767

Fault Isolation Manual

Scandinavian Airlines System

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Scandinavian Airlines System
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To: All Holders of Boeing Document D633T633.

Attached is the current revision to Document D633T633, Boeing 767 Fault Isolation Manual for Scandinavian Airlines System.

FILING INSTRUCTIONS

The Fault Isolation Manual is furnished as a printed manual, on microfilm cartridges, on magnetic tape, or any combination of the three. This revision replaces all previous microfilm cartridges and magnetic tapes; all microfilm cartridges and magnetic tapes are reissued with all obsolete data deleted and all updated data added.

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Each page in the LEP is identified by Chapter-Section-Subject number, page number, page date, and page code. Pages replaced or obsoleted by this revision should be removed.

NOTE: Pages may be dated earlier, the same as, or later than the replaced page. Therefore, it is important that both the page date and page code in the LEP be used when filing pages. Agreement of the first two digits (left of decimal), between LEP code and page code, assures that the page is correct for the manual. Only revised pages will have the decimal and following number(s) appear on both the page and the LEP. The decimal and following numbers are for Boeing internal use and may be on an old page but not appear on the LEP.

TEMPORARY REVISIONS

Remove any Temporary Revisions that have a date earlier than the date of this revision.

Do not remove any Temporary Revisions (TRs) that have a date later than the date of this revision. TRs with a later date will be incorporated in the next revision of the manual (unless they are superseded by a subsequent TR).

A TR Status Report is sent with each TR. The TR Status Report has a list of all TRs that were sent for this manual during the last two scheduled revisions. At the top of the list are the date and time that the list was created.

When you have more than one TR, the TR Status Report with the latest date and time gives you the most current information.

Scandinavian Airlines System
HIGHLIGHTS

CHAPTER 00 - INTRODUCTION

EICAS MESSAGE LIST 1,12 23	Changed the data for auto event messages.
EICAS MESSAGE LIST 36	Changed MAIN CARGO DOOR message level from W to A.

CHAPTER 21 - AIR CONDITIONING

21-EICAS MESSAGES 3-6 8	Changed the FIM references for several EICAS messages.
21-FAULT CODE INDEX 4 10-11	Changed the FIM references for several fault code messages.
21-FAULT CODE INDEX 15	Changed fault code 21 58 04 00 to add data for 767 MT 21-022 R1.
21-FAULT CODE INDEX 15	Changed the format of the fault code 21 58 05 00
21-31-00 107	Changed the FIM reference in Figure 103 sheet 3 block 28 from FIM 36-23-00 to FIM 36-20-00.
21-43-00 101-110	Added Forward Cargo Compartment Heating System - Fault Isolation which replaces the data originally in FIM 21-40-00/101.
21-44-00 101-114	Added Aft/Bulk Cargo Compartment Heating System - Fault Isolation which replaces the data originally in FIM 21-40-00/101.

CHAPTER 23 - COMMUNICATIONS

23-FAULT CODE INDEX 5	Added fault code 23-11-21 for inoperative HF at altitude, but normal on the ground.

CHAPTER 24 - ELECTRICAL POWER

24-20-00 170 — Changed the connector D248A to D248B.

24-20-00 180G-180H 180J — Changed the data to the bulb resistance.

CHAPTER 27 - FLIGHT CONTROLS

27-32-00 115-116 — Changed the fault isolation for flap inputs.

27-51-00 173 — Changed the references to be AMM 27-51-26/401 and AMM 27-51-45/201.

CHAPTER 28 - FUEL

28-22-00 124 — Changed the reference.

CHAPTER 29 - HYDRAULIC POWER

29-11-00 121 — Added the data in Figure 104A to perform a test of the reservoir pressurization sytem.

CHAPTER 30 - ICE AND RAIN PROTECTION

30-41-00 108,115 — Changed the throubleshooting procedures to include data for acrylic and glass windows.

CHAPTER 31 - INDICATING/RECORDING SYSTEMS

31-51-00 119 — Added T/O Warn Sys FLAPS Problem Figure 107 sheet 3.

CHAPTER 32 - LANDING GEAR

32-61-00 115 — Added trouble-shooting step in EICAS LDG monitor procedure.

CHAPTER 36 - PNEUMATIC

36-10-00 175,179 — Change the references from HPSOV to PRV for Fig. 125 and 126, and changed the flag note numbers.

CHAPTER 38 - WATER AND WASTE

38-10-00 111 — Changed the illustration to show the capacitance measurement as picofarads.

CHAPTER 71 - POWER PLANT (PW4000)

71-PIMU MESSAGE INDEX 44-45 — Added the troubleshooting data for Message 350-23.

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REVISION RECORD

All revisions to this manual will be accompanied by a transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the date filed and the initials of the person filing, in the form below:

REVISION NO.	DATE FILED	BY	REVISION NO.	DATE FILED	BY	REVISION NO.	DATE FILED	BY

Revision Record
Figure 1

REVISION RECORD

RECORD OF TEMPORARY REVISIONS

REVISION		INSERTED		REMOVED		REVISION		INSERTED		REMOVED	
TR NO.	DATED	BY	DATE	BY	DATE	TR NO.	DATED	BY	DATE	BY	DATE

Record of Temporary Revisions
Figure 1

FIM Index
Figure 1 (Sheet 1)

FIM INDEX

73201

FIM Index
Figure 1 (Sheet 2)

252334

FIM Index
Figure 1 (Sheet 3)

252335

FIM Index
Figure 1 (Sheet 4)

FIM INDEX

73204

FIM Index
Figure 1 (Sheet 5)

50338

INTRODUCTION

1. General

A. This publication was prepared by Maintenance Engineering Technical (AMDE) Services (METS) of the Boeing Commercial Airplane Group in accordance with Air Transport Association of America Specification No. 100, Specification for Manufacturers' Technical Data. It contains information necessary to isolate and correct faults in systems and equipment installed in the 767 family of airplanes.

NOTE: THIS MANUAL IS PREPARED SPECIFICALLY TO COVER THE BOEING AIRPLANES LISTED IN THE "LIST OF EFFECTIVE AIRPLANES" SECTION, FOR THE OPERATOR NAMED ON THE TITLE PAGE.

IT CONTAINS INSTRUCTIONS AND INFORMATION APPLICABLE TO THOSE SPECIFIC AIRPLANES, IN THEIR AS-DELIVERED CONFIGURATION, PLUS ANY APPLICABLE BOEING SERVICE BULLETINS OR OTHER OPERATOR CHANGES, THE INCORPORATION OF WHICH THE NAMED OPERATOR HAS NOTIFIED BOEING.

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OPERATORS ARE RESPONSIBLE FOR ENSURING THAT THE MAINTENANCE DOCUMENTATION THEY ARE USING IS COMPLETE AND MATCHES THE CURRENT CONFIGURATION OF THE AIRPLANE.

THE BOEING COMPANY ASSUMES NO RESPONSIBILITY IN THIS REGARD.

CUSTOMIZATION DOES NOT TRACK THE CONFIGURATION OF AIRCRAFT LISTED ON THE LIST OF EFFECTIVE AIRPLANES PAGE THAT HAVE BEEN CONVEYED TO ANOTHER OPERATOR.

THIS MANUAL IS NOT SUITABLE FOR USE, INCLUDING WITHOUT LIMITATION, GENERAL INSTRUCTIONS OR TRAINING, FOR ANY AIRPLANES NOT LISTED HEREIN, NOR DOES IT NECESSARILY APPLY TO LISTED AIRPLANES THAT HAVE BEEN CONVEYED TO OTHER OPERATORS.

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      (a) Please provide this information:
         1) airline name
         2) your name
         3) phone number
         4) e-mail address
         5) airplane model-type
         6) title of manual, or document number
         7) chapter-section-subject

C. The Fault Isolation Manual (FIM) and the Fault Reporting Manual (FRM) together provide a structured method for the airplane operator to report and correct faults in the airplane systems.
   (1) The FRM is primarily for the flight crews. It contains fault code diagrams to help the flight crew identify a unique 8-digit fault code and log book report for a fault.
   (2) The FIM is primarily for the maintenance crews. It contains numerical indexes of all the fault codes given in the FRM. The indexes will give the corrective action or a reference to a fault isolation procedure for each fault.

D. For general information about the manual numbering system, arrangement, and revision service refer to the introduction in the Airplane Maintenance Manual (AMM).

2. Types of Faults

A. EICAS Messages
   (1) There are different types of messages that show on the flight compartment displays to tell the flight crew of problems or other conditions of the airplane. These are the types (levels) of messages that can show on the display units:
      (a) Warning (level A)
      (b) Caution (level B)
      (c) Advisory (level C)
      (d) Status (level S)
      (e) Maintenance (level M)
   (2) A warning message tells the flight crew of a condition that requires immediate crew action.
   (3) A caution message tells the flight crew of a condition that requires immediate crew awareness and possible crew action.
   (4) An advisory message tells the flight crew of a condition that requires crew awareness.

(5) A status message gives information to the flight crew and maintenance crew about the dispatch status of the airplane. The maintenance crew can use the status messages together with the operator's Minimum Equipment List (MEL).

(6) A maintenance message is for the maintenance crew. It does not require flight crew attention. There will be a maintenance message for most of the conditions that make a status message show. The maintenance message can be the same as the status message. Typically, maintenance messages are inhibited in flight and will only show when the airplane is on the ground.

B. Observed Faults

(1) Observed faults are problem symptoms sensed by the flight crew, maintenance crew, or cabin crew. These are the types of observed faults:

(a) Faults that are shown on the flight compartment panels and displays (other than EICAS messages):

1) Fault lights
2) Failure and alert flags
3) Other display messages
4) Indicated values and displays that are not normal

(b) Flight crew observations in the flight compartment or during walk around.

(c) Servicing crew observations

(d) Ground maintenance crew observations

(e) Problems with the systems and equipment in the passenger cabin (cabin crew observations).

C. BITE Messages

(1) Built-in test equipment (BITE) messages are the fault indications that you get from the BITE feature of the system or individual component. They help you find the cause of an EICAS message or observed fault. These are examples of typical types of BITE messages:

(a) A specific light or lights

(b) An alphanumeric code

(c) A group of English words or abbreviations, with or without an associated numeric code.

(2) You do most BITE tests at the front panel of components in the electronic equipment compartment or other equipment racks on the airplane. You do some BITE tests in the flight compartment.

3. <u>FIM Content - Front Matter</u>

A. The front matter has sections for record keeping, introductory, and general information. These are the sections:

(1) Transmittal Letter

(2) List of Effective Pages (for front matter)

(3) Revision Record

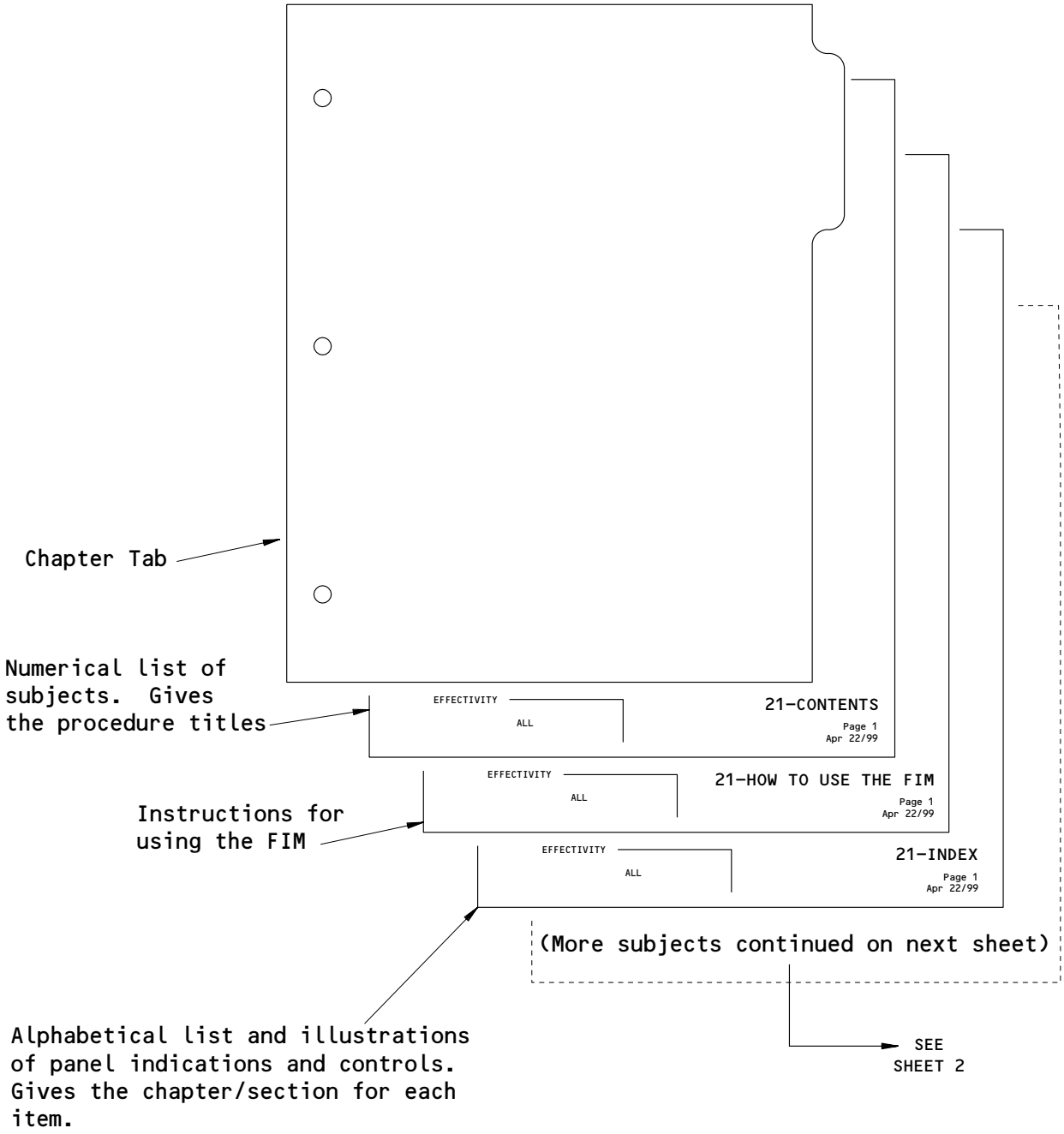
(4) Record of Temporary Revisions

(5) FIM Index

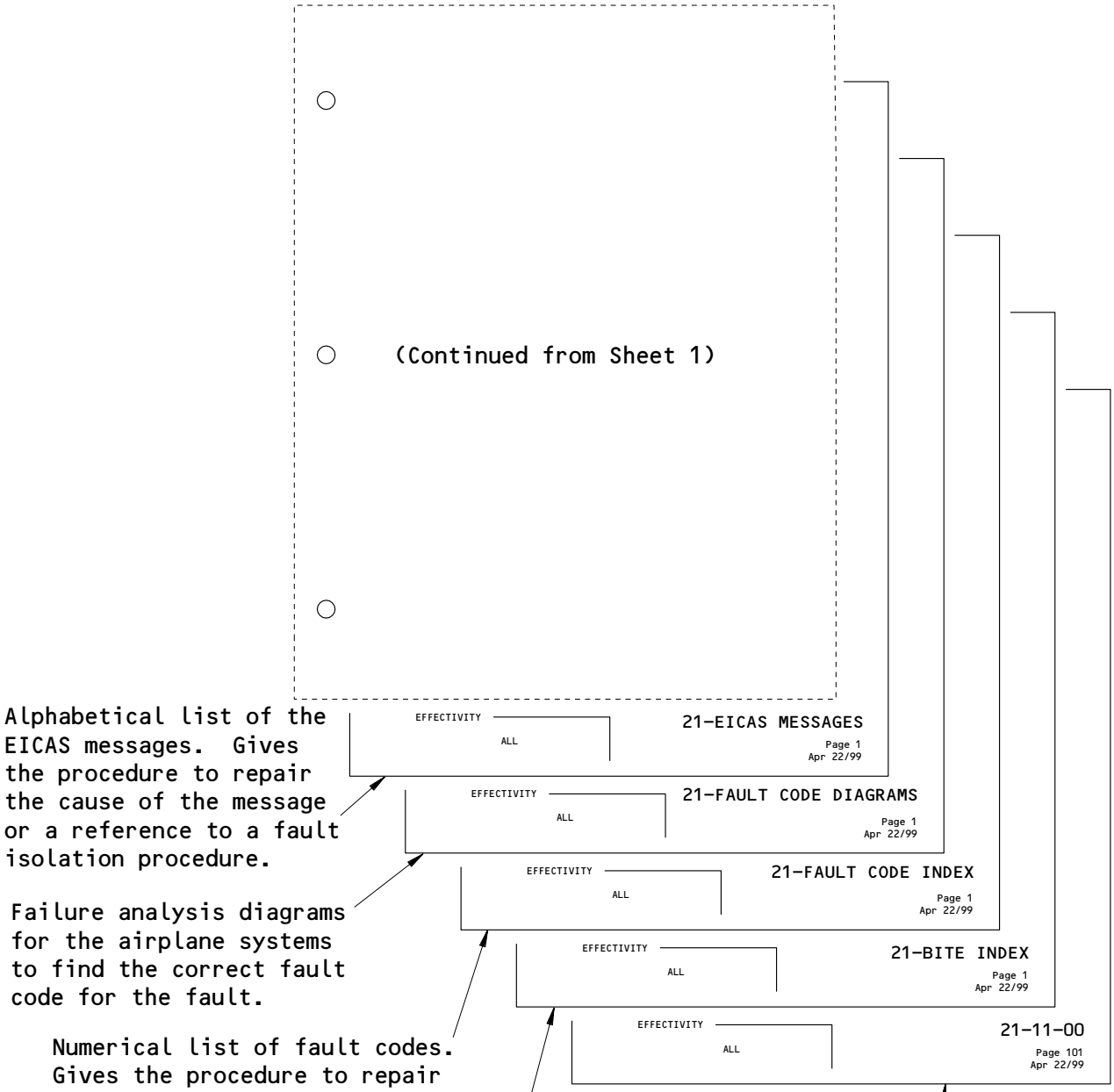
(a) The index is an alphabetical lsit of all subjects included in the FIM. For each subject, the index gives the chapter and the section in the FIM where fault isolation procedures for the subject are found.

(6) Introduction
  (a) The introduction has general information about the FIM and describes these items:
    1) Types of faults
    2) FIM contents
    3) Using the FIM to isolate faults
    4) Fault isolation procedure features.
(7) Effectivity
(8) Abbreviation List
(9) Panel Locations
  (a) The Panel Location section has these figures:
    1) Flight/Passenger Cabin Panel Locations
    2) Equipment Center Rack and Panel Locations
    3) Ground Service Points and Panel Locations
  (b) List of Service Bulletins
  (c) List of Chapters

4. FIM Content - Numbered Chapters (Fig. 1)
A. Contents
B. How to Use the FIM
(1) These are simplified illustrations that give a summary of how to use the FIM and the airplane systems BITE to isolate faults. The topics covered are:
  (a) Basic Fault Isolation Process
  (b) How To Get Fault Information from BITE
  (c) Find the Corrective Action or Fault Isolation Procedure in the FIM
  (d) Do the Fault Isolation Procedure
  (e) Subjects in Each FIM Chapter
C. Index
(1) The Index has two parts. The first part shows the panel indications and controls with the chapter and the section in the FIM where the applicable fault isolation procedures are found. The second part has a table that shows the title of each instrument panel in the chapter with the chapter and the section in the FIM where applicable fault isolation procedures are found.



Subjects in Each FIM Chapter
Figure 1 (Sheet 1)



Subjects in Each FIM Chapter
Figure 1 (Sheet 2)

(2) The Index pages are the same as the Contents pages in the FRM.

D. EICAS Messages

(1) Most chapters will have an EICAS Message table that shows all the EICAS messages for that chapter. The EICAS Message table gives the EICAS message, the level of the message, and the procedure to correct the fault.

(a) The EICAS MESSAGE column shows the messages alphabetically. Messages that start with L (left), R (right), or C (center) are put together in this list starting with L.

E. Fault Code Diagrams

(1) The Fault Code Diagrams give fault codes through problem analysis, for common faults that can occur on the airplane. Most of the diagrams are equivalent to the diagrams in the FRM. Other diagrams, shown by the word "GROUND" in the title, give the problem analysis and fault codes for ground crew operated systems.

(2) The Fault Code Diagrams have five areas of data:

(a) The top area has the controls and the indicators applicable to each subject. These items are at the top of columns that extend into the analysis part of the diagram immediately below. You can also find questions in the top area.

(b) The middle area is an analysis that you can follow to find the applicable fault code. This area is intended to relate the specific system configuration to what has been observed. The analysis starts at an arrow on the left edge of the page and continues to the right and down. A diamond in a column shows where there are two or more answers to a question about the indicator or control. The diagram gives other possible indications or answers on lines that extend down and to the right of the diamond. The analysis continues until all faults that can occur for the diagram are included. Each fault has a line that extends into the Fault Code column at the right of the page.

(c) The column at the right of the page has the fault codes. Each fault has a fault code. This fault code is used to communicate a problem that was observed to the person who will do the troubleshooting. Fault codes that end with an X-alpha (XA, XB, etc.) are used for faults that cannot be identified in the FIM.

(d) The location part of the fault codes are specified in the top right corner of the page. These codes identify the specific part of the system or location where the fault occurred.

(e) Applicable circuit breakers for a system are at the bottom of the diagram.

F. Fault Code Index

(1) The Fault Code Index is a numerical list of all fault codes for the chapter. For each fault code that is used, the index has these items:

(a) Item 1 is the problem report. This is a description of the fault. The problem report is equivalent to the logbook report entry in the FRM.

(b) Item 2 shows the steps to correct the fault. If a fault isolation procedure is necessary to correct the fault, then item 2 will refer to the applicable procedure.

G. BITE Index

(1) The BITE Index is an alphabetical list of all the systems and components that have BITE procedures in the FIM. For each system or component, this list gives the chapter-section number where you can find the BITE procedure. Each BITE procedure will give the corrective action or a reference to a fault isolation procedure for each BITE message.

H. Component Location Data

(1) Component location data is supplied for the major system components. The data is at the front of the applicable FIM chapter-section for the system or subsystem (subject). It is divided into two parts: The Component Index and the Component Location.

