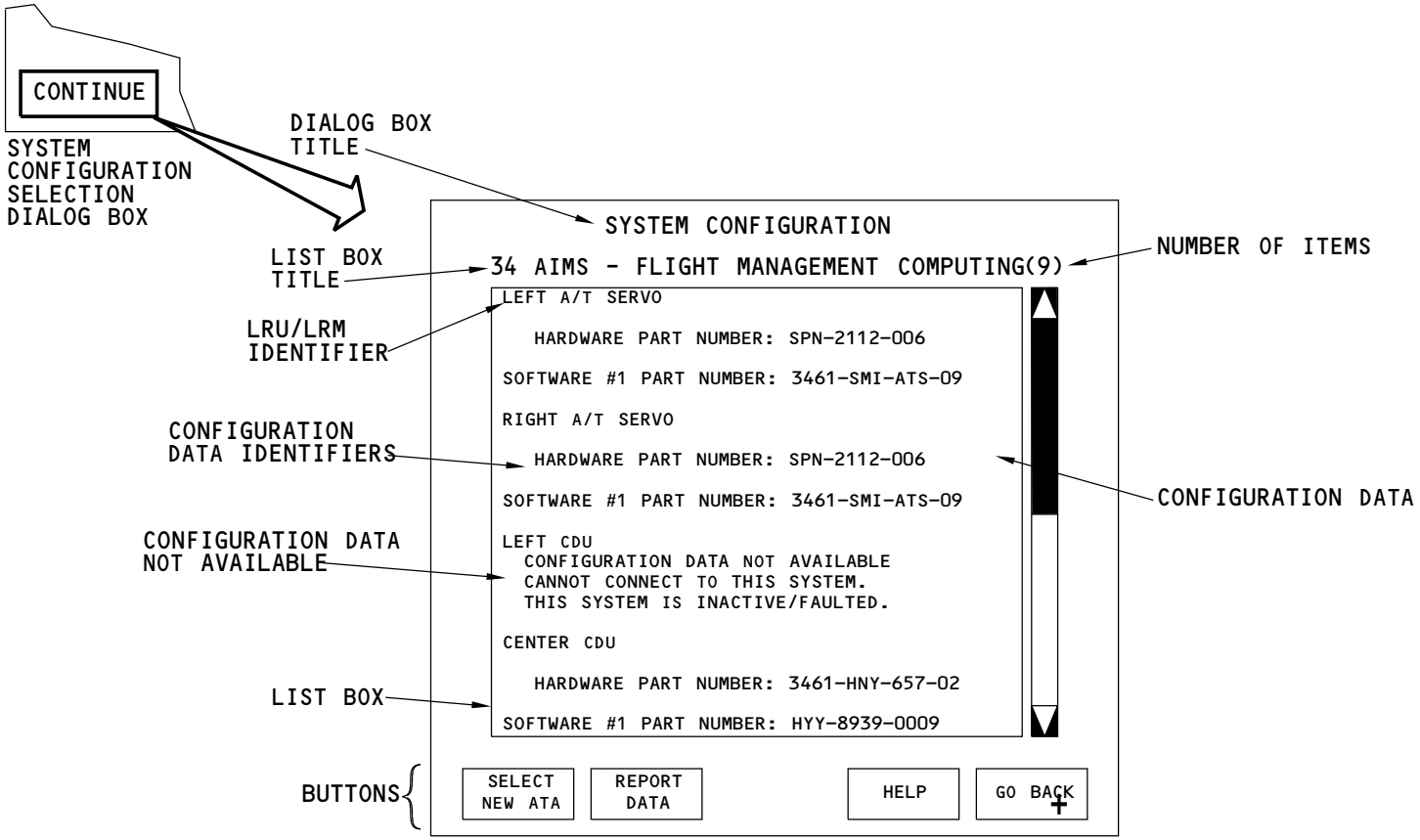
Buttons

Select SELECT NEW ATA to show the system configuration selection dialog box on top of the system configuration dialog box. The configuration data that shows on the system configuration dialog box remains the same and shows below the system configuration selection dialog box.

Select REPORT DATA to show the report dialog box.

Select HELP to show the help dialog box for the system configuration dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the system configuration dialog box and show the previous display.



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CMCS - SYSTEM CONFIGURATION DIALOG BOX

CMCS - PRESENT LEG FAULTS DISPLAY

General

The present leg faults display shows FDE and non-FDE summary groups. The FDE summary group shows FDEs and their correlated maintenance message summary groups which the CMCF stores in fault history leg 0. The non-FDE summary group shows non-correlated maintenance message summary groups which the CMCF stores in fault history leg 0.

FDEs and their correlated maintenance message summary groups show in time order of occurrence, with the most recent FDE and correlated maintenance message summary groups at the top of the list. The non-FDE summary groups show at the bottom of the list.

The present leg faults display also shows maintenance message summary groups for a single ATA chapter, which the CMCF stores in fault history leg 0.

The present leg faults display shows:

- Header Information
- Instructions field
- Fault summary field title
- Number of items
- Fault summary field
- Buttons.

Header Information

The data under the main menu bar on the right side shows:

- Tail identification
- Flight number from the FMCF
- Leg ID, departure airport and arrival airport identifiers from the FMCF
- Leg start time and date from the CMCF
- CMCF source field.

Fault Summary Field Title

The fault summary field title shows above the fault summary field on the left side. The fault summary title shows:

- Data Recorded During the Present Leg - shows when the present leg faults display shows FDE and non-FDE summary groups
- Maintenance Messages Recorded During the Present Leg for XXXXX; (XXXXX is the ATA system that has faults) - shows when the present leg faults display shows maintenance message summary groups sorted by a single ATA chapter.

Number of Items

The number of items shows above the fault summary field on the right side. The number in the parentheses shows the total number of:

- FDE summary groups plus one for the non-FDE summary group, when the fault summary field shows FDE and non-FDE summary groups
- Maintenance message summary groups, when the fault summary field shows maintenance message summary groups for a single ATA chapter.

Fault Summary Field

A fault summary field has:

- FDE summary groups
- Non-FDE summary group
- Maintenance message summary groups for a single ATA chapter.

The summary groups are faults and FDEs which the CMCF stores in the current leg. The fault summary field border highlights when the cursor is within the area of the fault summary field and there is one or more summary groups within the field.

CMCS - PRESENT LEG FAULTS DISPLAY

Select the cursor control device button while the cursor is within the area of the fault summary field to highlight the text of a maintenance message summary group or the text of a FDE summary group header. Select a button to show more data for the highlighted maintenance message summary group or the highlighted FDE summary group header.

FDE Summary Group

A FDE summary group shows the:

- Flight deck effect EICAS message and level
- Flight deck effect activity
- Fault code for the FDE
- Time and date the FDE occurred
- One or more maintenance message summary groups.

FDE and Maintenance Message Activity

The activity of an FDE shows as one of these:

- Active
- Latched
- Not Active.

An active FDE is an FDE that currently shows in the flight deck.

A latched FDE can only be a status message or a scheduled maintenance task. Scheduled maintenance tasks are discussed in other parts of this section.

A failure that caused a status message may impact dispatch and may be intermittent or detectable only under certain conditions. The PDS holds a status message to make sure you can see it on the ground. You must do something to clear a latched FDE.

An FDE is not active if it can not currently be seen on the flight deck.

The activity of a maintenance message also shows as one of these:

- Active
- Latched
- Not Active.

A maintenance message is active if a system can continuously monitor for a fault condition, and the fault exists.

A maintenance message is latched for one of these reasons:

- If a system detected a fault and is no longer using the related equipment as part of its operational function
- To ensure correlation with an FDE
- If a system can not always detect if the fault exists.

You must do something to clear a latched maintenance message.

A maintenance message is not active if a system can continuously monitor for a fault condition, and the fault does not exist.

Maintenance Message Summary Groups

Each maintenance message summary group includes:

- Maintenance message number
- Maintenance message activity
- Flight phase
- Fault time and date
- Maintenance message symptom.

One or more maintenance messages may be correlated to each FDE and shows with an FDE summary group.

Buttons

Select MAINTENANCE MESSAGE DATA to show the single maintenance message display for the highlighted maintenance message.

Select SELECT BY ATA to show the ATA chapter selection dialog box. If the fault summary field shows maintenance message summary groups for a single ATA chapter, then the button shows SORT BY FDE.

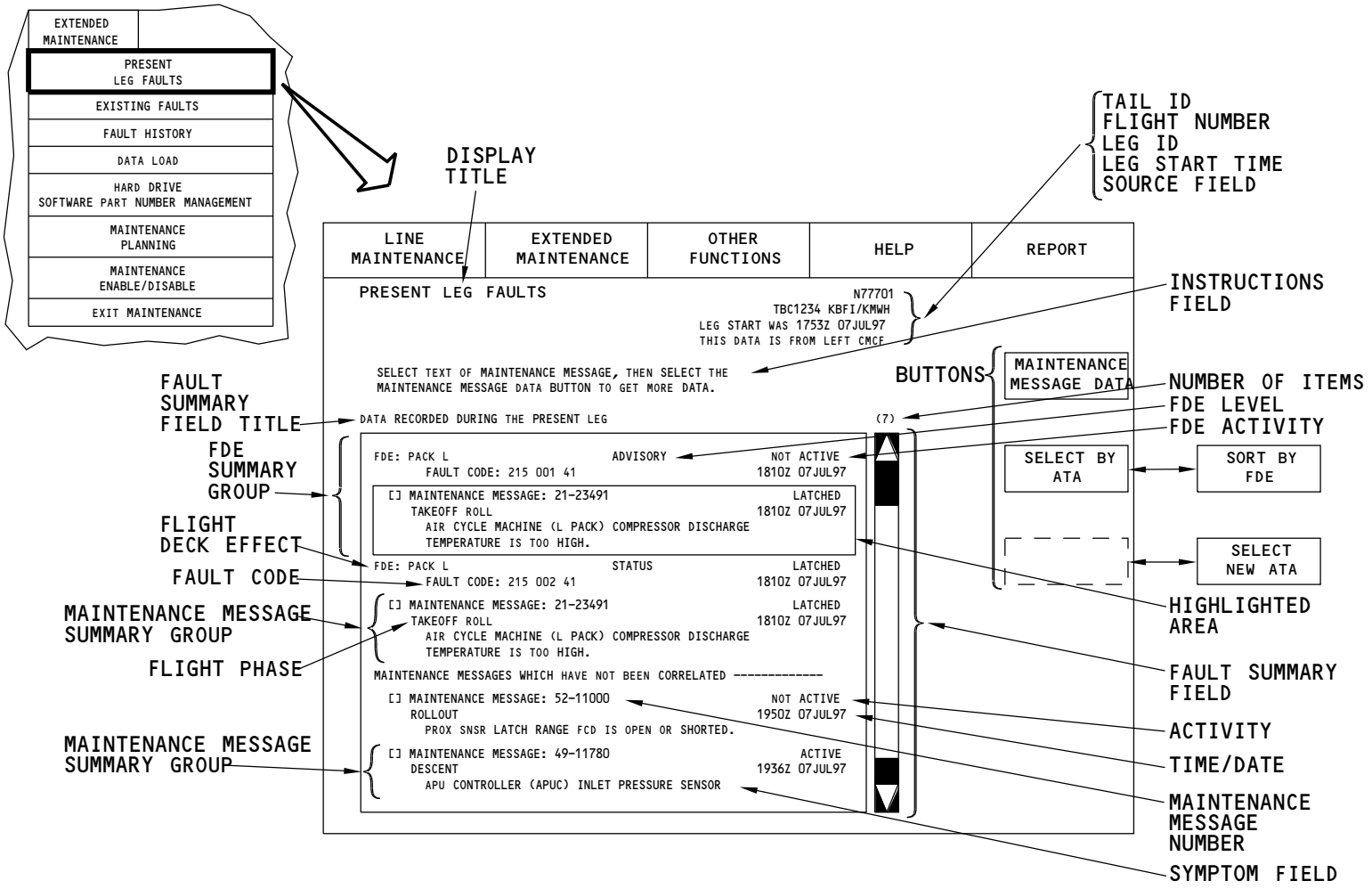
Select SORT BY FDE to show all the present leg, leg 0, FDE and non-FDE summary groups. If the fault summary field shows FDE and non-FDE summary groups, then the button shows SELECT BY ATA.

Select SELECT NEW ATA to show the ATA chapter selection dialog box. The SELECT NEW ATA button shows only if the fault summary field shows maintenance message summary groups for a single ATA chapter.

Training Information Point

If a flight leg transition occurs while any present leg faults display or dialog box shows this happens:

- The dialog box goes away
- The fault summary field goes away
- A dialog box shows with the text: Flight Leg Has Changed. To See Data from Before, Go to Fault History Leg-1.
- Cancel the text dialog box to show the Present Leg Faults ATA chapter selection dialog box.



M36409 S000620618_V2

CMCS - PRESENT LEG FAULTS DISPLAY

CMCS - EXISTING FAULTS DIALOG BOX

General

The existing faults dialog box lets you select an ATA system that currently has faults. Select an ATA system to show the maintenance message summary groups for that system on the existing faults summary display.

The existing faults dialog box shows:

- Dialog box title
- Number of items
- List box
- Buttons.

The list box shows all the ATA systems that have active or latched maintenance messages.

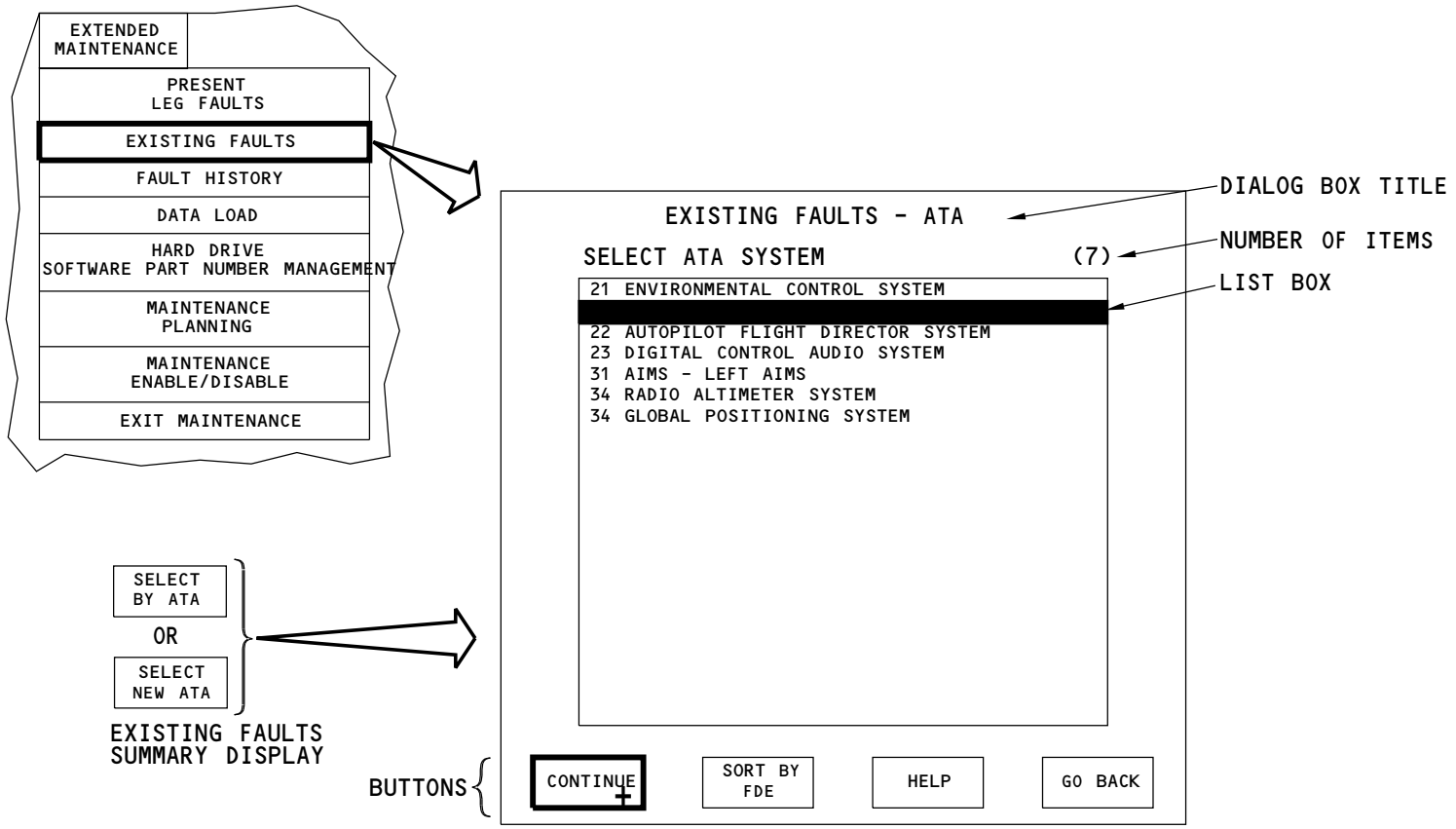
Buttons

Select an ATA system and then select CONTINUE to show the maintenance message summary groups for that ATA system on the existing faults summary display.

Select SORT BY FDE to show the existing faults summary display with all of the FDE and non-FDE summary groups which have active and latched maintenance messages.

Select the HELP button to show the help dialog box for the existing faults dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select the GO BACK button to close the existing faults dialog box and return to the previous display.



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CMCS - EXISTING FAULTS DIALOG BOX

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CMCS - EXISTING FAULTS SUMMARY DISPLAY

General

The existing faults summary display shows maintenance message summary groups of all active and latched maintenance messages for a single ATA system. Maintenance message summary groups show in time order of occurrence with the newest at the top.

The existing faults summary display also shows FDE and non-FDE summary groups. A FDE summary group shows the currently active or latched FDE, and the active or latched maintenance message summary groups correlated to the FDE. The non-FDE summary group shows the currently active and latched non-correlated maintenance message summary groups.

FDEs and their correlated maintenance message summary groups show in time order of occurrence, with the most recent FDE and correlated maintenance message summary groups at the top of the list. The non-FDE summary groups show at the bottom of the list.

The existing faults summary display shows this data:

- Header Information
- Instructions field
- Fault summary field title
- Number of items
- Fault summary field
- Buttons.

Header Information

The data under the main menu bar on the right side shows this data:

- Tail identification
- Time and date from the CMCF
- CMCF source field.

Fault Summary Field Title

The fault summary field title shows above the fault summary field on the left side. The fault summary title shows this data:

- ATA ZZZZZ; shown when the existing faults summary display shows maintenance message summary groups for a single ATA system. (ZZZZZ is the ATA system that has faults)
- Faults Active or Latched - show when the existing faults summary display shows FDE and non-FDE summary groups.

Number of Items

The number of items shows above the fault summary field on the right side. The number in the parentheses shows the total number of:

- Maintenance message summary groups when the fault summary field shows maintenance message summary groups for a single ATA chapter
- FDE summary groups plus one for the non-FDE summary group when the fault summary field shows FDE and non-FDE summary groups.

Fault Summary Field

The fault summary field has these groups:

- Maintenance message summary groups for a single ATA chapter
- FDE summary groups
- Non-FDE summary group.

The fault summary field border highlights when the cursor is in the area of the fault summary field and there is one or more summary groups within the field.

FDE Summary Group

A FDE summary group shows this data:

- FDE EICAS message and level
- FDE activity

CMCS - EXISTING FAULTS SUMMARY DISPLAY

- Fault code for the FDE
- Time and date the FDE occurred
- One or more maintenance message summary groups.

A non-FDE summary group shows a description field followed by one or more maintenance message summary groups. The description field shows the maintenance messages which have not been correlated.

Select the cursor control device button while the cursor is in the area of the fault summary field to highlight the text of a maintenance message summary group or the text of a FDE summary group header. Select the MAINTENANCE MESSAGE DATA button to show more data for the highlighted maintenance message summary group.

Maintenance Message Summary Group

A maintenance message summary group shows this data:

- Maintenance message number
- Maintenance message activity
- Symptom field.

FDE and Maintenance Message Activity

The activity of an FDE shows as one of these:

- Active
- Latched.

An active FDE is an FDE that currently shows in the flight deck.

A latched FDE can only be a status message or a scheduled maintenance task. Scheduled maintenance tasks are discussed in another section.

A failure that caused a status message may impact dispatch and may be intermittent or detectable only under certain conditions. The PDS holds a status message to make sure you can see it on the ground. You must do something to clear a latched FDE.

The activity of a maintenance message also shows as one of these:

- Active
- Latched
- Not Active.

A maintenance message is active if a system can continuously monitor for a fault condition and the fault exists.

A maintenance message is latched for one of these reasons:

- If a system detected a fault and is no longer using the related equipment as part of its operational function
- To ensure correlation with an FDE
- If a system can not always detect if the fault exists.

You must do something to clear a latched maintenance message.

A maintenance message is not active if a system can continuously monitor for a fault condition, and the fault does not exist.

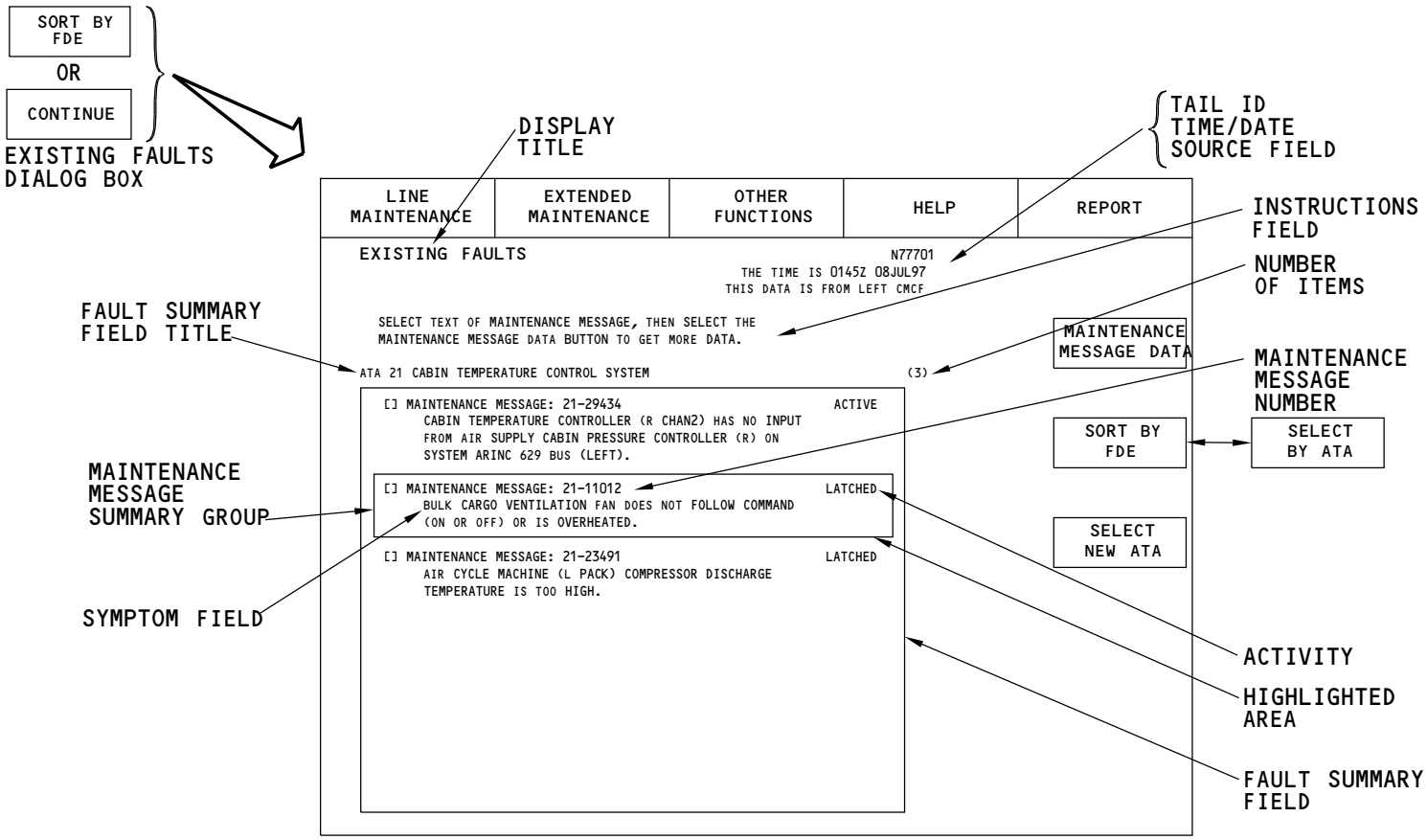
Buttons

Select MAINTENANCE MESSAGE DATA to show the single maintenance message display for the highlighted maintenance message.

Select SELECT BY ATA to show the existing faults dialog box. If the fault summary field shows maintenance message summary groups for a single ATA chapter, then the button shows SORT BY FDE.

Select SORT BY FDE to show all the existing FDE and non-FDE summary groups. If the fault summary field shows FDE and non-FDE summary groups, then the button shows SELECT BY ATA.

Select SELECT NEW ATA to show the existing faults dialog box. The SELECT NEW ATA button shows only if the fault summary field shows maintenance message summary groups for a single ATA chapter.



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CMCS - EXISTING FAULTS SUMMARY DISPLAY

CMCS - FAULT HISTORY - ATA DIALOG BOX

General

The fault history-ATA dialog box permits the selection of an ATA chapter that has failures in the CMCF fault history memory. Select an ATA chapter to show the fault summary groups of the failures in the CMCF fault history memory. They show on the fault history summary display.

If there are no failures in the CMCF fault history memory, the selection of FAULT HISTORY on the menu title bar shows the fault history summary display.

The fault history ATA dialog box shows:

- Dialog box title
- Number of items
- List box
- Buttons.

The list box shows all the ATA chapters that have failures in the CMCF fault history memory.

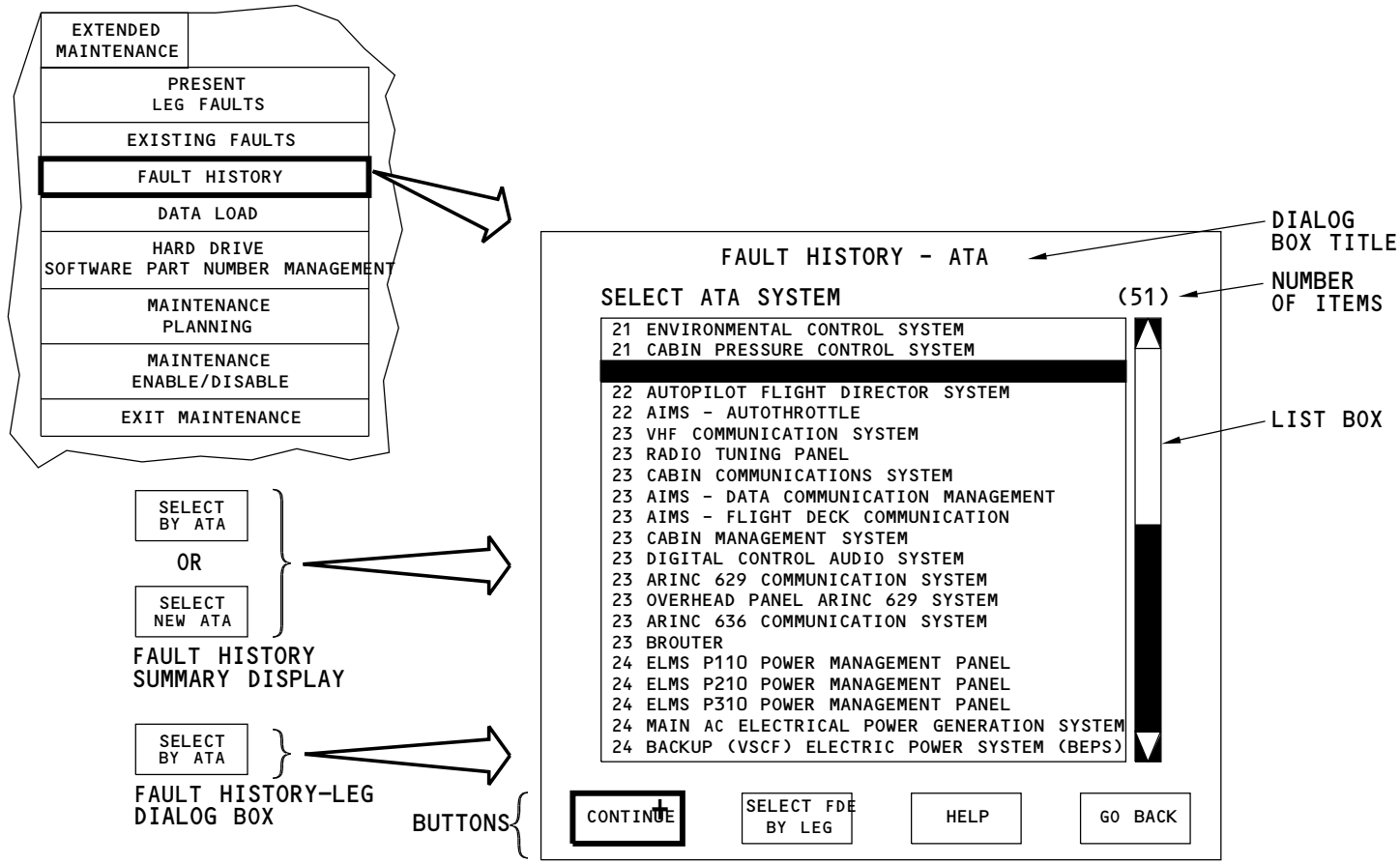
Buttons

Select an ATA system and then select CONTINUE to show the fault summary groups for that ATA system on the fault history summary display.

Select SELECT FDE BY LEG to show the fault history-Leg dialog box.

Select HELP to show the help dialog box for the fault history-ATA dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select the GO BACK button to remove the fault history-ATA dialog box and return to the previous display.



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CMCS - FAULT HISTORY - ATA DIALOG BOX

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CMCS - FAULT HISTORY SUMMARY DISPLAY

General

The fault history summary display shows the failures in the CMCF fault history memory. The fault history summary display shows failures for a single ATA chapter or sorted by FDE summary groups for a specific flight leg.

The fault history summary display shows:

- Header information
- Instructions field
- Fault summary field title
- Number of items
- Fault summary field
- Buttons.

Header Information

The header information shows:

- Display title
- Tail identification
- Flight number, only when fault history for a specific flight leg shows
- Leg ID, only when fault history for a specific flight leg shows
- Leg start time, only when fault history for a specific flight leg shows
- Current time and date from the universal time (coordinated) function (UTCF), when fault history does not show a specific flight leg
- CMCF source field.

Fault Summary Field Title

The fault summary field title shows above the fault summary field on the left side. The fault summary title shows:

- Faults recorded during leg NN; shown when fault history for a specific flight leg shows. (NN is the flight leg)
- Fault History for ATA ZZZZZ; shown when the Fault History Summary display shows fault history summary groups for a single ATA chapter. (ZZZZZ is the ATA chapter that has faults)
-

Number of Items

The number of items shows above the fault summary field on the right side. The number in the parentheses shows the total number of:

- Fault summary groups, when the fault summary field shows fault summary groups for a single ATA chapter
- FDE summary groups plus one for the non-FDE summary group, when the fault summary field shows FDE and non-FDE summary groups.

Fault Summary Field for a Specific ATA Chapter

The fault summary field shows fault summary groups for a specific ATA chapter. The fault summary groups show all the failures for a specific ATA chapter. The fault summary groups show:

- Maintenance message symptom
- Maintenance message number
- One or more fault occurrence records.

A fault occurrence record shows the leg that had a failure. Each fault occurrence record has a:

- Leg number
- Flight phase
- Time and date
- Hard or intermittent if the CMCS can always monitor for a fault.

Fault Summary Field for a Specific Leg

The fault summary field also shows FDE summary groups and a non-FDE summary group for a specific leg. The FDE summary groups and the non-FDE summary group show all the failures for a specific leg.

CMCS - FAULT HISTORY SUMMARY DISPLAY

A FDE summary group shows the:

- Flight deck effect EICAS message and level
- Flight deck effect activity
- Fault code for the FDE
- Time and date the FDE occurred
- One or more maintenance message summary groups.

A non-FDE summary group shows a description field followed by one or more maintenance message summary groups. The description field shows the text:

- Maintenance Messages which have not been correlated.

A maintenance message summary group shows:

- Maintenance message number
- Maintenance message activity
- Symptom field.

Buttons

Select GO BACK to close the fault history summary page and return to the single maintenance message display from which FAULT HISTORY was selected. The GO BACK button shows only if the you select the FAULT HISTORY button from the single maintenance message display.

Select SELECT FDE BY LEG to show the fault history-leg dialog box. The SELECT FDE BY LEG button shows when the fault summary field shows fault summary groups.

Select SELECT BY ATA to show the fault history-ATA dialog box. The SELECT BY ATA button shows when the fault summary field shows FDE summary groups.

Select SELECT NEW ATA to show the fault history-ATA dialog box. The SELECT NEW ATA button shows when the fault summary field shows fault summary groups.

Select SELECT NEW LEG to show the fault history-Leg dialog box. The SELECT NEW LEG button shows when the fault summary field shows FDE summary groups.

Select ERASE BY ATA to show the fault history-erase dialog box.

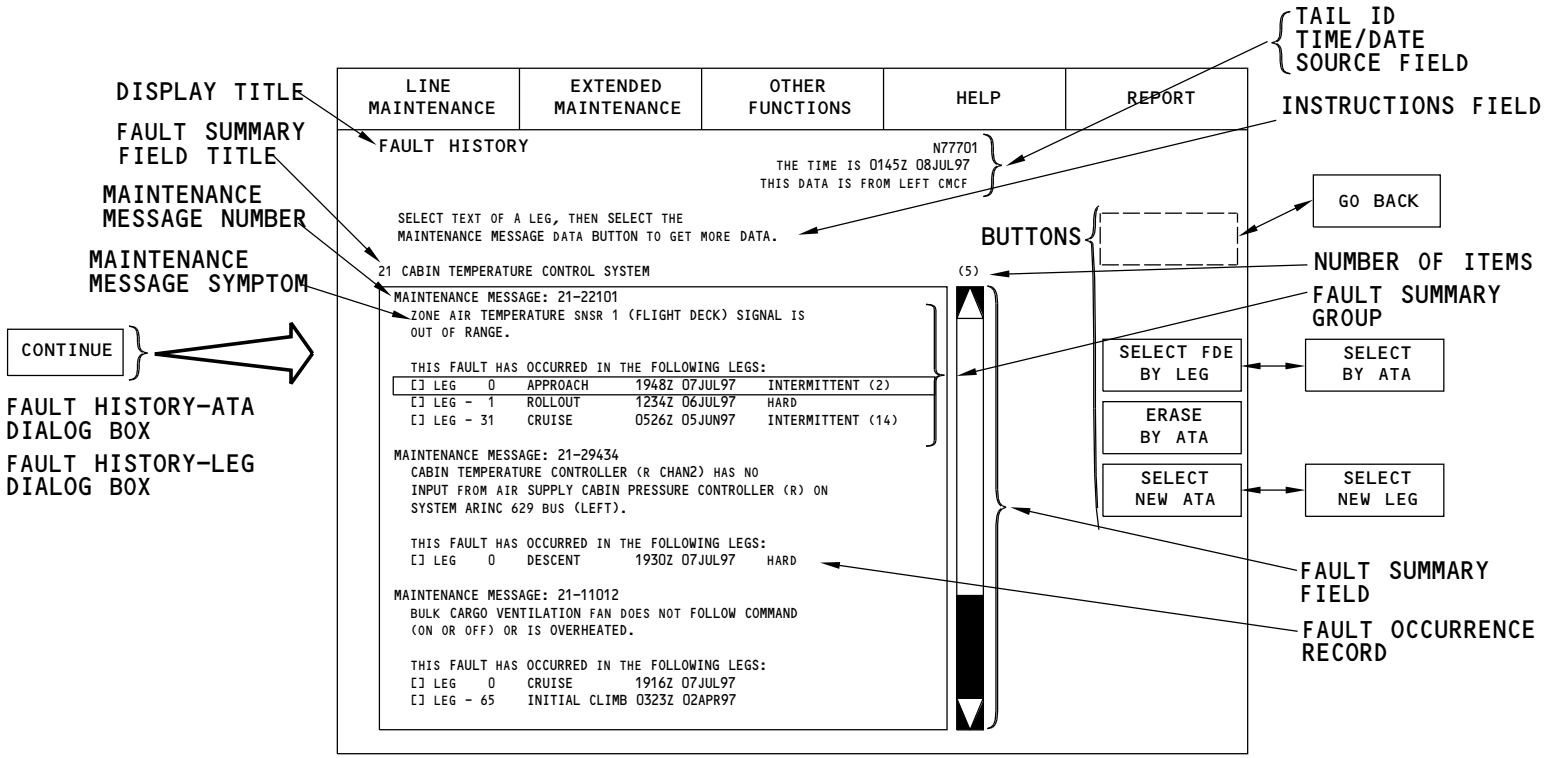
Training Information Point

If a flight leg transition occurs while any fault history display that is sorted by flight leg shows:

- Any open dialog boxes go away
- The fault summary field, if shown, blanks
- A text dialog box shows: Flight Leg has Changed. To See Data from before, Go to Fault History Leg-1.
- Cancel the text dialog box to show the Fault History-Leg dialog box which shows selections based on the new flight leg data.

If a flight leg transition occurs while any fault history display that is sorted by ATA chapter shows:

- Any open dialog box is removed
- The fault summary field, if shown, blanks
- A text dialog box shows: The Flight Leg has Changed. All Flight Leg Numbers are Increased by-1.
- Cancel the text dialog box to show the Fault History-ATA dialog box which shows selections based on the new flight leg data.



M35927 S000620632_V1

CMCS - FAULT HISTORY SUMMARY DISPLAY

CMCS - FAULT HISTORY - LEG DIALOG BOX

General

The fault history-leg dialog box permits the selection of a flight leg that has failures in the CMCF fault history memory. Select a flight leg to show the FDE summary groups and the non-FDE summary group, of the maintenance messages that have failures in the CMCF fault history memory, on the fault history summary display.

The fault history-leg dialog box shows:

- Dialog box title
- Number of items
- List box
- Buttons.

The list box shows all the flight legs that have failures in the CMCF fault history memory.

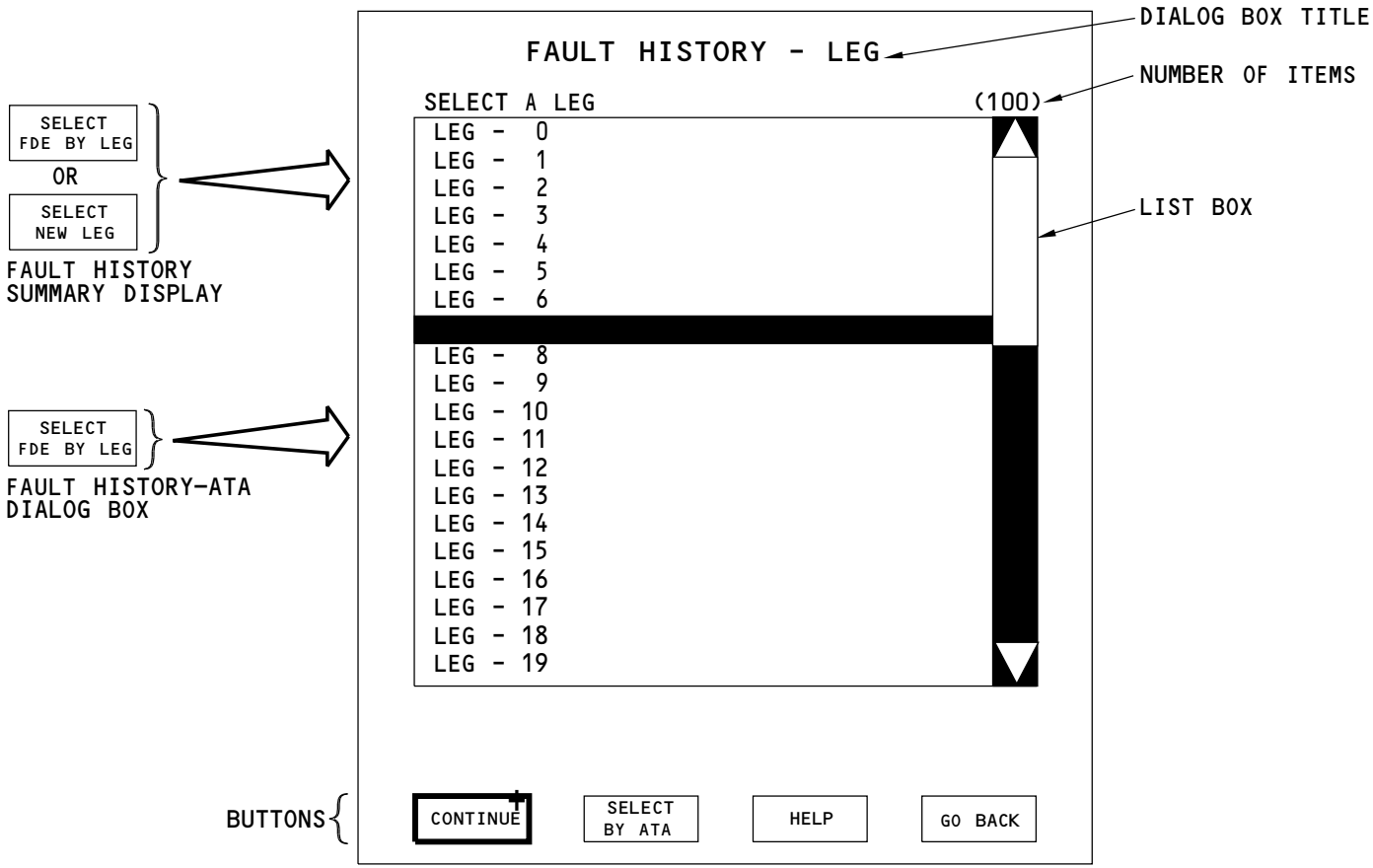
Buttons

Select a flight leg and then select CONTINUE to show the FDE summary groups and the non-FDE summary group for that flight leg on the fault history summary display.

Select SELECT BY ATA to show the fault history-ATA dialog box.

Select HELP to show the help dialog box for the fault history-leg dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the fault history-Leg dialog box and return to the previous display.



M35928 S000620633_V2

CMCS - FAULT HISTORY - LEG DIALOG BOX

CMCS - FAULT HISTORY - ERASE DIALOG BOX

General

Fault history erase selections permit the removal of failures from the CMCF fault history memory. Fault history erase selections permit the removal of these:

- All occurrences of a single failure
- All failures for an ATA chapter
- All failures in the CMCF fault history memory.

The fault history-erase dialog box shows these:

- Dialog box title
- Number of items
- List box
- All Fault History selection
- Buttons.

The list box shows all the ATA chapters that have failures in the CMCF fault history memory.

Erase All Occurrences of a Single Failure

Select MAINTENANCE MESSAGE DATA on the fault history summary display to show the single maintenance message display. Select ERASE FAULT on the single maintenance message display to erase all occurrences of the single maintenance message. Then select ERASE on the fault history-erase confirmation dialog box.

Erase All Failures for an ATA Chapter

Use the fault history-erase dialog box to erase all maintenance messages from an ATA chapter. Select an ATA chapter that has failures in the CMCF fault history memory and select ERASE to erase the failures. Then select ERASE on the fault history-erase confirmation dialog box.

Erase All Failures

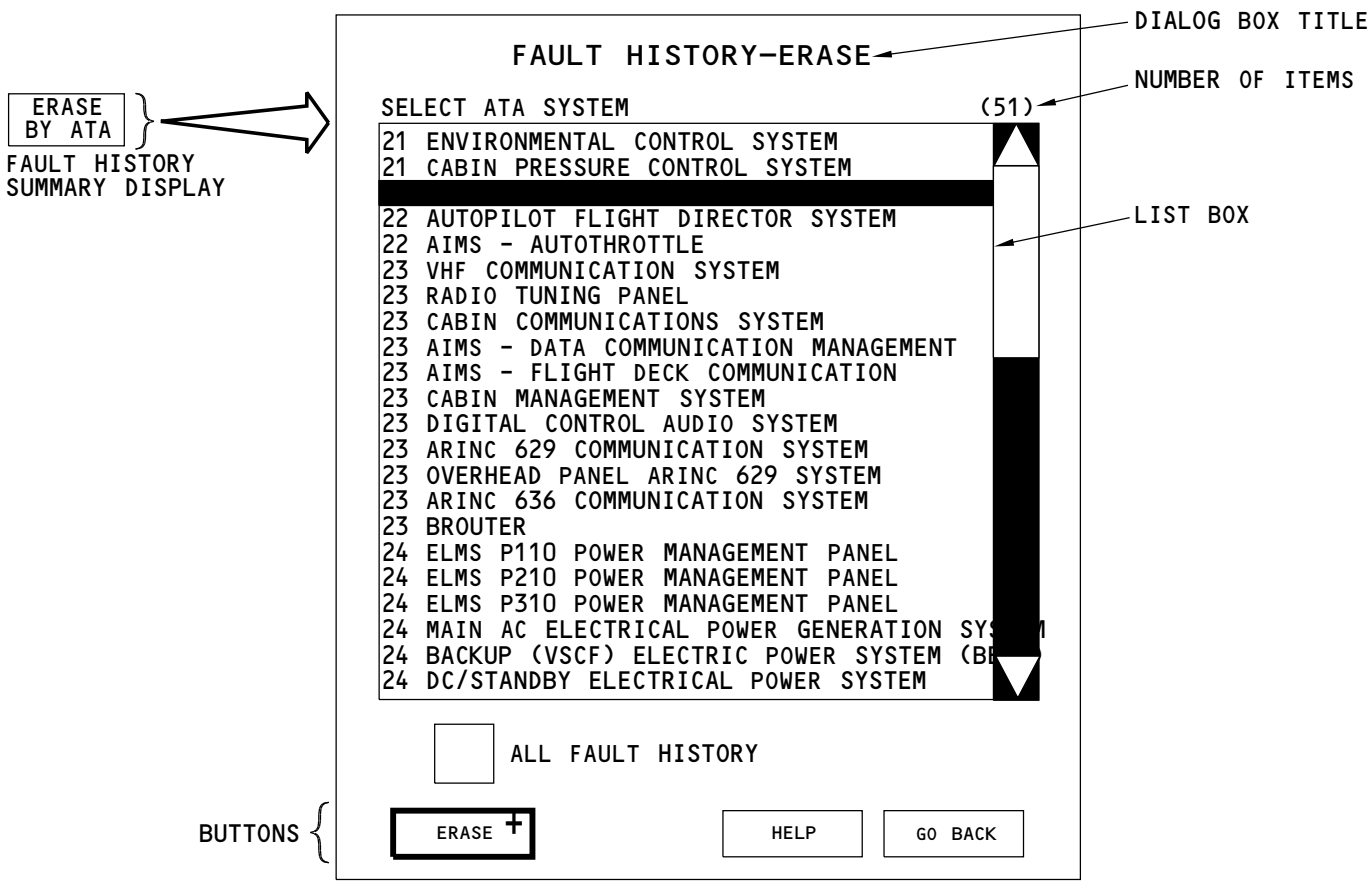
Use the fault history-erase dialog box to erase all maintenance messages in fault history. Select the All Fault History selection to indicate that all maintenances messages in the fault history should be erased. Then select ERASE to show the fault history-erase confirmation dialog box. Then select ERASE on the fault history-erase confirmation dialog box.

Buttons

Select an ATA system and then select ERASE to show the fault history-erase confirmation dialog box.

Select HELP to show the help dialog box for the fault history-erase dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the fault history-erase dialog box and return to the previous display.



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CMCS - FAULT HISTORY - ERASE DIALOG BOX

CMCS - FAULT HISTORY - ERASE CONFIRMATION DIALOG BOX

General

The fault history-erase confirmation dialog box permits the confirmation or cancellation to erase maintenance messages from fault history.

The text in the fault history-erase confirmation dialog box shows:

- If you select the ERASE button, xx Maintenance Message Occurrences will be erased from the Fault History database. Are you sure that you want to permanently remove these maintenance messages?

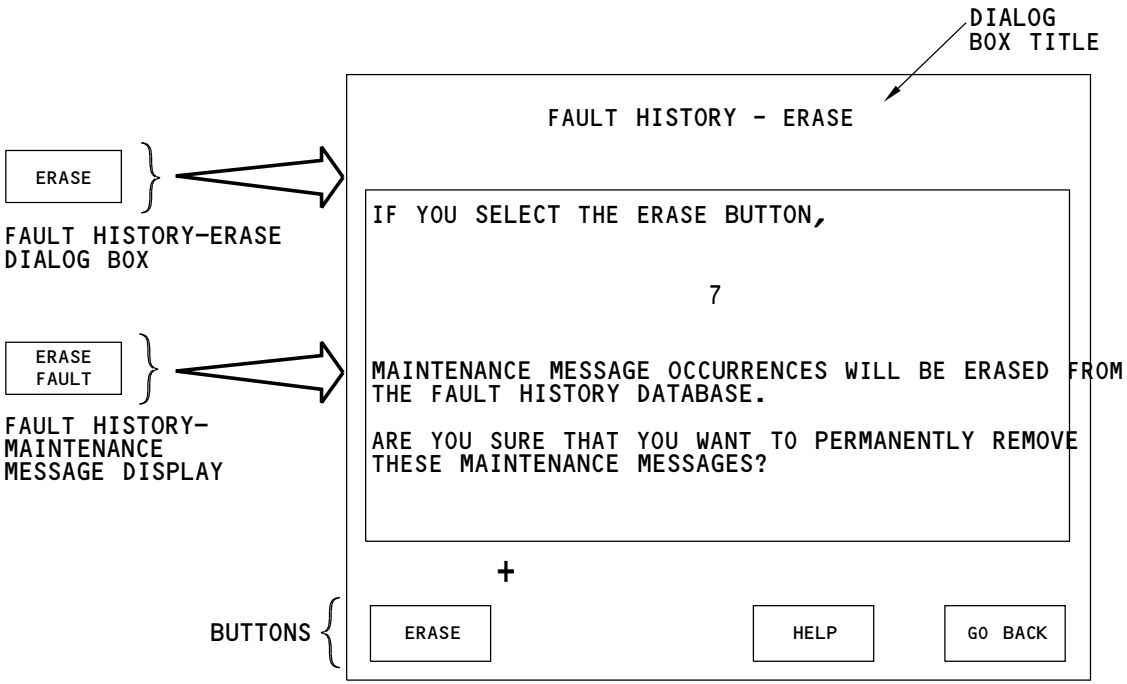
XX is the number of maintenance messages that will erase.

Buttons

Select ERASE to remove the maintenance messages from the CMCF fault history memory. The selection of ERASE removes the fault history-erase confirmation dialog box. The selection of ERASE also removes the fault history-erase dialog box. If the fault history-erase confirmation dialog box shows from the single maintenance message display, then the selection of ERASE removes the single maintenance message display, and the fault history summary display shows.

Select HELP to show the help dialog box for the fault history-erase confirmation dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to close the fault history-erase confirmation dialog box and return to the previous display.



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CMCS - FAULT HISTORY - ERASE CONFIRMATION DIALOG BOX

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CMCS - DATA LOAD MAIN DISPLAY

General

The data load main display format lets you start and monitor the data load process.

The data load main display shows this information:

- Header data
- Source indication field
- Destination indication field
- Data load Status field
- System configuration list box
- Buttons.

Header Data

The header data includes the:

- Title
- Tail ID
- Time field.

The tail ID field has the airplane tail ID.

The time field shows the current time in UTC. The format is: DDMMMYY HHMMz.

Source Indication Field

The source indication field has two labels and two data fields.

The first label is Data Source. The associated data field shows the data source from the source selection dialog box.

The other label is Load Part Number. The related data field shows the load part number from the source selection dialog box.

With no selection, the labels and data fields are blank.

