

МИНИСТЕРСТВО ТРАНСПОРТА РОССИЙСКОЙ
ФЕДЕРАЦИИ ФЕДЕРАЛЬНОЕ АГЕНТСТВО
ВОЗДУШНОГО ТРАНСПОРТА

УТВЕРЖДЕНО

УТВЕРЖДЕНО

Начальник Управления
Летной Эксплуатации

Начальник Управления
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«28» 04.

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ООО «Северный Ветер»

**Перечень минимального исправного
оборудования**

BOEING 757-200

A/C Type	Reg. Number	MSN
BOEING 757-200	VQ-BBU	29442
BOEING 757-200	VQ-BHR	30046
BOEING 757-200	VQ-BKM	27203
BOEING 757-200	VQ-BTO	30338

Ревизия № 06
01 Апреля 2014

Основан на FAA MMEL Ревизия 30
от 29 Мая 2012

28.04.14

**MINISTRY OF TRANSPORT OF RUSSIAN FEDERATION
FEDERAL AIR TRANSPORT AGENCY**

APPROVED

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Head of Flight Operations
Department

Director of Airworthiness
Department

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M. Bulanov

«28»

2014г.

2014г.

LLC "NORD WIND"

MINIMUM EQUIPMENT LIST

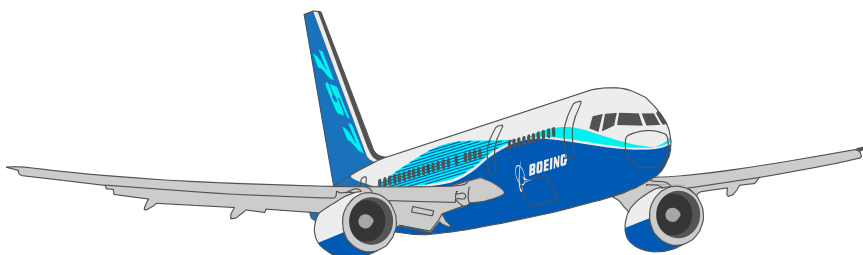
Fleet BOEING 757-200

A/C Type	Reg. Number	MSN
BOEING 757-200	VQ-BBU	29442
BOEING 757-200	VQ-BHR	30046
BOEING 757-200	VQ-BKM	27203
BOEING 757-200	VQ-BTO	30338

Revision № 06
01 April 2014

Based on FAA MMEL Revision 30
29 May 2012

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757

Minimum Equipment List (MEL)

Document Number NRW MEL

Revision Number: 06

Revision Date: April 01, 2014

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Preface

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Revision Record

Revision Transmittal Letter

To: All holders of Document NRW MEL.

Subject: Minimum Equipment List (MEL) Revision 06.

MEL Revision 06 is a complete revision. MEL Revision 06 incorporates changes in accordance with FAA 757 MMEL Revision 30 (29.05.2012), FAA 757 DDG Rev.30 (01.06.2012) and FAA 757 AFM Appendix CDL.

Revision Record

No.	Revision Date	Date Filed
06	April 01, 2014	

No.	Revision Date	Date Filed

General

The LLC "NORD WIND" issues 757 Minimum Equipment List revisions to provide new or revised procedures and information.

Revisions include a Transmittal Letter, a new Revision Record, Revision Highlights, and a List of Effective Pages. The Revision Record should be completed by the person incorporating the revision into the Minimum Equipment List.

Filing Instructions

Consult the List of Effective Pages. The List of Effective Pages determines the correct content of the manual. Pages identified with an asterisk (*) are either replacement pages or new (original) issue pages.

Pages may be re-dated without revision bars. This is due to repagination of content. The List of Effective Pages will reflect the date change, but there will not be a corresponding revision highlight.

Revision Highlights



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Preface

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* 2.73-21-03.1	Apr 01, 2014	* 2.79-34-02.1	Apr 01, 2014
* 2.73-21-04.1	Apr 01, 2014	Section 2 - ATA 80 (tab)	
* 2.73-21-05.1	Apr 01, 2014	* 2.80-TC-00.1-2	Apr 01, 2014
* 2.73-21-08.1	Apr 01, 2014	* 2.80-00-01.1	Apr 01, 2014
* 2.73-31-01.1-2	Apr 01, 2014	* 2.80-00-02.1	Apr 01, 2014
		* 2.80-11-02.1-2	Apr 01, 2014

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* 3.00-TC-00.1-2	Apr 01, 2014	* 3.33-TC-00.1-2	Apr 01, 2014
* 3.00-01-00.1-2	Apr 01, 2014	* 3.33-41-01.1	Apr 01, 2014
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* 3.21-TC-00.1-2	Apr 01, 2014	* 3.33-42-02.1	Apr 01, 2014
* 3.21-32-01.1-2	Apr 01, 2014	* 3.33-42-03.1-2	Apr 01, 2014
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* 3.23-TC-00.1-2	Apr 01, 2014	* 3.33-43-02.1	Apr 01, 2014
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* 3.27-TC-00.1-2	Apr 01, 2014	* 3.33-45-01.1	Apr 01, 2014
* 3.27-21-01.1	Apr 01, 2014	* 3.33-51-01.1-3	Apr 01, 2014
* 3.27-50-01.1-2	Apr 01, 2014	Section 3 - ATA 52 (tab)	
* 3.27-51-01.1-2	Apr 01, 2014	* 3.52-TC-00.1-2	Apr 01, 2014
* 3.27-51-02.1	Apr 01, 2014	* 3.52-11-01.1-2	Apr 01, 2014
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* 3.28-TC-00.1-2	Apr 01, 2014	* 3.52-48-01.1	Apr 01, 2014
* 3.28-44-01.1-2	Apr 01, 2014	* 3.52-48-02.1	Apr 01, 2014
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* 3.32-TC-00.1-2	Apr 01, 2014	* 3.52-48-04.1	Apr 01, 2014
* 3.32-11-01.1	Apr 01, 2014	* 3.52-48-05.1	Apr 01, 2014
* 3.32-12-01.1	Apr 01, 2014	* 3.52-48-06.1	Apr 01, 2014
* 3.32-12-02.1-2	Apr 01, 2014	* 3.52-48-07.1	Apr 01, 2014
* 3.32-12-03.1	Apr 01, 2014	* 3.52-48-08.1	Apr 01, 2014
* 3.32-71-01.1	Apr 01, 2014	* 3.52-49-01.1	Apr 01, 2014
* 3.32-71-02.1	Apr 01, 2014	* 3.52-49-02.1	Apr 01, 2014
* 3.32-72-01.1	Apr 01, 2014	* 3.52-49-03.1	Apr 01, 2014
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* 3.53-42-01.1	Apr 01, 2014	* 3.78-31-01.1	Apr 01, 2014
* 3.53-86-01.1	Apr 01, 2014	* 3.78-31-02.1-2	Apr 01, 2014
Section 3 - ATA 55 (tab)		* 3.78-31-03.1-2	Apr 01, 2014
* 3.55-TC-00.1-2	Apr 01, 2014	* 3.78-31-04.1-3	Apr 01, 2014
* 3.55-10-01.1	Apr 01, 2014	Section 4 - Miscellaneous (tab)	
* 3.55-10-02.1	Apr 01, 2014	* 4.21-TC-00.1-2	Apr 01, 2014
* 3.55-20-01.1-2	Apr 01, 2014	* 4.00-01-00.1-4	Apr 01, 2014
* 3.55-40-01.1-2	Apr 01, 2014	* 4.28-01-00.1-14	Apr 01, 2014
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* 3.57-TC-00.1-2	Apr 01, 2014	(blank tab)	
* 3.57-00-01.1-2	Apr 01, 2014		
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* 3.57-41-01.1	Apr 01, 2014		
* 3.57-43-01.1	Apr 01, 2014		
* 3.57-51-01.1	Apr 01, 2014		
* 3.57-51-02.1	Apr 01, 2014		
* 3.57-53-01.1	Apr 01, 2014		
* 3.57-53-02.1	Apr 01, 2014		
* 3.57-60-01.1	Apr 01, 2014		
* 3.57-60-02.1-2	Apr 01, 2014		
* 3.57-70-01.1	Apr 01, 2014		
* 3.57-70-02.1-2	Apr 01, 2014		
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* 3.71-TC-00.1-2	Apr 01, 2014		
* 3.71-00-01.1	Apr 01, 2014		
* 3.71-11-01.1	Apr 01, 2014		
* 3.71-11-02.1	Apr 01, 2014		
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Introduction

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Document Purpose

This document is intended to assist airline operations and maintenance organizations in developing the procedures required to operate the airplane in the various nonstandard configurations allowed by the Federal Aviation Administration (FAA) Master Minimum Equipment List (MMEL) and the Airplane Flight Manual (AFM) Appendix Configuration Deviation List (CDL).

Background

An airplane is being type certificated with all required equipment in operating conditions. If deviations from this type certificated configuration and equipment required by the operating rules were not permitted, the aircraft could not be flown in revenue service unless such equipment was operable.

Experience has proven that the operation of every system or component installed on the aircraft is not necessary, in specific conditions and during limited period, when the remaining instruments and equipment enable an acceptable level of safety. Therefore, certain conditional deviations from the original requirement are authorized to permit continued or uninterrupted operation of the aircraft in revenue flight: they are published in the MINIMUM EQUIPMENT LIST (MEL) related to applicable regulations specific operations or airlines particular definitions.

A base for every Nord Wind MEL revision is Boeing MMEL revision. Boeing temporary revisions are valid for Nord Wind MEL and also for Operations/Maintenance Procedures until the regular revisions are approved. Nord Wind MEL revision is approved by the Russian Airworthiness Authorities (FTOA RF) in accordance with Directive No 24.9-26/1 of 30/11/2000 and Annex 6 Part 1 Item 5.2.4 ICAO.

This MEL is the regular basis allowing to utilize the aircraft when some systems or components are inoperative, in specified conditions and for limited period of time, under the condition that an acceptable safety level be maintained by appropriate design redundancies, procedures and limitations.

For the sake of brevity, the MEL does not include obviously required items such as wings, control surfaces, engines, landing gear, etc... or items which do not affect the airworthiness of the aircraft such as galley



equipment, entertainment systems, passenger convenience items, etc...
THUS, ALL ITEMS WHICH ARE RELATED TO THE AIRWORTHINESS
OF THE AIRCRAFT AND NOT INCLUDED IN THE LIST ARE
AUTOMATICALLY REQUIRED TO BE OPERATIVE FOR EACH
FLIGHT.

UNLESS OTHERWISE SPECIFIED IN THE REPAIR CATEGORY /
EXCEPTIONS COLUMN, MEL does not define “where or when” an
inoperative item is to be repaired or replaced but rather indicates those
instruments and items of equipment that may be inoperative for certain
flight conditions, with the intent that no revenue flight can take off from an
airport with inoperative equipment other than that specified.

The failure of Instruments or items of equipment in excess of those
allowed to be inoperative by the MEL causes the aircraft to be
unairworthy. The MEL makes no distinction between what is required for
the flight between origin and destination (including the intermediate stops)
and what is required for a flight beyond the scheduled arrival point.
However, as MEL is intended to provide for continued operation of the
aircraft for a limited period with inoperative equipment, Nord Wind as
operator will make repairs at the first airport where repairs or
replacements reasonably may be made, since additional malfunctions
may require the aircraft to be taken out of service.

MEL utilization implies that the aircraft is operated within the framework of
a controlled and sound program of repairs and parts replacement.
Nord Wind is responsible for exercising the necessary operational
control to assure that no aircraft is dispatched or flown with one or more
MEL item inoperative for an indefinite period and without first determining
that any interface or interrelationship between inoperative systems or
components will not result in a degradation in the level of safety and/or an
undue increase in crew workload.

The exposure to additional failures during operation with failed
inoperative systems or components must also be considered to
determine that an acceptable level of safety is being maintained.
This MEL may not deviate from requirements of the flight manual
limitations section, emergency procedures, or airworthiness directives,
unless the flight manual or airworthiness directive provides otherwise.
The AFM Appendix CDL does not include illustrations for positive
identification of secondary airframe and engine parts that may be missing



for dispatch. Historically, operators have found difficulty in developing procedures and identifying missing parts. They have often consulted Boeing for guidance in these areas and as a result, CDL in DDG was prepared for reference.

Nord Wind includes the contents of the CDL in their Operator's MEL for convenience in determining aircraft dispatch ability when a part is found to be missing.

MEL conditions and limitations do not relieve the Commander from determining that the aircraft is in a fit condition for safe operation with specified unserviceabilities allowed by the MEL. The decision of the Commander of the flight to have allowable inoperative items corrected prior to flight will take precedence over the provisions contained in the MEL. The Commander may request requirements above the minimum listed, whenever in his judgment such added equipment is essential to the safety of a particular flight under the special conditions prevailing at the time.

Limit of MEL applicability. The MEL is applicable up to the point when an aircraft begins to move under its own power for the purpose of preparing for take off. If a failure occurs during the taxi phase before the start of the take-off roll, any decision to continue the flight shall be subject to pilot judgment and good airmanship. The commander may refer to the MEL before any decision to continue the flight is taken.

The second MEL application with inoperative items of equipment or systems during first 4 flights after rectification is permitted only for return on base or to airport with Approved Maintenance Organization (see Continuing Airworthiness Management Exposition).

Document Content and Organization

The MEL is divided into five sections as follows:

SECTION 0 - GENERAL

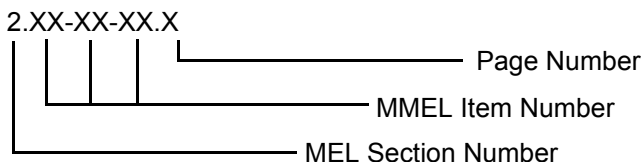
SECTION 1 - EICAS MESSAGES

This section provides a cross reference between EICAS messages and MEL items which may provide dispatch relief. The EICAS message list is in alphabetic order and includes all of the current EICAS messages. The EICAS messages applicable to an operator's airplane and the description of the condition or fault indicated by the messages can be found in the operator's Fault Isolation Manual (FIM).

SECTION 2 - MEL



This section contains all items from the NRW MEL. For ease of use, page numbering uses the MMEL item number as follows:



For example, MEL item 21-51-01 would be found on page 2.21-51-01.1 in Section 2.

Each MMEL item is separated by a double horizontal line, with each applicable sub item separated by a single horizontal line. The NRW MEL entry is separated from applicable procedures by a dashed horizontal line.

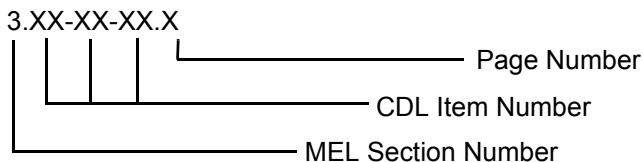
When appropriate, Boeing suggested procedures follow the MEL item. MEL items may not have suggested procedures for the following reasons:

- The procedure is obvious.
- Boeing is not aware of any procedural effects.
- The procedure must be supplied by the airline as it depends on airline operating requirements or a unique configuration.
- The MMEL does not require that a procedure be established.

The NRW MEL Definitions and Preamble have been reprinted in this section.

SECTION 3 - CDL

This section contains all items from the AFM Appendix CDL. For ease of use, page numbering uses the CDL item number as follows:



For example, CDL item 52-11-01 would be found on page 3.52-11-01.1 in Section 3.

When appropriate, illustrations, system effects and performance adjustments follow the CDL item. The CDL General Limitations information has been printed in this section.

SECTION 4 - MISCELLANEOUS



This section contains examples of the MEL numbering format used for MMEL items and information on the use of annotations for airplane configuration applicability.

Use of Procedures

The MEL procedures and guidance information are technically correct to the best of Boeing's knowledge and do not account for non-Boeing modifications. These procedures have not been coordinated with the FAA. The MEL and CDL take precedence in the event of conflicting information.

Boeing does not imply that the procedures published in this document are the only valid procedures. Neither does Boeing imply by not publishing procedures for specific items that none are required for these items. The operator may be able to develop more suitable procedures based on their airplane configuration, routes, operations specification and maintenance practices. Boeing DDG procedures do not account for non-Boeing modifications.

Further information on the development of procedures can be found in FAA Order 8900.1, Flight Standards Information Management System, Vol 4, Chapter 4.

Maintenance and Operations Notes in this document are advisory in nature and should not be considered as required Maintenance or Operations procedures.

Revision Service (DDG, MMEL and MEL)

MMELs are available from the FAA at Flight Standards Information Management System (FSIMS):

- <http://fsims.faa.gov/PublicationForm.aspx>

For convenience, FAA MMELs are also available on MyBoeingFleet as Adobe Portable Document Format (PDF) digital media.

The Boeing DDGs are available on MyBoeingFleet as Adobe Portable Document Format (PDF) and Adobe FrameMaker digital media.

Operators may purchase DDGs as Hyper Text Markup Language (HTML), Extensible Markup Language (XML) digital media and paper copies. Operators may also purchase Configured DDGs, Customer Originated Change Service, and Configured DDG Revision Service.

Operators should use the Boeing Service Requests Application on MyBoeingFleet for comments or questions on these products and services.



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EICAS Messages Cross Reference List

A Cross Reference List of Engine Indication and Crew Alerting System (EICAS) messages and corresponding MMEL items is provided in this section. The Cross Reference List is intended to assist operators in quickly identifying the proper MMEL item to consult for possible dispatch relief. This cross reference is for guidance only, and may not consider all possible combinations of system faults which might cause a message to be presented.

It should not be presumed that dispatch relief is automatically available for every message with an MMEL item cross-referenced. If multiple MMEL items are referenced or if dispatch capability is otherwise unclear, consult the 757 Fault Isolation Manual for further fault troubleshooting/identification.

All EICAS messages at Status level or higher are listed by message text in alphabetic order. A description of the information provided in each column of the Cross Reference List follows.

Message Text	This column alphabetically lists each message exactly as it would appear on EICAS.				
Level	The appropriate EICAS message level is listed: Warning, Caution, Advisory, Comm E, Comm F or Status.				
MMEL Item	This column lists the appropriate MMEL item(s) to consult for possible dispatch relief with the associated message displayed. EICAS messages that do not have a specific MMEL item to allow dispatch are listed with one of the following cross references: <table><tr><td>N/A</td><td>Not Applicable: There is no MMEL item listed because the message does not indicate a system failure.</td></tr><tr><td>None</td><td>There is no MMEL item for the failure condition indicated by this message.</td></tr></table>	N/A	Not Applicable: There is no MMEL item listed because the message does not indicate a system failure.	None	There is no MMEL item for the failure condition indicated by this message.
N/A	Not Applicable: There is no MMEL item listed because the message does not indicate a system failure.				
None	There is no MMEL item for the failure condition indicated by this message.				



EICAS Messages

EICAS consolidates engine and subsystem indications and provides a centrally located crew alerting function. EICAS displays System Alerts (Warning, Caution, and Advisory), Communication Alerts, and Status messages.



Warning	A non-normal operational or system condition displayed in red text accompanied by annunciation of the master warning lights and an aural warning (bell, siren, clacker, wailer or voice). Immediate crew awareness and corrective action is required.
Caution	A non-normal operational or system condition displayed in amber text accompanied by annunciation of the master caution lights and an aural caution (voice or beeper). Immediate crew awareness is required and corrective action may be required.
Advisory	A non-normal operational or system condition displayed in amber text and indented one space to the right. Routine crew awareness is required and corrective action may be required.
Comm E	Medium-priority communication requiring immediate crew awareness and a prompt response. Displayed in white text with a bullet at the bottom of the message field, these messages are accompanied by an aural chime.
Comm F	Low-priority communication requiring timely awareness and response. Also displayed in white text with a bullet, these messages are below the Comm E messages and indented one space to the right.
Status	A system condition which affects airplane dispatch, displayed in white text on the status page. Status messages are checked prior to engine start and the condition should be corrected or dispatched per the operator's MEL. There are no inflight crew procedures associated with Status messages.
Maintenance	White message displayed on ECS/MSG page of EICAS, for use of maintenance personnel.
EEC Maintenance	White message displayed on EPCS page, PW engine-related maintenance only.



Maintenance Level Messages

Maintenance level messages are not included in the Cross Reference List, since they do not affect the airworthiness release of the airplane. System faults that result only in a maintenance message do not require MEL consideration or maintenance action prior to dispatch. They are addressed within an operator's standard maintenance program.

Considerations for Dispatch with Displayed EICAS Messages

Any monitored faults that affect airplane dispatchability will be displayed on EICAS as a Status or Alert level (Warning, Caution, Advisory) message, with a corresponding correlated maintenance message. System faults displayed at Status level or Alert level should be resolved by MEL compliance or maintenance action prior to engine start. After engine start, EICAS Alert messages are the primary means of alerting the crew to non-normal conditions or improper configuration. Display of any Alert message requires accomplishment of the appropriate non-normal procedure by the crew. Upon completion of the procedure and prior to takeoff, the operator's MEL should be consulted to determine if relief is available for continued operation with system faults displayed at the Alert level (Warning, Caution, Advisory).

Dispatch capability with an invalid EICAS message depends on the message level. Dispatch with invalid Status level messages is allowed by MEL Item 31-61-04, provided that either the associated equipment is verified to operate normally or the dispatch deviations for the associated equipment are observed. However, there is no specific item in the MMEL for dispatch with invalid Alert level (Warning, Caution, or Advisory) messages, since they are required for inflight crew awareness or action as described at the beginning of Section 1. Thus, if an Alert message is displayed, dispatch is allowed only if there is MEL relief for the associated equipment fault or failure, and the applicable dispatch deviations are applied. If system deactivation procedures result in an associated Alert message remaining off, dispatch may be acceptable if no inflight alert is needed for the deactivated equipment. In most cases, appropriate placards or flight log entries provide sufficient crew awareness.