(a) The Component Index is a table that list the components in a system or subsystem in alphabetical order. Components that are not assigned to the section or subject, but are operationally related, are also included with a reference to its own chapter-section. For each component, the Component Index table can have this data:

1) A reference to the figure and sheet that shows the location of the component
2) Quantity of each component
3) Access number of the door or panel that must be opened to get to the component
4) Area, panel, or grid location (for circuit breakers) where the component is located
5) A reference for the chapter-section-subject in the Airplane Maintenance Manual (AMM) where the component is assigned.

(b) The Component Location figure shows the access and location of the major components in the Component Index. The components are shown in relation to any structural or system features that are near.

I. Fault Isolation Procedures

(1) The Fault Isolation Procedures are used when one or more checks are necessary to find the cause of a fault. They are usually block flow diagrams that start with a description of a fault and end with the corrective action.

(2) There are some Fault Isolation Procedures that are not block flow diagrams. These procedures can be in a tabular or text format.

(3) Each Fault Isolation procedure has a "PREREQUISITES" box. The data in this box is used to make sure the systems that are necessary to do the fault isolation are in an operational condition.

(4) For details on the structure and the content of the Fault Isolation Procedures, refer to the paragraph "Fault Isolation Procedure Features" that follows.

J. ARINC 429 Data Bus Charts

(1) The data bus charts are supplied for many of the units that have an ARINC 429 data bus output transmitter (output port) that gives data to one or more other units with an ARINC 429 bus receiver (input port).

(2) These charts show each transmitter data bus, each connector, the pins, the name of the bus, the word octal label, and the type of data. An ARINC 429 data bus transmitter and reader is necessary to monitor the buses for specific transmitted data.

5. Using the FIM to Isolate Faults

A. IF YOU HAVE A FAULT CODE for an observed fault (possibly reported by the flight crew), then use the Fault Code Index (Fig. 2):

(1) Look at the first two digits of the fault code. This is the FIM ATA chapter number you need. Go to that chapter in the FIM and find the Fault Code Index near the front of the chapter.

(2) Find the fault code for the observed fault. The fault codes are shown in sequence by numbers with all the chapter X-alpha codes (XA, XB, etc.) shown first.

(3) To correct the fault, read the "FAULT ISOLATION REFERENCE" (item 2).

(a) If item 2 gives corrective action steps, then do the steps to repair the cause of the fault.

(b) If item 2 gives a figure and block reference, then go to the specified Fault Isolation Procedure in the FIM. Start at the referenced block and follow the procedure to isolate and repair the cause of the fault.

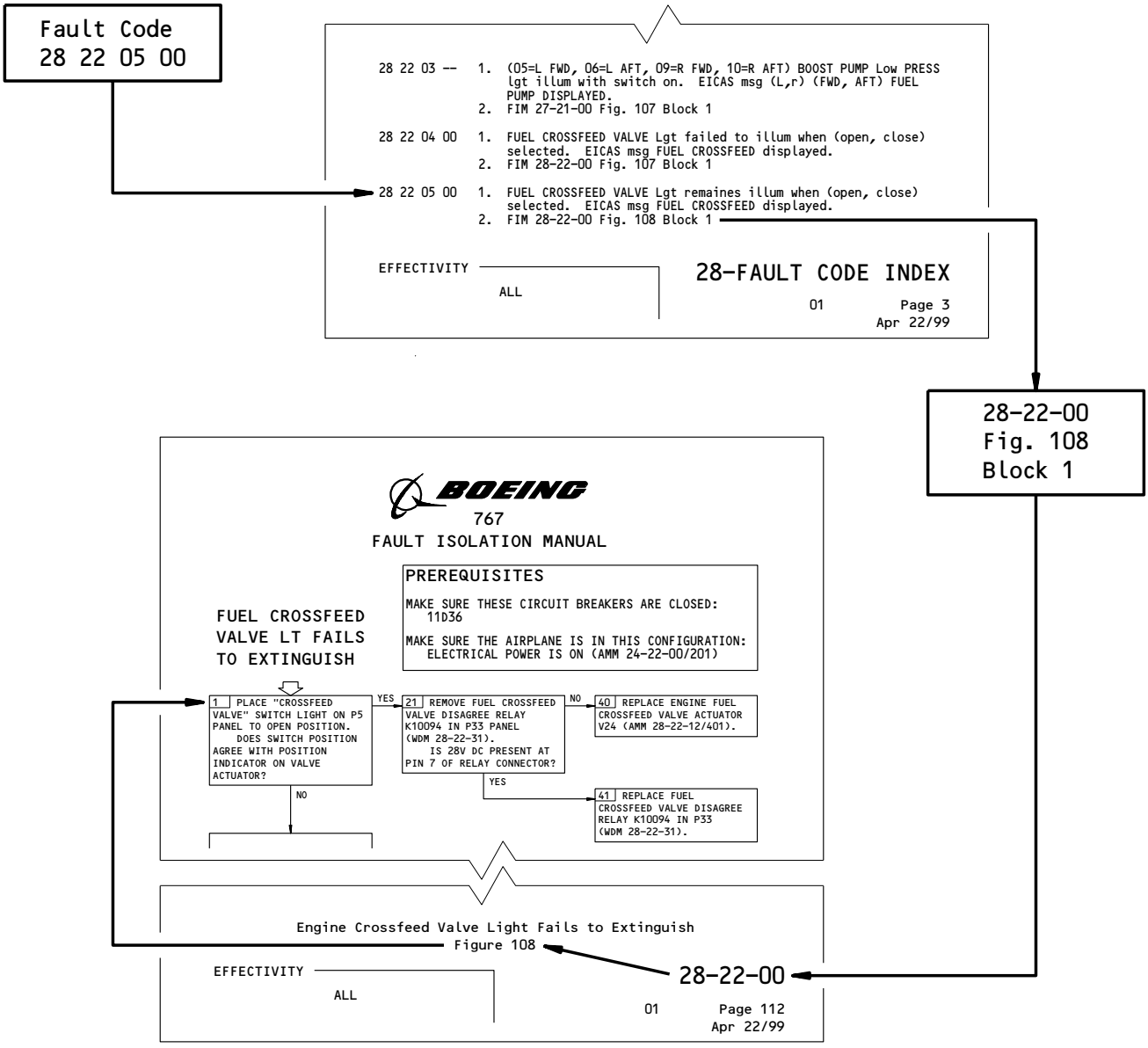
(c) If the fault code is an X-alpha fault code, then item 2 is usually a reference to the Wiring Diagram Manual (WDM) or System Schematics Manual (SSM). Use the flight crew's description of the fault in the log book, and the referenced WDM or SSM diagram to isolate and correct the fault.

(4) If you corrected the fault, then return the airplane to service.

B. IF YOU HAVE NO FAULT CODE for an observed fault, then do these steps:

(1) EICAS MESSAGE

If the problem report has an EICAS message, then use the EICAS Messages list (Fig. 3):



Fault Isolation Process for an Observed Fault or EICAS Message
Using a Fault Code
Figure 2

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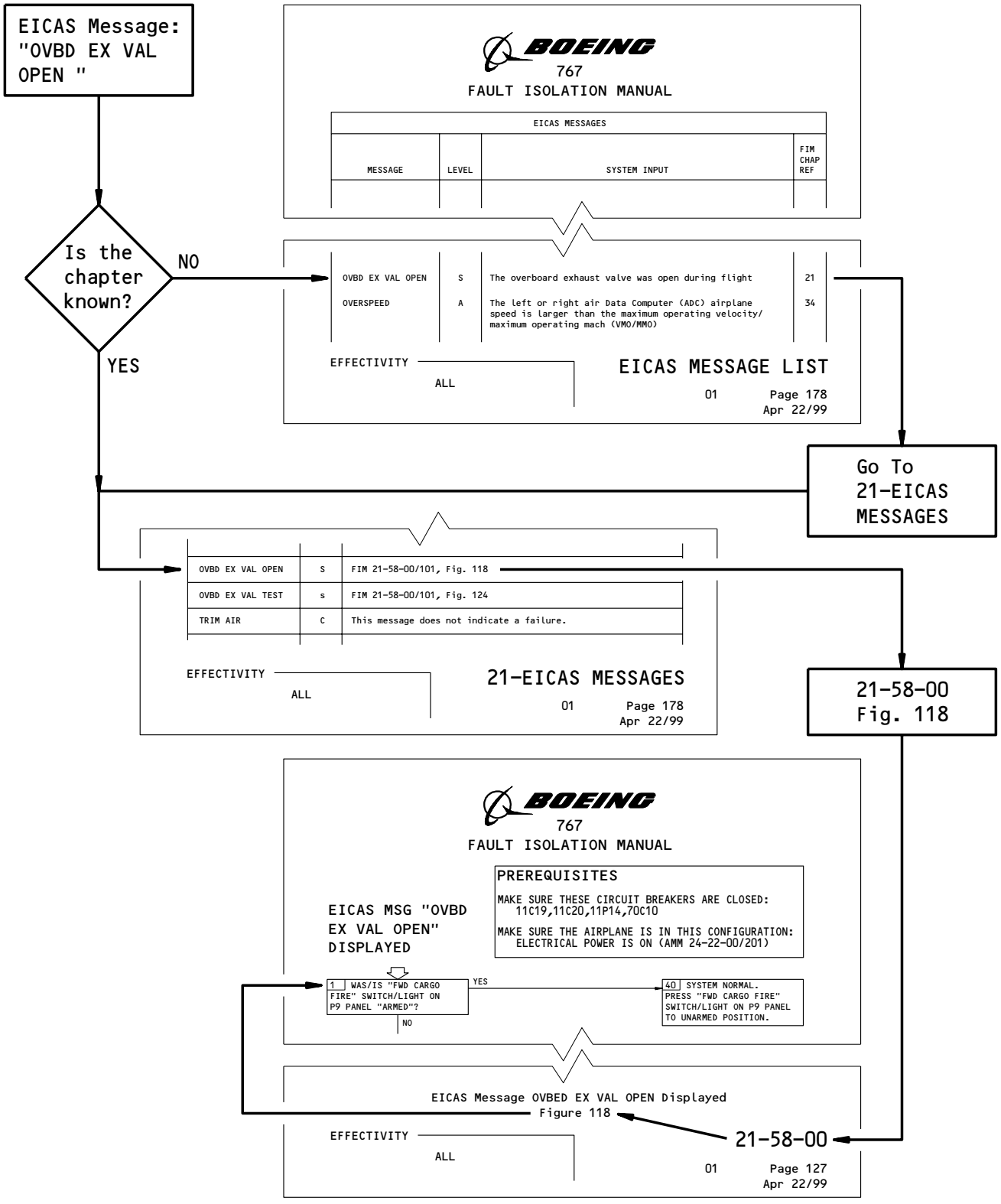


Fault Isolation Process for an EICAS Message – NO Fault Code
Figure 3

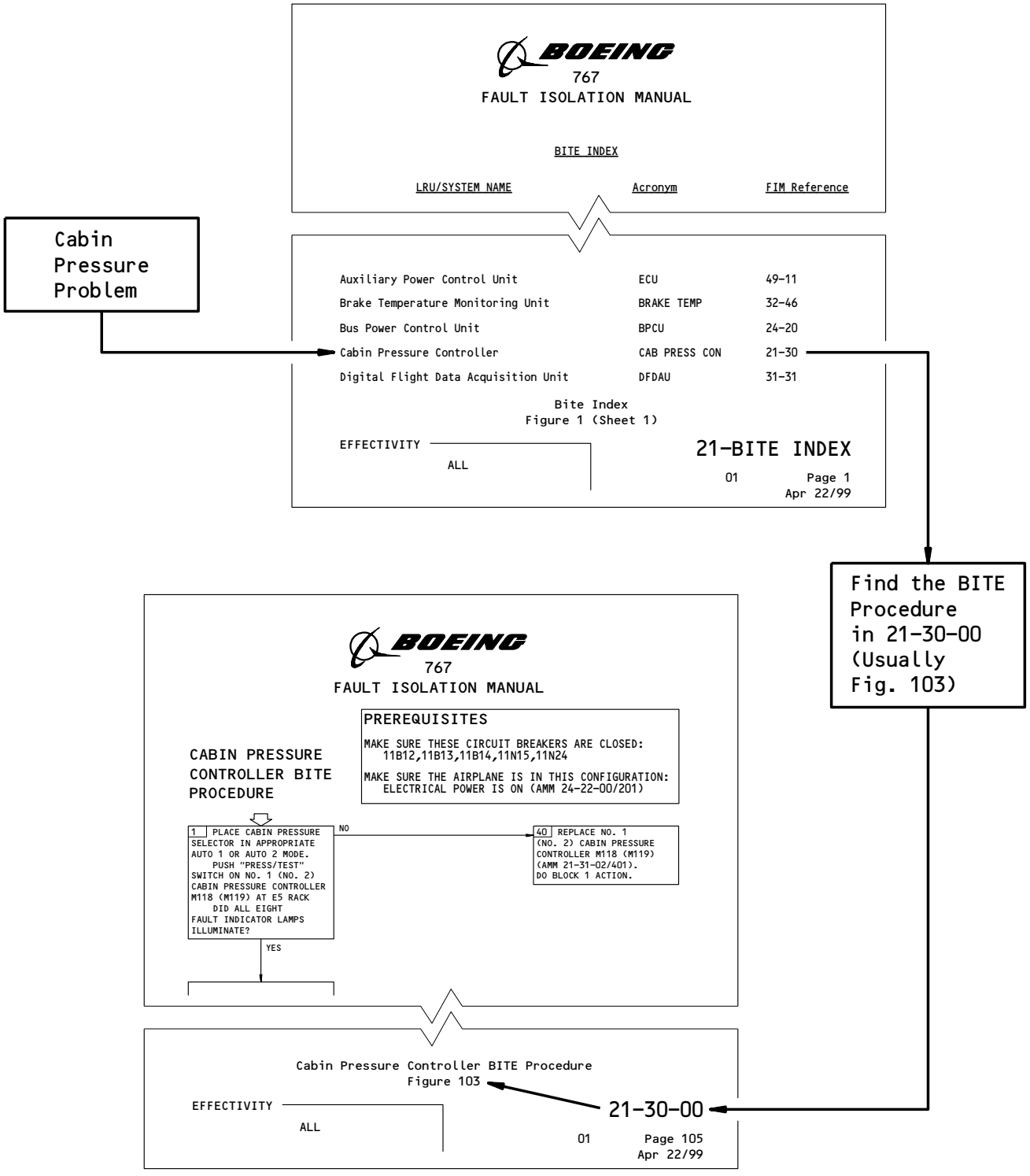
(a) If you know the chapter for the EICAS message, then do these steps:
1) Go to the applicable chapter in the FIM and find the EICAS Messages list at the front of the chapter.
2) Find the EICAS message in the list.
3) To correct the fault, read the "PROCEDURE" column for the message.
a) If the "PROCEDURE" column gives corrective action steps, then do the steps to repair the cause of the fault.
b) If the "PROCEDURE" column gives a figure and block reference, then go to the specified Fault Isolation Procedure in the FIM. Start at the referenced block and follow the procedure to isolate and repair the cause of the fault.

(b) If you do not know the chapter for the EICAS message, then do these steps:
1) Go to the EICAS MESSAGE LIST section in the FIM. This list is found after the INTRODUCTION to the FIM.
2) Find the EICAS message in the table.
a) The EICAS MESSAGE column shows the messages alphabetically. Messages that start with L (left), R (right), or C (center) are put together in this list starting with L.
3) Find the FIM Chapter Reference on the same line as the EICAS message.
4) Go to the EICAS Messages list at the front of the chapter.
5) Find the EICAS message in the list.
6) To correct the fault, read the "PROCEDURE".
a) If the "PROCEDURE gives corrective action steps, then do the steps to repair the cause of the fault.
b) If the "PROCEDURE" gives a figure reference, then go to the specified Fault Isolation Procedure in the FIM and follow the procedure to isolate and repair the cause of the fault.

(c) If you corrected the fault, then return the airplane to service.

(2) SYSTEM BITE

If the problem report is for a system that has BITE, then you can do the BITE procedure (Fig. 4):
(a) Go to any BITE Index near the front of a FIM chapter.
(b) Look for the system or a line replaceable unit (LRU) in the system. If the system or an LRU in the system has BITE, then you will find it listed alphabetically.
(c) On the same line as the LRU or system name, look for the FIM chapter-section reference in the "FIM REFERENCE" column.
(d) Find the BITE procedure in the specified FIM chapter-section and do the steps to get the BITE message.
(e) Do the steps in the BITE procedure to repair the cause of the BITE message.



Fault Isolation Process for an Observed Fault –
No Fault Code, System Has BITE
Figure 4

(f) If you corrected the fault, then return the airplane to service.

(g) Repair a failure with an MCDP message.

1) If the MCDP message is a flight fault, then go to the Autoflight Flight Faults BITE Fault Isolation Procedure Reference (FIM 22-00-02/101, Fig. 102). If the MCDP message is a ground test fault, then go to the MCDP Ground Test Messages Cross Reference (FIM 22-00-03/101, Fig. 101B).

a) Find the MCDP message in the figure.

b) Do the applicable isolation procedure.

2) If the problem was repaired, return the airplane to service.

3) If the problem was not repaired, refer to the WDM or the SSM and correct the problem.

4) Return the airplane to service.

(3) NO EICAS MESSAGE, NO SYSTEM BITE

If the problem report does not have an EICAS message and the system does not have BITE, then do these steps (Fig. 5):

(a) Go to the Fault Code Diagram at the front of the chapter for the applicable system.

(b) Start at the arrow at the left edge of the page and follow the analysis to the right and down. Follow the arrow in response to each question or condition.

(c) Find the fault code for the fault in the right column.

(d) Look at the first two digits of the fault code. This is the FIM chapter number you need. Go to that chapter in the FIM and find the Fault Code Index near the front of the chapter.

(e) Find the fault code in the Fault Code Index.

(f) To correct the fault, read the Fault Isolation Reference (item 2).

1) If item 2 gives corrective action steps, then do the steps to repair the cause of the fault.

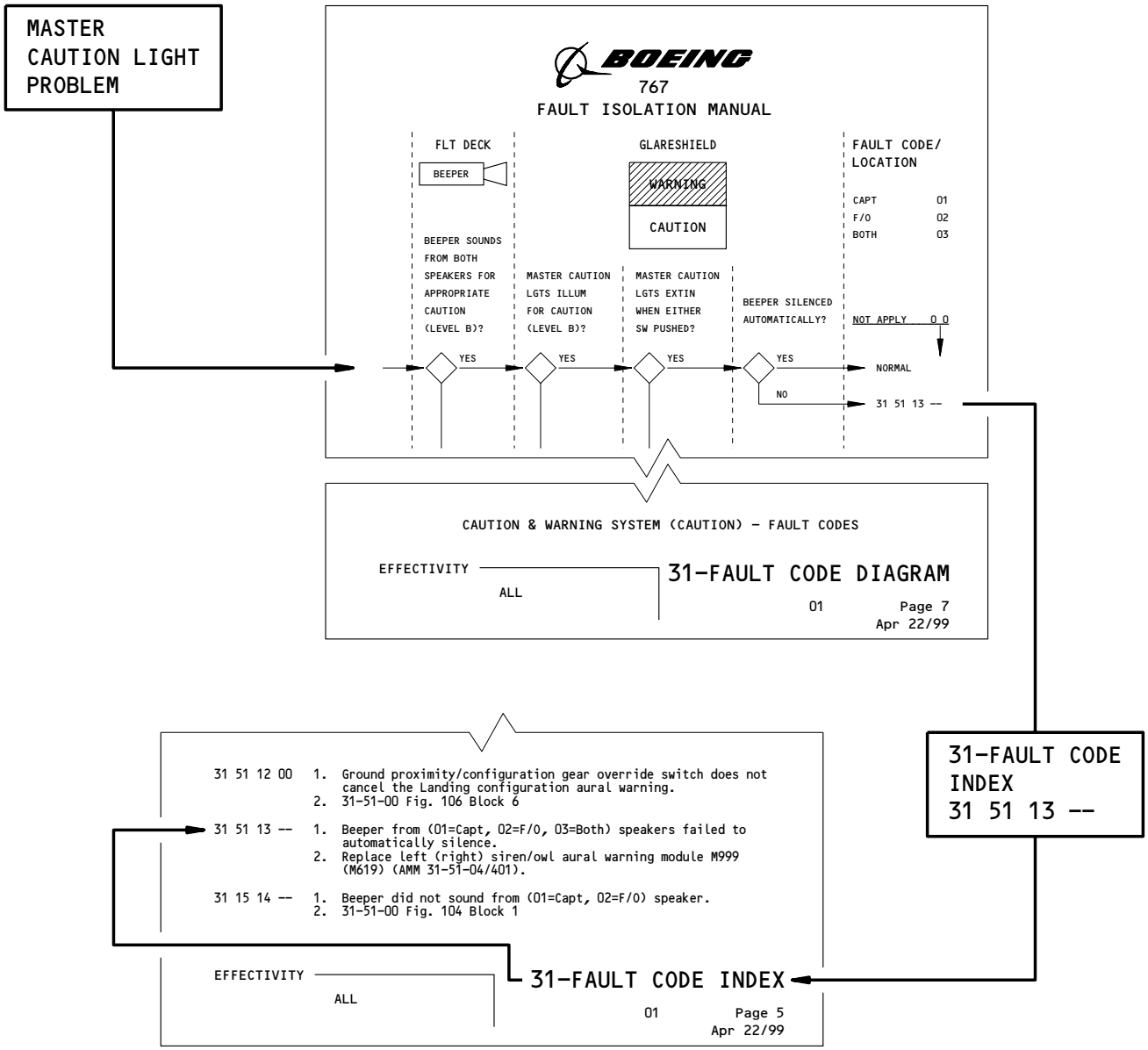
2) If item 2 gives a figure reference, then go to the specified Fault Isolation Procedure in the FIM and follow the procedure to isolate and repair the cause of the fault.

(g) If you corrected the fault, then return the airplane to service.

6. Fault Isolation Procedure Features

A. General

(1) The FIM is a tool to help you operate the airplane economically. The procedures in the FIM help you to quickly isolate the cause of each airplane fault.



Fault Isolation Process for an Observed Fault -
No Fault Code, No BITE
Figure 5

(2) To isolate the cause of a fault, you can also use your knowledge from:
  (a) Your past experience with airplane faults
  (b) The conditions under which the fault occurred
  (c) The history of faults on your airplane or your fleet.
(3) It is not a requirement to do the steps in the FIM procedure in the order shown. But if you do not plan to follow the FIM procedure exactly, make sure that you read it before you start to isolate the fault. Some FIM procedures start with important steps that have an effect on other steps later in the procedure.