Destination Indication Field

The destination indication field has one label and one data field.

The label is Data Destination. The associated data field shows the LRU/LRM identifier from the destination selection dialog box.

With no selection, the label and data field is blank.

Data Load Status Field

The data load status field is a message field.

The message field shows the status of the data load process. The message field shows these messages:

- Select the SOURCE or the DESTINATION
- Select the DESTINATION
- Select the SOURCE.
- The data loader is prepared for operation. Select START.
- The data load is in progress.
- The data load is stopped.
- The data load is complete.

Select the DESTINATION shows when both the source indication and destination data fields are blank.

Select the SOURCE shows when the source indication and data field is blank.

When the data load process is ready to start, this shows:

- The data loader is prepared for operation. Select START.

When data transfer starts between the CMCF and the destination LRU/LRM, this shows:

- The data load is in progress.

When the data load process stops, this shows:

- The data load is stopped.

CMCS - DATA LOAD MAIN DISPLAY

When the data load process is successful, this shows:

- The data load is complete. Select another source or another destination.

System Configuration List Box

The system configuration list box and box title shows information based on the system selection on the destination selection dialog box. The box shows:

- LRU/LRM identifier
- Hardware part number
- LRU serial number
- Software part number(s).

When the destination indication field is empty, the system configuration list box is empty.

Buttons

These are the three buttons that show on the data load main display:

- SELECT SOURCE
- SELECT DESTINATION
- START.

SELECT SOURCE shows next to the source indication field.

Select SELECT SOURCE to show the source selection dialog box.

The selection is not available during the data load process.

SELECT DESTINATION shows next to the destination indication data field.

Select SELECT DESTINATION to show the destination selection dialog box.

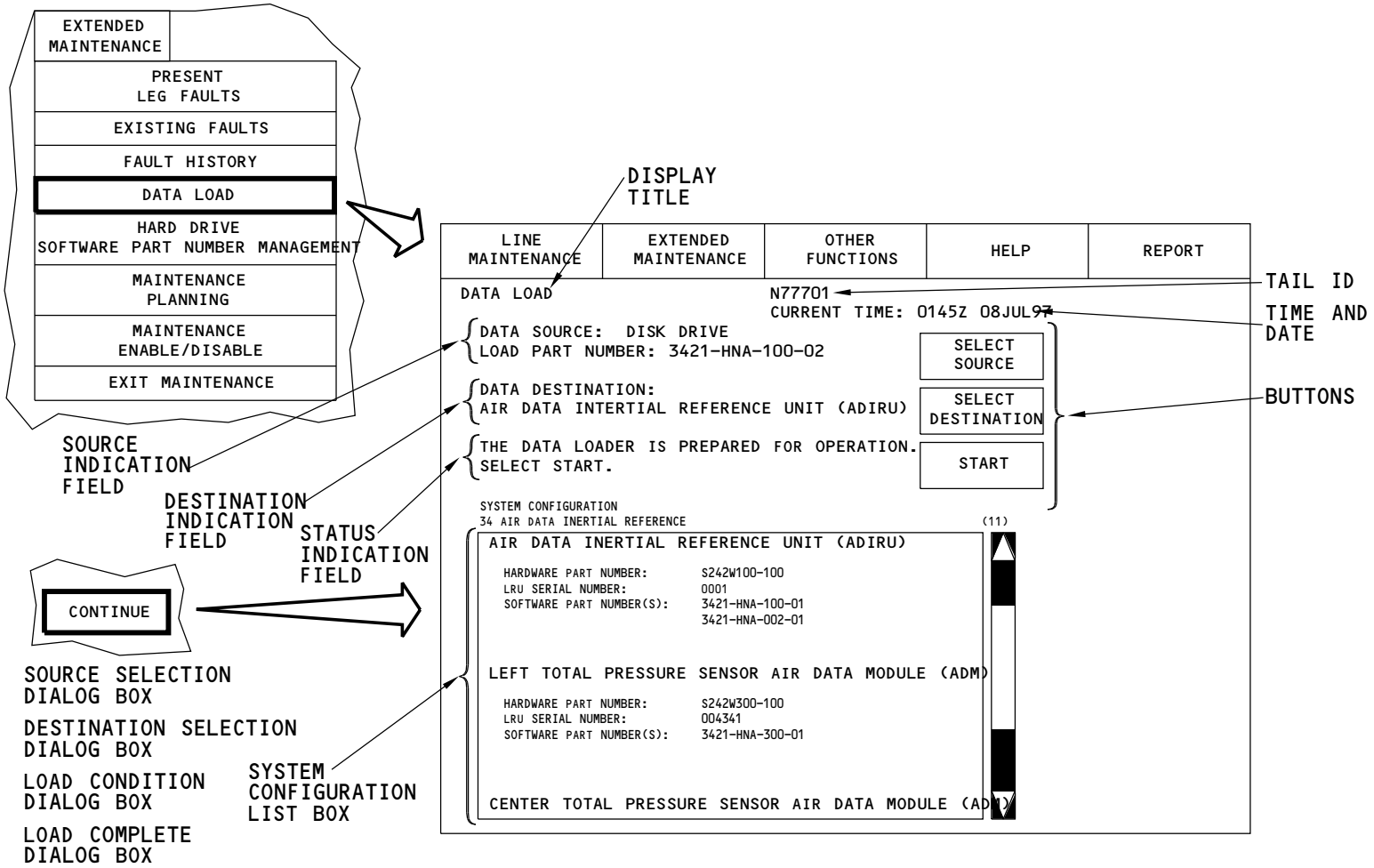
The selection is not available during the data load process.

START shows next to the data load status field.

Select START to begin the data load process.

At initial power-up, the START selection is not available. The START selection becomes available when this load status indication shows:

- The data loader is prepared for operation. Select START.



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CMCS - DATA LOAD MAIN DISPLAY

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CMCS - DATA LOAD SOURCE SELECTION DIALOG BOX

General

The source selection dialog box lets you select a specific data source and a load part number for software data loading.

The source selection dialog box shows these functions:

- Title
- Selected load part number list box
- Source selection list box
- Load part number list box
- Buttons.

Title

The first line of the title always shows DATA LOAD. The second line of the title shows Set Source.

The third line of the title shows the destination LRM/LRU.

Selected Load Part Number List Box

The title of the selected load part number list box is Selected Load Part Number.

The selected load part number list box shows the list of selected software to load into the destination LRU/LRM.

Source Selection List Box

The title of the source selection list box is Select the Data Source.

The source selection list box shows the list of sources for the software. The source is one of these:

- MAT disk drive
- MAT hard drive
- PMAT disk drive.

ARO 014-999

- Onboard Network System (ONS) mass storage device (MSD)

ARO ALL

Select the source first. Data does not show in the load part number list box until a selection is made.

The selection of a source causes that source to show on the data load main display in the source indication field.

Load Part Number List Box

The title of the load part number list box is Select the Load Part Number.

The load part number list box shows the list of software part numbers as they appear in the directory of the source.

If the source does not have any valid software numbers, the message No Software Load Part Numbers shows.

The list shows all software part numbers in the source or software for a specified LRU/LRM.

Buttons

These are the buttons that show at the bottom of the dialog box:

- CONTINUE
- HELP
- ADD
- GO BACK.

CONTINUE is not available for selection until you add at least one software part number to the selected load part numbers box list.

Select CONTINUE to one of these operations:

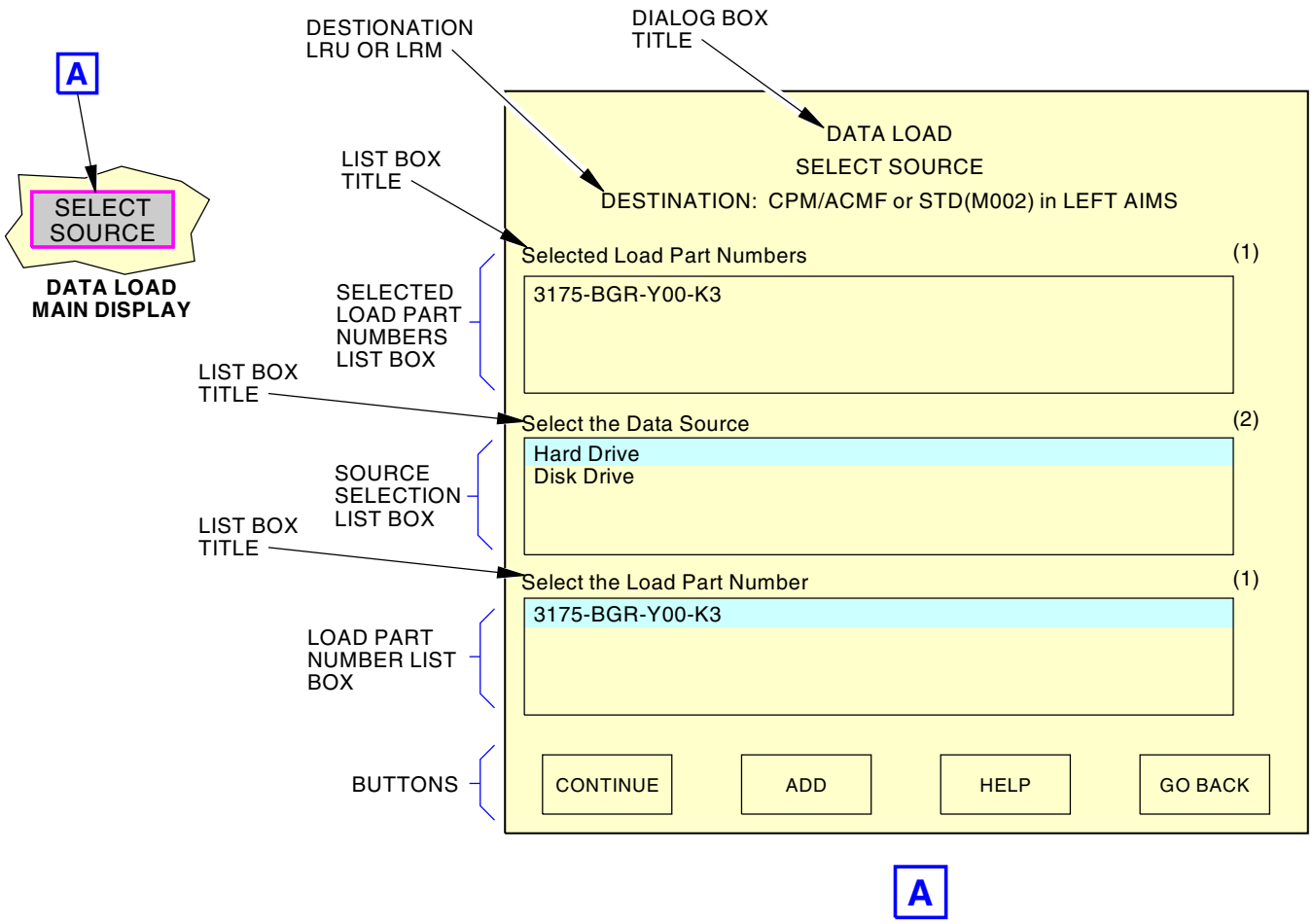
- Close the dialog box and return the user to the data load main display.

Select HELP to show the help dialog box for the source selection dialog box. Help text for the dialog box must exist in the CMCF AMI for HELP to show.

CMCS - DATA LOAD SOURCE SELECTION DIALOG BOX

Select ADD to add the software part number from the select the load part number box list to the selected load part numbers box list.

Select GO BACK to remove the dialog box and return to the data load main display. The GO BACK selection does not affect any source selections already made.



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CMCS - DATA LOAD SOURCE SELECTION DIALOG BOX

CMCS - DATA LOAD DESTINATION SELECTION DIALOG BOX

General

The destination selection dialog box lets you select a specific destination for software data loading.

The destination selection dialog box shows this:

- Title
- Selected LRUs list box
- System selection list box
- LRU/LRM selection list box
- Buttons.

Title

The first line of the title always shows DATA LOAD. The second line of the title always shows Set Destination.

Selected LRUs List Box

The title of the selected LRUs list box is Selected LRUs.

The selected LRUs list box shows the list of selected destination LRUs/LRMs for the data load.

System Selection List Box

The title of the system selection list box is Select the ATA System.

The system selection list box shows the list of ATA system choices. The number of choices depends on the state of the SHOW MORE DATA/SHOW LESS DATA command selection.

Select the system first. The selected system becomes the title of the LRU/LRM selection list box.

If only one choice is available, that selection is automatically made.

LRU/LRM Selection List Box

The LRU/LRM selection list box shows the list of identifiers based on the ATA system selection.

The number of choices depends on the state of the SHOW MORE DATA/SHOW LESS DATA command selection.

If no ATA system choice is made, the list box is blank.

Buttons

These are the buttons that show at the bottom of the dialog box:

- CONTINUE
- HELP
- ADD
- GO BACK.

CONTINUE is not available for selection until you add at least one LRU/LRM from the LRU/LRM selection list box to the selected LRUs list box.

Select CONTINUE to do this:

- Close the dialog box and return the user to the data load main display.

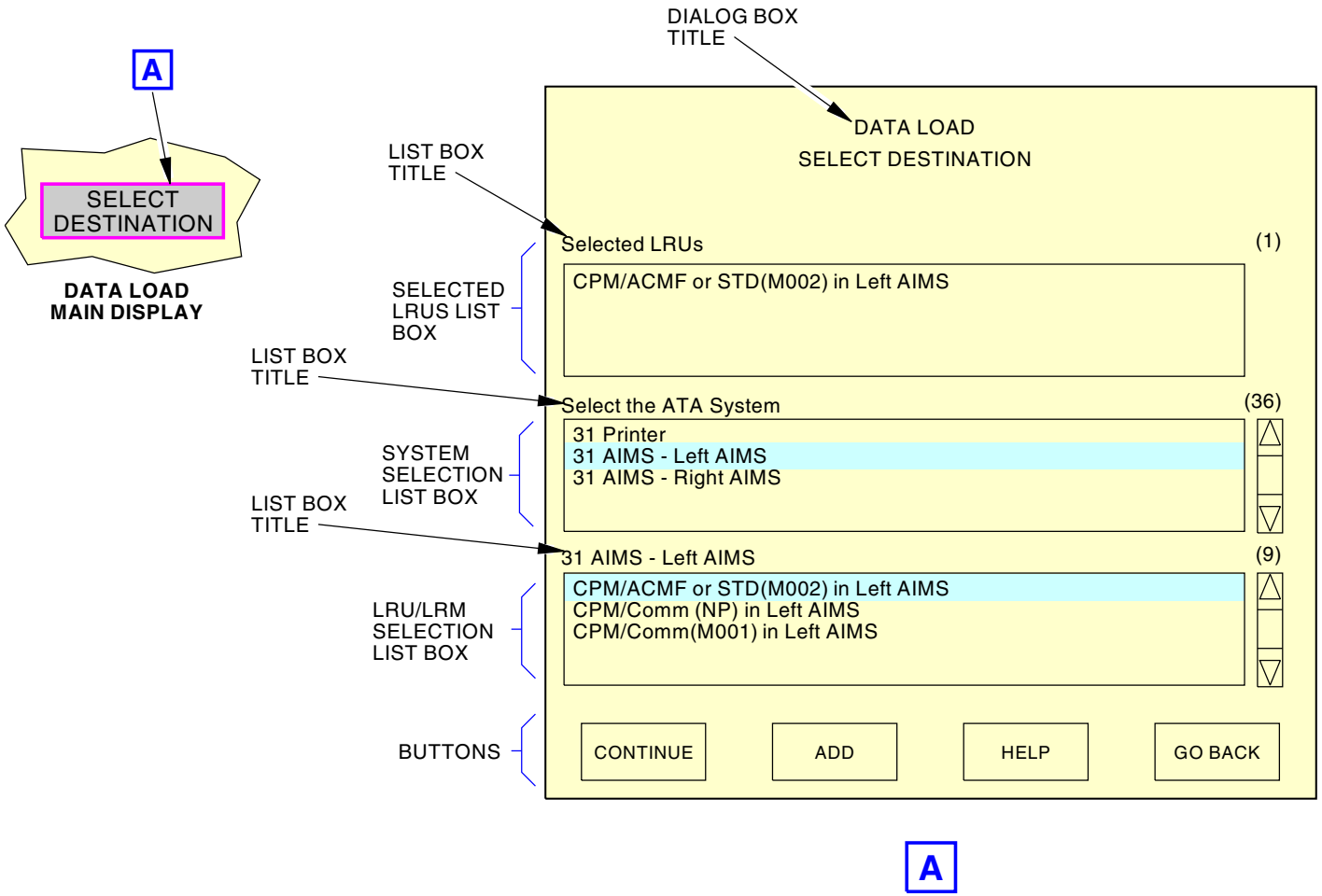
The CONTINUE button does this:

- Closes the dialog box and returns the user to the data load main display.

Select HELP to show the help dialog box for the destination selection dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select ADD to add the LRU/LRM from the LRU/LRM selection list box to the selected LRUs list box.

Select GO BACK to remove the dialog box and return to the data load main display. The GO BACK selection does not affect any destination selections already made.



2519119 S0000591727_V1

I **CMCS - DATA LOAD DESTINATION SELECTION DIALOG BOX**

CMCS - DATA LOAD MESSAGE DIALOG BOXES - 1

General

Message dialog boxes show as overlays on the data load main display. The dialog boxes are in a position that lets the source indication field and the destination indication field show.

Certain message dialog boxes show as a normal part of the data load process. Other message dialog boxes show non-normal conditions and require user involvement to complete the data load process.

Each dialog box has:

- Title
- Message field
- Buttons.

The title of each message dialog box changes to indicate the purpose of the dialog box.

The message field shows messages or directions for each type of dialog box. If the message exceeds the size of the dialog box, a scroll bar shows to allow the user to access the entire text field.

There is a maximum of four buttons at the bottom of each dialog box. The buttons may be different for each type of dialog box.

The types of message dialog boxes are:

- Load condition
- Destination LRU not enabled
- Change diskette
- Wrong diskette in disk drive
- Diskette access error
- Load in progress activity indication
- Destination LRU incompatibility
- Data transfer error
- Data storage error
- Data transfer completion
- Data load completion and configuration verification
- Are you sure?
- Data load function not enabled
- Check disk
- Data load function already in use
- Switch source CMCF
- Data loader not working.

Load Condition Dialog Box

The load condition dialog box gives indications of conditions that have to exist in member systems before the load process can begin.

The message shows:

- Put the airplane in this configuration

It is followed by specific instructions that relate to the LRU/LRM.

The buttons are:

- CONTINUE
- REPORT DATA
- HELP
- GO BACK.

Select CONTINUE to close the dialog box and return to the data load main display.

Select REPORT DATA to show the report dialog box. This enables the user to get a hard copy of the dialog box.

Select HELP to show the help dialog box for the Load Condition dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to close the dialog box and return to the previous display.

CMCS - DATA LOAD MESSAGE DIALOG BOXES - 1

Destination LRU Not Enabled Dialog Box

The destination LRU not enabled dialog box shows when the destination LRU/LRM is not available or when the CMCF cannot communicate with the destination LRU/LRM.

The message shows:

- The destination LRU cannot receive the data load.

The message also shows:

- The airplane configuration is not correct; or
- No signal came back from the destination LRU.

The buttons are:

- HELP
- GO BACK.

Select HELP to show the help dialog box for the destination LRU not available dialog box. Help must exist in the CMCF AMI for the HELP selection to show.

Select GO BACK to close the dialog box and return to the previous display.

Change Diskette Dialog Box

The change diskette dialog box instructs the user to insert a specific disk into the disk drive.

The message shows:

- Change the disk.

The message also shows:

- Put disk sequence number x of disk set number NNNNNNNNNNNNNNN into the disk drive.

The letter x stands for the specific disk sequence number of the disk set and NNNNNNNNNNNNNNN is the 15 character disk set part number.

The buttons are:

- STOP
- HELP
- GO BACK.

Select STOP to end the data load process, close the dialog box and return to the data load main display.

The STOP selection is only available during data transfer.

Select HELP to show the help dialog box for the Change Diskette dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to close the dialog box and return to the previous display.

GO BACK is not available for selection during data transfer.

Wrong Diskette in Disk Drive Dialog Box

The wrong diskette in disk drive dialog box shows after the change diskette dialog box when the user inserts the wrong disk in the disk drive.

The message field shows:

- The incorrect disk in the disk drive.

The message also shows:

- Put disk sequence number x of disk set number NNNNNNNNNNNNNNN into the disk drive.

The letter x stands for the specific disk sequence number of the disk set and NNNNNNNNNNNNNNN is the 15 character disk set part number.

The buttons are:

- STOP
- HELP
- GO BACK.

Select STOP to end the data load process, close the dialog box and return to the data load main display.

The STOP selection is only available during data transfer.

Select HELP to show the help dialog box for the Wrong Diskette in disk drive dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to close the dialog box and return to the previous display.

GO BACK is not available for selection during data transfer.

Diskette Access Error Dialog Box

The diskette access error dialog box tells you that the CMCF is not receiving data from the disk drive.

The message shows:

- The data loader cannot read the disk drive.
- If there is no disk in the disk drive, you must put the disk in the disk drive.
- If there is a disk in the disk drive, you must make sure it is put in the disk drive correctly, and the disk must have a valid load part number.

The command selections are:

- STOP
- HELP
- GO BACK.

Select STOP to end the data load process, close the dialog box and return to the data load main display.

The STOP selection is only available during data transfer.

Select HELP to show the help dialog box for the diskette access error dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to close the dialog box and return to the previous display.

GO BACK is not available for selection during data transfer.

Load in Progress Activity Indication Dialog Box

The Load In Progress Activity Indication dialog box shows the of the data load transfer process.

The message field shows:

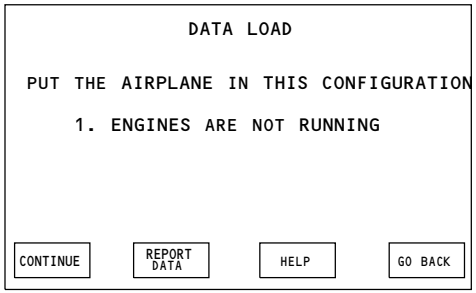
- Load in Progress
- Wait...
- The percent of data that has transferred.

The buttons are:

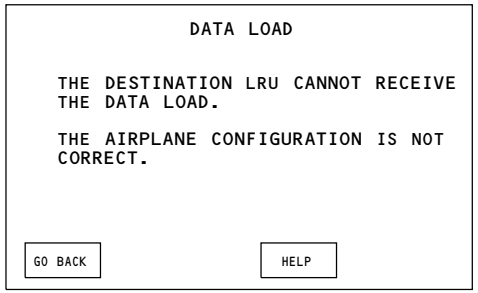
- STOP
- HELP.

Select STOP to end the data load process, close the dialog box and return to the data load main display.

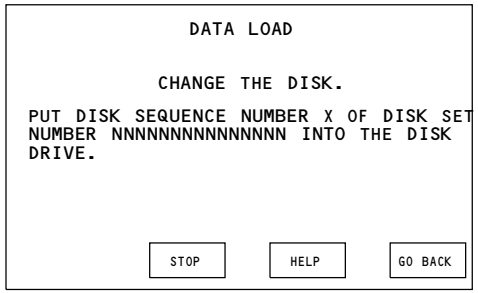
Select HELP to show the help dialog box for the load in progress activity indication dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.



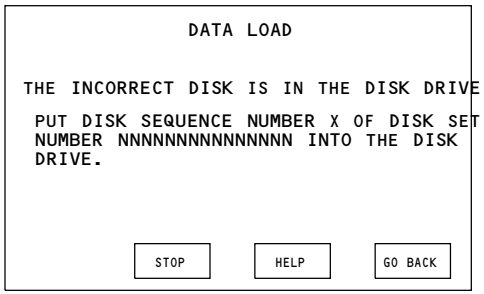
LOAD CONDITION DIALOG BOX



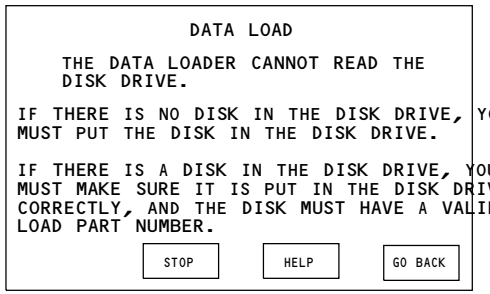
DESTINATION LRU NOT ENABLED DIALOG BOX



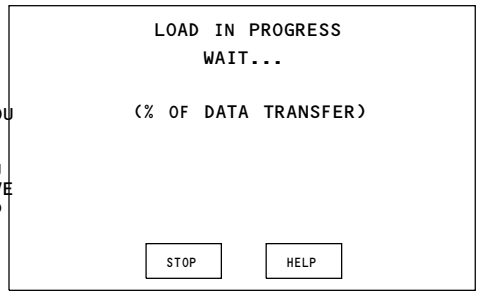
CHANGE DISKETTE DIALOG BOX



WRONG DISKETTE IN DISK DRIVE DIALOG BOX



DISKETTE ACCESS ERROR DIALOG BOX



LOAD IN PROGRESS ACTIVITY INDICATION DIALOG BOX

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CMCS - DATA LOAD MESSAGE DIALOG BOXES - 1

CMCS - DATA LOAD MESSAGE DIALOG BOXES - 2

Destination LRU Incompatibility Dialog Box

The destination LRU incompatibility dialog box shows when the destination LRU/LRM detects an incompatibility with the current data load. The text also shows the override capabilities for the incompatibility.

If the destination does not allow the software load, but can be overwritten, this message shows:

- The destination LRU does not allow this load part number, but you may continue.

If the destination does not allow the software load, and can not be overwritten, this message shows:

- The destination LRU does not allow this load part number.

If the LRU tells the CMCF the software is not compatible with other software loaded in the LRU, the message shows:

- The load part number is not compatible with the software of the destination LRU.

If the LRU tells the CMCF the software is not compatible with other LRU software in the system, the message shows:

- The load part number is not compatible with software loaded in the other LRUs in this system.

If the LRU tells the CMCF the software is not compatible with LRU, the message shows:

- The load part number is not compatible with the hardware of the destination LRU.

If the LRU tells the CMCF the software is not compatible with airplane, the message shows:

- The load part number is not compatible with the airplane.

The buttons are:

- OVERRIDE
- STOP
- HELP

The OVERRIDE selection shows if an override capability exists. Select OVERRIDE to continue the load process.

Select STOP to end the data load process, close the dialog box and return to the data load main display.

Select HELP to show the help dialog box for the destination LRU incompatibility dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Data Transfer Error Dialog Box

The data transfer error dialog box shows when the load transfer process ends because of a data transfer error.

The message field shows:

- The data load stopped.
- The signal became incorrect.
- Usually, the destination LRU cannot operate.

The buttons show:

- STOP
- HELP.

Select STOP to close the dialog box and return to the data load main display.

Select HELP to show the help dialog box for the data transfer error dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Data Storage Error Dialog Box

The data storage error dialog box shows when the destination LRU/LRM cannot validate the data load.

CMCS - DATA LOAD MESSAGE DIALOG BOXES - 2

The message field shows:

- The destination cannot make sure the new load part number is loaded correctly.
- If this is the first time that the data load has stopped, select TRY AGAIN.
- If this is the second time the data load has stopped, select CHECK DISK. The select TRY AGAIN if the load part number is good.

The command selections are:

- TRY AGAIN
- STOP
- HELP
- CHECK DISK.

Select TRY AGAIN to start the full load process for the same source and destination selections.

Select STOP to close the dialog box and return to the data load main display.

Select HELP to show the help dialog box for the data storage error dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select CHECK DISK to start the disk validation procedure.

Data Transfer Completion Dialog Box

The data transfer completion dialog box shows that the transfer of data is complete for the current load process.

The message field shows:

- Wait for the destination LRU to start.
- If you wait more than fifteen minutes, select STOP.

The buttons are:

- STOP
- HELP.

Initially, the STOP selection does not show. The STOP selection shows if the destination LRU/LRM does not respond within ten minutes.

Select STOP to close the dialog box and return to the data load main display.

Select HELP to show the help dialog box for the data transfer completion dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Data Load Completion and Configuration Verification

The data load completion and configuration verification dialog box shows that the load process is complete and successful.

The message field has several items. These items are:

- The data load is complete. The current LRU configuration is shown below.
- LRU Part Number:
- Hardware Part Number:
- Serial Number:

If necessary, a scroll bar may show to enable the user to scroll through the text.

The buttons are:

- CONTINUE
- HELP.

Select CONTINUE to close the dialog box and return to the data load main display.

Select HELP to show the help dialog box for the data load completion and configuration verification dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

CMCS - DATA LOAD MESSAGE DIALOG BOXES - 2

Are You Sure? Dialog Box

The Are You Sure? dialog box shows when you select a button which you can not undo. The dialog box gives the user a chance to undo the selection.

There is no dialog box title.

The message text shows:

- If you stop now, usually the destination LRU cannot operate.
- You must complete a data load to make the destination LRU serviceable with the new load part number.

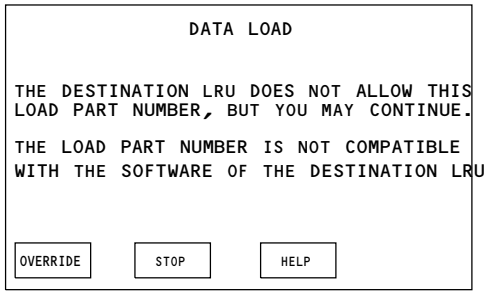
The buttons are:

- STOP
- HELP
- GO BACK.

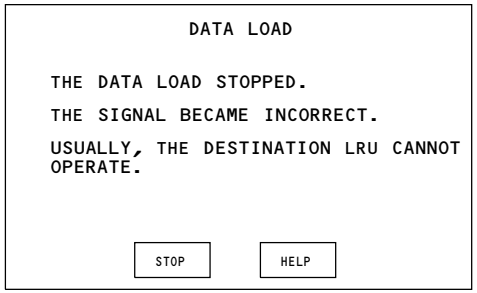
Select STOP to continue with the previous command selection and close the dialog box.

Select HELP to show the help dialog box for the are you sure? dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

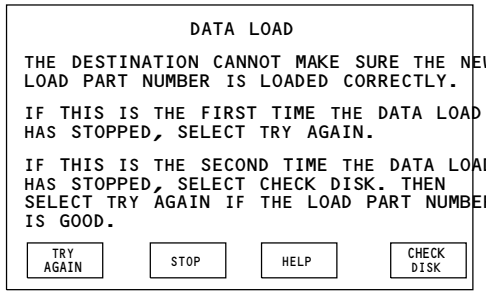
Select GO BACK to undo the previous command selection and close the dialog box.



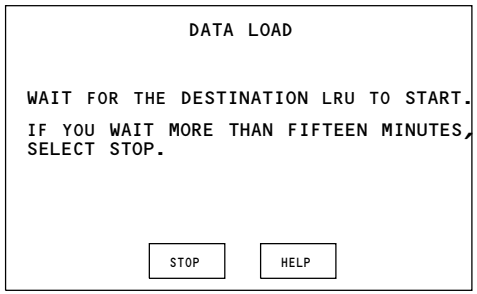
DESTINATION LRU INCOMPATIBILITY DIALOG BOX



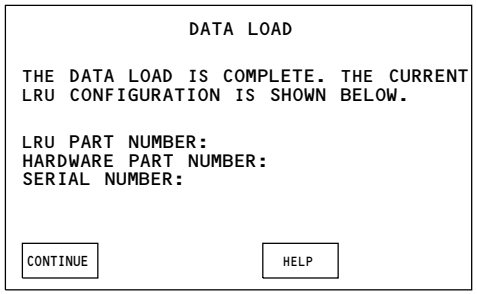
DATA TRANSFER ERROR DIALOG BOX



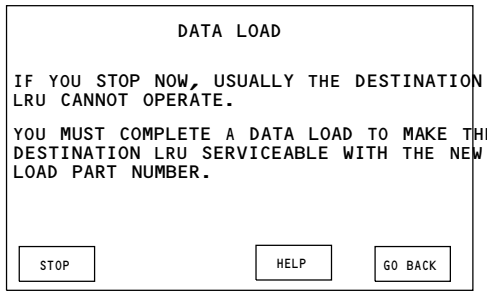
DATA STORAGE ERROR DIALOG BOX



DATA TRANSFER COMPLETION DIALOG BOX



DATA LOAD COMPLETION AND CONFIGURATION VERIFICATION DIALOG BOX



ARE YOU SURE? DIALOG BOX

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CMCS - DATA LOAD MESSAGE DIALOG BOXES - 2

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CMCS - DATA LOAD MESSAGE DIALOG BOXES - 3

Data Load Function Not Enabled Dialog Box

The data load function not enabled dialog box shows when the use of the CMCF is not available because the enable logic is not set.

If this dialog box shows after you start a data load the message shows:

- The data loader cannot start.

If the data load cannot finish, the message shows:

- The data loader has stopped.
- Usually the destination LRU cannot operate.

This message also shows:

- To start and complete a data load, you must make sure the airplane is in this configuration:
- 1. Airplane is on the ground
- 2. Engines are off.

The buttons are:

- GO BACK
- STOP
- HELP.

Select GO BACK to remove the dialog box and return to the previous display.

Select STOP to end the data load and remove the dialog box.

Select HELP to show the help dialog box for the data load not enabled dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Check Disk Dialog Box

The check disk dialog box shows when the CMCF does a load integrity check.

The check disk dialog box follows the selection of the CHECK DISK command selection on the data storage error dialog box.

The message field shows:

- The data loader will make sure load part number AACC-MMM-SSS-SS is serviceable.
- Wait...

If the load part number is valid, the message shows:

- Load part number AACC-MMM-SSS-SS is serviceable.

If the load part number is not valid, the message shows:

- Load part number AACC-MMM-SSS-SS is not serviceable.

You must get a serviceable disk to complete the data load of this load part number.

The buttons are:

- CONTINUE
- STOP
- HELP.

CONTINUE is not available for selection while the CMCF is verifying the disk.

Select CONTINUE to close the dialog box.

STOP is not available while the message field shows Usable or Not Usable.

Select STOP to end the CMCF disk verification and to remove the dialog box.

Select HELP to show the help dialog box for the check disk dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Data Load Function Already in Use Dialog Box

The data load function already in use dialog box shows that the data load sub-function of the CMCF is already in use.

CMCS - DATA LOAD MESSAGE DIALOG BOXES - 3

The message field shows:

- The data loader is already in use.
- Only one person can use the data loader at a time.

The buttons are:

- GO BACK
- HELP.

Select GO BACK to remove the dialog box and return to the previous display.

Select HELP to show the help dialog box for the data load function already in use dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Switch Source CMCF Dialog Box

The switch source CMCF dialog box shows when there is no data bus connection in the AIMS cabinet with the active CMCF to the destination LRU. This will occur with some 429 destination LRUs.

The message field shows:

- The Data Loader cannot data load the destination from the current Central Maintenance Computing Function source.
- You must switch to the other Central Maintenance Computing Function to complete this data load. Do the following steps:
- 1. Select GO BACK
- 2. Select the OTHER FUNCTIONS menu and CENTRAL MAINTENACE SOURCE SWITCHING
- 3. After you switch source, select DATA LOAD and start again.

The buttons are:

- GO BACK
- HELP.

Select GO BACK to remove the dialog box and return to the previous display.

Select HELP to show the help dialog box for the switch source CMCF dialog box dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Data Loader Not Working Dialog Box

The data loader not working dialog box shows when the CMCF detects a fault with the data load gateway sub-function.

The message field shows:

- The data loader finds and internal failure and cannot operate.
- You may select CONTINUE to data load the AIMS CMCF/Comm destination LRU. This may make the data loader serviceable.
- NOTE: If you select CONTINUE, all functions of the connected Central Maintenance Computing Function will stop.
- If a new load is necessary in the CPM/Comm, select CONTINUE.

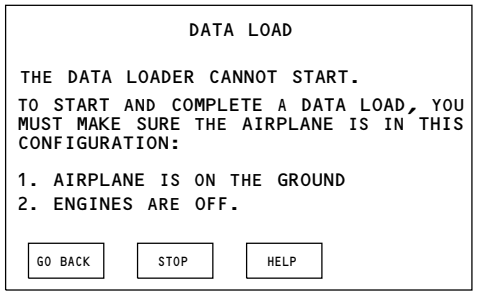
The buttons are:

- CONTINUE
- HELP
- GO BACK.

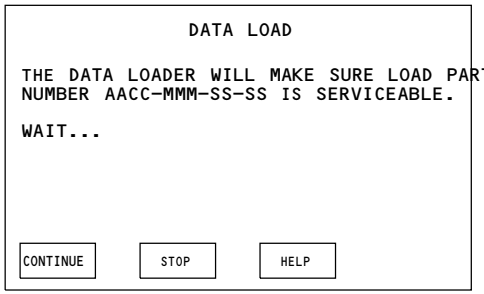
Select CONTINUE to start a data load of the CPM/Comm LRM.

Select HELP to show the help dialog box for the data loader not working dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

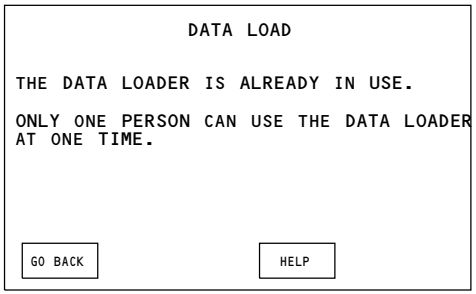
Select GO BACK to remove the dialog box and return to the previous display.



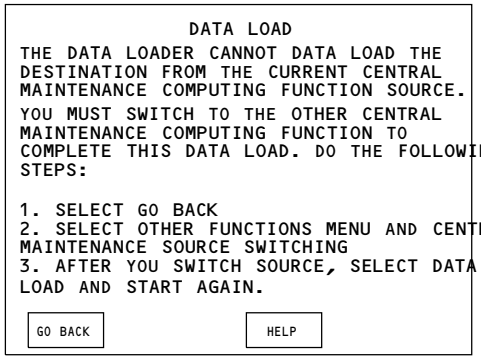
DATA LOAD FUNCTION NOT ENABLED DIALOG BOX



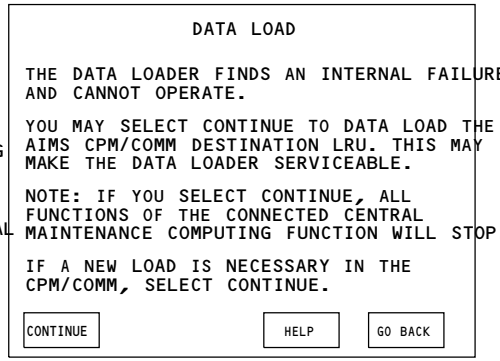
CHECK DISK DIALOG BOX



DATA LOAD FUNCTION ALREADY IN USE DIALOG BOX



SWITCH SOURCE CMCF DIALOG BOX



DATA LOADER NOT WORKING DIALOG BOX

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CMCS - DATA LOAD MESSAGE DIALOG BOXES - 3

CMCS - HARD DRIVE MAIN MENU DIALOG BOX

General

The hard drive main menu dialog box gives access to functions that let you do these:

- Add a new part number to the hard drive
- Remove an existing part number from the hard drive
- Show stored part numbers
- Check a part number.

The software part numbers are on the maintenance access terminal (MAT) hard drive.

The hard drive main menu dialog box shows:

- Exclusive selectors
- Buttons.

Exclusive Selections

These are the four exclusive selections:

- ADD A NEW PART NUMBER TO THE HARD DRIVE
- REMOVE AN EXISTING PART NUMBER FROM THE HARD DRIVE
- SHOW STORED PART NUMBERS
- CHECK PART NUMBER.

Select ADD A NEW PART NUMBER TO THE HARD DRIVE to add LRU software part numbers to the hard drive.

Select REMOVE AN EXISTING PART NUMBER FROM THE HARD DRIVE to show the remove part number dialog box. Select the LRU software part number you want to remove from the remove part number dialog box.

Select SHOW STORED PART NUMBERS to show the show part numbers dialog box. The show part numbers dialog box shows:

- Hard drive configuration name
- Hard drive configuration index
- Hard drive capacity
- LRU software part numbers on the hard drive.

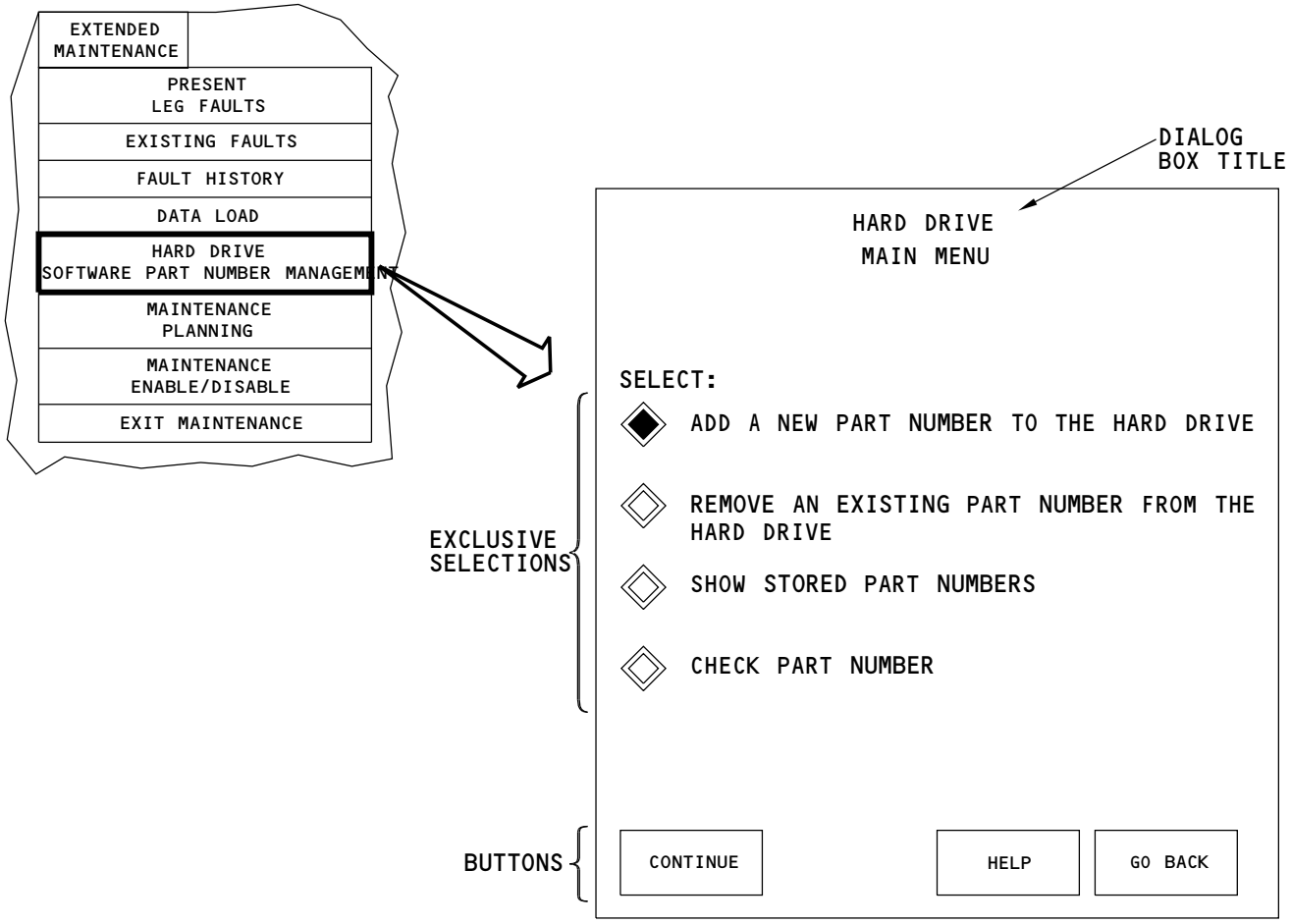
Select CHECK PART NUMBER to show the check part number dialog box. The check part number function checks that an LRU software part number is stored correctly on the hard disk. Select the LRU software part number you want to check from this dialog box.

Buttons

When you select an exclusive selection, the CONTINUE button is available. Select CONTINUE to go to one of the four hard drive software part number management functions.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.



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CMCS - HARD DRIVE MAIN MENU DIALOG BOX

CMCS - HARD DRIVE / DISK DRIVE NOT AVAILABLE DIALOG BOXES

General

Several dialog boxes can show when the hard drive can not be used or it is not in a usual condition. These are the dialog boxes:

- Cannot get disk drive connection
- Hard drive in air
- No hard drive
- Hard drive partially updated
- Hard drive unknown configuration
- Hard drive not repairable
- Hard drive part number removed.

Cannot Get Disk Drive Connection Dialog Box

The cannot get disk drive connection dialog box shows when there is no communications between the disk drive and the CMCF. The disk drive can not be used in this condition.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Hard Drive In Air Dialog Box

The hard drive in air dialog box shows when you select the hard drive software part number management menu item when the airplane is in the air.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

No Hard Drive Dialog Box

The no hard drive dialog box shows when you select the hard drive software part number management menu item when the hard drive is not available. These are the reasons the hard drive may not be available:

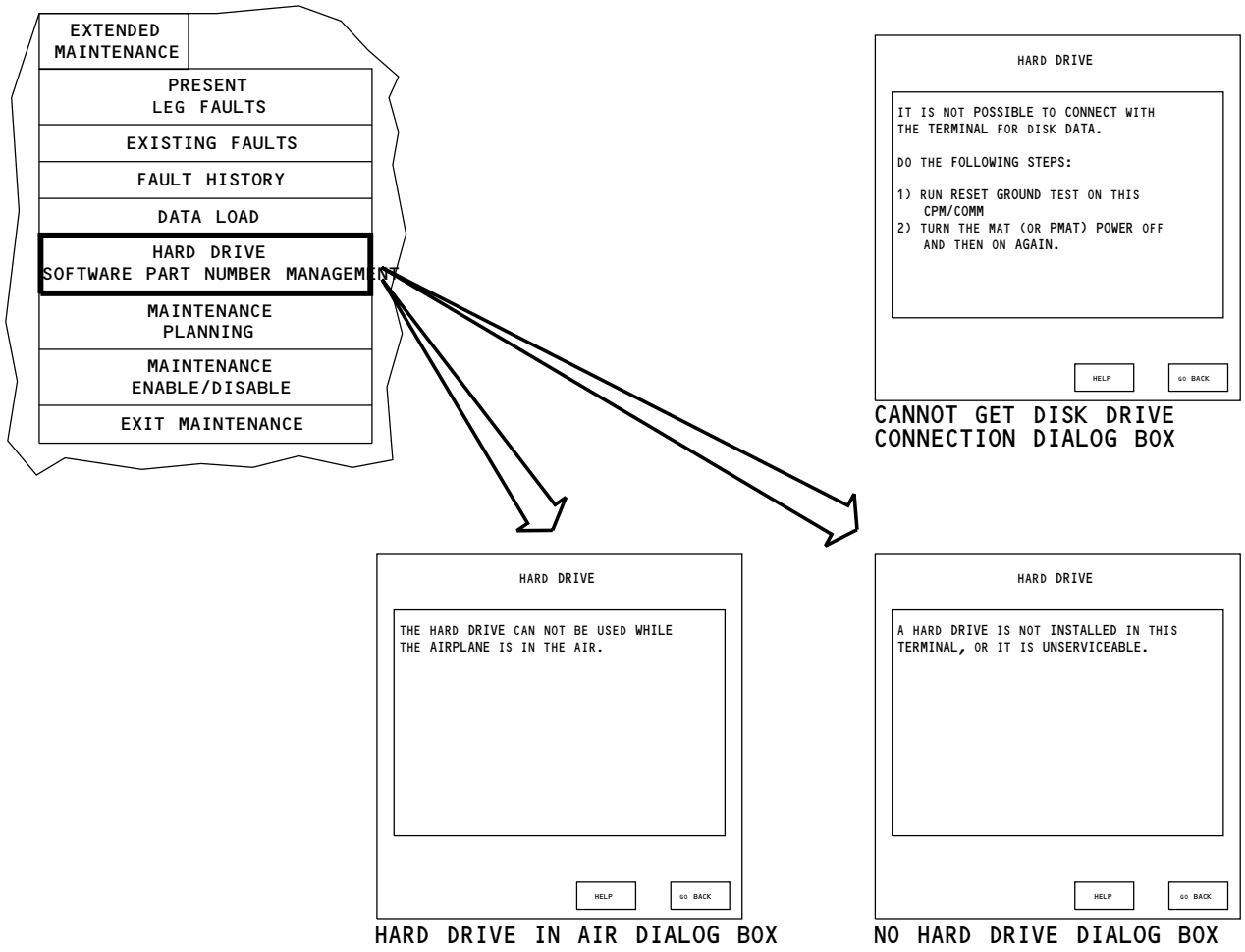
- No communication between the maintenance access terminal (MAT) hard drive and the MAT
- The hard drive is failed
- The hard drive is not installed.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Training Information Point

The no hard drive dialog box shows if you select the hard drive software part number management menu item from the main equipment center (MEC) PMAT. The PMAT in the MEC does not have a hard drive. You can not do MAT hard drive software part number management from the PMAT.



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CMCS - HARD DRIVE / DISK DRIVE NOT AVAILABLE DIALOG BOXES

CMCS - HARD DRIVE DATA REPAIR DIALOG BOXES

Hard Drive Partially Updated Dialog Box

The hard drive partially updated dialog box shows when you select the hard drive software part number management menu item and a previous operation was not completed. These operations can be:

- Adding a software part number to the hard drive
- Removing a software part number from the hard drive
- Changing the configuration name of the hard drive.

The CONTINUE button shows when the CMCF completes repairs of the data on the hard drive.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Hard Drive Unknown Configuration Dialog Box

The hard drive unknown configuration dialog box shows after the CMCF repairs data on the hard drive and the CMCF can not determine if all software part numbers on the hard drive are serviceable. The dialog box shows the configuration name of the hard disk. The dialog box also shows the configuration index of the hard drive. The configuration index is a four digit hexadecimal number. It determines if all the data on the hard drive is valid.