NORD WIND AIRLINES
757 MINIMUM EQUIPMENT LIST

Section 1

Cross Reference List

Messages

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
ACARS	Comm E	N/A
ACARS	Comm F	N/A
ACCESS DOORS	Advisory	52-71-01
AFT CABIN TEMP	Advisory	21-61-01 21-61-04 21-61-06
AFT CARGO DET 1	Status	26-16-01
AFT CARGO DET 2	Status	26-16-01
AFT CARGO DOOR	Advisory	52-71-01
AFT CARGO DR 1	Advisory	52-71-01
AFT CARGO DR 2	Advisory	52-71-01
AFT CARGO FAN	Status	21-40-02
AFT CARGO FIRE	Warning	26-16-01
AFT EQ EXH FAN 1	Status	21-58-05
AFT EQ EXH FAN 2	Status	21-58-05
AFT EQPT SMOKE	Advisory	21-58-05
AFT EXHAUST FAN	Status	21-58-05
AFT FUEL X-FEED	Advisory	28-22-03
AIR/GND DISAGREE	Status	None
AIR/GND SYS	Advisory	None
ALT CALLOUT	Advisory	34-46-01
ALT DISAGREE	Caution	34-26-01
ALTITUDE ALERT	Caution	N/A
ALTN ANTISKID	Status	32-42-01 32-42-02
ANTISKID	Advisory	32-42-01
ANTISKID OFF	Advisory	32-42-01


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
APU BAT CHGR	Status	24-31-02
APU BAT DISCH	Advisory	24-31-01
APU BAT NO STBY	Status	24-31-01 24-31-03
APU BLEED VAL	Advisory	36-11-04
APU BTL	Advisory	26-22-01
APU BTL 1	Advisory	26-22-01
APU BTL 2	Advisory	26-22-01
APU DOOR	Status	49-15-01
APU FAULT	Advisory	49-11-01
APU FIRE	Warning	26-15-01
APU FIRE LP 1	Status	26-15-01
APU FIRE LP 2	Status	26-15-01
APU FUEL VAL	Advisory	28-25-02
APU GEN OFF	Advisory	24-00-02
APU OIL QTY	Status	49-94-01
ATC	Comm E	N/A
ATC DATALINK LOST	Advisory	N/A
ATC FAULT	Advisory	34-53-01
ATT DISAGREE	Caution	34-21-01 34-22-05
ATT FAIL	Advisory	34-25-01
AUTO SPEEDBRAKE	Advisory	27-62-01
AUTOBRAKES	Advisory	32-42-04
AUTOPILOT	Caution	22-10-01 34-31-01 34-33-01 34-61-01



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
AUTOPILOT DISC	Warning	22-10-01
AUTOTHROT DISC	Caution	22-30-01
BATTERY OFF	Advisory	N/A
BBAND SYS SMOKE	Caution	None
BLEED ISLN VAL	Advisory	36-11-06
BODY DUCT LEAK	Advisory	None
BRAKE LIMITER	Status	N/A
BRAKE SOURCE	Advisory	N/A
BROADBAND SYS	Status	None
C ADIRU PITOT	Advisory	30-31-01 30-31-02
C AIR DATA	Advisory	34-26-01
C FLT CONT HYD	Advisory	27-03-01
C GLS	Advisory	None
C HYD 1 OVHT	Advisory	29-32-01
C HYD 2 OVHT	Advisory	29-32-01
C HYD ELEC 1	Advisory	29-11-02 29-31-02
C HYD ELEC 2	Advisory	29-11-02 29-31-02
C HYD QTY	Advisory	29-33-01 29-33-02
C HYD RSVR PRES	Advisory	None
C HYD SYS MAINT	Status	None
C HYD SYS PRESS	Caution	None
C IRS DC FAIL	Advisory	34-21-01
C IRS FAULT	Advisory	34-21-01


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
C IRS ON DC	Advisory	34-21-01
CABIN ALERT	Comm E	N/A
CABIN ALTITUDE	Warning	None
CABIN ALT AUTO 1	Status	21-31-01
CABIN ALT AUTO 2	Status	21-31-01
CABIN AUTO INOP	Caution	21-31-01
CABIN CALL	Comm E	N/A
CAPT INSTR XFER	Status	None
CAPT PITOT	Advisory	30-31-01 30-31-05
CAPT PVD	Advisory	N/A
CAPT STBY INV	Status	None
CARGO BTL 1	Advisory	26-23-01
CARGO BTL 2	Advisory	26-23-01
CARGO CALL	Comm E	N/A
CARGO DET AIR	Status	26-16-01
CARGO DOORS	Advisory	52-71-01
COMPARATOR BITE	Status	34-22-05 34-25-01
CTR L FUEL PUMP	Advisory	28-22-02
CTR R FUEL PUMP	Advisory	28-22-02
DATALINK AVAIL	Comm F	N/A
DATALINK LOST	Advisory	N/A
DATALINK SYS	Advisory	23-22-01
DUCT LEAK LP	Status	26-17-01 26-18-01
E/E ACCESS DOOR	Advisory	52-71-01



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
EICAS CONT PNL	Advisory	None
EICAS DISAGREE	Status	31-41-01 73-31-01 79-34-02
EICAS DISPLAY	Advisory	31-41-01
EICAS SCC	Status	52-71-01
EICAS SCC I/F	Status	None
EICAS SOFTWARE	Status	31-41-01
ELEC FILTER	Status	25-20-01
ELEV ASYM	Status	None
ELEV C HYD PRESS	Status	None
ELEV FEEL	Advisory	None
ELEV FEEL	Status	None
ELEV FEEL LIM	Status	27-31-01
ELEV L HYD PRESS	Status	None
ELEV R HYD PRESS	Status	None
ELT ON	Advisory	N/A
EMER DOORS	Advisory	52-71-01
EMER LIGHTS	Advisory	N/A
ENG BTL 1	Advisory	26-20-01
ENG BTL 2	Advisory	26-20-01
ENGINE CONTROLS	Advisory	None
EQPT CLG FAN	Status	21-58-03 21-58-04 21-58-08


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
EQPT CLG FLOW	Status	21-58-03 21-58-04 21-58-08 21-58-13
EQPT CLG SENSOR	Status	21-58-13
EQPT CLG TEST	Status	21-58-13
EQPT OVHT	Advisory	21-25-01 21-58-07
EQPT SMOKE TEST	Status	None
FAST/SLOW FAIL	Advisory	22-30-01 34-13-10
FD COMMAND FAIL	Advisory	34-22-04
FIRE/OVHT SYS	Advisory	26-15-01 26-16-01
FLAPS	Warning	N/A
FLAPS ISLN VAL	Status	27-51-02
FLAP LD RELIEF	Advisory	27-51-01
FLAP/SLAT ELEC	Status	27-59-01
FLT CONT VALS	Advisory	27-03-01
FLT DATA ACQ	Status	31-31-01
FLT DATA REC	Status	31-31-01
FLT DECK DOOR	Advisory	52-71-01
FLT DECK HUMID	Advisory	None
FLT DECK TEMP	Advisory	21-61-02 21-61-04 21-61-06
FLT DK EQ SMOKE	Advisory	21-58-04
FLT REC OFF	Status	31-31-01
FMC	Comm E	N/A



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
FMC MESSAGE	Advisory	N/A
F/O INSTR XFER	Status	None
F/O PITOT	Advisory	30-31-01 30-31-05
F/O PVD	Advisory	N/A
FUEL CONFIG	Advisory	28-22-02 28-41-01 28-41-02
FUEL CROSSFEED	Advisory	None
FUEL QTY BITE	Status	28-41-01 28-41-02
FUEL QTY CHANNEL	Status	28-41-02
FUEL QTY IND	Status	28-41-01
FWD ACCESS DOOR	Advisory	52-71-01
FWD CABIN TEMP	Advisory	21-61-01 21-61-04 21-61-06
FWD CARGO DET 1	Status	26-16-01
FWD CARGO DET 2	Status	26-16-01
FWD CARGO DOOR	Advisory	52-71-01
FWD CARGO FAN	Status	21-40-01
FWD CARGO FIRE	Warning	26-16-01
FWD EQPT SMOKE	Advisory	None
FWD FUEL X-FEED	Advisory	28-22-03
G/S DISAGREE	Advisory	34-31-01
G/S FAIL	Advisory	34-31-01
GEAR DISAGREE	Caution	None
GEAR DOORS	Advisory	None


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
GEAR NOT DOWN	Warning	N/A
GND PROX BITE	Status	34-33-01 34-46-01
GND PROX SYS	Advisory	34-33-01 34-46-01
GND PROX SYS	Status	34-33-01 34-46-01
GPS	Advisory	34-60-03
GROUND CALL	Comm E	N/A
HDG DISAGREE	Advisory	34-21-01
HDG FAIL	Advisory	34-25-01
HF DATALINK	Advisory	23-11-01
HF DATALINK OFF	Comm F	N/A
HYD GEN ON	Status	24-25-01 24-25-02
HYD GEN VAL	Status	24-25-01 24-25-02
IAS/ALT DIFF	Advisory	None
IAS/ALT DIFF	Status	None
IAS DISAGREE	Caution	None
ICE DET OFF	Advisory	30-80-01
ICE DET ON	Advisory	30-80-01
ICE DETECTORS	Advisory	30-80-01
ICING ENGINE	Caution	30-80-01
ICING WING	Advisory	30-80-01
INSTR SWITCH	Caution	34-00-01
L AC BUS OFF	Caution	N/A
L AFT EMER DOOR	Advisory	52-71-01



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
L AFT ENT DOOR	Advisory	52-71-01
L AFT FUEL PUMP	Advisory	28-22-01
L AFT WING DOOR	Advisory	52-71-01
L AIR DATA	Advisory	34-26-01
L ALTN T/R	Advisory	78-31-01
L AOA PROBE	Advisory	30-32-01
L AUX PITOT	Advisory	30-31-01
L BLD DUCT LEAK	Caution	26-18-01
L BUS ISOLATED	Advisory	None
L CTR ENT DOOR	Advisory	52-71-01
L DATALINK SYS	Status	23-22-01
L EEC OFF	Caution	73-21-01 73-21-02
L EICAS CMPTR	Status	31-41-01
L ELEC HYD OVHT	Advisory	None
L ELEV PCU	Status	27-21-02
L EMER DOOR	Advisory	52-71-01
L ENG ANALOG N2	Status	None
L ENG ANTI-ICE	Advisory	30-21-01
L ENG BLEED OFF	Advisory	36-11-01
L ENG BLEED VAL	Caution	36-11-02
L ENG CASE COOL	Status	75-24-01
L ENG EEC	Advisory	73-21-01
L ENG EEC POWER	Advisory	N/A
L ENG FAIL	Caution	None
L ENG FIRE LP 1	Status	26-11-01


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
L ENG FIRE LP 2	Status	26-11-01
L ENG FUEL FILT	Advisory	None
L ENG FUEL FILT	Status	None
L ENG FUEL VAL	Advisory	73-21-03
L ENG HI STAGE	Advisory	36-11-02 36-22-02
L ENG HYD OVHT	Advisory	None
L ENG LIM PROT	Caution	73-21-01
L ENG LIM PROT	Advisory	None
L ENG LIMITER	Advisory	73-21-09
L ENG LOW N1	Advisory	73-21-05
L ENG LOW N1	Status	73-21-05
L ENG LP PUMP	Status	None
L ENG OH LP 1	Status	26-11-03
L ENG OH LP 2	Status	26-11-03
L ENG OIL COOL	Status	None
L ENG OIL PRESS	Caution	None
L ENG OIL PRESS	Advisory	None
L ENG OIL PRESS	Status	None
L ENG OIL SEAL	Status	79-21-01
L ENG OVHT	Caution	None
L ENG PRI CONT	Status	73-21-01
L ENG PROBE HEAT	Status	30-34-01
L ENG REV CONT	Status	78-31-01
L ENG SEC CONT	Status	73-21-01
L ENG SEC SEL	Status	73-21-01



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
L ENG SHUTDOWN	Caution	N/A
L ENG SPEED CARD	Status	None
L ENG START EGT	Status	None
L ENG STARTER	Advisory	80-00-02 80-11-02
L ENG STATOR	Caution	None
L ENG SURGE CONT	Status	None
L ENG TAI VALVE	Status	30-21-01
L ENG TURB COOL	Status	75-24-02
L ENG VIB	Status	77-31-01
L ENG VIBRATION	Caution	77-31-01
L ENGINE FIRE	Warning	N/A
L ENTRY DOORS	Advisory	52-71-01
L FCU FAILSAFE	Status	None
L FLT CONT HYD	Advisory	27-03-01
L FMC FAIL	Advisory	34-61-01
L FUEL SPAR VAL	Advisory	None
L FUEL SYS PRESS	Caution	28-22-01 28-22-02 28-42-01
L FWD EMER DOOR	Advisory	52-71-01
L FWD ENT DOOR	Advisory	52-71-01
L FWD FUEL PUMP	Advisory	28-22-01
L FWD WINDOW	Advisory	30-41-01
L FWD WING DOOR	Advisory	52-71-01
L GEN DRIVE	Advisory	24-00-01
L GEN OFF	Caution	24-00-01


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
L GEN OFF	Advisory	24-00-01
L GLS	Advisory	None
L GPS	Advisory	34-60-03
L HF DATALINK	Status	23-11-01
L HYD ELEC PUMP	Advisory	29-31-02
L HYD ENG PUMP	Advisory	29-31-02
L HYD GEN ON	Status	N/A
L HYD QTY	Advisory	29-33-01 29-33-02
L HYD RSVR PRES	Advisory	None
L HYD SYS MAINT	Status	None
L HYD SYS PRESS	Caution	None
L ICE DETECTOR	Status	30-80-01
L ILS	Advisory	34-31-01
L IRS DC FAIL	Advisory	34-21-01
L IRS FAULT	Advisory	34-21-01
L IRS ON DC	Advisory	34-21-01
L MLS	Advisory	None
L OIL FILTER (PW engine)	Advisory	None
L OIL FILTER (RB211 engine)	Advisory	79-35-02
L OIL FILTER	Status	None
L OIL SCAV CLOSE	Status	79-21-02
L OIL SCAV VAL	Status	31-61-04
L PACK OFF	Advisory	21-51-01 21-51-03
L PACK TEMP	Advisory	21-51-01 21-51-03



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
L RECIR FAN	Advisory	21-25-01
L REV ISLN VAL	Advisory	78-31-01
L REV ISLN VAL	Status	78-31-01
L REV STOW SIG	Status	78-31-01
L SATCOM DATA	Status	23-22-01 23-25-01
L SATCOM HI GAIN	Status	23-25-01
L SATCOM SYSTEM	Status	23-25-01
L SATCOM VOICE	Advisory	23-25-01
L SIDE WINDOW	Advisory	30-41-01
L STARTER CUTOUT	Caution	80-00-02 80-11-02
L STRUT OH DET 1	Status	26-12-01
L STRUT OH DET 2	Status	26-12-01
L SVA FAILSAFE	Status	None
L TAT PROBE	Advisory	30-33-01
L TURB OH DET 1	Status	26-11-02
L TURB OH DET 2	Status	26-11-02
L UTIL BUS OFF	Advisory	24-51-01
L WING ANTI-ICE	Advisory	30-11-01 30-11-02
L WING SLIDE	Advisory	52-71-01
L YAW DAMPER	Advisory	22-21-01
LAVATORY SMOKE	Caution	26-26-03
LAVATORY SMOKE	Advisory	26-26-03
LDG GEAR MONITOR	Status	32-61-02
LE SLAT ASYM	Caution	27-81-01


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
LE SLAT DISAGREE	Caution	None
LE SLAT SHUTDOWN	Status	None
LOC DISAGREE	Advisory	34-31-01
LOC FAIL	Advisory	34-31-01
LOW CREW OXYGEN	Advisory	35-11-02
LOW FUEL	Caution	N/A
MACH/SPD TRIM	Advisory	None
MAIN BAT CHGR	Status	None
MAIN BAT DISCH	Advisory	N/A
MAIN CARGO DOOR	Warning	None
MAIN CARGO DOOR	Caution	52-71-01
MAIN CARGO FIRE	Warning	26-16-02
MID CABIN TEMP	Advisory	21-61-01
MN CARGO DR SYS	Status	52-71-01
MN CARGO LOOP 1	Status	26-16-02
MN CARGO LOOP 2	Status	26-16-02
NITROGN GEN PERF	Status	47-11-01
NITROGN GEN SYS	Status	47-11-01
NORM ANTISKID	Status	32-42-01
NOSE A/G DISAGRE	Status	None
NOSE A/G SYS	Advisory	None
OVBD EX VAL OPEN	Status	21-58-07
OVBD EX VAL TEST	Status	21-58-07
OVERSPEED	Warning	N/A
PARKING BRAKE	Warning	N/A
PARKING BRAKE	Advisory	32-44-03



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
PASS OXYGEN LOW	Advisory	35-21-01
PASS OXYGEN ON	Advisory	35-21-01
PILOT RESPONSE	Warning	N/A
PILOT RESPONSE	Caution	N/A
PILOT RESPONSE	Advisory	N/A
POWER XFER UNIT	Status	31-61-04
PRINTER	Comm E	N/A
PRINTER	Comm F	N/A
PROBE HEAT	Advisory	30-31-01 30-31-05 30-32-01 30-33-01
R AC BUS OFF	Caution	N/A
R AFT EMER DOOR	Advisory	52-71-01
R AFT ENT DOOR	Advisory	52-71-01
R AFT FUEL PUMP	Advisory	28-22-01
R AFT WING DOOR	Advisory	52-71-01
R AIR DATA	Advisory	34-26-01
R ALTN T/R	Advisory	78-31-01
R AOA PROBE	Advisory	30-32-01
R AUX PITOT	Advisory	30-31-01
R BLD DUCT LEAK	Caution	26-18-01
R BUS ISOLATED	Advisory	None
R CTR ENT DOOR	Advisory	52-71-01
R DATALINK SYS	Status	23-22-01
R EEC OFF	Caution	73-21-01 73-21-02


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R EICAS CMPTR	Status	31-41-01
R ELEC HYD OVHT	Advisory	None
R ELEV PCU	Status	27-21-02
R EMER DOOR	Advisory	52-71-01
R ENG ANALOG N2	Status	None
R ENG ANTI-ICE	Advisory	30-21-01
R ENG BLEED OFF	Advisory	36-11-01
R ENG BLEED VAL	Caution	36-11-02
R ENG CASE COOL	Status	75-24-01
R ENG EEC	Advisory	73-21-01
R ENG EEC POWER	Advisory	N/A
R ENG FAIL	Caution	None
R ENG FIRE LP 1	Status	26-11-01
R ENG FIRE LP 2	Status	26-11-01
R ENG FUEL FILT	Advisory	None
R ENG FUEL FILT	Status	None
R ENG FUEL VAL	Advisory	73-21-03
R ENG HI STAGE	Advisory	36-11-02 36-22-02
R ENG HYD OVHT	Advisory	None
R ENG LIM PROT	Caution	73-21-01
R ENG LIM PROT	Advisory	None
R ENG LIMITER	Advisory	73-21-09
R ENG LOW N1	Advisory	73-21-05
R ENG LOW N1	Status	73-21-05
R ENG LP PUMP	Status	None



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R ENG OH LP 1	Status	26-11-03
R ENG OH LP 2	Status	26-11-03
R ENG OIL COOL	Status	None
R ENG OIL PRESS	Caution	None
R ENG OIL PRESS	Advisory	None
R ENG OIL PRESS	Status	None
R ENG OIL SEAL	Status	79-21-01
R ENG OVHT	Caution	None
R ENG PRI CONT	Status	73-21-01
R ENG PROBE HEAT	Status	30-34-01
R ENG REV CONT	Status	78-31-01
R ENG SEC CONT	Status	73-21-01
R ENG SEC SEL	Status	73-21-01
R ENG SHUTDOWN	Caution	N/A
R ENG SPEED CARD	Status	None
R ENG START EGT	Status	None
R ENG STARTER	Advisory	80-00-02 80-11-02
R ENG STATOR	Caution	None
R ENG SURGE CONT	Status	None
R ENG TAI VALVE	Status	30-21-01
R ENG TURB COOL	Status	75-24-02
R ENG VIB	Status	77-31-01
R ENG VIBRATION	Caution	77-31-01
R ENGINE FIRE	Warning	N/A
R ENTRY DOORS	Advisory	52-71-01


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R FCU FAILSAFE	Status	None
R FLT CONT HYD	Advisory	27-03-01
R FMC FAIL	Advisory	34-61-01
R FUEL SPAR VAL	Advisory	None
R FUEL SYS PRESS	Caution	28-22-01 28-22-02 28-42-01
R FWD EMER DOOR	Advisory	52-71-01
R FWD ENT DOOR	Advisory	52-71-01
R FWD FUEL PUMP	Advisory	28-22-01
R FWD WINDOW	Advisory	30-41-01
R FWD WING DOOR	Advisory	52-71-01
R GEN DRIVE	Advisory	24-00-01
R GEN OFF	Caution	24-00-01
R GEN OFF	Advisory	24-00-01
R GLS	Advisory	None
R GPS	Advisory	34-60-03
R HF DATALINK	Status	23-11-01
R HYD ELEC PUMP	Advisory	29-31-02
R HYD ENG PUMP	Advisory	29-31-02
R HYD QTY	Advisory	29-33-01 29-33-02
R HYD RSVR PRES	Advisory	None
R HYD SYS MAINT	Status	None
R HYD SYS PRESS	Caution	None
R ICE DETECTOR	Status	30-80-01
R ILS	Advisory	34-31-01



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R IRS DC FAIL	Advisory	34-21-01
R IRS FAULT	Advisory	34-21-01
R IRS ON DC	Advisory	34-21-01
R MLS	Advisory	None
R OIL FILTER (PW engine)	Advisory	None
R OIL FILTER (RB211 engine)	Advisory	79-35-02
R OIL FILTER	Status	None
R OIL SCAV CLOSE	Status	79-21-02
R OIL SCAV VAL	Status	31-61-04
R PACK OFF	Advisory	21-51-01 21-51-03
R PACK TEMP	Advisory	21-51-01 21-51-03
R RECIR FAN	Advisory	21-25-01
R REV ISLN VAL	Advisory	78-31-01
R REV ISLN VAL	Status	78-31-01
R REV STOW SIG	Status	78-31-01
R SATCOM DATA	Status	23-22-01 23-25-01
R SATCOM HI GAIN	Status	23-25-01
R SATCOM SYSTEM	Status	23-25-01
R SATCOM VOICE	Advisory	23-25-01
R SIDE WINDOW	Advisory	30-41-01
R STARTER CUTOUT	Caution	80-00-02 80-11-02
R STRUT OH DET 1	Status	26-12-01
R STRUT OH DET 2	Status	26-12-01


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R SVA FAILSAFE	Status	None
R TAT PROBE	Advisory	30-33-01
R TURB OH DET 1	Status	26-11-02
R TURB OH DET 2	Status	26-11-02
R UTIL BUS OFF	Advisory	24-51-01
R WING ANTI-ICE	Advisory	30-11-01 30-11-02
R WING SLIDE	Advisory	52-71-01
R YAW DAMPER	Advisory	22-21-01
RA DISAGREE	Advisory	34-33-01
RADIO TRANSMIT	Advisory	23-11-01 23-51-04
RAT	Status	None
RAT UNLOCKED	Advisory	N/A
REV ISLN VAL	Advisory	78-34-01
RUDDER PCU	Status	27-21-02
RUDDER RATIO	Advisory	None
SATCOM	Advisory	23-22-01 23-25-01
SATCOM DATA	Status	23-22-01 23-25-01
SATCOM DATALINK	Advisory	23-22-01 23-25-01
SATCOM HIGH GAIN	Status	23-25-01
SATCOM LOW GAIN	Status	23-25-01
SATCOM MESSAGE	Comm E	23-25-01
SATCOM VOICE	Advisory	23-25-01
SATVOICE AVAIL	Comm F	N/A



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
SATVOICE LOST	Advisory	N/A
SELCAL	Comm E	N/A
SINGLE AIR DATA	Advisory	N/A
SMOKE CONT TEST	Status	N/A
SPEEDBRAKES EXT	Caution	27-62-02
SPOILERS	Warning	N/A
SPOILERS	Advisory	27-61-01
STAB TRIM	Advisory	27-41-02
STABILIZER	Warning	N/A
STANDBY BUS OFF	Advisory	None
STBY INST PITOT	Advisory	30-31-01 30-31-02
STBY INVERTER	Status	None
T-R UNIT	Status	None
TAIL STRIKE	Caution	32-72-01
TAIL STRIKE CH 1	Status	32-72-01
TAIL STRIKE CH 2	Status	32-72-01
TAILSKID	Advisory	32-71-01
TAT PROBE	Advisory	30-31-02 30-33-01
TCAS	Advisory	34-61-02
TCAS FAIL	Advisory	34-61-02
TCAS OFF	Advisory	N/A
TE FLAP ASYM	Caution	None
TE FLAP DISAGREE	Caution	None
TERR OVRD	Advisory	34-46-01
TERR POS	Advisory	34-46-01


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
TERR SYS	Status	34-46-01
TIRE PRESSURE	Advisory	None
TIRE PRESSURE	Status	None
THERAP OXY ON	Advisory	N/A
TRACK DISAGREE	Advisory	34-21-01
TRACK FAIL	Advisory	34-25-01
TRIM AIR	Advisory	21-61-03
UNABLE RNP	Caution	N/A
UNABLE RNP	Advisory	N/A
UNSCHD STAB TRIM	Caution	None
VHF DATA OFF	Comm F	N/A
WARN ELEX	Status	34-61-01 27-32-02
WHEEL WELL FIRE	Warning	26-17-01
WINDOW HEAT	Advisory	30-41-01
WINDSHEAR PRED	Status	34-43-01
WINDSHEAR REAC	Status	34-46-01
WINDSHEAR SYS	Advisory	34-43-01 34-46-01
WXR SYS	Status	34-43-01
YSM	Status	27-09-01



Section 2

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"NORDWIND" MEL Preamble

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General Notes

This section contains MEL Definitions, the MMEL Preamble, "NORD WIND" MEL Preamble and MEL items.