B. Format
(1) Fault Isolation Procedures are given when it is necessary to do one or more checks to find and repair the cause of the fault.
(2) Each Fault Isolation Procedure is a figure that can have many sheets. The title of the figure is the fault description. The fault description is also at the top left corner on the first sheet of the procedure. This is where the Fault Isolation Procedure starts.
(3) Fault Isolation Procedures are usually flowcharts with three columns. The flow charts go from top to bottom and from left to right.
(4) There are some Fault Isolation Procedures that are not block flow diagrams. These procedures can be in a tabular or text format.

C. Assumed Conditions at the Start of the Fault Isolation Procedure
(1) Each Fault Isolation Procedure starts with these assumptions (unless the procedure tells you differently):
  (a) Electrical power is off.
  (b) Hydraulic power is off.
  (c) Pneumatic power is off.
  (d) Engines are shut down.
  (e) All circuit breakers for the system are closed.
  (f) No equipment in the system is deactivated.
  (g) The fault was caused by a single failure, not multiple simultaneous failures.

D. Prerequisites
(1) There is a Prerequisites box at the top of the procedure. The purpose of the Prerequisites box is to get the airplane from the normal shutdown condition to the configuration necessary to do the Fault Isolation Procedure. The Prerequisites box can give data after each of these action steps:
  (a) MAKE SURE THESE SYSTEMS WILL OPERATE
    1) Below this step is a list of other systems that must operate in a normal configuration. The AMM Adjustment/Test (501 page block) or the Maintenance Practces (201 page block) procedures for these systems are referenced but it is not necessary to do these procedures unless you have indications that a system that is necessary will not operate correctly.
    2) All circuit breakers for these systems must be closed.

3) If operation of the system is necessary, then it will usually be stated, such as "APU OPERATING" or "ENGINE OPERATING".

(b) MAKE SURE THESE CIRCUIT BREAKERS ARE CLOSED

1) Below this step is a list of circuit breakers with their panel and grid location numbers, for the system with the fault. Make sure these circuit breakers are closed before you start the Fault Isolation Procedure.

2) The word "NONE" will show under this step for these conditions:

a) No electrical, pneumatic, or hydraulic power is necessary to do the Fault Isolation Procedure.

b) Operation of other systems is not necessary.

c) Special test equipment is not necessary.

(c) MAKE SURE THE AIRPLANE IS IN THIS CONFIGURATION

1) Below this step is the condition that the airplane must be in to do the Fault Isolation Procedure. This condition is different from the assumed conditions of an airplane in the normal shutdown configuration.

(2) If there are no prerequisites, then "NONE" will show in the Prerequisites box.

E. Equivalent Tools, Fixtures and Test Equipment

(1) Some of the procedures in this manual identify tools or equipment. But you can use equivalent alternatives unless the procedure tells you the specified tool or equipment item is mandatory. If you use alternative tools or equipment, make sure that they give the same results and are as safe to the parts and personnel as the tools or equipment specified in the procedure.

(a) Tools in this manual identified with an "ST" prefix are designed by the Boeing Commercial Company. Detail drawings of these tools are available upon request.

F. WARNINGS, CAUTIONS, NOTES, and Flag Notes

(1) WARNINGS and CAUTIONS will be shown in one of two areas. They will come before a step in a block of an isolation procedure when they apply to only that step of the procedure. WARNINGS and CAUTIONS will also be shown below the "PREREQUISITES" block when they apply to the full procedure.

NOTE: Normal safety precautions are to be followed at all times when potentially dangerous maintenance procedures are done. The removal of electrical power, the use of body safety lines when in high areas, or the use of equipment slings are all examples of potentially dangerous maintenance procedures.

(2) NOTES will follow a step in a block of an isolation procedure when they apply to only that step of the procedure. NOTES will be shown below the "PREREQUISITES" block or in another area on the page when the NOTE is applicable to the full procedure.

(3) Flag Notes
(a) A numbered flag is used to show a reference to a flag note. The flag notes supply more data or other necessary steps. Flag notes are usually used in more than one block of an isolation procedure.
(b) If a figure has multiple sheets and a flag is shown on more than one sheet, the flag notes will be shown on the first sheet they are referred to.
(c) When the flag is shown on only one sheet of the figure, the flag note will be on the same sheet.

G. Flowchart Blocks
(1) Each block in a flowchart has a number. The first block in the procedure has the number "1". It is the first block in the left column under the fault description. A reference to a Fault Isolation Procedure can give the number of the block that you start the fault isolation. This block number is not always "1".
(2) Typically, each block in the first two columns of a flowchart gives an action or a check. A question related to the action or check follows. The question can be answered with a "YES" or a "NO". Arrows identified as "YES" or "NO" move the user to the next action block.
(3) Typically, each block in the right column has the corrective action necessary to repair the cause of the fault. These blocks have a reference to an AMM procedure, another FIM procedure, a WDM diagram, or a SSM diagram.
(4) Some Fault Isolation Procedures can end at a block that is not a corrective action. This occurs when all the checks are completed and the system operation is normal.
(5) Components in the Fault Isolation Procedures are identified by the same name as in the AMM and, where applicable, their electrical equipment number the same as in the WDM and SSM.

H. Repair Confirmation
(1) It is assumed that after you do a repair, you will do a check to make sure the reported fault is gone.
(2) When the Fault Isolation Procedure tells you to replace an LRU, the block can have an AMM reference. The referenced procedure has a test to make sure the LRU is installed correctly. You must make sure the test is satisfactory and the fault is gone. You can do an operational test to make sure the fault is gone.
(3) If the Fault Isolation Procedure is for an EICAS message, the procedure will tell you to "Make sure the ---- EICAS message is removed". In most cases, you can look at the EICAS display to make sure that the status or maintenance message does not show. Some EICAS messages are latched. If the message is latched, then it is necessary to do the EICAS message erase procedure that is referenced in the Fault Isolation Procedure.

I. Electrical Checks
(1) Electrical checks are used at components to find if they have a fault. Electrical checks are also used to find a problem in the wiring (also referred to as wiring checks).

(2) A step can tell you to do a specific electrical check. When a step tells you to do a wiring check, these are the checks you must do:
  (a) Examine any connectors that you disconnect for contamination, damage, and bent or pushed back pins.
  (b) Do these three types of electrical checks for the specified contacts (pins):
    1) Continuity from pin to pin
    2) Short circuits between pins
    3) Short circuits from each pin to structure ground.

(3) Since many electrical component installations are obvious, a WDM reference is supplied whenever an AMM procedure is not available. The WDM reference supplies the data necessary to confirm voltages in the circuit. This allows you to open the applicable circuit breaker before the component is removed or replaced.

(4) Standard procedures for connectors and wiring maintenance are shown in the Standard Wiring Practices Manual.

(5) To make electrical measurements at the major card files, use an appropriate extender card to get access to the electrical contacts. These are the part numbers for the extender cards:

CARD FILE	EXTENDER CARD PART NUMBER
P50 Electrical Systems	G26004-39, -40
P51 Warning Electronics	G26004-39, -40
P54 Fire Detection	G26004-39, -40

(6) ARINC 429 Wiring Checks
  (a) An ARINC 429 wiring circuit connects a transmitting LRU to one or more receiving LRUs.
  (b) To check the resistance between two pins of an ARINC 429 wiring circuit, first remove all LRUs that are connected to the circuit (refer to the applicable wiring diagram or schematic to see which LRUs are connected to the circuit).
    1) This will prevent effects on the measurement from the resistance of the ARINC 429 receivers and transmitters in the LRUs.
    2) This will also prevent damage to connected LRUs by test equipment that operates at a high voltage. For example, when you use an ohmmeter that measures very high resistances to check for insulation problems.
  (c) To make electrical measurements at ARINC 600 connectors, use the breakout box, A34011 to get access to the electrical contacts. You can find more data on the A34011 breakout box in 34-00-00 of the Illustrated Tools and Equipment Manual.
  (d) After you complete the wiring checks (and the subsequent wiring repair, if it is necessary), re-install the LRUs you removed.

LIST OF EFFECTIVE AIRPLANES

1. General
   A. The list that follows provides a cross reference table of the airplanes that are applicable to the information contained in this manual.

Scandinavian Airlines System

MODEL 767-283ER/383ER

Customer Effectivity Code	Line No.	Variable Number	Manufacturing Serial Number	Registration Number
SAS 050	301	VF071	24727	XA-TOJ
SAS 051	305	VF072	24728	N728CG
SAS 150	257	VN151	24318	CS-TLO
SAS 151	262	VN152	24357	N984AN
SAS 152	263	VN153	24358	G-VKNI
SAS 153	273	VN154	24475	UR-VVO
SAS 154	274	VN155	24476	UR-VVF
SAS 155	337	VN156	24477	PH-AHQ
SAS 156	358	VN157	24729	UR-VVG
SAS 157	395	VN158	25365	TF-FIB
SAS 162	309	VN163	24846	TF-FIC
SAS 163	315	VN164	24847	PH-AHX
SAS 164	325	VN165	24848	PH-AHY
SAS 165	330	VN166	24849	CC-CCZ
SAS 166	359	VN167	25088	5R-MFG
SAS 167	412	VN168	26544	CC-CGN

Martinair Holland N.V.

MODEL 767-31AER

Customer Effectivity Code	Line No.	Variable Number	Manufacturing Serial Number	Registration Number
SAS 275	279	VN221	24428	PH-MCG
SAS 276	294	VN222	24429	PH-MCH
SAS 277	400	VN223	25312	PH-MCI
SAS 278	416	VN224	26470	PH-MCM
SAS 280	415	VN672	26469	PH-MCL

A/C	air conditioning, aircraft
A/G	air/ground
A/L	autoland
A/P	autopilot
A/S	airspeed
A/T	autothrottle, adjustment/test
ABNORM	abnormal
AC	alternating current
ACARS	ARINC Communications Addressing and Reporting System
ACCEL	acceleration, accelerate
ACM	air cycle machine
ADC	air data computer
ADF	automatic direction finder
ADI	attitude director indicator
ADP	air driven pump, air driven hydraulic pump
ADV	advance
AFCS	automatic flight control system
AGL	above ground level
AI	anti-ice
AIDS	aircraft integrated data system
AIL	aileron
ALT	altitude, alternate
ALTM	altimeter
ALTN	alternate
ALTNT	alternate
AMB	ambient
AMM	Airplane Maintenance Manual
ANN	announcement
ANNUNC	annunciator
ANT	antenna
AOA	angle of attack
AOC	air oil cooler
APB	auxiliary power breaker
APD	approach progress display
APL	airplane
APPR	approach
APPROX	approximately

ABBREVIATION LIST

APU	auxiliary power unit
ARINC	Aeronautical Radio Incorporated
ARINC IO	ARINC I/O error
ARNC STP	ARINC I/O UART data strip error
ASA	autoland status annunciator
ASP	audio selector panel
ASYM	asymmetrical
ATC	air traffic control
ATC/DABS	air traffic control/discrete address beacon system
ATT	attitude
ATTND	attendant
AUTO	automatic
AUTO DEP	auto depower
AUX	auxiliary
AVM	airborne vibration monitor
B25	2.5 bleed valve
B/CRS	back course
BARO	barometric
BAT	battery
BFO	beat frequency oscillator
BITE	built-in test equipment
BK	brake
BKGRD	background
BLD	bleed
BPCU	bus power control unit
BRKR	breaker
BRT	bright
BTB	bus tie breaker
BTL	bottle
BVA	bleed valve actuator
C	center
°C	degrees Centigrade
C/B	circuit breaker
CADC	central air data computer
CAPT	captain
CB	circuit breaker
CCA	central control actuator

CCW	counterclockwise
CDU	control display unit
CDX	controlled differential transformer
CH	channel
CHAN	channel
CHG	change
CHR	chronograph
CHRGR	charger
CK	check
CKT	circuit
CL	close
CLB	climb
CLR	clear
CLSD	closed
CMD	command
CMPTR	computer
CNX	cancelled
COL	column
COMM	communication
COMP	compressor
COMPT	compartment
CON	continuous
COND	condition
CONF	configuration
CONFG	configuration
CONFIG	configuration
CONN	connection
CONT	control
CP	control panel
CPCS	cabin pressure control system
CPS	cycles per second
CRS	course
CRT	cathode ray tube
CRZ	cruise
CSEU	control system electronics unit
CT	current transformer
CTN	caution

CTR	center
CU	control unit
CUST	customer
CW	clockwise
CWS	control wheel steering
DA	drift angle
DADC	digital air data computer
DC	direct current
DEC	decrease, decrement
DECEL	decelerate
DECR	decrease
DEG	degree
DEM	data entry modifier
DEPR	depressurize
DEPT	departure
DEST	destination
DET	detector
DETNT	detent
DEV	deviation
DFDR	digital flight data recorder
DG	directional gyro
DH	decision height
DIFF	differential
DIR	direct
DISC	disconnect
DISCH	discharge
DISCONT	discontinued
DISENG	disengage
DISP	dispatch
DIST	distance
DK	deck
DME	distance measuring equipment
DMU	data management unit
DN	down
DOT3	No. 3 bearing differential oil temperature
DPCT	differential protection current transformer
DR	door
DSCRT IO	discrete I/O error
DSPLY	display
DSPY	display

EADI	electronic attitude director indicator
ECON	economy
ECS	environmental control system
EDP	engine driven pump, engine hydraulic pump
EEC	electronic engine control
EFDARS	expanded flight data acquisition and reporting system
EFI	electronic flight instruments
EFIS	electronic flight instrument system
EGT	exhaust gas temperature
EHSI	electronic horizontal situation indicator
EICAS	engine indicating and crew alerting system
ELEC	electrical
ELEV	elevation
EMER	emergency
ENG	engage, engine
ENGLOC	engine locator
ENT	entrance, entry
ENTMT	entertainment
EPC	external power contactor
EPCS	electronic propulsion control system
EPP	EEC programming plug
EPR	engine pressure ratio
EPRL	engine pressure ratio limit
EQUIP	equipment
ERR	error
ESS	essential
EVAC	evacuation
EVBC	engine vane and bleed control
EXCD	exceedance
EXH	exhaust
EXT	external
EXTIN	extinguish, extinguished
EXTING	extinguishing

ETOPS	extended twin engine operation
EVAC	evacuation
EVBC	engine vane and bleed control
EVSC	electronic vibration signal condition
EXCD	exceedance
EXH	exhaust
EXT	external
EXTIN	extinguish, extinguished
EXTING	extinguishing
F/D	flight director
F/F	fuel flow
F/O	first officer
°F	degrees Fahrenheit
FAA	Federal Aviation Administration
FCC	flight control computer
FCEU	flight controls electronic unit
FCU	fuel control unit
FDBK	feedback
FDR	feeder
FIM	Fault Isolation Manual
FL	flow
FL/CH	flight level change
FLD	field
FLT	flight
FLUOR	fluorescent
FMC	flight management computer
FMS	flight management system
FMU	fuel metering unit
FOD DET	foreign object damage detect
FREQ	frequency
FRM	Fault Reporting Manual
FSEU	flap/slat electronic unit
FT	feet, foot
FWD	forward
G/S	glide slope, ground slope
GA	go-around
GB	generator breaker
GCB	generator circuit breaker
GCR	generator control relay
GCU	generator control unit

GEN	generator
GHR	ground handling relay
GND	ground
GP	group
GPWS	ground proximity warning system
GR	gear
GRD	ground
GS	ground speed
GSSR	ground service select relay
GSTR	ground service transfer relay
GTP	ground test power
GW	gross weight
H/L	high/low
HDG	heading
HF	high frequency
HORIZ	horizontal
HP	high pressure
HSI	horizontal situation indicator
HTR	heater
HYD	hydraulic
IAS	indicated airspeed
IDENT	identification
IDG	integrated drive generator
IGN	ignition
ILLUM	illuminate, illuminated
ILS	instrument landing system
IMP	imperial
IN	in, input
INBD	inboard
INC	incorporated, increase, increment
INCR	increase
IND	indicator
INFC	interface
INFLT	inflight
INHIB	inhibit
INIT	initiation
INOP	inoperative
INPH	interphone
INST	instrument
INT	interphone

INTLK	interlock
INTPH	interphone
INTMT	intermittent
IP	intermediate pressure
IRS	inertial reference system
IRU	inertial reference unit
ISLN	isolation
ISOL	isolation
IVSI	instantaneous vertical speed indicator
KG	kilograms
KIAS	knots indicated airspeed
KTS	knots
L	left
L-NAV	lateral naviation
L/R	left/right
L-NAV	lateral naviation
LAV	lavatory
LB	pound
LBS	pounds
LCD	liquid crystal display
LCR	left-center-right
LDG	landing
LDG GR	landing gear
LE	leading edge
LED	light emitting diode
LF	left front
LGT	light
LH	left hand
LIM	limit
LOC	localizer
LN	left nose
LR	left rear
LRRA	low range radio altimeter
LRU	line replacable unit
LSB	lower side band, least significant bit
LVDT	linear variable differential transformer
LVR	lever
LW	left wing
LWR	lower

M-SPD	manual speed
MAG	magnetic
MAINT	maintenance
MALF	malfunction
MAN	manual
MAX	maximum
MCDP	maintenance control display panel
MCP	mode control panel
MCU	modular concept unit
MDA	minimum decision altitude
MIC	microphone
MIN	minimum
MM	Maintenance Manual
MOD	module
MON	monitor
MOT	motion
MPU	magnetic pickup
MSB	most significant bit
MSG	message
MSTR	master
MSU	mode selector unit
MTG	miles to go
MU	management unit
MUX	multiplexer
N2C	corrected high pressure rotor speed
N/A	not applicable
NAC	nacelle
NAV	navigation
NCD	no computed data
NEG	negative
NEUT	neutral
NLG	nose landing gear
NO.	number
NORM	normal
NRM	normal
NVMEM RD	non-volatile memory read error
NVMEM WR	non-volatile memory write error

O2	oxygen
O/R	override
OBS	observer
OK	okay
OPR	operate
OPT	option
OPRN	operation
OUT	output
OUTBD	outboard
OVHD	overhead
OVHT	overheat
OVRD	override
OVS	overspeed
OXY	oxygen
P2	inlet pressure
P5	exhaust gas pressure
P-SENSR	pressure sensor
P/RST	press to reset
P/S	pitot/static
PA	passenger address
PASS	passenger
PCA	power control actuator
PCT	percentage
PDI	pictorial deviation indicator
PERF	performance
PES	passenger entertainment system
PLA	power level angle
PLT	pilot
PMA	permananet magnet alternator (EEC alternator)
PMG	permananet magnet generator
PNEU	pneumatic
PNL	panel
PO	ambient pressure
POR	point of regulation
POS	position, positive
PPOS	present position
PRESS	pressure
PRG FLOW	program flow error
PRIM	primary

PROC	procedure
PROG MEM	ROM memory error
PROJ	projector
PROT	protection
PS	pitot static
PSI	pounds per square inch
PSS	passenger service system
PSU	passenger service unit
PTT	push to talk
PTU	power transfer unit
PWR	power
QAD	quick-attach-detach
QTS	quarts
QTY	quantity
R	right
R/T	rate of turn
R/W MEM	RAM memory error
RA	radio altimeter, radio altitude
RAT	ram air turbine
RCVR	receiver
RDMI	radio distance magnetic indicator
REC	recorder
RECIRC	recirculate
REF	reference
REFRIG	refrigeration
REG	regulator
REL	release
REP	representative
REQ	required
RES	reserve
RESSTART	power interrupt restart error
REV	reverse
REVR	reverser
RF	right front
RH	right hand
RLSE	release
RLY	relay
RLY/SW	relay/switch
RMI	radio magnetic indicator

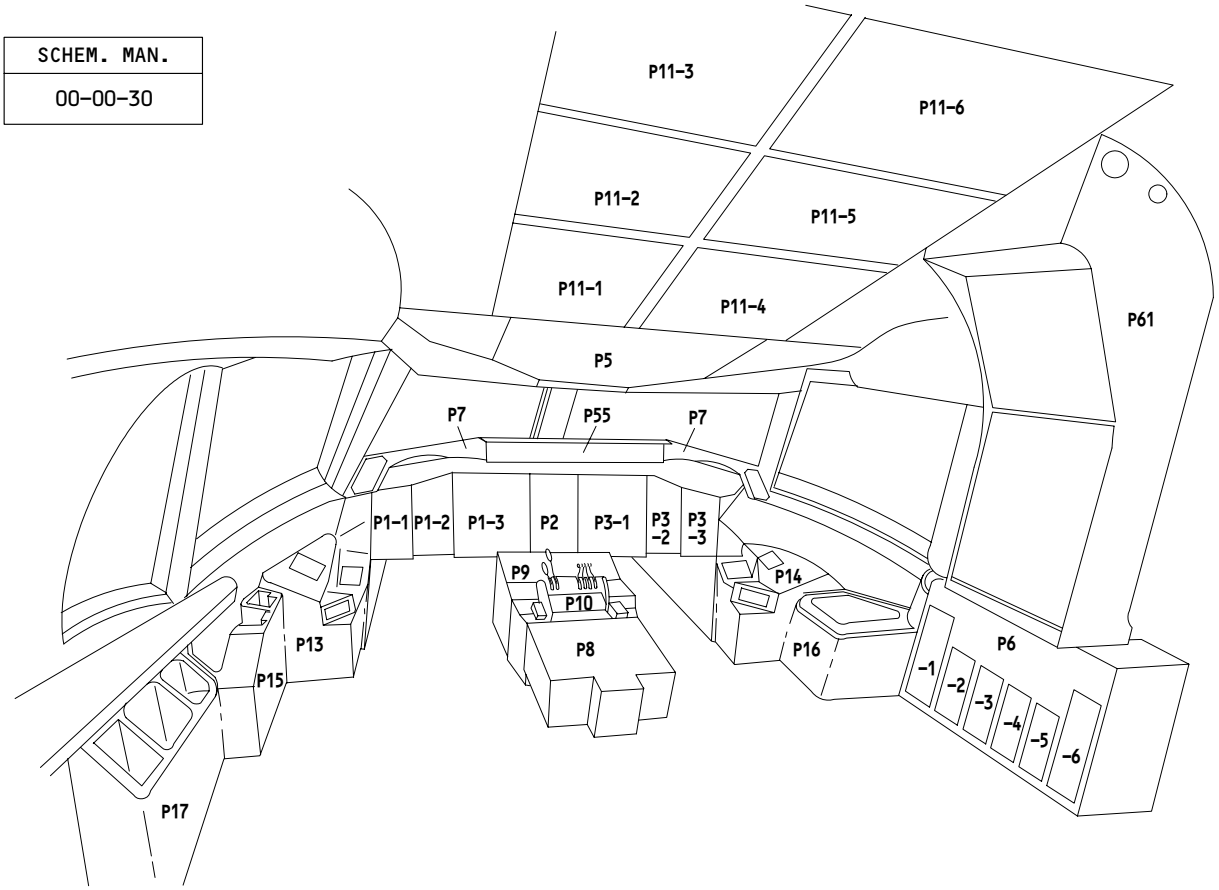
RMT OUT	high-speed ARINC output error
RN	right nose
RNG	range
ROT	rotation
RP	reverser position
RPM	revolutions per minute
RPTG	reporting
RR	right rear
RST	reset
RTO	rejected takeoff
RUD	rudder
RVDT	rotary variable differential transformer
RW	right wing
RWY	runway
S/D	shutdown
SAM	stabilizer trim/elevator asymmetry limit module
SAT	static air temperature
SCAV	scavenge oil pump delta for No. 3 bearing
SEC	second
SEI	standby engine indicator
SEL	select
SELCAL	selective calling
SERV	service
SG	signal generator
SHRT	short
SLCTD	selected
SLCTR	selector
SOL	solenoid
SOV	shut off valve
SP	speed
SPD	speed
SPD BK	speed brake
SQL	squelch
SSB	single side band
STA	station
STAB	stabilizer
STBY	standby
STRT	starter
STS	system status
SURF	surface
SVA	stator vane actuator
SW	switch