Select CONTINUE to return to the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Hard Drive Not Repairable Dialog Box

The hard drive not repairable dialog box shows when the CMCF can not determine the configuration of the hard drive. You can not use the hard drive in this condition.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Hard Drive Part Number Removed Dialog Box

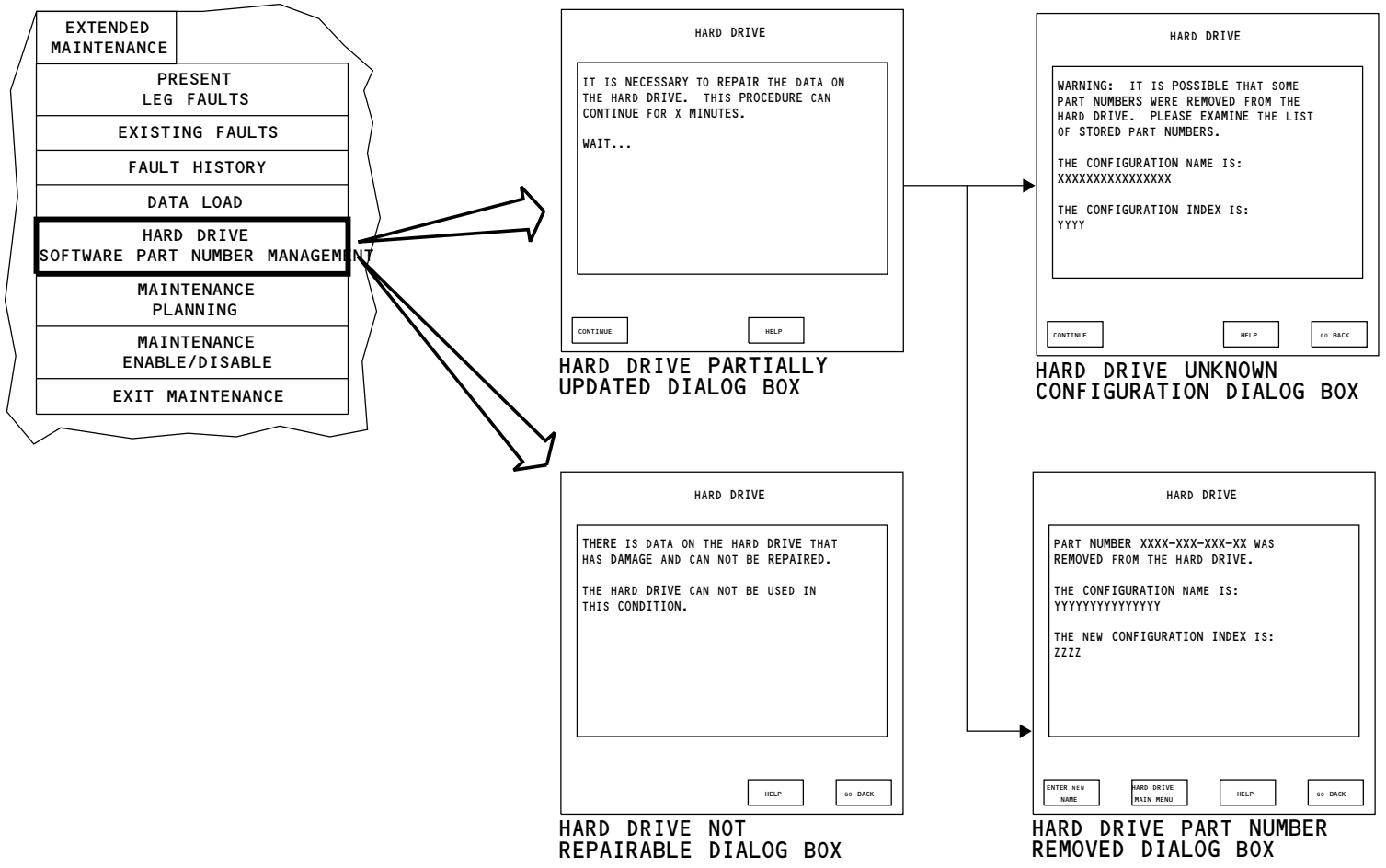
The hard drive part number removed dialog box shows when data on the hard drive has been repaired and the CMCF removed a software part number. The dialog box shows the configuration name and configuration index of the hard drive.

Select ENTER NEW NAME to show the hard drive change name dialog box. You can change the configuration name of the hard drive from this dialog box.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.



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CMCS - HARD DRIVE DATA REPAIR DIALOG BOXES

CMCS - HARD DRIVE ADD PART NUMBER DIALOG BOXES - 1

Need Good Disk Dialog Box

The need good disk dialog box shows after you choose to add a new part number to the hard drive and when:

- There is no disk in the disk drive
- The disk is not in the disk drive correctly.

You must put a disk in the disk drive before you can continue. The disk must have a valid part number.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Hard Drive Source Selection Dialog Box

The hard drive source selection dialog box shows after you choose to add a new part number to the hard drive and when there is a disk in the disk drive. This selection is on the hard drive main menu dialog box. The disk must have a valid part number. In this dialog box, you select the data source and the software part number from this data source.

The CONTINUE button becomes available when you select a data source and a part number. Select CONTINUE to show the adding part number dialog box.

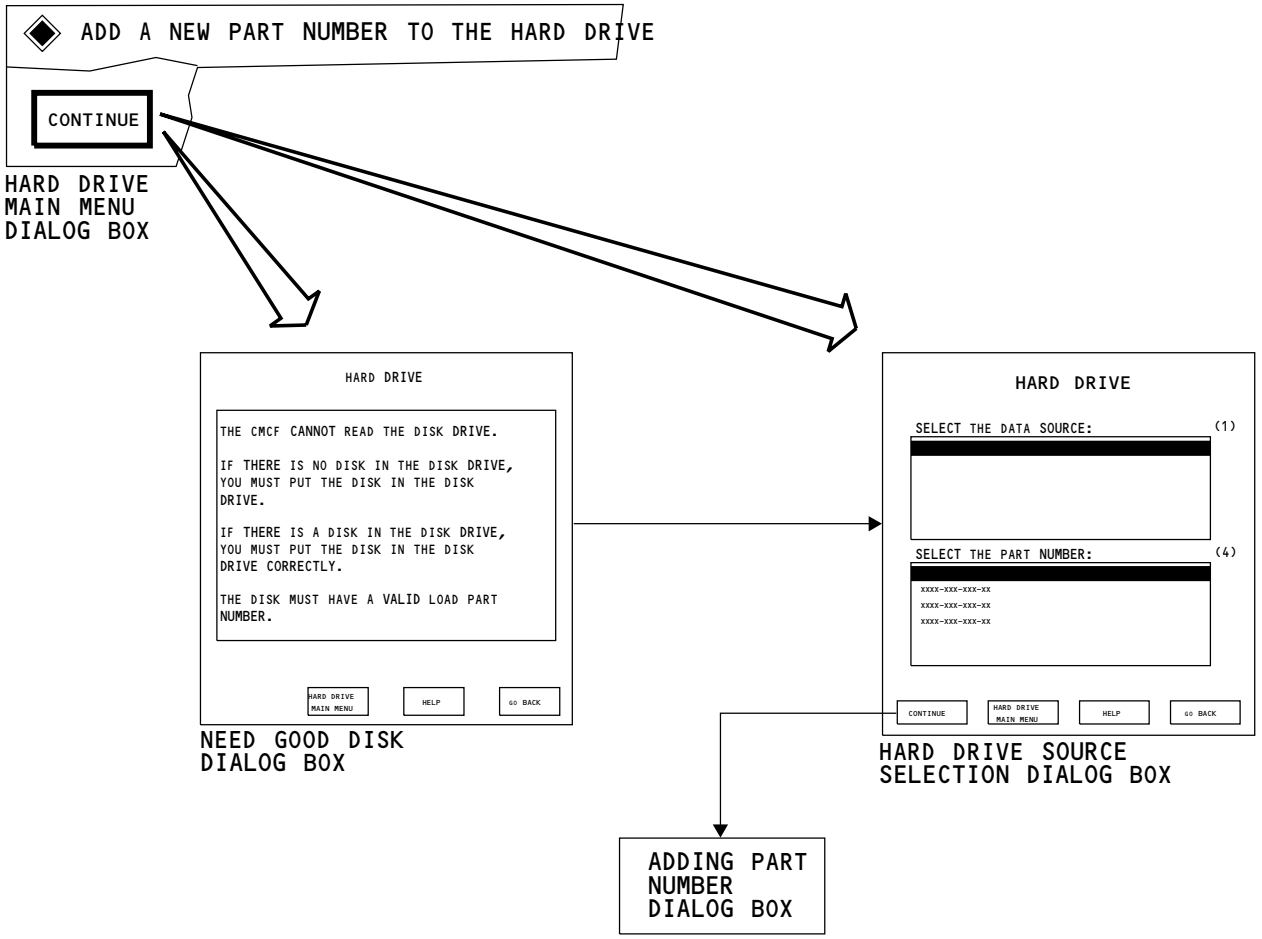
Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Training Information Point

The CMCF will select the data source and software part number when there is only one item available in the text fields.



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CMCS - HARD DRIVE ADD PART NUMBER DIALOG BOXES - 1

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CMCS - HARD DRIVE ADD PART NUMBER DIALOG BOXES - 2

Adding Part Number Dialog Box

The adding part number dialog box shows the software part number transfer progress. The xxxx-xxx-xxx-xx is the software part number that transfers to the hard drive.

Select STOP to show the stop are you sure dialog box. This dialog box allows you to stop the software part number transfer to the hard drive.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Hard Drive Change Disk Dialog Box

The hard drive change disk dialog box tells you to insert a specific disk into the disk drive. The letter x is the specific disk sequence number of the disk set. The yyyyyyyyyyyyyyy is the 15 character disk set part number.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Checking Part Number Dialog Box

The checking part number dialog box shows after you add a software part number to the hard drive. The CMCF checks that all part numbers added to the hard drive are serviceable. The xxxx-xxx-xxx-xx is the software part number. The letter y is the estimated time the check will take.

Select STOP to show the stop checking are you sure dialog box. This dialog box allows you to stop the check of the software part number.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Done Adding Passed Dialog Box

The done adding passed dialog box shows after you add a software part number to the hard drive and the CMCF determines it is serviceable. The xxxx-xxx-xxx-xx is the software part number. The yyyyyyyyyyyyyyy is the configuration name of the hard disk. The zzzz is the configuration index of the hard drive. The configuration index is a four digit hexadecimal number. It determines if all the data on the hard drive is valid.

Use the copy of this software part number on the hard drive to load an airplane LRU.

Select ENTER NEW NAME to show the hard drive change name dialog box. You can change the configuration name of the hard drive from this dialog box.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Done Adding Failed Dialog Box

The done adding failed dialog box shows after you add a software part number to the hard drive and the CMCF determines it is not serviceable. The xxxx-xxx-xxx-xx is the software part number. The yyyyyyyyyyyyyyy is the configuration name of the hard disk. The zzzz is the configuration index of the hard drive. The configuration index is a four digit hexadecimal number. It determines if all the data on the hard drive is valid.

You must remove the copy of the software part number from the hard drive and load it again. You remove software part numbers from the hard drive main menu.

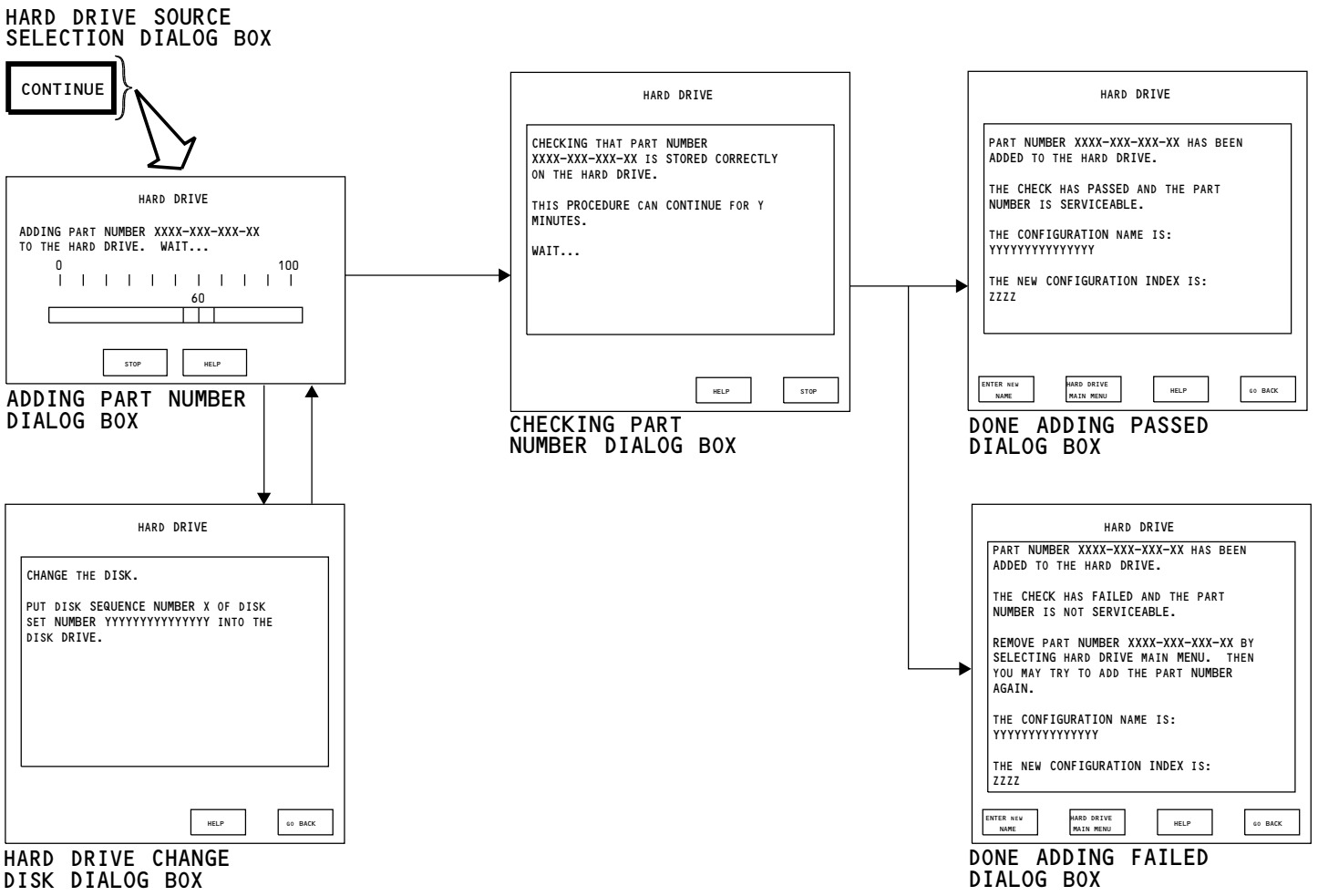
Select ENTER NEW NAME to show the hard drive change name dialog box. You can change the configuration name of the hard drive from this dialog box.

CMCS - HARD DRIVE ADD PART NUMBER DIALOG BOXES - 2

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.



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CMCS - HARD DRIVE ADD PART NUMBER DIALOG BOXES - 2

Stop Are You Sure Dialog Box

The stop are you sure dialog box shows after you select STOP from the adding part number dialog box. The dialog box tells you to select STOP to end the process to add software part number xxxx-xxx-xxx-xx to the hard drive.

Select STOP to stop the software part number transfer to the hard drive.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the adding part number dialog box.

Not Added Dialog Box

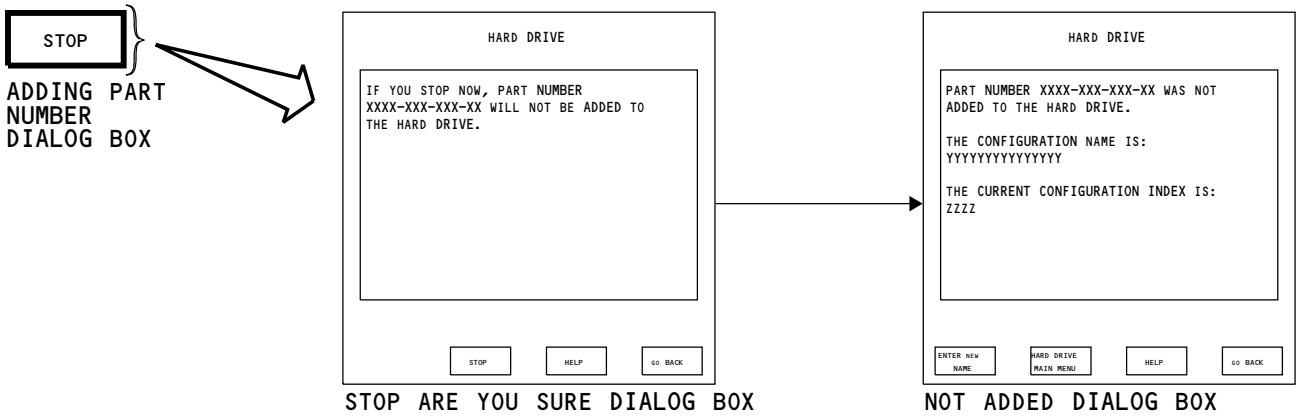
The not added dialog box shows after you select STOP from the stop are you sure dialog box. It shows you that the software part number was not added to the hard drive. The xxxx-xxx-xxx-xx is the software part number. The yyyyyyyyyyyyyy is the configuration name of the hard disk. The zzzz is the configuration index of the hard drive. The configuration index is a four digit hexadecimal number. It determines if all the data on the hard drive is valid.

Select ENTER NEW NAME to show the hard drive change name dialog box. Change the configuration name of the hard drive from this dialog box.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.



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CMCS - HARD DRIVE ADD PART NUMBER DIALOG BOXES - 3

Part Number Already There Dialog Box

The part number already there dialog box shows if the software part number you chose to add to the hard drive is already on the hard drive. The CMCF allows only one copy of the same software part number on the hard drive. The xxxx-xxx-xxx-xx is the software part number.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the hard drive source selection dialog box.

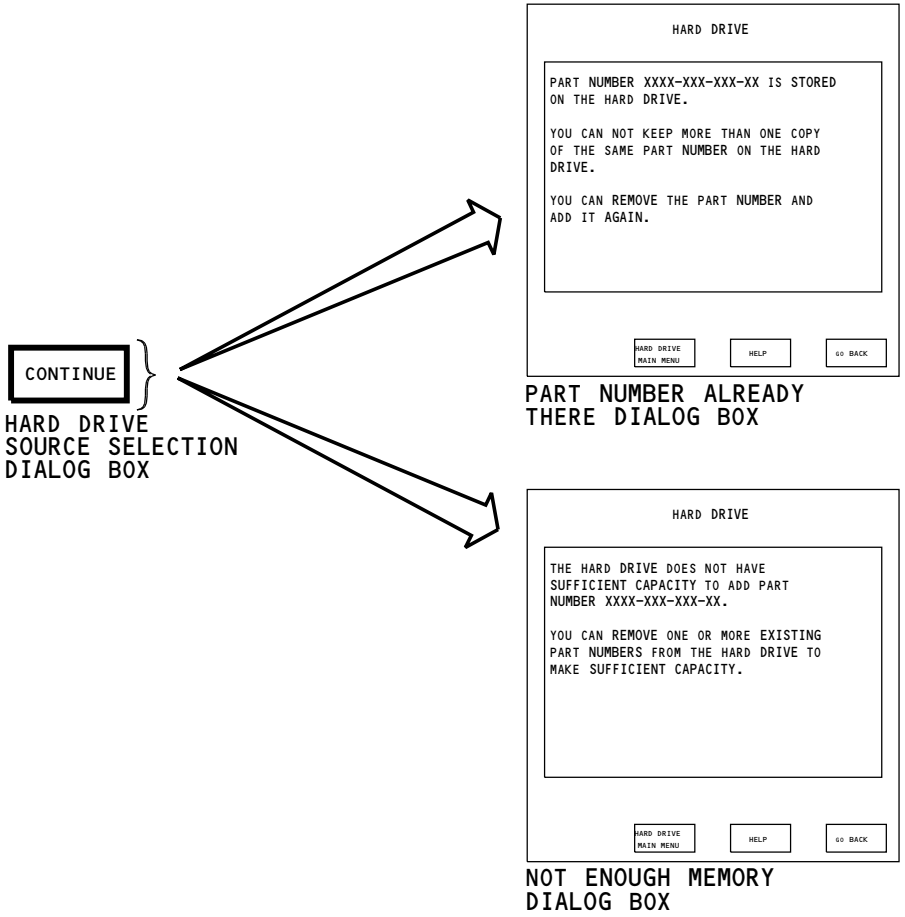
Not Enough Memory Dialog Box

The not enough memory dialog box shows if there is not enough memory on the hard drive to add the software part number you chose. You will need to remove one or more software part numbers from the hard drive to make enough memory available. The xxxx-xxx-xxx-xx is the software part number.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the hard drive source selection dialog box.



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CMCS - HARD DRIVE ADD PART NUMBER DIALOG BOXES - 4

Hard Drive Wrong Disk Dialog Box

The hard drive wrong disk dialog box tells you that you have the wrong disk in the disk drive. It tells you to insert a specific disk into the disk drive. The letter x is the specific disk sequence number of the disk set and yyyyyyyyyyyyyyy is the 15 character disk set part number.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select STOP to show the stop are you sure dialog box. This dialog box allows you to stop the software part number transfer to the hard drive.

Disk Problem Dialog Box

The disk problem dialog box tells you the CMCF can not read the disk in the disk drive for one of these reasons:

- The disk is not readable
- The disk does not have a valid software part number.

You must put a readable disk with a valid software part number in the disk drive to continue.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

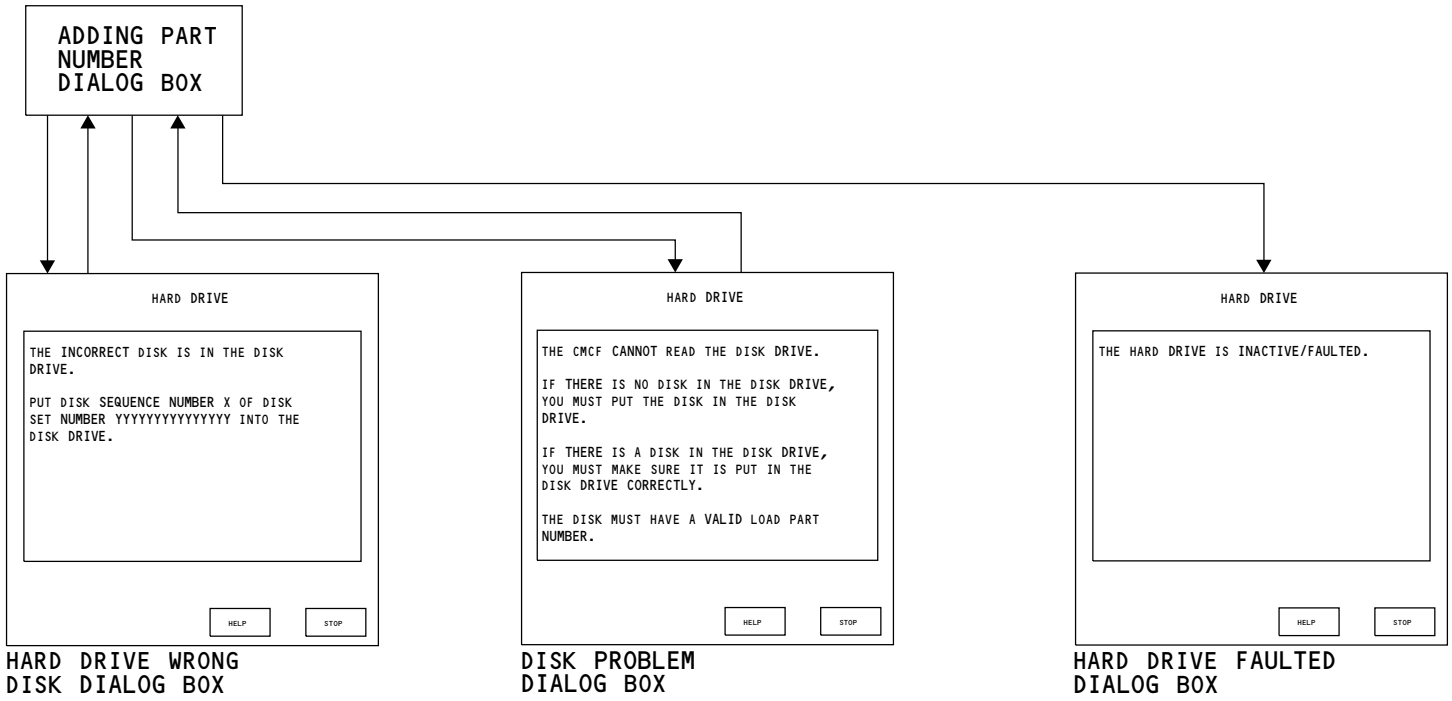
Select STOP to show the stop are you sure dialog box. This dialog box allows you to stop the software part number transfer to the hard drive.

Hard Drive Faulted Dialog Box

The hard drive faulted dialog box shows when the hard drive has an error during the software part number transfer. You can not use the hard drive in this condition. Select STOP to return to the hard drive main menu dialog box or previous display.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select STOP to show the stop are you sure dialog box. This dialog box allows you to stop the software part number transfer to the hard drive.



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CMCS - HARD DRIVE ADD PART NUMBER DIALOG BOXES - 5

CMCS - HARD DRIVE REMOVE PART NUMBER DIALOG BOXES

Remove Part Number Dialog Box

The remove part number dialog box shows after you select REMOVE AN EXISTING PART NUMBER FROM THE HARD DRIVE. This selection is on the hard drive main menu dialog box.

The list box shows the software part numbers on the hard drive. The xx is the number of software part numbers on the hard drive. The yyyy-yyy-yyy-yy is the software part numbers on the hard drive.

Use the scroll bar and select the software part number to remove it from the hard drive.

When you select a software part number from the list box, the CONTINUE button becomes available. Select CONTINUE to show the remove are you sure dialog box. The remove are you sure dialog box allows you to remove the software part number from the hard drive.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Remove Are You Sure Dialog Box

The remove are you sure dialog box shows after you select CONTINUE from the remove part number dialog box. The xxxx-xxx-xxx-xx is the software part number.

Select REMOVE to remove the selected software part number from the hard drive.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the remove part number dialog box.

Removing Part Number Dialog Box

The removing part number dialog box shows when you select REMOVE from the remove are you sure dialog box. This dialog box tells you that the CMCF is removing the software part number xxxx-xxx-xxx-xx from the hard drive.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Hard Drive Part Number Removed Dialog Box

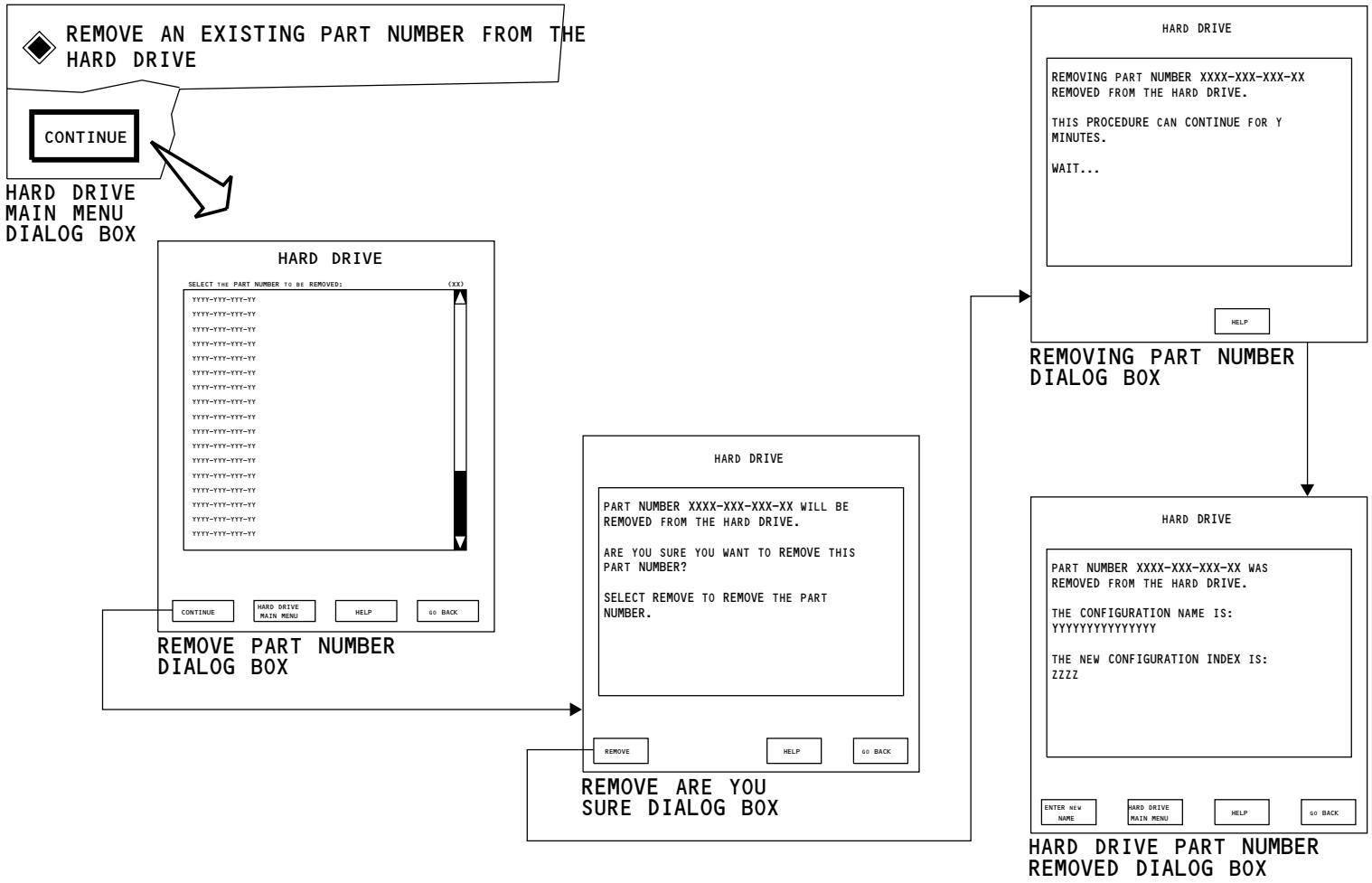
The hard drive part number removed dialog box shows after the CMCF removes a software part number. The xxxx-xxx-xxx-xx is the software part number. The yyyyyyyyyyyyyyy is the configuration name of the hard disk. The zzzz is the configuration index of the hard drive. The configuration index is a four digit hexadecimal number. It determines if all the data on the hard drive is valid.

Select ENTER NEW NAME to show the hard drive change name dialog box. You can change the configuration name of the hard drive from this dialog box.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.



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CMCS - HARD DRIVE REMOVE PART NUMBER DIALOG BOXES

CMCS - HARD DRIVE SHOW STORED PART NUMBERS DIALOG BOXES

Show Part Numbers Dialog Box

The show part numbers dialog box shows after you select SHOW STORED PART NUMBERS from the hard drive main menu dialog box. This dialog box shows the software part numbers on the hard drive. It also shows the configuration name and configuration index of the hard drive. The configuration index is a four digit hexadecimal number. It determines if all the data on the hard drive is valid. The dialog box also shows the estimated number of software part numbers you can store on the hard drive. It also shows the number of megabytes of memory remaining on the hard drive.

The vvvvvvvvvvvvvvv is the configuration name of the hard disk. The wwww is the configuration index of the hard drive. The xxx is the estimated number of software part numbers you can store on the hard drive. The yy is the number of megabytes of memory remaining on the hard drive. The zzzz-zzz-zzz-zz is the software part numbers stored on the hard drive.

Select REPORT to show the report dialog box. You can report the data to these systems:

- Flight compartment printer
- Floppy disk drive
- Data communications management system.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select ENTER NEW NAME to show the hard drive change name dialog box. You can change the configuration name of the hard drive from this dialog box.

Hard Drive Change Name Dialog Box

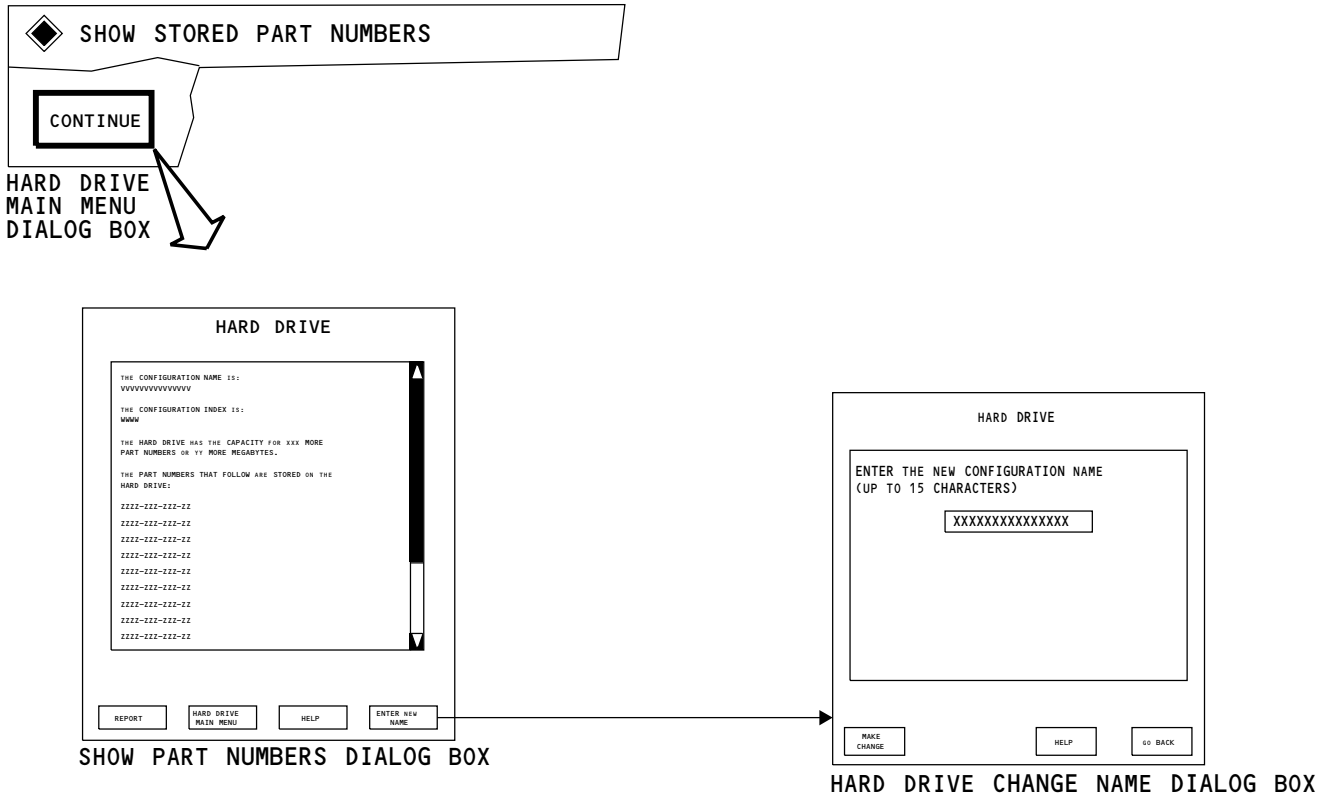
The hard drive change name dialog box allows you to change the configuration name of the hard drive.

To change the configuration name of the hard drive, put the cursor over the direct entry field. The cursor changes to the text entry I-beam cursor. Use the keyboard to enter the new name and select MAKE CHANGE.

Select MAKE CHANGE to change the configuration name of the hard drive.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.



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CMCS - HARD DRIVE SHOW STORED PART NUMBERS DIALOG BOXES

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CMCS - HARD DRIVE CHECK STORED PART NUMBER DIALOG BOXES

Check Part Number Dialog Box

The check part number dialog box shows after you select check part number. This selection is on the hard drive main menu dialog box. It allows you to check if a software part number is serviceable.

The list box shows the software part numbers on the hard drive. The xx is the number of software part numbers on the hard drive. The yyyy-yyy-yyy-yy is the software part numbers on the hard drive.

Use the scroll bar and select the software part number to check.

When you select a software part number from the list box, the CONTINUE button is available. Select CONTINUE to show the checking part number dialog box.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Checking Part Number Dialog Box

The checking part number shows after you select a software part number to check from the check part number dialog box. The checking part number dialog box shows you the part number the CMCF is checking. The xxxx-xxx-xxx-xxx is the software part number. The letter y is the estimated time the check will take.

Select STOP to show the stop checking are you sure dialog box. The stop checking dialog box allows you to stop the check of a software part number.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Stop Checking Are You Sure Dialog Box

The stop checking are you sure dialog box shows after you select STOP from the checking part number dialog box. The stop checking are you sure dialog box allows you to stop the check of a software part number.

Select STOP to stop the check of the software part number.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Hard Drive Check Passed Dialog Box

When the CMCF finds the software part number is serviceable, the hard drive check passed dialog box shows. The xxxx-xxx-xxx-xx is the software part number.

Select CHECK MORE PART NUMBERS to return to the check part number dialog box.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.

Hard Drive Check Failed Dialog Box

When the CMCF finds the software part number is not serviceable, the hard drive check failed dialog box shows. The xxxx-xxx-xxx-xx is the software part number.

You can not load this software part number into an LRU when the software part number is not serviceable. It is not stored properly on the hard drive or is corrupt. Remove the software from the hard drive and load it again before you load it into an LRU.

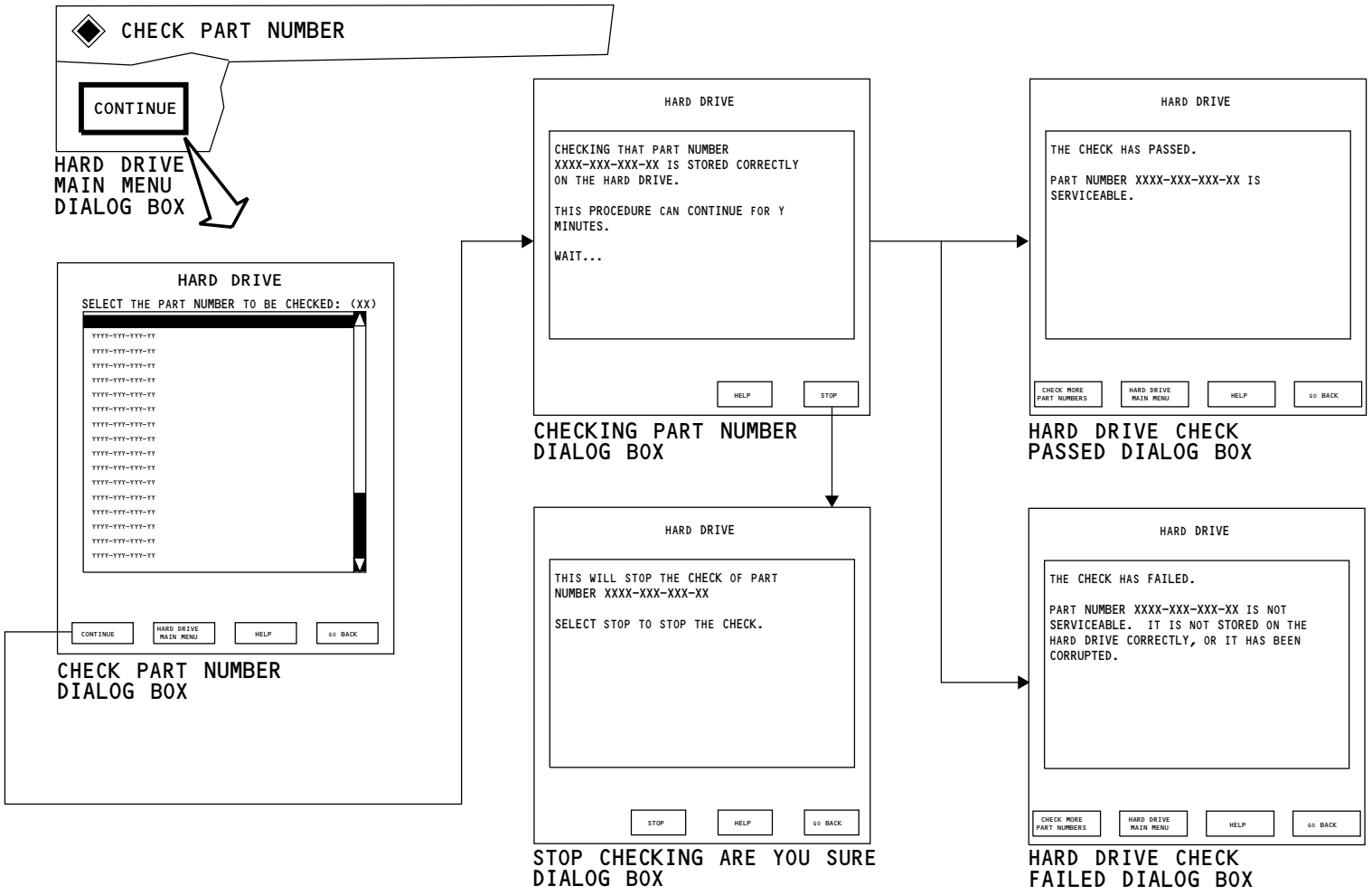
CMCS - HARD DRIVE CHECK STORED PART NUMBER DIALOG BOXES

Select CHECK MORE PART NUMBERS to return to the check part number dialog box.

Select HARD DRIVE MAIN MENU to remove the dialog box and show the hard drive main menu dialog box.

Select HELP to show the help for this dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.



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CMCS - HARD DRIVE CHECK STORED PART NUMBER DIALOG BOXES

CMCS - MAINTENANCE PLANNING DIALOG BOX

General

The maintenance planning dialog box gives access to information that the airline maintenance organizations can use to plan maintenance.

The information available is in the form of maintenance memo messages and scheduled maintenance tasks.

Maintenance memos relate to faults in fault tolerant systems. These memos let the maintenance organizations monitor the deterioration of a component/system. They also let the maintenance organizations plan the appropriate maintenance actions before a system or component becomes not airworthy. Maintenance memos correlate to maintenance messages.

Scheduled maintenance task messages relate to certification maintenance requirement items (CMR) or maintenance review board (MRB) items with time exposure limits. They are stored and reported by the airplane systems and correlate to maintenance messages.

The maintenance planning dialog box shows:

- Exclusive selections
- Buttons.

Exclusive Selections

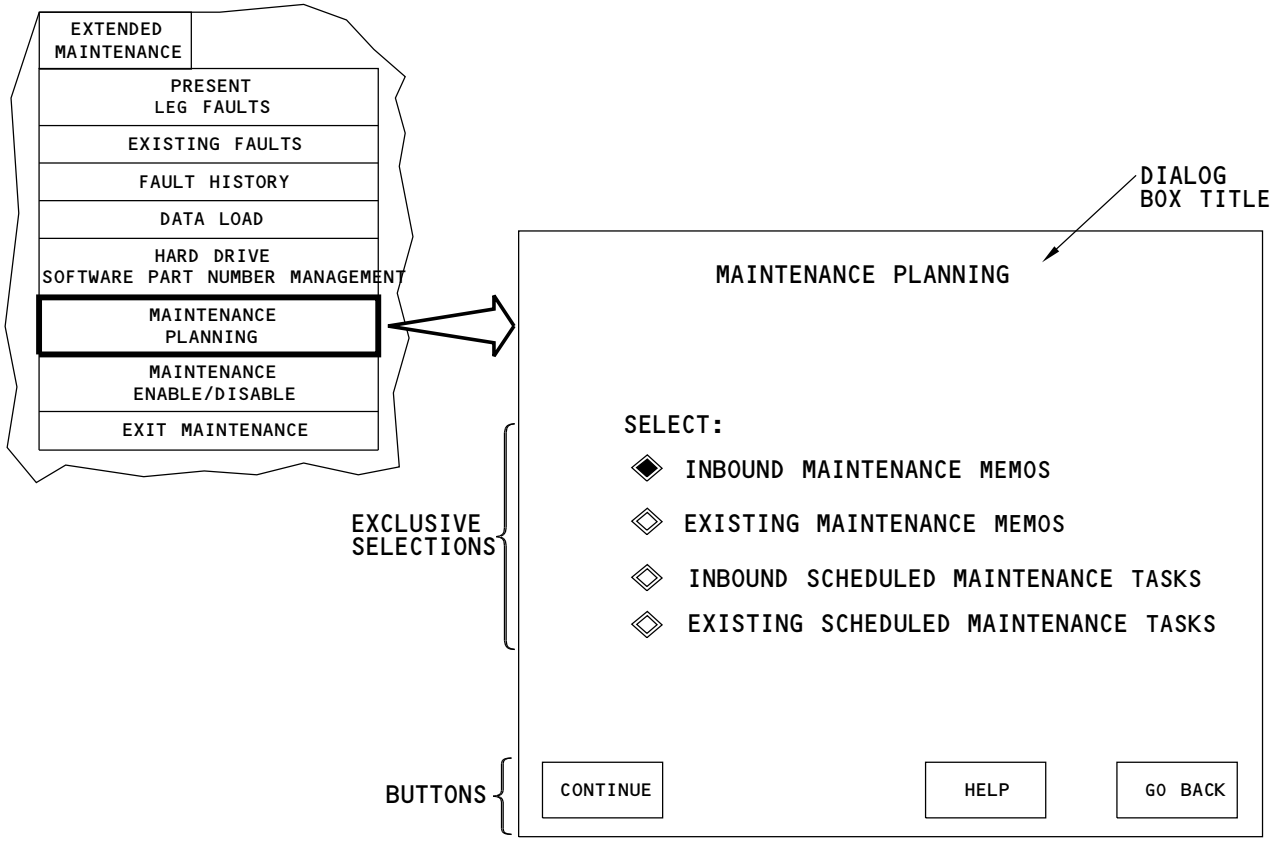
These are the four exclusive selections:

- Inbound Maintenance Memos
- Existing Maintenance Memos
- Inbound Scheduled Maintenance Tasks
- Existing Scheduled Maintenance Tasks.

Select one of the exclusive selections and CONTINUE to show that display.

Select HELP to show the help dialog box for the maintenance planning dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.



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CMCS - MAINTENANCE PLANNING DIALOG BOX

CMCS - MAINTENANCE PLANNING - INBOUND MAINTENANCE MEMO SUMMARY DISPLAY

General

The inbound maintenance memo summary display shows all maintenance messages that are correlated to maintenance memos that occurred in present flight leg.

Maintenance memos are a group of maintenance messages that give information about the condition of redundant LRU/systems.

These memos let the maintenance organizations monitor the deterioration of a component/system. They also let the maintenance organizations plan the appropriate maintenance actions before a system or component becomes not airworthy.

A maintenance memo normally shows one fault away from a fault that will cause a status message.

Maintenance memos are either active, latched, or not active. Latched messages are those that occur in a particular flight phase and are in the memory of the LRU.

Maintenance memos are correlated to one or more maintenance messages.

The inbound maintenance memo summary display shows the maintenance memos by time (the newest memo shows first) or by ATA.

The inbound maintenance memo summary display shows this:

- Header information
- Fault summary field
- Buttons.

Header Information

The header information includes:

- Display title
- Instructions to access the single maintenance message summary display
- Tail identification
- Flight leg ID with origin and destination airports
- Flight leg start time and date
- Source of information.

Fault Summary Field

The fault summary field includes:

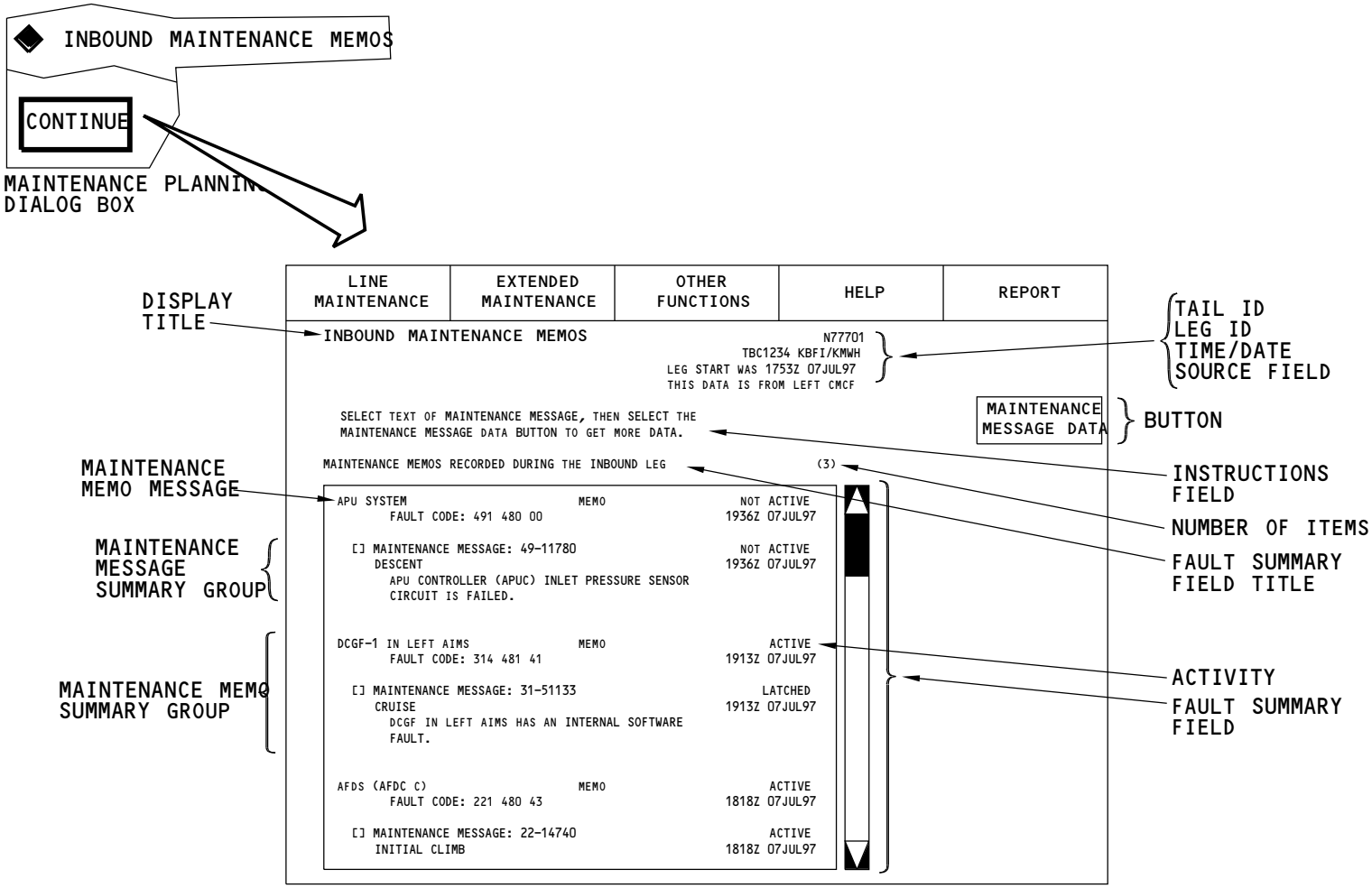
- Fault summary field title
- Number of items
- Maintenance memo summary groups.

The fault summary field title shows above the fault summary on the left side. The title is Maintenance Memos recorded during the Inbound Leg.

The number of items shows above the scroll bar. The number shows the total number of memo summary groups.

Buttons

Select MAINTENANCE MESSAGE DATA to show the single maintenance message display.



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CMCS - MAINTENANCE PLANNING - INBOUND MAINTENANCE MEMO SUMMARY DISPLAY

CMCS - MAINTENANCE PLANNING - EXISTING MAINTENANCE MEMO SUMMARY DISPLAY

General

The existing maintenance memo summary display shows all maintenance memos that are currently active or latched.

Maintenance memos are a group of maintenance messages that give information about the condition of redundant LRU/systems.

These memos let the maintenance organizations monitor the deterioration of a component/system. They also let the maintenance organizations plan the appropriate maintenance actions before a system or component becomes not airworthy.

A maintenance memo normally shows one fault away from a fault that will cause a status message.

Maintenance memos are either active or latched. Latched messages are those that occur in a particular flight phase and are in the memory of the LRU.

Maintenance memos are correlated to one or more maintenance messages.

The existing maintenance memo summary display shows the maintenance memos by time (the newest memo shows first) or by ATA.

The existing maintenance memo summary display shows:

- Header information
- Fault summary field
- Buttons.

Header Information

The header information includes:

- Display title
- Instructions to access the single maintenance message summary display
- Tail identification
- Time and date
- Source of information.