MEL Items have a table of contents for each ATA. Each section of information in the MEL has been assigned a unique number.

MEL Definitions

1. System Definitions. System numbers are based on the Air Transport Association (ATA) Specification and items are numbered sequentially.

- A. Interval (Cell 1) means the Rectification Interval category (A, B, C, and D).
- B. Installed (Cell 2) is the number (quantity) of items normally installed in the aircraft. This number represents the aircraft configuration considered in developing this MEL. Should the number be a variable (e.g., passenger cabin items), or not applicable, a number is not required; a "-" is then inserted.

Note: Where the MMEL shows a variable number installed, the MEL must reflect the actual number installed.

- C. Required (Cell 3) is the minimum number (quantity) of items required for operation provided the conditions specified are met. Should the number be a variable (e.g., passenger cabin items), or not applicable, a number is not required; a "-" is then inserted.

Note: Where the MMEL shows a variable number required for dispatch, the MEL must reflect the actual number required for dispatch or an alternate means of configuration control approved by the competent authority.

- D. Procedure (Cell 4) indicates a requirement for a specific maintenance or operations procedure.
- E. Remarks beneath the MMEL boxed area include a statement either prohibiting or allowing operation with a specific number of items inoperative, provisos (conditions and limitations) for such operation, and appropriate notes.



- F. Provisos. Provisos are indicated by a number or a lower case letter in “Remarks or Exceptions”. Provisos are conditions or limitations that must be complied with for operation with the listed instrument or equipment item inoperative.
 - G. Notes. Notes provide additional information for crewmember or maintenance consideration. Notes are used to identify applicable material, which is intended to assist with compliance, but do not relieve the aircraft operator of the responsibility for compliance with all applicable requirements. Additional notes may be amended, deleted, or added to the MEL by the aircraft operator, as appropriate. Notes are not a part of the provisos.
 - H. Vertical Bar (change bar). A vertical bar Indicates a change, addition, or deletion in the adjacent text for the current revision of that page only. All change bars applicable to the previous revision of the MEL are removed prior to the release of the next revision.
2. A “©” symbol in the ITEM column indicates that the listed item is adapted either to the NORD WIND’s particular aircraft equipment configuration or operational conditions or routes being flown or requirements set by NORD WIND and local Authority.
 3. Adequate airport means an airport which the operator considers to be satisfactory, taking account of the applicable performance requirements and runway characteristics; at the expected time of use, the airport will be available and equipped with necessary ancillary services such as ATS, sufficient lighting, communications, weather reporting, nav aids and emergency services.
 4. Adequate ETOPS en-route alternate airport means an adequate airport, which additionally, at the expected time of use, has an ATS facility and at least one instrument approach procedure.
 5. Airplane Flight Manual (AFM), Rotorcraft Flight Manual (RFM). The FAA-approved AFM/RFM is the document approved by the responsible FAA Aircraft Certification Office (ACO) during type certification. The approved flight manual for the specific aircraft is listed on the applicable Type Certificate Data Sheet (TCDS). The approved flight manual is the source document for operational limitations and performance parameters for an aircraft. The term “approved flight manual” can apply to either an AFM or an RFM. The FAA requires an approved flight manual for aircraft type certification.



6. Alternate procedures are established and used or similar statement, means that alternate procedures (if applicable), to the affected process, must be drawn up, by the operator, as part of the MEL approval process, so that they have been established before the MEL document has been approved. Such alternate procedures are normally included in the associated operations (O) procedure.
7. Appropriate performance adjustments are applied: Where this statement appears please refer to the applicable performance adjustments in the applicable Boeing Dispatch Deviations Guide or Airplane Flight Manual.
8. As required by applicable regulations means that the listed item of equipment is subject to certain provisions (restrictive or permissive) expressed in the applicable legislation. When the equipment is not required, it may be inoperative for the time specified by its rectification interval category.
9. Cabin crewmember or Flight attendant means any crewmember, other than a flight crewmember, who performs, in the interests of safety of passengers, duties assigned to him/her by the operator or the commander in the cabin of an airplane.
10. Calendar Day means a 24 hour period from midnight to midnight based on either UTC or local time, as selected by the operator. All calendar days are considered to run consecutively.
11. Combustible material means the material which is capable of catching fire and burning. In particular, if an MEL item prohibits loading of combustible (or flammable or inflammable) material, no material may be loaded except the following:
 - A. Cargo handling equipment (unloaded, empty or with ballast);
 - B. Fly away kits (excluding, e.g., cans of hydraulic fluid, cleaning solvents, batteries, capacitors, chemical generators, etc.);

Note: If serviceable tires are included, they should only be inflated to a minimum pressure that preserves their serviceability; and
 - C. Inflight service material (return catering -- only closed catering trolleys/boxes, no newspapers, no alcohol or duty free goods).



12. Considered Inoperative. The phrase, “Considered Inoperative”, as used in the provisos, means that an instrument and equipment item must be treated for dispatch, taxi and flight purposes as though it were inoperative. The item will not be used or operated until the original deferred item is repaired. Additional actions include: documenting the item on the dispatch release (if applicable), placarding, and complying with all remarks, exceptions, and related MMEL provisions, including any (M) and (O) procedures and observing the repair category.
13. Dash (-). Indicates a variable number (quantity) of the instrument and equipment items may be installed or required for dispatch. This is common when a fleet MEL is used since aircraft of the same make and model may have differing numbers of specific instrument and/or equipment items installed.
14. Daylight means the period between the beginning of morning civil twilight and the end of evening civil twilight relevant to the local aeronautical airspace; or such other period, as may be prescribed by the appropriate authority.
15. Day of Discovery. This is the calendar-day an equipment/instrument malfunction was recorded in the aircraft maintenance record/logbook. This day is excluded from the calendar-days or flight-days specified in the MMEL for the repair interval of an inoperative instrument and/or equipment item. This provision is applicable to all MMEL items; i.e., categories A, B, C, and D.
16. Deactivated and/or Secured. When the MEL refers to an instrument and/or equipment item as deactivated and/or secured, the specified component must be put into an acceptable condition for safe flight. An acceptable method of deactivating and/or securing will be established by the aircraft operator.
17. Deleted. “Deleted” in the remarks column after a sequence item indicates that the item was previously listed but is now required to be operative if installed in the aircraft.
18. Extended Range Operations (ER). ER refers to extended range operations (ETOPS) of an airplane with operational approval to conduct ETOPS in accordance with the applicable regulations.
19. Excess Items. Excess items are those instrument and equipment items that have been installed that are redundant to the requirements of the 14 CFR.



20. **Flight Day.** A flight-day is a 24-hour period (from midnight to midnight) either universal coordinated time (UTC) or local time, as established by the aircraft operator, during which at least one flight is initiated for the affected aircraft.
21. **Heavy Maintenance Visit (HMV).** HMV is a scheduled C-check/D-check or airworthiness maintenance program inspection where the aircraft is scheduled to be out of service for 4 or more days.
22. **Icing Conditions.** An atmospheric environment that may cause ice to form on the aircraft (structural) or in the engine(s) (induction).
23. **Inoperative.** A system and/or component malfunction to the extent that it does not accomplish its intended purpose and/or is not consistently functioning normally within its approved operating limit(s) and/or tolerance(s).
24. **Inoperative Components of an Inoperative System.** Inoperative instrument and equipment items, which are components of a system that is inoperative, are usually considered components directly associated with and having no other function than to support that system (warning/caution systems associated with the inoperative system must be operative unless relief is specifically authorized per the MMEL).
25. **Is Not Used.** The phrase "Is Not Used" in the provisos, remarks or exceptions for an MMEL instrument or equipment item may specify that another item in the MMEL "is not used". In such cases, crewmembers must not activate, actuate, or otherwise utilize that item under normal operations. It is not necessary for aircraft operators to accomplish the (M) procedure(s) associated with the item. However, operational requirements must be complied with, and an additional placard must be affixed, to the extent practical, adjacent to the control or indicator for the item that is not used. This informs crewmembers that an instrument or equipment item is not to be used under normal operations.



26. Nonessential Equipment and Furnishings (NEF). NEFs are those items installed on the aircraft as part of the original type certification (TC), STC, or other form of alteration that have no effect on the safe operation of flight and would not be required by the applicable certification rules or operational rules. They are those items that, if inoperative, damaged, or missing, have no effect on the aircraft's ability to be operated safely under all operational conditions. NEF items are not instrument and equipment items already identified in the MEL or CDL of the applicable aircraft. They do not include instrument and equipment items that are functionally required to meet the certification rule or for compliance with any operational rule.
27. Notes provide additional information for crewmember or maintenance consideration. Notes are used to identify applicable material which is intended to assist with compliance, but do not relieve the operator of the responsibility for compliance with all applicable requirements. Notes are not a part of the dispatch conditions.
28. Operative. An operative system and/or component will accomplish its intended purpose and is consistently functioning normally within its design operating limit(s) and tolerance(s). When an MMEL item specifies that an item of equipment must be operative, it does not mean that it's operational status must be verified; it's to be considered operative unless reported or known to be malfunctioning. When an MMEL item specifies that an item of equipment must be verified operative, it means that it must be checked and confirmed operative at the interval(s) specified for that MMEL item. When an MMEL item specifies that an item of equipment must be verified but no interval is specified, verification is required only at the time of deferral. Other terminology sometimes used interchangeably with "operative" within the MMEL is "operates normally", "fully operative", and "considered operative". The aircraft operator's MEL may incorporate standardized terminology of the aircraft operator's choice to specify that an item of equipment must be operative, provided the aircraft operator's MEL definitions indicate that the selected "operative" terminology means that the required item of equipment will accomplish its intended purpose and is consistently functioning normally within its design operating limit(s) and tolerance(s).



29. Placarding. Each inoperative instrument or equipment item must be placarded to inform and remind the crewmembers and maintenance personnel of the item condition. To the extent practical, placards should be located adjacent to the control or indicator for the item affected; however, unless otherwise specified (i.e. AFM), placard wording and location will be determined by the aircraft operator.
30. Rectification Intervals: Inoperative items or components, deferred in accordance with the MEL, must be rectified at or prior to the rectification intervals established by the following letter designators:
- A. Repair Category A. This category item must be repaired within the time interval specified in the “Remarks or Exceptions” column of the aircraft operator’s approved MEL. For time intervals specified in “calendar days” or “flight days”, the day the malfunction was recorded in the aircraft maintenance record/logbook is excluded. For all other time intervals (i.e., flights, flight legs, cycles, hours, etc.), repair tracking begins at the point when the malfunction is deferred in accordance with the operator’s approved MEL.
 - B. Repair Category B. This category item must be repaired within 3 consecutive calendar-days (72 hours) excluding the day the malfunction was recorded in the aircraft maintenance record/logbook. For example, if it were recorded at 10 a.m. on January 26th, the 3-day interval would begin at midnight the 26th and end at midnight the 29th.
 - C. Repair Category C. This category item must be repaired within 10 consecutive calendar-days (240 hours) excluding the day the malfunction was recorded in the aircraft maintenance record/logbook. For example, if it were recorded at 10 a.m. on January 26th, the 10-day interval would begin at midnight the 26th and end at midnight February 5th.
 - D. Repair Category D. This category item must be repaired within 120 consecutive calendar-days (2880 hours) excluding the day the malfunction was recorded in the aircraft maintenance record/logbook.
31. Required for Cat II/IIIa/IIIb approach - refers to lower weather minimums operations requirements for the airplane which has a type design approval for Lower Weather Minimums Operations and complies with the provisions of FAA Advisory Circulars (AC) 120-29A, 120-28D, or equivalent criteria found acceptable to the FAA (e.g., ICAO Doc 9365/AN910 “Manual of AWO”, JAR/EASA “CS-AWO”).



The MEL allows certain items within these systems to be inoperative when weather minimums are not dependent upon their use. If equipment in any of these systems becomes inoperative, or is replaced, or swapped, Maintenance Control must be advised. Once an aircraft has been removed from Category II/IIIa/IIIb status, it must later be recertified by maintenance action or flight crew recertification.

CAT II/III procedures require special authorization from the FAA, or from an authority recognized by FAA, as having acceptable equivalent Category II/III airworthiness criteria (e.g., Russian FATO, European JAA).

NORD WIND has been authorized by the Russian FATO to conduct the appropriate minima Category ICAO operations in accordance with Part B of the Operations Specifications for the B767-300ER aircraft. Per AC 120-29A and 120-28D, Instrument Approach Categories are defined as follows:

- Category I - An instrument approach or approach and landing with a decision altitude (height) or minimum descent altitude (height) not lower than 60 m (200 ft) and with either a visibility not less than 1/2 statute mile (800m), or a runway visual range not less than 550 m (1800 ft).
- Category II - An instrument approach or approach and landing with a decision height lower than 60 m (200 ft) but not lower than 30 m (100 ft) and a runway visual range not less than 350 m (1200 ft).
- Category III - An instrument approach or approach and landing with a decision height lower than 30 m (100 ft), or no decision height, or a runway visual range less than 350 m (1200 ft).
- Category IIIa - An instrument approach and landing with a decision height lower than 30 m (100 ft), or no decision height and a runway visual range not less than 200 m (700 ft).
- Category IIIb - An instrument approach and landing with a decision height lower than 15 m (50 ft), or no decision height and a runway visual range less than 200 m (700 ft) but not less than 50 m (150 ft).
- Category IIIc - An instrument approach and landing with or without a decision height, with a runway visual range less than 50 m (150 ft). (Not applicable for B767 aircraft).

Further clarification of these and other terminology used can be found either in the AC 120-29A and 120-28D, or any subsequent version as appropriate.



32. **Takeoff.** Takeoff is the act of beginning a flight in which an aircraft is accelerated from a state of rest to that of flight. For the purposes of MEL relief, this translates to the point at which the pilot physically begins to apply power to initiate the takeoff from the runway or takeoff surface.
33. **Triple Asterisk (***)**. Indicates an item which is not required by regulation but which may have been installed on some models of aircraft covered by this MMEL. This item may be included on the aircraft operator's MEL after the approving office has determined that the item has been installed on one or more of the aircraft operator's aircraft. The symbol, however, must not be carried forward into the aircraft operator's MEL. It should be noted that neither this policy nor the use of this symbol provides authority to install or remove an item from an aircraft.
34. **Visible Moisture.** An atmospheric environment containing water, in any form, that can be seen in natural or artificial light; for example, clouds, fog, rain, sleet, hail, or snow.
35. **Visual Flight Rules (VFR)** is as defined in EU-OPS. This precludes a pilot from filing an Instrument Flight Rules (IFR) flight plan.
36. **Visual Meteorological Conditions (VMC).** VMC means the atmospheric environment is such that would allow a flight to proceed under the visual flight rules applicable to the flight. This does not preclude operating under Instrument Flight Rules.
37. **(M).** This symbol indicates a requirement for a specific maintenance procedure which must be accomplished prior to operation with the listed item inoperative. Normally, these procedures are accomplished by maintenance personnel; however, other personnel may be qualified and authorized to perform certain functions. Procedures requiring specialized knowledge or skill, or requiring the use of tools or test equipment, should be accomplished by maintenance personnel. The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the aircraft operator. Appropriate procedures are required to be produced as part of the aircraft operator's manual or MEL.



38. (O). This symbol indicates a requirement for a specific operations procedure which must be accomplished in planning for and/or operating with the listed item inoperative. Normally, these procedures are accomplished by the flightcrew; however, other personnel may be qualified and authorized to perform certain functions. The satisfactory accomplishment of all procedures, regardless of who performs them, is the responsibility of the aircraft operator. Appropriate procedures are required to be produced as a part of the aircraft operator's manual or MEL.
39. Fly Away Kit - an installed onboard storage unit(s) also called as Fly Away Equipment and defined as those items:
- A. That are not installed in the delivery configuration of airplane, but are assembled and stowed by the manufacturer or operator in a pouch or other container. This definition includes items such as onboard tooling, i.e., ground locks for the landing gear and covers for the pitot-static probes, etc.
- For Boeing 757-200 airplanes, these items are:
- 1) Downlock, Main Landing Gear (P/N A32014-1, 4 ea)
 - 2) Downlock, Nose Landing Gear (P/N A32014-2, 1 ea)
 - 3) Pitot-Static Hi Temperature Protective Probe Cover (P/N 91928-2, 4 ea)
 - 4) Pitot-Static Probe Protective Cover (P/N A10001-14, 4 ea)
 - 5) APU-Generator Gearbox Coverplate (P/N 3862212-3, 1 ea)
 - 6) Disconnect, Flight Dispatch Main Wheel Brake (P/N A32080-4, 1 ea)
 - 7) Thrust Reverser Isolation Valve Lock (P/N B78001-2, 1 ea)

Note: This Fly Away Equipment are generally stowed in box (bag) inside the flight compartment.



- B. That the operator has purchased for use to quickly correct a failure configuration that is different from the normal operational (delivery) configuration. This definition includes items such as parts for maintenance. The purpose of such kits is to carry aircraft certified spare parts and hardware.

Note: Cargo handling equipment such as containers, pallets, igloos (typically referred to as Unit Loading Devices (ULDs)), ballast, and related cargo restraint components that is to be delivered with and carried onboard the airplane is not Fly Away Equipment.

NORD WIND has assembled a Fly Away Kit for each of its Boeing 757-200 aircraft. Additionally to the tool kit (locks, covers, etc.) installed onboard, the Fly Away Kit on Nord wind,s aircraft contains spare parts that might be needed to effect repairs when airplanes land at outstations where parts are unavailable or difficult to obtain. The Fly Away Kit may include applicable ETOPS or/and non-ETOPS related quick-change parts and assemblies, and such items as mounted tire/wheel assemblies and a supply of engine/APU oil that are subject to removal for routine maintenance. The contents of the Fly Away Kit will be based on actual usage. Material Support Manager will provide parts usage monitoring and consider the availability of parts at home and remote stations to determine what parts and what quantities should be carried in the Fly Away Kit.

As a condition of deferral for some MEL items such as air conditioning and air distribution components, smoke/fire detection systems, and other such related items, etc., when cargo compartments are required to remain empty of cargo (i.e., for unpressurized flight configuration), the Fly Away Kit must be reviewed and approved to remain on the aircraft.



The Maintenance Personnel and Flight Crew must ensure that they be voided of any item(s) that may not be compatible with the goal of minimizing potential sources of smoke, fume, or fire while associated MEL items affected by this policy are being carried on deferral. Examples of such item(s) that must be removed from the affected compartment are all self-contained fluids, i.e., cans of engine/APU or hydraulic oil, cleaning solvents, any item that either stores or can produce a source of ignition, i.e., devices that store energy such as batteries and capacitors, chemical generators and gaseous pressurized bottles, i.e. chemical oxygen generator, etc. When part of a Fly Away Kit, serviceable mounted tire/wheel assemblies should only be inflated by nitrogen to a minimal pressure that preserves their serviceability.

40. Electronic Fault Alerting System. New generation aircraft display system fault indications to the flight crew by use of computerized display systems. Aircraft manufacturers incorporate individual design philosophies when determining the data that is represented. The following are customized definitions (specific to each manufacturer) to help determine the level of messages affecting the aircraft's dispatch status.

C. BOEING (747-400, 747-8, 757, 767, 777, 787)

Boeing airplanes equipped with Engine Indicating and Crew Alerting Systems (EICAS) provide different priority levels of system messages (WARNING, CAUTION, ADVISORY, STATUS and MAINTENANCE). Any messages that affect airplane dispatch status will be displayed at a STATUS message level or higher. The absence of an EICAS STATUS or higher level (WARNING, CAUTION, ADVISORY) indicates that the system/component is operating within its approved operating limits or tolerances. System conditions that result only in a maintenance level message, i.e. no correlation with a higher level EICAS message, do not affect dispatch and do not require action other than as addressed within an aircraft operator's standard maintenance program.



FAA MMEL Preamble

The following is applicable for authorized certificate holders operating under Federal Aviation Regulations (FAR) Parts 121, 125, 129, 135: The FAR require that all equipment installed on an aircraft in compliance with the Airworthiness Standards and the Operating Rules must be operative. However, the Rules also permit the publication of a Minimum Equipment List (MEL) where compliance with certain equipment requirements is not necessary in the interests of safety under all operating conditions.