SWITCH IN	switch input error
SYNC	synchronous
SYS	system
SYST	system
T2	inlet temperature
T/M W/A	torque motor wraparound
T/R	thrust reverser
T.O.	takeoff
TACH	tachometer
TAI	thermal anti-ice
TAS	true airspeed
TAT	total air temperature
TBV	thrust balance vent
TCA	turbine cooling air
TCC	turbine case cooling
TE	trailing edge
TEMP	temperature
TFR	transfer
TFUEL	fuel temperature
THR	thrust
THROT	throttle
THRSH	threshold
THRT	thrust
THRU	through
TIE	bus tie
TLA	thrust lever angle
TMC	thrust management computer
TMS	thrust management system
TMSP	thrust mode select panel
TO	TO/takeoff
TOIL	oil temperature
TOL	tolerance
TR-CK	track check
TR	transformer rectifier
TRA	thrust lever resolver angle
TRC	thermatic rotor control
TRP	thrust rating panel
TUNE	tuner
TURB	turbine
TURBL	turbulent, turbulence

UBR	utility bus relay
UPR	upper
USB	upper side band
V/NAV	vertical navigation
V/S	vertical speed
VERT	vertical
VERT SPD	vertical speed
VFY	verify
VG	vertical gyro
VHF	very high frequency
VIB	vibration
VLD	valid
VLV	valve
VOL	volume
VOLT	voltage
VOR	VHF omni range receiver
VOX	voice
VTR	video tape reproducer
W/A	wraparound
W/D	wiring diagram
W/W	wheel well
WARN	warning
WG	wing
WHL	wheel
WHLS	wheels
WPT	waypoint
WSHLD	windshield
WX	weather
WXR	weather
X-CH	cross channel
X-CHAN	cross channel
XDCR	transducer
XLINC	cross link

XMISSION	transmission
XMIT	transmit
XMTR	transmitter
XPNDR	transponder
XTRN DIS	external discretes
Y/D	yaw damper

SCHEM. MAN.
00-00-30



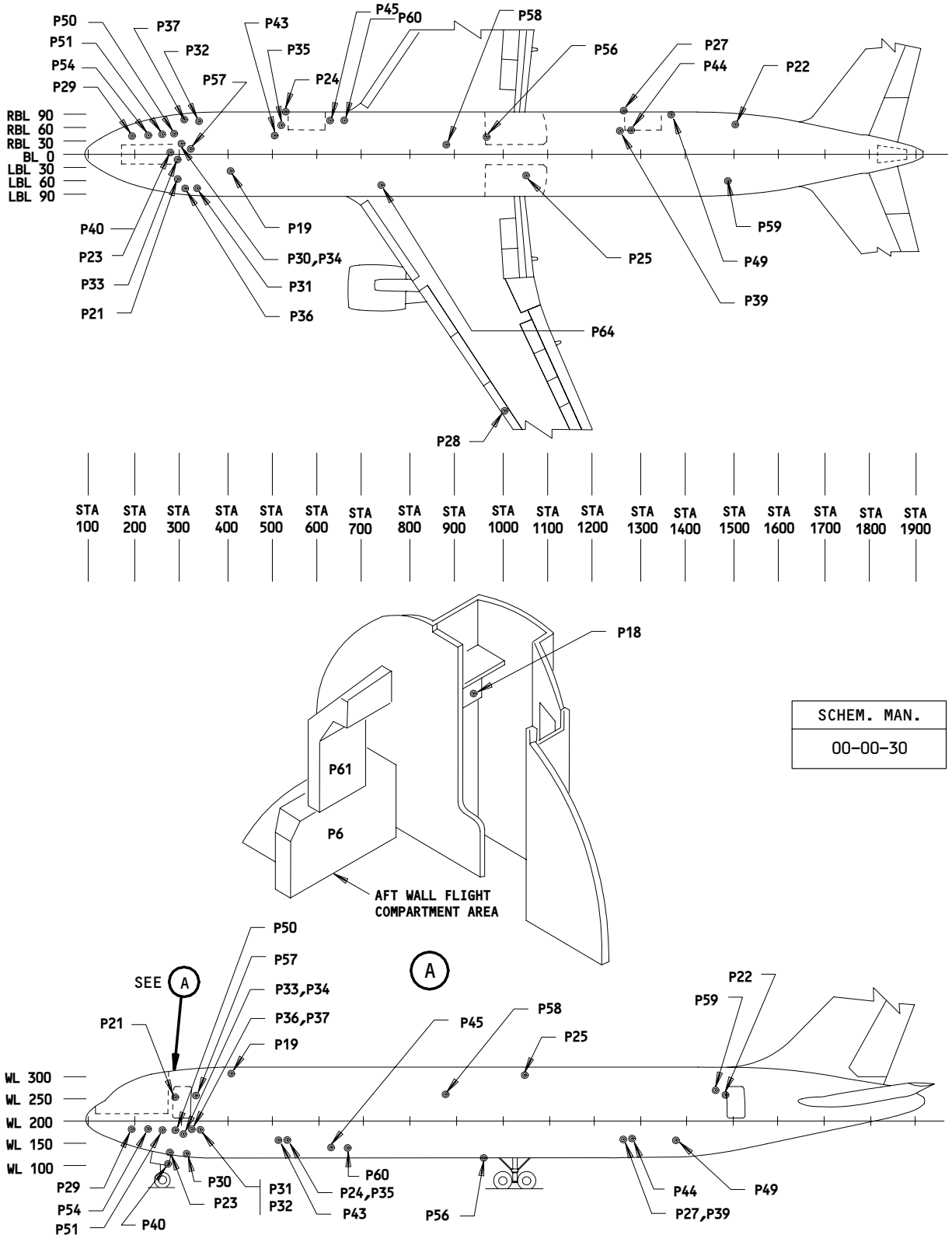
PANEL NAMES

P1 CAPTAINS INSTRUMENT
P2 EICAS DISPLAY
P3 FIRST OFFICER INSTRUMENT
P5 PILOTS' OVERHEAD
P6 MAIN POWER DISTRIBUTION
P7 GLARESHIELD
P8 AFT PILOTS CONTROL STAND
P9 FORWARD ELECTRICAL CONTROL STAND
P10 QUADRANT STAND
P11 OVERHEAD CIRCUIT BREAKER
P13 FORWARD CAPTAINS AUXILIARY INSTRUMENT
P14 FORWARD FIRST OFFICERS AUXILIRY INSTRUMENT
P15 CAPTAINS AUXILIARY INSTRUMENT
P16 FIRST OFFICERS AUXILIARY INSTRUMENT
P17 FIRST OBSERVER CONSOLE
P18 SECOND OBSERVER
P19 FORWARD LIGHTING DISTRIBUTION
P21 FORWARD ATTENDANT
P22 AFT ATTENDANT
P23 NOSE GEAR LANDING/TAXI LIGHTS TRANSFER
P24 FORWARD COMPARTMENT CARGO HANDLING CONTROL
P25 AFT LIGHTING DISTRIBUTION
P27 AFT COMPARTMENT CARGO HANDLING CONTROL
P28 FUELING CONTROL
P29 LIGHTING EQUIPMENT
P30 EXTERNAL POWER RECEPTACLE
P31 LEFT GENERATOR POWER
P32 RIGHT GENERATOR POWER
P33 FORWARD MISCELLANEOUS ELECTRIC EQUIPMENT
P34 APU EXTERNAL POWER
P35 FORWARD COMPARTMENT CARGO HANDLING ACCESS
P36 LEFT MISCELLANEOUS ELECTRICAL EQUIPMENT
P37 RIGHT MISCELLANEOUS ELECTRICAL EQUIPMENT
P39 AFT COMPARTMENT CARGO HANDLING ACCESS
P40 APU FIRE SHUTDOWN
P41 RIGHT FUELING (OPTIONAL, RIGHT WING)
P43 EXTERNAL FORWARD CARGO DOOR CONTROL
P44 EXTERNAL AFT CARGO DOOR CONTROL
P45 REFUELING AUXILIARY RELAY
P49 APU AUXILIARY
P50 ELECTRICAL SYSTEMS CARDFILE
P51 WARNING ELECTRONICS UNIT
P54 FIRE DETECTION CARD FILE
P55 CENTER GLARESHIELD
P56 RIGHT WHEELWELL SERVICE
P57 FORWARD ATTENDANT (GALLEY)
P58 MID ATTENDANT (GALLEY)
P59 AFT ATTENDANT (GALLEY)
P60 BRAKE COOLING CONTROL (WHEN INSTALLED)
P61 RIGHT SIDE PANEL
P64 MID ATTENDANT OVERHEAD PANEL

Panel Locations
Figure 1 (Sheet 1)

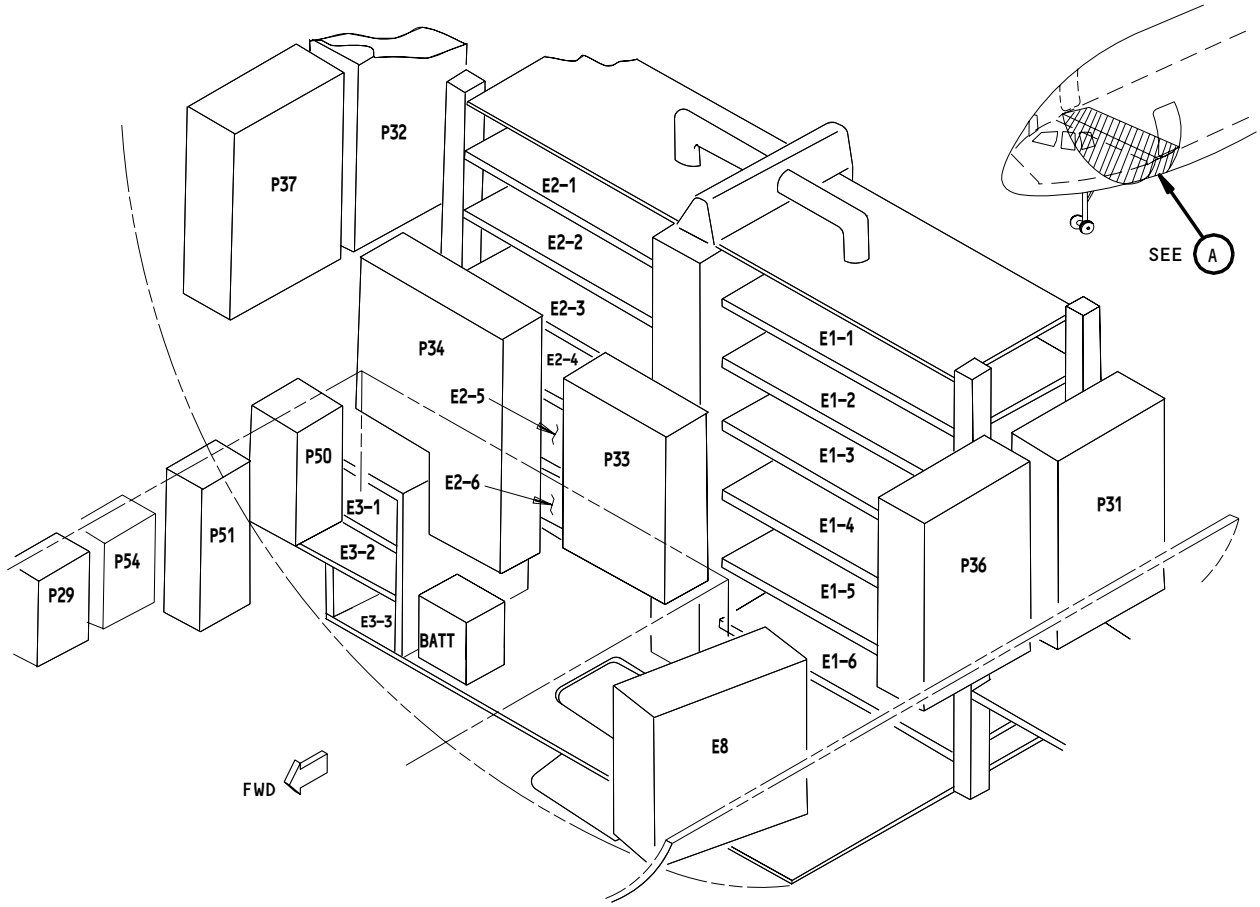
PANEL LOCATIONS

D15657



Panel Locations
Figure 1 (Sheet 2)

PANEL LOCATIONS



FORWARD AND MAIN EQUIPMENT CENTER

A

E1 LEFT – MAIN EQUIPMENT CENTER (LEFT)

- E1-1 CONTROLS
- E1-2 ELECTRICAL
- E1-3 FLIGHT CONTROLS – LEFT
- E1-4 FLIGHT CONTROLS – CENTER
- E1-5 FLIGHT CONTROLS – RIGHT
- E1-6 INERTIAL REFERENCE UNIT

E2 MAIN EQUIPMENT CENTER (RIGHT)

- E2-1 CONTROLS
- E2-2 FLIGHT MANAGEMENT
- E2-3 FLIGHT MANAGEMENT
- E2-4 ELECTRICAL
- E2-5 COMMUNICATION, AUDIO
- E2-6 HIGH FREQUENCY

E3 FWD EQUIPMENT CENTER RIGHT

- E3-1 ENVIRONMENTAL CONTROL SYSTEM
- E3-2 TRANSFORMER RECTIFIER UNIT AND INVERTER
- E3-3 BATTERY CHARGER

E5 MID EQUIPMENT CENTER

- E5-1 AUTOMATIC DIRECTION FINDER AND LOW RANGE RADIO ALTIMETER
- E5-2 (PROVISIONAL)
- E5-3 (PROVISIONAL)

E6 AFT EQUIPMENT CENTER

- E6-1 AUXILIARY POWER UNIT, CONTROL AND BATTERY CHARGER
- E6-2 AUXILIARY POWER UNIT, TRANSFORMER – RECTIFIER UNIT (OPTIONAL)

E7 VOICE AND FLIGHT RECORDER ASSEMBLY

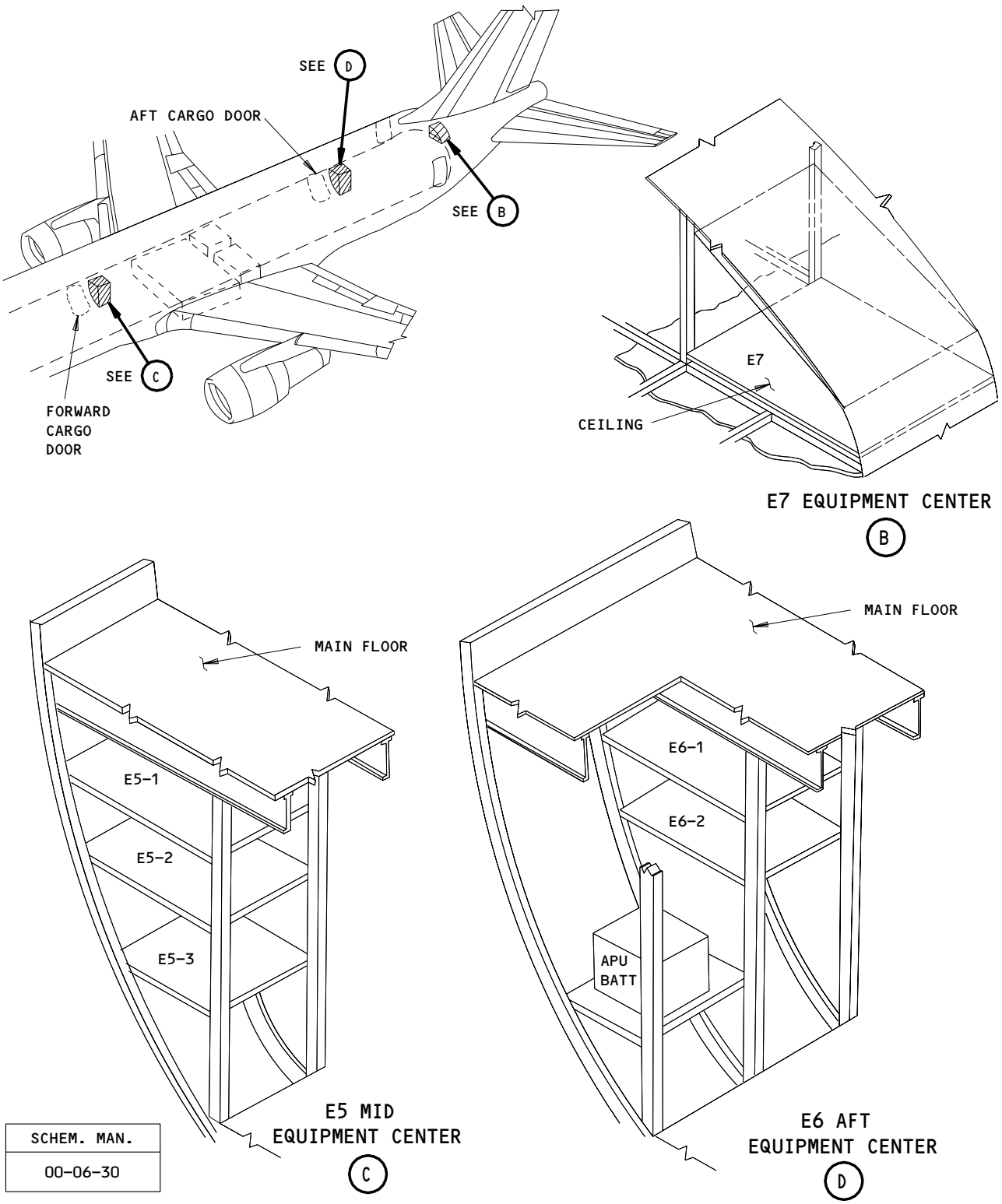
E8 ENGINE INDICATION AND CREW ALERTING SYSTEM (EICAS)

SCHEM. MAN.
00-06-30

Equipment Centers Locations
Figure 2 (Sheet 1)

PANEL LOCATIONS

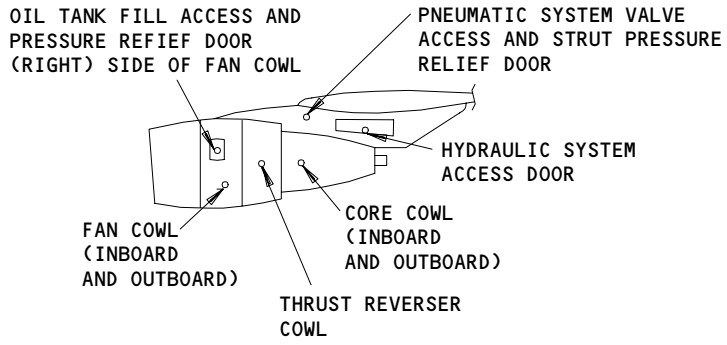
D15659

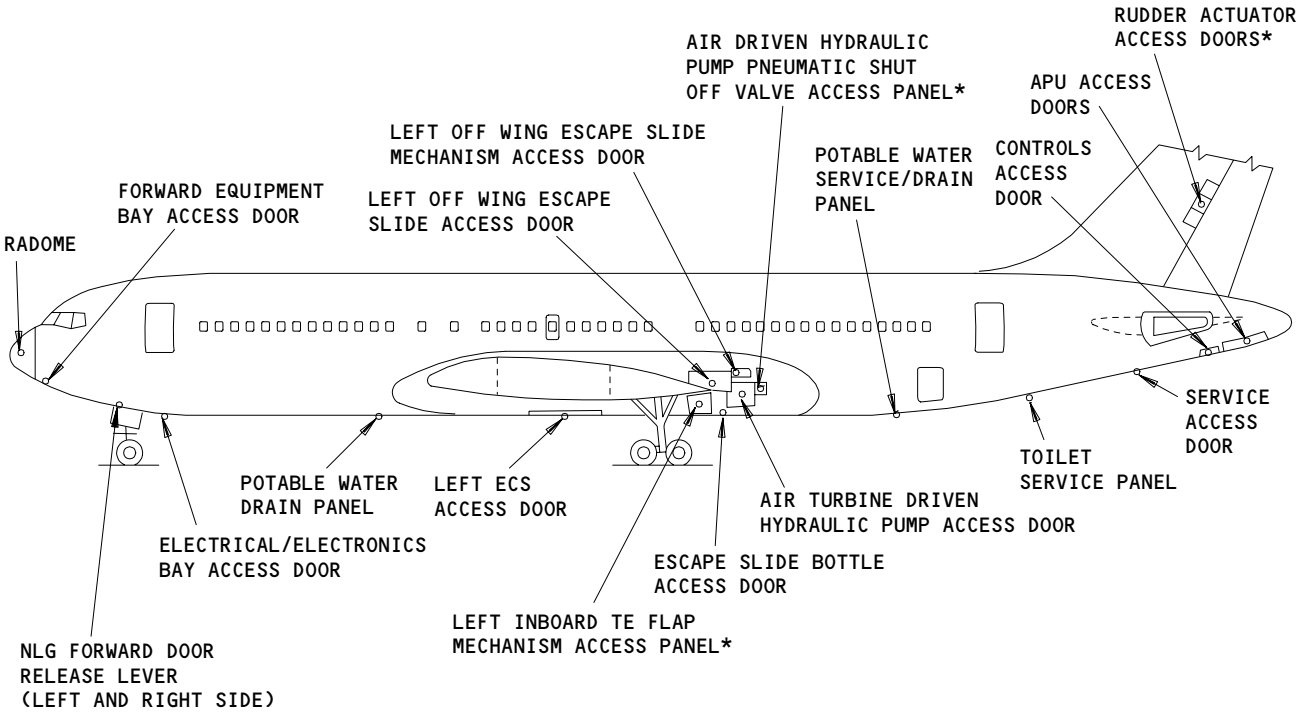


Equipment Centers Locations
Figure 2 (Sheet 2)