Fault Summary Field

The fault summary field includes:

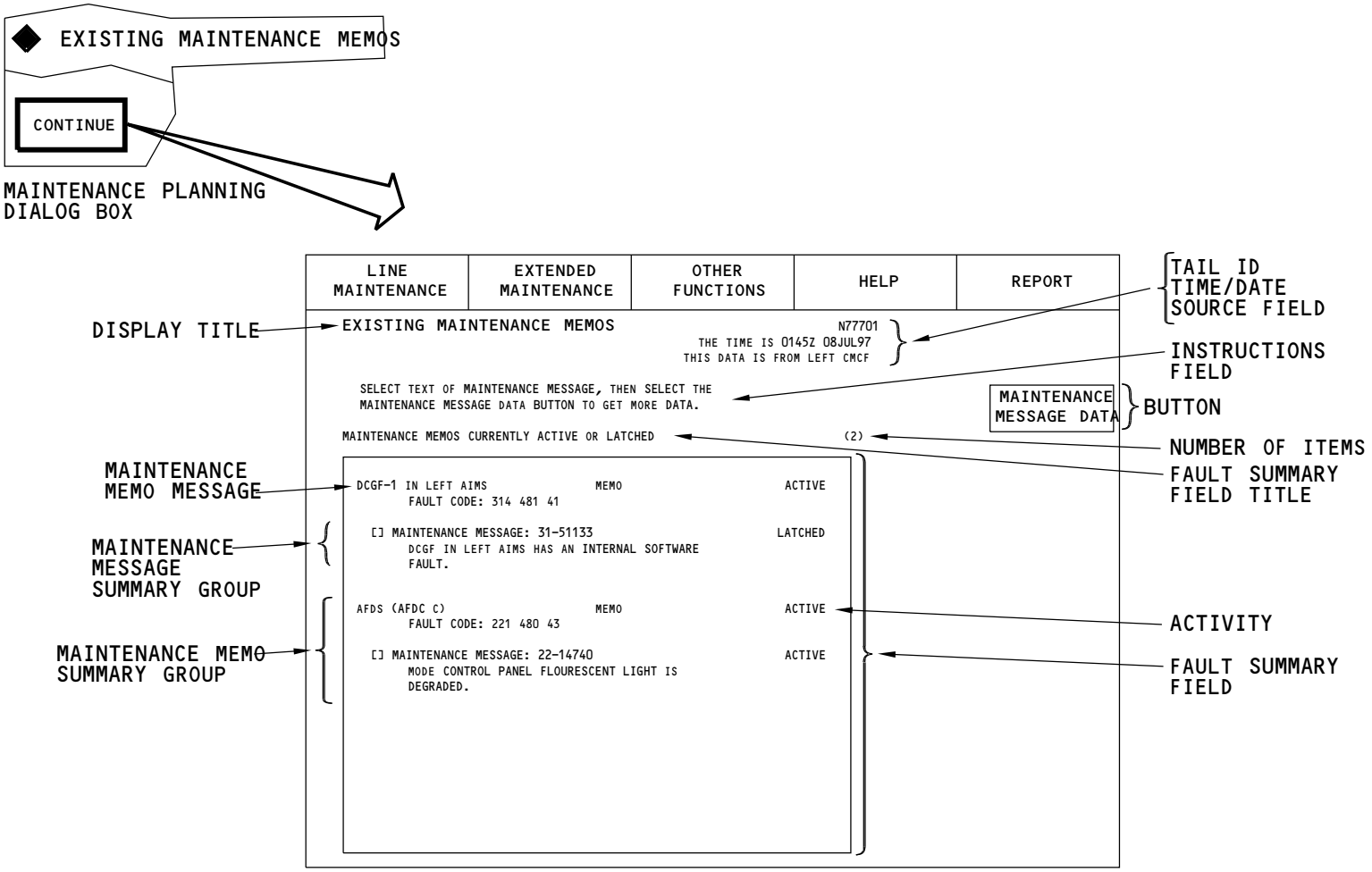
- Fault summary field title
- Number of items
- Maintenance memo summary groups

The fault summary field title shows above the fault summary on the left side. The title is Maintenance Memos currently ACTIVE or LATCHED.

The number of items shows above the scroll bar. The number shows the total number of memo summary groups.

Buttons

Select MAINTENANCE MESSAGE DATA to show the single maintenance message display.



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CMCS - MAINTENANCE PLANNING - EXISTING MAINTENANCE MEMO SUMMARY DISPLAY

CMCS - MAINTENANCE PLANNING - INBOUND SCHEDULED MAINTENANCE TASKS MESSAGE SUMMARY DISPLAY

General

The inbound scheduled maintenance tasks message summary display shows all maintenance messages that are correlated to scheduled maintenance task messages that occurred in present flight leg.

Scheduled maintenance task messages relate to certification maintenance requirement items (CMR) or maintenance review board (MRB) items with time exposure limits.

These messages relate to those that show on the maintenance task maintenance page on the MFD.

There is no requirement to check these messages prior to flight.

The inbound scheduled maintenance task message summary display shows:

- Header information
- Fault summary field
- Buttons.

Header Information

The header information includes:

- Display title
- Instructions to access the single maintenance message summary display
- Tail identification
- Flight leg ID with origin and destination airports
- Flight leg start time and date
- Source of information.

Fault Summary Field

The fault summary field includes:

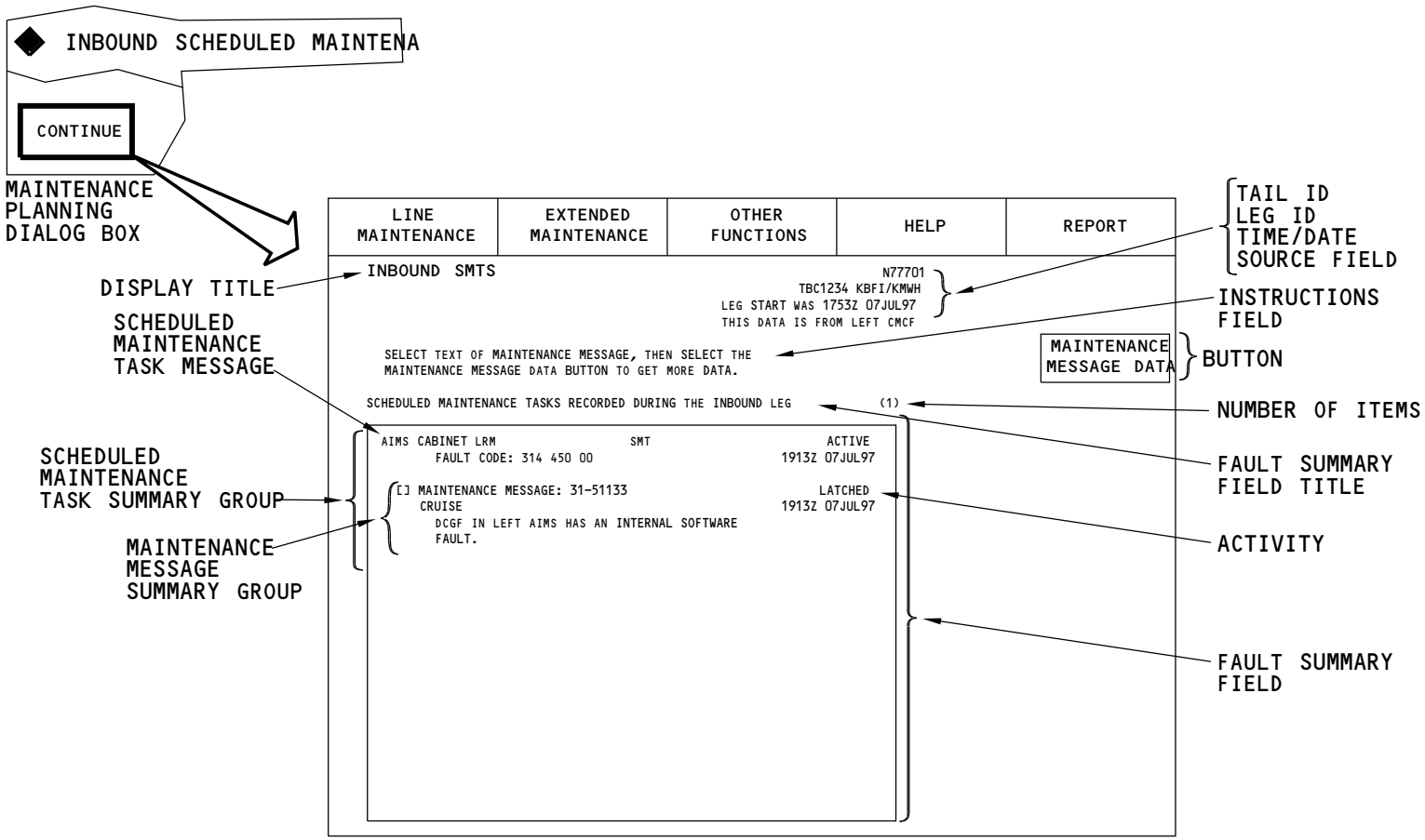
- Fault summary field title
- Number of items
- Scheduled maintenance task summary groups.

The fault summary field title shows above the fault summary on the left side. The title is Scheduled Maintenance Tasks recorded during the Inbound Leg.

The number of items shows above the scroll bar. The number shows the total number of scheduled maintenance task message summary groups.

Buttons

Select MAINTENANCE MESSAGE DATA to show the single maintenance message display.



M36477 S000620659_V2

I **CMCS - MAINTENANCE PLANNING - INBOUND SCHEDULED MAINTENANCE TASKS MESSAGE SUMMARY DISPLAY**

CMCS - MAINTENANCE PLANNING - EXISTING SCHEDULED MAINTENANCE TASKS MESSAGE SUMMARY DISPLAY

General

The existing scheduled maintenance tasks message summary display shows all maintenance messages that are correlated to scheduled maintenance task messages.

Scheduled maintenance task messages relate to certification maintenance requirement items (CMR) or maintenance review board (MRB) items with time exposure limits.

These messages relate to those that show on the maintenance task maintenance page on the MFD.

There is no requirement to check these messages prior to flight.

The existing scheduled maintenance task message summary shows:

- Header information
- Fault summary field
- Buttons.

Header Information

The header information includes:

- Display title
- Instructions to access the single maintenance message summary display
- Tail identification
- Time and date
- Source of information.

Fault Summary Field

The fault summary field includes:

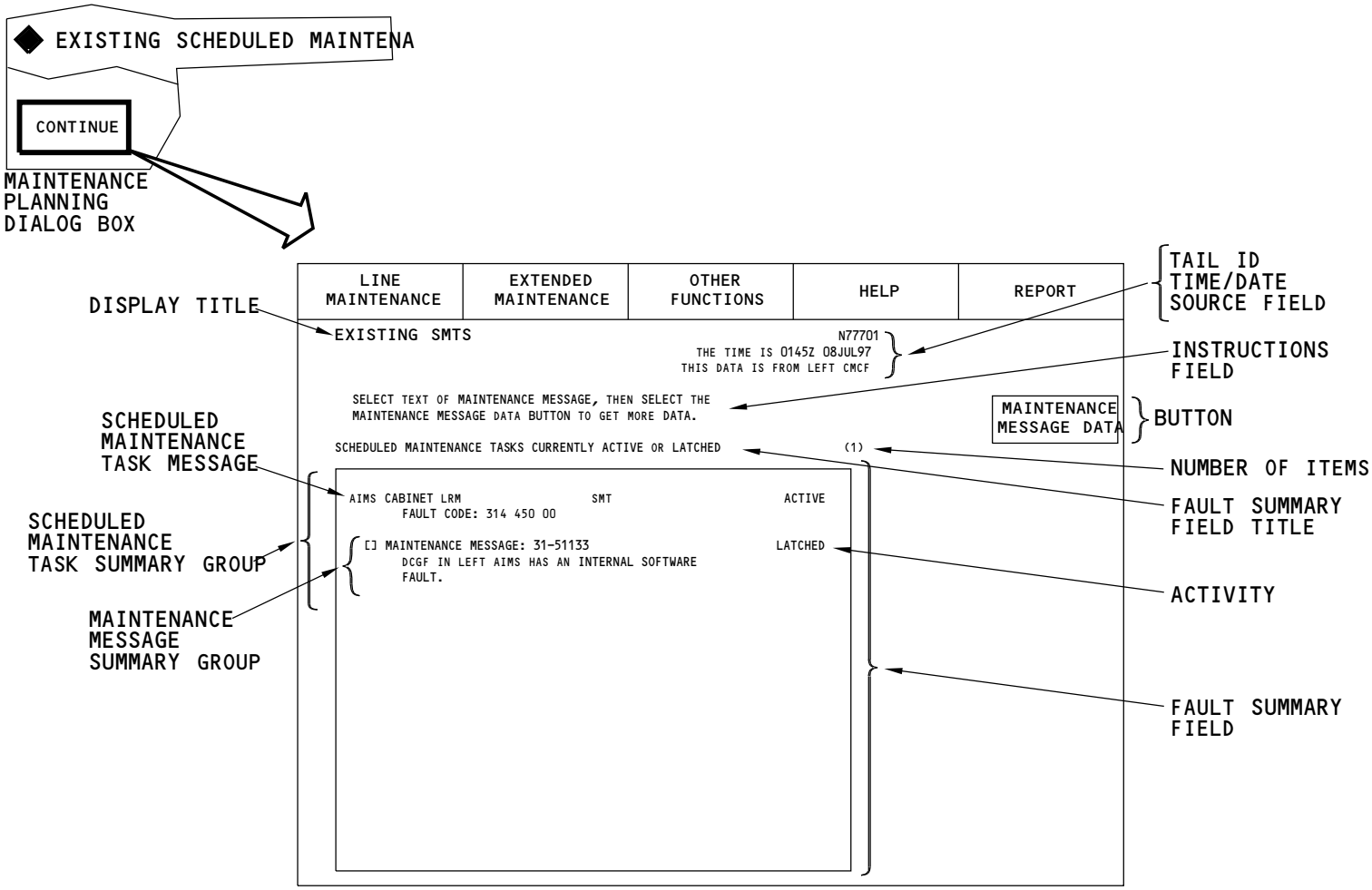
- Fault summary field title
- Number of items
- Scheduled maintenance task summary groups.

The fault summary field title shows above the fault summary on the left side. The title is Scheduled Maintenance Task currently ACTIVE or LATCHED.

The number of items shows above the scroll bar. The number shows the total number of scheduled maintenance task message summary groups.

Buttons

Select MAINTENANCE MESSAGE DATA to show the single maintenance message display.



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I **CMCS - MAINTENANCE PLANNING - EXISTING SCHEDULED MAINTENANCE TASKS MESSAGE SUMMARY DISPLAY**

CMCS - MAINTENANCE ENABLE/DISABLE DIALOG BOX

General

The maintenance enable/disable dialog box lets the user enable or disable flight legs and the maintenance phase.

The maintenance enable/disable dialog box shows:

- Dialog box title
- Text box titles
- Two text boxes
- buttons.

Text Box Titles

The title of the upper text box is FLIGHT LEG TRANSITION ENABLE/DISABLE.

The title of the lower test box is MAINTENANCE PHASE ENABLE/DISABLE.

Text Boxes

The upper text box shows the status of the flight leg transition. Two possible messages show in the box.

The lower text box shows the status of the maintenance phase. This text box has two messages.

Buttons

Two buttons control the status of the flight leg transition.

Select LEG ENABLE to enable the flight leg transition. This selection is available only when the flight leg transition is disabled.

Select LEG DISABLE to disable the flight leg transition. This selection is available only when the flight leg transition is enabled.

Two buttons control the status of the maintenance phase.

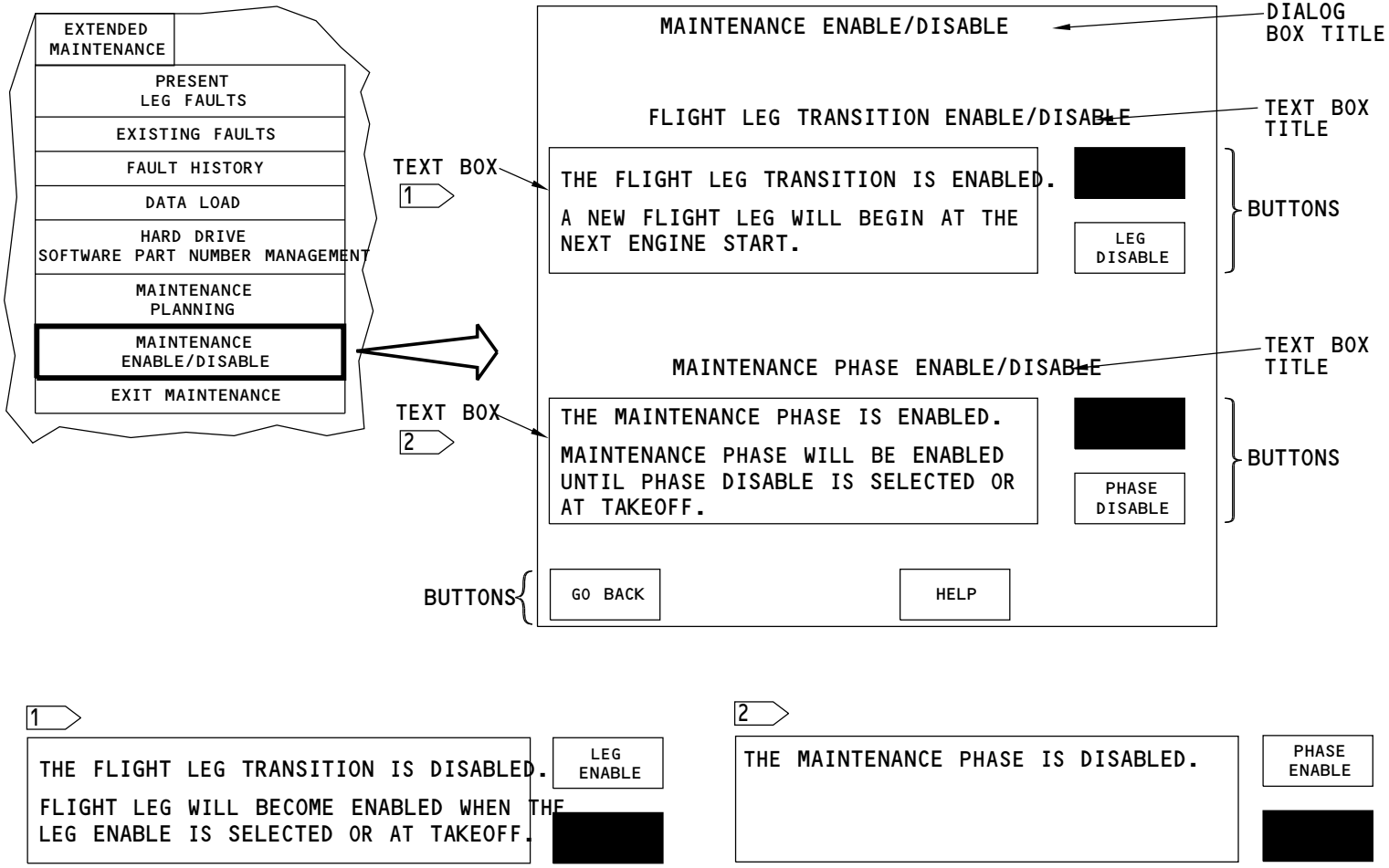
Select PHASE ENABLE to enable the maintenance phase. This selection is available only when the maintenance phase is disabled.

Select PHASE DISABLE to disable the maintenance phase. This selection is available only when the maintenance phase is enabled.

Two buttons show at the bottom of the dialog box.

Select GO BACK to remove the dialog box and return to the previous screen.

Select HELP to show the help dialog box for the maintenance enable/disable dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.



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CMCS - MAINTENANCE ENABLE/DISABLE DIALOG BOX

CMCS - INPUT MONITORING MAIN MENU DIALOG BOX

General

Input monitoring is a tool which specially trained personnel use to check signals to the AIMS cabinets. These signals are:

- 32 bit ARINC 429 word
- 16 bit or 32 bit ARINC 629 word
- Hard wired AIMS analog variable input
- Hard wired AIMS analog discrete input
- AIMS partition IMM signal of one, two, or four bytes.

The CMCF shows these two types of input monitoring displays on the MAT:

- General input displays
- Special input displays.

You use the general input displays to select and monitor up to eight input signals.

You use these special input displays to select four types of input monitoring displays:

- Analog discrete display
- Analog variable display
- ARINC 629 full word string display
- Input monitoring aliases display.

Input Monitoring Main Menu Dialog Box

The INPUT MONITORING MAIN MENU dialog box has:

- Dialog box title
- Exclusive selections
- Buttons.

Exclusive Selections

Use an exclusive selection and the CONTINUE command selection to monitor one of these signal types:

- General inputs
- Analog discretes
- Analog variables
- ARINC 629 full word strings.

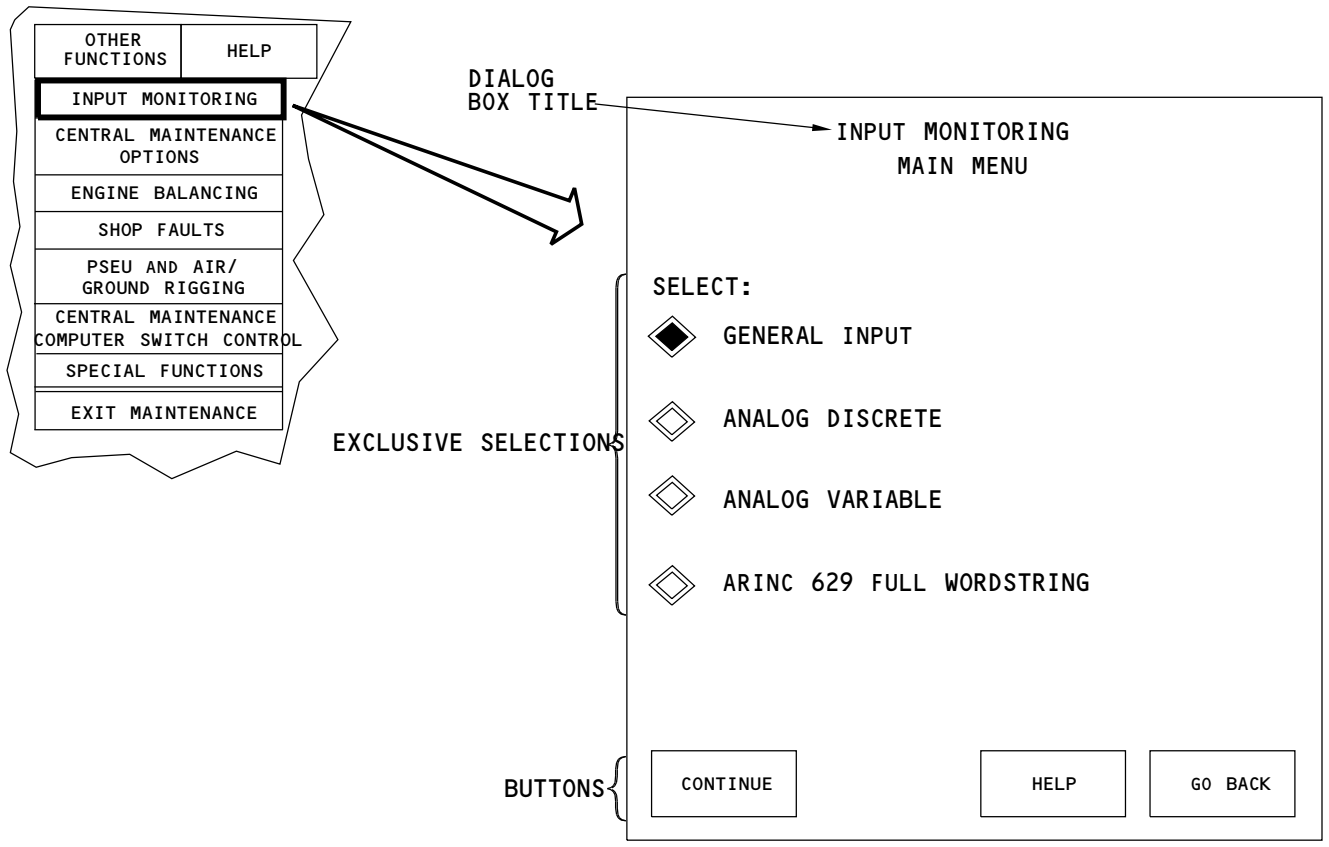
Buttons

The CONTINUE button becomes available when you make an exclusive selection.

Select CONTINUE to show the display for the exclusive selection.

Select GO BACK to remove the dialog box and return to the previous display.

Select HELP to show the help dialog box for the INPUT MONITORING MAIN MENU dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.



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CMCS - INPUT MONITORING MAIN MENU DIALOG BOX

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CMCS - INPUT MONITORING GENERAL INPUT PAGE

General

The input monitoring general input page lets the operator set and dynamically monitor up to eight signals.

Enter the parameters with the keyboard to monitor the signals.

The display has this data:

- Display title
- Input monitoring groups
- Scroll bar
- Buttons.

Input Monitoring Groups

The display has eight input monitoring groups. Each group is numbered and has this data:

- Sampling Field
- Header field
- Scale header field
- Sampling data field
- Direct entry field
- Sampling data field heading
- Buttons.

The sampling field shows the word SAMPLING when the CMCF receives a valid signal from an LRU/LRM. The word sampling field goes away when there is an invalid signal or no input.

The header field shows WORD NO and/or BIT NO. This helps to identify the information in the scale header field.

The scale header field shows the word range or bit range for the data in the sampling field. The characters in the header field line up to identify the characters in the sampling field.

The sampling data field has three rows of the most recent data available to the display. The newest data is on top. Older data in is the middle row. Oldest data is on the bottom row. The data updates at a 1 HZ rate.

Use the direct entry field to enter signal specifications with the keyboard.

The sampling data field is 20 characters long. It shows the signal name from the input monitoring alias table.

Each input monitoring group has two dedicated buttons.

The FREEZE button is a toggle with RUN. The display shows RUN first with the system in the freeze mode.

RUN is available for selection when there is a signal to monitor. Select RUN to start the data to update at a 1 HZ rate. The selection changes to FREEZE. FREEZE causes the CMCF to stop the update rate.

The SIGNALS button is not available for use at this time.

Select UNITS to show the input monitoring units dialog box. The UNITS command selection is not available for these:

- With no signal to monitor
- Analog variables
- Analog discretes.

Scroll Bar

The display cannot show all eight signals at once. The scroll bar gives access to the other groups. The scroll bar lets you scroll up or down one group at a time.

Buttons

RUN ALL is a toggle with FREEZE ALL. The display shows RUN ALL first with the system in the freeze mode.

RUN ALL is available for selection when there is a signal to monitor. Select RUN ALL to start the data in all input monitoring groups with a valid signal to update at a 1 HZ rate. The selection changes to FREEZE ALL. Select FREEZE ALL to stop the update rate.

CMCS - INPUT MONITORING GENERAL INPUT PAGE

If the selection shows RUN ALL and the user selects RUN on a group selection, the command selection changes to FREEZE ALL.

Text Entry Operation

To enter text directly from the keyboard, put the cursor over the direct entry field. The cursor changes to the text entry I-beam cursor. Use the keyboard to enter the signal specification and select RUN. Each signal specification is made up of several elements separated by the slash (/) symbol. These are the types of signals you can monitor by typing in signal specifications:

- ARINC 429
- ARINC 629
- Analog variable or discrete
- AIMS inter-module memory (IMM).

ARINC 429 Monitoring

The ARINC 429 signal specification has these elements:

- Input destination
- Bus type
- Bus identification (ID)
- Label
- Source destination identification (SDI).

This is an example of a valid ARINC 429 signal specification:

- L/429/052/351/00

In this example, these are the elements of the ARINC 429 signal specification:

- "L" is the input destination
- "429" is the bus type
- "052" is the bus ID
- "351" is the label
- "00" is the DSI.

The input destination element identifies the AIMS cabinet as the destination of the signal. Use "L" for the left AIMS cabinet and "R" for the right AIMS cabinet.

The bus type element identifies this as an ARINC 429 signal specification. Use "429" to identify this signal specification as ARINC 429.

The bus ID element is a three character hexadecimal number that identifies the ARINC 429 input bus to AIMS. It is not necessary to enter leading zeros. The bus IDs are listed in the CMCF help screens and in chapter 31 of the systems schematic manual (SSM).

The label element is a three character octal number that identifies the ARINC 429 signal. It is not necessary to enter leading zeros.

The SDI is a two character binary number that describes the signal source and destination identification. The binary numbers identify left, right, or center. Enter "XX" for if you do not care.

ARINC 629 Monitoring

The ARINC 629 signal specification has these elements:

- Input destination
- Bus type
- Bus ID
- Label
- Channel ID
- Word range
- Validity word and bit.

This is an example of a valid ARINC 629 signal specification:

- L/629/SYS C1/321/2/120-121/121-12

In this example, these are the elements of the ARINC 629 signal specification:

- "L" is the input destination
- "629" is the bus type

CMCS - INPUT MONITORING GENERAL INPUT PAGE

- "SYS C1" is the bus ID
- "321" is the label
- "2" is the channel ID (CID)
- "120-121" is the word range
- "121-12" is the validity word and bit.

The input destination element identifies the AIMS cabinet as the destination of the signal. Use "L" for the left AIMS cabinet and "R" for the right AIMS cabinet.

The bus type element identifies this as an ARINC 629 signal specification. Use "629" to identify this signal specification as ARINC 629.

The bus identification element identifies which of the eleven ARINC 629 buses to monitor. These are the valid bus identification elements:

- "SYS L" (left systems bus)
- "SYS C1" (center 1 systems bus)
- "SYS C2" (center 2 systems bus)
- "SYS R" (right systems bus)
- "FC L" (left flight controls bus)
- "FC C" (center flight controls bus)
- "FC R" (right flight controls bus)
- "ICB 1" (AIMS intercabinet bus 1)
- "ICB 2" (AIMS intercabinet bus 2)
- "ICB 3" (AIMS intercabinet bus 3)
- "ICB 4" (AIMS intercabinet bus 4).

The label element is a three character hexadecimal number that identifies the ARINC 629 signal. It is not necessary to enter leading zeros.

The CID element is a one character hexadecimal number that describes the signal source and destination identification. Enter "X" or "N" if you do not care.

The word range element is a two word digital range of words to monitor the input data. It is not necessary to enter leading zeros. Separate each word with the dash (-) symbol.

The validity word and bit element identifies the specific bit within the ARINC 620 word that has the validity state of the ARINC 629 word string. Separate the validity word and bit with the dash "-" symbol.

Analog variable or discrete Monitoring

The analog variable or discrete signal specification has these elements:

- Input destination
- Bus type
- Boeing connector number
- Boeing connector pin.

This is an example of a valid analog variable or discrete signal specification:

- L/DIS/D6626/32

In this example, these are the elements of the analog variable or discrete signal specification:

- "L" is the input destination
- "DIS" is the bus type
- "D6626" is the Boeing connector number
- "32" is the Boeing connector pin.

The input destination element identifies the AIMS cabinet as the destination of the signal. Use "L" for the left AIMS cabinet and "R" for the right AIMS cabinet.

The bus type element identifies this as an analog variable or discrete signal specification. Use "VAR" to identify the signal specification as an analog variable. Use "DIS" to identify the signal as an analog discrete.

CMCS - INPUT MONITORING GENERAL INPUT PAGE

The Boeing connector number element is a ten alpha/numeric character number that identifies the input connector. It is not necessary to enter leading zeros. Chapter 31 of the systems schematic manual (SSM) identifies the valid Boeing connector numbers for AIMS.

The Boeing connector pin element is a four character number that identifies the pin number on the input connector to AIMS. Chapter 31 of the systems schematic manual (SSM) identifies the valid Boeing connector pin numbers for AIMS.

AIMS IMM Monitoring

The AIMS IMM signal specification has these elements:

- Input destination
- Bus type
- Partition name
- Partition address
- Byte selection

This is an example of a valid AIMS IMM signal specification:

- L/IMM/Bite gg1/94005a0/4

In this example, these are the elements of the AIMS IMM signal specification:

- "L" is the input destination
- "IMM" is the bus type
- "Bite gg1" is the AIMS partition name
- "940005a0 is the AIMS partition address
- "4" is the byte selection.

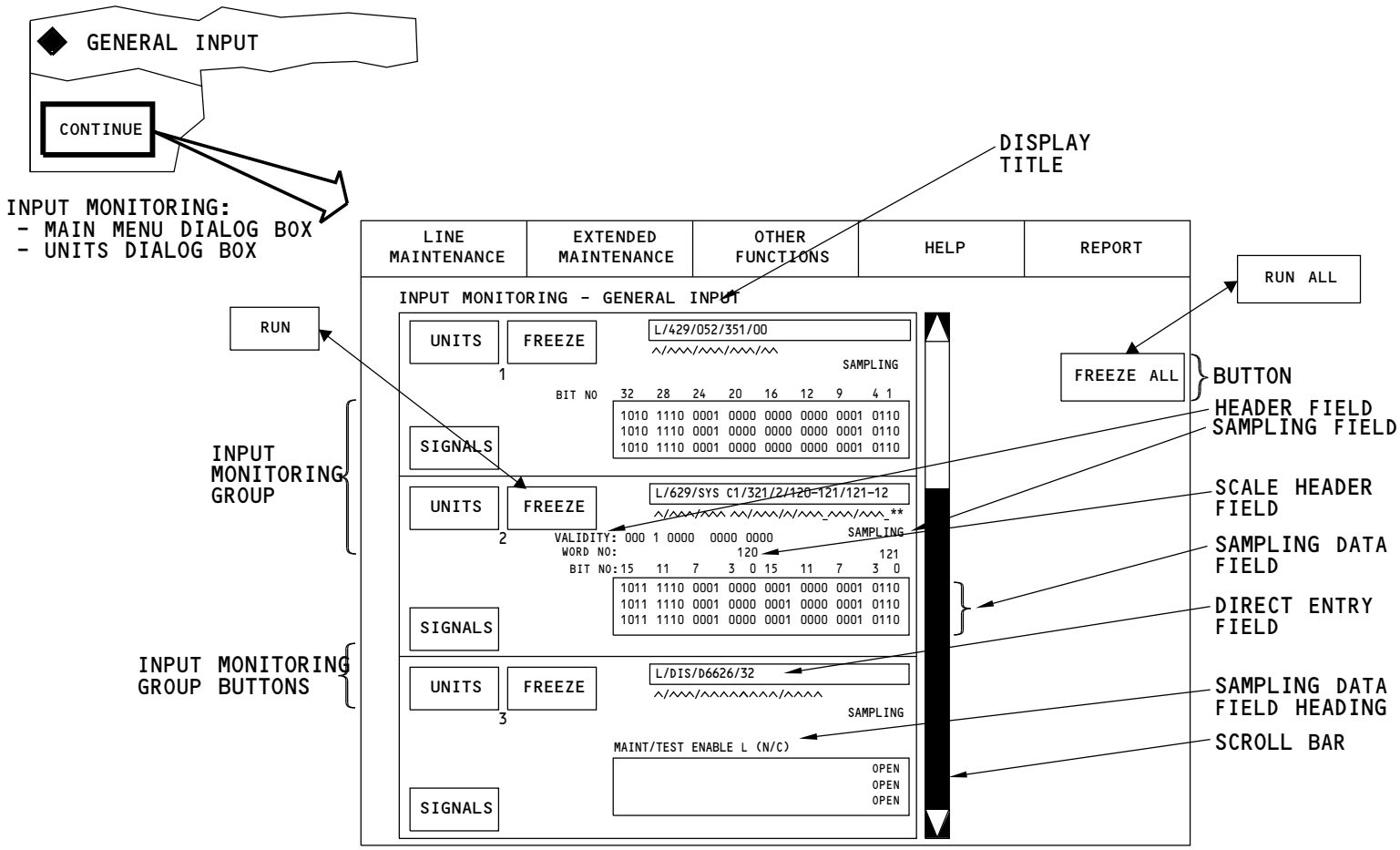
The input destination element identifies the AIMS cabinet as the destination of the signal. Use "L" for the left AIMS cabinet and "R" for the right AIMS cabinet.

The bus type element identifies this as an AIMS IMM signal specification. Use "IMM" to identify this signal specification as AIMS IMM.

The AIMS partition name element is an alphanumeric name that identifies the AIMS partition.

The AIMS partition address element is an eight character hexadecimal number that identifies the partition address. It is not necessary to enter leading zeros.

The byte selection element is the number of bytes of the partition address to monitor. Use 1, 2, or 4.



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CMCS - INPUT MONITORING GENERAL INPUT PAGE

CMCS - INPUT MONITORING UNITS DIALOG BOX

General

The input monitoring units dialog box lets you monitor a signal in a unit other than the default unit. The default unit for ARINC 429, ARINC 629, and AIMS IMM is binary.

Analog variables are only in engineering units.

Analog discretes show as open or ground.

The dialog box has:

- Title
- Exclusive selections
- List box
- Buttons.

Exclusive Selections

These are the seven exclusive selections:

- Decimal
- Floating point
- Engineering
- Hexadecimal
- ISO #5
- Binary
- Engineering Through Aliases.

The chart shows which selections are available for each signal type.

Select Engineering to permit the entry of data in the text field next to Engineering. The data field has a ten character signal data range field, followed by a two character significant bit field, and then an eight character unit field.

Aliases List Box

The aliases list box is always available for selection. The aliases list box shows all engineering conversions in memory.The engineering conversions are defined in the CPM/COMM operational program software (OPS).

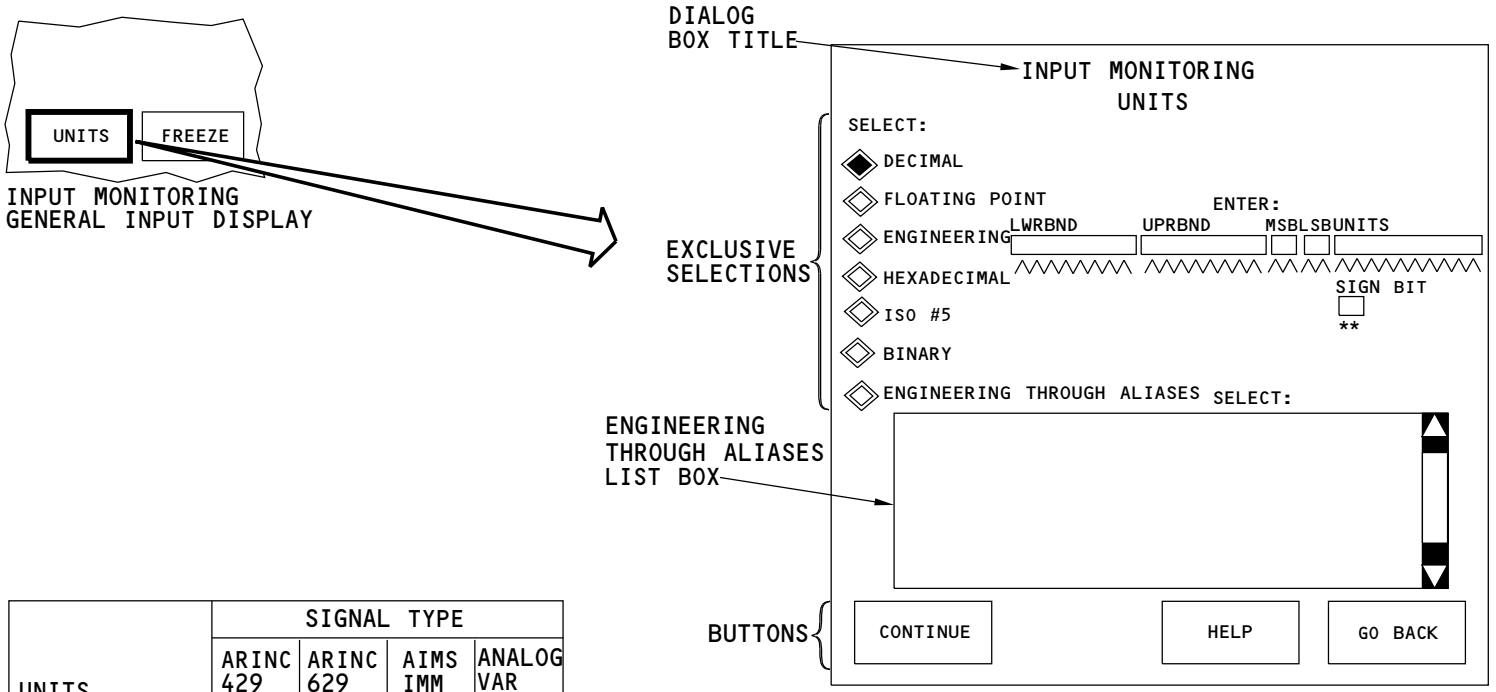
When you select an item in the list box, the Engineering Through Aliases exclusive selection highlights.

Buttons

When you select an exclusive selection, the CONTINUE button becomes available. Select CONTINUE to return to the input monitoring general purpose page. If you select CONTINUE when an invalid entry exists in the text fields, the invalid entry dialog box shows.

Select GO BACK to remove the dialog box and return to the previous display.

Select HELP to show the help dialog box for the input monitoring units dialog box. Help must exist in the CMCF AMI for HELP to show.



UNITS	SIGNAL TYPE			
	ARINC 429	ARINC 629	AIMS IMM	ANALOG VAR
DECIMAL			X	
FLOATING POINT			X	
ENGINEERING	X	X	X	X 1
HEXADECIMAL	X	X	X	
ISO #5		X		
BINARY	X 1	X 1	X 1	

1 DEFAULT FORMAT

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CMCS - INPUT MONITORING UNITS DIALOG BOX

CMCS - INPUT MONITORING ANALOG DISCRETE DISPLAY

General

The INPUT MONITORING ANALOG DISCRETE display shows predefined information about the analog discrete inputs to the AIMS cabinets. You can dynamically monitor these discretes.

The display has this information:

- A title
- List box
- Text entry field
- Buttons.

List Box

The list box has six columns of data. Each column has a heading. Use the scroll bar to show more pages.

These are the column headings:

- TABLE INDEX
- CABINET SELECTION
- SIGNAL NAME
- BOEING CONNECTOR NAME
- BOEING CONNECTOR PIN
- STATE.

TABLE INDEX shows up to four numbers for each analog discrete name.

CABINET SELECTION shows L or R for the AIMS cabinet selection.

SIGNAL NAME shows up to 25 characters for each signal.

BOEING CONNECTOR NAME is eight characters long.

BOEING CONNECTOR PIN is four characters long.

STATE shows up to 12 characters. Open shows for a true state. Ground shows for a false state. Not Sampling can also show

Text Entry Field

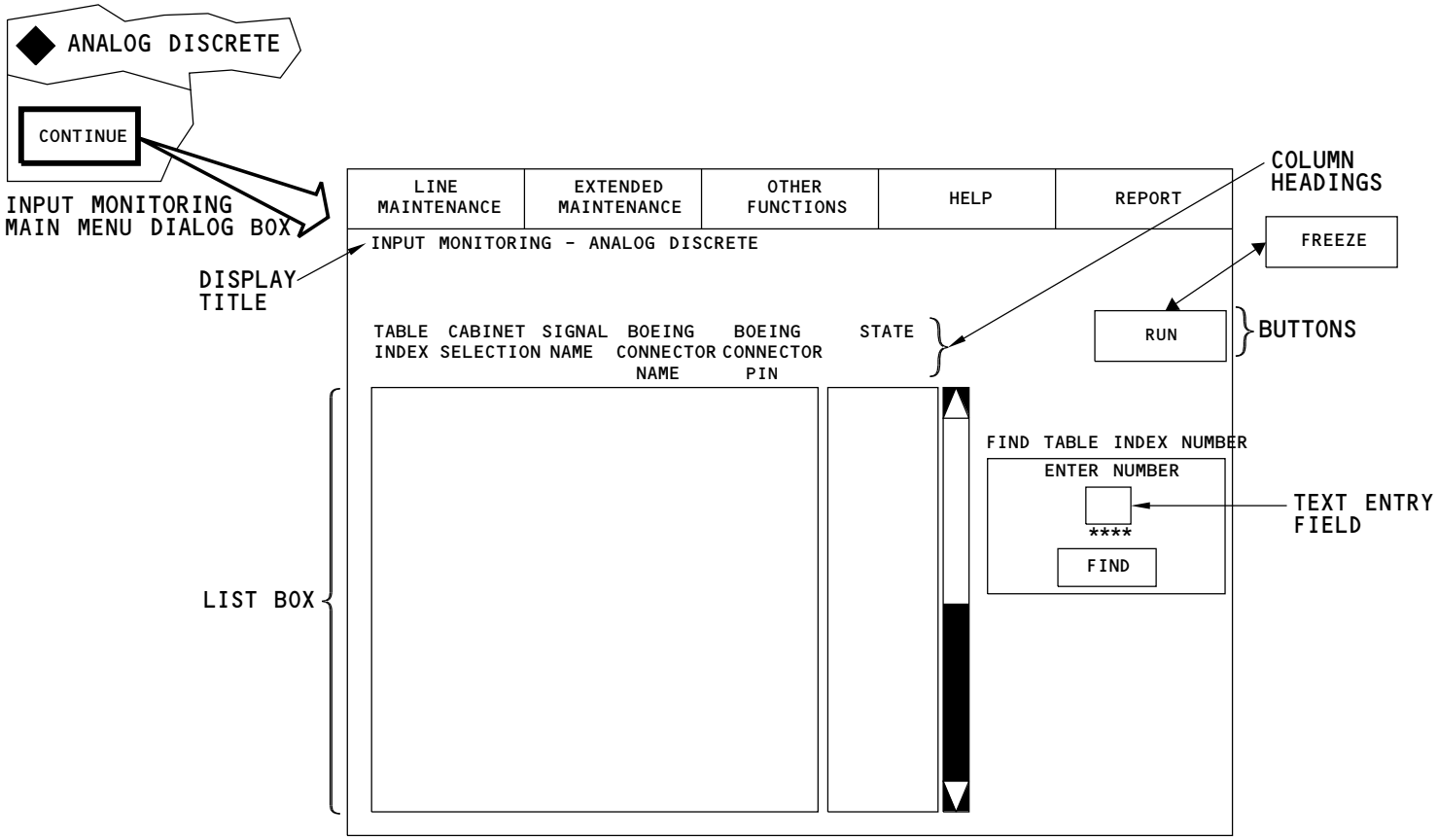
The FIND TABLE INDEX NUMBER field has a text entry field and the FIND command selection. The text field and the button lets you find a specific analog discrete signal.

You enter up to four optional characters with the MAT keyboard into the ENTER NUMBER field. The characters must be integers. Leading zeros are not required.

Buttons

When you make a valid text entry, the FIND button becomes available for selection . The CMCF selects the signal, causes it to show at the top of the page, and highlights it.

The RUN button is a toggle with FREEZE. Select RUN to cause the CMCF to show the value of all of the signals on the display. Select FREEZE to cause the CMCF to go to the freeze mode.



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CMCS - INPUT MONITORING ANALOG DISCRETE DISPLAY

CMCS - INPUT MONITORING ANALOG VARIABLE DISPLAY

General

The INPUT MONITORING ANALOG VARIABLE display shows predefined information about the analog variable inputs to the AIMS cabinets. You can dynamically monitor the variables.

The display has:

- A title
- List box
- Text entry field
- Buttons.

List Box

The list box has six columns of data. Each column has a heading. Use the scroll bar to show more pages.

These are the column headings:

- TABLE INDEX
- CABINET SELECTION
- SIGNAL NAME
- BOEING CONNECTOR NAME
- BOEING CONNECTOR PIN
- VALUE.

TABLE INDEX gives and shows up to four numbers for each analog variable name.

CABINET SELECTION shows L or R for the AIMS cabinet selection.

SIGNAL NAME shows up to 25 characters for each signal.

BOEING CONNECTOR NAME is eight characters long.

BOEING CONNECTOR PIN is four characters long.

VALUE shows 20 characters. The field shows:

- Input raw data
- Input raw data unit
- Converted data
- Unit associated with the converted data.

The input data is an analog signal. The converted data is in engineering units. An example would show an input of 5v dc converted to 10 U.S. quarts.

Text Entry Field

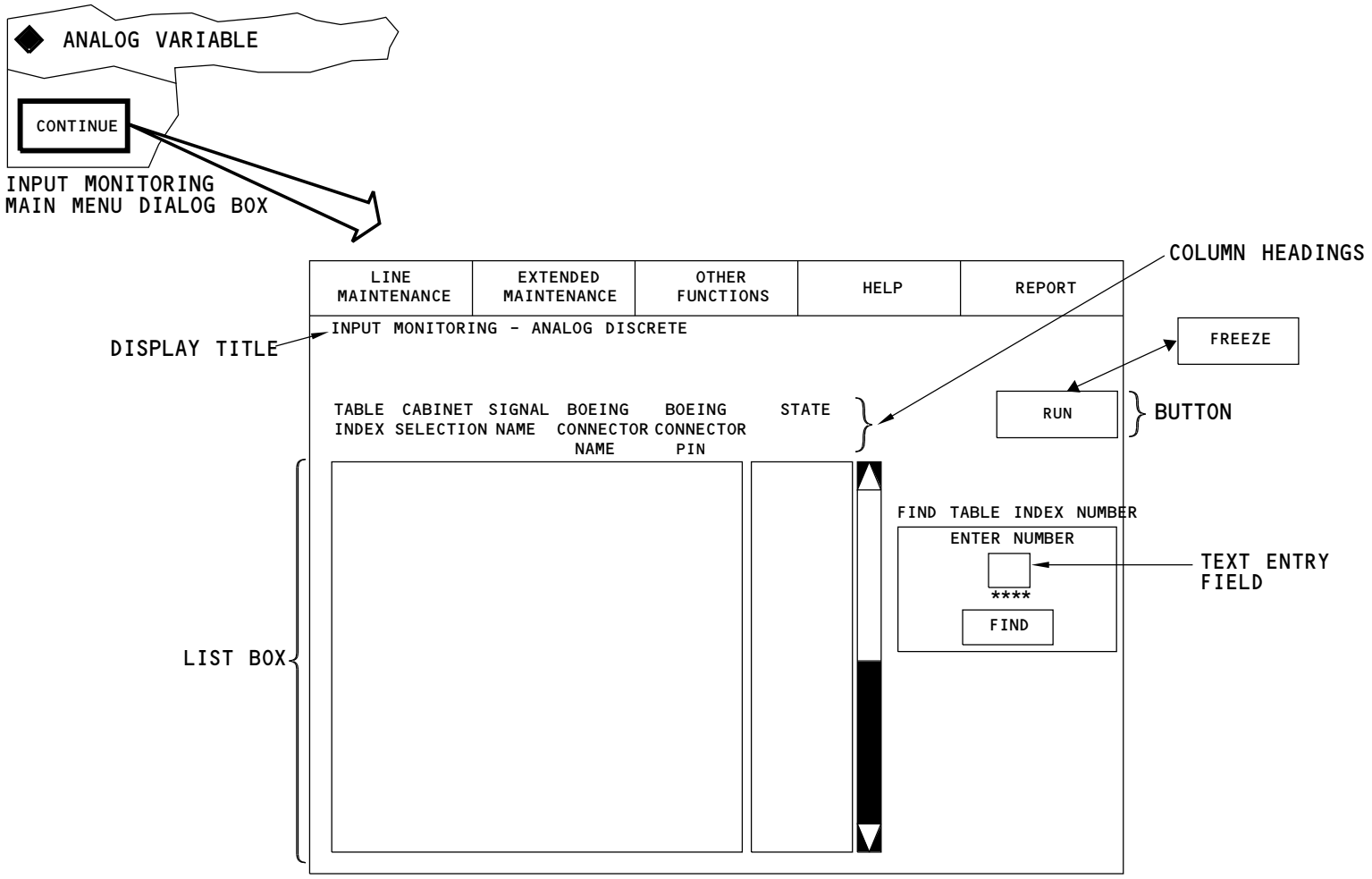
The find table index number field has a text entry field and the FIND button. Use the text field and the command selection to find a specific analog variable signal.

Enter up to four optional characters into the ENTER NUMBER field. The characters must be integers. Leading zeros are not required.

Buttons

The FIND button becomes available for selection when a valid text entry is made. The CMCF selects the signal, shows it at the top of the page, and highlights it.

The RUN button is a toggle with FREEZE. Select RUN to cause the CMCF to run all of the signals on the display. Select FREEZE to cause the CMCF to go to the freeze mode.



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CMCS - INPUT MONITORING ANALOG VARIABLE DISPLAY

EFFECTIVITY

ARO ALL

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CMCS - INPUT MONITORING ARINC 629 FULL WORD STRING DISPLAY

General

The input monitoring ARINC 629 full word string display lets the user select and show the full word string (up to 256 words) of any available ARINC 629 input label at a 1 HZ rate.

The real time update is available to a single MAT display only.

Display Characteristics

The input monitoring full word string display has:

- A display title
- Full word string field
- Buttons.