Experience has shown that with the various levels of redundancy designed into aircraft, operation of every system or installed component may not be necessary when the remaining operative equipment can provide an acceptable level of safety. A Master Minimum Equipment List (MMEL) is developed by the FAA, with participation by the aviation industry, to improve aircraft utilization and thereby provide more convenient and economic air transportation for the public. The FAA approved MMEL includes those items of equipment related to airworthiness and operating regulations and other items of equipment which the Administrator finds may be inoperative and yet maintain an acceptable level of safety by appropriate conditions and limitations; it does not contain obviously required items such as wings, flaps, and rudders. The MMEL is the basis for development of individual operator MELs which take into consideration the operator's particular aircraft equipment configuration and operational conditions. Operator MELs, for administrative control, may include items not contained in the MMEL; however, relief for administrative control items must be approved by the Administrator. An operator's MEL may differ in format from the MMEL, but cannot be less restrictive than the MMEL. The individual operator's MEL, when approved and authorized, permits operation of the aircraft with inoperative equipment.

Equipment not required by the operation being conducted and equipment in excess of FAR requirements are included in the MEL with appropriate conditions and limitations. The MEL must not deviate from the Aircraft Flight Manual Limitations, Emergency Procedures or with Airworthiness Directives. It is important to remember that all equipment related to the airworthiness and the operating regulations of the aircraft not listed on the MMEL must be operative.

Suitable conditions and limitations in the form of placards, maintenance procedures, crew operating procedures and other restrictions as necessary are specified in the MEL to ensure that an acceptable level of safety is maintained.



The MEL is intended to permit operation with inoperative items of equipment for a period of time until repairs can be accomplished. It is important that repairs be accomplished at the earliest opportunity. In order to maintain an acceptable level of safety and reliability the MMEL establishes limitations on the duration of and conditions for operation with inoperative equipment. The MEL provides for release of the aircraft for flight with inoperative equipment. When an item of equipment is discovered to be inoperative, it is reported by making an entry in the Aircraft Maintenance Record/Logbook as prescribed by FAR. The item is then either repaired or may be deferred per the MEL or other approved means acceptable to the Administrator prior to further operation. MEL conditions and limitations, do not relieve the operator from determining that the aircraft is in condition for safe operation with items of equipment inoperative.

When these requirements are met, an Airworthiness Release, Aircraft Maintenance Record/Logbook entry, or other approved documentation is issued as prescribed by FAR. Such documentation is required prior to operation with any item of equipment inoperative.

Operators are responsible for exercising the necessary operational control to ensure that an acceptable level of safety is maintained. When operating with multiple inoperative items, the interrelationships between those items and the effect on aircraft operation and crew workload will be considered.

Operators are to establish a controlled and sound repair program including the parts, personnel, facilities, procedures, and schedules to ensure timely repair.

WHEN USING THE MEL, COMPLIANCE WITH THE STATED INTENT OF THE PREAMBLE, DEFINITIONS, AND THE CONDITIONS AND LIMITATIONS SPECIFIED IN THE MEL IS REQUIRED.

"NORDWIND" MEL Preamble

The «NRW»s Minimum Equipment List (MEL) is based on the Master Minimum Equipment List (MMEL). The «NRW»s MEL may differ in format from the MMEL, but cannot be less restrictive than the MMEL. The MEL shall not deviate from any applicable Airworthiness Directive or any other Mandatory Requirement.



The MEL is intended to permit operation with inoperative items of system, function, or equipment for a period of time until repairs can be accomplished. It is important that repairs be accomplished at the earliest opportunity. Suitable conditions and limitations in the form of placards, maintenance procedures, crew operational procedures, and other restrictions are necessary in the MEL to ensure that an acceptable level of safety is maintained.

The MEL takes into consideration the «NRW»s particular aircraft equipment, configuration and operational conditions, routes being flown, and requirements set by the appropriate Authority.

When an item is discovered to be inoperative, it is reported by making an entry in the technical logbook. The item is then either rectified or may be deferred per the MEL before further operation.

MEL conditions and limitations do not relieve the operator from determining that the aircraft is in a fit condition for safe operation with items inoperative.

The provisions of the MEL are applicable until the aircraft commences the flight. Any decision to continue a flight following a failure or unserviceability which becomes apparent after the commencement of a flight must be subject to pilot judgment and good airmanship. The Commander may continue to make reference to and use the MEL as appropriate.

TO GET APPROVAL FOR OPERATIONS WITH INOPERATIVE ITEMS INCLUDED IN MEL NRW AS OPERATOR PROPOSED IT TO RUSSIAN CIVIL AVIATION AUTHORITIES - RCAA.

By approval of the MEL, the Authority permits dispatch of the aircraft for revenue, ferry, or training flights with certain items inoperative provided an acceptable level of safety is maintained by use of appropriate operational or maintenance procedures, by transfer of the function to another operating system, or by reference to other instruments or system providing the required information.

For dispatch with airframe of engine part missing, refer to the CONFIGURATION DEVIATION LIST (CDL).

The MEL lists the system, function, or equipment which may be temporarily inoperative, subject to certain conditions, while maintaining an acceptable level of safety. It does not contain obviously required items such as wings, flaps, and rudders.

ALL ITEMS RELATED TO THE AIRWORTHINESS OF THE AIRCRAFT AND NOT INCLUDED IN THE MEL ARE AUTOMATICALLY REQUIRED TO BE OPERATIVE FOR DISPATCH.



According to RCAA requirements the second MEL application with inoperative items of equipment or systems during first 4 flights after rectification is permitted only for return to base or to airport with Approved Maintenance Organization (see Continuing Airworthiness Management Exposition).

«NRW»s has a controlled and sound repair programme including the parts, personnel, facilities, procedures, and schedules to ensure timely repair. This programme should identify the actions required for Maintenance discrepancy messages.

The decision of the Commander of the flight to have inoperative items corrected before the flight will take precedence over the provisions contained in the MEL. The Commander may request requirements above the minimum listed, whenever in his judgment such added equipment is essential to the safety of a particular flight under the special condition prevailing at the time.

The MEL cannot take into account all multiple unserviceabilities. Therefore, before dispatching an aircraft with multiple MEL items inoperative, it must be assured that any interface or inter-relationship between inoperative items will not result in a degradation in the level of safety and/or an undue increase in crew workload. It is particularly in this area of multiple discrepancies and especially discrepancies in related systems, that good judgment, based on the circumstances of the case, including climatic and en-route conditions, must be used.

The maximum number of category B and/or C MEL items that can be carried is 5.



Section 2

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Intentionally
Blank



21-20-01

A/C Ozone Converters

Interval	Installed	Required	Procedure
C	2	0	

**21-23-01 Return Air Grille**

Interval	Installed	Required	Procedure
C	2	0	(M)

One may be broken or missing provided:

- Broken or missing grille is located within a designated area.
- Grille is removed and replaced with a blanking plate.

MAINTENANCE (M)

Verify inoperative grille is located within a designated area, remove the grille and replace it with a blanking plate.

- Establish and use procedures for determining to what extent minor damage, cracks and cosmetic conditions affect return air grilles in performing their intended function.
- Confirm the inoperative grille is in one of the following designated locations:

NOTE: Some locations may not have return air grilles due to doors and monuments.

A. Body Station:

- 1260 - 1360 left or right side
 - 1600 - 1720 right side only
 - 1620 - 1720 left side only
- Remove the inoperative grille and replace it with a panel that completely blocks the area.


21-25-01 Recirculation Fans
21-25-01-01 Right Fan

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided additional fuel usage is considered.

OPERATIONS (O)

The associated pack will automatically operate in high flow mode increasing fuel burn by 0.3% when dispatching with one recirculation fan inoperative and by 0.7% with both recirculation fans inoperative. For dispatch with both recirculation fans inoperative increase flight planning fuel by .7%.

NOTE: Boeing uses a threshold of .5% in accounting for fuel burn increases.

21-25-01 Recirculation Fans
21-25-01-02 Left Fan

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- Both A/C packs and pressurization system operate normally.
- Dispatch is prohibited for OAT above 41 degrees C at departure and destination.
- Airplane remains at or below FL 350.
- Procedures are established and used to ensure aft lower cargo compartment remains empty, or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.
- For ground operations, at least one pack is operating for OAT above 18 degrees C.
- For ground operations, both packs are operating for OAT above 32 degrees C.
- For ground operations, weather radar remains OFF except as required for weather evaluation just before takeoff.

NOTE 1: When Left Fan is unpowered, DIM function of Indicator Lights system will be inoperative.

NOTE 2: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

**MAINTENANCE (M)**

NOTE: For a pack to be operating normally, certain items associated with that system must be operative. See MEL Item 21-51-01 for a listing of those items.

Remove indications of low flow (EICAS messages and ground crew call horn).

1. Open the following P11 panel circuit breakers:
 - A. EQUIP COOLING LOW FLOW DET
 - B. EQUIP COOL SMOKE DET/CONT
2. Open P6 panel circuit breaker EQUIP COOLING GROUND WARN & TEST.
3. Do one of the following:
 - A. At the P36 panel:
 - 1) Locate wire W1260-6506-24 at either pin 26 or 27 of connector D40910J in position 4 of the AP0036 disconnect bracket.
 - 2) Remove wire W1260-6506-24 from D40910J and cap and stow the wire.
 - B. At the P70 panel:
 - 1) Locate wire W1250-0095-22 at either pin 10 or 25 of connector D41746J in position 2 of the AP0070 disconnect bracket.
 - 2) Remove wire W1250-0095-22 from D41746J and cap and stow the wire.
4. Close the open circuit breakers.

OPERATIONS (O)

1. The associated pack will automatically operate in high flow mode increasing fuel burn by 0.3% when dispatching with one recirculation fan inoperative and by 0.7% with both recirculation fans inoperative. For dispatch with both recirculation fans inoperative increase flight planning fuel by .7%.

NOTE: Boeing uses a threshold of .5% in accounting for fuel burn increases.
2. Once airborne, the status message OVBD EX VAL OPEN will be displayed.

NOTE: This indicates the equipment cooling overboard exhaust valve is in the SMOKE position ensuring cooling airflow due to differential pressure.
3. Confirm these messages are erased with the Maintenance Message Erase Procedure (AMM 31-41-00/201) prior to each flight.
4. Establish and use procedures to verify the appropriate compartment remains empty, or contains only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or fly away kits. Define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.



21-25-02 Recirculation Fan INOP Lights

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided associated EICAS message is verified to operate normally.

MAINTENANCE (M)

Verify the L/R RECIR FAN advisory message operates normally.

1. Set the recirculation fan switches to ON.
2. Open the RECIRC FAN L circuit breaker (panel P70 or P31).
3. Confirm the L RECIR FAN advisory message is displayed.
4. Close the open circuit breaker.
5. Open the P37 panel circuit breaker RECIRC FAN R.
6. Confirm the R RECIR FAN advisory message is displayed.
7. Close the open circuit breaker.


21-31-01 Auto Cabin Pressure Control Systems
21-31-01A One Inoperative

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided manual mode and one autopilot operate normally.

21-31-01 Auto Cabin Pressure Control Systems
21-31-01B Both Inoperative, Manual Operative

Interval	Installed	Required	Procedure
C	2	0	(M) (O)

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- Manual cabin pressure control system operates normally.
- Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

Configure the airplane for unpressurized flight.

- Establish communication between the flight deck and ground crew stationed at the outflow valve (AMM 21-31-03/201).
- Set the CABIN ALTITUDE CONTROL panel MODE SELECT selector to MAN.
- Rotate the MANUAL selector to drive the valve to 1.5 inches, approximately the mid point on the valve position gage.
- Confirm, through the ground crew, that the distance between the outflow valve flappers is 1.5 ± 0.1 inches.

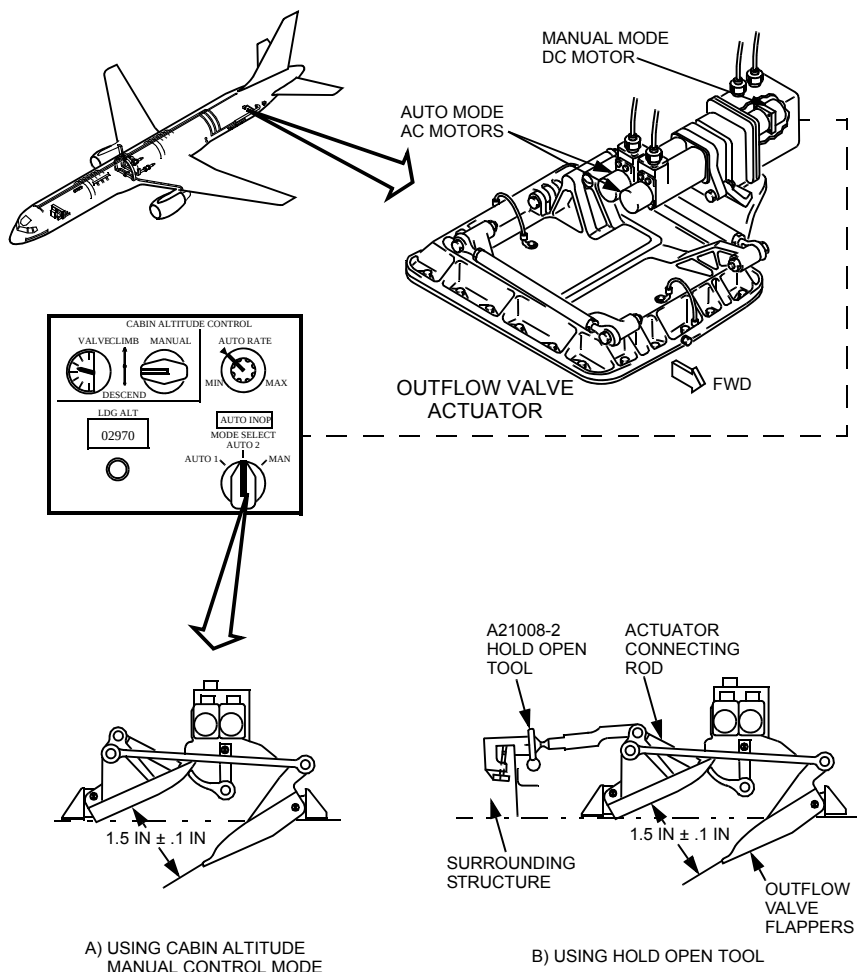


FIGURE 1 - SETTING OUTFLOW VALVE

5. Open and collar the following P11 panel circuit breakers:
 - A. CABIN ALT/PRESS (or CABIN ALTITUDE CONTROL) AUTO 1
 - B. CABIN ALT/PRESS (or CABIN ALTITUDE CONTROL) AUTO 2
6. Set the CABIN ALTITUDE CONTROL panel MODE SELECT selector to either AUTO 1 or AUTO 2.
7. Block one vacuum pressure relief door valve open to approximately 15° by using Boeing supplied vacuum pressure relief valve hold open tool B21001 or equivalent (AMM 21-32-01/201).

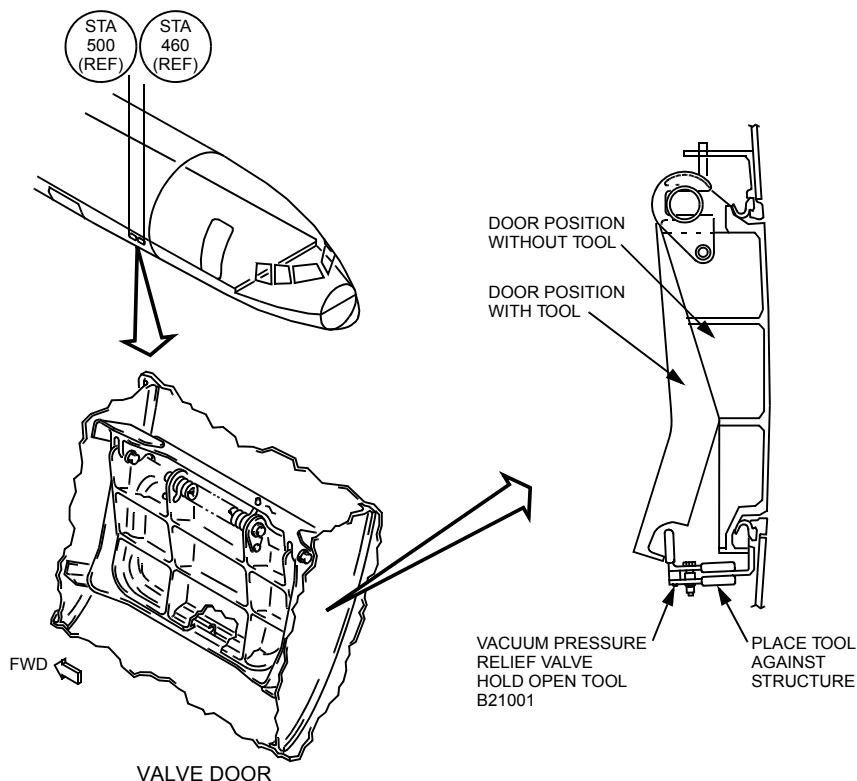


FIGURE 2 - SETTING VACUUM PRESSURE RELIEF VALVE

OPERATIONS (O)

1. Use only one air conditioning pack for all phases of the flight.
2. With passengers on board:
 - A. Limit enroute altitude to 10,000 feet.
 - B. To avoid passenger discomfort, after takeoff obstacle clearance has been assured, limit airplane climb and descent rates to 500 feet per minute.
3. Do not change outflow valve position with manual control except as required for non-normal procedures.
4. Establish and use procedures to verify the lower cargo compartments remain empty, or contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or fly away kits. Define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.

**21-31-01 Auto Cabin Pressure Control Systems****21-31-01-01 Flight is conducted in an unpressurized configuration**

Interval	Installed	Required	Procedure
C	2	0	(M) (O)

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- Extended overwater flight is prohibited.
- Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

Configure the airplane for unpressurized flight.

- Open and collar the P11 panel circuit breaker CABIN ALT/PRESS MAN (or CABIN ALTITUDE CONTROL MANUAL).
- Gain access to the outflow valve actuator (AMM 21-31-05).
- Disconnect the outflow valve actuator connecting rod from the actuator drive arm and valve linkage. Stow the connecting rod.
- Remove the connecting pin from the outflow valve hold open tool (Boeing drawing A21008). Install the tool halves to the outflow valve linkage and to the surrounding structure.
- Adjust the rod end of the hold open tool until the distance between outflow valve flappers is 1.5 ± 0.1 inches when the tool is connected.

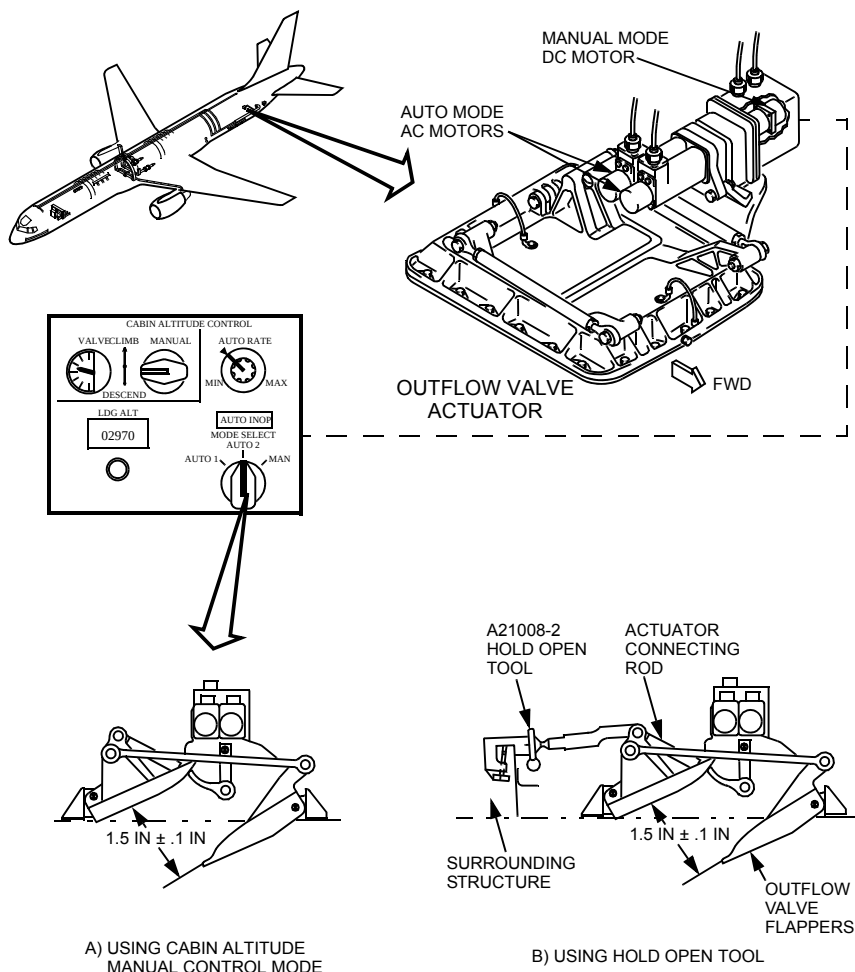


FIGURE 1 - SETTING OUTFLOW VALVE

6. Install the connecting pin in the hold open tool. Lockwire the valve attach bolt and thumbscrew.
7. Open and collar the following P11 panel circuit breakers:
 - A. CABIN ALT/PRESS (or CABIN ALTITUDE CONTROL) AUTO 1
 - B. CABIN ALT/PRESS (or CABIN ALTITUDE CONTROL) AUTO 2
8. Set the CABIN ALTITUDE CONTROL panel MODE SELECT selector to either AUTO 1 or AUTO 2.

9. Block one vacuum pressure relief door valve open to approximately 15° by using Boeing supplied vacuum pressure relief valve hold open tool B21001 or equivalent (AMM 21-32-02/201).