PANEL LOCATIONS

SCHEM. MAN.
00-00-10





* INDICATED ACCESS PANELS ARE BOLTED IN PLACE.
ALL OTHER PANELS SHOWN ARE HINGED

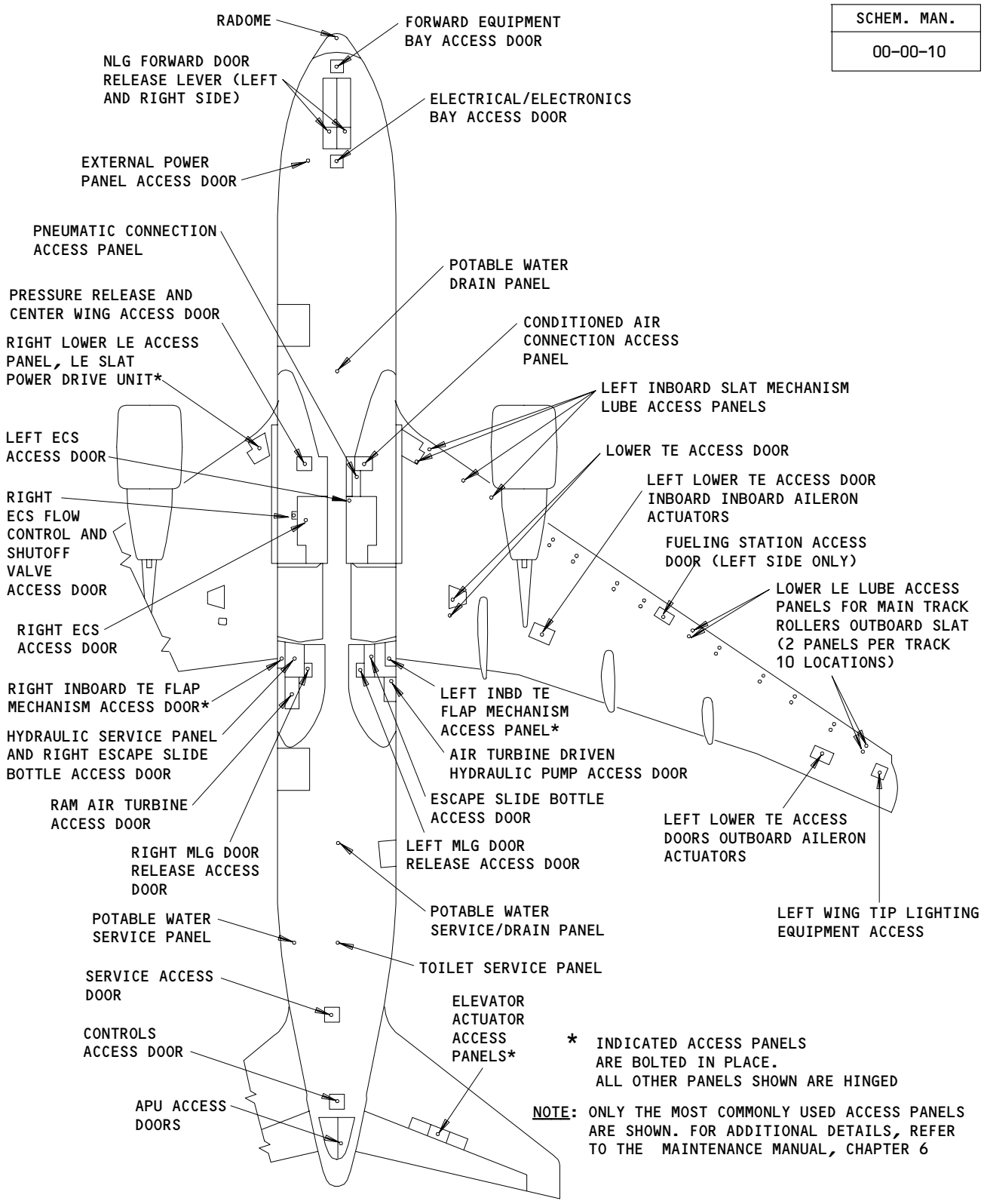
NOTE: ONLY THE MOST COMMONLY USED ACCESS PANELS ARE SHOWN.
FOR ADDITIONAL DETAILS, REFER TO THE MAINTAINANCE
MANUAL, CHAPTER 6

Ground Service Access Panels
Figure 3 (Sheet 1)

PANEL LOCATIONS

D15661

SCHEM. MAN.
00-00-10



Ground Service Access Panels
Figure 3 (Sheet 2)

PANEL LOCATIONS

D15662

LIST OF SERVICE BULLETINS

This list tells you which service bulletins (SB) were evaluated for applicability to this manual. The list has this data: The SB number The chapter affected The configuration of the change in the manual S tells you that two configurations, pre- and post-SB, are in the manual. C tells you that the complete configuration, post-SB, is the only configuration that is shown in the manual. The revision date that the SB was, or will be, incorporated (NO EFFECT tells you that no change was necessary for that SB. INCORP tells you that the change for the SB was previously incorporated, and no more changes are necessary.) The airline-specific change order when it is applicable (Customer Engineering Order Number)

SERVICE BULLETIN	ATA	INCORP DATE	SUBJECT	S/C
21-70	31	11/10/90	TRI-CLASS INTERIOR ARRANGEMENT MOD	C
21-76R1	21	04/22/10	COOLING-EICAS-MESSAGE DELETION	S
21-76R1	31	04/22/08	COOLING-EICAS-MESSAGE DELETION	S
21-77	21	05/10/92	FRWD CARGO COMPARTMENT HEATING SYS-WIRE	C
21-78	31	08/10/92	FRWD CARGO COMPARTMENT HEATING SYS	C
21-82R2	21	04/10/98	COOLING - AFT EQUIP COOLING SYS -	S
21-86	21	08/10/92	FRWD CARGO COMPARTMENT-WIRING MOD	C
21-86	31	08/10/92	FRWD CARGO COMPARTMENT-WIRING MOD	C
21-105R1	21	04/22/93	AFT EQUIPMENT/LAVATORY/GALLEY	C
21-106	31	INCORP	EQUIPMENT COOLING CONTROL CIRCUIT CHANGE	C
21-106R1	31	INCORP	EQUIPMENT COOLING CONTROL CIRCUIT	C
21-106R2	31	INCORP	A/C EQUIPMENT COOLING CIRCUIT CHANGE	S
21-106R3	31	INCORP	AIR CONDITIONING - EQUIPMENT COOLING	S
21-129	21	12/10/98	PACK FLOW SIGNAL PROCESSOR DELETION &	S
21-129	21	04/22/99	PACK FLOW SIGNAL PROCESSOR DELETION &	S
21-129	31	08/10/98	PACK FLOW SIGNAL PROCESSOR DELETION &	S
21-129	31	04/22/99	PACK FLOW SIGNAL PROCESSOR DELETION &	S
21-129R1	21	12/10/98	AC-COOLING PACK FLOW SIGNAL PROC DELETIO	S
21-138	21	04/22/02	FWD CARGO HEAT SHUTOFF VALVE & PACK FLOW	C
21-139	21	08/22/03	AIR CONDITIONING - HEATING - RIGHT FWD	C

SERVICE BULLETIN	ATA	INCORP DATE	SUBJECT	S/C
21-139R1	21	08/22/03	AIR CONDITIONING - HEATING - RIGHT FWD	C
21A147R1	21	08/22/99	RT FWD DOOR SUPPLEMENTAL HEATER DEACT	S
22-46	22	08/10/92	AUTOPILOT FLIGHT CONTROL COMPUTER	S
23-152	23	08/22/02	PASS ADDRESS & ENTERTAINMENT-PASS	S
24-64	22	08/10/93	CTR BUS ISOLATION WIRE CHANGE	C
24-64R1	22	05/10/92	CENTER BUS ISOLATION WIRE CHANGE	S
24-80	24	11/10/95	IDG LOW OIL LEVEL EICAS MESSAGE WIRING	S
24A112	24	08/10/97	MAIN BATT SHUNT INSPECT/REPLACE & MAIN	S
24A112R1	24	08/10/97	MAIN BATT SHUNT INSPECT/REPLACE & MAIN	C
24A112R2	24	04/10/98	MAIN BATT SHUNT INSPT/RPLC & MAIN BATT	C
25-80	25	08/10/92	CONTAINERIZED CARGO HANDLING SYSTEM-	C
25-113	21	11/10/95	ESCAPE HATCH HEATER BLANKET INSTL	C
25-113	32	11/10/93	ESCAPE HATCH HEATER BLANKET INSTL	C
25-113R1	21	08/10/90	ESCAPE HATCH HEATER BLANKET INSTL	S
25-113R1	32	08/10/90	ESCAPE HATCH HEATER BLANKET INSTL	S
25-113R2	21	08/10/90	ESCAPE HATCH HEATER BLANKET INSTL	S
25-113R2	32	08/10/90	ESCAPE HATCH HEATER BLANKET INSTL	S
25-113R3	21	INCORP	ESCAPE HATCH HEATER BLANKET INSTALLATION	S
25-113R3	32	INCORP	ESCAPE HATCH HEATER BLANKET INSTALLATION	S
25-113R4	21	08/10/95	ESCAPE HATCH HEATER BLANKET INSTALLATION	C
25-113R4	32	08/10/95	ESCAPE HATCH HEATER BLANKET INSTALLATION	C
25-113R5	21	08/10/97	ESCAPE HATCH HEATER BLANKET INSTL	C
25-113R5	32	05/10/97	ESCAPE HATCH HEATER BLANKET INSTL	C
25-113R6	21	08/22/06	EMERGENCY - OFF-WING ESCAPE SYSTEM -	S
25-113R6	32	08/22/06	EMERGENCY - OFF-WING ESCAPE SYSTEM -	S
25-113R6	52	08/22/06	EMERGENCY - OFF-WING ESCAPE SYSTEM -	S
25A285	21	04/22/02	EQUIP/FURN-EMERG-OFF WING ESCAPE SYS	C
25A285R2	21	12/22/06	EQUIP/FURN-EMERG- OFF-WING ESCAPE SYS -	S
25-325	11	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	C
25-325	20	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	C
25-325	25	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	C
25-325	52	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	C
25-325R1	11	08/22/05	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R1	20	08/22/05	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R1	52	08/22/05	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R2	11	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R2	20	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R2	52	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R3	11	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R3	20	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R3	52	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R4	11	12/22/03	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R4	20	12/22/03	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R4	52	12/22/03	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R5	11	08/22/04	EQUIP & FURN - FLIGHT COMPARTMENT DOOR	S
25-325R5	20	08/22/04	EQUIP & FURN - FLIGHT COMPARTMENT DOOR	S
25-325R5	52	08/22/04	EQUIP & FURN - FLIGHT COMPARTMENT DOOR	S
25-325R6	11	12/22/03	FLIGHT COMPARTMENT DOOR-FLIGHT	S

SERVICE BULLETIN	ATA	INCORP DATE	SUBJECT	S/C
25-325R6	20	12/22/03	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R6	52	12/22/03	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R7	11	08/22/04	EQUIP AND FURN - FLIGHT COMPARTMENT	S
25-325R7	20	08/22/04	EQUIP AND FURN - FLIGHT COMPARTMENT	S
25-325R7	52	08/22/04	EQUIP AND FURN - FLIGHT COMPARTMENT	S
25-325R8	11	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R8	20	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R8	52	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R9	11	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R9	20	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R9	52	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-325R10	52	08/22/04	EQUIP AND FURN - FLIGHT COMPARTMENT	S
25-325R11	52	08/22/04	EQUIP/FURN - FLIGHT COMPARTMENT DOOR	S
25-325R12	52	08/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
25-325R13	52	08/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
25-325R14	52	12/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
25-325R15	52	12/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
25-325R16	52	12/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
25-332	52	08/22/04	FLIGHT COMPARTMENT-FLIGHT COMPARTMENT	C
25-332R1	11	08/22/04	FLIGHT COMPARTMENT-FLIGHT COMPARTMENT	S
25-332R1	20	08/22/04	FLIGHT COMPARTMENT-FLIGHT COMPARTMENT	S
25-332R1	52	08/22/04	FLIGHT COMPARTMENT-FLIGHT COMPARTMENT	S
25-332R2	11	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-332R2	20	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-332R2	52	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-332R3	11	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-332R3	20	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-332R3	52	08/22/04	FLIGHT COMPARTMENT DOOR-FLIGHT	S
25-332R4	11	08/22/04	EQUIP & FURN FLIGHT COMPARTMENT DOOR	S
25-332R4	20	08/22/04	EQUIP & FURN FLIGHT COMPARTMENT DOOR	S
25-332R4	52	08/22/04	EQUIP & FURN FLIGHT COMPARTMENT DOOR	S
25-332R5	52	08/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
25-332R6	52	08/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
25-332R7	52	12/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
25-332R8	52	12/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
25-332R9	52	12/22/04	EQUIPMENT AND FURNISHINGS - FLIGHT	S
26-111	26	08/22/01	AUTOMATIC FIRE/OVERHEAT LOGIC/TEST	S
27-102	27	08/10/92	HORIZONTAL STABLIZER TRIM CUTOFF SWITCH	S
27-108	27	05/10/94	HIGH LIFT SYS PRESSURE SWITCH INSTL,	C
27-108R1	27	05/10/93	HIGH LIFT SYSTEM PRESSURE SWITCH	S
27-108R2	27	02/10/95	HIGH LIFT PRESSURE SWITCH INSTALLATION	C
27-108R3	27	04/10/98	HIGH LIFT PRESSURE SWITCH INSTL	C
27-108R3	27	05/10/97	HIGH LIFT PRESSURE SWITCH INSTL	C
27A140R3	32	12/22/04	FLIGHT CONTROLS - LEADING EDGE SLAT SYS	S
27-145	27	02/10/97	CHG RUDDER RATIO CHANGER HYDRAULIC	S
27-145R1	27	08/22/02	CHG RUDDER RATIO CHANGER HYDRAULIC	S
27A155R2	27	12/12/03	TERMINATING ACTION FOR ATTACH OF FLAP TO	C
27-165	27	04/22/03	FLIGHT CONTROLS - LEADING EDGE SLAT	C

SERVICE BULLETIN	ATA	INCORP DATE	SUBJECT	S/C
27-165	32	04/22/03	FLIGHT CONTROLS - LEADING EDGE SLAT	C
28-27	28	05/10/97	FUEL JETTISON SYS INSTALLATION	S
28-27R1	28	05/10/97	FUEL JETTISON SYS INSTALLATION	S
28-30	31	11/10/92	ACTIVATE LOW FLOW SYS	C
28-31	28	05/10/92	FUELING CONTROL PANEL LIGHT CIRCUIT	S
28-34	31	11/10/93	FUEL DISTRIBUTION DUAL CROSSFEED	S
28-34R1	31	11/10/93	DUAL CROSSFEED VALVE INSTALLATION	S
28-34R2	31	11/10/93	DUAL CROSSFEED VALVE INSTL	S
28-34R2	31	11/10/95	DUAL CROSSFEED VALVE INSTL	S
28-34R3	31	11/10/93	DUAL CROSSFEED VALVE INSTL	S
28-38R1	31	11/10/93	FUEL DUMP JETTISON SYSTEM ACTIVATION	S
28-38R2	31	11/10/93	FUEL DUMP JETTISON SYSTEM ACTIVATION	S
28-44	28	INCORP	FUEL QUANTITY INDICATING PROCESSOR	S
28-44R1	28	08/10/94	FUEL QUANTITY INDICATING PROCESSOR	S
28-52	28	04/22/00	FUEL - INSTL OF A CTR AUX TANK OVRRD PMP	S
28-66	28	04/22/04	FUEL-DISTRIBUTION-ENGINE FUEL SHUTOFF	S
28-66R1	28	04/22/05	FUEL DISTRIBUTION-ENGINES FUEL SHUTOFF	S
28A83	28	08/22/06	ENGINE FUEL FEED SYSTEM - FUEL PUMP	S
28A83R1	28	08/22/06	ENGINE FUEL FEED SYSTEM - FUEL PUMP	S
28A83R2	28	08/22/06	ENGINE FUEL FEED SYSTEM - FUEL PUMP	S
28A85	28	04/22/08	MN TANK BOOST PUMP GRD FAULT	S
28A85R1	28	12/22/09	FUEL-ENGINE FUEL FEED SYS-MAIN TANK	S
28A88	28	08/22/05	FUEL-ENG FUEL FEED SYS-LEFT& RIGHT WING	S
29-71	71	08/10/95	RIPPLE DAMPNER AND TUBE CLAMP ADDITION	S
30A11R3	30	02/10/90	WING/ENG ANTI-ICE TEST/CIRCUIT MOD	S
30A11R4	30	02/10/90	WING/ENG ANTI-ICE TEST/CIRCUIT MOD	S
30A11R5	30	02/10/93	WING AND ENGINE ANTI-ICE TEST CIRCUIT	C
30A11R6	30	02/10/94	WING/ENG ANTI-ICE TEST/CIRCUIT MOD	C
30-15	30	08/10/92	WINDOW HEAT SENSOR TERMINAL BLOCK REV	S
30-15R1	30	11/10/93	WINDOW HEAT SENSOR TERMINAL BLOCK REV	S
30-17	30	11/10/92	INSTALL AUTOMATIC ACTIVATION OF THE	S
30-17	30	02/10/93	INSTALL AUTOMATIC ACTIVATION OF THE	S
30-24	30	11/10/93	ICE AND RAIN PROTECTION - RIBBON HEATER	S
30-24R1	30	11/10/93	ICE AND RAIN PROTECTION - RIBBON HEATER	S
30-24R2	30	11/10/93	ICE AND RAIN PROTECTION - RIBBON HEATER	S
31-33R1	73	08/10/91	EICAS COMPUTER REPL	C
31-33R1	77	08/10/91	EICAS COMPUTER REPL	C
31-100	23	04/22/99	EICAS COMPUTER RPLC & WIRE CHNG-P&W 4000	C
31-100	71	INCORP	EICAS COMPUTER RPLC & WIRE CHNG-P&W 4000	C
31-100R1	23	04/22/99	EICAS COMPUTER RPLC & WIRE CHNG-P&W 4000	C
31-100R1	71	INCORP	EICAS COMPUTER RPLC & WIRE CHNG-P&W 4000	C
31-100R2	23	04/22/99	EICAS COMPUTER RPLC & WIRE CHNG-P&W 4000	C
31-100R2	71	INCORP	EICAS COMPUTER RPLC & WIRE CHNG-P&W 4000	C
31-114	31	04/22/02	EICAS OPS & OPC SOFTWARE CHANGE	S
31-114R1	31	12/22/00	INDICT/RECRD SYS - ENGIN INDICT AND CREW	S
31-114R1	34	12/22/00	INDICT/RECRD SYS - ENGIN INDICT AND CREW	S
31-114R1	71	12/22/00	INDICT/RECRD SYS - ENGIN INDICT AND CREW	S
31-126	31	12/22/01	INDICATING/RECORDING SYS - ENG IND AND	C