Full Word String Field

The full word string field has:

- Direct entry field
- Sampling field
- Header field
- Scale header field
- Sampling data field
- Sampling data field heading.

Use the direct entry field to enter signal parameters with the keyboard. Refer to the CMCS - Input Monitoring General Input Page section for a detailed description of the ARINC 629 signal parameters.

The sampling field shows the word Sampling when the CMCF receives a valid signal from an LRU/LRM. The word Sampling goes away for an invalid signal or for no input.

The header field shows WORD NO and/or BIT NO to help identify the information in the scale header field.

The scale header field shows the 629 word counts and/or bit counts for the data in the sampling field. The characters in the header field line up to identify the characters in the sampling field.

The sampling data field has the most recent data available to the display. The example display that follows shows the sampling data in hexidecimal units.

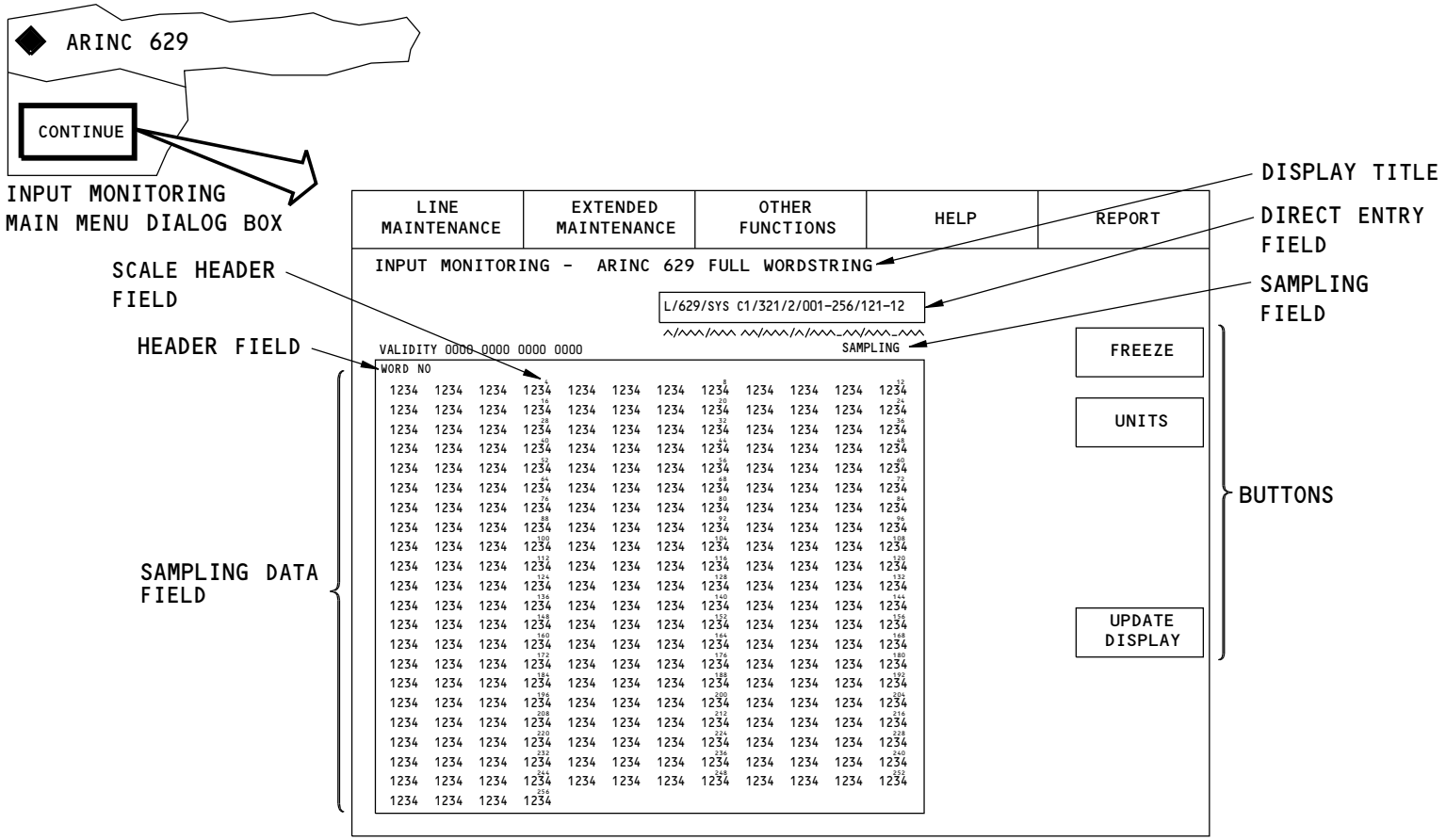
Buttons

The FREEZE button is a toggle with RUN. The display shows RUN first with the system in the freeze mode.

RUN is available when there is a signal to monitor. Select RUN to start the data to update at a 1 HZ rate. The selection toggles to FREEZE. FREEZE causes the CMCF to stop the update.

Select UNITS to show the INPUT MONITORING UNITS dialog box.

Select UPDATE DISPLAY to update the word string one time only. This selection is available with a valid ARINC 629 entry. This selection is not available when FREEZE shows. The word string is sampling at this time.



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CMCS - INPUT MONITORING ARINC 629 FULL WORD STRING DISPLAY

EFFECTIVITY

ARO ALL

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CMCS - INPUT MONITORING INVALID ENTRY DIALOG BOX

General

The input monitoring INVALID ENTRY dialog box shows when you select the CONTINUE button after an invalid signal entry.

The dialog box includes a message and two buttons.

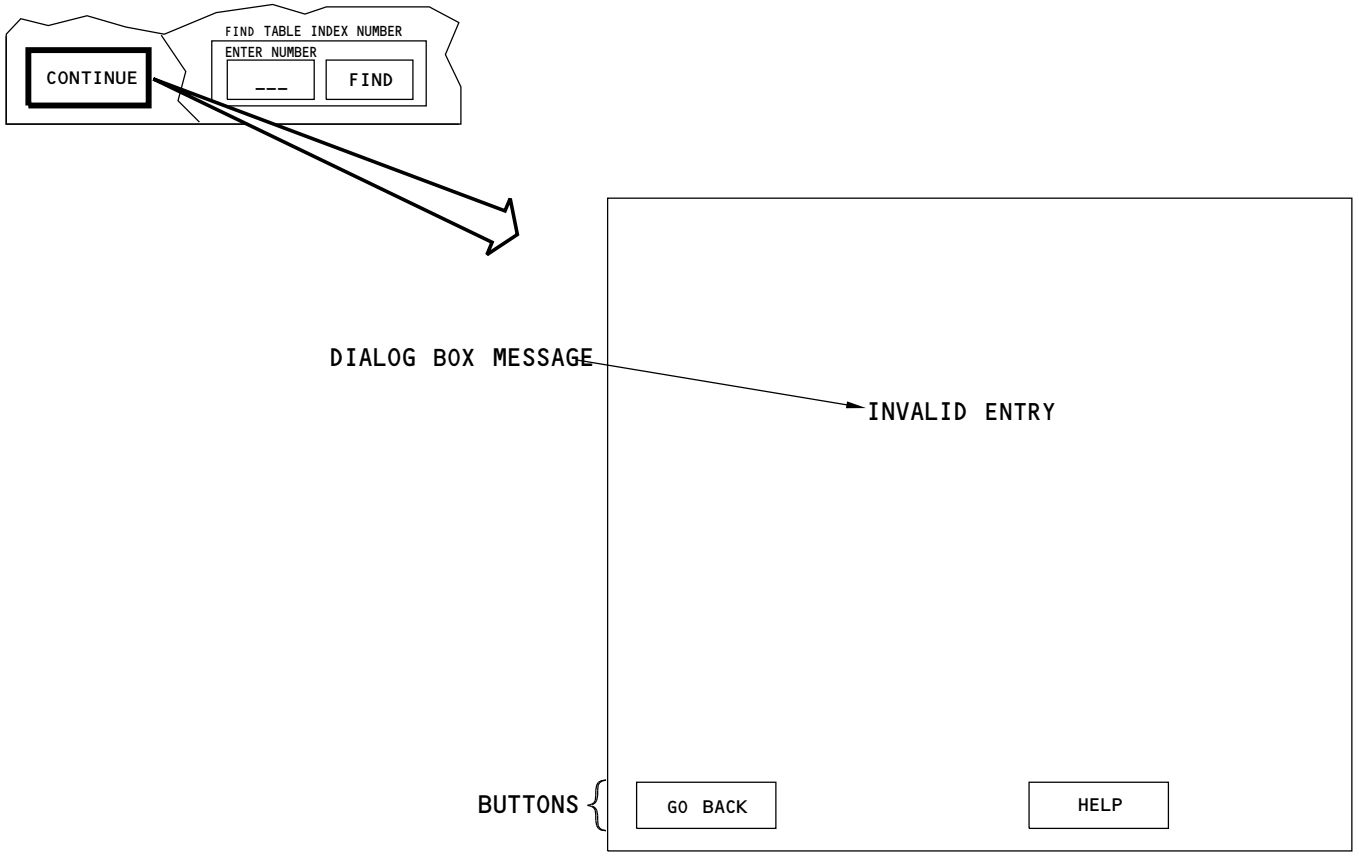
Dialog Box Message

The message is INVALID ENTRY.

Buttons

Select GO BACK to remove the dialog box and return to the previous display.

Select HELP to show the help dialog box for the input monitoring INVALID ENTRY dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.



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CMCS - INPUT MONITORING INVALID ENTRY DIALOG BOX

CMCS - CMCF OPTIONS DIALOG BOX

General

Use the CMCF options dialog box to select CMCF options. The dialog box shows the list of nonexclusive options.

The dialog box also shows the hexadecimal code for the CMCF operational program configuration (OPC) options and the hexadecimal code for the airline modifiable information (AMI).

The OPC options define functional requirements for the CMCF.

The AMI is a file that the airlines create on the ground based software tool (GBST) and load into the CMCF.

The dialog box has this information:

- A title
- CMCF options list box
- OPC and AMI list box
- Buttons.

CMCF Options List Box

The options list box shows up to 50 options. You can select or deselect any combination of the options to meet specific requirements.

The list box has a scroll bar and a text field that shows the number of options in the list.

There is one central maintenance option:

- Store all FDE's between Takeoff and Rollout.

Select Store all FDE's between Takeoff and Rollout to store all correlated and non-correlated flight deck effects that occur between the takeoff roll and rollout flight phases.

OPC and AMI List Box

The OPC and AMI list box shows the hexadecimal code for the options in each category.

There are up to 64 OPC configuration options.

There are up to 50 AMI configuration options.

Convert the hexadecimal code to binary. A (1) shows when the option is enabled. A (0) shows when the option is disabled.

Buttons

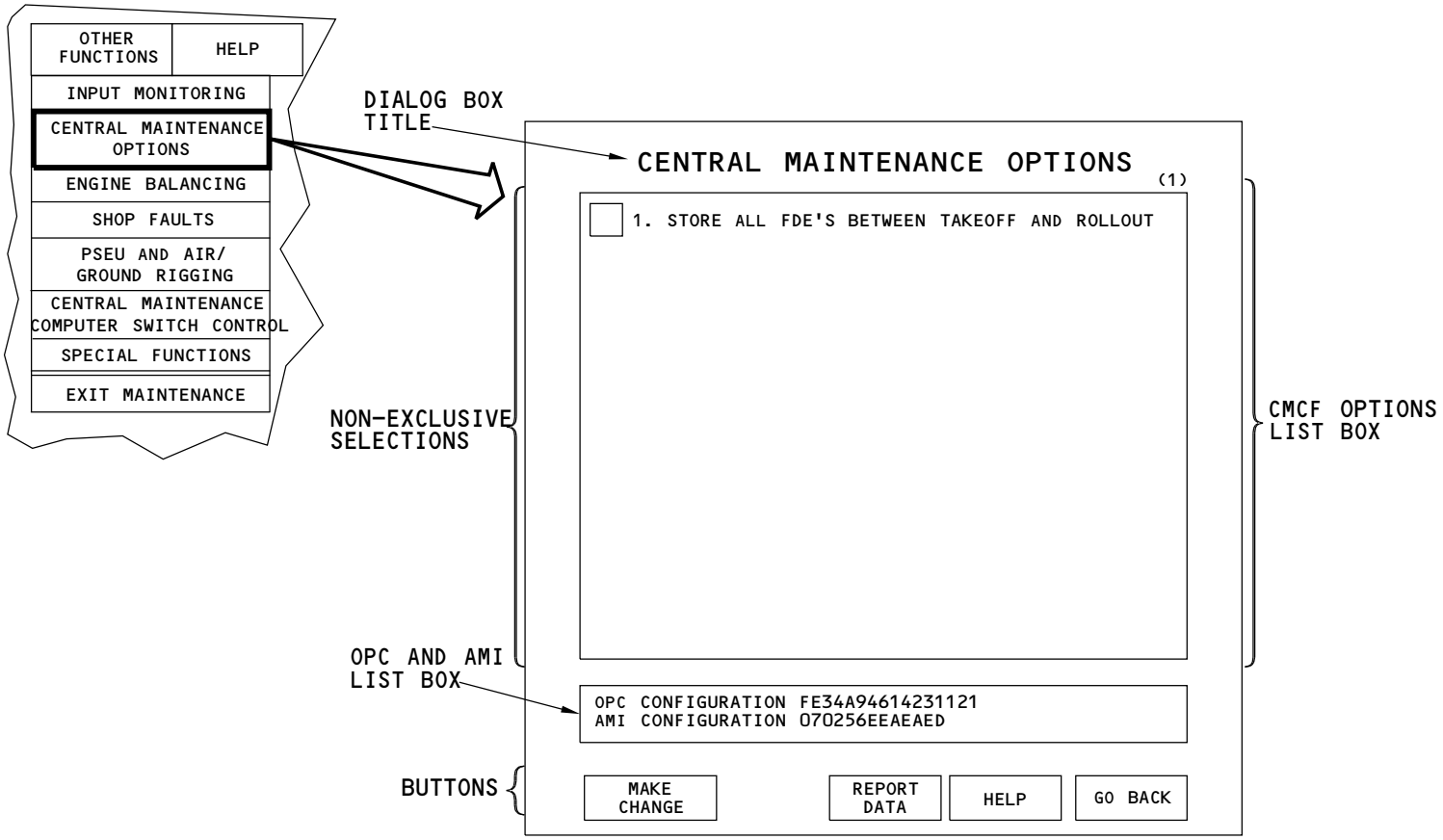
When you select MAKE CHANGE, the CMCF does this:

- Accepts the option change
- Closes the dialog box
- Sends the new option data to the offside CMCF.

Select HELP to show the help dialog box for the central maintenance options dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select REPORT DATA to show the report dialog box.

Select GO BACK to remove the dialog box and return to the previous display.



M36019 S000620681_V1

CMCS - CMCF OPTIONS DIALOG BOX

CMCS - ENGINE BALANCING SYSTEM MAIN MENU DIALOG BOX

General

The CMCF, with the left and right airborne vibration monitor unit (AVMU), supplies an onboard engine balancing system (OEBS). The AVMUs supply the data for the OEBS displays that show on the MAT.

The OEBS MAIN MENU dialog box shows:

- Two groups of two exclusive selections
- Buttons.

The first group of exclusive selections shows:

- ENGINE 1
- ENGINE 2.

The second group of exclusive selections shows these:

- PERFORM BALANCE
- CALCULATE SPECIFIC BALANCE COEFFICIENTS/GROUND RUN.

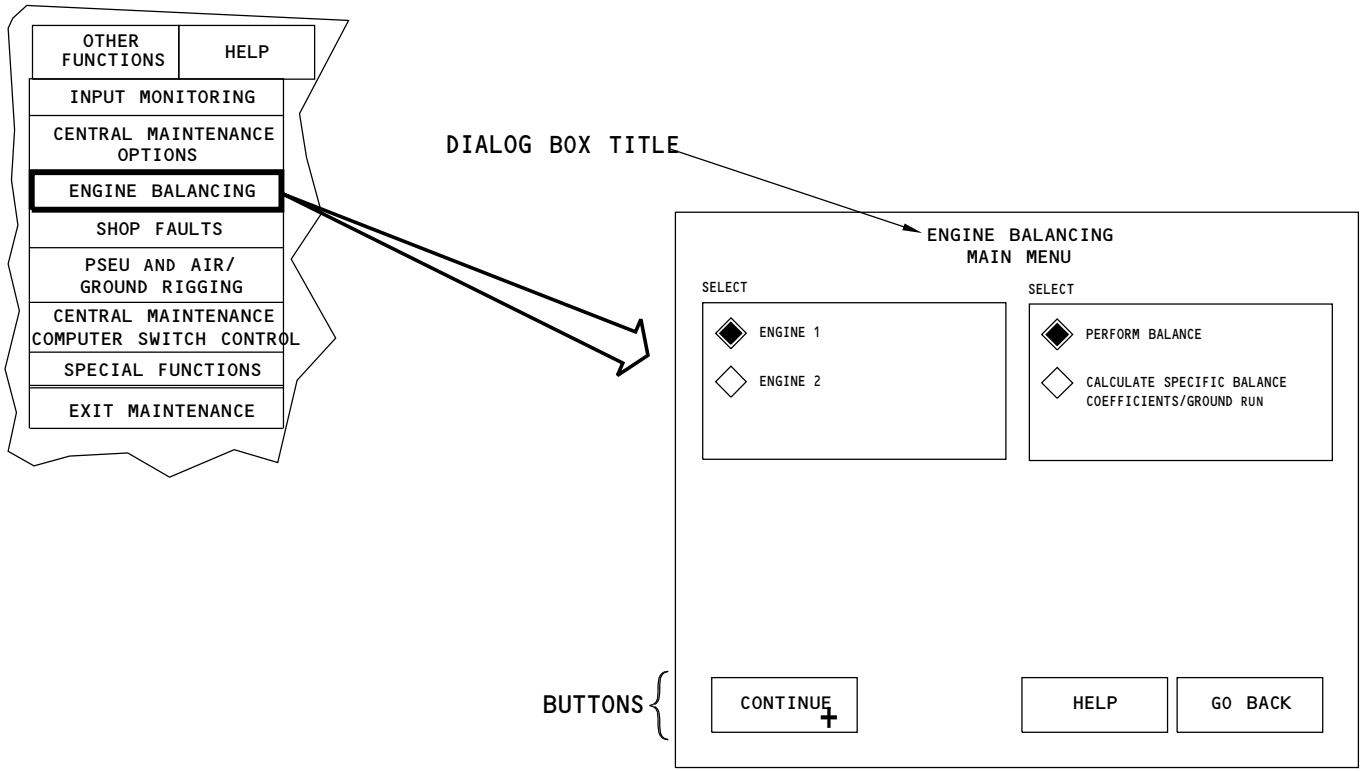
Buttons

Select CONTINUE after you select PERFORM BALANCE (either engine) to show the engine balancing/perform balance/existing balance weights display.

Select CONTINUE after you select calculate specific balance coefficients/ground run and either engine to show the engine balancing/calculate coefficients/n1 vibration flight history display.

Select HELP to show the help dialog box for the OEBS main menu dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the OEBS main menu dialog box.



M36021 S000620683_V2

I

CMCS - ENGINE BALANCING SYSTEM MAIN MENU DIALOG BOX

CMCS - ENGINE BALANCING/PERFORM BALANCE/EXISTING BALANCE WEIGHTS DISPLAY

General

The engine balancing/perform balance/existing balance weights display shows fan and low pressure turbine (LPT) balance weights information. Use the display to change this information.

This display shows this information:

- Display title
- Configuration text fields
- Dialog text field
- fan text entry field
- LPT text entry field
- Buttons.

Selection of any data or blank text field in the fan text entry field or the LPT text entry field causes the engine balancing/edit weight data dialog box to show.

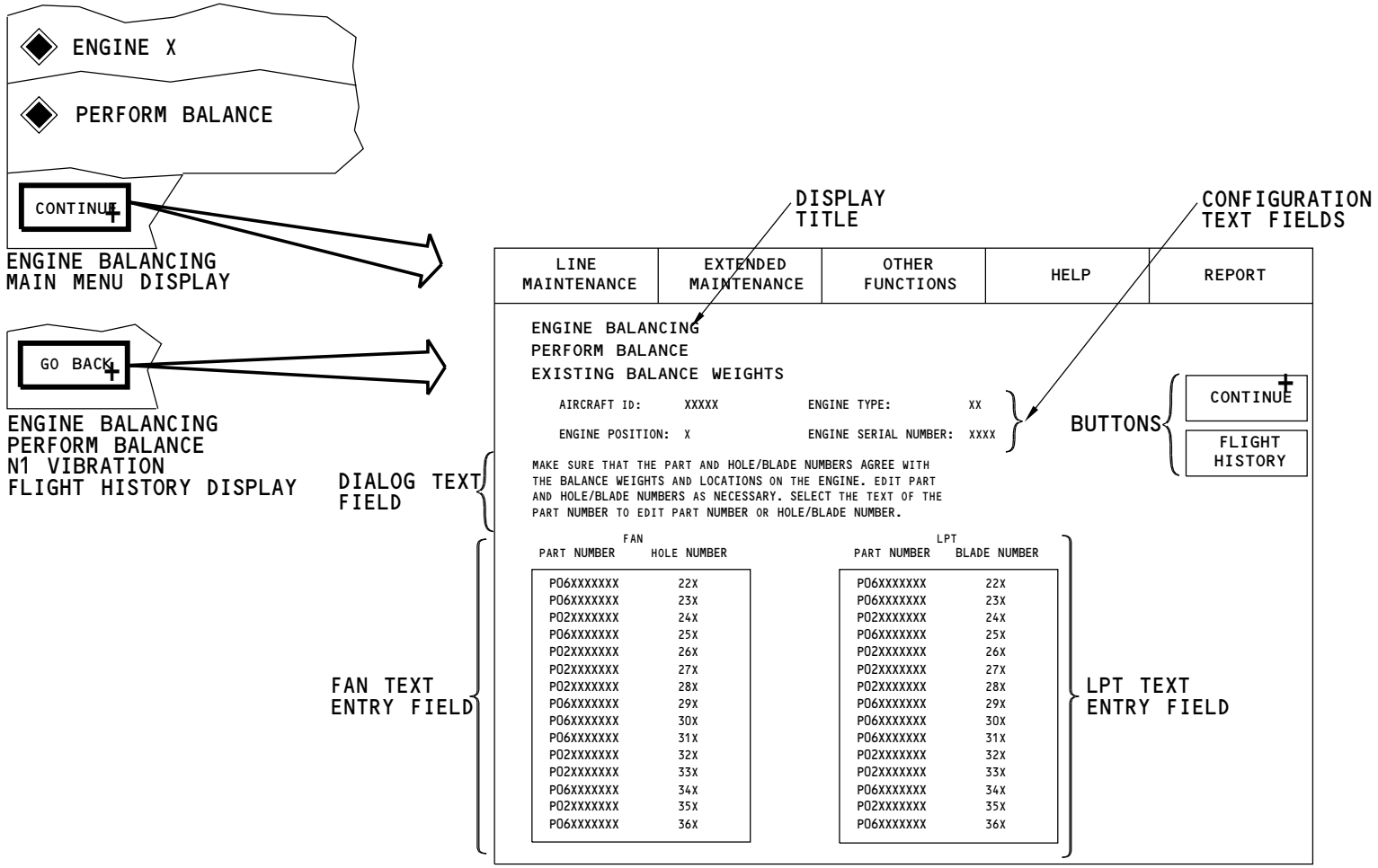
The existing balance weights data is a list of up to 15 weight part numbers and weight location numbers for the fan, and 15 weight part numbers and weight location numbers for the LPT, that are currently on the engine.

Buttons

Select CONTINUE to send the fan and LPT changes to the selected AVM. The engine balancing/calculation condition dialog box shows next.

Select FLIGHT HISTORY to do these functions:

- Request the data for both the perform balance N1 and the perform balance N2 vibration flight history displays from the selected AVMU.
- Show the engine balancing/perform balance/N1 vibration flight history display.



M36023 S000620685_V1

CMCS - ENGINE BALANCING/PERFORM BALANCE/EXISTING BALANCE WEIGHTS DISPLAY

CMCS - ENGINE BALANCING/EDIT WEIGHT DATA DIALOG BOX

General

Change the fan and LPT weights part numbers on the engine balancing/edit weight data dialog box. Also change the hole number where the weights are on the fan and the blade number where the weights are on the LPT on the engine balancing/edit weight data dialog box.

The engine balancing/edit weight data dialog box shows:

- Fan weight part numbers
- LPT weight part numbers
- Fan hole numbers
- LPT blade numbers
- Three exclusive selections
- Command selections.

The part number and hole/blade number text box entry fields get data from the existing balance weights displays and the keep balance weights displays.

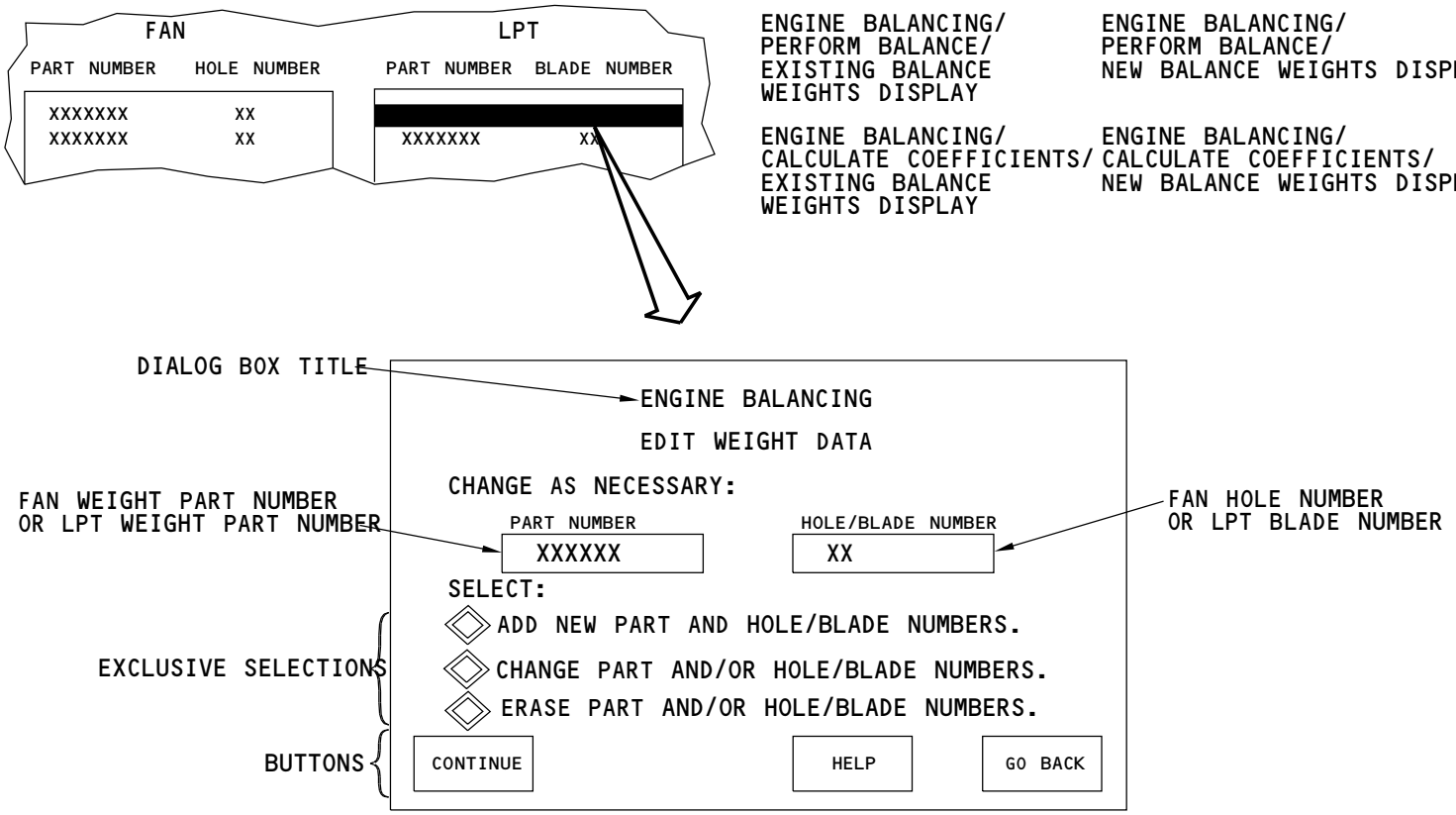
Buttons

Select one of the three exclusive selections then select CONTINUE.

- With the add new part and hole/blade Numbers exclusive selection selected, the data in the text box entry field adds to the LPT or fan text entry field on the existing balance weights display or the keep balance weights display
- With the change part and/or hole/blade numbers exclusive selection selected, the data in the text box entry field replaces the selected data in the LPT or fan text entry field on the existing balance weights display or the keep balance weights display
- With the erase part and/or hole/blade Numbers exclusive selection selected, the data in the text box entry field removes from the LPT or fan text entry field on the existing balance weights display or the keep balance weights display.
- To remove the engine balancing/edit weight data dialog box.

Select HELP to show the help dialog box for the engine balancing/edit weight data dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the engine balancing/edit weight data dialog box.



M36024 S000620686_V1

CMCS - ENGINE BALANCING/EDIT WEIGHT DATA DIALOG BOX

CMCS - ENGINE BALANCING/PERFORM BALANCE/N1 VIBRATION FLIGHT HISTORY DISPLAY

General

The engine balancing/perform balance/N1 vibration flight history display shows N1 vibration data and phase angle data for six flight legs at different N1 percent values. The display also shows an average N1 vibration and an average phase angle for the six flight legs at different N1 percent values.

The N1 vibration history data is the vibration level and phase angle of the N1 shaft, at 6 specified engine speeds, measured by the engine accelerometers, for up to 6 flight legs and an average of the 6 flight legs, as recorded in the airborne vibration monitor signal conditioner unit.

This display shows this information:

- A display title
- Configuration text fields
- Dialog text field
- Text box field
- Exclusive selections
- Buttons.

These are the seven exclusive selections on the engine balancing/perform balance/N1 vibration flight history display:

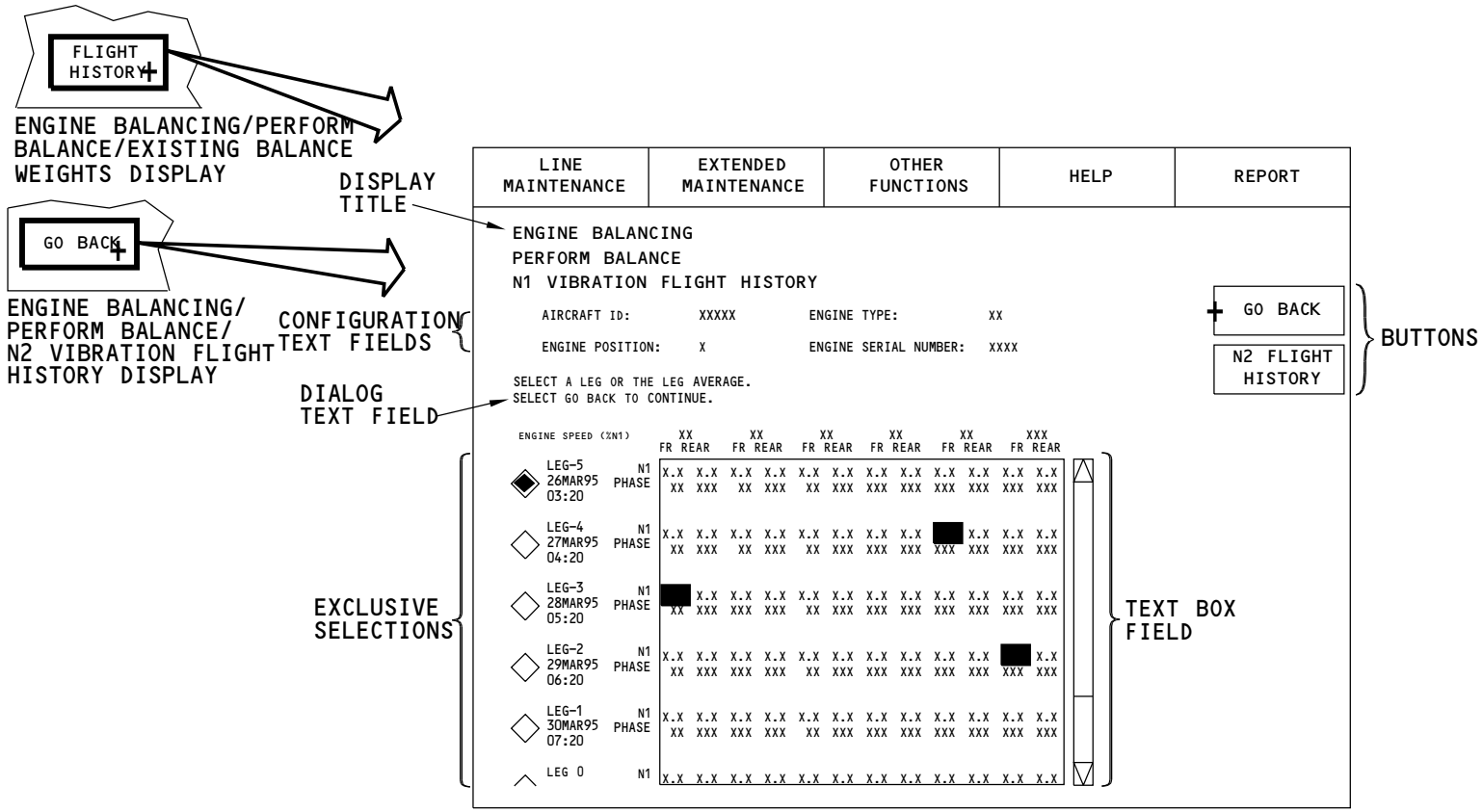
- LEG-5
- LEG-4
- LEG-3
- LEG-2
- LEG-1
- LEG-0
- LEG AVERAGE.

Data in the text box field highlights if the AVMU finds that the data is out of range.

Buttons

Select GO BACK to show the engine balancing/perform balance/existing balance weights display.

Select N2 FLIGHT HISTORY to show the engine balancing/perform balance/N2 vibration flight history display.



M36482 S000620688_V1

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CMCS - ENGINE BALANCING/PERFORM BALANCE/N1 VIBRATION FLIGHT HISTORY DISPLAY

CMCS - ENGINE BALANCING/PERFORM BALANCE/N2 VIBRATION FLIGHT HISTORY DISPLAY

General

The engine balancing/perform balance/N2 vibration flight history display shows N2 vibration data for six flight legs at different N1 values. The display also shows an average N2 vibration for the six flight legs at different N1 values.

The N2 vibration history data is the vibration level of the N2 shafts at 6 specified engine speeds, measured by the engine accelerometers, for up to 6 flight legs and an average of the 6 flight legs, as recorded in the airborne vibration monitor signal conditioner unit.

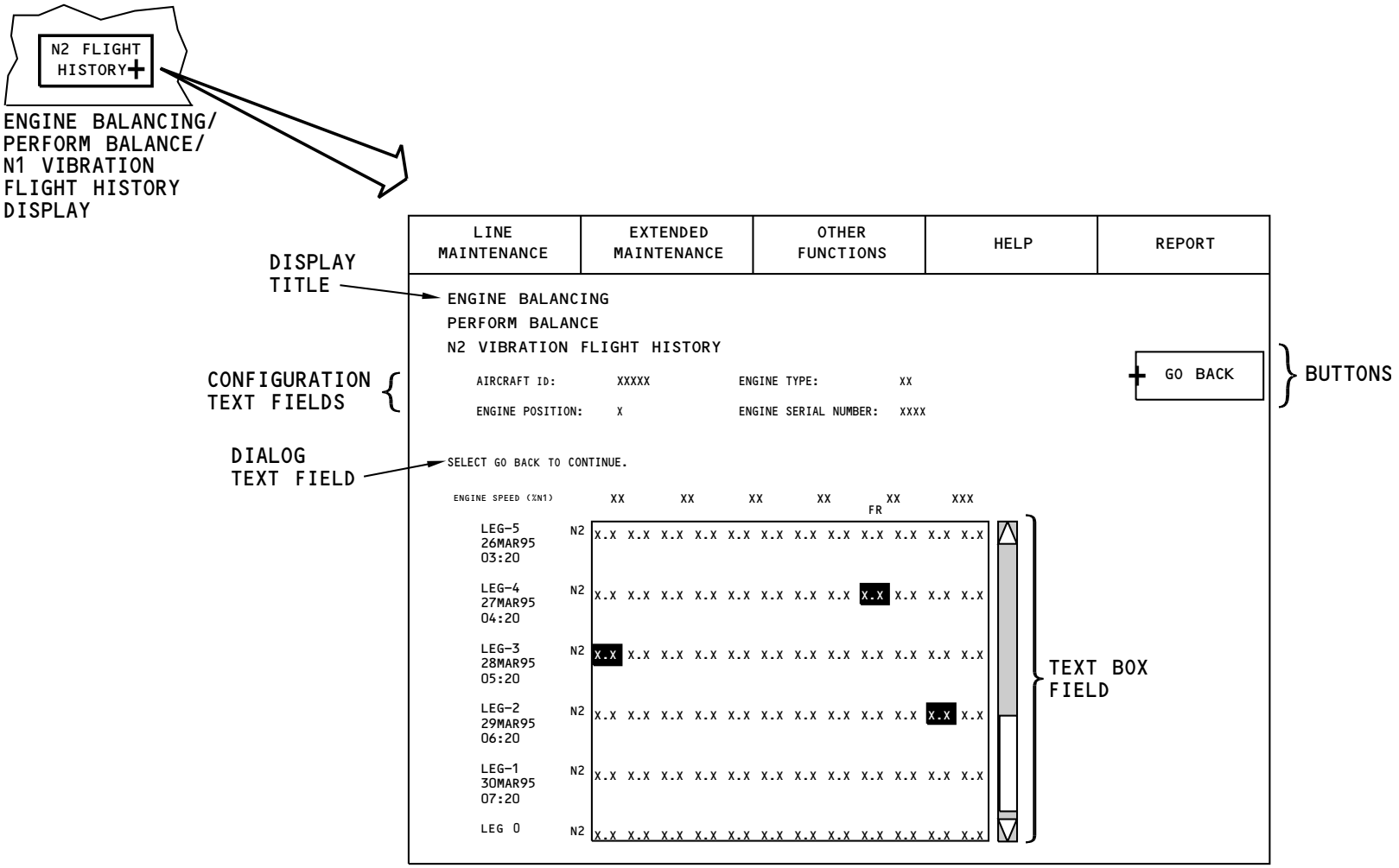
This display shows this information:

- Display title
- Configuration text fields
- Dialog text field
- Text box field
- A button.

Data in the text box field highlights if the AVMU finds that the data is out of range.

Buttons

Select GO BACK to show the engine balancing/perform balance/N1 vibration flight history display.



2425793 S000620690_V1

I **CMCS - ENGINE BALANCING/PERFORM BALANCE/N2 VIBRATION FLIGHT HISTORY DISPLAY**

CMCS - ENGINE BALANCING/CALCULATION CONDITION DIALOG BOX

General

The engine balancing/calculation condition dialog box shows the time necessary to do an engine balance calculation.

The engine balancing/calculation condition dialog box shows:

- Dialog box title
- Text field
- Buttons.

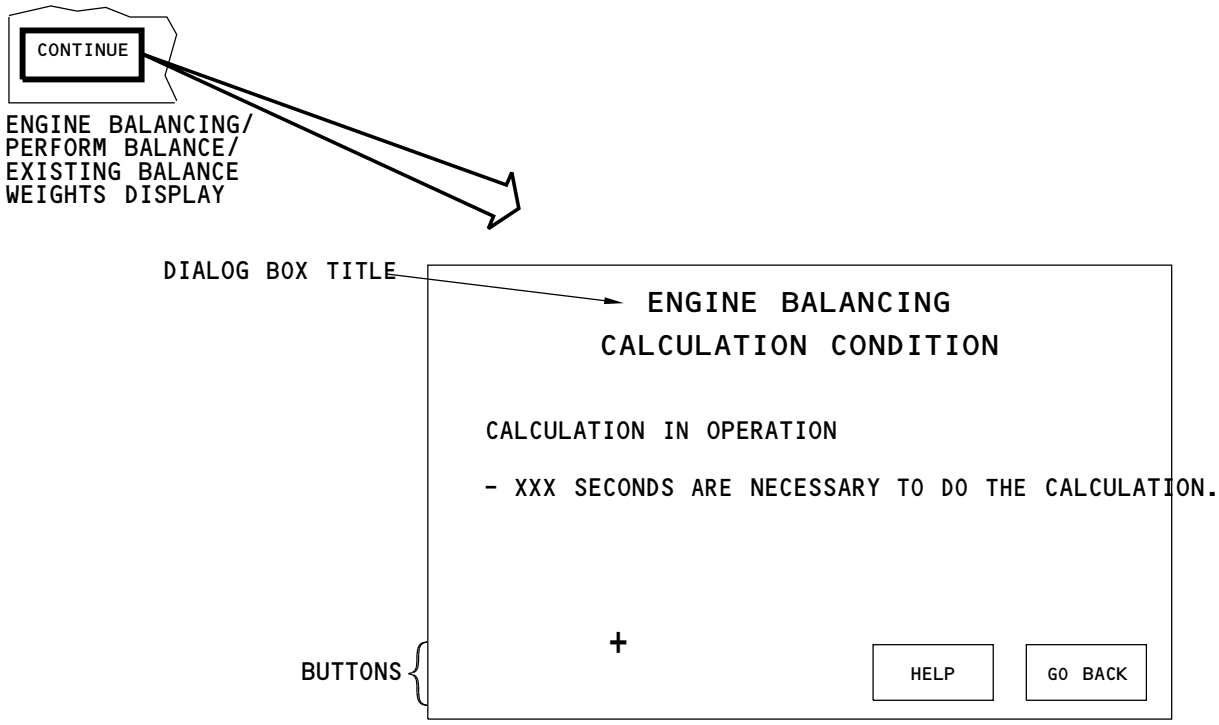
When the CMCF commands the airborne vibration monitor signal conditioner unit to calculate the engine balance solution, the engine balancing/calculation condition dialog box shows.

When the airborne vibration monitor signal conditioner unit completes an engine balance solution calculation, the CMCF closes the engine balancing/calculation condition dialog box and shows the engine balancing/perform balance/solution summary display.

Buttons

Select HELP to show the help dialog box for the engine balancing/calculation condition dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to close the engine balancing/ calculation condition dialog box.



M36025 S000620695_V1

CMCS - ENGINE BALANCING/CALCULATION CONDITION DIALOG BOX

CMCS - ENGINE BALANCING/EDIT ERROR DIALOG BOXES

General

An engine balancing/edit error dialog boxes show when there is an error in calculation. There are two types.

Both dialog boxes show:

- Dialog box title
- Text field
- Buttons.

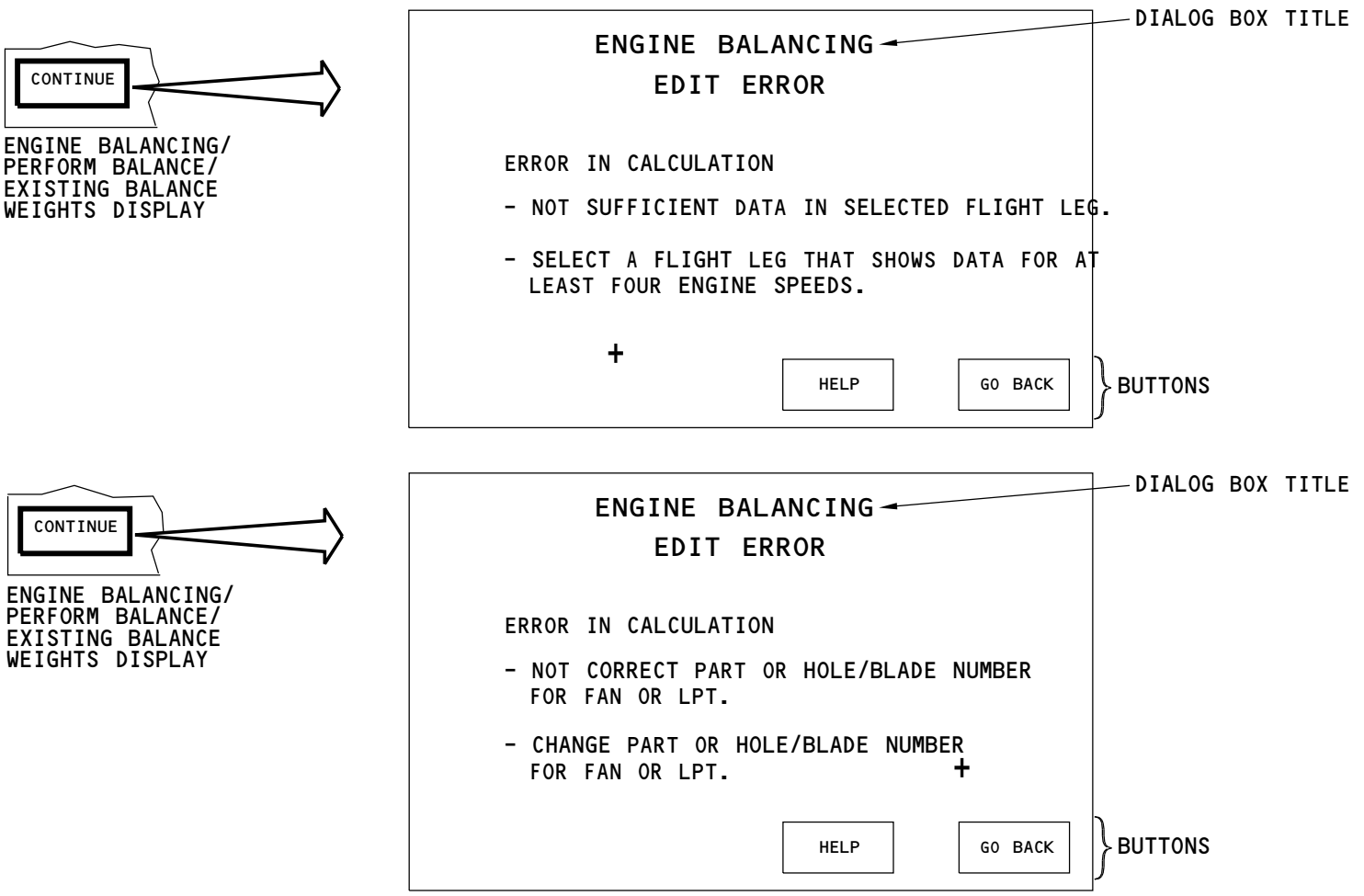
An engine balancing/edit error dialog box shows when the airborne vibration monitor signal conditional unit sends an incorrect:

- Weight part number error message
- Fan hole number error message
- LPT blade number error message.

Buttons

Select HELP to show the help dialog box for the engine balancing/edit error dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to close the engine balancing/edit error dialog box.



M36483 S000620696_V1

CMCS - ENGINE BALANCING/EDIT ERROR DIALOG BOXES

CMCS - ENGINE BALANCING/PERFORM BALANCE/SOLUTION SUMMARY DISPLAY

General

The engine balancing/perform balance/solution summary display permits the selection of a one or a two plane solution. The display also shows which balance weights to install or to remove.

This display shows this information:

- A display title
- Configuration text fields
- Dialog text field
- FAN text entry fields
- Predicted overall vibration reduction fields
- Buttons.

The ONE PLANE and TWO PLANE selections are exclusive selections.

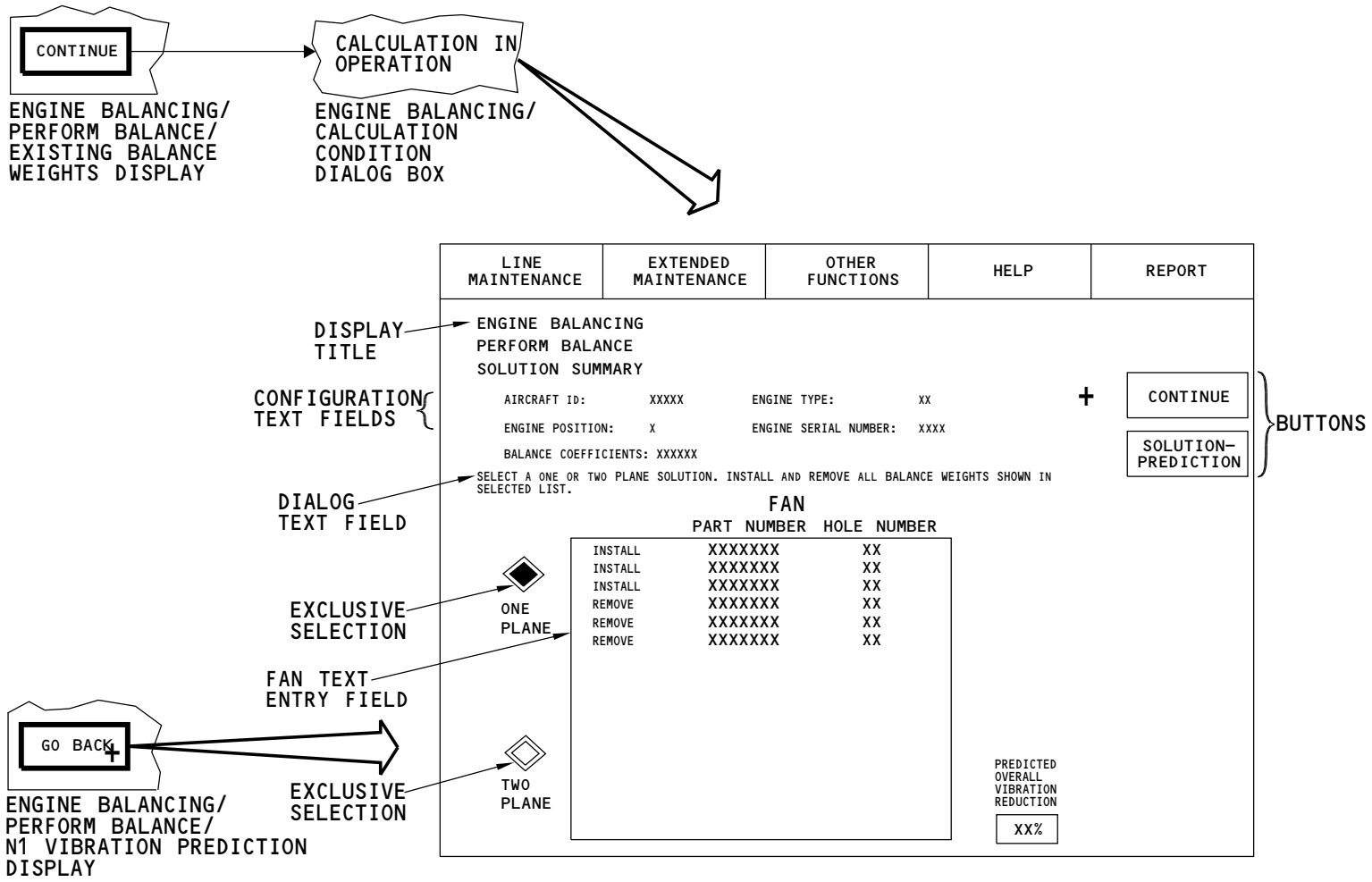
Balance solution summary data is a set of two balance solutions. One solution is for one-plane or FAN balancing. The other solution is for two-plane balancing or, fan and LPT balancing. The solution summary data is a listing of weights to be installed on or removed from the engine, to achieve a reduction in vibration.

Buttons

Select CONTINUE to do these:

- Send the selected one plane solution or two plane solution to the selected airborne vibration monitor signal conditioner unit
- Show the ENGINE BALANCING/PERFORM BALANCE/NEW BALANCE WEIGHTS display.

Select SOLUTION PREDICTION to show the engine balancing/perform balance/N1 vibration prediction display.