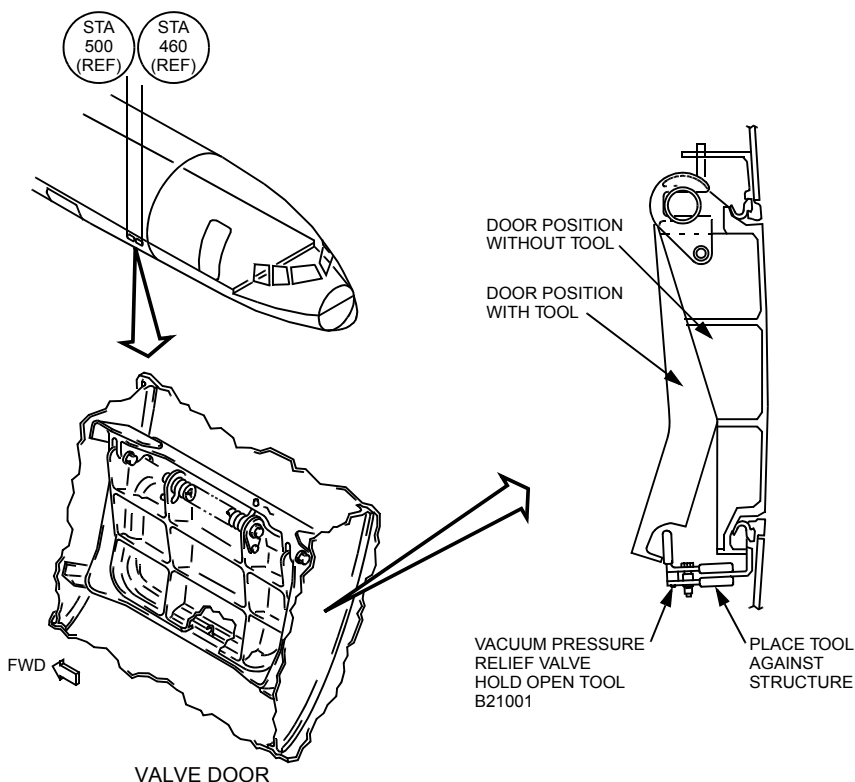


FIGURE 2 - SETTING VACUUM PRESSURE RELIEF VALVE

OPERATIONS (O)

For unpressurized flight:

1. Extended overwater flight is prohibited.
2. Use only one air conditioning pack for all phases of the flight.
3. With passengers on board:
 - A. Limit enroute altitude to 10,000 feet.
 - B. To avoid passenger discomfort, after takeoff obstacle clearance has been assured, limit airplane climb and descent rates to 500 feet per minute.



4. Establish and use procedures to verify the lower cargo compartments remain empty, or contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or fly away kits. Define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.



21-31-02 Manual Cabin Pressure Control System

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- a. Flight is conducted in an unpressurized configuration.
- b. Extended overwater flight is prohibited.
- c. Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

Configure the airplane for unpressurized flight using MEL Item 21-31-01-01 (M) procedure.

OPERATIONS (O)

Use MEL Item 21-31-01-01 (O) procedure.

**21-31-03 Outflow Valve**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- Extended overwater flight is prohibited.
- Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

Configure the airplane for unpressurized flight using MEL Item 21-31-01-01 (M) procedure.

OPERATIONS (O)

Use MEL Item 21-31-01-01 (O) procedure.


21-32-01 Positive Pressure Relief Valves

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative closed.

MAINTENANCE (M)

Configure the airplane with the inoperative valve closed.

- Press the associated flapper doors closed until they are flush with the fuselage.
NOTE: Some resistance will be felt.
- Disconnect the remote (primary) ambient sense line from the primary differential pressure control mechanism and cap with P/N BACC14AD04DL or equivalent (female cap for 1/4" flareless tube with 7/16-20 threads).
- Plug the remote (primary) ambient sense port with P/N BACP20AU4D (or AS5169W04) or equivalent (male plug for 1/4" tube with 7/16-20 threads).
- Disconnect the integral (secondary) ambient sense line from the male-to-male reducer on the secondary differential pressure control mechanism, rotate away from the valve body and plug with P/N AS5168-5 or equivalent (male plug for 5/16" flared tube with 1/2-20 threads).
NOTE: Rotating the line will damage the sealant where the line penetrates the airplane's skin; the sealant must be repaired when the positive pressure relief valve is returned to service.
- Cap the integral (secondary) ambient sense port with P/N AN929-5D or equivalent (female cap for 5/16" flared tube with 1/2-20 threads).

21-32-01 Positive Pressure Relief Valves
21-32-01A Both Inoperative, Manual Pressure Control Operative

Interval	Installed	Required	Procedure
C	2	0	(M) (O)

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- Manual cabin pressure control system operates normally.
- Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

**MAINTENANCE (M)**

Configure the airplane for unpressurized flight using MEL Item 21-31-01B (M) procedure.

OPERATIONS (O)

Use MEL Item 21-31-01B (O) procedure.

21-32-01 Positive Pressure Relief Valves**21-32-01B Both Inoperative, Extended Overwater Flight Not Allowed**

Interval	Installed	Required	Procedure
C	2	0	(M) (O)

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- Extended overwater flight is prohibited.
- Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

Configure the airplane for unpressurized flight using MEL Item 21-31-01-01 (M) procedure.

OPERATIONS (O)

Use MEL Item 21-31-01-01 (O) procedure.


21-33-01 CABIN RATE of Climb Indicator

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided both automatic pressure control systems operate normally.

21-33-01 CABIN RATE of Climb Indicator
21-33-01-01 Flight is conducted in unpressurized configuration

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- a. Flight is conducted in an unpressurized configuration.
- b. Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

Configure the airplane for unpressurized flight using MEL Item 21-31-01B or 21-31-01-01 (M) procedure, as appropriate.

OPERATIONS (O)

Use MEL Item 21-31-01B or 21-31-01-01 (O) procedure, as appropriate.



21-33-02 CABIN DIFF Pressure Indicator

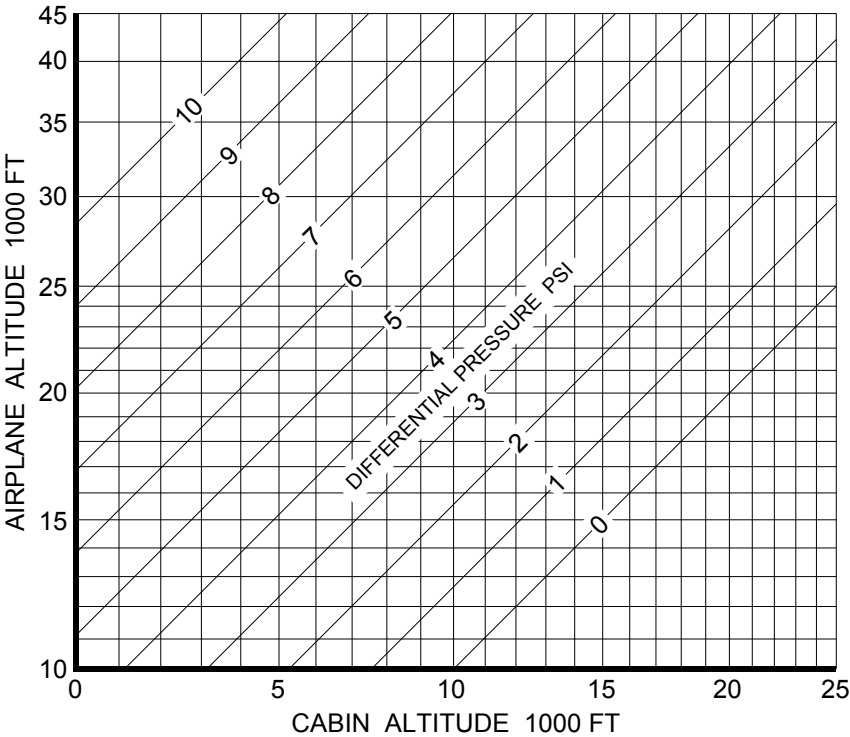
Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. CABIN ALT indicator operates normally.
- b. A chart is provided to convert cabin altitude to cabin differential pressure.

OPERATIONS (O)

Use the following chart to convert cabin altitude to cabin differential pressure.





21-33-02 CABIN DIFF Pressure Indicator
21-33-02-01 Flight is conducted in an unpressurized configuration

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- a. Flight is conducted in an unpressurized configuration.
- b. Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

Configure the airplane for unpressurized flight using MEL Item 21-31-01B or 21-31-01-01 (M) procedure, as appropriate.

OPERATIONS (O)

Use MEL Item 21-31-01B or 21-31-01-01 (O) procedure, as appropriate.


21-33-03 CABIN ALT Indicator

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- CABIN DIFF pressure indicator operates normally.
- A chart is provided to convert cabin differential pressure to cabin altitude.

OPERATIONS (O)

- Use the chart provided in MEL Item 21-33-02 (O) procedure.

21-33-03 CABIN ALT Indicator
21-33-03-01 Flight is conducted in unpressurized configuration

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

Configure the airplane for unpressurized flight using MEL Item 21-31-01B or 21-31-01-01 (M) procedure, as appropriate.

OPERATIONS (O)

Use MEL Item 21-31-01B or 21-31-01-01 (O) procedure, as appropriate.



21-33-04

Outflow VALVE Position Indicator

Interval	Installed	Required	Procedure
C	1	0	

**21-33-05 AUTO INOP Light (Cabin Altitude Control)**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- Both automatic pressure control systems operate normally.
 - CABIN ALT or CABIN RATE of climb indicator operates normally.
-

OPERATIONS (O)

For dual failure of the automatic pressure control systems, do the CABIN AUTOMATIC INOPERATIVE Non-Normal Checklist.



21-33-06 Cabin Altitude Warning System

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided flight remains at or below 10,000 feet MSL.

21-33-06 Cabin Altitude Warning System

21-33-06-01 High Altitude Warning System

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.

**21-40-01 Fwd Cargo Heating System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative deactivated.

MAINTENANCE (M)

Deactivate the forward cargo heating system.

1. Open and collar the following circuit breakers:
 - A. P11 panel, FWD CARGO HEAT FAN CONTROL
 - B. P70 panel, FWD CARGO FAN POWER

OPERATIONS NOTE

Temperature sensitive items loaded in the forward cargo compartment may be affected.

**21-40-02 Aft Cargo Heating System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative deactivated.

MAINTENANCE (M)

Deactivate the aft cargo heating system.

1. Open and collar the following circuit breakers:
 - A. P11 panel, CARGO HEAT FAN AFT
 - B. P11 panel, CARGO HEAT AFT (CONTROL)
 - C. P70 panel, AFT CARGO HTR (POWER)

OPERATIONS NOTE

Temperature sensitive items loaded in the aft cargo compartment may be affected.

**21-45-01 Flight Crew Auxiliary Heat Systems****21-45-01A Inoperative Off**

Interval	Installed	Required	Procedure
C	4	0	

May be inoperative OFF.

NOTE: Any portion that operates normally may be used.

21-45-01 Flight Crew Auxiliary Heat Systems**21-45-01B Deactivated**

Interval	Installed	Required	Procedure
C	4	0	(M)

May be inoperative provided affected system is deactivated.

NOTE: Any portion that operates normally may be used.

MAINTENANCE (M)

Deactivate the affected system.

1. Open and collar the associated circuit breaker for the inoperative heater:
 - A. P70 panel, CAPT AUX HTR LO
 - B. P70 panel, CAPT AUX HTR HI
 - C. P37 panel, LO F/O AUX HEATERS
 - D. P37 panel, HI F/O AUX HEATERS

**21-45-03 Door Heater Systems (Type I Doors)**

Interval	Installed	Required	Procedure
C	8	0	(M)

May be inoperative deactivated.

NOTE: Type I doors are emergency exit doors.

MAINTENANCE (M)

Deactivate the inoperative heater system.

1. For entry door area heater systems:
 - A. Open and collar the following associated circuit breaker:
 - 1) P37 panel, NO. 1 DOOR HEATER
 - 2) P70 panel, NO. 2 DOOR HEATER
 - 3) P37 panel, NO. 3 DOOR HEATER
 - 4) P70 panel, NO. 4 DOOR HEATER


21-51-01 Air Conditioning Packs (ETOPS)

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided:

- Airplane remains at or below FL 350.
- Flight remains within 60 minutes of landing at a suitable airport.

OPERATIONS NOTE

For a pack to be operating normally, the following associated items must be operative:

MEL Item	Item Title
21-51-01	Air Conditioning Packs
21-51-02	Pack Flow Control/Shutoff Valves
21-51-03	Pack Temperature Control Systems
21-51-04	Pack Temperature Control Valves
21-51-07	Air Cycle Machine

- An engine bleed air OFF light may illuminate during any phase of flight due to lower bleed air demands with a pack inoperative.
- This is most likely to occur during takeoff with high engine power settings. As engine power is reduced, the light should extinguish.

21-51-01 Air Condition Packs (ETOPS)
21-51-01A Departure from base airport

Interval	Installed	Required	Procedure
A	2	2	

Departure from base airport is prohibited.


21-51-02 Pack Flow Control/Shutoff Valves (ETOPS)

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative closed for an associated inoperative pack.

MAINTENANCE (M)

Manually close the inoperative pack flow control/shutoff valve.

1. Set the associated PACK control selector to OFF.
2. Gain access to the affected valve (AMM 21-51-01/201).
3. Manually close the valve by moving the cam assembly clockwise to the closed position (a mirror is required to see the position indicator).

NOTE: Do not use excessive force on the manual actuator nut; if resistance is felt, actuator damage may result.

OPERATIONS (O)

Also dispatch the airplane using MEL Item 21-51-01.

21-51-02 Pack Flow Control/Shutoff Valves (ETOPS)
21-51-02-01 Hi Flow Mode

Interval	Installed	Required	Procedure
C	2	1	

Except for ER operations, one may be inoperative provided remaining (opposite) pack operates normally.

MAINTENANCE NOTE

NOTE: For a pack to be operating normally, certain items associated with that system must be operative. See MEL Item 21-51-01 for a listing of those items.

21-51-02 Pack Flow Control/Shutoff Valves (ETOPS)
21-51-02-01 Hi Flow Mode
21-51-02-01-01 Passenger

Interval	Installed	Required	Procedure
C	2	0	(O)

Except for ER operations, may be inoperative provided:

- a. All remaining functions of both packs operate normally.



- b. All recirculation fan(s) operate normally.
- c. Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast

MAINTENANCE NOTE

NOTE: For a pack to be operating normally, certain items associated with that system must be operative. See MEL Item 21-51-01 for a listing of those items.

OPERATIONS (O)

Establish and use procedures to verify the lower cargo compartments remain empty, or contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or fly away kits. Define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.



21-51-03 Pack Temperature Control Systems

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative OFF for an associated inoperative pack.

21-51-03 Pack Temperature Control Systems

21-51-03-01 Auto Mode (Passenger and Combi)

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated Standby Mode operates normally.

21-51-03 Pack Temperature Control Systems

21-51-03-02 Standby Mode (Passenger)

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated Auto Mode operates normally.


21-51-04 Pack Temperature Control Valves
21-51-04A Valve Deactivated In Mid Position

Interval	Installed	Required	Procedure
C	2	1	(M)

Right valve may be inoperative deactivated in mid position provided left pack operates normally in AUTO.

MAINTENANCE (M)

NOTE: For a pack to be operating normally, certain items associated with that system must be operative. See MEL Item 21-51-01 for a listing of those items.

Deactivate the valve in the mid position.

1. Gain access to the pack temperature control valve (AMM 21-51-12/401).
2. Rotate the manual override knob on the right pack temperature control valve until the visual position indicator is midway between the open and closed positions.
3. Disconnect, cap and stow both electrical connectors on the pack temperature control valve.

21-51-04 Pack Temperature Control Valves
21-51-04B Valve Inoperative Closed In STBY

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative closed in STBY provided remaining (opposite) pack operates normally in AUTO.

MAINTENANCE (M)

NOTE: For a pack to be operating normally, certain items associated with that system must be operative. See MEL Item 21-51-01 for a listing of those items.

Confirm the valve is closed and the associated pack can operate in STBY.

1. Gain access to the inoperative pack temperature control valve (AMM 21-51-12/401).
2. Confirm the visual position indicator is in the closed position. If required, rotate the manual override knob until the position indicator moves to the closed position.
3. Disconnect, cap and stow both electrical connectors on the pack temperature control valve.



- 4. Confirm the ram air inlet and exhaust doors move to the full open position and the temperature control valve remains closed when STBY N is selected.

21-51-04 Pack Temperature Control Valves

21-51-04C Associated Pack Inoperative

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative for an associated inoperative pack.



21-51-05 Pack Altitude Switches

Interval	Installed	Required	Procedure
C	2	0	

21-51-07 Air Cycle Machine (ETOPS)

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

Except for ER operations, one may be inoperative provided:

- Associated pack is operated in STBY WARM.
- Flow control valve in associated pack is verified to operate normally.
- Remaining (opposite) pack operates normally.
- Associated pack is turned OFF at TAT above 0 degrees C.

MAINTENANCE (M)

NOTE: For a pack to be operating normally, certain items associated with that system must be operative. See MEL Item 21-51-01 for a listing of those items.

Verify the flow control valve in the associated pack operates normally using Operational Test - Pack High Flow Inhibit (AMM 21-51-00/501).

OPERATIONS (O)

For failure of the remaining (opposite) pack, the pack with the inoperative ACM may be turned off below 10,000 feet if necessary to control cabin temperature.

**21-52-01 Pack RESET Switches****21-52-01A Both Packs Operative**

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided both packs operate normally.

21-52-01 Pack RESET Switches**21-52-01B Associated Pack Inoperative**

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative for an associated inoperative pack.



21-52-02 Pack INOP Lights

Interval	Installed	Required	Procedure
C	2	1	

**21-52-03 Air Conditioning Pack OFF Lights**

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative OFF provided associated EICAS message and all other pack indications operate normally.

MAINTENANCE (M)

Confirm the associated EICAS message operates normally.

1. Set the associated pack selector to OFF.
2. Confirm the associated L(R) PACK OFF advisory message appears.
3. Set the associated pack selector as required.


21-53-01 Ram Air Inlet/Exhaust Door Systems
21-53-01A Doors Secured Open

Interval	Installed	Required	Procedure
C	2	0	(M) (O)

May be inoperative provided doors are secured open with pack(s) operating.

MAINTENANCE (M)

Secure the doors open for the associated operating pack.

1. Gain access to the associated air conditioning equipment bay.
2. For the ram air inlet or exhaust door on the associated pack not in the full open position:
 - A. Set the associated PACK control selector to STBY-N.
 - B. Confirm the ram air inlet and exhaust doors go to the full open position.
 - C. For the ram air inlet or exhaust door on the associated pack still not in the full open position:
 - 1) Remove the actuator from the affected door:
 - a. Ram Air Inlet Door Actuator: (AMM 21-53-03/401).
 - b. Ram Air Exhaust Door Actuator: (AMM 21-53-04/401).
 - 2) Fabricate an actuator link 11.1 inch long with rod ends compatible with the door actuator fittings. Alternately, Boeing tool No. A21007-1 may be used.
 - 3) Position the affected ram air door to full open and install the actuator link in place of the ram air actuator.
3. With doors in the full open position perform one of the following:
 - A. Option A - enables acceptable cabin temperature performance for most climatic conditions:
 - 1) Disconnect, cap and stow the electrical connectors from both the ram air inlet and exhaust door actuators on the associated air conditioning pack.
 - B. Option B - enables better cabin temperature performance during hot day 32°C (90°F) ground operations and/or during hot day high altitude operations:
 - 1) Open the following P11 panel circuit breaker for the associated air conditioning pack:
 - a. LEFT PACK STANDBY POWER
 - b. RIGHT PACK STANDBY POWER



- 2) Obtain a shorting plug or make a shorting plug using the following procedure:
 - a. Fabricate a 3.5 (± 0.5) inch shorting wire from 20 gauge, type UN (BMS 13-48 TY 8 CL 1) or QZ (BMS 13-60 TY 10 CL 1) wire and two 20 gauge pins P/N BACC47CN1S.
 - b. Obtain a ram air inlet door actuator mate-with connector P/N BACC45FM16-24P and insert the fabricated wire into pin cavities 13 and 15.
 - c. Insert spare contacts and filler rods in accordance with D6-54446, Standard Wiring Practices Manual, section 20-60-08 in all unused cavities.
 - 3) Remove the electrical connector from the ram air inlet door actuator on the associated air conditioning pack.
 - 4) Install the fabricated shorting plug with connector from the ram air inlet door actuator electrical connector and stow.
 - 5) Disconnect, cap and stow the electrical connectors from the exhaust door actuators on the associated air conditioning pack.
 - 6) Close the open circuit breaker.
4. Place a piece of tape over the associated pack INOP light (the light and the PACK TEMP message will illuminate continuously when dispatching in this configuration).

OPERATIONS (O)

1. For shorting plug not installed in the ram air inlet door electrical connector:
 - A. Operate the associated pack in STBY-W mode.
 - B. AUTO, STBY-N and STBY-C modes are inoperative.
 - C. Cabin temperature performance may be degraded during hot day 32°C (90°F) ground operations and/or during hot day high altitude operation.
2. For shorting plug installed in the ram air inlet door electrical connector:
 - A. Operate the associated pack in STBY mode (STBY-N, STBY-C, or STBY-W).
 - B. AUTO mode is inoperative.
3. The associated pack INOP light and the PACK TEMP advisory message will be illuminated.

21-53-01 Ram Air Inlet/Exhaust Door Systems**21-53-01B Associated Pack Inoperative**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)



One may be inoperative in any position provided associated pack is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 21-51-01.

MAINTENANCE (M)

Deactivate the associated pack.

1. Set the associated PACK control selector to OFF. Confirm the PACK OFF light illuminates.
2. Open and collar the associated P11 panel circuit breaker:
 - A. L PACK FLOW CONTROL
 - B. R PACK FLOW CONTROL
3. For exit area not clearly greater than inlet area, do one of the following:

NOTE: Exit area must be greater than inlet area to prevent noise and vibration due to possible adverse pressure gradient.

 - A. For exhaust door operative:
 - 1) Confirm the ram air exhaust door is in the full open position.
 - 2) Disconnect, cap and stow the electrical connector for the exhaust door actuator.
 - B. For exhaust door inoperative (not full open):
 - 1) Remove the exhaust door actuator (AMM 21-53-04/401).
 - 2) Fabricate an actuator link 11.1 inch long with rod ends compatible with the door actuator fittings.
 - 3) Position the door to full open and install the actuator link in place of the ram air actuator.

OPERATIONS (O)

Use MEL Item 21-51-01 (O) Note procedure.



21-58-03 Forward Equipment Cooling Supply Fans (ETOPS)
21-58-03A Auxiliary Supply Fan Inoperative Or Not Installed

Interval	Installed	Required	Procedure
A	2	1	

Except for ER operations, primary cooling fan may be inoperative provided:

- Flight is conducted in Day VMC only.
 - Equipment Cooling is selected to ALTN.
 - Operations are limited to not more than one flight day before repairs are made.
-

NOTE: The primary cooling fan is the fan that is normally operating during inflight operations when there are no faults in the system.

21-58-03 Forward Equipment Cooling Supply Fans (ETOPS)
21-58-03B Auxiliary Supply Fan Operative

Interval	Installed	Required	Procedure
C	2	1	

Except for ER operations, primary cooling fan may be inoperative provided:

- Forward equipment cooling auxiliary supply fan is installed and operates normally.
 - Equipment cooling is selected to ALTN.
-

NOTE: The primary cooling fan is the fan that is normally operating during inflight operations when there are no faults in the system.



21-58-05

Aft Equipment/Lav/Galley Exhaust (Vent) Fans

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided operations do not require use of ADF equipment.