SERVICE BULLETIN	ATA	INCORP DATE	SUBJECT	S/C
31-157	31	04/22/01	INSTALLATION OF NEW OPERATIONAL PROGRAM	S
31-157	79	04/22/01	INSTALLATION OF NEW OPERATIONAL PROGRAM	S
31-166	31	08/22/01	INDICATING/RECORDING SYS-CENTRAL COMPUTE	S
31-180	31	12/22/04	ENG INDICATION & EICAS OPERATIONAL	C
31-182	31	04/22/07	EICAS-SOFTWARE CHANGE TO ACTIVATE THE	C
31-208	28	12/22/04	INDICATING/RECORDING SYSTEM - GENERAL -	S
31-208	34	12/22/04	INDICATING/RECORDING SYSTEM - GENERAL -	S
31-215	31	08/22/05	INDICATING/RECORDING SYSTEM - ENGINE	S
31-215	71	08/22/05	INDICATING/RECORDING SYSTEM - ENGINE	S
31-226	31	12/22/05	INDICATING/RECORDING SYSTEM-EICAS-	S
31-226	71	12/22/05	INDICATING/RECORDING SYSTEM-EICAS-	S
31-233	31	04/22/06	EICAS CHANGE OPCS FOR TEN MINUTE	S
31-233	71	04/22/06	EICAS CHANGE OPCS FOR TEN MINUTE	S
31-236	31	12/22/07	IND/RECORD SYS-ENG IND/CREW ALERTING	S
32-85	31	02/10/93	TIRE PRESSURE INDICATION SYS INSTL	C
32-85	32	02/10/93	TIRE PRESSURE INDICATION SYS INSTL	C
32-85R1	31	02/10/91	TIRE PRESSURE INDICATION SYS INSTL	S
32-85R1	32	11/10/90	TIRE PRESSURE INDICATION SYS INSTL	S
32A196R2	32	12/22/04	MAIN LANDING GEAR & DOORS-MAIN GEAR	S
33-30	33	08/10/91	LWR ANTI-COLLISION LIGHT PWR	C
33-37	33	INCORP	P19 LIGHTING PNL WIRE MOD	C
34-92	34	05/10/91	FMCS-SOFTWARE MOD	C
34-234R2	34	05/20/00	PITOT-STATIC PROBE RPLC	S
34-304R1	34	04/22/03	NAV-PIP FMC OPERATIONAL SOFTWARE	C
34-306	34	12/22/00	NAV-ATTITUDE & DIRECTION-IRS-1995	S
34-306R1	34	12/22/00	NAV-ATTITUDE & DIRECTION-IRS-1995	S
34-319	34	08/22/03	NAVIGATION - TCAS -REPLACEMENT OF THE	C
34-319R1	34	08/22/01	NAV - TCAS - REPLACEMENT OF THE	S
34-319R2	34	04/22/02	NAVIGATION-TCAS-REPLACEMENT OF THE	C
34-319R3	34	08/22/03	NAVIGATION-(TCAS)-REPLACEMENT OF THE	C
34-348	34	08/22/04	ELECTRONIC FLIGHT INSTRUMENT SYS-UPDATE	S
34-411	34	08/22/05	NAVIGATION-ALT & DIR-INERTIAL REF	S
34-566	34	12/22/09	NAV-FMCS-PEGASUS 2009 SOFTWARE	S
35-23	35	11/10/94	FLIGHT ATTENDANT NUMBER 3 OXYGEN	S
36-26	31	02/10/92	COWL THERMAL ANTI-ICE OVERRIDE LOGIC	S
36-26R1	31	02/10/94	COWL THERMAL ANTI-ICE OVERRIDE LOGIC	S
36-26R2	36	12/22/97	CHANGE TO COWL THERMAL ANTI-ICE (TAI)	C
36-27	36	05/10/92	BLEED AIR SYS BLEED CONTROLLERS WIRING	C
36-27R1	36	05/10/91	CONTROLLERS WIRING MOD	S
36-27R2	36	05/10/90	BLEED CONTROLLERS WIRING MOD	S
36-53	71	04/22/00	HIGH PRESS SHUTOFF VALVE & PRESSURE	S
38-38	31	08/10/92	WASTE TANK LEVEL MEASUREMENT SYSTEM	S
38-54R2	38	12/22/00	WATER/WASTE - TOILET SYS - WASTE TANK	S
54-80	12	08/22/01	NACELLES/PYLONS-PW POWERED A/P-STRUT &	C
54-80R1	54	12/22/02	NACELLES/PYLONS-PW POWERED A/P-STRU &	S
54-80R1	57	12/22/02	NACELLES/PYLONS-PW POWERED A/P-STRU &	S
71-117	22	08/22/04	POWER PLANT PW4000 - POWER PLANT -	S
71-118	22	12/22/04	POWER PLANT - PW4000 POWER PLANT -	S

SERVICE BULLETIN	ATA	INCORP DATE	SUBJECT	S/C
71-118R1	22	12/22/04	POWER PLANT - PW4000 POWER PLANT -	S
72-37	22	12/22/99	ENG - GEN - INCRSE TKOFF THRUST RATNG	S
72-37	71	12/22/99	ENG - GEN - INCRSE TKOFF THRUST RATNG	S
72-37R1	22	12/22/99	ENG - GEN - INCRSE TKOFF THRUST RATNG	S
72-37R1	71	12/22/99	ENG - GEN - INCRSE TKOFF THRUST RATNG	S
73A33R1	73	08/10/91	IDLE SYS MOD-PW4000 ENGS	C
73-41R1	73	12/10/98	PW4000 FUEL CONTROL MINIMUN IDLE	C
73-44	73	05/10/95	PW4000 ENGINE IGNITION CONTROL -	S
73-44R1	73	12/10/98	PW4000 ENGINE IGNITION CONTROL	C
73-44R2	73	04/22/01	PW4000 ENGINE IGNITION CONTROL	C
76-24	71	02/10/93	FUEL CONDITION CTRL MOTOR ACTUATOR REPL	C
76-24	73	02/10/93	FUEL CONDITION CTRL MOTOR ACTUATOR REPL	C
76-24	76	02/10/93	FUEL CONDITION CTRL MOTOR ACTUATOR REPL	C
76-26	31	05/10/96	ADD OF ENG DATA MULTIPLEXING PWR	C
76-26	73	05/10/96	ADD OF ENG DATA MULTIPLEXING PWR	C
76-26	77	05/10/96	ADD OF ENG DATA MULTIPLEXING PWR	C
76-26R1	31	11/10/92	ADD OF ENG DATA MULTIPLEXING PWR	S
76-26R1	77	INCORP	ADD OF ENG DATA MULTIPLEXING PWR	S
76-30	31	02/10/91	ADD OF ENG DATA MULTIPLEXING PWR	S
76-30	73	INCORP	ADD OF ENG DATA MULTIPLEXING PWR	S
76-30	77	INCORP	ADD OF ENG DATA MULTIPLEXING PWR	S
76-30R1	31	02/10/91	ENGINE DATA MULTIPLEXING POWER	S
76-30R1	73	INCORP	ENGINE DATA MULTIPLEXING POWER	S
76-30R1	77	INCORP	ENGINE DATA MULTIPLEXING POWER	S
76-30R2	31	02/10/93	ENGINE DATA MULTIPLEXING POWER	C
77-7	77	11/12/90	PIMU REPL	S
77-25	77	04/22/02	PW4000-AIRBORNE VIBRATION MONITOR SYS-	S
78-51	78	INCORP	PW4000 THRUST REVERSER HYDRAULIC AND	C
78-51R1	78	12/22/92	PW4000 THRUST REVERSER HYDRAULIC AND	S
78-62	11	08/22/02	PW4000 THRUST REVERSER HYDRAULIC	C
78-62	31	08/22/02	PW4000 THRUST REVERSER HYDRAULIC	C
78-62	32	08/22/02	PW4000 THRUST REVERSER HYDRAULIC	C
78-62	78	08/22/02	PW4000 THRUST REVERSER HYDRAULIC	C
78-62R1	22	08/10/93	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R1	22	05/10/93	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R1	31	05/10/93	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R1	78	INCORP	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R2	22	08/10/93	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R2	22	05/10/93	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R2	31	05/10/93	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R2	78	INCORP	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R3	22	08/10/93	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R3	31	05/10/93	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R3	78	08/10/94	PW4000 THRUST REVERSER HYDRAULIC	S
78-62R4	22	11/10/95	THRUST REVERSER HYDRAULIC ACTUATOR	C
78-62R4	31	11/10/95	THRUST REVERSER HYDRAULIC ACTUATOR	C
78-62R4	78	05/10/96	THRUST REVERSER HYDRAULIC ACTUATOR	C
78-62R5	22	11/10/95	THRUST REVERSER HYDRAULIC ACTUATOR	C

SERVICE BULLETIN	ATA	INCORP DATE	SUBJECT	S/C
78-62R5	31	11/10/95	THRUST REVERSER HYDRAULIC ACTUATOR	C
78-62R5	78	05/10/96	THRUST REVERSER HYDRAULIC ACTUATOR	C
78A79R2	78	04/22/03	AUX TRACK BEAM ASSBY INSPT/RPLC	C
78A79R3	78	04/22/05	AUXILIARY TRACK BEAM ASSEMBLY	S

LIST OF CHAPTERS

1. EICAS Messages

A. The MESSAGE column shows the message as shown on the EICAS display unit.

(1) Number flagnotes in the MESSAGE column show if an Auto Event occurs with that message.

(2) Messages with *[5] show that only an auto event has occurred because of an engine exceedance. These messages show on the PERF/APU and EPCS pages.

(3) Messages with *[6] show that an auto event has occurred because of an engine exceedance. These messages show on the PERF/APU and EPCS pages.

(4) The number flagnotes are as follows:
*[1] ECS Auto Event
*[2] ELEC Auto Event
*[3] HYD Auto Event
*[4] APU Auto Event
*[5] PERF and EPCS Auto Event (Auto Event Messages Only)
*[6] PERF and EPCS Auto Event

B. The LEVEL column shows the letters A, B, C, S, or M and also if that message is kept in nonvolatile memory (NVM). Levels A, B and C are Alert Messages, level S is a Status message and level M is a Maintenance message.

(1) Alert messages level A, B and C, show automatically in the top left corner of the primary engine page. They show the conditions that follow:

(a) Level A (Warning) messages show an incorrect condition that must be corrected immediately. Warning messages are red in color and show at the top of the alert message list.

(b) Level B (Caution) messages show an incorrect condition that must be known about immeditely and corrected subsequently. Caution messages are yellow in color and show below the last warning message.

(c) Level C (Advisory) messages show an incorrect condition that only must be known about immediately. Advisory messages are also yellow in color and show below the last caution message. Advisory messages start one space to the right of the caution messages.

(2) Alert messages (level A, B, and C) show at the top position of each message level area as they occur. When a new message shows, each of the remaining messages moves down one line. Alert messages show only while there is an incorrect condition; they are not kept in NVM.

(3) Level S (Status) messages show on the right side of the STATUS page. You must push the STATUS switch on the DISPLAY select panel to see the STATUS page. Status messages show incorrect conditions that the flight crew must know about before flight. Status messages are white in color.

(4) Level M (Maintenance) messages show on the top and right side of the ECS/MSG page. You must push the ECS/MSG switch on the maintenance panel to see the ECS/MSG page. Some messages have status and maintenance levels. These messages are important to the flight crew and the maintenance crew. Other messages have only a maintenance level. These are important to the maintenance crew, but the flight crew does not have to know about them. The messages are white in color.

(5) Communication messages notify the flight crew of incoming data links and other normal communications. They direct the flight crew to the appropriate system. Communication messages are displayed in the top left corner of the top EICAS display, in the alert field. They are displayed at the bottom of the alert field (alert messages are displayed at the top of the alert field). There are two levels of communication messages; COMM Medium (level E) and COMM Low (level F). Both are white and are preceded by a white bullet. COMM Medium messages are accompanied by an aural chime. COMM Low messages are indented one space. COMM Medium messages are displayed above COMM Low messages. The most recent message is displayed at the top of each group.

C. The SYSTEM INPUT column gives the general conditions that are necessary for the subsystem to send a discrete signal to show the message.

D. The FIM CHAP REF column gives the primary ATA chapter location of each message in the FIM. There is an EICAS MESSAGE LIST in each chapter which follows the FIM Contents section. This list shows all messages for that chapter and gives a corrective action or the FIM Chapter-Section reference with the applicable figure number.

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
ACCESS DOORS	C	Two or more of the access doors are unlatched.	52
AFT CAB REST SYS	M	The temperature controller for the aft cabin rest system has a BITE failure.	21
AFT CABIN TEMP *[1]	C	A condition that follows continues: - The aft cabin supply duct temperature is larger than 190°F (88°C). - The zone temperature aft cabin channel has a failure. - The zone temperature aft cabin channel is off.	21
AFT CARGO DET 1	S,M	The aft cargo detector loop 1 has an output failure or a test failure.	26
AFT CARGO DET 2	S,M	The aft cargo detector loop 2 has an output failure or test failure.	26
AFT CARGO DOOR	C	The aft cargo door is not closed and locked.	52
AFT CARGO FIRE	A	There is an aft cargo compartment fire.	26
AFT CARGO HEAT	M	The aft cargo compartment heat is on.	21
AFT CARGO OVHT	C	The aft cargo compartment temperature is too hot.	21
AFT DET FAN	M	There is a failure of the aft cargo smoke detector blower 1 or blower 2.	26

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
AFT EQPT CLG FAN	S (NVM)	The aft equipment cooling exhaust fans 1 and 2 have failed. This message is not in NVM but shows when these NVM messages occur: AFT EQ EXH FAN 1 AFT EQ EXH FAN 2	21
AFT EQ EXH FAN 1	S,M (NVM)	The aft equipment exhaust fan 1 has a failure.	21
AFT EQ EXH FAN 2	S,M (NVM)	The aft equipment exhaust fan 2 has a failure.	21
AFT FUEL X-FEED	C	The aft fuel crossfeed valve position does not agree with the aft fuel crossfeed switch position.	28
AFT WASTE SNSR	M	The aft waste tank level sensors are dirty or there is a sensor failure.	38
AILERON LOCKOUT	C	There is an aileron lockout failure.	27
AIR/GND DISAGREE	S,M (NVM)	One or more main landing gear sensors indicate ground while the airplane is in the air.	32
AIR/GND SYS	C	System 1 or system 2 air/ground logic fails to the air mode while the airplane is on the ground and the air speed is below 80 knots or the main battery bus is not powered causing the loss of System 1.	32
ALL GEAR DOWN	M (NVM)	The landing gear system shows that all of the landing gear is down and locked, the air/ground system shows that the nose gear is up.	32

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
ALT CALLOUTS	C	Loss of EGPWS altitude callouts function.	34
ALTITUDE ALERT	B	The airplane moved away from the altitude selection by more than ±300 feet (91 meters).	34
ALTN ANTISKID	S,M	The antiskid system found a failure in the alternate antiskid system.	32
ANTISKID	C	The antiskid system in operation (normal or alternate) has a failure.	32
ANTISKID OFF	C	The antiskid switch is in the OFF position or the parking brake valve is closed with the parking brake released, or loss of power to all four antiskid channels.	32
ANTISKID/AUTOBRK	M (NVM)	The antiskid/autobrake system BITE found a failure.	32
APU BITE	M (NVM)	The APU BITE found a failure.	49
APU BLEED VAL	C	The APU bleed valve switch position does not agree with the APU bleed valve position.	36
APU BTL	C	The APU bottle pressure is low.	26
APU BTL 1	C	The APU bottle 1 pressure is low.	26
APU BTL 2	C	The APU bottle 2 pressure is low.	26

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
APU DOOR	S,M	The APU door position does not agree with the position of the APU master control switch.	49
APU FAULT *[4]	C	The APU BITE found a failure and did a shutdown.	49
APU FIRE	A	There is an APU fire.	26
APU FIRE LP 1	S,M	There is an APU fire in loop 1 or a failure of loop 1 fire detection.	26
APU FIRE LP 2	S,M	There is an APU fire in loop 2 or a failure of loop 2 fire detection.	26
APU FUEL VAL	C	The APU fuel valve position does not agree with the set position.	28
APU GEN OFF	C	The APU generator auxiliary power breaker (APB) is open during APU operation and the external power contactor (EPC) is open or the APU generator control switch is off.	24
APU ISLN VAL	M	The APU isolation valve is in transit.	28
APU ISLN VAL	S,M (NVM)	The APU isolation valve does not agree with the commanded position.	28
APU OIL QTY *[4]	S,M (NVM)	The APU oil quantity is low.	49
ATC FAULT	C	The air traffic control transponder has a failure.	34

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
ATT DISAGREE	B	The instrument comparator unit (ICU) left attitude does not agree with the ICU right attitude. OR The left EFIS symbol generator pitch or roll is different than the right EFIS symbol generator pitch or roll by more than 3 degrees.	34
AUTO SPEEDBRAKE	C	The auto speedbrake system BITE found a failure.	27
AUTOBRAKES	C	The auto brake disarmed or does not operate.	32
AUTOPILOT	B	There is an input failure from the air data computer, flight management computer, stabilizer trim, instrument landing system, or radio altimeter to the autopilot which is in operation.	22
AUTOPILOT DISC	A	There is a failure of all autopilots in operation.	22
AUTOTHROT DISC	B	The autothrottle was manually or automatically disengaged or the power was not removed from the autothrottle.	22
AUX TEMP BITE	M (NVM)	The auxiliary temperature controller has a failure.	21
BATTERY OFF	C	The battery switch is off.	24
BODY DUCT LEAK	B	There is duct leakage between the APU and the center isolation valve.	26

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
BRAKE SOURCE	C	The accumulator is the only hydraulic brake pressure source.	32
BULK CARGO DOOR	C	The bulk cargo door is not latched.	52
BULK CARGO FAN	S,M	The bulk cargo fan has a failure.	21
BULK CARGO HEAT	M	The bulk cargo heat is on.	21
BULK CARGO OVHT	C	The bulk cargo under floor temperature is more than 32°C and the bulk cargo flow control valve does not close.	21
C BLD ISLN VAL	C	The position of the center bleed isolation valve switch does not agree with the position of the bleed isolation valve.	36
C DEM HYD OVHT *[3]	C	The center air driven pump is too hot.	29
C HYD 1 OVHT *[3]	C	The center electrical pump 1 temperature is more than 225°F (107°C).	29
C HYD 2 OVHT *[3]	C	The center electrical pump 2 temperature is more than 225°F (107°C).	29
C HYD DEM PUMP	C	The center air-driven pump output pressure is low.	29
C HYD PRIM 1	C	The center electrical pump 1 output pressure is low.	29

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
C HYD PRIM 2	C	The center electrical pump 2 output pressure is low.	29
C HYD QTY *[3]	C	The center hydraulic reservoir quantity is low.	29
C HYD QTY O/FULL	M	The center hydraulic reservoir quantity is more than 1.22.	29
C HYD SYS MAINT	S,M (NVM)	The center hydraulic system pressure is less than 2800 psi (193 Kg/cm2) while the two engines are in operation.	29
C HYD SYS PRESS *[3]	B	The center hydraulic system pressure is low.	29
C IRS DC FAIL	C	The center inertial reference system DC power supply has a failure.	34
C IRS FAULT	C	The center inertial reference has a system failure.	34
C IRS ON DC	C	The center inertial reference system AC power supply has a failure. The IRS changed to DC power supply use.	34
C TAIL HYD VAL	C	The center hydraulic flight control tail valves are closed.	27
C WING HYD VAL	C	The center hydraulic flight control wing valves are closed.	27

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
CABIN ALERT	E	An alert call has been received over the cabin interphone.	23
CABIN ALT AUTO 1	S,M	The automatic pressurization controller 1 BITE found a failure.	21
CABIN ALT AUTO 2	S,M	The automatic pressurization controller 2 BITE found a failure.	21
CABIN ALTITUDE	A	The cabin altitude is above 10,000 feet (3050 meters).	21
CABIN AUTO INOP	B	There is a failure of the No. 1 and 2 automatic pressurization controllers or the pilot changed to manual pressurization control.	21
CABIN CALL	E	An interphone call has been received from the passenger cabin.	23
CAPT INSTR XFER	S,M	The captain's instrument transfer bus is switched to an alternate power source while the left main ac bus still has power.	24
CAPT PITOT	C	There is a failure of the Captain's main pitot heat power supply or a continuity failure.	30
CAPT PITOT HEAT	M (NVM)	The captain's pitot heat was high while the airplane was on the ground.	30
CARGO A/C CONT	S,M	There is no data from the pack flow (cargo A/C) controller.	21
CARGO A/C CONT	C	The pack flow (cargo A/C) controller BITE found a failure.	21

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
CARGO A/C TEMP	S,M (NVM)	The forward cargo supply duct temperature is larger than 190°F (88°C) or the forward cargo trim air modulating valve has a failure.	21
CARGO BTL 1	C	The cargo bottle 1 pressure is low.	26
CARGO BTL 2	C	The cargo bottle 2 pressure is low.	26
CARGO DET AIR	S	The pressure is low at some position downstream of the forward or the aft cargo smoke detector blowers.	26
CARGO DOORS	C	Two or more cargo doors are open (replaces the individual messages except for the FWD CARGO DOOR level B message).	52
CARGO EXH FAN	S,M (NVM)	The forward cargo exhaust fan has a failure.	21
CARGO EXH VALVE	S,M (NVM)	The forward cargo exhaust valve has a failure.	21
CARGO TRIM AIR	S,M (NVM)	The forward cargo heating shutoff valve has a failure.	21
CARGO ZONE OVHT	M (NVM)	The forward cargo compartment temperature is greater than 32°C.	21
CGO FLOOR OVHT	C	The forward cargo compartment floor temperature is larger than 90°F (32°C).	21
CGO GND EX VALS	C	The forward cargo ground exhaust valve and forward cargo ground exhaust backup valve has a failure.	21
CGO GND EX VALVE	S,M (NVM)	The forward cargo ground exhaust valve or forward cargo ground exhaust backup valve has a failure.	21

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
COMPARATOR BITE	S,M (NVM)	The instrument comparator unit (ICU) BITE found a failure or there was no output. OR The left and right EFIS symbol generators cannot compare the pitch and roll or there was no output.	34
COND CARGO VALVE	S,M (NVM)	The forward cargo A/C shutoff valve has a failure.	21
CTR L FUEL PUMP	C	The center left fuel pump output pressure is low.	28
CTR R FUEL PUMP	C	The center right fuel pump output pressure is low.	28
A DATALINK AVAIL	F	The ACARS datalink has been reestablished	23
DATALINK LOST	C	ACARS reports the loss of datalink capability due to ACARS NO COMM.	23
DATALINK SYS	C	ACARS reports a total loss of datalink capability due to ACARS MU failure.	23
DC FUEL PUMP ON	M	APU DC fuel pump is in operation.	28
E/E ACCESS DOOR	C	The EE bay door is not latched.	52
EGT RED *[5]	NA	The left (right) engine EGT is in the red exceedance range.	71
EGT YEL *[5]	NA	The left (right) engine EGT is in the yellow exceedance range.	71

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
EICAS BITE	M	A condition that follows continues: - The left or right EICAS computer BITE found a failure. - The left and right EICAS computers have a DISAGREE code latched in BITE NVM. - The computer which is not in use has a failure. - The computer which is not in use is off.	31
EICAS CONT PNL	C	The EICAS display select panel has a failure.	31
EICAS DISAGREE	S	A condition that follows continues: - The EICAS computer has a failure which caused an ENGINE DISAGREE code to be latched in BITE NVM. - The EICAS computer has a failure which caused a failure of the caution alert function.	31
EICAS DISPLAY	C	A condition that follows continues: - The EICAS top or bottom display unit has a failure. - The EICAS top or bottom display unit is off. - The EICAS top or bottom display unit data is out of view because of a failure of the EICAS computer.	31
EICAS SCC	S,M	The EICAS signal consolidation card has a failure.	31
EICAS SCC I/F	S,M	The EICAS signal consolidation card interface has a failure.	31
EICAS SOFTWARE	S	An incompatibility exists in the EICAS software	31

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
ELEV FEEL	S,M (NVM-AIR)	The elevator feel system BITE found a failure.	27
ELT ON	C	The emergency locator transmitter has been inadvertently activated.	23
EMER DOORS	C	Two or more emergency doors are open (replaces the individual messages).	52
EMER LIGHTS	C	The emergency light switch is in the ON or the OFF position.	33
ENG BTL 1	C	The engine bottle 1 pressure is low.	26
ENG BTL 2	C	The engine bottle 2 pressure is low.	26
ENG VIB BITE	M (NVM)	The AVM BITE found a failure.	77
F/O INSTR XFER	S,M	The first officer's instrument transfer bus is switched to an alternate power source while the right main ac bus still has power.	24
F/O PITOT	C	There is a power level change, continuity failure, or a failure of the F/O's main pitot heat power supply.	30
F/O PITOT HEAT	M (NVM)	The F/O's pitot heat was high while the airplane was on the ground.	30
FIRE/OVHT SYS	C	The fire/overheat system has a failure.	26
FLAP LD RELIEF	C	The flaps did not automatically retract at the correct airspeed or they did not extend after the airspeed decreased.	27