M36027 S000620698_V1

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CMCS - ENGINE BALANCING/PERFORM BALANCE/SOLUTION SUMMARY DISPLAY

CMCS - ENGINE BALANCING/PERFORM BALANCE/N1 VIBRATION PREDICTION DISPLAY

General

The engine balancing/perform balance/N1 vibration prediction display shows the actual front and rear engine vibration values. It also shows the predicted front and rear engine vibration values.

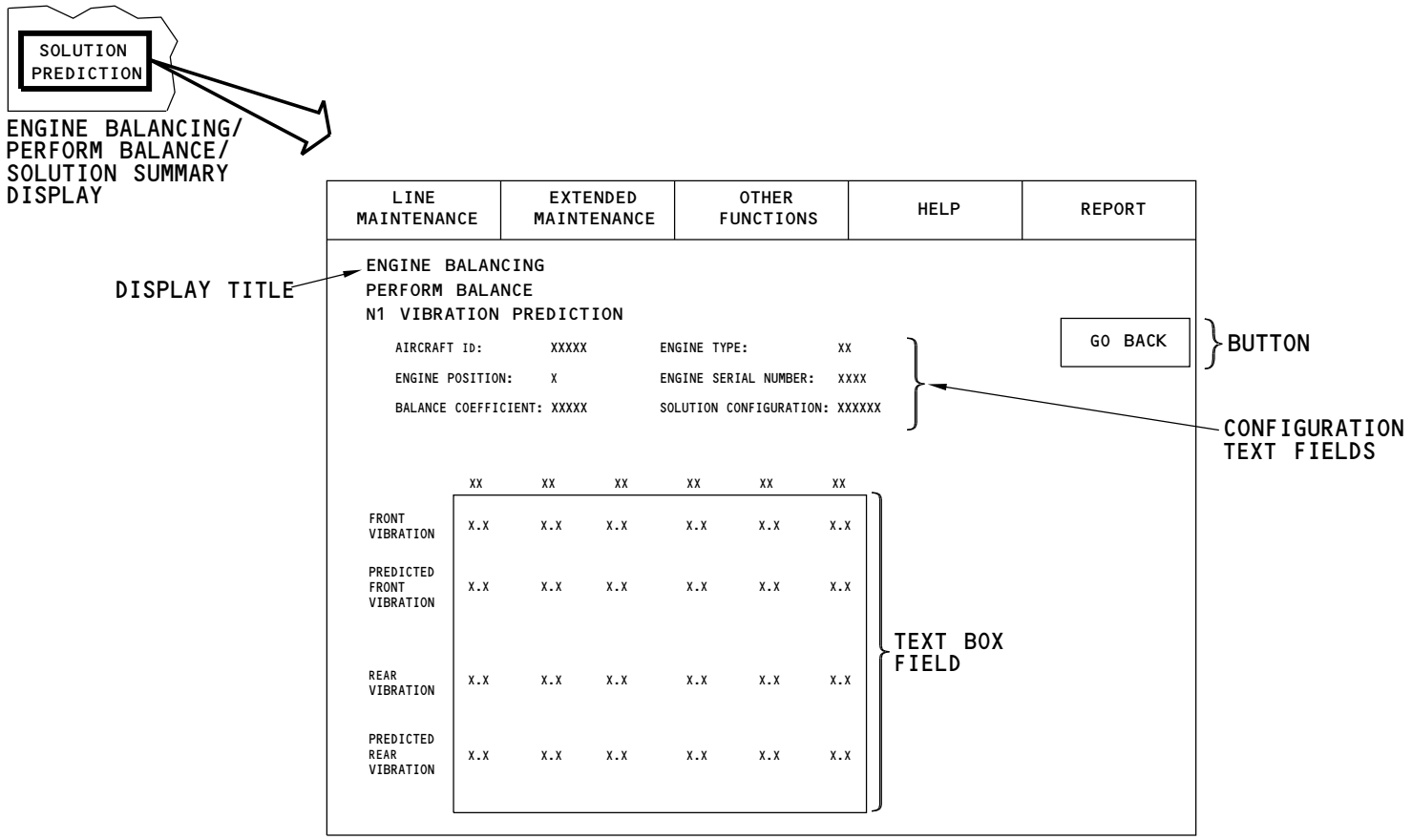
The engine balancing/perform balance/N1 vibration prediction display shows this information:

- A display title
- Configuration text fields
- Text box field
- Buttons.

The N1 vibration prediction data is a list of the N1 vibration levels at each target speed, measured by the engine accelerometers, along with the predicted levels for each speed after the engine is balanced, and an average vibration reduction.

Buttons

Select GO BACK to show the engine balancing/perform balance/solution summary display.



M36029 S000620700_V1

I

CMCS - ENGINE BALANCING/PERFORM BALANCE/N1 VIBRATION PREDICTION DISPLAY

CMCS - ENGINE BALANCING/PERFORM BALANCE/NEW BALANCE WEIGHTS DISPLAY

General

The engine balancing/perform balance/new balance weights display shows the new fan and new LPT balance weights solutions. Use the display to change the FAN and LPT balance weights information.

The engine balancing/perform balance/new balance weights display shows this information:

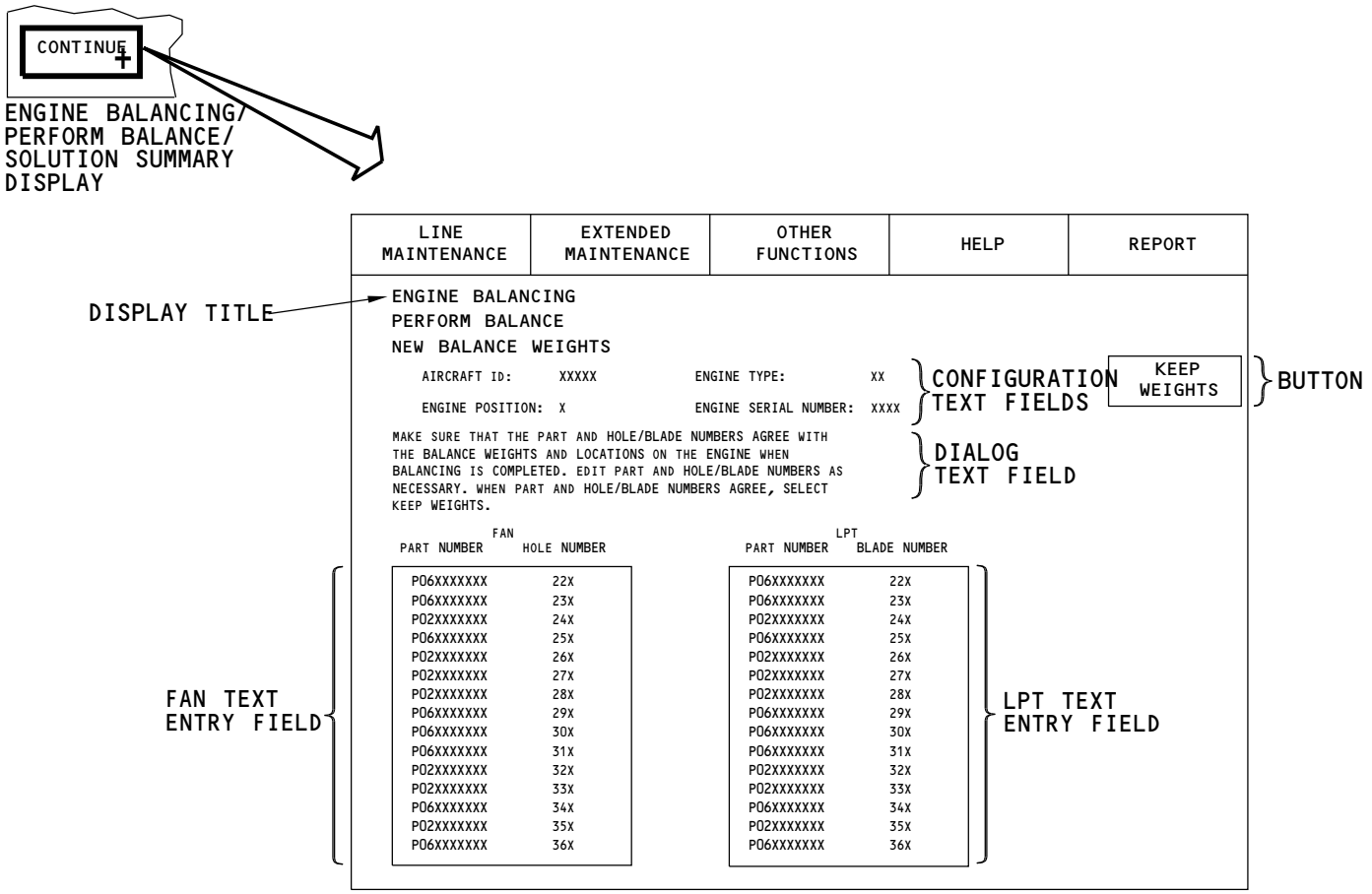
- Configuration text fields
- Dialog text field
- FAN text entry field
- LPT text entry field
- Buttons.

When you select any data or blank text field in the fan text entry field or the LPT text entry field, the engine balancing/edit weight data dialog box shows.

The keep balance weights data is a list of up to 15 weight part numbers and weight location numbers for the fan, and 15 weight part numbers and weight location numbers for the LPT, that are on the engine now.

Buttons

Select KEEP WEIGHTS to show the engine balancing/exit approval dialog box.



M36031 S000620702_V1

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CMCS - ENGINE BALANCING/PERFORM BALANCE/NEW BALANCE WEIGHTS DISPLAY

CMCS - ENGINE BALANCING/EXIT APPROVAL DIALOG BOX

General

The engine balancing/exit approval dialog box lets you approve the fan and LPT balance weights.

The engine balancing/exit approval dialog box shows:

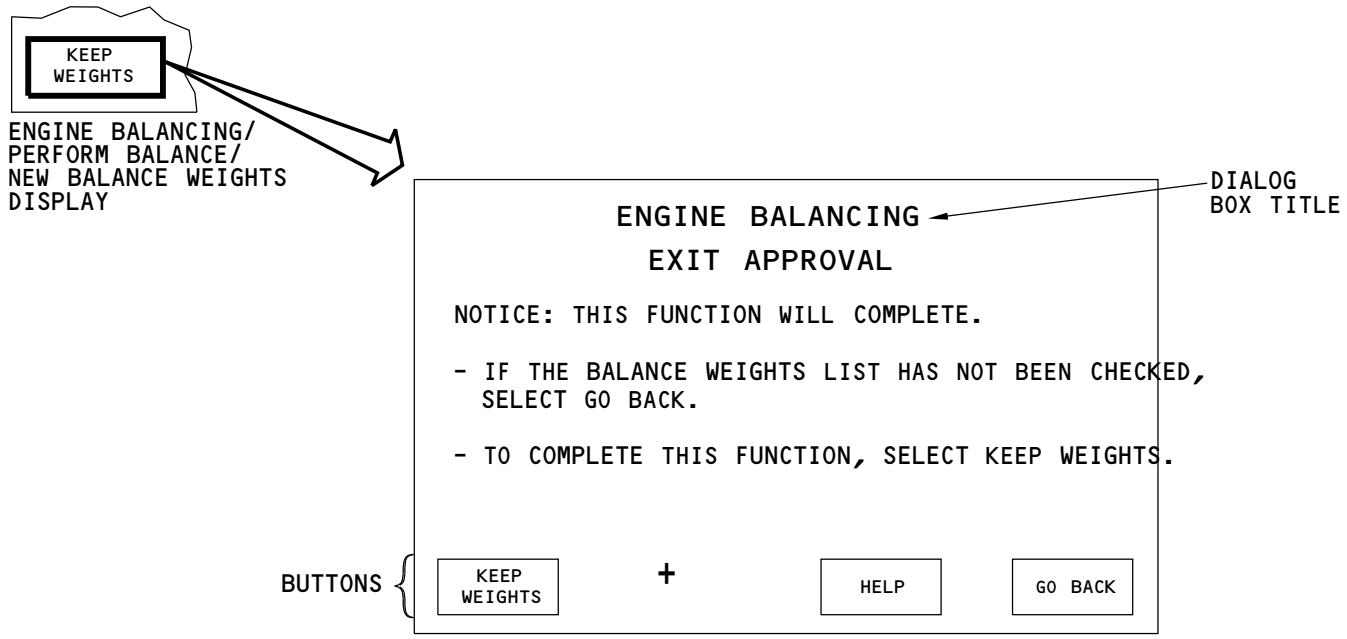
- Dialog box title
- Text field
- Buttons.

Buttons

Select KEEP WEIGHTS to send the text entry field for the fan and LPT balance weights, from the keep balance weights displays, to the selected airborne vibration monitor signal conditioner unit. This also removes the engine balancing/exit approval dialog box. If the airborne vibration monitor signal conditioner unit sends an incorrect part and hole/blade numbers command to the CMCF, the CMCF shows the engine balancing/edit error dialog box.

Select HELP to show the help dialog box for the engine balancing/exit approval dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the engine balancing/exit approval dialog box.



M36484 S000620703_V2

CMCS - ENGINE BALANCING/EXIT APPROVAL DIALOG BOX

CMCS - ENGINE BALANCING/CALCULATE COEFFICIENTS/N1 VIBRATION FLIGHT HISTORY DISPLAY

General

The engine balancing/calculate coefficients/N1 vibration flight history display shows N1 vibration data and phase angle data for six flight legs at different N1 percent values. The display also shows ground run N1 vibration data and phase angle data, at different N1 percent values, after a ground run procedure.

This display shows this information:

- Display title
- Configuration text fields
- Dialog text field
- Text box field
- Non-exclusive selections
- Buttons.

Nonexclusive Selections

There are six nonexclusive selections on the engine balancing/calculate coefficients/N1 vibration flight history display.

The selection of some of the buttons causes the nonexclusive selections to go away from the display. These are the buttons that cause the nonexclusive selections to go away from the display:

- CALCULATE COEFFICIENTS
- GROUND RUN
- KEEP GROUND RUN DATA.

Data in the text box field highlights if the airborne vibration monitor signal conditioner unit finds that the data is out of range.

Engine ground run history is a record of vibration level and phase angle of the N1 shaft, at 6 specified engine speeds, measured by the engine accelerometers, during the ground run of an engine.

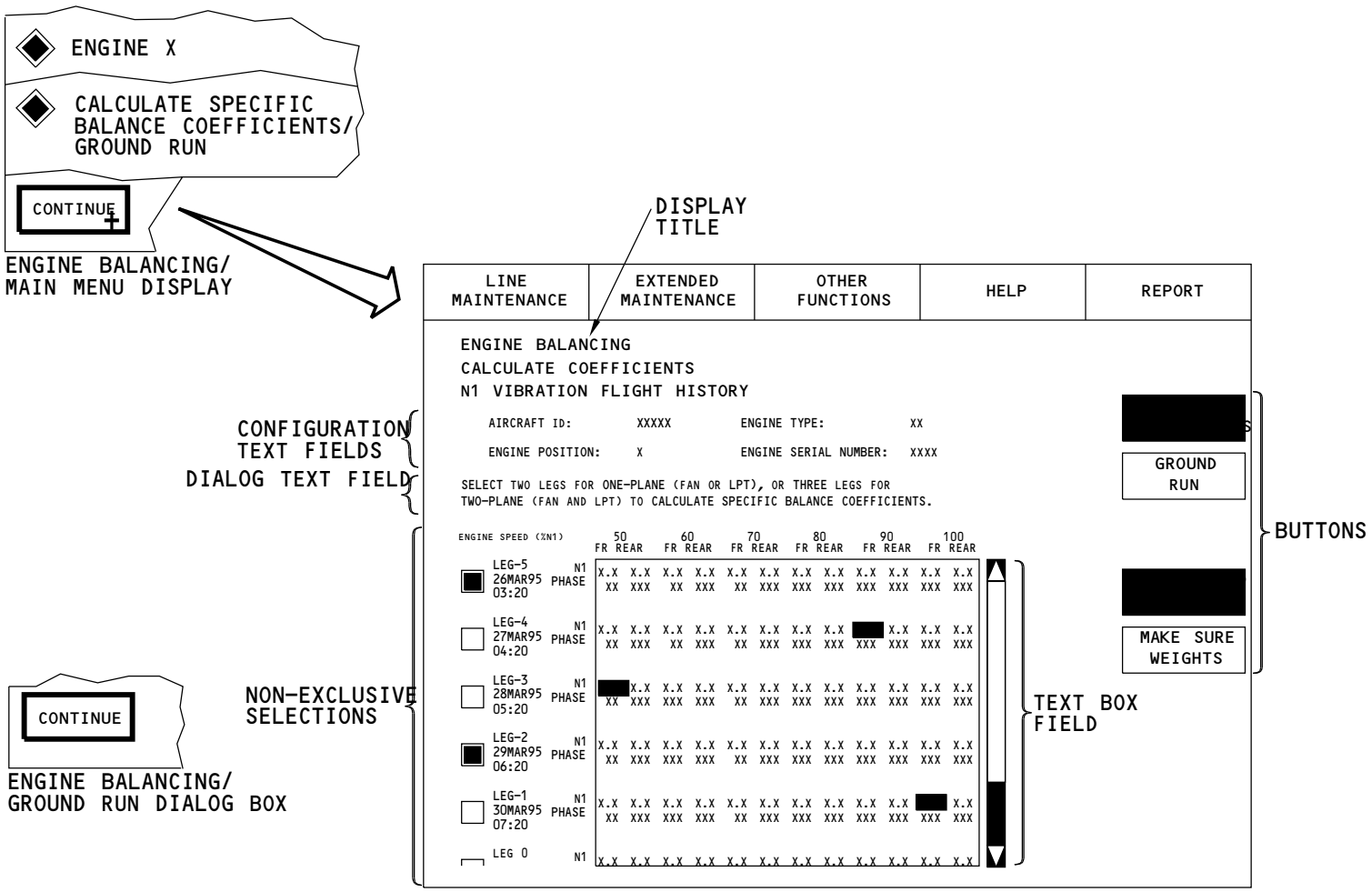
Buttons

Select CALCULATE COEFFICIENTS to send the selected flight histories to the airborne vibration monitor signal conditioner unit and let the airborne vibration monitor signal conditioner unit calculate the specific balance coefficients. You cannot select CALCULATE COEFFICIENTS until two flight legs selections are made. Select CALCULATE COEFFICIENTS to show the engine balancing/calculation condition dialog box.

Select GROUND RUN to show the engine balancing/calculate coefficients/existing balance weights display.

Select KEEP GROUND RUN DATA to update the flight histories in the selected airborne vibration monitor signal conditioner unit. The ground run data is moved to LEG O, LEG 0 data is moved to LEG-1, and so on for the other flight legs. You cannot select KEEP GROUND RUN DATA until the ground run data shows on the display.

Select MAKE SURE WEIGHTS to show the engine balancing/calculate coefficients/existing balance weights display.



M36422 S000620705_V1

CMCS - ENGINE BALANCING/CALCULATE COEFFICIENTS/N1 VIBRATION FLIGHT HISTORY DISPLAY

CMCS - ENGINE BALANCING/CALCULATION CONDITION DIALOG BOX

General

The engine balancing/calculation condition dialog box shows the time to do an engine balance calculation.

The engine balancing/calculation condition dialog box shows:

- Dialog box title
- Text field
- Buttons.

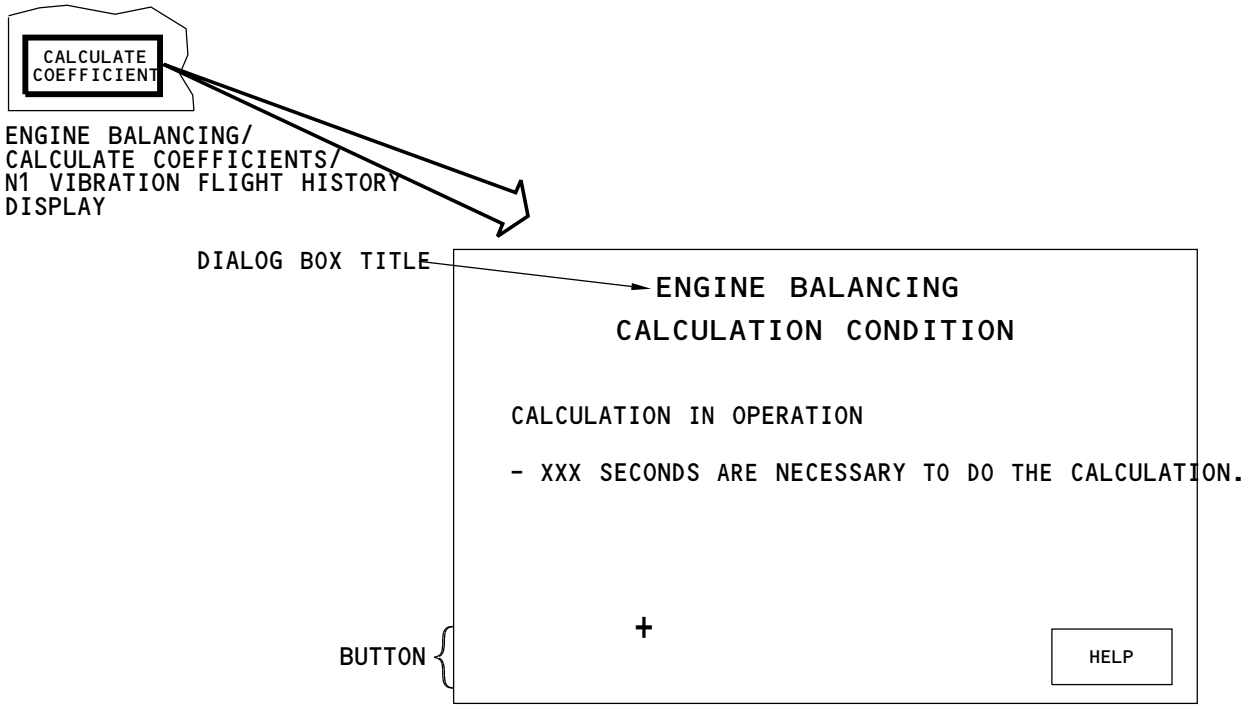
When the CMCF commands the airborne vibration monitor signal conditioner unit to start the engine balance solution calculation, the engine balancing/calculation condition dialog box shows.

When the airborne vibration monitor signal conditioner unit completes an engine balance solution calculation, the CMCF closes the engine balancing/calculation condition dialog box and shows the engine balancing/perform balance/solution summary display.

When the airborne vibration monitor signal conditioner unit completes a specific balance coefficient calculation, the CMCF closes the engine balancing/calculation condition dialog box and shows the engine balancing/keep coefficients dialog box.

Buttons

Select HELP to show the help dialog box for the engine balancing/calculation condition dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.



M36032 S000620706_V1

CMCS - ENGINE BALANCING/CALCULATION CONDITION DIALOG BOX

CMCS - ENGINE BALANCING/EDIT ERROR DIALOG BOXES

General

An engine balancing/edit error dialog box shows when an error in calculation has occurred. There are two types.

The two engine balancing/edit error dialog boxes show:

- Dialog box title
- Text field
- Buttons.

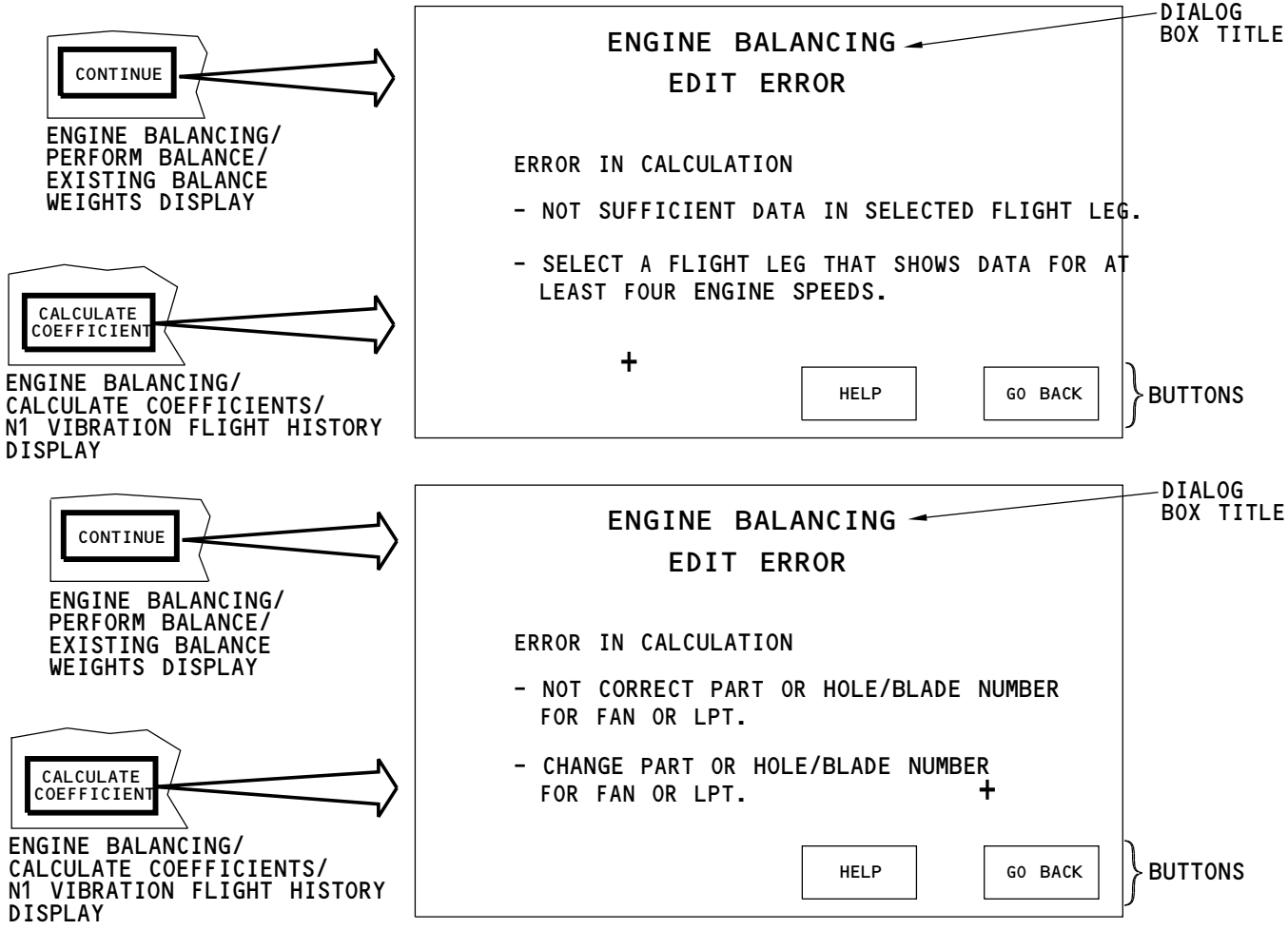
An engine balancing/edit error dialog box shows when the airborne vibration monitor signal conditioner unit sends an incorrect:

- Weight part number error message
- Fan hole number error message
- LPT blade number error message.

Buttons

Select HELP to show the help dialog box for the engine balancing/edit error dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the engine balancing/edit error dialog box.



M36485 S000620707_V1

CMCS - ENGINE BALANCING/EDIT ERROR DIALOG BOXES

CMCS - ENGINE BALANCING/KEEP COEFFICIENTS DIALOG BOX

General

The engine balancing/keep coefficients dialog box shows that new specific balance coefficients are calculated. The engine balancing/keep coefficients dialog box also lets you keep or not keep the specified balance coefficients.

The engine balancing/keep coefficients dialog box shows:

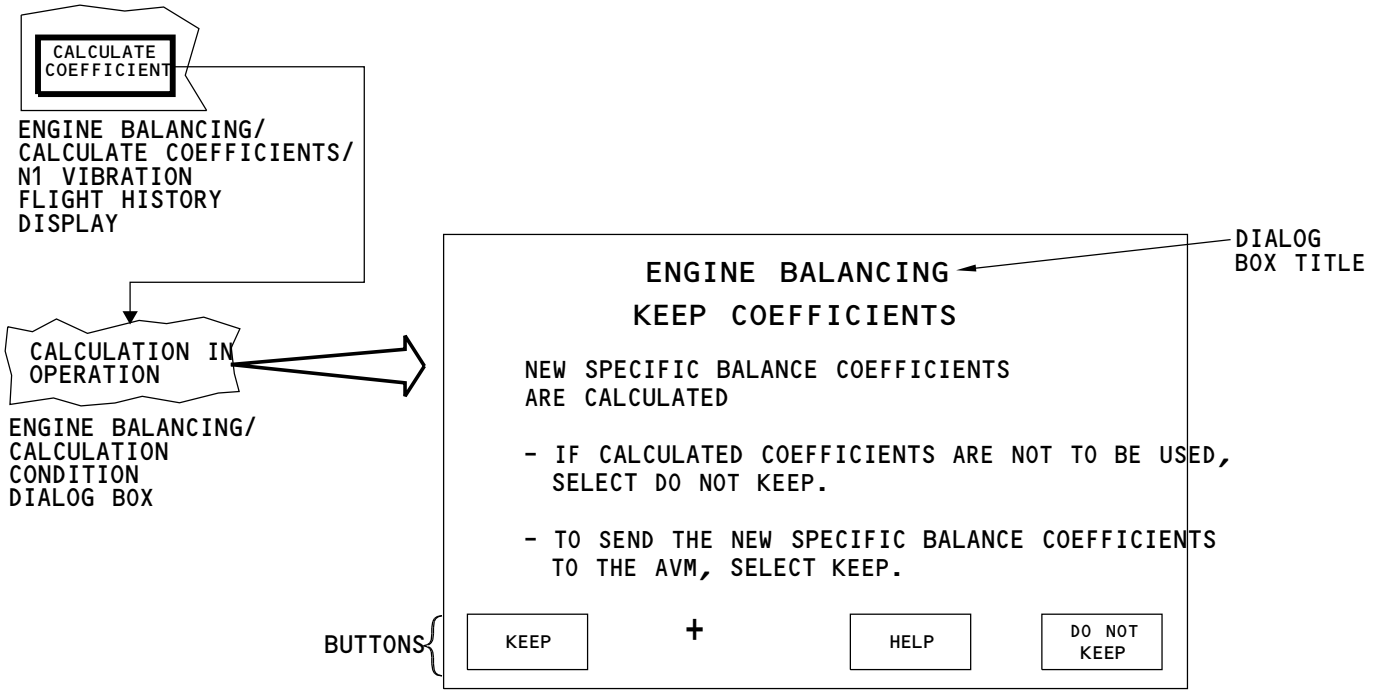
- Dialog box title
- Text field
- Buttons.

Buttons

Select KEEP to send a store new balance coefficients command to the airborne vibration monitor signal conditioner unit and to close the engine balancing/keep coefficients dialog box.

Select HELP to show the help dialog box for the engine balancing/keep coefficients dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select DO NOT KEEP to close the engine balancing/keep coefficients dialog box.



M36486 S000620708_V1

CMCS - ENGINE BALANCING/KEEP COEFFICIENTS DIALOG BOX

CMCS - ENGINE BALANCING/CALCULATE COEFFICIENTS/EXISTING BALANCE WEIGHTS DISPLAY

General

The engine balancing/calculate coefficients/existing balance weights display shows fan and low pressure turbine (LPT) balance weights information. Use the display to edit the FAN and LPT balance weights information.

The engine balancing/calculate coefficients/existing balance weights display shows this information:

- Display title
- Configuration text fields
- Dialog text field
- Fan text entry field
- LPT text entry field
- Buttons.

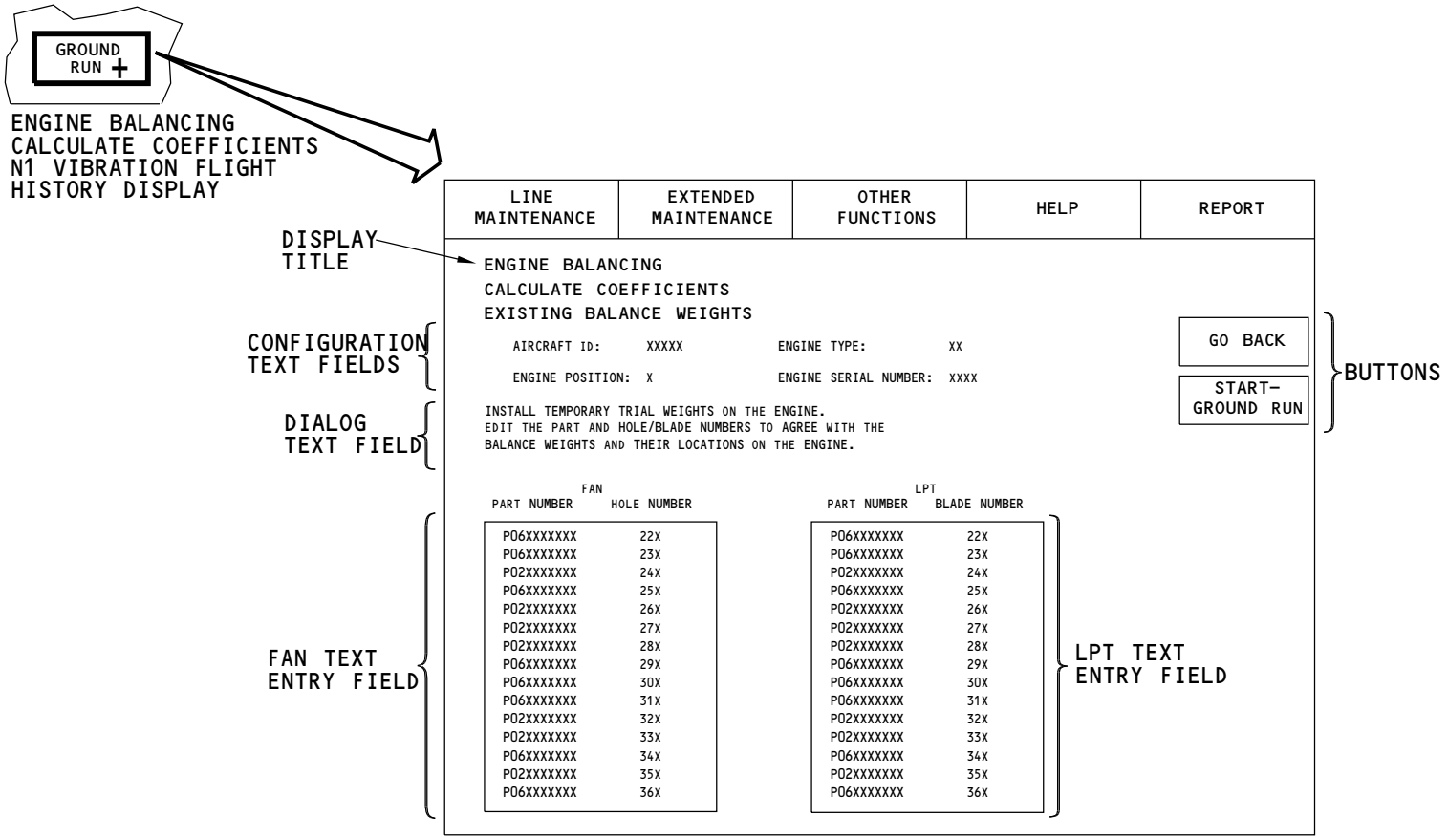
When you select any data or blank text field in the fan text entry field or the LPT text entry field, the engine balancing/edit weight data dialog box shows.

The existing balance weights data is as list of up to 15 weight part numbers and weight location numbers for the FAN, and 15 weight part numbers and weight location numbers for the LPT, that are on the engine now.

Buttons

Select GO BACK to show the engine balancing/calculate coefficients/N1 vibration flight history display.

Select START GROUND RUN to send the text entry field for the fan and the LPT to the selected airborne vibration monitor signal conditioner unit. After the AVM receives the part numbers, hole numbers, and blade numbers from the CMCF, the engine balancing/ground run dialog box shows. The airborne vibration monitor signal conditioner unit also starts to record the engine ground run data.



M36034 S000620710_V2

I **CMCS - ENGINE BALANCING/CALCULATE COEFFICIENTS/EXISTING BALANCE WEIGHTS DISPLAY**

CMCS - ENGINE BALANCING/GROUND RUN DIALOG BOX

General

The engine balancing/ground run dialog box shows when a ground operation is in progress.

This dialog box shows:

- Dialog box title
- Text field
- Buttons.

Buttons

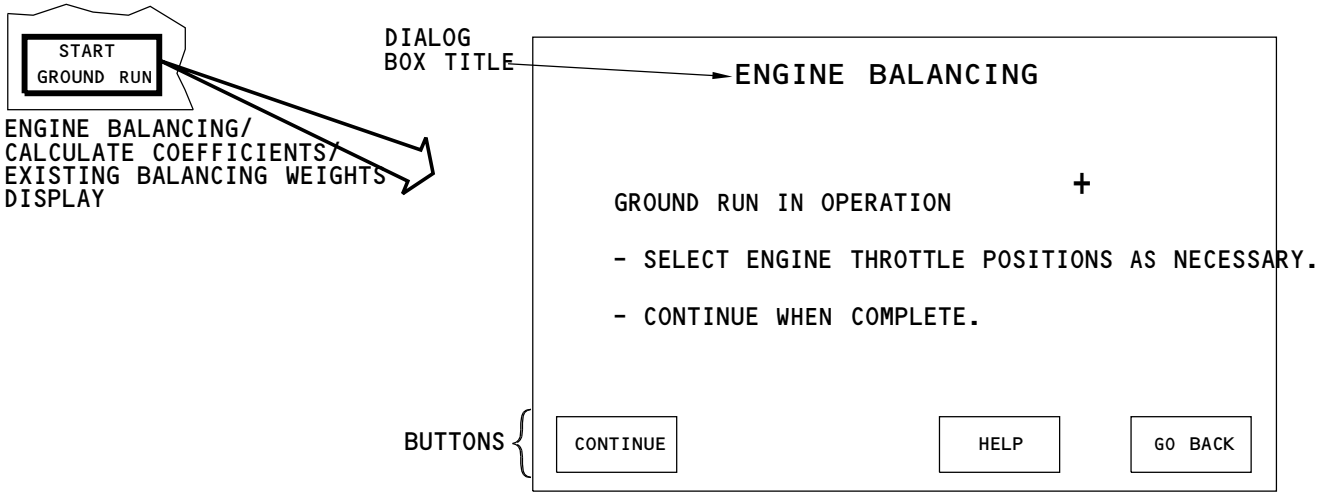
Select CONTINUE to do these:

- Show the engine balancing/calculate coefficients/N1 vibration flight history display
- To remove the engine balancing/ground run dialog box
- To send a stop recording command to the selected aiborne vibration monitor signal conditioner unit.

Select HELP to show the help dialog box for the engine balancing/ground run dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to do these:

- Remove the engine balancing/ground run dialog box
- To send a stop recording command to the selected AVMU.



M36035 S000620711_V1

CMCS - ENGINE BALANCING/GROUND RUN DIALOG BOX

CMCS - ENGINE BALANCING/CALCULATE COEFFICIENTS/EXISTING BALANCE WEIGHTS DISPLAY

General

The engine balancing/calculate coefficients/existing balance weights display shows the new fan and new LPT balance weights solutions. Use the display to edit the FAN and LPT balance weights information.

This display shows this information:

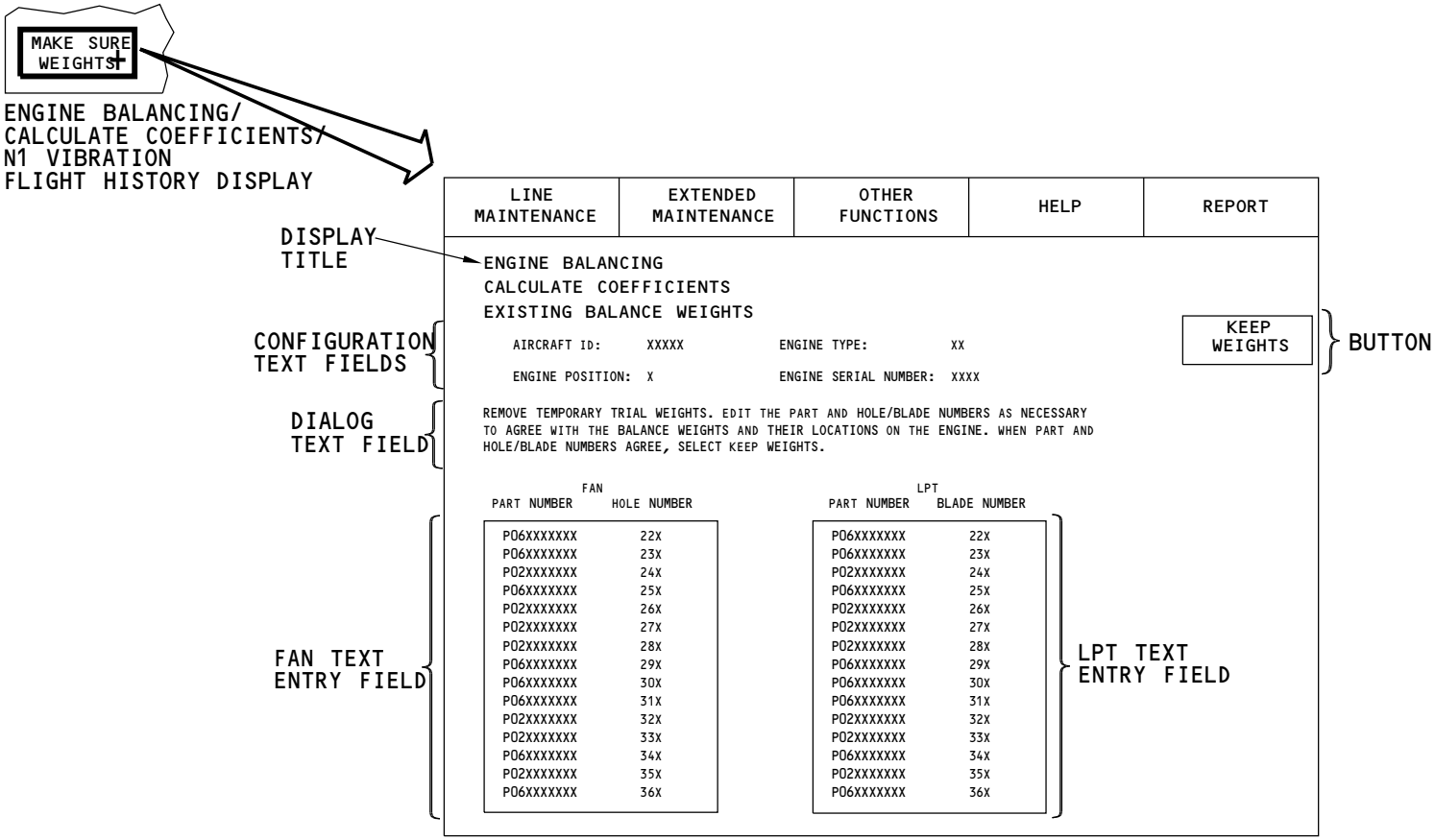
- Configuration text fields
- Dialog text field
- Fan text entry field
- LPT text entry field
- Buttons.

When you select any data or blank text field in the fan text entry field or the LPT text entry field, the Engine balancing/edit weight data dialog box shows.

The keep balance weights data is a list of up to 15 weight part numbers and weight location numbers for the fan, and 15 weight part numbers and weight location numbers for the LPT, that are on the engine now.

Buttons

Select KEEP WEIGHTS to show the engine balancing/exit approval dialog box.



M36037 S000620713_V2

I **CMCS - ENGINE BALANCING/CALCULATE COEFFICIENTS/EXISTING BALANCE WEIGHTS DISPLAY**

CMCS - ENGINE BALANCING/EXIT APPROVAL DIALOG BOX

General

The engine balancing/exit approval dialog box lets you approve the fan and LPT balance weights.

This dialog box shows:

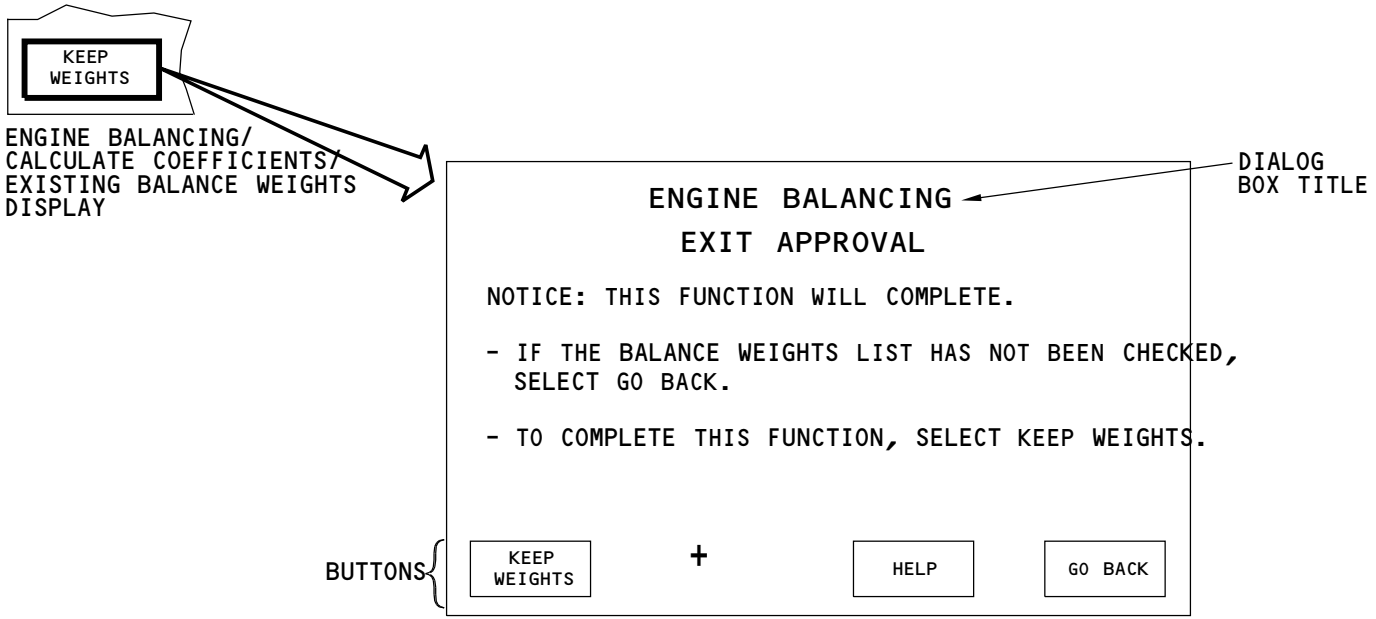
- Dialog box title
- Text field
- Buttons.

Buttons

Select KEEP WEIGHTS to send the text entry field for the fan and LPT balance weights, from the keep balance weights displays, to the selected airborne vibration monitor signal conditioner unit. The engine balancing/exit approval dialog box closes. If the airborne vibration monitor signal conditioner unit sends an incorrect part and hole/blade numbers command to the CMCF, the CMCF shows the engine balancing/edit error dialog box.

Select HELP to show the help dialog box for the engine balancing/exit approval dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to close the engine balancing/exit approval dialog box.



M36487 S000620714_V1

CMCS - ENGINE BALANCING/EXIT APPROVAL DIALOG BOX

CMCS - PSEU AND AIR/GROUND RIGGING/CALIBRATION MAIN MENU DIALOG BOX

General

The PSEU and air/ground rigging/calibration selection lets the user select an LRU/LRM to rig.

The PSEU and air/ground rigging/calibration selection dialog box has:

- Title
- Upper list box
- Lower list box
- Buttons.

Upper List Box

The upper list box shows all the items available to rig or calibrate. When you choose an item, the title, column headings, and items to rig show in the lower list box.

The list box has a scroll bar to access additional items.

Lower Selection Field

The lower list box shows a list of all the items available to rig or calibrate under the selection made in the upper list box.

The selection field has a scroll bar to access additional LRUs.

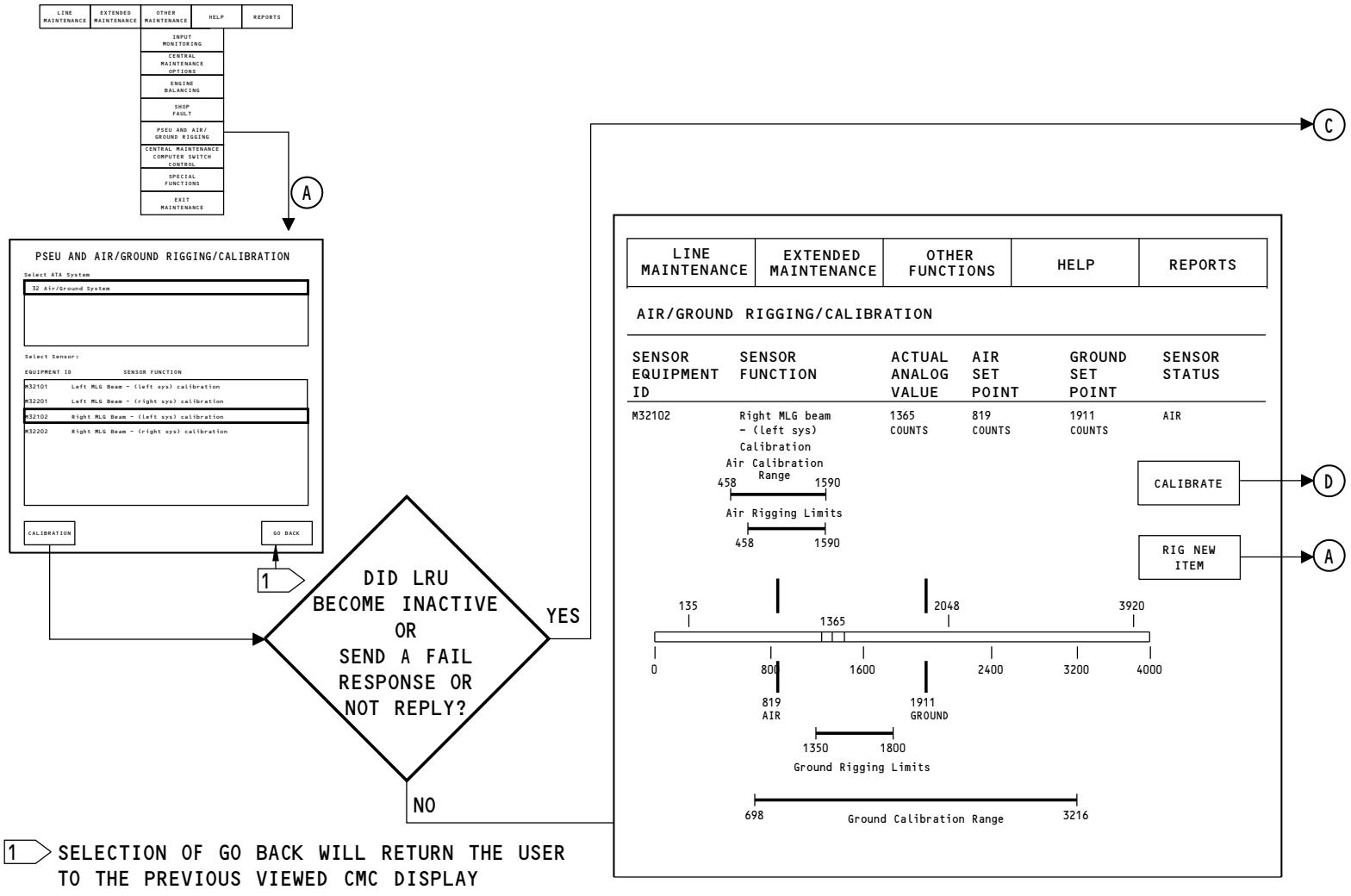
When you select an item in this field, the CONTINUE command available.

Buttons

Select CONTINUE to remove the selection dialog box and to show the rigging/calibration display for the selected item.

Select HELP to show the help dialog box for the PSEU and air/ground rigging/calibration selection dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the selection dialog box and to return to the previous display.