.....

**21-58-07 Forward Equipment Cooling Overboard Exhaust Valve****21-58-07A Valve Open, Unpressurized Flight**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative open provided:

- Flight is conducted in an unpressurized configuration.
- Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

Deactivate the valve in the open position and configure the airplane for unpressurized flight.

- Provide electrical power (AMM 24-22-00/401).
- Set the left RECIRC FAN switch off.
- Set the equipment cooling alternate equipment cooling switch to ALTN.
- Gain access to the valve (AMM 21-58-05/401).
- Confirm the valve is open.
- Disconnect, cap and stow the electrical connector from the forward equipment cooling overboard exhaust valve.
- Set the equipment cooling alternate equipment cooling switch off.
- Set the left RECIRC FAN switch to ON.
- Configure the airplane for unpressurized flight, using MEL Item 21-31-01 (M) procedure.

OPERATIONS (O)

- Use MEL Item 21-31-01 (O) procedure.

21-58-07 Forward Equipment Cooling Overboard Exhaust Valve**21-58-07B Valve in SMOKE Position**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)



May be inoperative in SMOKE (partially open) position provided:

- a. Both packs operate normally.
- b. Airplane remains at or below FL 350.
- c. Procedures are established and used to ensure lower aft cargo compartment remains empty, or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

MAINTENANCE (M)

NOTE: For a pack to be operating normally, certain items associated with that system must be operative. See MEL Item 21-51-01 for a listing of those items.

Deactivate the valve in the SMOKE (partially open) position.

1. Provide electrical power (AMM 24-22-00/401).
2. Set the left RECIRC FAN switch off.
3. Set the equipment cooling alternate equipment cooling switch to ALTN.
4. Gain access to the valve (AMM 21-58-05/401).
5. Confirm the valve position indicator is in the SMOKE position.
6. Disconnect, cap and stow the electrical connector from the forward equipment cooling overboard exhaust valve.
7. Set the equipment cooling alternate equipment cooling switch off.
8. Set the left RECIRC FAN switch to ON.

OPERATIONS (O)

1. Limit operating altitude to FL 350 or lower.
2. Establish and use procedures to verify the lower aft cargo compartment remains empty, or contains only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or fly away kits. Define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.



21-58-08 Aft Equipment Cooling Supply Fans

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative provided operations do not require use of HF radio or ADF navigation equipment.

OPERATIONS (O)

1. For forward equipment cooling auxiliary supply fan inoperative, for an inflight failure of forward equipment cooling supply Fan 2, set the EQUIP COOLING alternate equipment cooling switch off.

**21-58-13 Equipment Cooling Airflow Detection System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided equipment cooling airflow is verified to operate normally before each flight.

MAINTENANCE (M)

Before each flight, verify equipment cooling airflow operates normally.

1. For status message EQPT CLG FLOW displayed:
 - A. For maintenance message FWD EQ SUP FLOW displayed:
 - 1) Disconnect, cap and stow the electrical connector from the forward supply low flow sensor (AMM 21-58-17/201)
 - 2) Remove the right HSI (AMM 34-22-04/401).
 - 3) Confirm airflow can be felt with a hand located against the first officer's control column.
 - 4) Reinstall the HSI (AMM 34-22-04/401).
 - B. For maintenance message FWD EQ EXH FLOW displayed:
 - 1) Disconnect, cap and stow the electrical connector from the forward exhaust low flow sensor (AMM 21-58-17/201).
 - 2) Confirm air is exhausted at the equipment cooling overboard exhaust valve (AMM 21-58-05/401).
2. For status message EQPT CLG SENSOR displayed:
 - A. For maintenance message FWD EQ SUP SNSR displayed:
 - 1) Remove the right HSI (AMM 34-22-04/401).
 - 2) Confirm airflow can be felt with a hand located against the first officer's control column.
 - 3) Reinstall the HSI (AMM 34-22-04/401).
 - B. For maintenance message FWD EQ EXH SNSR displayed, confirm air is exhausted at the equipment cooling overboard exhaust valve (AMM 21-58-05/401).
3. For status message EQPT CLG TEST displayed:
 - A. Remove the right HSI (AMM 34-22-04/401).
 - B. Confirm airflow can be felt with a hand located against the first officer's control column.
 - C. Reinstall the HSI (AMM 34-22-04/401).
 - D. Confirm air is exhausted at the equipment cooling overboard exhaust valve (AMM 21-58-05/401).



Interval	Installed	Required	Procedure
C	1	0	

Except for ER operations, may be inoperative.

.....

**21-58-15 Forward and Aft Equipment Cooling Air Filters****21-58-15-01 Forward Filter**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative removed provided:

- All forward equipment cooling supply fans operate normally.
 - Inlet area is inspected and found to be free of foreign objects.
-

MAINTENANCE (M)

Remove the forward equipment cooling air filter.

- Remove electrical power from the airplane (AMM 24-22-00/201).
 - Gain access to the forward equipment cooling air filter (AMM 21-58-07/401).
 - Open the filter housing and release the latches on the top and bottom of the unit.
 - Remove the filter.
-

21-58-15 Forward and Aft Equipment Cooling Air Filters**21-58-15-02 Aft Filter**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative removed provided:

- All aft equipment/lav/galley exhaust (vent) fans operate normally.
 - Inlet area is inspected and found to be free of foreign objects.
-

MAINTENANCE (M)

Remove the aft equipment cooling air filter.

- Open the following circuit breakers:
 - P37 panel, AFT EQPT COOLING FAN SPLY NO. 1
 - P70 panel, AFT EQPT COOLING FAN SPLY NO. 2
- Gain access to the aft equipment cooling air filter (AMM 21-58-07/401).
- Open the filter housing and remove the latches on the inboard and outboard sides of the unit.
- Remove the filter.
- Close the open circuit breakers.

**21-61-01 Cabin COMPT TEMP Control Systems**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided associated zone trim air modulating valve or trim air regulating/shutoff valve remains closed.

MAINTENANCE (M)

Close the associated zone trim air modulating valve or the trim air regulating/shutoff valve.

1. Set the affected COMPT TEMP control to OFF.
2. On the EICAS ECS/MSG page confirm the associated TRIM VALVE is in the full closed (0.00) position.
3. Confirm the associated zone INOP light illuminates.
4. For a zone trim air modulating valve that will not stay closed, do one of the following:
 - A. Secure the valve closed using MEL Item 21-61-04 (M) procedure.
 - B. Close the trim air regulating/shutoff valve:
 - 1) Set the TRIM AIR switch to OFF.
 - 2) Confirm the TRIM AIR OFF light illuminates.
 - 3) Open and collar the P11 panel CABIN TRIM AIR circuit breaker.

OPERATIONS NOTE

For cabin compartment temperature either too hot or too cold, set the TRIM AIR switch to OFF.

NOTE: This causes the cooling pack system to operate in its backup mode which attempts to achieve 75°F.

**21-61-02 Flight Deck COMPT TEMP Control System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided associated zone trim air modulating valve or trim air regulating/shutoff valve remains closed.

MAINTENANCE (M)

Close the associated zone trim air modulating valve or the trim air regulating/shutoff valve.

1. Set the FLT DK COMPT TEMP control to OFF.
2. On the EICAS ECS/MSG page confirm the FLT DK TRIM VALVE is in the full closed (0.00) position.
3. Confirm the associated zone INOP light illuminates.
4. For flight deck zone trim air modulating valve that will not stay closed, do one of the following:
 - A. Secure the valve closed using MEL Item 21-61-04 (M) procedure.
 - B. Close the trim air regulating/shutoff valve:
 - 1) Set the TRIM AIR switch to OFF.
 - 2) Confirm the TRIM AIR OFF light illuminates.
 - 3) Open and collar the P11 panel CABIN TRIM AIR circuit breaker.

OPERATIONS NOTE

For flight deck temperature either too hot or too cold, set the TRIM AIR switch to OFF.

NOTE: This causes the cooling pack system to operate in its backup mode which attempts to achieve 75°F.

**21-61-03 Trim Air Regulating/Shutoff Valve System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided trim air regulating/shutoff valve is secured closed.

MAINTENANCE (M)

Secure the trim air pressure regulating valve closed.

1. Set the TRIM AIR switch to OFF.
2. Gain access to the trim air pressure regulating valve (AMM 21-61-06/401).
3. Rotate the manual override on the trim air pressure regulating valve until the position indicator is in CLOSE.
4. Disconnect, cap and stow the electrical connector from the regulating valve.



21-61-04 Zone Trim Air Modulating Valves
21-61-04A Inoperative Valve Closed

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative closed.

MAINTENANCE (M)

Close the affected zone trim air modulating valve.

1. Supply electrical power (AMM 24-22-00/201).
2. Set the associated zone selector to OFF.
3. Set both PACK control selectors to OFF.
4. Open and collar the associated P11 panel ZONE TEMP CONT VLV CL circuit breaker.
5. Gain access to the trim air modulating valve (AMM 21-61-07/401).
6. Confirm valve position. For valve not closed, rotate the manual override knob counterclockwise until the position indicator on the valve shows the valve closed.
7. Disconnect, cap and stow the electrical power connector from the valve.
8. Set both PACK control selectors as desired.

21-61-04 Zone Trim Air Modulating Valves
21-61-04B Trim Air Not Used

Interval	Installed	Required	Procedure
C	3	0	

May be inoperative in any position provided trim air switch remains OFF.



21-61-05 Trim Air OFF Light

Interval	Installed	Required	Procedure
C	1	0	

**21-61-06 COMPT TEMP INOP Lights****21-61-06A Trim Air Modulating Valve Closed**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided associated trim air modulating valve(s) remains closed.

MAINTENANCE (M)

Close the associated zone trim air modulating valve.

1. Set the associated COMPT TEMP control to OFF.
2. On the EICAS ECS/MSG page confirm the associated TRIM VALVE is in the full closed (0.00) position.

OPERATIONS NOTE

For associated compartment temperature either too hot or too cold, set the TRIM AIR switch to OFF.

NOTE: This causes the cooling pack system to operate in its backup mode which attempts to achieve 75°F.

21-61-06 COMPT TEMP INOP Lights**21-61-06B Trim Air Regulating/Shutoff Valve Closed**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided trim air regulating/shutoff valve remains closed.

MAINTENANCE (M)

Close the trim air regulating/shutoff valve.

1. Set the TRIM AIR switch to OFF.
2. Confirm the TRIM AIR OFF light illuminates.
3. Open and collar the P11 panel CABIN TRIM AIR circuit breaker.


21-61-07 Trim Air Check Valves

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided one failed check valve is secured closed.

MAINTENANCE (M)

Install a blanking plate on the downstream side of one inoperative trim air check valve.

1. Do one of the following:
 - A. Obtain blanking plate 213T2412-1.
 - B. Fabricate a blanking plate with the following specifications:
 - 1) Materials:
 - a. Titanium 6AL-4V per MIL-T-9046 Type 3 Comp C
 - b. Inconel 718 per AMS 5596
 - c. 301 CRES per MIL-S-5059 1/2, 3/4, or Fullhard
 - 2) Dimensions:
 - a. Diameter - 3.10 (+0.10 or -0.00) inches
 - b. Thickness - 0.040 inch
2. Supply electrical power (AMM 24-22-00/201).
3. Remove pneumatic system pressure (AMM 36-00-00/201).
4. Set both PACK control selectors to OFF.
5. Gain access to the trim air check valve (AMM 21-61-05/401).
6. Loosen the clamp on the downstream side of the trim air check valve and slide the clamp along the duct.
7. Slip the blanking plate between the duct assembly and the trim air check valve.
8. Reinstall the clamp. Torque the clamp nut to 45 inch-pounds.
9. Perform a leakage test:
 - A. Pressurize the pneumatic system (AMM 36-00-00/201).
 - B. Set both PACK control selectors to AUTO.
 - C. Set the TRIM AIR switch to OFF.
 - D. Check the valve flange for leakage.
 - 1) Diffused leakage is acceptable.
 - 2) Jet blast leakage must be repaired by joint or clamp realignment.



21-65-01 COMPT TEMP Indications

Interval	Installed	Required	Procedure
C	3	0	



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Section 2

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22-10-01 Autopilot Systems (ETOPS)
22-10-01A One Inoperative

Interval	Installed	Required	Procedure
C	3	2	(M)

Three required for CAT IIIb approach.

Two required for CAT II and CAT III approach.

One may be inoperative provided:

- Associated FCC SERVO circuit breaker is pulled and collared.
- If FCC Single Source option is installed, Autopilot Flight Director System is verified not in a single source configuration prior to each departure.
- Approach minimums do not require its use.

MAINTENANCE (M)

NOTE: "Single source" refers to single source of either inertial reference or stabilizer position data. The FCC single source option allows autopilot engagement in the air in a single source configuration after inflight sensor failures.

Open and collar the associated FCC SERVO circuit breaker, and prior to each departure, verify the AFDS is not in a single source configuration.

For all airplanes:

- For autopilot inoperative and autopilot electrohydraulic servo valves (EHSV) not leaking:
 - Open and collar the associated P11 panel servo circuit breaker for the failed autopilot channel:
 - FLT CONT CMPTR SERVO L
 - FLT CONT CMPTR SERVO C
 - FLT CONT CMPTR SERVO R
 - Prior to each departure, verify the AFDS is not in a single source configuration as follows:
 - Check the autoland status annunciator on the instrument panel:
 - For autoland status NO LAND 3 or blank, the AFDS is not in a single source configuration. No further single source tests are necessary.
 - For autoland status NO AUTOLAND, the AFDS may be in a single source configuration. Continue Maintenance steps.
 - In the main equipment center, or using optional flight deck controls, turn MCDP power to ON.



- 3) Confirm the message SINGLE SOURCE is not displayed at power up. If this message is displayed, the AFDS is in a single source configuration and dispatch with autopilot operation is not permitted. The airplane may be dispatched by considering all autopilots inoperative using MEL Item 22-10-01C.
2. For autopilot electrohydraulic servo valves (EHSV) leaking, perform the following procedure; it is generic for the three autopilot pitch control servos (APCS) and the three autopilot directional control (rollout guidance) servos (ARGS):
 - A. Remove the associated hydraulic pressure at the P5 panel.
 - 1) Left APCS/ARGS - Left hydraulic system
 - 2) Center APCS/ARGS - Center hydraulic system
 - 3) Right APCS/ARGS - Right hydraulic system
 - B. Set the following P61 panel switches to OFF:
 - 1) FLT CONTROL SHUTOFF L
 - 2) FLT CONTROL SHUTOFF C
 - 3) FLT CONTROL SHUTOFF R
 - C. Set the P10 control stand STAB TRIM switches to CUTOUT.
 - D. Set the mode control panel F/D switches to OFF.
 - E. Open the following P11 panel circuit breakers:
 - 1) STAB TRIM SHUTOFF L
 - 2) STAB TRIM SHUTOFF R
 - 3) FLT CONT SHUTOFF TAIL L
 - 4) FLT CONT SHUTOFF TAIL C
 - 5) FLT CONT SHUTOFF TAIL R
 - 6) MODE CONT PNL L
 - 7) MODE CONT PNL R
 - 8) FLT CONT CMPTR PWR L
 - 9) FLT CONT CMPTR PWR C
 - 10) FLT CONT CMPTR PWR R
 - 11) FLT CONT CMPTR SERV L
 - 12) FLT CONT CMPTR SERV C
 - 13) FLT CONT CMPTR SERV R
 - F. Gain access to the leaking APCS/ARGS (AMM 22-12-01/401 or AMM 22-13-01/401).
 - G. Remove the pressure and return lines from the autopilot servo.
 - H. Cap autopilot servo ports with BACC14AG6 or BACC14AG6H caps or equivalent, for 3/8 inch tubing, or BACC14AG4 or BACC14AG4H, for 1/4 inch tubing. Some equivalent parts that may be used during this deferral are BACC14AD0x(J, K, S or D) or MS21914-x(J, K, S or T), where "x" is replaced by "6" or "4" for 3/8 inch or 1/4 inch tubing, respectively.



- I. Plug the hydraulic lines with BACP20AU6(J, K or S) or MS21913(J, K, R or T)6 plugs for 3/8 inch tubing, or BACP20AU4(J, K or S) or MS21913(J, K, R or T)4 plugs for 1/4 inch tubing.
- J. Close the open circuit breakers.
- K. Set the mode control panel F/D switches to ON.
- L. Set the P10 control stand STAB TRIM switches to NORM.
- M. Set the following P61 panel switches to ON:
 - 1) L TAIL FLT CONTROL SHUTOFF
 - 2) C TAIL FLT CONTROL SHUTOFF
 - 3) R TAIL FLT CONTROL SHUTOFF
- N. Perform MEL Item 22-10-01A (M) procedure "For autopilot inoperative and autopilot electrohydraulic servo valves (EHSV) not leaking".

22-10-01 Autopilot Systems (ETOPS)
22-10-01B Two Inoperative

Interval	Installed	Required	Procedure
C	3	1	(M)

Three required for CAT IIb approach.

Two required for CAT II and CAT III approach.

Two may be inoperative provided:

- a. At least two FCC power circuit breakers remain IN.
- b. Associated FCC SERVO circuit breakers are pulled and collared.
- c. If FCC Single Source option is installed, Autopilot Flight Director System is verified not in a single source configuration prior to each departure.
- d. Approach minimums do not require their use.

MAINTENANCE (M)

NOTE: "Single source" refers to single source of either inertial reference or stabilizer position data. The FCC single source option allows autopilot engagement in the air in a single source configuration after inflight sensor failures.

Verify at least two FCC power circuit breakers are in, open and collar the associated FCC SERVO circuit breakers, and prior to each departure, verify the AFDS is not in a single source configuration.



For all airplanes:

1. For autopilot inoperative and autopilot electrohydraulic servo valves (EHSV) not leaking:
 - A. Confirm at least two of the following P11 panel FCC power circuit breakers are closed. Sensor data availability is maximized if all FCC breakers are closed.
 - 1) FLT CONT CMPTR PWR L
 - 2) FLT CONT CMPTR PWR C
 - 3) FLT CONT CMPTR PWR R
 - B. Open and collar the associated P11 panel servo circuit breakers for the failed autopilot channels:
 - 1) FLT CONT CMPTR SERVO L
 - 2) FLT CONT CMPTR SERVO C
 - 3) FLT CONT CMPTR SERVO R
 - C. Prior to each departure, verify the AFDS is not in a single source configuration as follows:
 - 1) Check the autoland status annunciator on the instrument panel:
 - a. For autoland status NO LAND 3 or blank, the AFDS is not in a single source configuration. No further single source tests are necessary.
 - b. For autoland status NO AUTOLAND, the AFDS may be in a single source configuration. Continue Maintenance steps.
 - 2) In the main equipment center, or using optional flight deck controls, turn MCDP power to ON.
 - 3) Confirm the message SINGLE SOURCE is not displayed at power up. If this message is displayed, the AFDS is in a single source configuration and dispatch with autopilot operation is not permitted. The airplane may be dispatched by considering all autopilots inoperative using MEL Item 22-10-01C.
2. For autopilot electrohydraulic servo valves (EHSV) leaking, perform the following procedure; it is generic for the three autopilot pitch control servos (APCS) and the three autopilot directional control (rollout guidance) servos (ARGS):
 - A. Remove the associated hydraulic pressure at the P5 panel.
 - 1) Left APCS/ARGS - Left hydraulic system
 - 2) Center APCS/ARGS - Center hydraulic system
 - 3) Right APCS/ARGS - Right hydraulic system
 - B. Set the following P61 panel switches to OFF:
 - 1) FLT CONTROL SHUTOFF L
 - 2) FLT CONTROL SHUTOFF C
 - 3) FLT CONTROL SHUTOFF R



- C. Set the P10 control stand STAB TRIM switches to CUTOUT.
- D. Set the mode control panel F/D switches to OFF.
- E. Open the following P11 panel circuit breakers:
 - 1) STAB TRIM SHUTOFF L
 - 2) STAB TRIM SHUTOFF R
 - 3) FLT CONT SHUTOFF TAIL L
 - 4) FLT CONT SHUTOFF TAIL C
 - 5) FLT CONT SHUTOFF TAIL R
 - 6) MODE CONT PNL L
 - 7) MODE CONT PNL R
 - 8) FLT CONT CMPTR PWR L
 - 9) FLT CONT CMPTR PWR C
 - 10) FLT CONT CMPTR PWR R
 - 11) FLT CONT CMPTR SERV L
 - 12) FLT CONT CMPTR SERV C
 - 13) FLT CONT CMPTR SERV R
- F. Gain access to the leaking APCS/ARGS (AMM 22-12-01/401 or AMM 22-13-01/401).
- G. Remove the pressure and return lines from the autopilot servo.
- H. Cap autopilot servo ports with BACC14AG6 or BACC14AG6H caps or equivalent, for 3/8 inch tubing, or BACC14AG4 or BACC14AG4H, for 1/4 inch tubing. Some equivalent parts that may be used during this deferral are BACC14AD0x(J, K, S or D) or MS21914-x(J, K, S or T), where "x" is replaced by "6" or "4" for 3/8 inch or 1/4 inch tubing, respectively.
- I. Plug the hydraulic lines with BACP20AU6(J, K or S) or MS21913(J, K, R or T)6 plugs for 3/8 inch tubing, or BACP20AU4(J, K or S) or MS21913(J, K, R or T)4 plugs for 1/4 inch tubing.
- J. Close the open circuit breakers.
- K. Set the mode control panel F/D switches to ON.
- L. Set the P10 control stand STAB TRIM switches to NORM.
- M. Set the following P61 panel switches to ON:
 - 1) L TAIL FLT CONTROL SHUTOFF
 - 2) C TAIL FLT CONTROL SHUTOFF
 - 3) R TAIL FLT CONTROL SHUTOFF
- N. Perform MEL Item 22-10-01B (M) procedure "For autopilot inoperative and autopilot electrohydraulic servo valves (EHSV) not leaking".


22-10-01 Autopilot Systems (ETOPS)
22-10-01C All Inoperative

Interval	Installed	Required	Procedure
B	3	0	(M)

Three required for CAT IIIb approach.

Two required for CAT II and CAT III approach.

Except for ER operations, all may be inoperative provided:

- At least one FCC power circuit breaker remains in.
- All three FCC SERVO circuit breakers are pulled and collared.
- Enroute operations and approach minimums do not require their use.
- Number of flight segments and segment duration is acceptable to flight crew.

NOTE: Minimum **One Active System** is required for **RVSM, PRNAV, RNP** Operation.

MAINTENANCE (M)

Verify at least one FCC power circuit breaker is in, and open and collar all three FCC SERVO circuit breakers.