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
FLAP/SLAT ELEC	S,M	The flap slat electronics unit (FSEU) BITE found a failure.	27
FLAPS	A	The LE slats or the TE flaps are not in a takeoff position and at least one engine has takeoff thrust.	31
FLT CONT VALS	C	Two or more hydraulic flight control valves are closed.	27
FLT DATA ACQ	S,M (NVM-AIR)	The DFDAU had a failure while the left and right engines were in operation.	31
FLT DATA REC	S,M (NVM-AIR)	The flight recorder was OFF while the left and right engines were in operation.	31
FLT DECK TEMP *[1]	C	A condition that follows continues: - The flight deck supply duct temperature is larger than 190°F (88°C). - The zone temperature flight deck channel is off. - The zone temperature flight deck channel has a failure.	21
FLT DK SUP FLOW	M	The flight deck equipment supply duct flow is low.	21
FLT REST SMK VAL	S,M	The flight rest smoke valve is not in the correct position.	21
FLT REST SOV	S,M	The flight rest shutoff valve is not in the correct position.	21
FLT REST SYS	M	The flight rest system temperature controller BITE found a failure.	21

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
FMC MESSAGE	C	The flight management system has an important message.	34
FUEL CONFIG	C	A condition that follows continues: - The left and right fuel tank quantities have a difference of more than 2000 lbs (909 Kg). - The center tank fuel pumps are off and the center tank has fuel (approximately 1200 lbs (500 Kg)) that can be used.	28
FUEL CROSSFEED	C	The fuel crossfeed valve position does not agree with the fuel crossfeed switch position.	28
FUEL JET NOZ	C	A condition that follows has occurred: - The fuel jettison nozzle valves do not agree with the switch position. - The fuel jettison nozzle valves are open while the airplane is on the ground. - The fuel jettison nozzle valves are open while the flaps are set more than 20 degrees.	28
FUEL QTY BITE	S	The Fuel Quantity Indicating System (FQIS) BITE has recorded a failure in FQIS NVM, and EICAS is not receiving digital ARINC data from the FQIS.	28

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
FUEL QTY BITE	M	The FQIS BITE has recorded a failure in FQIS NVM.	28
FUEL QTY CHANNEL	S	The fuel quantity processor unit has a failure in one or more channels.	28
FUEL QTY IND	S	The FQIS cannot accurately determine the fuel quantity in one or more fuel tanks.	28
FWD ACCESS DOOR	C	The forward access door is not latched.	52
FWD CAB REST SYS	M	Forward cabin temperature controller BITE found a failure.	21
FWD CABIN TEMP *[1]	C	A condition that follows continues: - The forward cabin supply duct temperature is larger than 190°F (88°C). - The zone temperature forward cabin channel has a failure. - The zone temperature forward cabin channel is off.	21
FWD CARGO A/C	C	One or more of these conditions occurred: - The cargo A/C selector has a failure. - The aux temp controller has a failure. - The forward cargo A/C shutoff valve has a failure.	21
FWD CARGO DET 1	S,M	The forward cargo detector loop 1 has an output failure or a test failure.	26
FWD CARGO DET 2	S,M	The forward cargo detector loop 2 has an output failure or a test failure.	26
FWD CARGO DOOR	B	The (large) forward cargo door is not closed and locked.	52

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
FWD CARGO FAN	S,M (NVM)	The forward cargo recirculation fan has a failure.	21
FWD CARGO FIRE	A	There is a forward cargo compartment fire.	26
FWD CARGO HEAT	M	The forward cargo heat is on.	21
FWD CARGO I/F	M (NVM)	The forward cargo conditioning system interface has a failure.	21
FWD CGO BACKUP	C	One or more of these conditions occurred: - The trim air modulating valve has a failure. - The zone temperature sensor has a failure. - The zone duct temperature sensor has a failure. - The cargo heat shutoff valve has a failure. - The zone duct temperature is larger than 190°F (88°C). - The forward cargo compartment temperature is larger than 90°F (32°C).	21
FWD CHILLER DET	M	Forward chiller smoke detector has detected smoke or a fire test is in progress.	21
FWD DET FAN	M	There is a failure of the forward cargo smoke detector blower 1 or blower 2.	26
FWD EQ EXH FAN	S,M	The forward equipment exhaust fan has a failure.	21

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
FWD EQ SUP FLOW	M (NVM)	The forward equipment supply duct flow was low.	21
FWD EQ SUP OH	M (NVM)	The forward equipment cooling air supply temperature was more than 131°F (55°C).	21
FWD EQPT CLG DET	M	Forward equipment cooling system smoke detector has detected smoke or a fire test is in progress.	21
FWD EQPT COOLING	B	There is no cooling airflow found.	21
FWD EQPT OVHT	C	A condition that follows continues: - The airflow is low in the flight deck. - The airflow is low in the E/E compartment cooling duct. - The supply temperature at the fan outlet is more than 131°F (55°C).	21
FWD EQPT SMOKE	C	There is smoke in the forward equipment cooling exhaust ducts.	21
FWD EQPT VAL	C	The forward equipment supply valves or exhaust valves do not agree.	21
FWD FUEL X-FEED	C	The forward fuel crossfeed valve position does not agree with the forward fuel crossfeed switch position.	28
FWD WASTE SNSR	M	The forward waste tank level sensors are dirty or there is a sensor failure.	38
GEAR DISAGREE	B	The system 1 and system 2 landing indications do not agree for these conditions: - The control lever is down and all the landing gear is not down. - The control lever is down and a side brace or drag brace is not locked on one of the two landing gears. - The control lever is up and one or all of the landing gear is down. - The control lever is up and the main landing gear doors are not closed.	32

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
GEAR DISAGREE	M (NVM)	The system 1 and system 2 landing indications did not agree while the landing gear was up or down.	32
GEAR DOORS	C	A landing gear door is not closed and locked (system 1 and system 2) except for the nose gear doors when the gear is down.	32
GEAR DOORS	M (NVM)	The system 1 and system 2 gear door position indications do not agree.	32
GEAR NOT DOWN	A	A gear is not down and locked and a condition that follows continues: - The trailing edge flaps are set to 25 or 30 degrees. - The two thrust levers are set to idle and the radio altitude is below 800 feet (244 meters). - At least one thrust lever is set to idle, the radio altitude is below 800 feet, and the 140 second time delay is complete. - At least one thrust lever is set to idle and a radio altimeter failure occurred.	31
GND PROX BITE	S,M	The ground proximity system BITE found a failure.	34

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
GND PROX SYS	C	A basic or enhanced feature of the GPWS has failed.	34
GND PROX SYS	S,M	A basic feature of the GPWS has failed.	34
GROUND CALL	E	An interphone call has been received from the Nose Gear APU Remote Control Panel	23
HF DATALINK	C	A failure of the data function in the left and right HF data radios.	23
HI FLOW INHIBIT	S,M	The flow control card input has a failure.	21
HYD GEN ON	S,M (NVM-AIR)	The hydraulic driven generator is in operation.	24
HYD GEN VAL	S,M	The hydraulic driven generator supply valve is not fully closed.	24
ICE DETECTORS	C	The two automatic ice detector units BITE found a failure.	30
ICING ENGINE	B	All of these conditions occurred: - The airplane is in the air. - The pilot pushed the left or right engine ANTI-ICE switch to the OFF position. - One of the automatic ice detector units finds conditions that cause ice on the engine.	30
ICING WING	C	All of these conditions occurred: - The airplane is in the air. - The pilot pushed the wing ANTI-ICE switch to the OFF position. - One of the automatic ice detector units finds conditions that cause ice on the wing.	30

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
IDG OUT TEMP *[2]	M (NVM)	These conditions occured for more than 10 minutes: - The left and right IDG oil out temperatures are different by more than 20°C. - The left and right engine N1 speeds are different by less than 10% of each other. - The two buses have power from the related generator. OR All of these conditions occurred: - The left and right IDG oil out temperatures are different by more than 20°C. - The left and right engine N1 speeds are different by less than 5% of each other. - The two buses have power from the related generator. - The left and right engine N1 speeds are less than 27% or the N1 speeds are more than 60%.	24
IDG RISE TEMP *[2]	M	The left and right IDG temperature rise difference was more than 6°C while the left and right generators were in operation.	24

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
IDLE DISAGREE *[6]	C	The left and right engine idle speeds (minimum/approach selection fault) do not agree.	71 OR 73
IDLE DISAGREE *[6]	M (NVM)	The approach idle system has a failure.	71 OR 73
IGN 1 STBY BUS	M	The ignition system 1 is energized from the standby bus.	74
IGN 2 STBY BUS	M	The ignition system 2 is energized from the standby bus.	74
INSTR SWITCH	B	The captain and the F/O set the EFI switch on the instrument source select panels to the ALTN position.	34
L AC BUS OFF	B	The L AC main bus is not energized.	24
L AFT EMER DOOR	C	The left aft emergency door is not latched.	52
L AFT ENT DOOR	C	The left aft entry door is not latched.	52
L AFT FUEL PUMP	C	The left aft fuel pump output pressure is low.	28
L AOA PROBE	C	The left angle of attack probe has a power or continuity failure.	30

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L AUX PITOT	C	The left auxiliary pitot heater has a power or continuity failure or an incorrect power level.	30
L AUX PITOT HEAT	M (NVM)	The left auxiliary pitot heater was set to high heat while the airplane was on the ground.	30
L BLD DUCT LEAK	B	There is a duct leak (overheat) between the left engine and the isolation valve.	26
L BLD ISLN VAL	C	The position of the left bleed isolation switch does not agree with the position of the bleed isolation valve.	36
L BUS ISOLATED	C	The left bus isolation tie was opened manually or is kept open automatically.	24
L COWL DUCT LEAK	S,M (NVM)	The left cowl was too hot and the CTAI valve automatically closed with the left engine in operation.	30
L DEM HYD OVHT *[3]	C	The left electrical pump temperature is more than 225°F (107°C).	29
L DRAG BRACE	B	The conditions that follow have occured on the left main landing gear: - System 1 and system 2 have a gear disagree. - Both drag braces are not locked - One or both of the side braces are locked. - The landing gear lever is down.	32
L DRAG BRACE	M (NVM)	System 1 and system 2 do not agree on the left main gear drag brace position.	32

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L EEC TEST PWR	S,M	The left engine EEC ground test power switch is on.	73
L EICAS CMPTR	S	The left EICAS computer is off or has a failure.	31
L EMER DOOR	C	The left emergency door is not latched.	52
L ENG ANALOG N2	S,M (NVM)	The analog N2 value does not agree with the digital N2 value	77
L ENG ANTI-ICE	C	The left engine cowl anti-ice valve does not agree with the command state while the left engine is in operation.	30
L ENG A/O VALVE	S,M (NVM)	The left engine air/oil cooler valve will not move from the open position.	79
L ENG BLD OVHT	C	The left engine bleed air is too hot (the PRV closes).	36
L ENG BLEED OFF	C	The left engine pressure regulating and shutoff valve (PRSOV) is closed with the engine in operation.	36
L ENG CONTROL	C	The left EEC is in a no dispatch configuration and the calculated airspeed is less than 80 knots or not correct.	73

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L ENG CONTROL	S,M (NVM)	The left EEC is in a no dispatch configuration.	73
L ENG EEC C1	S,M (NVM)	There is a level 1 failure in the left EEC.	73
L ENG EEC C2	M (NVM)	There is a level 2 failure in the left EEC.	73
L ENG EEC MODE	C	The left engine EEC channel in control is in the alternate non-rating mode.	73
L ENG EEC MODE	M (NVM)	The left engine EEC channel in control is in the alternate non-rating mode.	73
L ENG FIRE LP 1	S,M	The left engine fire loop 1 has a fire or there is a failure output.	26
L ENG FIRE LP 2	S,M	The left engine fire loop 2 has a fire or there is a failure output.	26
L ENG FUEL FILT	C	The pressure difference across left engine fuel filter is near the bypass.	73
L ENG FUEL FILT	S,M (NVM)	The pressure difference across left engine fuel filter is near the bypass.	73
L ENG FUEL VAL	C	The left engine fuel valve does not agree with the set position.	76

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L ENG HPSOV	C	The left engine high pressure shutoff valve (HPSOV) is open when it is set to close.	36
L ENG HPSOV	S,M	The left engine high pressure shutoff valve (HPSOV) is open when it is set to close.	36
L ENG LIM PROT	B	The left engine control is in the alternate mode and TRA is larger than 83 degrees. OR The left engine control is in the alternate mode and the N1 commanded is larger than the N1 maximum by more than 2% rpm.	73
L ENG LOW IDLE	C	The left engine fan speed is below the approach idle level (the approach idle system has a failure) when the cowl TAI is set.	71
L ENG LOW IDLE	M (NVM)	The approach idle system has a failure.	71
L ENG OH LP 1	S,M	The nacelle overheat detector loop 1 for the left engine is too hot or there is an output failure.	26
L ENG OH LP 2	S,M	The nacelle overheat detector loop 2 for the left engine is too hot or there is an output failure.	26
L ENG OIL PRESS	C	The left engine oil pressure is below the limit while the engine is in operation.	79

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L ENG OVHT	B	The left engine (strut or) nacelle is too hot.	26
L ENG PROBE HEAT	M (NVM)	The P2/T2 probe heat for the left engine has a failure.	30
L ENG PRV	C	The left engine PRV has a failure and caused the pressure to be too high.	36
L ENG PRV	S,M	The left engine PRV has a failure and caused the pressure to be too high.	36
L ENG REV LIMTD	C	The left EEC is incapable of sensing the thrust reverser cowl position.	73
L ENG REV LIMTD	S,M (NVM)	The left EEC is incapable of sensing the thrust reverser cowl position.	73
L ENG REV POS	S,M (NVM)	The left EEC cannot get input from the reverser position.	73
L ENG RPM LIM	C	The left engine RPM is at maximum thrust.	77
L ENG SHUTDOWN	B	The left engine fire switch is pulled or left fuel control switch is in the cutoff position.	76
L ENG SPEED CARD	S,M (NVM)	The left engine speed card found a failure in the N2 speed sensing relay.	77
L ENG START EGT	S	The ground start limit is exceeded in the left engine when the airplane is in the air and the left engine is not running.	71
L ENG STARTER	C	The left starter valve and the left starter switch do not agree.	80
L ENG STATOR	B	The left EEC is not capable of controlling the left stator vane actuator (SVA) and has de-powered the SVA to the failsafe (full-open) position	73

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L ENG TAI VALVE	S,M (NVM)	The left engine thermal anti-ice system has high pressure.	30
L ENGINE FIRE	A	There is a fire in the left engine.	26
L ENTRY DOORS	C	Two or more of the left entry emergency doors are not latched.	52
L FLT CONT ELEC	M	The left CSEU power supply module has a failure.	27
L FMC FAIL	C	The left flight management computer has a failure.	34
L FUEL JET PUMP	C	Left fuel jettison pump has low output pressure or a failure.	28
L FUEL SPAR VAL	C	The left spar valve does not agree with the commanded position.	28
L FUEL SYS PRESS	B	This message shows when one or more of these conditions occur: - The two left main pumps and the left pump of the center auxiliary tank have low pressure and the fuel crossfeed valve(s) is closed. - All six pumps have low pressure. - All six pumps are off.	28
L FWD EMER DOOR	C	The left forward emergency door is not latched.	52
L FWD ENT DOOR	C	The left forward entry door is not latched.	52
L FWD FUEL PUMP	C	The fuel pump output pressure is low.	28
L FWD WINDOW	C	The left forward window heat is too hot or there is no power.	30

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L GEN DRIVE *[2]	C	The left generator drive has low oil pressure or high oil temperature while the engine is in operation.	24
L GEN OFF	C	The left generator circuit breaker is open while the engine is in operation.	24
L HYD DEM PUMP	C	The output pressure of the left electrical pump is low.	29
L HYD PRIM PUMP	C	The output pressure of the primary pump is low while the engine is in operation.	29
L HYD QTY *[3]	C	The left hydraulic reservoir is low.	29
L HYD QTY O/FULL	M	The left hydraulic system reservoir is more than 122% full.	29
L HYD SYS MAINT	S,M (NVM)	The left hydraulic pressure is below 2800 psi (193 Kg/cm2) while the engines are in operation.	29
L HYD SYS PRESS *[3]	B	The left hydraulic system has low pressure.	29
L ICE DETECTOR	S,M (NVM-AIR)	The left automatic ice detector unit found a failure.	30
L IDG FILTER	S,M (NVM)	NOT USED This message is not used. This nuisance message will be shown if these conditions are true: - SB 24-80 IS COMPLETED - L IDG OIL LEVEL IS LOW - AIRPLANES WITH -40 GDU AND SUBSEQUENT - AIRPLANES WITH -301 TO -307, -601 TO -603, -701 TO -704, AND -400 SERIES EICAS COMPUTERS	24

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L IDG OIL LEVEL	M (NVM)	The left IDG oil level is low.	24
L IDG OIL TEMP *[2]	S,M (NVM)	The temperature of the oil at the left IDG outlet is more than 155°C.	24
L IDG TEMP SENS	S,M	The left IDG temperature sensor has a failure shown by one or more of these conditions: - The temperature rise is larger than 175°C. - The temperature rise is less than 0.5°C for 60 seconds while the left engine is in operation and the left generator is on.	24
L IDG VALVE	S,M (NVM)	AIRPLANES WITH ALL EXCEPT PW4000 ENGINES; the left IDG cooling valve has a failure. AIRPLANES WITH PW4000 ENGINES; the left IDG cooling valve has a failure with the left engine running.	24
L IRS DC FAIL	C	The left inertial reference system has a DC failure.	34
L IRS FAULT	C	The left inertial reference system has a failure.	34

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L IRS ON DC	C	The left inertial reference system is supplied with DC power.	34
L JET XFR VALVE	C	The left fuel jettison transfer valve is open when it is set to closed or closed when it is set to open.	28
L NAC VENT VAL	M (NVM-AIR)	The left nacelle vent valve does not agree with the set position when the airplane is below 35,000 feet (10606 meters) or the airplane is on the ground with the engine in operation.	75
L OIL FILTER	S,M	The left engine oil filter delta pressure is close to the bypass.	79
L PACK BITE	M	The left pack controller found a failure or the left pack LRU has a failure.	21
L PACK OFF	C	The left pack is off or the compressor outlet temperature is more than 489°F (254°C).	21
L PACK TEMP *[1]	C	One or more of these left pack conditions occured: - The left pack outlet temperature is more than 190°F (88°C). - The compressor outlet temperature is more than 489°F (254°C). - The left pack controller found a critical system failure.	21

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L PIMU	M	The left PIMU has stored data or found a failure.	77
L PRIM HYD OVHT *[3]	C	The primary hydraulic pump case drain is too hot.	29
L RECIR FAN	C	The left recirculation/electrical equipment exhaust fan has a failure.	21
L REV INTERLOCK	S,M (NVM)	The left reverser interlock actuator has a failure.	78
L REV ISLN VAL	C	The left thrust reverser isolation valve has a failure.	78
L REV ISLN VAL	M (NVM)	The left thrust reverser isolation valve has a failure.	78
L REV ISLN VAL	S,M (NVM)	The left thrust reverser isolation valve has a failure.	78
L SATCOM DATA	S,M	An ACARS to left SATCOM interface failure.	23
L SATCOM HI GAIN	S,M	Loss of satellite voice capability due to a failure in the left SATCOM	23
L SATCOM SYSTEM	S,M	Left SATCOM system failure or no data bus activity from the left SATCOM	23

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L SATCOM VOICE	C	Loss of the left system satellite voice communication capability due to a failure in the left SATCOM high gain system.	23
L SCAV TEMP 1	S,M (NVM)	The left engine scave oil temperature is at or above the redline limit.	79
L SCAV TEMP 2	S,M (NVM)	The left engine scave oil temperature is the yellow band.	79
L SIDE BRACE	B	The conditions that follow have occured on the left main landing gear: - System 1 and system 2 have a gear disagree. - Both side braces are not locked - One or both of the drag braces are locked. - The landing gear lever is down.	32
L SIDE BRACE	M (NVM)	System 1 and system 2 do not agree on the left main gear side brace position.	32
L SIDE WINDOW	C	The left side window heat is too hot or there is no supply of power.	30
L STARTER CUTOUT	B	The left engine starter valve is open above the engine RPM at which the cutout should occur.	80
L STRUT DCT LEAK	B	The PRV closed automatically because the strut is too hot.	26
L TAIL HYD VAL	C	The left hydraulic flight control tail valve is closed.	27
L UTIL BUS OFF	C	Power is not supplied to the left utility bus with power supplied to left AC main bus.	24

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
L WING ANTI-ICE	C	The left wing anti-ice valve switch does not agree with the commanded position.	30
L WING HYD VAL	C	The left hydraulic flight control wing valves are closed.	27
L WING SLIDE	C	The left wing slide door is not latched.	52
L WING TAI VALVE	M (NVM)	The left wing thermal anti-ice has high pressure.	30
L YAW DAMPER	C	The left yaw damper has a failure, power loss or is off.	22
LDG GEAR MONITOR	S	System 1 and system 2 landing gear positions do not agree. Above message is not in NVM but is displayed when one or more of the following NVM messages are displayed: ALL GEAR DOWN, GEAR DISAGREE, GEAR DOORS, GEAR LEVER, L (R) DRAG BRACE, L (R) GEAR DOWN, L (R) SIDE BRACE, NOSE GEAR DOWN, NOSE GEAR LOCKED	32
LE SLAT ASYM	B	LE slat asymmetry	27
LE SLAT DISAGREE	B	The LE slat does not agree with the set position.	27
LE SLAT SHUTDOWN	S,M	There is a LE slats failure protection shutdown.	27
LOW FUEL	B	There is low fuel quantity in the main tanks.	28
MAIN BAT CHGR	S,M (NVM)	The main battery charger has a failure.	24