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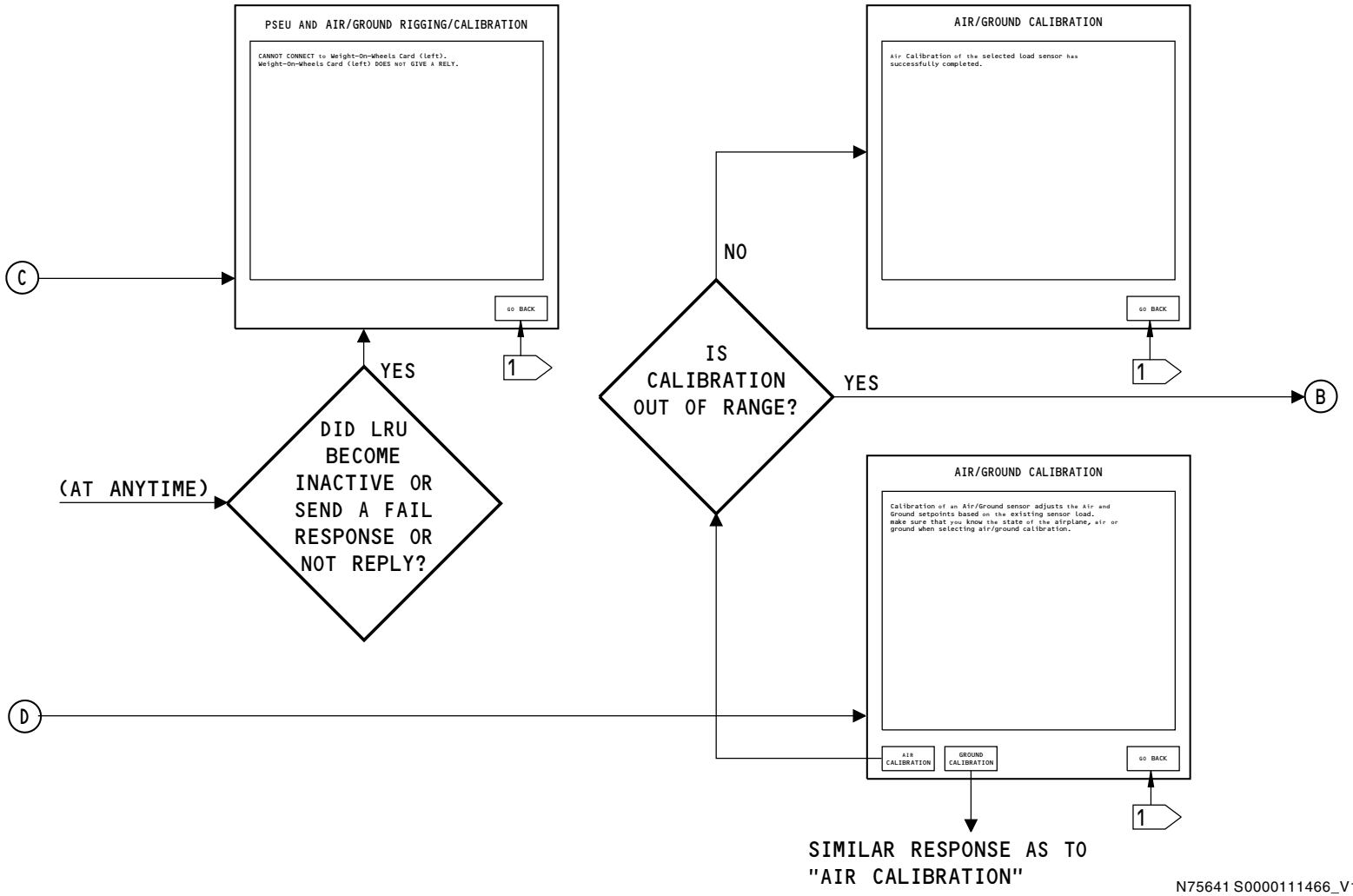
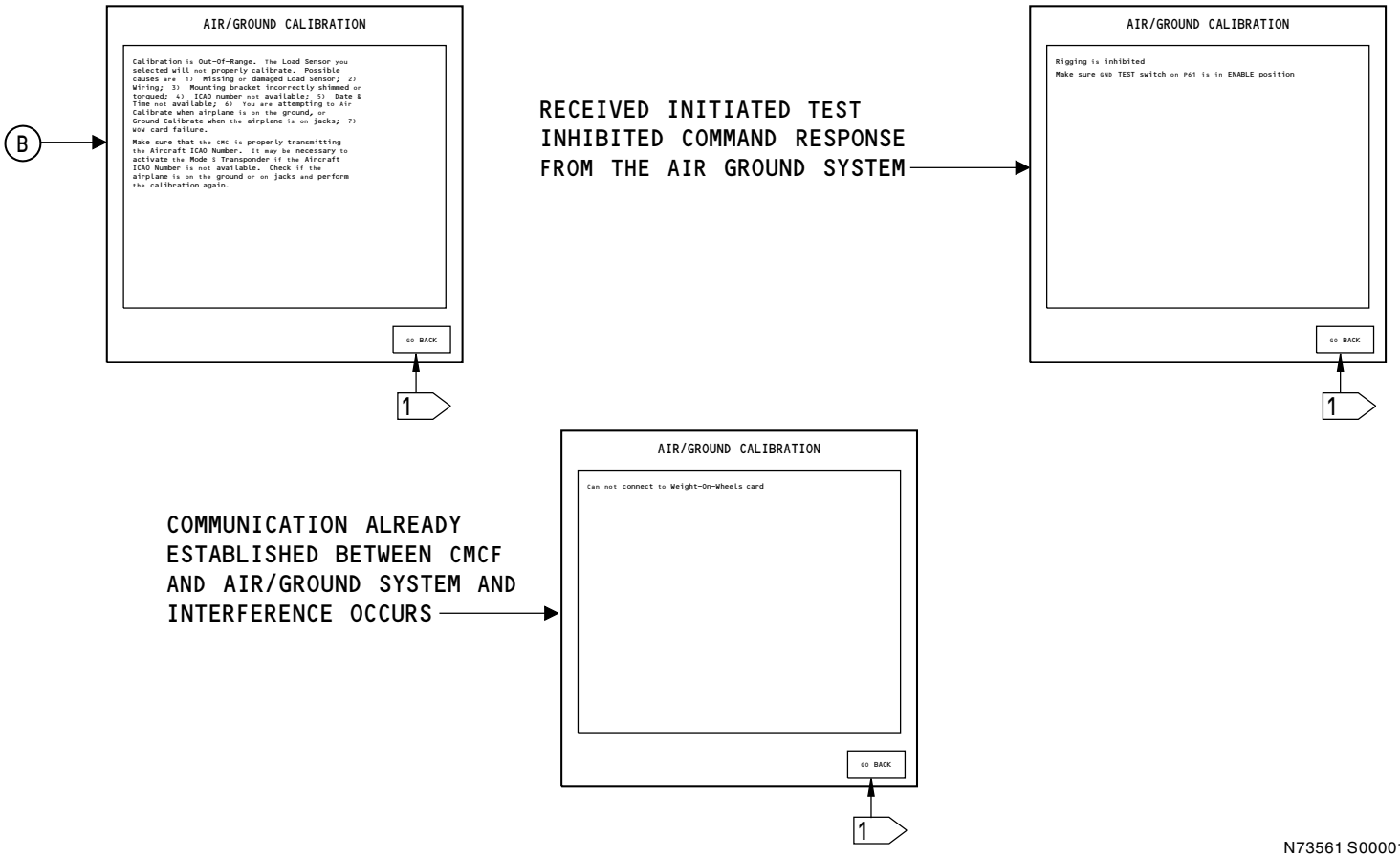
CMCS - PSEU AND AIR/GROUND RIGGING/CALIBRATION MAIN MENU DIALOG BOX



N75641 S0000111466_V1

CMCS - PSEU AND AIR/GROUND RIGGING/CALIBRATION



N73561 S0000111234_V1

CMCS - PSEU AND AIR/GROUND RIGGING/CALIBRATION MAIN MENU DIALOG BOX

CMCS - PSEU RIGGING/CALIBRATION DISPLAY

General

The selection of an item on the selection dialog box causes either the PSEU rigging/calibration display or the air/ground rigging/calibration display to show.

The PSEU rigging/calibration display has all the detailed information to rig or calibrate a PSEU sensor.

The PSEU rigging/calibration display has:

- Title
- Header field
- Data field
- Buttons.

Header Field

The header field has the headings for seven columns of data. The headings are:

- SENSOR EQUIPMENT ID
- SENSOR FUNCTION
- AIRPLANE LOCATION
- ACTUAL ANALOG VALUE
- FAR SET POINT
- NEAR SET POINT
- SENSOR STATUS.

Data Field

The data field has the seven categories of information.

The sensor ID is the equipment number associated with the selection made in the lower field on the selection dialog box.

The sensor function gives a brief description of the component.

The airplane location gives the station, water line, and buttock line of the sensor.

The actual analog value is in inches/values and comes from the PSEU.

The far set point is in inches/values and comes from the PSEU.

The near set point is in inches/values and comes from the PSEU.

The sensor status shows as near or far and comes from the PSEU.

The data field also has a rigging status ruler.

The ruler has six fixed indicators at 0.0, 0.1, 0.2, 0.3, 0.4, and 0.5.

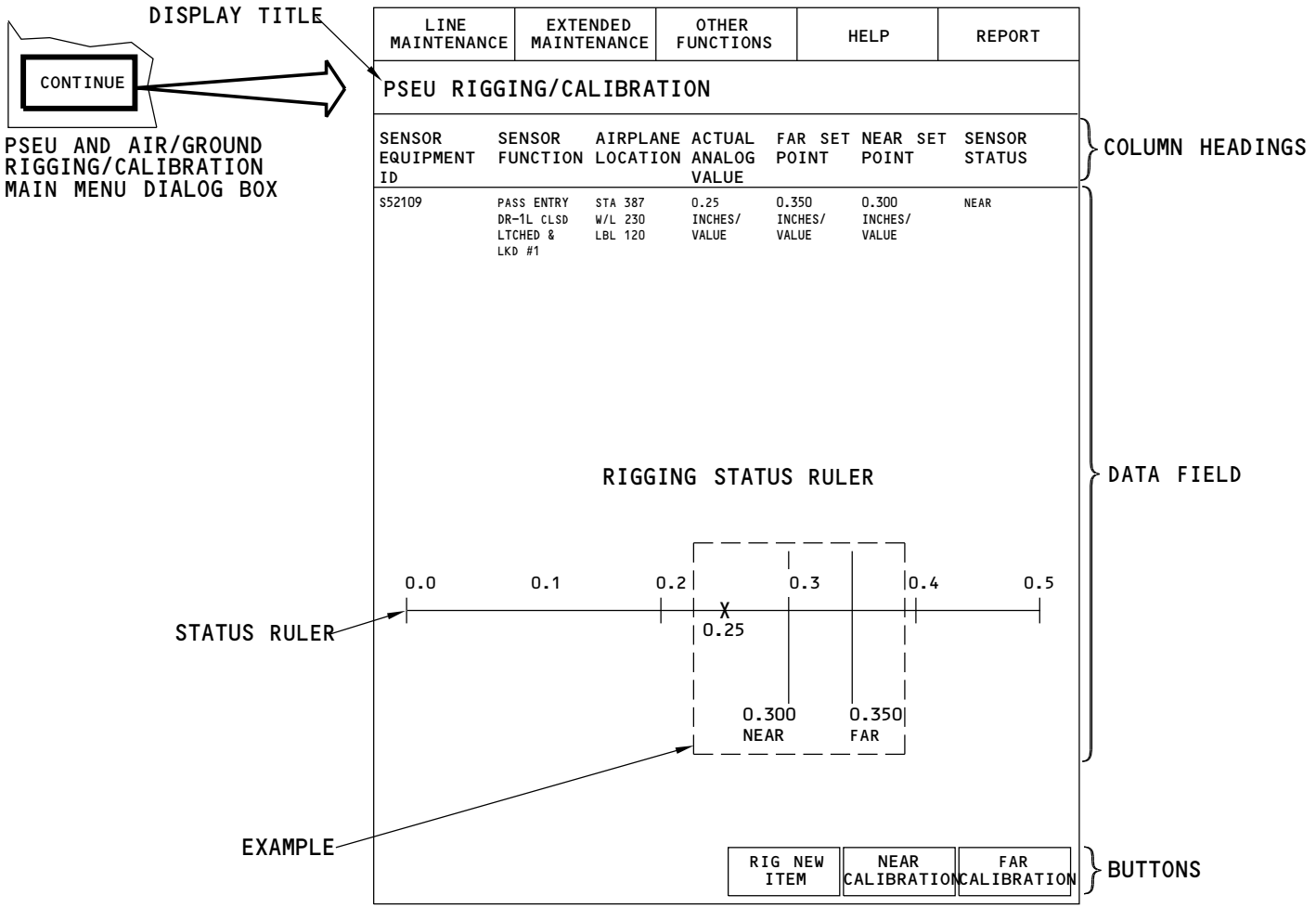
An X on the ruler marks the spot of the actual analog value from the PSEU.

Near and far sliders also show on the ruler.

Buttons

Select RIG NEW ITEM to end the rigging or calibration process for the current selection and to show the PSEU and air/ground rigging/calibration menu dialog box.

Select NEAR CALIBRATION or FAR CALIBRATION to show the rigging/calibration confirmation dialog box.



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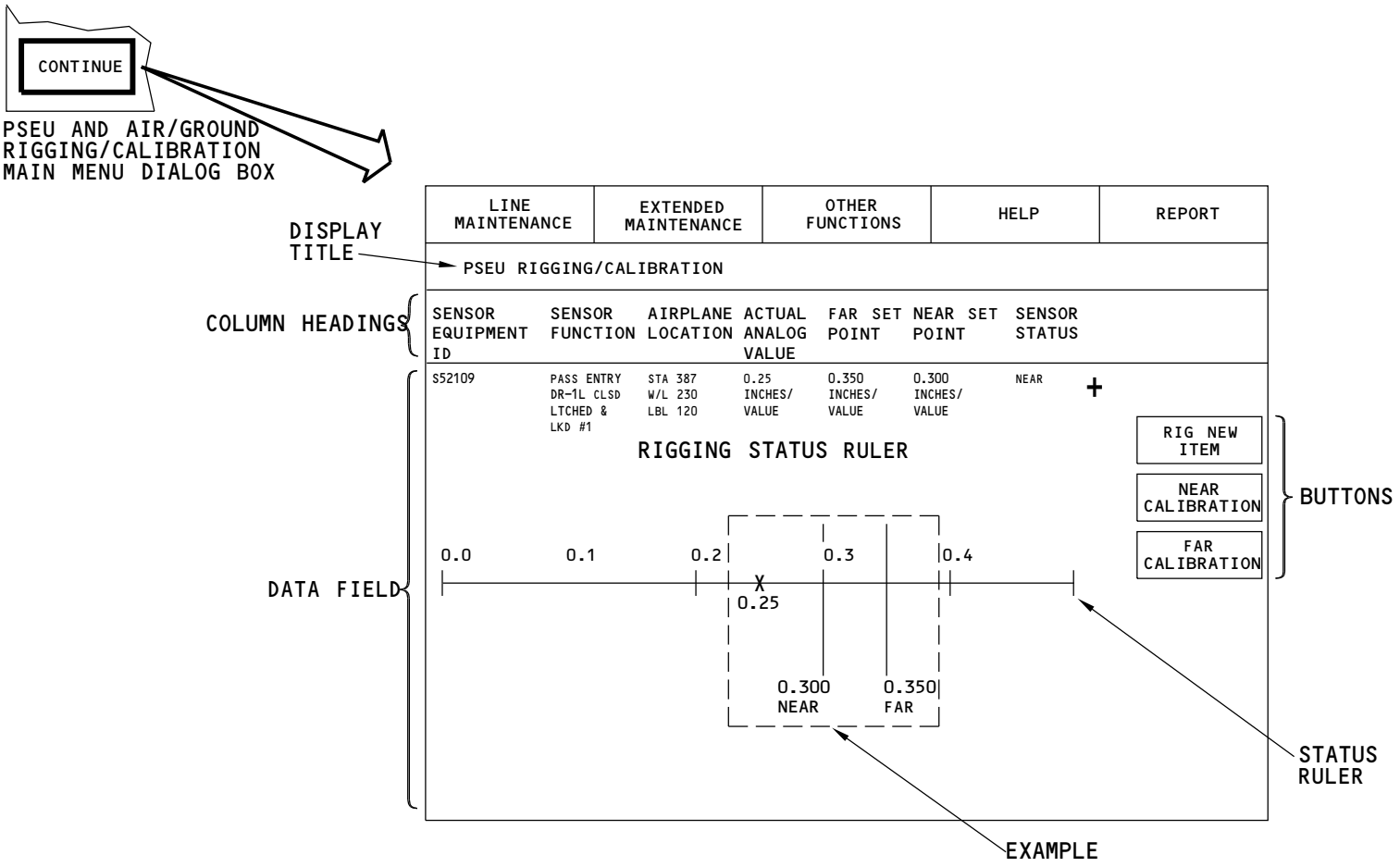
CMCS - PSEU RIGGING/CALIBRATION DISPLAY



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CMCS - PSEU RIGGING/CALIBRATION DISPLAY

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CMCS - AIR/GROUND RIGGING/CALIBRATION

General

The selection of an item on the selection dialog box causes either the PSEU rigging/calibration display or the air/ground rigging/calibration display to show.

The air/ground rigging/calibration display has all the detailed information to rig or calibrate an air/ground sensor.

The air/ground rigging/calibration display has:

- Title
- Header field
- Data field
- Buttons.

Header Field

The header field has headings for seven columns of data. These are the headings:

- SENSOR EQUIPMENT ID
- SENSOR FUNCTION
- AIRPLANE LOCATION
- ACTUAL ANALOG VALUE
- AIR SET POINT
- GROUND SET POINT
- SENSOR STATUS.

Data Field

The data field has the seven categories of information.

The sensor ID is the equipment number associated with the selection made in the lower field on the selection dialog box.

The sensor function gives a brief description of the component.

The airplane location gives the station, water line, and buttock line of the sensor.

The actual analog value is in counts and comes from the air/ground sensor.

The air set point is in inches/values and comes from the air/ground sensor.

The ground set point is in counts and comes from the air/ground sensor.

The sensor status shows as air or ground and comes from the air/ground sensor.

The data field also has a rigging status ruler.

The ruler has six fixed indicators at 0.0, 13000, 26000, 39000, 52000, and 65000.

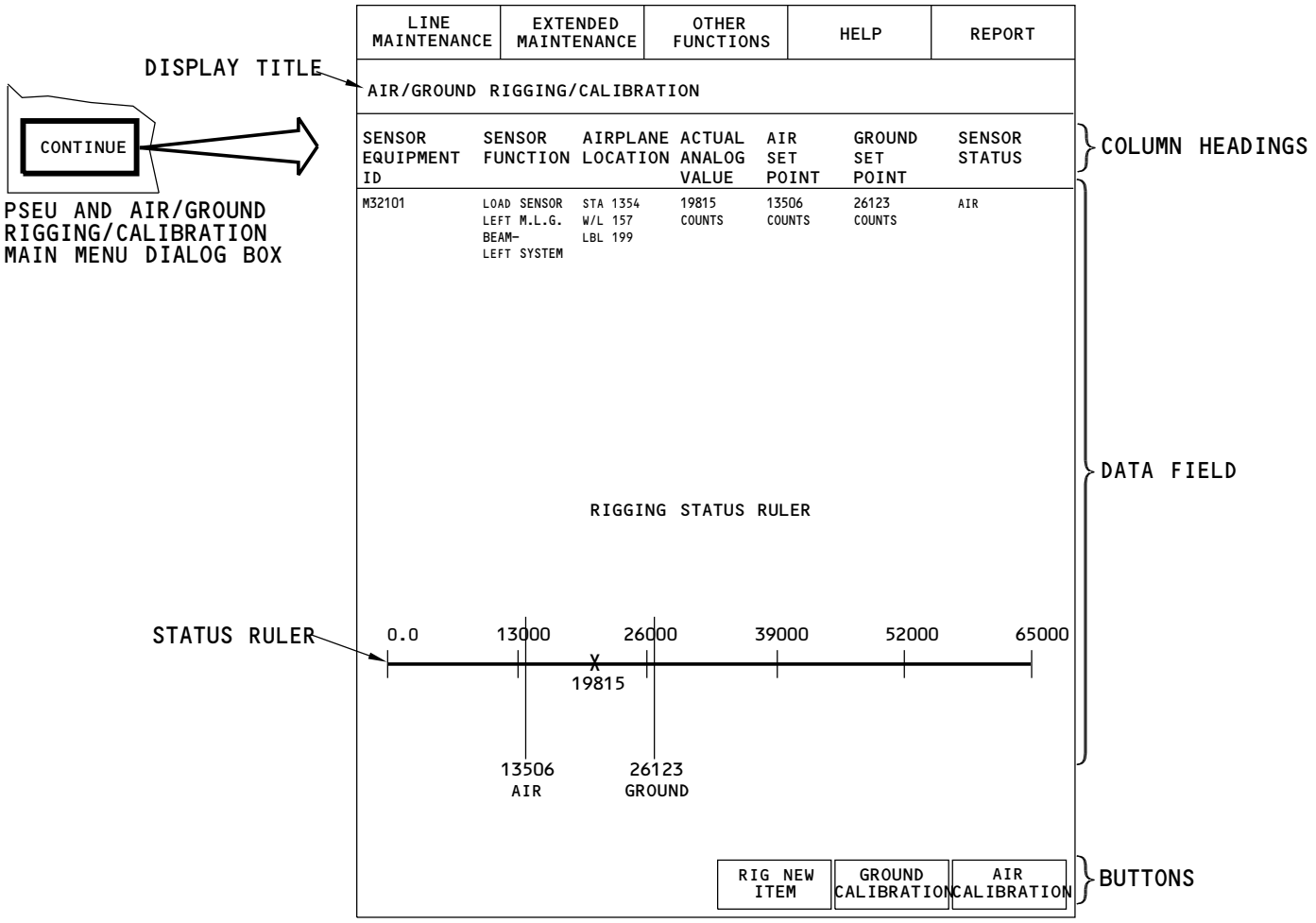
An X on the ruler marks the spot of the actual analog value from the PSEU.

Air and ground sliders also show on the ruler.

Buttons

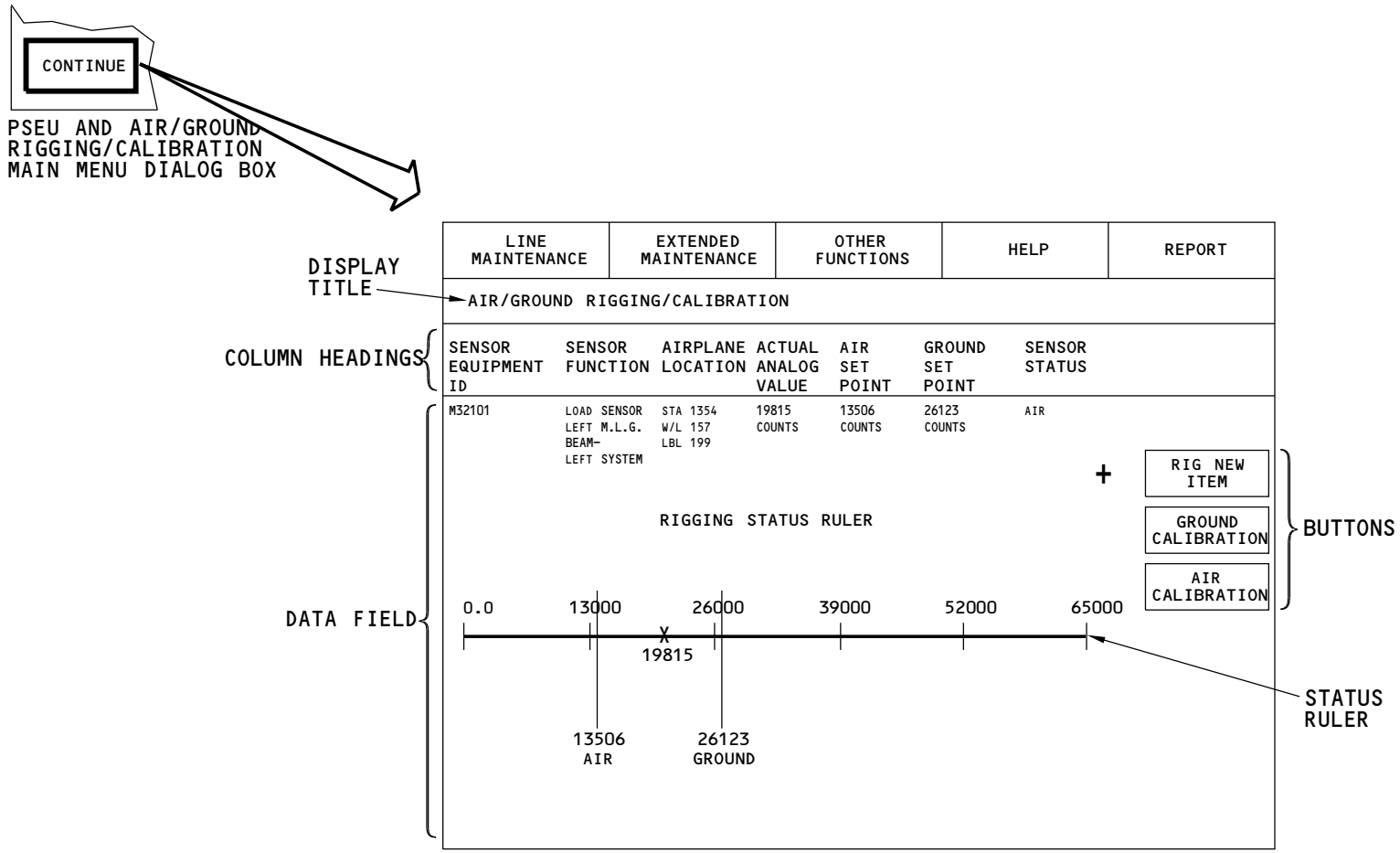
Select RIG NEW ITEM to end the rigging or calibration process for the current selection and to show the PSEU and air/ground rigging/calibration menu dialog box.

Select GROUND CALIBRATION or AIR CALIBRATION to show the rigging/calibration confirmation dialog box.



M36042 S000620724_V2

CMCS - AIR/GROUND RIGGING/CALIBRATION



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CMCS - AIR/GROUND RIGGING/CALIBRATION

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CMCS - PSEU AND AIR/GROUND RIGGING/CALIBRATION DIALOG BOXES - 1

General

Four possible dialog boxes show during the PSEU and air/ground rigging/calibration process.

These dialog boxes are:

- Rigging/calibration confirmation dialog box
- Rigging in operation dialog box
- Out of range dialog box
- Calibration inhibited dialog box.

Each dialog box has a title that shows PSEU AND AIR/GROUND RIGGING/CALIBRATION.

Each dialog box also has a message field and buttons.

Rigging/Calibration Confirmation Dialog Box

The rigging/calibration confirmation dialog box shows when any one of these command selections are made on the rigging/calibration main displays:

- NEAR CALIBRATION
- FAR CALIBRATION
- AIR CALIBRATION
- GROUND CALIBRATION.

The message shows the type of calibration.

There are three buttons on this dialog box.

Select CALIBRATE to start the rigging/calibration process.

After a successful calibration, the main calibration display shows.

The rigging in operation dialog box shows over the main display during the actual calibration process.

If calibration or rigging is not possible, the appropriate dialog box shows.

Select HELP to show the help dialog box for the rigging/calibration confirmation dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and to return to the previous display.

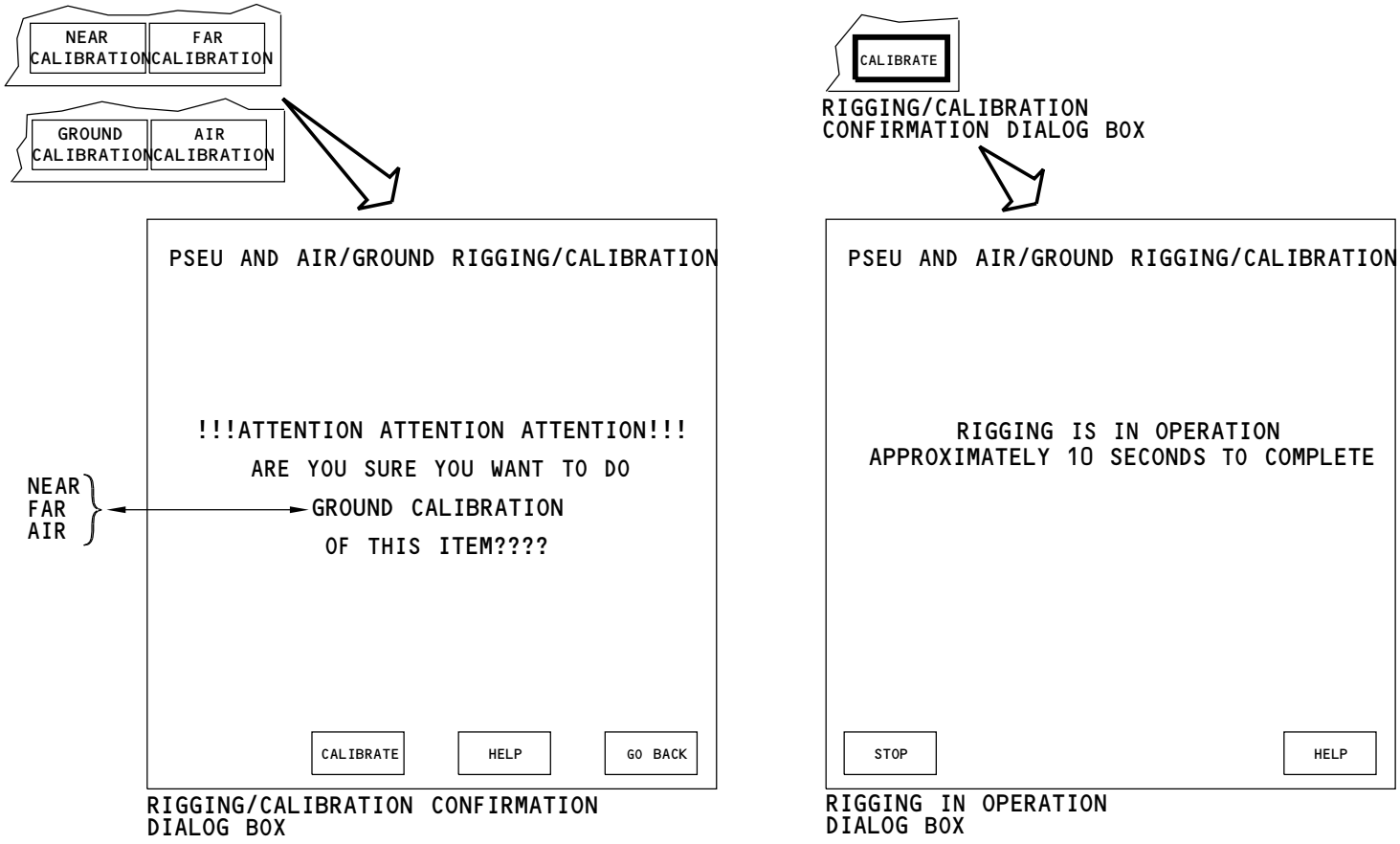
Rigging in Operation Dialog Box

The rigging in operation dialog box shows over the main display during the actual calibration process.

The dialog box has two buttons.

Select HELP to show the help dialog box for the rigging in operation dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select STOP to abort the process and remove the dialog box.



M36044 S000620726_V1

CMCS - PSEU AND AIR/GROUND RIGGING/CALIBRATION DIALOG BOXES - 1

Out Of Range Dialog Box

The out of range dialog box shows after the CALIBRATE selection if the sensor cannot be calibrated.

The dialog box has two buttons.

Select HELP to show the help dialog box for the out of range dialog box. Help must exist in the CMCF AMI for HELP to show.

Select GO BACK to cause the dialog box to go away and the previous display to show.

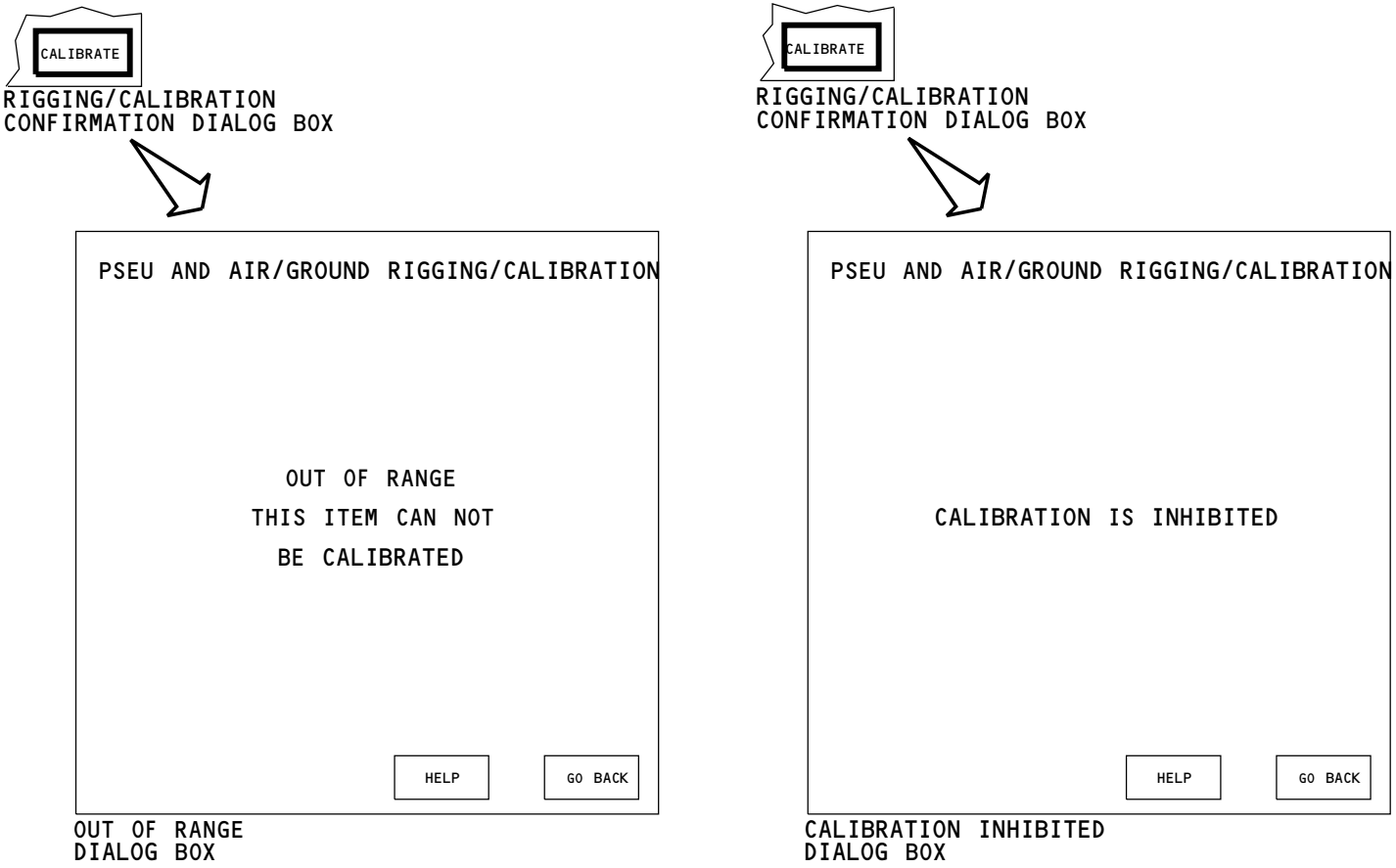
Rigging/Calibration Inhibited Dialog Box

The rigging/calibration inhibited dialog box shows after the CALIBRATE selection if sensor calibration is inhibited for any reason.

The dialog box has two buttons.

Select HELP to show the help dialog box for the rigging/calibration inhibited dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to cause the dialog box to go away and to return to the previous display.



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CMCS - PSEU AND AIR/GROUND RIGGING/CALIBRATION DIALOG BOXES - 2

CMCS - CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL DIALOG BOX

General

The central maintenance computer switch control dialog box lets the user switch the source of CMCF data to the left or right CMCF.

Display Characteristics

The dialog box has:

- Title
- Message field
- Buttons.

Message Field

The CMCF shows these messages that identifies the CMCF currently in control.

Buttons

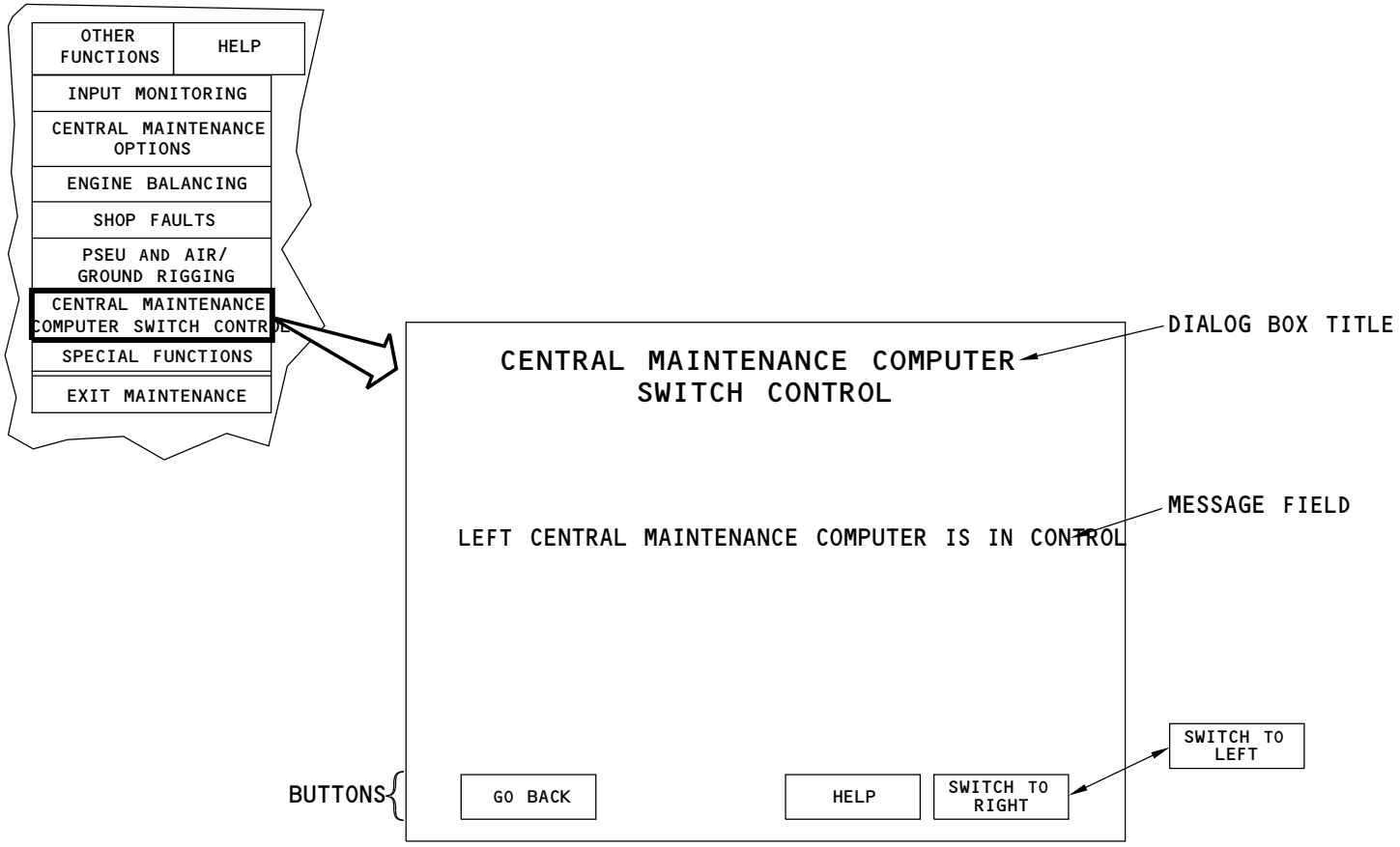
Select HELP to show the help dialog box for the shop faults shop faults status dialog box. Help must exist in the CMCF AMI for the HELP selection to show.

Select GO BACK to show all messages except Request Is In Progress. Select GO BACK to remove the shop faults status dialog box and to return to the previous screen.

SWITCH TO LEFT and SWITCH TO RIGHT are toggles. If the left CMCF is in control then the button shows SWITCH TO RIGHT.

If the right CMCF is in control then the button shows SWITCH TO LEFT.

Select SWITCH TO LEFT or SWITCH TO RIGHT to remove the dialog box and to show an inhibit dialog box or a confirmation dialog box.



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CMCS - CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL DIALOG BOX

CMCS - CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL INHIBIT DIALOG BOX

General

The central maintenance computer switch control inhibit dialog box shows if a condition exists that affects the ability of the CMCF to switch sources.

Display Characteristics

The dialog box has:

- Title
- Message field
- Buttons.

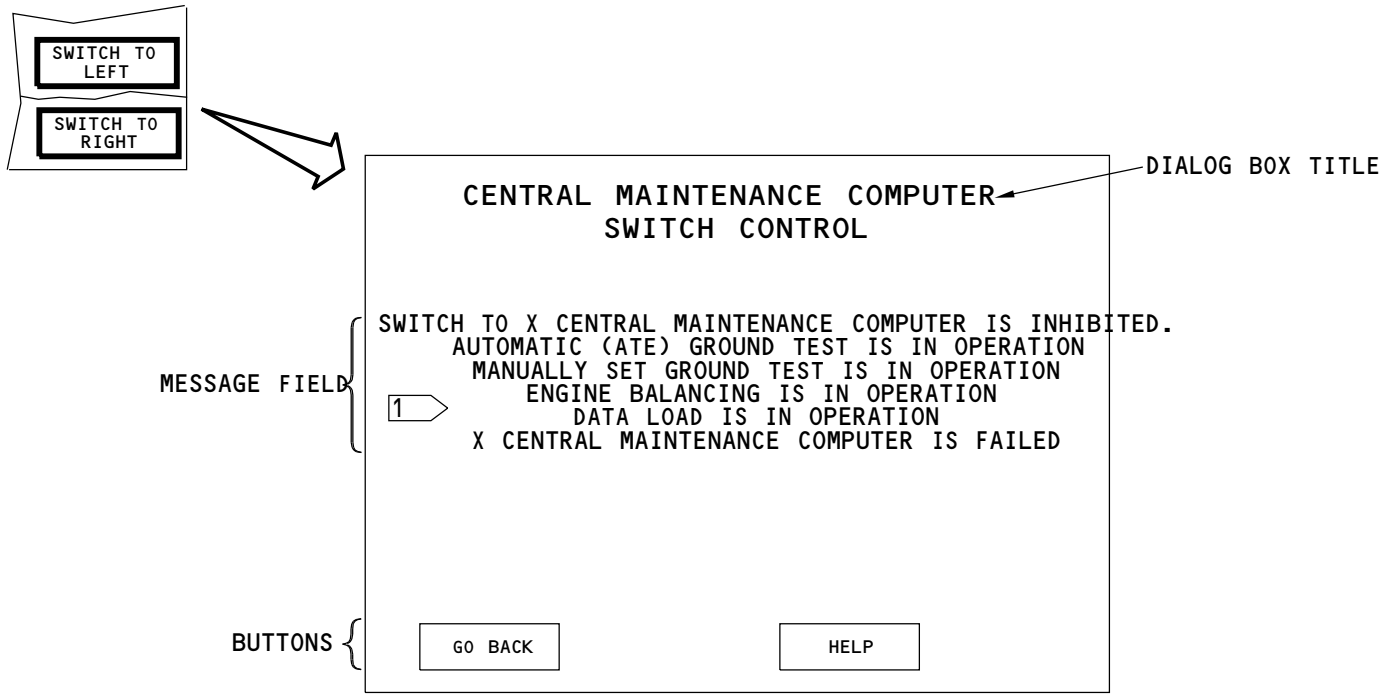
Message Field

The CMCF shows one or more messages that identify the specific inhibits.

Buttons

Select HELP to show the help dialog box for the central maintenance computer switch control dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box to return to the previous display.



1 X = LEFT OR RIGHT

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CMCS - CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL INHIBIT DIALOG BOX

CMCS - CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL CONFIRMATION DIALOG BOXES

General

If there are no inhibits, the selection of SWITCH TO LEFT or SWITCH TO RIGHT causes a confirmation dialog box to show.

A YES selection on the confirmation dialog box causes another dialog box to show while the CMCF switches sources.

Dialog Box Characteristics

Each dialog box has:

- Title
- Message Field
- Buttons.

Message Field

The message field on each dialog identifies the current condition of the CMCF and provides instructions.

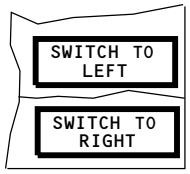
Buttons

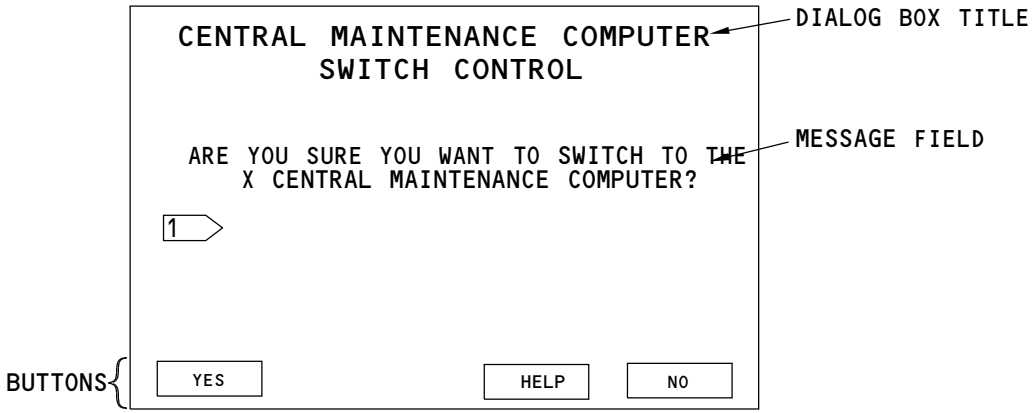
The first dialog box has three buttons.

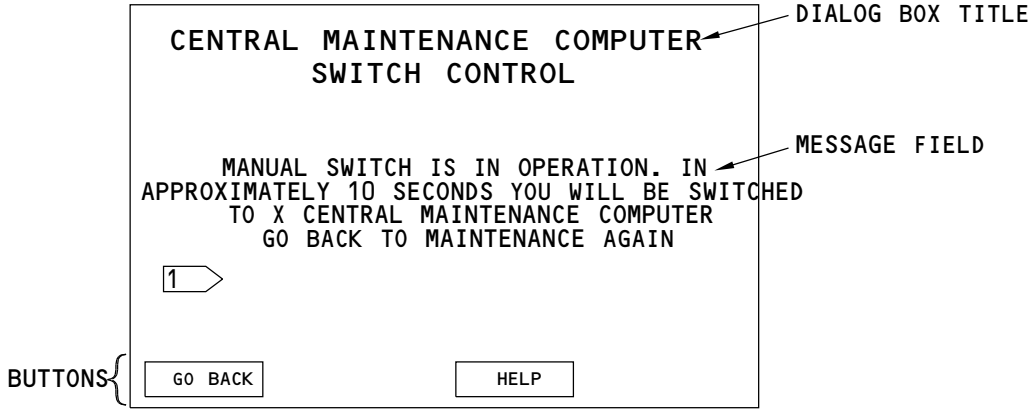
Select YES to show the second dialog box.

Select HELP on both to show the help dialog box for the central maintenance computer switch control dialog box. Help must exist in the CMCF AMI for the HELP selection to show.

Select GO BACK on the dialog box to remove all dialog boxes and to return to the previous display.







1 X = LEFT OR RIGHT

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CMCS - CENTRAL MAINTENANCE COMPUTER SWITCH CONTROL CONFIRMATION DIALOG BOXES

CMCS - SPECIAL FUNCTIONS DIALOG BOX

General

The SPECIAL FUNCTIONS selection supplies you with access to airplane systems that have unique maintenance functions.

Many ATA systems and LRUs have unique requirements that cause additional dialog boxes to show before the function starts. The types of dialog boxes include:

- Precondition dialog box
- Inhibit dialog box
- Interference dialog box
- Interactive dialog box
- Menu abort dialog box.

When you meet all unique requirements, the special function display shows with status and instructions for the special function.

Special Functions Selection Dialog Box

The special functions selection dialog box has:

- Title
- Select ATA list box
- Select function list box
- Button area.

Select ATA List Box

The select ATA list box shows the airplane systems in ATA order. You must choose an ATA system first. This selection causes the functions for that ATA to become available.

Select Function List Box

The select function area list box has all the LRUs in the ATA that have a special function available.

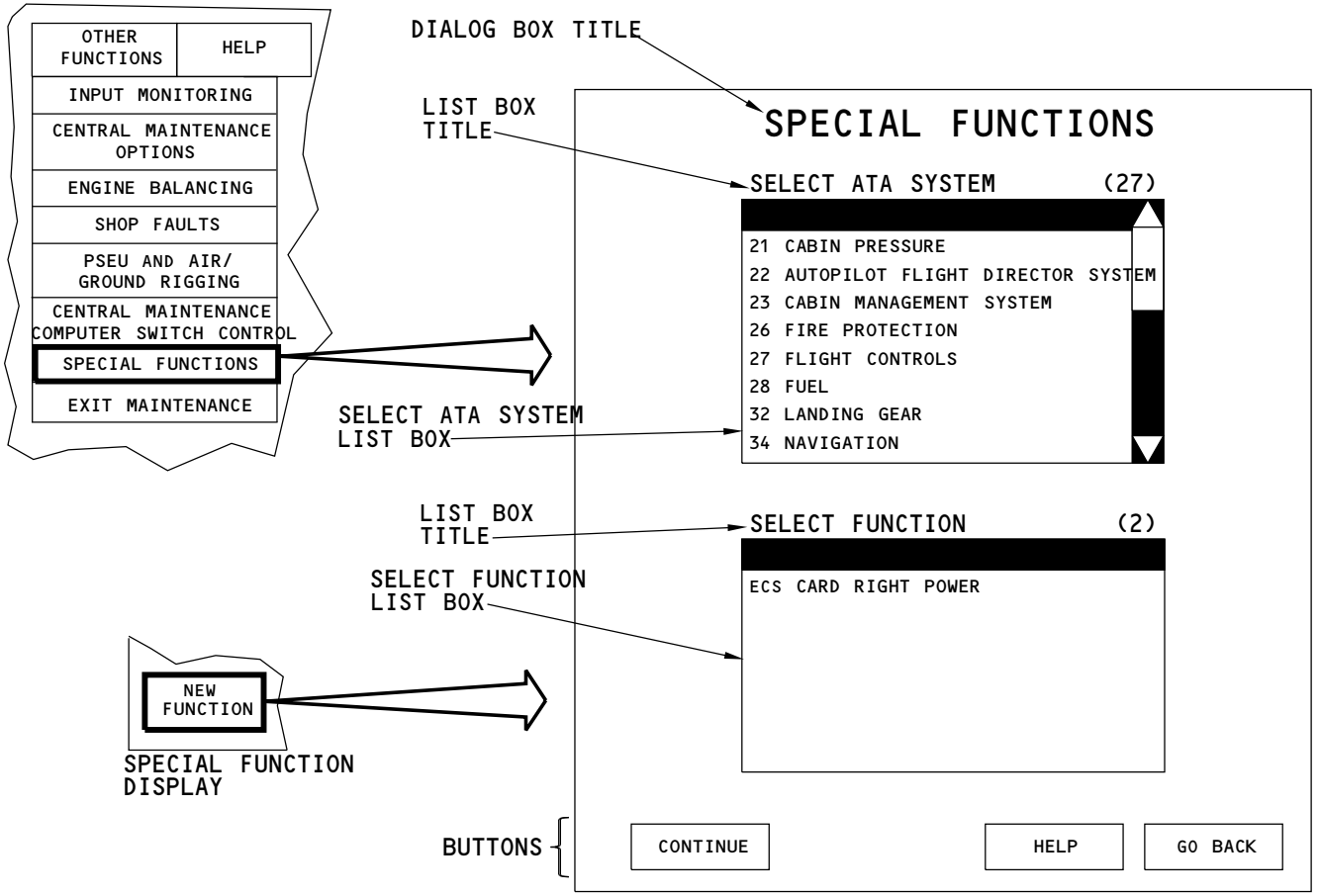
The selection of the LRU with a special function makes the CONTINUE command available.