- For autopilot inoperative and autopilot electrohydraulic servo valves (EHSV) not leaking:
 - Confirm at least one of the following P11 panel FCC power circuit breakers are closed. Sensor data availability is maximized if all FCC breakers are closed.
 - FLT CONT CMPTR PWR L
 - FLT CONT CMPTR PWR C
 - FLT CONT CMPTR PWR R
 - Open and collar the following P11 panel servo circuit breakers:
 - FLT CONT CMPTR SERVO L
 - FLT CONT CMPTR SERVO C
 - FLT CONT CMPTR SERVO R
- For autopilot electrohydraulic servo valves (EHSV) leaking, perform the following procedure; it is generic for the three autopilot pitch control servos (APCS) and the three autopilot directional control (rollout guidance) servos (ARGS):
 - Remove the associated hydraulic pressure at the P5 panel.
 - Left APCS/ARGS - Left hydraulic system
 - Center APCS/ARGS - Center hydraulic system
 - Right APCS/ARGS - Right hydraulic system
 - Set the following P61 panel switches to OFF:
 - FLT CONTROL SHUTOFF L



- 2) FLT CONTROL SHUTOFF C
- 3) FLT CONTROL SHUTOFF R
- C. Set the P10 control stand STAB TRIM switches to CUTOUT.
- D. Set the mode control panel F/D switches to OFF.
- E. Open the following P11 panel circuit breakers:
 - 1) STAB TRIM SHUTOFF L
 - 2) STAB TRIM SHUTOFF R
 - 3) FLT CONT SHUTOFF TAIL L
 - 4) FLT CONT SHUTOFF TAIL C
 - 5) FLT CONT SHUTOFF TAIL R
 - 6) MODE CONT PNL L
 - 7) MODE CONT PNL R
 - 8) FLT CONT CMPTR PWR L
 - 9) FLT CONT CMPTR PWR C
 - 10) FLT CONT CMPTR PWR R
 - 11) FLT CONT CMPTR SERV L
 - 12) FLT CONT CMPTR SERV C
 - 13) FLT CONT CMPTR SERV R
- F. Gain access to the leaking APCS/ARGS (AMM 22-12-01/401 or AMM 22-13-01/401).
- G. Remove the pressure and return lines from the autopilot servo.
- H. Cap autopilot servo ports with BACC14AG6 or BACC14AG6H caps or equivalent, for 3/8 inch tubing, or BACC14AG4 or BACC14AG4H, for 1/4 inch tubing. Some equivalent parts that may be used during this deferral are BACC14AD0x(J, K, S or D) or MS21914-x(J, K, S or T), where "x" is replaced by "6" or "4" for 3/8 inch or 1/4 inch tubing, respectively.
- I. Plug the hydraulic lines with BACP20AU6(J, K or S) or MS21913(J, K, R or T)6 plugs for 3/8 inch tubing, or BACP20AU4(J, K or S) or MS21913(J, K, R or T)4 plugs for 1/4 inch tubing.
- J. Close the open circuit breakers.
- K. Set the mode control panel F/D switches to ON.
- L. Set the P10 control stand STAB TRIM switches to NORM.
- M. Set the following P61 panel switches to ON:
 - 1) L TAIL FLT CONTROL SHUTOFF
 - 2) C TAIL FLT CONTROL SHUTOFF
 - 3) R TAIL FLT CONTROL SHUTOFF
- N. Perform MEL Item 22-10-01C (M) procedure "For autopilot inoperative and autopilot electrohydraulic servo valves (EHSV) not leaking".



22-11-01 Control Wheel Disengage Switches

Interval	Installed	Required	Procedure
C	2	1	PLACARD

Two required for CAT II / IIIa / IIIb approach.

One may be inoperative provided:

- a. Autopilots are not used below 1,500 feet AGL.
- b. Approach minimums do not require use of autopilot.



22-11-02 A/P DISC Light

Interval	Installed	Required	Procedure
C	1	0	PLACARD

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided:

- a. Autopilots are not used below 1,500 feet AGL.
- b. All other A/P disengagement alerts operate normally.


22-11-03 Mode Control Panel Selectors
22-11-03-01 VERT SPD Selector (DN & UP)

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided FL CH mode operates normally.

OPERATIONS (O)

1. Targeted vertical speed in Vertical Speed mode cannot be adjusted.
2. Vertical Speed mode may still be used to hold airplane vertical speed at time of engagement.

22-11-03 Mode Control Panel Selectors
22-11-03-02 BANK LIMIT Selector

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative.

OPERATIONS (O)

1. Heading Select bank angle limit cannot be changed.
2. There is no flight crew impact if stuck at AUTO (NORM in some MCP configurations).
3. If stuck at a low bank angle value, large heading changes in Heading Select mode may require significantly greater time to complete than normal.
4. If stuck at a high bank angle value, large heading changes in Heading Select mode may be undesirably aggressive at cruise conditions.

22-11-03 Mode Control Panel Selectors
22-11-03-03 Selector Push Functions
22-11-03-03-01 IAS/MACH

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative.

NOTE: Rotational function of selector must operate normally.

**OPERATIONS (O)**

1. V NAV Speed Intervention cannot be invoked.
2. If continued V NAV operation is desired, speed entries can be made via the CDU.

22-11-03 Mode Control Panel Selectors**22-11-03-03 Selector Push Functions****22-11-03-03-02 ALT*********

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative.

NOTE: Rotational function of selector must operate normally.

OPERATIONS (O)

1. V NAV Altitude Intervention cannot be invoked.
2. If continued V NAV operation is desired, altitude constraints can be deleted via the CDU.

22-11-03 Mode Control Panel Selectors**22-11-03-03 Selector Push Functions****22-11-03-03-03 HDG SEL**

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative.

NOTE: Rotational function of selector must operate normally.

OPERATIONS (O)

1. Heading Select mode cannot be engaged.
2. Turns must be accomplished in L NAV or in manual flight, or using APP, LOC, or B/CRS if appropriate.



- 22-11-04 Mode Control Panel Switches (ETOPS)**
22-11-04-01 A/P Engage Switches/Paddles (L CMD, C CMD, R CMD)
22-11-04-01A One or Two Inoperative

Interval	Installed	Required	Procedure
C	3	1	(O)

May be inoperative.

NOTE: All operative autopilots may be used during autoland operations.

OPERATIONS (O)

1. The associated autopilot may not be selectable for an automatic landing.
2. If associated autopilots operate normally, all operative autopilots will engage automatically at 1,500 feet AGL after selection of the APP switch (if installed) during an autoland approach
3. Monitor autoland status annunciators (ASA) for autoland status.

- 22-11-04 Mode Control Panel Switches (ETOPS)**
22-11-04-01 A/P Engage Switches/Paddles (L CMD, C CMD, R CMD)
22-11-04-01B Three Inoperative

Interval	Installed	Required	Procedure
B	3	0	

Except for ER operations, may be inoperative provided:

- a. Enroute operations and approach minimums do not require their use.
- b. Number of flight segments and segment duration is acceptable to flight crew.

- 22-11-04 Mode Control Panel Switches (ETOPS)**
22-11-04-02 A/P CWS Engage Switches

Interval	Installed	Required	Procedure
C	3	0	


22-11-04 Mode Control Panel Switches (ETOPS)
22-11-04-03 A/T ARM Switch

Interval	Installed	Required	Procedure
C	1	0	PLACARD

Required for CAT II / IIIa / IIIb approach.

May be inoperative OFF provided approach minimums do not require use of autothrottle system.

22-11-04 Mode Control Panel Switches (ETOPS)
22-11-04-04 A/T SPD Mode Engage Switch

Interval	Installed	Required	Procedure
C	1	0	(O)

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided procedures and approach minimums do not require its use.

OPERATIONS (O)

1. Autothrottle Speed mode cannot be manually selected.
2. A/T Speed mode is the default autothrottle mode upon exit of FL CH or V NAV or G/A, which is not affected by an inoperative SPD switch.
3. V NAV normally commands the autothrottle to speeds determined by the FMC, which is also not affected by an inoperative SPD switch.

22-11-04 Mode Control Panel Switches (ETOPS)
22-11-04-05 F/D Switches

Interval	Installed	Required	Procedure
C	2	0	PLACARD

May be inoperative OFF provided approach minimums do not require use of flight director displays.


22-11-04 Mode Control Panel Switches (ETOPS)
22-11-04-06 IAS/MACH SEL Switch

Interval	Installed	Required	Procedure
C	1	0	PLACARD

May be inoperative provided IAS is displayed in associated window.

22-11-04 Mode Control Panel Switches (ETOPS)
22-11-04-07 APP Switch

Interval	Installed	Required	Procedure
C	1	0	PLACARD

May be inoperative provided approach minimums do not require use of autopilot or flight director.

22-11-04 Mode Control Panel Switches (ETOPS)
22-11-04-08 LOC Switch

Interval	Installed	Required	Procedure
C	1	0	(O)

Required for CAT II / IIIa / IIIb approach.

May be inoperative.

OPERATIONS (O)

1. Localizer mode is not available for use during a localizer-dependent approach (examples: localizer-only, localizer backcourse, LDA, or SDF) or departure procedure. L NAV, HDG SEL, or manual flight may be used.
2. Backcourse mode for backcourse localizer approach is not available. L NAV, HDG SEL, or manual flight may be used.

22-11-04 Mode Control Panel Switches (ETOPS)
22-11-04-09 B/CRS Switch

Interval	Installed	Required	Procedure
C	1	0	(O)



May be inoperative.

OPERATIONS (O)

Backcourse mode for backcourse localizer approach is not available. L NAV, HDG SEL, or manual flight may be used.

22-11-04 Mode Control Panel Switches (ETOPS)

22-11-04-10 V NAV, FL CH, V/S, ALT HOLD Switches

Interval	Installed	Required	Procedure
C	4	3	(O)

One may be inoperative provided procedures or enroute operations do not require its use.

OPERATIONS (O)

1. Consider use of other autopilot modes appropriate for the planned route.
2. The default autopilot mode is Vertical Speed and Heading Hold. These modes may be used to hold vertical speed (or altitude with targeted V/S = 000) and heading even if the associated mode engage switches are inoperative.
3. Flight Level Change and Vertical Speed modes automatically transition to Altitude Hold even if the ALT HOLD switch is inoperative.
4. For enroute operations such as RVSM, any one of the following autopilot pitch modes will provide acceptable altitude hold capability: Altitude Hold (ALT HOLD), Vertical Speed (VERT SPD) with 000 selected, Vertical Navigation (V NAV) with FMC flight plan, or V NAV with FMC flight plan combined with altitude intervention.

22-11-04 Mode Control Panel Switches (ETOPS)

22-11-04-11 L NAV, HDG HOLD Switches

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative provided:

- a. HDG SEL operates normally.
 - b. Procedures or enroute operations do not require its use.
-

OPERATIONS (O)

1. Consider use of other autopilot modes appropriate for the planned route.



2. The default autopilot mode is Vertical Speed and Heading Hold. These modes may be used to hold vertical speed (or altitude with targeted V/S = 000) and heading even if the associated mode engage switches are inoperative.

22-11-04 Mode Control Panel Switches (ETOPS)**22-11-04-12 EPR/THR Switch**

Interval	Installed	Required	Procedure
C	1	0	PLACARD

May be inoperative provided both thrust levers are operated manually for takeoff.

**22-11-05 Mode Control Panel Windows****22-11-05-01 Airspeed (IAS/MACH)**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided command airspeed bug on airspeed indicator (and ADI speed tape, if installed) operates normally on both sides.

OPERATIONS (O)

Associated target values may be set and appropriate autopilot modes used by observing indications on the ADI and airspeed indicator.

22-11-05 Mode Control Panel Windows**22-11-05-02 Heading (HDG)**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided selected heading indications on both HSI's operate normally.

OPERATIONS (O)

Associated target values may be set and appropriate autopilot modes used by observing indications on the HSI.

22-11-05 Mode Control Panel Windows**22-11-05-03 Vertical Speed (VERT SPD)**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided Vertical Speed mode is not selected.

OPERATIONS (O)

1. Do not manually select Vertical Speed mode.
2. If Vertical Speed mode engages as the default autopilot mode, select a different pitch mode.


22-11-06 Mode Control Panel Switch Lights
22-11-06-01 Autopilot Engage Switch Lights (CMD)

Interval	Installed	Required	Procedure
C	3	2	

22-11-06 Mode Control Panel Switch Lights
22-11-06-02 Mode Selector Switch Lights
22-11-06-02A Any Two Inoperative

Interval	Installed	Required	Procedure
C	-	-	

Lights for any two switches may be inoperative.

NOTE: A switch with one lamp operational is considered to be operating normally.

OPERATIONS NOTE

Mode selector switch lights include autopilot system mode switch lights and thrust management system mode switch lights.

22-11-06 Mode Control Panel Switch Lights
22-11-06-02 Mode Selector Switch Lights
22-11-06-02B More Than Two Inoperative

Interval	Installed	Required	Procedure
B	-	0	

NOTE: A switch with one lamp operational is considered to be operating normally.

OPERATIONS NOTE

Mode selector switch lights include autopilot system mode switch lights and thrust management system mode switch lights.



22-14-01 Autoland Status Annunciators

Interval	Installed	Required	Procedure
C	2	0	PLACARD

Two required for CAT II / IIIa / IIIb approach.
May be inoperative provided approach minimums do not require their use.


22-14-02 Automatic Landing System (AUTOLAND)

Interval	Installed	Required	Procedure
C	1	0	PLACARD

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided approach minimums do not require its use.

22-14-02 Automatic Landing System (AUTOLAND)
22-14-02-01 Triple Channel Autoland (LAND 3)

Interval	Installed	Required	Procedure
C	1	0	PLACARD

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided approach minimums do not require its use.

MAINTENANCE NOTE

For a NO LAND 3 annunciation noted prior to departure with no other indications or messages, the aircraft may be dispatched with no maintenance action provided all three autopilots can be independently engaged on the ground. The ground autopilot engagement should be done while the airplane is parked.


22-21-01 Yaw Dampers

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided remaining yaw damper is verified to operate normally.

MAINTENANCE (M)

Verify the remaining yaw damper operates normally.

1. For yaw damper inoperative without visible external leakage:
 - A. Supply electrical power (AMM 24-22-00/201).
 - B. Supply hydraulic pressure (AMM 29-11-00/201).
 - C. Confirm the IRSs are aligned and in NAV mode (AMM 34-21-00/201).
 - D. Set the autopilot and flight director switches to OFF.
 - E. Confirm the engine indicating and crew alerting system is operational (AMM 31-41-00/501).
 - F. Select STATUS on the EICAS display select panel.
 - G. Set the operational (remaining) YAW DAMPER switch to ON and confirm the ON light is illuminated.
 - H. Confirm the operational yaw damper INOP indicator is extinguished.
 - I. Set the P61 panel YAW DMPR test switch to the operational yaw damper (L or R).
 - J. Confirm immediately that the operational yaw damper indicator is illuminated amber.
 - K. Confirm the rudder position indicator in the EICAS display shows the rudder moves approximately 3 degrees trailing edge right, 3 degrees trailing edge left, and then returns to center within 10 seconds. Rudder deflection of 3 degrees is represented by a 0.05 inch movement on the EICAS indicator scale.
 - L. Confirm the operational yaw damper INOP indicator is extinguished in approximately 10 seconds.
2. For yaw damper with visible external leakage:
 - A. Remove hydraulic pressure at the P5 panel:
 - 1) For left yaw damper actuator, remove left hydraulic pressure.
 - 2) For right yaw damper actuator, remove center hydraulic pressure.
 - B. Set the following P61 panel switches to OFF:
 - 1) FLT CONTROL SHUTOFF L
 - 2) FLT CONTROL SHUTOFF C
 - 3) FLT CONTROL SHUTOFF R



- C. Set the P10 control stand STAB TRIM switches to CUTOFF.
- D. Open the following P11 panel circuit breakers. Open the FLT CONT ELEC AC circuit breakers before the FLT CONT ELEC DC circuit breakers for each power supply.
 - 1) YAW DAMPER L
 - 2) FLT CONT ELEC 1L AC
 - 3) FLT CONT ELEC 1L DC
 - 4) FLT CONT ELEC 2L AC
 - 5) FLT CONT ELEC 2L DC
 - 6) YAW DAMPER R
 - 7) FLT CONT ELEC 1R AC
 - 8) FLT CONT ELEC 1R DC
 - 9) FLT CONT ELEC 2R AC
 - 10) FLT CONT ELEC 2R DC
 - 11) STAB TRIM SHUTOFF L
 - 12) STAB TRIM SHUTOFF CENTER
 - 13) FLT CONT SHUTOFF TAIL L
 - 14) FLT CONT SHUTOFF TAIL C
 - 15) FLT CONT SHUTOFF TAIL R
- E. Gain access to the leaking yaw damper servo (AMM 22-21-02/401).
- F. Disconnect the pressure and return lines from the leaking yaw damper servo.

NOTE: Use MS21913K4 plug and MS21914-4K cap or equivalent for pressure lines and MS21913D6 plug and MS21914-6D cap or equivalent for return lines.
- G. Cap the servo hydraulic ports.
- H. Plug the hydraulic lines.
- I. Close the open circuit breakers.
- J. Set the STAB TRIM switches to NORM.
- K. Set the following P61 panel switches to ON.
 - 1) FLT CONTROL SHUTOFF L
 - 2) FLT CONTROL SHUTOFF C
 - 3) FLT CONTROL SHUTOFF R
- L. Perform MEL Item 22-21-01 (M) procedure "For yaw damper inoperative without visible external leakage".


22-30-01 Thrust Management System (Including Autothrottle System)

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided approach minimums do not require its use.

MAINTENANCE (M)

Deactivate the thrust management computer.

1. Open and collar the following P11 panel circuit breakers:
 - A. TMC AC
 - B. TMC DC
 - C. TMC SERVO

NOTE: This procedure may also be used when the TMC is stuck in an initialization loop (flashing displays).

OPERATIONS NOTE

With an inoperative thrust management computer, the autothrottle system will be inoperative and the following flight deck displays will be affected:

1. EGT amber indications which are normally inhibited during takeoff or go-around will not be inhibited.
2. Reference EPR will not be available.
3. Assumed temperature will not be available.
4. Thrust reference modes (TO, CLB, etc.) will not be available.
5. FMC calculated fuel indications may become erroneous after engine start.

NOTE: OPS part number is displayed on the FMC IDENT page.

22-30-01 Thrust Management System (Including Autothrottle System)
22-30-01-01 Autothrottle Servo

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Autothrottles are deactivated.
- b. Approach minimums do not require use of autothrottle.


MAINTENANCE (M)

Deactivate the autothrottle system.

1. Confirm the A/T ARM switch on the glareshield is OFF.
2. Open and collar the P11 panel TMC SERVO circuit breaker. The thrust management computer and associated EICAS displays will operate normally.

NOTE: An electrical power interruption may cause the TMC calculated EICAS parameters to blank. Momentarily closing and then opening the TMC SERVO circuit breaker will restore the displays.

22-30-01 Thrust Management System (Including Autothrottle System)
22-30-01-02 Autothrottle Disconnect Switches
22-30-01-02A One Inoperative

Interval	Installed	Required	Procedure
C	2	1	PLACARD

Required for CAT II / IIIa / IIIb approach.

22-30-01 Thrust Management System (Including Autothrottle System)
22-30-01-02 Autothrottle Disconnect Switches
22-30-01-02B Both Inoperative

Interval	Installed	Required	Procedure
C	2	0	(M)

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided:

- a. Autothrottles are deactivated.
- b. Approach minimums do not require use of autothrottle.

MAINTENANCE (M)

Deactivate the autothrottle system.

1. Confirm the A/T ARM switch on the glareshield is OFF.
2. Open and collar the P11 panel TMC SERVO circuit breaker. The thrust management computer and associated EICAS displays will operate normally.



NOTE: An electrical power interruption may cause the TMC calculated EICAS parameters to blank. Momentarily closing and then opening the TMC SERVO circuit breaker will restore the displays.

22-30-01 Thrust Management System (Including Autothrottle System)
22-30-01-03 Thrust Mode Select Panel
22-30-01-03-01 Derate Switches

Interval	Installed	Required	Procedure
C	2	0	PLACARD

22-30-01 Thrust Management System (Including Autothrottle System)
22-30-01-03 Thrust Mode Select Panel
22-30-01-03-02 TEMP SEL Selector

Interval	Installed	Required	Procedure
C	1	0	PLACARD

22-30-01 Thrust Management System (Including Autothrottle System)
22-30-01-03 Thrust Mode Select Panel
22-30-01-03-03 TO/GA Switch

Interval	Installed	Required	Procedure
C	1	0	PLACARD

22-30-01 Thrust Management System (Including Autothrottle System)
22-30-01-03 Thrust Mode Select Panel
22-30-01-03-04 CLB Switch

Interval	Installed	Required	Procedure
C	1	0	(O)



May be inoperative provided Automatic Climb Thrust Select option is installed and operates normally.

OPERATIONS (O)

1. Automatic Climb Thrust Select option must be installed and operate normally.
2. Takeoff thrust reduction will be performed automatically upon selection of any pitch autopilot mode.
3. If a go-around is required, climb thrust must be set manually using FCOM/QRH data.

22-30-01 Thrust Management System (Including Autothrottle System)
22-30-01-03 Thrust Mode Select Panel
22-30-01-03-05 CON Switch

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided Max Continuous Thrust is set manually if required.

OPERATIONS (O)

Max continuous thrust must be set manually. Use FCOM/QRH data if max continuous thrust is required.

22-30-01 Thrust Management System (Including Autothrottle System)
22-30-01-03 Thrust Mode Select Panel
22-30-01-03-06 CRZ Switch

Interval	Installed	Required	Procedure
C	1	0	PLACARD


22-30-02 Go-Around Switches
22-30-02A One Inoperative

Interval	Installed	Required	Procedure
C	2	1	(M)

Required for CAT II / IIIa approach.

One may be inoperative provided:

- a. Approach minimums do not require its use.
- b. Remaining Go-Around switch is verified to operate normally.

MAINTENANCE (M)

Verify the remaining go-around switch operates normally.

1. Confirm the operative go-around switch commands both autopilot and autothrottle go-around mode:
 - A. Supply electrical power (AMM 24-22-00/201).
 - B. Confirm the following P11 panel circuit breakers are closed:
 - 1) MODE CONT PNL L
 - 2) FLT CONT CMPTR POWER L
 - 3) FLT CONT CMPTR SERVO L
 - 4) FLT CONT CMPTR PWR C
 - 5) FLT CONT CMPTR SERVO C
 - 6) MODE CONT PNL R
 - 7) FLT CONT CMPTR PWR R
 - 8) FLT CONT CMPTR SERVO R
 - 9) TMC AC
 - 10) TMC DC
 - 11) TMC SERVO
 - C. Do the MCDP Ground Test 13 - SW GA (FIM 22-00-03).
 - D. Set the MCDP ON/OFF switch to OFF.