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
MAIN BAT DISCH	C	The main battery is discharging at 4 amps or more. OR The main battery is discharging at 6 amps or more.	24
MAIN CARGO DOOR	A	Main cargo door not closed and locked.	31
MID CABIN TEMP *[1]	C	The mid cabin supply duct temperature is more than 190°F (88°C); or the zone temperature mid cabin channel has a failure or the system is off.	21
N1 RED *[5]	NA	The left (right) engine N1 is equal to or more than the red line limit.	71
N2 RED *[5]	NA	The left (right) engine N2 is equal to or more than the red line limit.	71
NITROGN GEN PERF	S	Message to indicate a degraded NGS	47
NITROGN GEN SYS	S	Message to indicate an inoperative NGS	47
NORM ANTISKID	S,M	The antiskid system found a failure.	32
NOSE A/G DISAGREE	S,M (NVM)	The system 1 and system 2 air/ground logic does not agree - nosewheel is compressed.	32
NOSE A/G SYS	C	The system 2 air/ground logic fails to the air mode and the nose air/ground system 1 is in the on ground state while the airplane's airspeed is below 80 knots.	32
NOSE GEAR DOWN	M (NVM)	The system 1 and system 2 nose gear down indications do not agree.	32

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
NOSE GEAR LOCKED	M (NVM)	The system 1 and system 2 nose gear locked indications do not agree.	32
OIL P RED *[5]	NA	The left (right) engine oil pressure is equal to or less than the red line limit with left (right) engine in operation.	79
OIL P YEL *[5]	NA	The left (right) engine oil pressure is equal to or less than the yellow line limit while the left (right) engine is in operation.	79
OIL Q *[5]	NA	The left (right) engine oil quantity is equal to or less than 4 quarts with left (right) engine in operation.	79
OIL T RED *[5]	NA	The left (right) engine oil temperature is equal to or more than the red line limit.	79
OIL T YEL *[5]	NA	The left (right) engine oil temperature is equal to or more than the yellow line limit.	79
OVERSPEED	A	The airplane speed (L or R ADC) is more than VMO/MMO.	34
PARKING BRAKE	A	The parking brake set and the takeoff thrust is engaged on one of the engines.	31

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
PARKING BRAKE	C	The parking brake is set (the valve is closed).	32
PASS OXYGEN ON	C	The oxygen passenger service unit (PSU) latch is on.	35
PROBE HEAT	C	Two or more individual probe heat power or continuity loss - replaces the individual messages.	30
R AC BUS OFF	B	The right AC main bus does not have power.	24
R AFT EMER DOOR	C	The right aft emergency door is not latched.	52
R AFT ENT DOOR	C	The right aft entry door is not latched.	52
R AFT FUEL PUMP	C	The output pressure of the right aft fuel pump is low.	28
R AOA PROBE	C	The right angle of attack probe heat power has a continuity loss.	30
R AUX PITOT	C	The right auxiliary pitot heater has a power or continuity failure or incorrect power level.	30
R AUX PITOT HEAT	M (NVM)	The right auxiliary pitot heater on high heat when the airplane is on the ground.	30
R BLD DUCT LEAK	B	There is a duct leak between the right engine and isolation valve.	26

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R BLD ISLN VAL	C	The right bleed isolation valve switch position does not agree with the bleed isolation valve position.	36
R BUS ISOLATED	C	The right isolation bus tie is automatically or manually locked open.	24
R COWL DUCT LEAK	S,M (NVM)	The right cowl is too hot and the CTAI valve automatically closed with the right engine in operation.	30
R DEM HYD OVHT *[3]	C	The right electrical pump temperature is more than 225°F (107°C).	29
R DRAG BRACE	B	The conditions that follow have occured on the right main landing gear: - System 1 and system 2 have a gear disagree. - Both drag braces are not locked. - One or both of the side braces are locked. - The landing gear lever is down.	32
R DRAG BRACE	M (NVM)	System 1 and system 2 do not agree on the right main gear drag brace position.	32
R EEC TEST PWR	S,M	The ground test power switch for the right engine EEC is on.	73

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R EICAS CMPTR	S	The right EICAS computer has a failure or is off.	31
R EMER DOOR	C	The right emergency door is not latched.	52
R ENG ANTI-ICE	C	The right engine cowl anti-ice valve switch does not agree with the commanded state while the right engine is in operation.	30
R ENG ANALOG N2	S,M (NVM)	The analog N2 value does not agree with the digital N2 value	77
R ENG A/O VALVE	S,M (NVM)	The right engine air/oil cooler valve stays open.	79
R ENG BLEED OFF	C	The right engine pressure regulating and shutoff valve (PRSOV) is closed with the engine in operation.	36
R ENG BLD OVHT	C	The right engine bleed air is too hot (the PRV closes).	36
R ENG CONTROL	C	The right EEC is in a no dispatch the configuration and the computed airspeed is less than 80 knots or not valid.	73
R ENG CONTROL	S,M (NVM)	The right EEC is in a no dispatch configuration.	73

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R ENG EEC C1	S,M (NVM)	There is a right EEC fault level 1.	73
R ENG EEC C2	M (NVM)	There is a right EEC fault level 2.	73
R ENG EEC MODE	C	The right engine EEC channel in control is in alternate non-rating mode.	73
R ENG EEC MODE	M (NVM)	The right engine EEC channel in control is in alternate non-rating mode.	73
R ENG FIRE LP 1	S,M	There is a fire in the right engine fire loop 1 or there is an output failure.	26
R ENG FIRE LP 2	S,M	There is a fire in the right engine fire loop 2 or there is an output failure.	26
R ENG FUEL FILT	C	The pressure difference across the right engine fuel filter is close to the bypass.	73
R ENG FUEL FILT	S,M (NVM)	The differential pressure across the right engine fuel filter is close to the bypass.	73
R ENG FUEL VAL	C	The right engine fuel valve does not agree with the commanded position.	76
R ENG HPSOV	C	The right engine high pressure shutoff valve (HPSOV) is open when set to close.	36

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R ENG HPSOV	S,M	The right engine high pressure shutoff valve (HPSOV) is open when set to close.	36
R ENG LIM PROT	B	the right engine control is in the alternate mode and the TRA is larger than 83 degrees. OR The right engine control is in the alternate mode and the N1 commanded is larger than the N1 maximum by more than 2% RPM.	73
R ENG LOW IDLE	C	The right engine fan speed is below the approach idle level (the approach idle system has a failure) when the cowl TAI is set.	71
R ENG LOW IDLE	M (NVM)	The approach idle system has a failure.	71
R ENG OH LP 1	S,M	The right engine nacelle overheat detector loop 1 has a overheat condition or there is an output failure.	26
R ENG OH LP 2	S,M	The right engine nacelle overheat detector loop 2 has a overheat condition or there is an output failure.	26
R ENG OIL PRESS	C	The right engine oil pressure is below the limit with the engine in operation.	79
R ENG OVHT	B	The right engine (strut or) nacelle has an overheat condition.	26
R ENG PROBE HEAT	M (NVM)	The right engine P2/T2 probe heat does not operate.	30

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R ENG PRV	C	The right engine PRV has a failure and caused the pressure to be too high.	36
R ENG PRV	S,M	The right engine PRV has a failure and caused the pressure to be too high.	36
R ENG REV LIMTD	C	The right EEC is incapable of sensing the thrust reverser cowl position.	73
R ENG REV LIMTD	S,M (NVM)	The right EEC is incapable of sensing the thrust reverser cowl position.	73
R ENG REV POS	S,M (NVM)	The right EEC does not receive the reverser position.	73
R ENG RPM LIM	C	The right engine RPM is at the maximum thrust.	77
R ENG SHUTDOWN	B	The right engine fire switch is pulled or right fuel control switch in the cutoff position.	76
R ENG SPEED CARD	S,M (NVM)	The right engine speed card found a failure in the N2 speed sensing relay.	77
R ENG START EGT	S	The ground start limit is exceeded in the right engine when the airplane is in the air and the right engine is not running.	71
R ENG STARTER	C	The right starter valve/switch do not agree.	80
R ENG STATOR	B	The right EEC is not capable of controlling the right stator vane actuator (SVA) and has de-powered the SVA to the failsafe (full-open) position	73
R ENG SURGE DET	M (NVM)	The right EEC detected an engine surge	73
R ENG TAI VALVE	S,M (NVM)	The right engine thermal anti-ice system has high pressure.	30
R ENGINE FIRE	A	There is a right engine fire.	26

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R ENTRY DOORS	C	Two or more right entry doors are not latched.	52
R FLT CONT ELEC	M	The right CSEU power supply module has a failure.	27
R FMC FAIL	C	The right flight management computer has a failure.	34
R FUEL JET PUMP	C	The right fuel jettison pump has low output pressure or a failure.	28
R FUEL SPAR VAL	C	The right spar valve does not agree with commanded position.	28
R FUEL SYS PRESS	B	The two right main pumps and center auxiliary tank right pump have low pressure and the fuel crossfeed valve(s) is closed or all six pumps have low pressure or are off.	28
R FWD EMER DOOR	C	The right forward emergency door is not latched.	52
R FWD ENT DOOR	C	The right forward entry door is not latched.	52
R FWD FUEL PUMP	C	The fuel pump output pressure is low.	28
R FWD WINDOW	C	The right forward window heat is too hot or has no power.	30
R GEN DRIVE *[2]	C	The right generator drive has low oil pressure or high oil temperature with the engine in operation.	24
R GEN OFF	C	The right generator control circuit breaker is open with the engine in operation.	24
R HYD DEM PUMP	C	The output pressure for the right electrical pump is low.	29

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R HYD PRIM PUMP	C	The output pressure of the right engine primary pump is low with engine in operation.	29
R HYD QTY *[3]	C	The right reservoir quantity is low.	29
R HYD QTY O/FULL	M	The right hydraulic system reservoir quantity is more than 1.22.	29
R HYD SYS MAINT	S,M (NVM)	The right hydraulic pressure is below 2800 psi (193 Kg/cm2) with both engines in operation.	29
R HYD SYS PRESS *[3]	B	The right system pressure is low.	29
R ICE DETECTOR	S,M (NVM AIR)	Found a failure in the right automatic ice detector unit.	30
R IDG FILTER	S,M (NVM)	NOT USED This message is not used. This nuisance message will be shown if these conditions are true: - SB 24-80 IS COMPLETED - LIDG OIL LEVEL IS LOW - AIRPLANES WITH -40 GDU AND SUBSEQUENT - AIRPLANES WITH -301 TO -307, -601 TO -603, -701 TO -704, AND -400 SERIES EICAS COMPUTERS	24

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R IDG OIL LEVEL	M (NVM)	The right IDG oil level is low.	24
R IDG OIL TEMP *[2]	S,M (NVM)	The temperature of the oil at the right IDG outlet is more than 311°F (155°C).	24
R IDG TEMP SENS	S,M	The right IDG temperature sensor has a failure shown by one or more of these conditions: - The temperature rise is larger than 175°C. - The temperature rise is less than 0.5°C for 60 seconds while the right engine is in operation and the right generator is on.	24
R IDG VALVE	S,M (NVM)	AIRPLANES WITH ALL EXCEPT PW4000 ENGINES; the right IDG cooling valve failure. AIRPLANES WITH PW4000 ENGINES; the right IDG cooling valve has a failure while the right engine is in operation.	24
R IRS DC FAIL	C	The right inertial reference system has a DC failure.	34
R IRS FAULT	C	The right inertial reference system has a failure.	34
R IRS ON DC	C	The right inertial reference system has DC power.	34

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R JET XFR VALVE	C	The right fuel jettison transfer valve is open when commanded to close or closed when commanded to open.	28
R NAC VENT VAL	M (NVM-AIR)	The right nacelle vent valve does not agree with the command position below 35,000 ft (10606 M) and the engines are in operation or the airplane is on the ground.	75
R OIL FILTER	S,M	The right engine oil filter delta pressure is close to the bypass.	79
R PACK BITE	M	The right pack controller found a failure or the right pack LRU has a failure.	21
R PACK OFF	C	The right pack is off or the compressor outlet temperature is more than 489°F (254°C).	21
R PACK TEMP *[1]	C	This message shows when one of these conditions occur: - The right pack outlet temperature is more than 190°F (88°C). - The compressor outlet temperature is more than 489°F (254°C). - A critical system failure was found by the right pack controller.	21
R PIMU	M	Right PIMU has stored data or has found a failure.	77
R PRIM HYD OVHT *[3]	C	The right primary hydraulic pump case drain is too hot.	29
R RECIR FAN	C	The right recirculation fan has a failure.	21

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R REV INTERLOCK	S,M (NVM)	The right reverser interlock actuator has a failure.	78
R REV ISLN VAL	C	The right thrust reverser isolation valve has a failure.	78
R REV ISLN VAL	M (NVM)	The right thrust reverser isolation valve has a failure.	78
R REV ISLN VAL	S,M (NVM)	The right thrust reverser isolation valve has a failure.	78
R SATCOM DATA	S,M	An ACARS to right SATCOM interface failure.	23
R SATCOM HI GAIN	S,M	Loss of satellite voice capability due to a failure in the right SATCOM	23
R SATCOM SYSTEM	S,M	Right SATCOM system failure or no data bus activity from the right SATCOM	23
R SATCOM VOICE	C	Loss of the right system satellite voice communication capability due to a failure in the right SATCOM high gain system.	23
R SCAV TEMP 1	S,M (NVM)	The right engine scavenger temperature is at or above readline limit.	79
R SCAV TEMP 2	S,M (NVM)	The right engine scavenger temperature is in the amber band.	79
R SIDE BRACE	B	The conditions that follow have occured on the right main landing gear: - System 1 and system 2 have a gear disagree. - Both side braces are not locked. - One or both of the drag braces are locked. - The landing gear lever is down.	32
R SIDE BRACE	M (NVM)	System 1 and system 2 do not agree on the right main gear side brace position.	32

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
R SIDE WINDOW	C	The right side window heat is too hot or has no power.	30
R STARTER CUTOUT	B	The right engine starter valve is open above the engine RPM at which the cutout usually occurs.	80
R STRUT DCT LEAK	B	There is an automatic closure of the PRV because the strut is too hot.	26
R TAIL HYD VAL	C	The right hydraulic flight control tail valves is closed.	27
R UTIL BUS OFF	C	The right utility bus does not have power while the right AC main bus has power.	24
R WING ANTI-ICE	C	The right wing anti-ice valve and switch do not agree.	30
R WING HYD VAL	C	The right hydraulic flight control wing valves are closed.	27
R WING SLIDE	C	The right wing slide door is not latched.	52
R WING TAI VALVE	M (NVM)	The right wing thermal anti-ice has high pressure.	30
R YAW DAMPER	C	The right yaw damper has a failure, loss of power or is off.	22
RADIO TRANSMIT	C	The VHF or HF radio has been transmitting continuously for 30 seconds or longer	23
RAT UNLOCKED	C	The ram air turbine is not locked.	29
RSV BRAKE VAL	C	One of the two reserve brakes and the nose wheel steering valve do not agree with position that was set.	29, 32

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
RUDDER RATIO	C	The rudder ratio system has a failure.	27
RUDDER RATIO	M	The left or right rudder ratio module has a failure.	27
SATCOM	C	The satellite data unit detects a failure in the SATCOM system or the loss of data bus activities.	23
SATCOM DATA	S,M	ACARS/SATCOM interface failure	23
SATCOM DATALINK	C	Loss of SATCOM datalink capability due to an ACARS/SATCOM interface failure	23
SATCOM HIGH GAIN	S,M	Loss of satellite voice capability due to failure in the SATCOM high gain antenna sub-system	23
SATCOM LOW GAIN	S,M	Loss of satellite voice capability due to failure in the SATCOM low gain antenna sub-system	23
SATCOM MESSAGE	E	A failure (or status message) for an air to ground call is shown on the SATCOM Main Menu Page on the CDU	23
SATCOM VOICE	C	Loss of satellite voice communication capability due to a failure in the SATCOM high gain system	23
SATVOICE AVAIL	C	The SATCOM system re-establish voice link capability due to SATCOM logoff or temporary reversion to the low gain antenna.	23

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
SATVOICE AVAIL	F	The SATCOM system re-establish voice link capability due to SATCOM logoff or temporary reversion to the low gain antenna.	23
SATVOICE LOST	C	The SATCOM system lost the voice link capability due to SATCOM log-off or temporary reversion to the low gain antenna.	23
SCAV TEMP 1 *[5]	NA	The left or right engine scavenger oil temperature is at or above redline limit.	79
SCAV TEMP 2 *[5]	NA	The left or right engine scavenger oil temperature is in the amber band.	79
SELCAL	E	SELCAL communications is requested	23
SLAT ISLN VAL	M (NVM)	There is a failure of the slat isolation valve.	27
SPEED BRAKES EXT	B	The speed brakes are extended during descent.	31
SPOILERS	A	The spoilers are not down for a takeoff and takeoff thrust is set on one of the engines.	31
SPOILERS	C	The spoiler system found two or more failures (electronic and electrical failure only).	27

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
SPOILERS	M	There is a failure in one of the three left or three right spoiler modules.	27
STAB TRIM	C	There is one-half drive speed in flight or on the ground.	27
STAB TRIM	M	The left or right SAM has a failure.	27
STABILIZER	A	The stabilizer is not in takeoff range for a takeoff and takeoff thrust is set for one of the engines.	31
STANDBY BUS OFF	C	The standby bus has power.	24
STBY INVERTER	S,M (NVM)	The standby inverter voltage output is more than usual limits with main battery switch in the on position.	24
T-R UNIT	S,M	The left or right transformer rectifier unit has a failure (the DC Bus Tie is closed).	24
TAILSKID	C	The tailskid is not in the commanded position.	32
TAT PROBE	C	The total air temperature probe heat has a loss of power or continuity.	30
TCAS	C	A component of TCAS (an LRU, antenna, radio altimeter, or display) has failed.	34

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
TCAS FAIL	C	The traffic alert and collision avoidance (TCAS) computer found a failure.	34
TCAS OFF	C	The TCAS has not been placed in the TA (or TA/RA) mode by the crew.	34
TE FLAP ASYM	B	The TE flap is not in symmetry.	27
TE FLAP DISAGREE	B	The TE flap does not agree with position that was set.	27
TE FLAP SHUTDOWN	S,M	There is a failure protection shutdown of the TE flaps.	27
TERR OVRD	C	The EGPWS terrain awareness function has been manually switched off.	34
TERR POS	C	The EGPWS has determined that the horizontal position uncertainty exceeds the limit.	34
TERR SYS	S,M (NVM)	The terrain awareness function of EGPS has failed.	34
TIRE PRESS SYS	M (NVM)	The tire pressure monitor unit has a failure.	32
TIRE PRESSURE	S	Any of the conditions that follow occur: - A main gear tire pressure is less than 100 psi. - A nose gear tire pressure is less than 100 psi or less than a preset value between 100 and 160 psi. - Any of the differential pressures between two tires on the same axle exceeds a preset percentage. - Any main gear tire pressure is above or below the average pressure of its main gear tire group by a preset amount.	32

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
TRIM AIR	C	The trim air valve is closed 75°F (24°C) (fixed temperature pack mode is set).	21
UNSCHD STAB TRIM	B	There is stabilizer motion in the autopilot or mach/speed trim modes that was not commanded.	27
WARN ELEX	S,M	The warning electronics system has a failure of the single power supply or a stall warning computer.	31
WHEEL WELL FIRE	A	The wheel well temperature is more than 400°F (204°C).	26
WINDOW HEAT	C	Two or more individual window heaters are too hot or have no power.	30
WINDSHEAR PRED	S	The predictive windshear system has failed.	34
WINDSHEAR REAC	S	The reactive windshear function has failed.	34
WINDSHEAR SYS	C	Either the predictive or reactive windshear functions have failed and their fault annunciation is not available.	34
WXR SYS	S,M (NVM)	The WXR display is not present when WXR is selected on the EFIS control panel.	34

EICAS MESSAGE LIST			
MESSAGE	LEVEL	SYSTEM INPUT	FIM CHAP REF
YAW DAMPER	M	The left or right yaw damper module has a failure.	22
ZONE TEMP BITE	M	The zone temperature controller found a failure or the system LRU has a failure.	21

BITE Index

1. General
   A. Use this index to find the BITE procedure for the applicable LRU/System.
   B. The BITE procedure will provide the fault isolation instructions for the fault indications/LRU maintenance messages.

LRU/System Name	Acronym	FIM Reference
ACARS Management Unit		23-22
Air Data Computer	ADC	34-12
Air Data Inertial Reference Unit	ADIRU	34-26
Air Supply Control and Test Unit	ASCTU	36-20
Air Traffic Control Transponder	ATC	34-53
Airborne Vibration Monitor Signal Conditioner	AVM	77-31
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APU Fire Detection System		26-15
Automatic Direction Finder Receiver	ADF	34-57
APU Control Unit (or Electronic Control Unit)	ECU	49-11
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Brake Temperature Monitor Unit	BTMU	32-46
Bus Power Control Unit	BPCU	24-20
Cabin Pressure Controller	CPC	21-30/21-31
Cabin Temperature Controller	CTC	21-61
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Duct Leak (Wing and Body)		26-18
E/E Cooling Control Card (If cards installed)		21-58
ECS Bleed Configuration Card		36-10
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Electronic Engine Control Monitor Unit (Non-FADEC Engines)	EECM	71-EECM Message Index
Electronic Flight Instrument System	EFIS	34-22

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Figure 1 (Sheet 1)

LRU/System Name	Acronym	FIM Reference
Engine Fire/Overheat Detection System		26-11
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Fuel Quantity Indicating System Processor	FQIS	28-41
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HF (High Frequency) Communication		23-11
In-Flight Entertainment Equipment Cooling Card		21-58
Inertial Reference Unit	IRU	34-21
Instrument Comparator Unit	ICU	34-25
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Large Format Display System	LFDS	31-63
Lower Cargo Compartment Smoke Detection System		26-16
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Proximity Switch Electronics Unit	PSEU	32-09

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Figure 1 (Sheet 2)

LRU/System Name	Acronym	FIM Reference
Radio Altimeter Transmitter/Receiver	RA	34-33
Rudder Ratio Changer Module	RRCM	27-09
Satellite Data Unit	SDU	23-25
Spoiler Control Module	SCM	27-09
Stabilizer Trim/Elevator Asymmetry Limit Module	SAM	27-09
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Yaw Damper Module	YDM	22-21
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Zone Temperature Controller	ZTC	21-60/21-61

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Figure 1 (Sheet 3)