Button

Select CONTINUE to show the precondition dialog box on top of the ground test selection dialog box for the selected special function.

Select HELP to show the help dialog box for the special function dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the special function selection dialog box and to return to the previous display.



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CMCS - SPECIAL FUNCTIONS DIALOG BOX

CMCS - SPECIAL FUNCTIONS PRECONDITION DIALOG BOX

General

The special functions precondition dialog box is similar to the ground test precondition dialog box. The special functions precondition dialog box contains:

- Title
- Special function title
- Special function description
- Precondition list
- Buttons.

Special Function Title

The special function title shows the name from the selection made on the special function selection dialog box.

Special Function Description

The test description is a brief description about the special function.

Precondition List

The precondition list gives instructions to follow before you run the special function.

The precondition display database stores the special function description and the precondition list.

Buttons

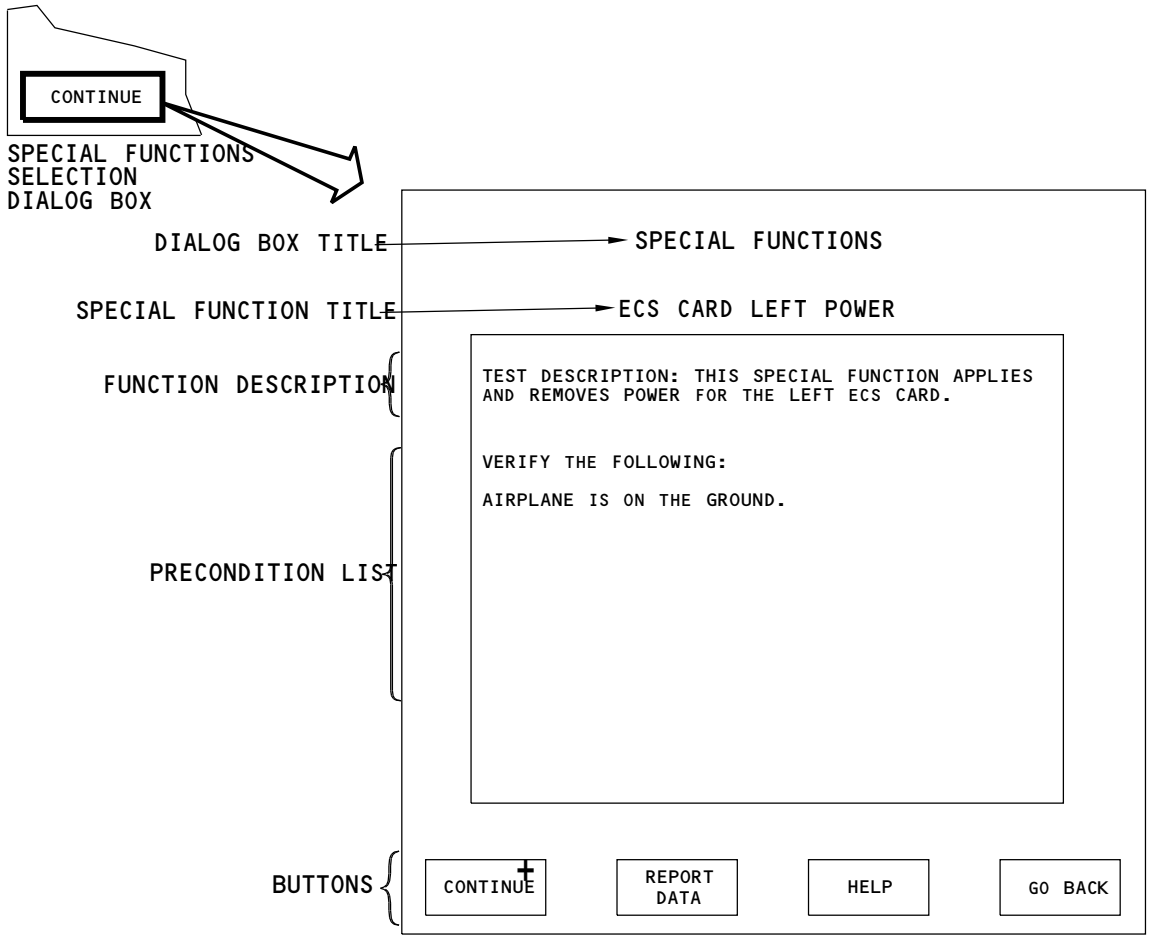
The precondition dialog box shows four buttons.

Select CONTINUE to close the special function selection dialog box (if open), the precondition dialog box, and to show the special function display.

Select REPORT DATA to show the report dialog box.

Select HELP to show the help dialog box for the special function precondition dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the precondition dialog box and to return to the previous display.



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CMCS - SPECIAL FUNCTIONS PRECONDITION DIALOG BOX

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CMCS - SPECIAL FUNCTION MAIN DISPLAY

General

The SPECIAL FUNCTION main display supplies status information and control for the special functions.

The SPECIAL FUNCTION display shows this data:

- Display title
- ATA chapter and name
- Special function title
- FUNCTION CONDITION messages
- Function control selections
- Text field
- Text field title
- Buttons.

ATA Chapter and Name

This field shows the ATA chapter and system name from the initial selection on the special functions selection dialog box.

Special Function Title

This field shows the system function title from the initial selection on the special function selection dialog box.

Function Condition Messages and Control Selections

The function condition messages field can show these messages:

- READY
- INHIBITED
- CAN NOT OPERATE
- OPERATING
- STOPPED
- COMPLETE.

These are the possible function control buttons:

- START FUNCTION
- STOP FUNCTION
- OPERATE FUNCTION AGAIN
- TO START FUNCTION.

READY shows when no inhibits or no interference conditions exist. The START FUNCTION button shows adjacent to the READY message.

Select START FUNCTION to begin the function. OPERATING shows as the message.

When OPERATING shows, the button changes to STOP FUNCTION.

Select STOP FUNCTION to stop the function and show the STOPPED message.

At the completion of the function, COMPLETE shows.

With STOPPED, or COMPLETE as the message, OPERATE FUNCTION AGAIN shows as the button.

Select OPERATE FUNCTION AGAIN to show the precondition dialog box.

INHIBITED shows when a test inhibit condition exists. The TO START FUNCTION control selection shows adjacent to the message.

The TO START FUNCTION selection in this example causes the function inhibit dialog box to show.

CAN NOT OPERATE shows as the message if a function interference condition exists. The TO START FUNCTION control selection shows adjacent to the message.

The TO START FUNCTION selection in this case causes the function interference dialog box to show.

If the LRU stops the special function, STOPPED shows as the message and TO START FUNCTION shows as the control selection.

CMCS - SPECIAL FUNCTION MAIN DISPLAY

Text Field

If the message STOPPED shows in the function condition field, and the user stops the function, or the member system stops the function, then the text field shows one of these messages:

- User Stopped the Function
- Member System Stopped the Function.

Text Field Title

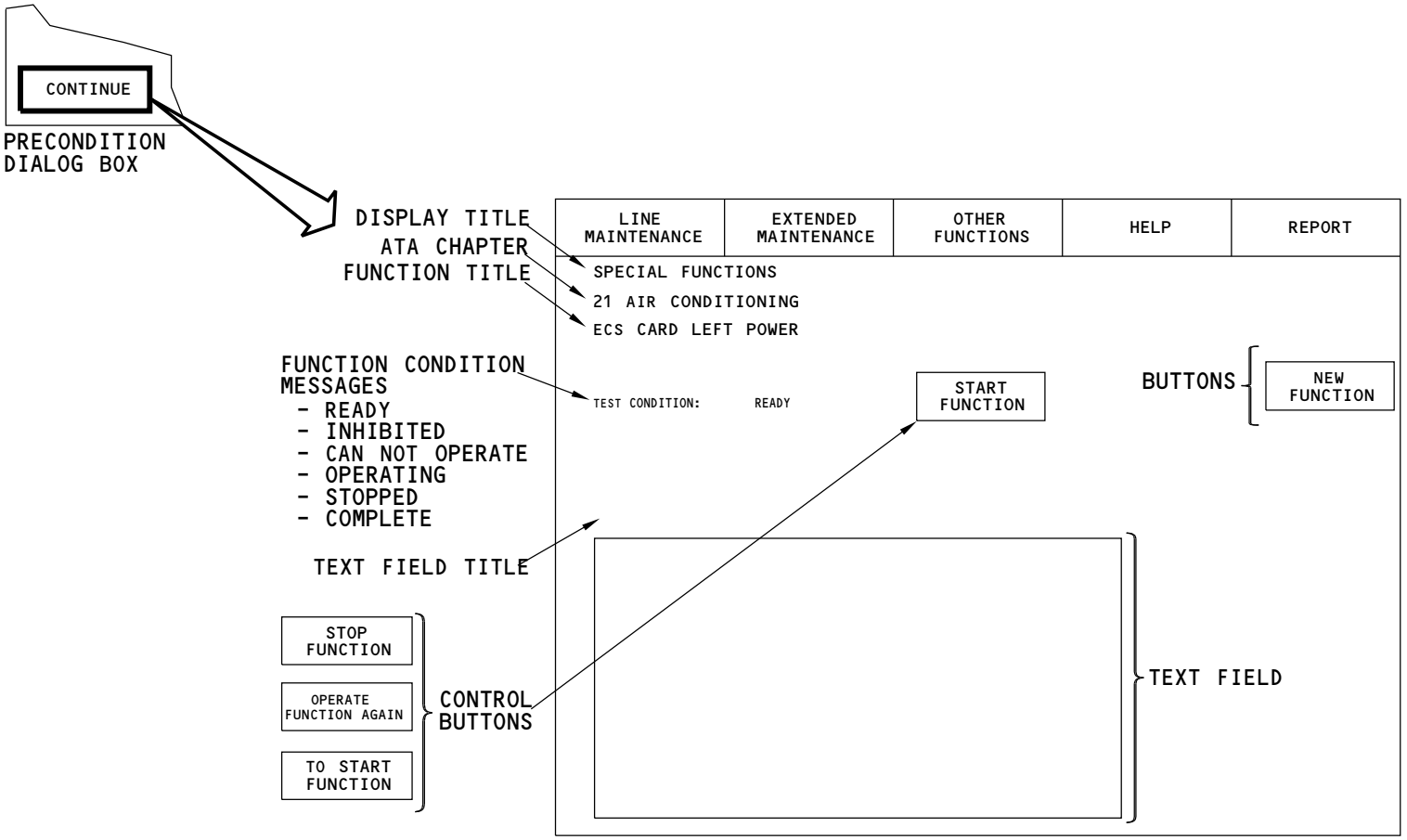
When STOPPED shows in the function condition field, the title of the text field is CAUSE.

Buttons

Select NEW FUNCTION to show the special function selection dialog box.

Button

Select NEW FUNCTION to show the special function selection dialog box.



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CMCS - SPECIAL FUNCTION MAIN DISPLAY

CMCS - SPECIAL FUNCTION INTERACTIVE DIALOG BOX

General

Interactive dialog boxes show when interaction by the user is necessary to complete the function.

The member systems control the interactive displays. LRUs in the member systems send a control signal that tells the CMCF to show the interactive displays as necessary. When the CMCF gets the control signal, any existing interactive displays close.

Each interactive dialog box has:

- Dialog box title
- Function title
- Messages
- Buttons

Function Title

The function title shows the title of the function from the initial selection on the special functions selection dialog box.

Messages

The messages area shows directions to complete the function.

The message area also shows any warnings associated with the function.

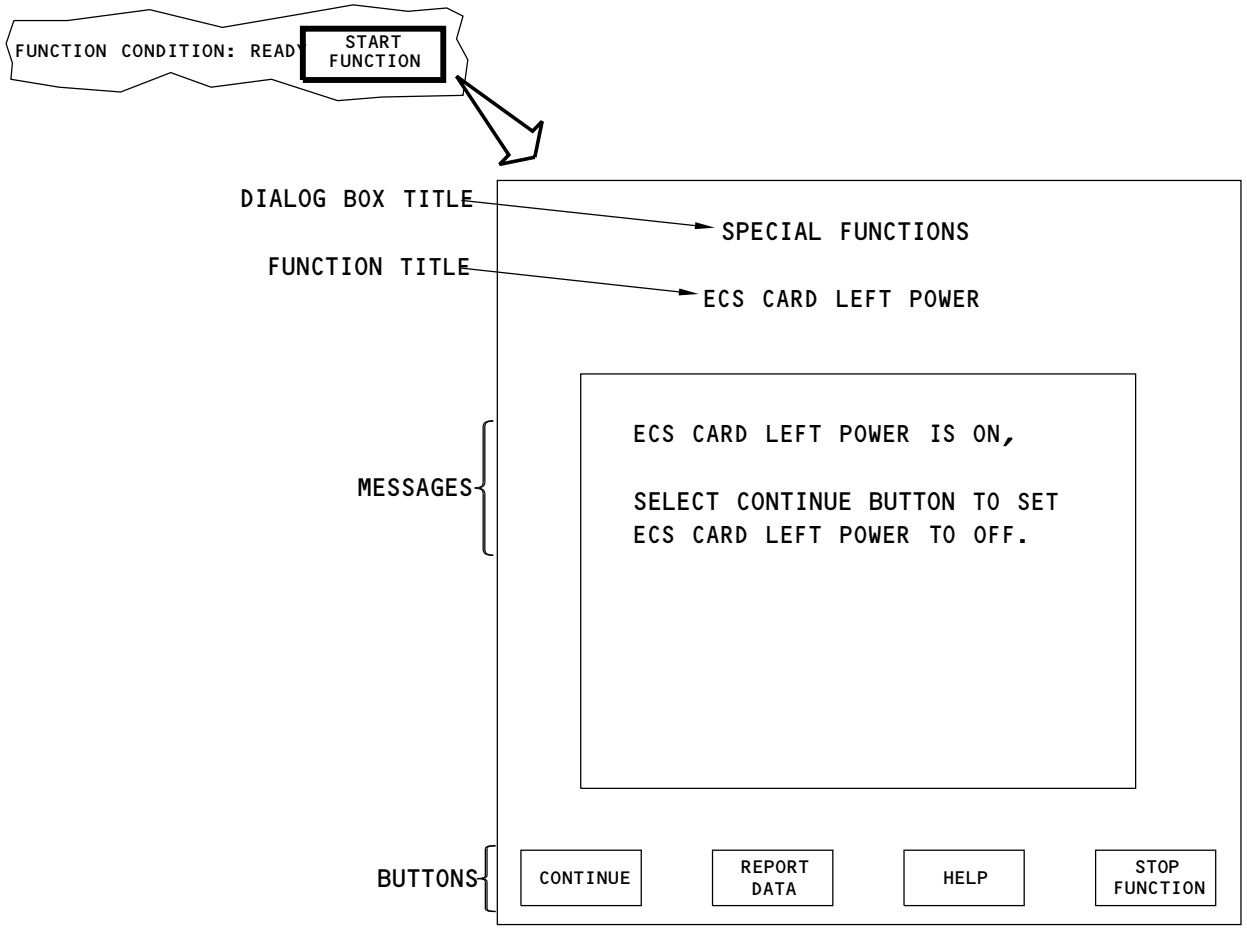
Buttons

Select CONTINUE to remove the interactive dialog box and the to start the function.

Select STOP FUNCTION to remove the interactive dialog box and to show STOPPED as the FUNCTION CONDITION message on the special function display. The control selection shows OPERATE FUNCTION AGAIN.

Select REPORT DATA to show the report dialog box.

Select HELP to show the help dialog box for the interactive dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.



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CMCS - SPECIAL FUNCTION INTERACTIVE DIALOG BOX

CMCS - SPECIAL FUNCTION INHIBIT AND INTERFERENCE DIALOG BOXES

Function Inhibit Dialog Box

When the FUNCTION CONDITION message shows INHIBITED, the control command changes to TO START FUNCTION.

Select TO START FUNCTION to show the function inhibit dialog box.

The dialog box has:

- Box title
- Function title
- Instructions to continue the function
- Buttons.

The function title shows the title from the original selection on the special function selection dialog box.

The instructions tell why the function is inhibited and how to enable the function.

After the inhibit condition goes away, select CONTINUE to remove the dialog box to enable the function to continue.

Select REPORT DATA to show the report dialog box.

Select HELP to show the help dialog box for the function inhibit dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the function inhibit dialog box and to return to the previous display.

Function Interference Dialog Box

When the FUNCTION CONDITION message shows CAN NOT OPERATE, the control command changes to TO START FUNCTION.

Select TO START FUNCTION to show the function interference dialog box .

The dialog box has:

- Box title
- Function title
- Function interference information
- Buttons.

The box title always shows SPECIAL FUNCTIONS.

The function title shows the title from the original selection on the special function selection dialog box.

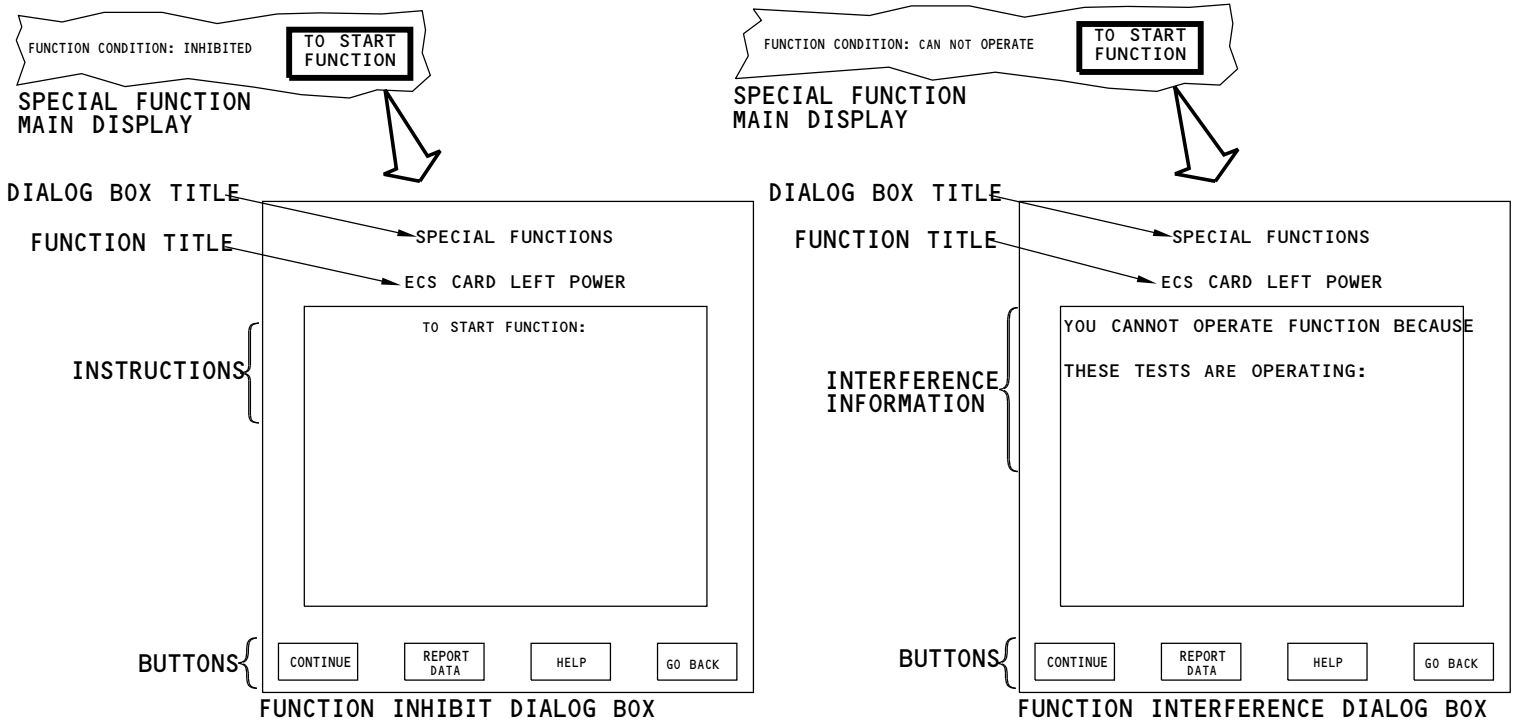
The function interference information has the header (You cannot operate this function because these functions are operating) and a numbered list of the tests that cause the interference.

After the interference condition goes away, select CONTINUE to remove the dialog box to enable the function to continue.

Select REPORT DATA to show the report dialog box.

Select HELP to show the help dialog box help for the interference dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the function interference dialog box and to return to the previous display.



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CMCS - SPECIAL FUNCTION INHIBIT AND INTERFERENCE DIALOG BOXES

CMCS - SPECIAL FUNCTION MENU ABORT DIALOG BOX

General

The menu abort dialog box shows when a selection other than HELP is made from the main menu title bar or the user selects NEW FUNCTION and a function is in progress.

The dialog box has:

- Dialog box title
- Message text
- Buttons.

Message Field

The message text provides instructions to stop or continue the function.

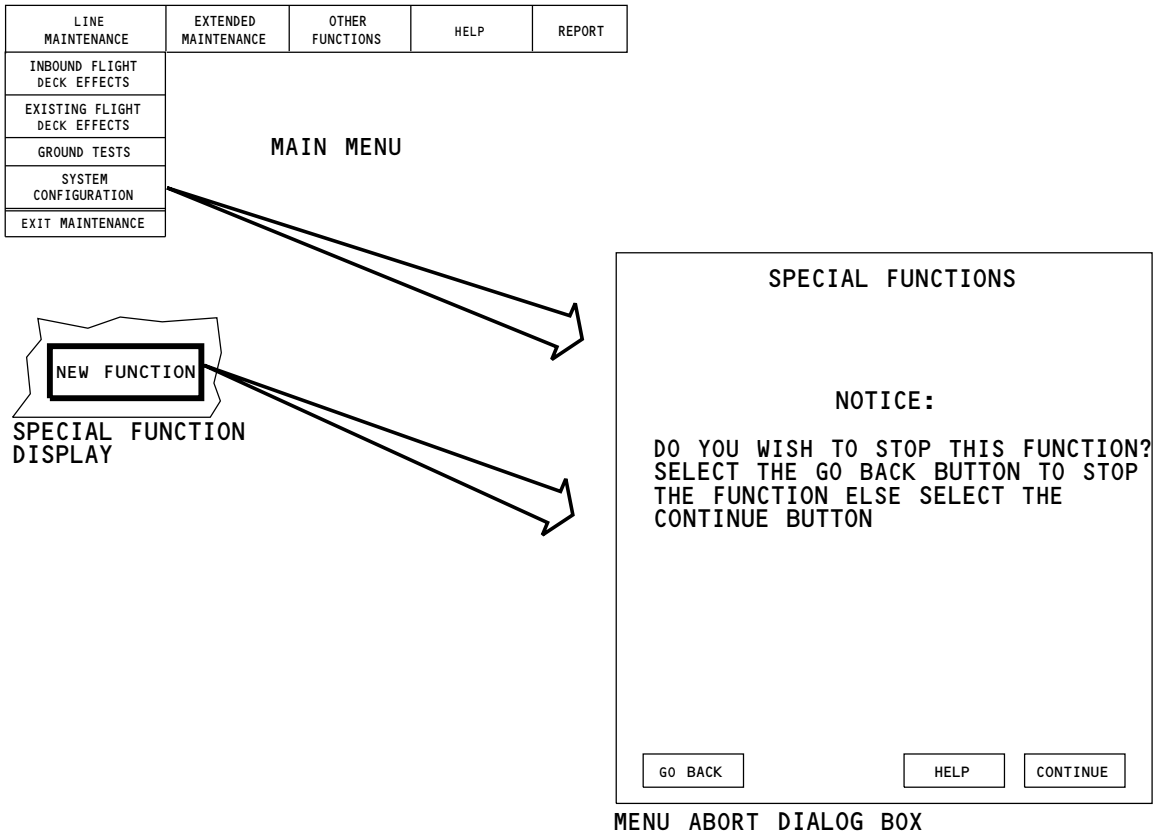
Buttons

Select GO BACK to do this:

- Stop the function
- Close the menu abort dialog box
- Process the main menu selection or the NEW FUNCTION selection.

Select HELP to show the help dialog box for menu abort dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select CONTINUE to remove the menu abort dialog box.



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CMCS - SPECIAL FUNCTION MENU ABORT DIALOG BOX

CMCS - HELP FUNCTION

General

The main menu HELP selection is available on every CMCF display. The selection of HELP causes the menu with SCREEN HELP and GENERAL HELP to show.

A HELP button also shows on many of the CMCF dialog boxes.

The information on the help dialog boxes comes from data in the CMCF airline modifiable information (AMI).

SCREEN HELP

Select SCREEN HELP to get information about the present display.

If the CMCF does not have AMI data, this message shows:

- NO HELP, Maintenance Airline Modifiable Information (AMI) is not loaded.

If the AMIis loaded but no help is available for the present screen, this message shows:

- NO HELP, help is not assigned in the Maintenance Airline Modifiable Information (AMI).

If there is help data, a dialog box with a display title and a scrollable text field shows with the specific help for the present display.

Each dialog box has two command selections. Select REPORT DATA to show the report dialog box. Select GO BACK to remove the dialog box and return to the previous display.

GENERAL HELP

Select GENERAL HELP to get general help information in the CMCF AMI. If there is no CMCF AMI or if general help is not available, the dialog boxes with the applicable message show.

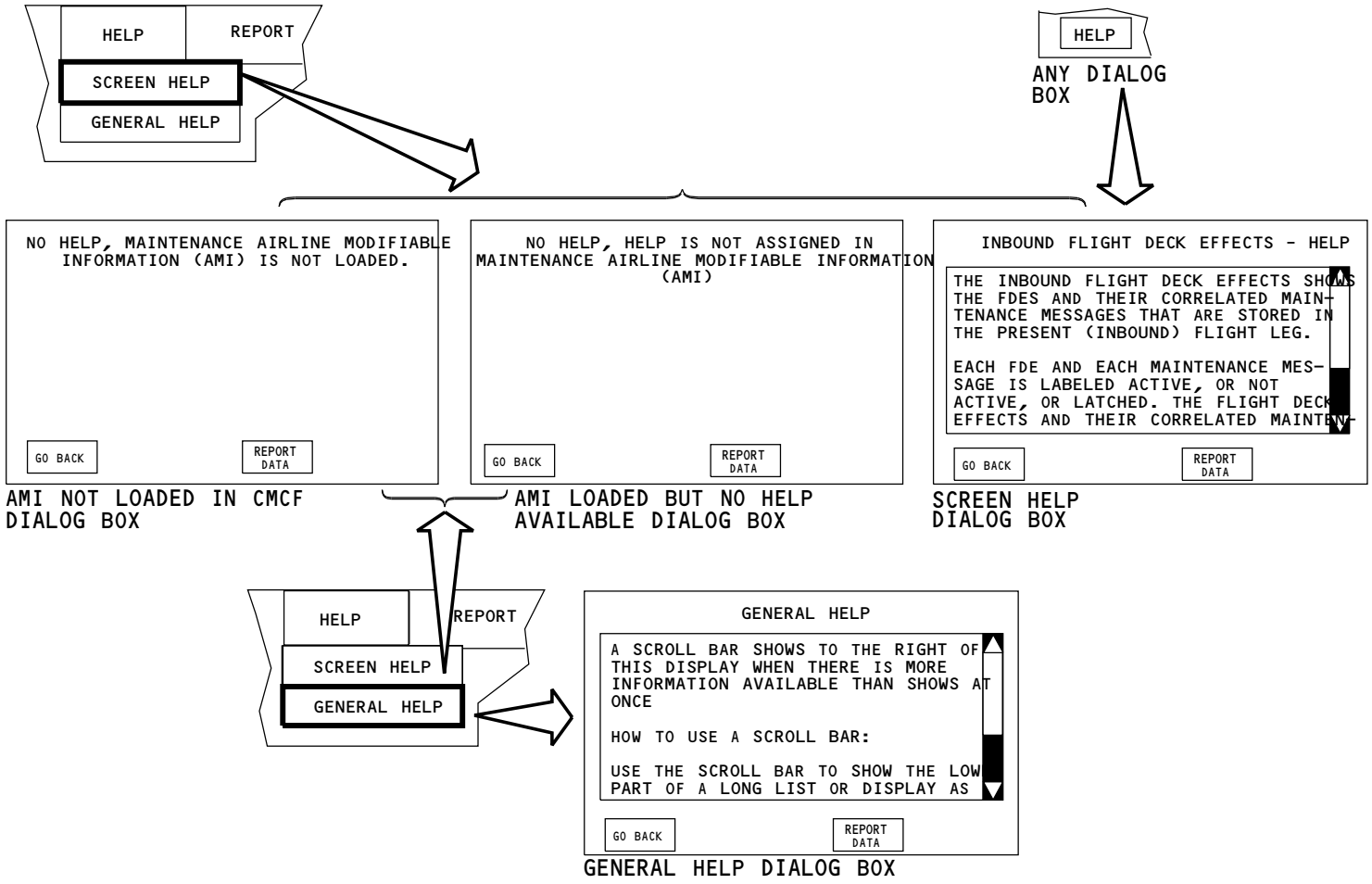
If general help is available, a scrollable dialog box shows and has the title GENERAL HELP.

The GENERAL HELP dialog box has the same two command selections as the screen help dialog box.

Dialog Box Help

If help for specific dialog boxes is available, the HELP command selection on that dialog box shows.

Select HELP on the dialog box to show the help dialog box. The dialog box has a display title and a scrollable text field with the help information for the present display.



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CMCS - HELP FUNCTION

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CMCS - REPORT OUTPUT DEVICE DIALOG BOX

General

The CMCF can generate reports from user inputs, from a ground station request or when events cause an automatic report.

The CMCF sends a print image of the reports to the flight compartment printer and the ONS MSD. The CMCF sends reports to the disk drive and a ground station in a compressed format.

The CMCF can complete one report at a time. You may send another report after the CMCF completes the first report.

Report Menu Selections

When you select any item on the report menu bar or select REPORT DATA on any dialog box, the output device dialog box shows.

Select REPORT PAGE DATA to cause a report to go to the output device for the information that shows on the display.

Dialog Box Characteristics

The dialog box has:

- Title
- Exclusive source selections
- Printer output device selection
- Disk drive output device selection
- Data link output device selection
- ONS output device selection
- Buttons.

Title

The title shows REPORT: followed by the item from the menu selection or the dialog box.

Printer Output Device Selection

The printer area has:

- Title
- Buttons
- Text area.

The buttons are SEND and STOP. When you select SEND the CMCF sends the report to that device. The SEND button is not available during these times:

- When the output device is not available
- During the transmission of a report to that device
- After the selection of OUTPUT STATUS on the menu bar.

Select STOP to abort the report in progress.

The text area shows the status of the transmission to the printer. These are the possible messages:

- Transmission in Operation
- Door Open/Printer out of Paper
- Printer Busy
- Cannot Connect to the Printer. The Printer is Inactive/Faulted
- Cannot Connect to the Printer. The Printer Does not Give a Reply
- Transmission Completed.

Disk Drive Output Device Selection

The disk drive area has:

- Title
- Buttons
- Text area.

The buttons are SEND and STOP. Their function here is the same as the printer area.

CMCS - REPORT OUTPUT DEVICE DIALOG BOX

The text area shows the status of the transmission sent to the disk drive. These are the possible messages:

- Transmission in Progress
- Insert Disk
- Change Disk
- Disk Write Protected
- Cannot Connect to the Disk Drive. The Disk Drive is Inactive/Faulty
- Cannot Connect to the Disk Drive. The Disk Drive Does not Give a Reply
- Transmission Completed to Disk Drive.

Datalink Output Device Selection

The datalink area has:

- Title
- Buttons
- Text area.

The buttons are SEND and STOP. Their function here is the same as the printer area.

The text area shows the status of the transmission sent to datalink. These are the possible messages:

- Transmission in Progress
- Datalink SYS Faulted
- Datalink Lost
- Disk Write Protected
- Transmission Completed to Ground.

ONS Output Device Selection

The ONS area has:

- Title
- Buttons
- Text area.

The buttons are SEND and STOP. Their function here is the same as the printer area.

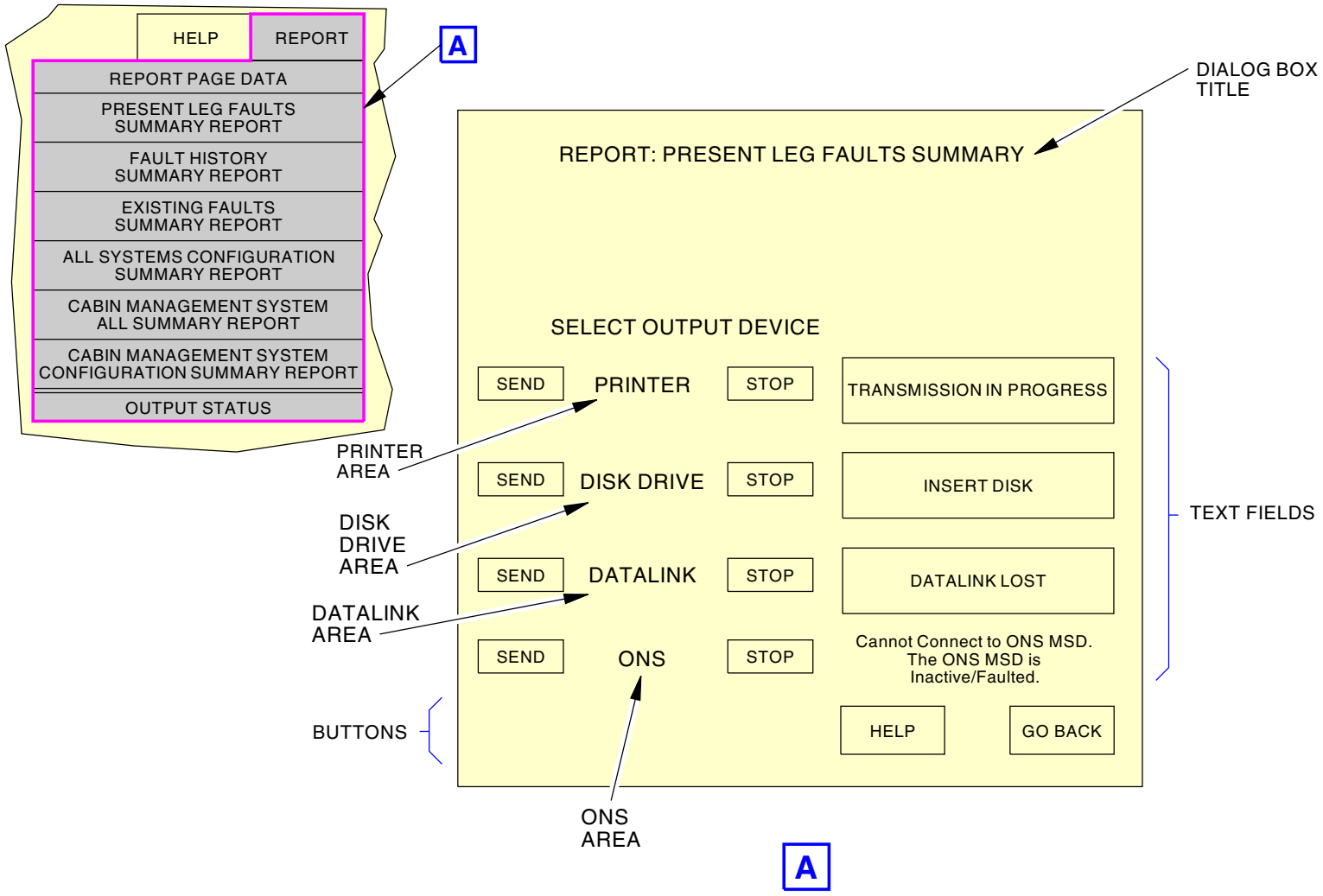
The text area shows the status of the transmission sent to ONS. These are the possible messages:

- Transmission in progress
- Cannot Connect to ONS MSD. The ONS MSD is Inactive/Faulted.
- Transmission Completed to ONS.

Buttons

Select HELP to show the help dialog box for the report output device dialog box. Help text for the dialog box must be in the CMCF AMI for HELP to show.

Select GO BACK to remove the dialog box and return to the previous display.



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CMCS - REPORT OUTPUT DEVICE DIALOG BOX

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CMCS - DOWNLINK REPORTS

General

Datalink reports are changed into short codes to lower the cost of using a satellite or ground station.

The reports have header information and can show data for FDE summary groups and maintenance message summary groups. Correlated FDEs and maintenance messages also show.

Report Header

Each report has header information that describes:

- Report type
- Report number
- Date and time sent
- Airplane tail number
- Flight number
- Flight origin and destination
- CPM/COMM OPS part number
- Active CMCF.

These are the codes for report type:

- IFDE: Inbound FDE summary report
- EFDE; Existing FDE summary report
- TEST; Ground test report
- CFG; System configuration summary report
- PLF; Present leg fault summary report
- EF; Existing faults summary report
- DL; Data load reports
- IMM; Inbound maintenance memo summary report
- EMM; Existing maintenance memo summary report
- ISMT; Inbound scheduled maintenance task summary report
- ESMT; Existing scheduled maintenance task summary report
- IMON; Input monitoring report
- OPT; Central maintenance options report
- ENG; Engine balancing report
- SFLIST; Shop fault list of contents report
- SFDATA; Shop fault data report
- PSEU; PSEU rigging/calibration report
- AGRIG; Air/ground rigging report
- SPEC; Special function report
- MSG; Single maintenance message report
- NOTES; Notes report
- HELP; Help report.

The report number is the number of reports sent to the ground during the present flight leg.

The active CMCF shows as L for left and R for right.

FDE Summary Groups

Flight deck effect (FDE) summary groups start with the code FDE. They also have the:

- Fault code
- FDE activity
- Time and date the FDE first occurred.

The codes for FDE activity are:

- A; active
- I; not active
- L; latched
- N; no activity.

CMCS - DOWNLINK REPORTS

Maintenance Message Summary Groups

Maintenance message summary groups start with the code MSG. They also have the:

- Maintenance message number
- Maintenance message activity
- Time and date the maintenance message first occurred
- Flight phase
- Intermittence
- Intermittence number
- Previous leg identifier
- Detected by identifier.

The codes for maintenance message activity are the same as for FDE activity.

These are the codes for flight phase activity:

- PO; Power on
- ES; Engine start
- TA; Taxi out
- TO; Take off
- IC; Initial climb
- CL; Climb
- ER; Cruise
- DC; Descent
- AP; Approach
- GA; Go around
- FL; Flare
- RO; Rollout
- TI; Taxi in
- SD; Shutdown
- MT; Maintenance.

These are the codes for intermittence:

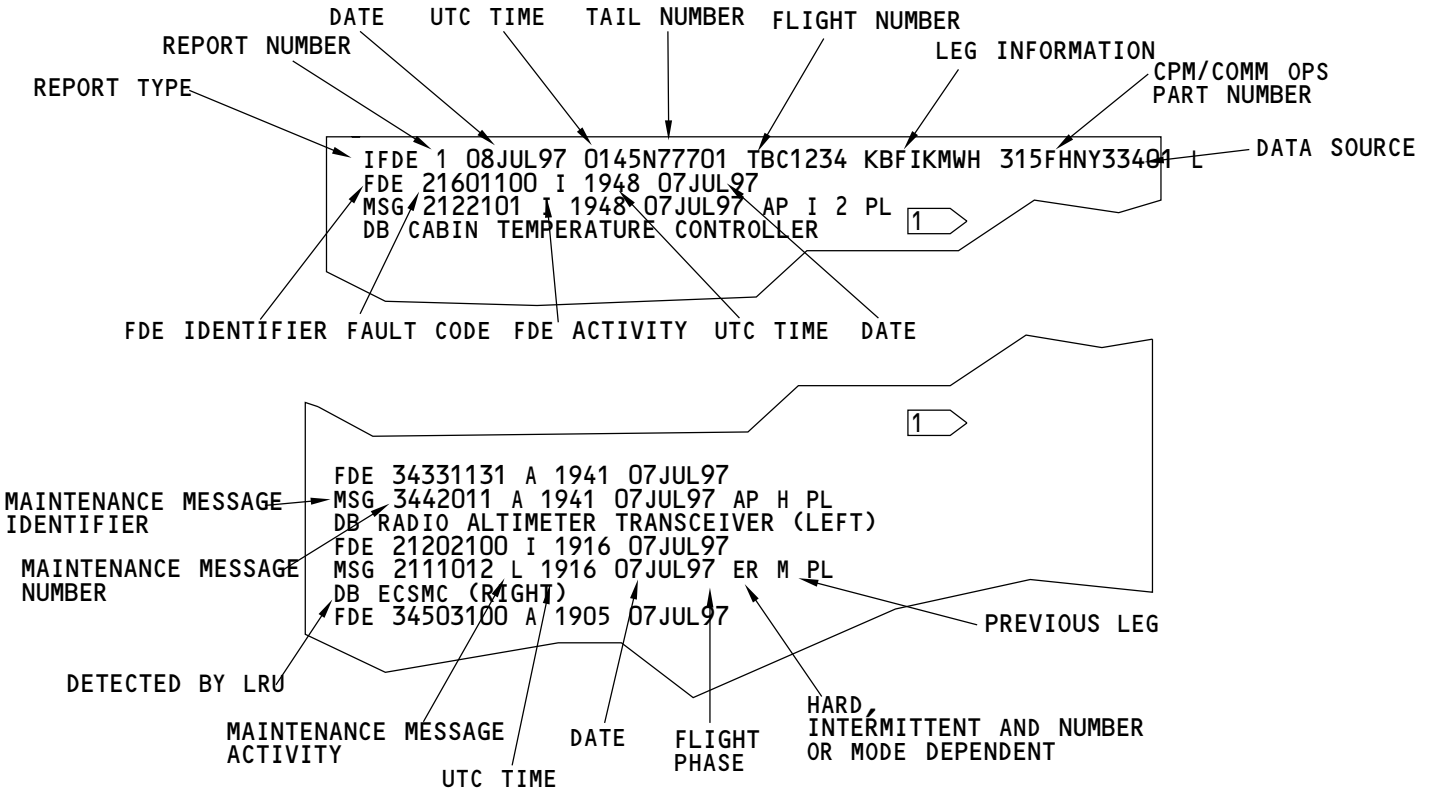
- H; Hard
- I; Intermittent
- M; Mode dependent.

If the fault occurred in a previous leg, PL will show.

The LRU that detects the fault shows after the code DB.

Correlated FDEs and Maintenance Messages

The summary groups for maintenance messages correlated to FDEs show after the FDE summary groups.



1 EXAMPLE OF INBOUND FLIGHT DECK EFFECTS DATALINK REPORT

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CMCS - DOWNLINK REPORTS

CMCS - MAINTENANCE ACCESS TERMINAL - SYSTEM TESTS

General

These are the six system tests for the maintenance access terminal (MAT):

- MAT Display Unit System Test
- MAT Display Brightness System Test
- MAT Display Unit Graphical Pattern System Test
- MAT Standard Disk Drive System Test
- MAT AVLAN System Test.

MAT Display Unit System Test

This test makes sure the power-on self-tests run correctly. The approximate time to run the test is one to three minutes.

You must do this test from a portable maintenance access terminal.

MAT Display Brightness System Test

This test makes sure the brightness control analog inputs operate correctly. The approximate time to do the test changes based on the operator.

You must do this test from a portable maintenance access terminal.

MAT Display Unit Graphical Pattern System Test

This test makes sure the graphics capability of the display operates correctly. The approximate time to do the test changes based on the operator.

You must do this test from a portable maintenance access terminal.

MAT Standard Disk Drive System Test

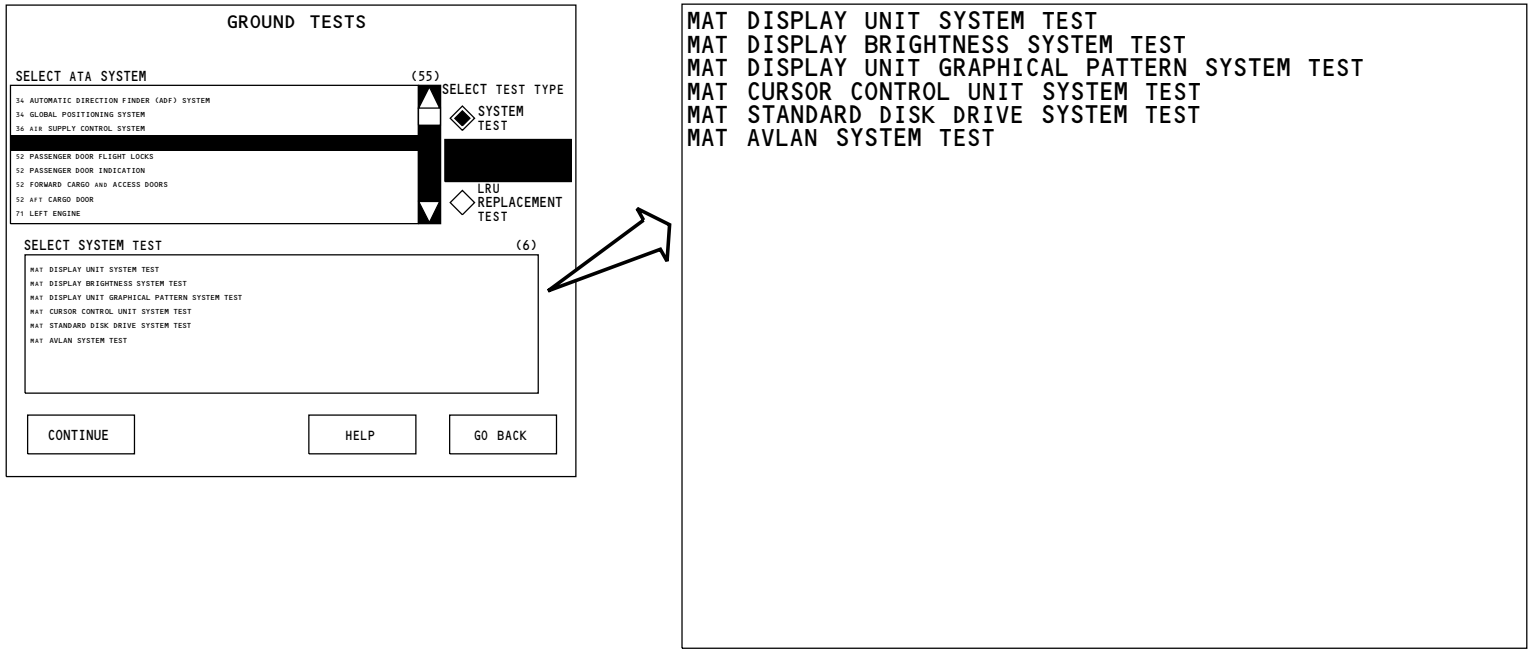
This test makes sure the standard disk drive operates correctly by writing to a diskette and reading back the results. The approximate time to do the test is less than one minute.

For this test, you will insert a formatted, writable diskette into the standard disk drive.

MAT AVLAN System Test

This test makes sure the avionics local area network (AVLAN) interface to the MAT display unit functions correctly. The approximate time to do the test is less than one minute.

You must do this test from a portable maintenance access terminal.



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CMCS - MAINTENANCE ACCESS TERMINAL - SYSTEM TESTS

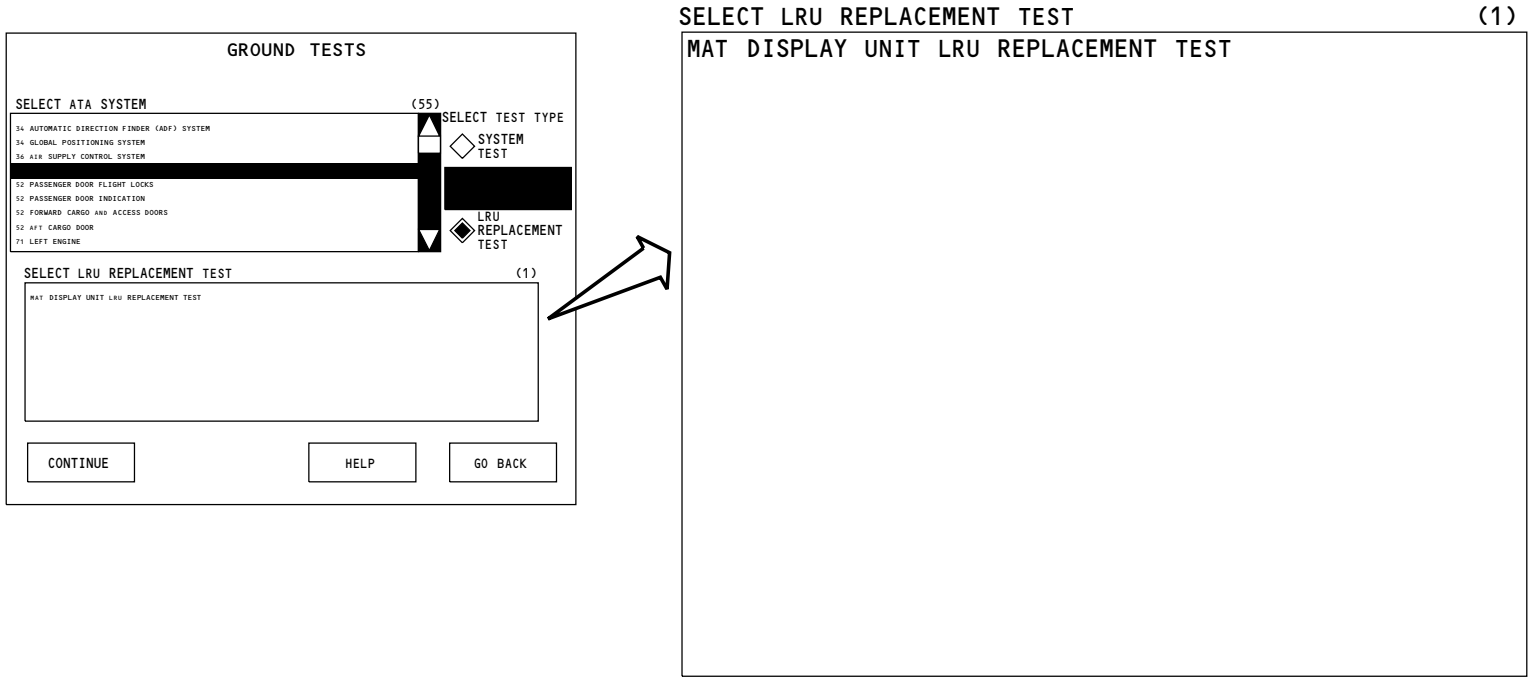
CMCS - MAINTENANCE ACCESS TERMINAL - LRU REPLACEMENT TESTS

General

There is one LRU replacement test for the maintenance access terminal (MAT). It is the MAT display unit LRU replacement test.

MAT Display Unit LRU Replacement Test

The MAT display unit LRU replacement test does a check of the fiber optics interface between the display unit and the avionics local area network (AVLAN). It also does a check of the interface between the display unit and other MAT functions.



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CMCS - MAINTENANCE ACCESS TERMINAL - LRU REPLACEMENT TESTS