22-30-02 Go-Around Switches
22-30-02B Both Inoperative

Interval	Installed	Required	Procedure
C	2	0	PLACARD

Required for CAT II / IIIa approach.

May be inoperative provided:

- a. Both thrust levers are operated manually for go-around.



- b. Autopilot and Flight Director are not used below 500 feet AGL or applicable approach minimum, whichever is higher.

NOTE: Flight Director Go-around and Windshear guidance are not available with both go-around switches inoperative.



22-34-01 Autothrottle Disconnect (A/T DISC) Light
22-34-01A Associated EICAS Annunciation Operative

Interval	Installed	Required	Procedure
C	1	0	

- May be inoperative provided:
- a. Associated EICAS annunciation operates normally.
 - b. Associated aural alert operates normally.
-

22-34-01 Autothrottle Disconnect (A/T DISC) Light
22-34-01B Autothrottle Not Used

Interval	Installed	Required	Procedure
C	1	0	

- May be inoperative provided:
- a. A/T ARM switch remains OFF.
 - b. Approach minimums do not require its use.
-



22-41-01 Maintenance Control Display Panel (MCDP)

Interval	Installed	Required	Procedure
D	1	0	

22-41-01 Maintenance Control Display Panel (MCDP)

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Interval	Installed	Required	Procedure
D	1	0	



Section 2

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Intentionally
Blank



23-10-01 Radio Tuning Panels (Digital RTP)

Interval	Installed	Required	Procedure
C	3	2	

One may be inoperative provided left Radio Tuning Panel operates normally.

**23-11-01 Communications Systems (VHF, HF, UHF) (ETOPS)**

Interval	Installed	Required	Procedure
D	3	2	PLACARD

Any in excess of those and not powered by a Standby Bus, may be inoperative.

23-11-01 Communications Systems (VHF, HF, UHF) (ETOPS)**23-11-01-01 VHF Comm****23-11-01-01-01 Frequency In Use Light**

Interval	Installed	Required	Procedure
C	2	1	PLACARD

23-11-01 Communications Systems (VHF, HF, UHF) (ETOPS)**23-11-01-01 VHF Comm****23-11-01-01-02 Frequency Transfer Switch****23-11-01-01-02A VHF Active Frequency Can Be Selected**

Interval	Installed	Required	Procedure
C	2	0	PLACARD

May be inoperative provided associated VHF active frequency can be selected.

23-11-01 Communications Systems (VHF, HF, UHF) (ETOPS)**23-11-01-01 VHF Comm****23-11-01-01-02 Frequency Transfer Switch****23-11-01-01-02B Not Required**

Interval	Installed	Required	Procedure
D	2	0	PLACARD

Any in excess of those and not powered by a Standby Bus, may be inoperative.


23-11-01 Communications Systems (VHF, HF, UHF) (ETOPS)
23-11-01-01 VHF Comm
23-11-01-01-03 Frequency Selector Knob

Interval	Installed	Required	Procedure
C	2	2	PLACARD

23-11-01 Communications Systems (VHF, HF, UHF) (ETOPS)
23-11-01-01 VHF Comm
23-11-01-01-04 Frequency Indication

Interval	Installed	Required	Procedure
C	4	2	PLACARD

23-11-01 Communications Systems (VHF, HF, UHF) (ETOPS)
23-11-01-02 High Frequency (HF) Communication System
23-11-01-02A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	2	1	(O)

May be inoperative while conducting operations that require two LRCS provided:

- SATCOM Voice or Data Link operates normally.
- Alternate procedures are established and used.
- SATCOM coverage is available over intended route of flight.
- If SATCOM Voice is to be used over intended route of flight, SATCOM Voice short codes (Inmarsat) or direct dial commercial numbers (IRIDIUM) must be available. If not available, prior coordination with appropriate ATS (FIR) facility is required.

NOTE: SATCOM is to be used only as a backup to normal HF communication unless otherwise authorized by appropriate ATS facilities.

OPERATIONS (O)

Establish alternate procedures. Extended over water operations that require two long range communications systems may be conducted with one operative HF-voice system and SATCOM, provided SATCOM coverage exists for the route of flight.



23-11-01 Communications Systems (VHF, HF, UHF) (ETOPS)

23-11-01-02 High Frequency (HF) Communication System

23-11-01-02B Not Required

Interval	Installed	Required	Procedure
D	2	0	PLACARD

Any in excess of those may be inoperative.

.....



23-11-02 Flight Deck Communications Systems (Datalink) ©

23-11-02A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

NOTE: This item is not a Boeing system. Information applicable to this installation is not provided.

23-11-02 Flight Deck Communications Systems (Datalink) ©

23-11-02B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.


23-21-01 Selective Call System (SELCAL) ©

23-21-01A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are used.

NOTE: The cabin to flight deck chime must operate normally for the crewmember interphone system.

OPERATIONS (O)

1. HF SELCAL inoperative:
Continuous listening watch on ATC HF frequencies is maintained when outside of VHF range.
2. VHF SELCAL inoperative:
Maintain contact VHF listening.
3. Interphone SELCAL inoperative:
Use PA and/or direct voice communication.

NOTE: Except MNPC Operations.

23-21-01 Selective Call System (SELCAL) ©

23-21-01B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.

NOTE: The cabin to flight deck chime must operate normally for the crewmember interphone system.

23-21-01 Selective Call System (SELCAL) ©
23-21-01-01 Channels
23-21-01-01A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided alternate procedures are used.



NOTE: The cabin to flight deck chime must operate normally for the crewmember interphone system.

OPERATIONS (O)

Continuously monitor appropriate radio frequencies.

23-21-01 Selective Call System (SELCAL) ©

23-21-01-01 Channels

23-21-01-01B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	-	0	

May be inoperative provided procedures do not require its use.

NOTE: The cabin to flight deck chime must operate normally for the crewmember interphone system.

**23-22-01 ACARS System (Is Not Used)**

23-22-01A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

NOTE: Any mode that operates normally may be used.

OPERATIONS (O)

Establish alternate procedures to use when the ACARS system is inoperative.

23-22-01 ACARS System (Is Not Used)

23-22-01B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use

NOTE: Any mode that operates normally may be used.

23-22-01 ACARS System (Is Not Used)

23-22-01-01 ACARS Printer

23-22-01-01A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures to use when the ACARS printer is inoperative.



23-22-01 ACARS System (Is Not Used)

23-22-01-01 ACARS Printer

23-22-01-01B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.


23-25-01 SAT Communication Systems (Is Not Used) ©

23-25-01A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures to use when the SATCOM system or individual components are inoperative.

23-25-01 SAT Communication Systems (Is Not Used) ©

23-25-01B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	-	0	

May be inoperative provided procedures do not require its use.

23-25-01 SAT Communication Systems (Is Not Used) ©

23-25-01-01 SATCOM Voice
23-25-01-01A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures to use when SATCOM voice is inoperative.


23-25-01 SAT Communication Systems (Is Not Used) ©

23-25-01-01 SATCOM Voice
23-25-01-01B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	-	0	

May be inoperative provided procedures do not require its use.

23-25-01 SAT Communication Systems (Is Not Used) ©

23-25-01-02 SATCOM Lights

23-25-01-02A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

1. Establish alternate procedures to use when SATCOM lights are inoperative.
2. If the affected SATCOM light on the HF/SAT transfer panel does not illuminate when the one time hi-lo chime sounds and there are no HF or VHF call panel illuminations, the SATCOM MAIN MENU page on the associated CDU may be displayed to verify receiving a SATCOM ground-to-air call.

23-25-01 SAT Communication Systems (Is Not Used) ©

23-25-01-02 SATCOM Lights

23-25-01-02B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	2	0	

May be inoperative provided procedures do not require its use.



- 23-31-01 Passenger Address System (PA) ©**
23-31-01-01 Passenger Configuration
23-31-01-01A Flight Attendant Alerting System Operative

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative provided:

- Alternate, normal and emergency procedures and/or operating restrictions are established and used.
- Flight attendant alerting system (audio and visual) operates normally.

NOTE: Any station function(s) that operate normally may be used.

OPERATIONS (O)

- Establish alternate procedures to use when the PA system is inoperative. These may be based on use of the cabin/service interphone system.
- Prior to flight, have the pilot in command brief cabin crew members on the emergency procedures that will be used.

- 23-31-01 Passenger Address System (PA) ©**
23-31-01-01 Passenger Configuration
23-31-01-01B Not Required

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- PA not required.
- Alternate, normal and emergency procedures, and/or operating restrictions are established and used.

NOTE: Any station function(s) that operate normally may be used.

OPERATIONS (O)

- Establish alternate procedures to use when the PA system is inoperative. These may be based on use of the cabin/service interphone system.
- Prior to flight, have the pilot in command brief cabin crew members on the emergency procedures that will be used.


23-31-01 Passenger Address System (PA) ©
23-31-01-01 Passenger Configuration
23-31-01-01-01 Lavatory Speakers

Interval	Installed	Required	Procedure
C	4	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures to use when lavatory speakers are inoperative.

23-31-01 Passenger Address System (PA) ©
23-31-01-01 Passenger Configuration
23-31-01-01-02 Cabin Speakers
23-31-01-01-02A Inoperative Speakers Not Adjacent

Interval	Installed	Required	Procedure
C	-	-	

May be inoperative provided inoperative speakers are not adjacent to each other.

23-31-01 Passenger Address System (PA) ©
23-31-01-01 Passenger Configuration
23-31-01-01-02 Cabin Speakers
23-31-01-01-02B Seat Not Occupied

Interval	Installed	Required	Procedure
C	-	-	(M)

No passenger seat or cabin attendant seat may be occupied from which Passenger Address System is not audible and intelligible and that seat must be blocked and placarded DO NOT OCCUPY.

MAINTENANCE (M)

For a seat from which the passenger address system is not audible and intelligible, block and placard the affected seat DO NOT OCCUPY.

**23-31-02 Pre-recorded Passenger Announcement System***********23-31-02A Alternate Procedures Required**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

1. Establish alternate procedures to use when the pre-recorded passenger announcement system is inoperative.
2. Prior to flight, have the pilot in command brief cabin crew members on the emergency procedures that will be used.

23-31-02 Pre-recorded Passenger Announcement System*********23-31-02B Procedures Do Not Require Use**

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.


23-40-01 Crewmember Interphone Systems ©
23-40-01-01 Passenger Configuration
23-40-01-01-01 Flight Deck to Cabin, Cabin to Flight Deck Functions

Interval	Installed	Required	Procedure
B	1	1	(O)

May be inoperative provided:

- Flight deck to cabin and cabin to flight deck interphone functions operate normally on at least fifty percent of cabin handsets.
- Alternate communication procedures between affected flight attendant stations are established and used.

NOTE: Any station function(s) that operate normally may be used.

OPERATIONS (O)

- Establish alternate procedures to use when the flight deck to cabin or cabin to flight deck functions of the crewmember interphone system are inoperative. These may be based on the use of the passenger address system.
- Prior to flight, have the pilot in command brief cabin crew members on the alternate emergency procedures that will be used.

23-40-01 Crewmember Interphone Systems ©
23-40-01-01 Passenger Configuration
23-40-01-01-02 Cabin to Cabin Function
23-40-01-01-02A Two Installed

Interval	Installed	Required	Procedure
B	2	0	(O)

May be inoperative provided alternate communications procedures between affected flight attendant stations are established and used.

NOTE: Any station function(s) that operate normally may be used.

OPERATIONS (O)

- Establish alternate procedures to use when the cabin to cabin function of the crewmember interphone system is inoperative. These may be based on the use of the passenger address system.
- Prior to flight, have the pilot in command brief cabin crew members on the alternate emergency procedures that will be used.


23-40-01 Crewmember Interphone Systems ©
23-40-01-01 Passenger Configuration
23-40-01-01-02 Cabin to Cabin Function
23-40-01-01-02B More Than Two Installed

Interval	Installed	Required	Procedure
B	2	0	(O)

May be inoperative provided:

- Cabin to cabin interphone functions operate normally on at least fifty percent of cabin handsets.
- Alternate communication procedures between affected flight attendant stations are established and used.

NOTE: Any station function(s) that operate normally may be used.

OPERATIONS (O)

- Establish alternate procedures to use when the cabin to cabin function of the crewmember interphone system is inoperative. These may be based on the use of the passenger address system.
- Prior to flight, have the pilot in command brief cabin crew members on the alternate emergency procedures that will be used.

23-40-01 Crewmember Interphone Systems ©
23-40-01-01 Passenger Configuration
23-40-01-01-03 Flight Deck to Ground Function
23-40-01-01-03-02 All Other Aircraft/Operations
23-40-01-01-03-02A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)
NORD WIND PROCEDURE:

NOTE: Use ICAO hand signals.

- During night operations, the marshaller will use a pair of same color light wands.
- During taxing or parking, the pilot must stop immediately if one or both of the marshaller's wands fail.



Marshalling signals from the pilot of aircraft to a marshaller	
Meaning of signal	Description of signal
Brakes engaged	Rise arm and hand, fist fingers extended, horizontally in front of face, then clench fist.
Brakes released	Raise arm, with fist clenched, horizontally in front of face, then extend fingers.
Insert chocks	Arms extended, palms outwards, move hands inwards to cross in front of face.
Remove chocks	Hands crossed in front of face, palms outwards, move arms outwards.
Ready to start engine	Raise the appropriate number of fingers on one hand indicating the number of the engine to be started.

MAINTENANCE (M)

Alternate procedures must be used

NORD WIND PROCEDURE:

NOTE: Use ICAO hand signals.

1. Marshalling signals for the guidance of aircraft on the ground are set out in section 5 of ICAO Annex 2-Rules of the Air. These signals should be used in order to standardize signalling between ground and flight personnel when required for aircraft entering, departing or manoeuvring within the movement area of an aerodrome
2. Marshalling signals are designed for use by the marshaller, with hands illuminated as necessary to facilitate observation by the pilot, and facing the aircraft in a position on the left side of the aircraft, where best seen by the pilot.
3. The aircraft engines are numbered from left to right, with the No. 1 engine being the left outer engine. That is right to left for a marshaller facing the aircraft.
4. Remember if you can not see the pilot he can not see you.



- 23-40-01 Crewmember Interphone Systems ©
- 23-40-01-01 Passenger Configuration
- 23-40-01-01-03 Flight Deck to Ground Function
- 23-40-01-01-03-02 All Other Aircraft/Operations
- 23-40-01-01-03-02B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	2	0	

May be inoperative provided procedures do not require its use.


23-41-01 Alerting System (Audio/Visual) ©
23-41-01-01 Passenger Configuration
23-41-01-01-01 Flight Deck Call Visual Alerting System

Interval	Installed	Required	Procedure
B	1	0	

May be inoperative provided flight deck audio alerting system operates normally.

NOTE: Flight deck audio alerting system must always be operative.

23-41-01 Alerting System (Audio/Visual) ©
23-41-01-01 Passenger Configuration
23-41-01-01-02 Flight Attendant Visual Alerting System

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative provided:

- PA system operates normally.
- If affected visual alerting system is used for lavatory smoke detector alerting, an alternate lavatory smoke detector alert (audio or visual) is installed and operates normally.
- Alternate procedures for contacting flight attendants are established and used.

NOTE 1: Passenger to Attendant Call System is considered an NEF item.

NOTE 2: Any visual alerting system function(s) that operates normally may be used.

OPERATIONS (O)

- Establish alternate procedures to use when the flight attendant visual alerting system is inoperative. These may be based on the use of remaining operative functions of the alerting system or on use of the passenger address system.
- Prior to flight, have the pilot in command brief cabin crew members on the alternate procedures that will be used.

**23-41-01 Alerting System (Audio/Visual) ©****23-41-01-01 Passenger Configuration****23-41-01-01-03 Flight Attendant Audio Alerting System**

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative provided:

- a. PA system operates normally.
- b. If affected audio alerting system is used for lavatory smoke detector alerting, an alternate lavatory smoke detector alert (audio or visual) is installed and operates normally.
- c. Alternate procedures for contacting flight attendants are established and used.

NOTE 1: Passenger to Attendant Call System is considered an NEF item.

NOTE 2: Any audio alerting system function(s) that operates normally may be used.

OPERATIONS (O)

1. Establish alternate procedures to use when the flight attendant audio alerting system is inoperative. These may be based on the use of remaining operative functions of the alerting system or on use of the passenger address system.
2. Prior to flight, have the pilot in command brief cabin crew members on the alternate procedures that will be used.

**23-42-01 Handset Systems****23-42-01-01 Passenger Configuration****23-42-01-01-01 Flight Deck***********23-42-01-01-01A Flight Deck to Cabin Communication Operative**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- Flight deck to cabin communication operates normally.
- Alternate procedures are established and used.

OPERATIONS (O)

- Establish alternate procedures to use when the flight deck handset is inoperative. These may be based on the use of the passenger address system and/or the cabin interphone system. Communication normally conducted using the flight deck handset can be conducted using the headset/boom microphone or using the hand microphone and headset or flight deck speakers.
- Prior to flight, have the pilot in command brief cabin crew members on the alternate emergency procedures that will be used.

23-42-01 Handset Systems**23-42-01-01 Passenger Configuration****23-42-01-01-01 Flight Deck***********23-42-01-01-01B Procedures Do Not Require Use**

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.

23-42-01 Handset Systems**23-42-01-01 Passenger Configuration****23-42-01-01-02 Cabin**

Interval	Installed	Required	Procedure
B	4	2	(O)



May be inoperative provided:

- a. Fifty percent of cabin handsets operate normally.
- b. Alternate communication procedures between affected flight attendant stations are established and used.

NOTE 1: An operative handset at an inoperative flight attendant seat shall not be counted to satisfy fifty percent requirement.

NOTE 2: Any handset function that operates normally may be used.

OPERATIONS (O)

1. Establish alternate procedures to use when cabin handsets are inoperative. These may be based on the use of the passenger address system and/or the cabin interphone system.
2. Prior to flight, have the pilot in command brief cabin crew members on the alternate emergency procedures that will be used.


23-43-01 Ground Crew Call System

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

NOTE: The cabin to flight deck chime must operate normally for the crewmember interphone system.

OPERATIONS (O)

1. Establish alternate procedures to use when any function of the ground crew call system, including the ground crew call horn, is inoperative. These alternate procedures should:
 - A. Provide for communication between the flight deck and appropriate ground crew members.
 - B. Provide for continuous monitoring of the flight deck (when the flight crew is not at their duty stations during ground operations) to ensure appropriate action in the event a fault develops during operation of the EE cooling system.
 - C. Ensure the inertial reference unit is not operating on DC power.

23-43-01 Ground Crew Call System
23-43-01-01 Ground Crew Call Horn

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

1. Establish alternate procedures to use when any function of the ground crew call system, including the ground crew call horn, is inoperative. These alternate procedures should:
 - A. Provide for communication between the flight deck and appropriate ground crew members.
 - B. Provide for continuous monitoring of the flight deck (when the flight crew is not at their duty stations during ground operations) to ensure appropriate action in the event a fault develops during operation of the EE cooling system.
 - C. Ensure the inertial reference unit is not operating on DC power.



23-51-03 Flight Deck Speakers

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided:

- a. Procedures do not require their use.
- b. TSO headset earphones/headphones (or equivalent) are installed and operate normally.

**23-51-04 Push-To-Talk (PTT) Switches****23-51-04-01 Control Wheel PTT Switches**

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided:

- Associated audio selector panel or glareshield PTT switch operates normally.
- Affected switch is deactivated.

MAINTENANCE (M)

Deactivate the inoperative control wheel PTT switch (AMM 23-51-03/401).

- For the captain's control wheel PTT switch, open the following P11 panel circuit breakers:
 - INTERPHONE CAPT or INTERPHONE FLT AMPL ASP 1 BAT PWR
 - INTERPHONE CAPT FLT AMPL or INTERPHONE FLT AMPL ASP 1 R PWR
- For the first officer's control wheel PTT switch, open the following P11 panel circuit breakers:
 - INTERPHONE F/O AUDIO or INTERPHONE ASP 2 BAT PWR
 - INTERPHONE F/O OBS or INTERPHONE ASP 2 R PWR
- Remove the two mounting screws of the inoperative control wheel PTT switch.
- Remove the PTT switch assembly.
- Disconnect the terminal lugs from the PTT switch.
- Cap and stow the affected wires in the control wheel horn.
- Reinstall the PTT switch assembly in the control wheel and secure with the two mounting screws.
- Close the open circuit breakers.
- Confirm the switch is deactivated.
 - Supply electrical power (AMM 24-22-00/201).
 - Select BOOM on the audio selector panel and use the boom microphone for this test.
 - Push the INT select switch on the associated audio selector panel, confirm the INT MIC light is illuminated and confirm the receiver volume is properly adjusted.
 - For the deactivated switch, speak into the boom microphone while simultaneously pushing the deactivated PTT switch. Confirm no transmission is heard on the other pilot's headset.



- E. (Optional) For the remaining operative switches:
- 1) Speak into the associated pilot's microphone while simultaneously pushing the audio selector panel PTT switch. Confirm the transmission is clearly heard on the other pilot's headset.
 - 2) Speak into the associated pilot's microphone while simultaneously pushing the glareshield (if installed) PTT switch. Confirm the transmission is clearly heard on the other pilot's headset.

23-51-04 Push-To-Talk (PTT) Switches**23-51-04-02 Flightcrew Audio Selector Panel PTT Switches**

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided:

- a. Associated control wheel or glareshield PTT switch operates normally.
- b. Affected switch is verified failed open.

MAINTENANCE (M)

Verify the inoperative audio selector panel PTT switch is open.

1. Supply electrical power (AMM 24-22-00/201).
2. Select BOOM on the audio selector panel and use the boom microphone for this test.
3. Press the PA select switch on the associated audio selector panel, confirm the PA MIC light is illuminated and confirm the receiver volume is properly adjusted.
4. Without pressing PTT on the audio selector panel, speak into the boom microphone and confirm no voice transmission can be heard over the passenger address system.

NOTE: If voice transmission can be heard, the switch is failed in the closed position and the audio selector panel must be replaced prior to dispatch.

5. (Optional) For the remaining operative switches:
 - A. Speak into the associated pilot's microphone while simultaneously pushing the control wheel PTT switch. Confirm the transmission is clearly heard on the other pilot's headset.
 - B. Speak into the associated pilot's microphone while simultaneously pushing the glareshield (if installed) PTT switch. Confirm the transmission is clearly heard on the other pilot's headset.

**23-51-04 Push-To-Talk (PTT) Switches****23-51-04-03 Glareshield PTT Switches**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided:

- Associated audio selector panel or control wheel PTT switch operates normally.
- Affected switch is deactivated.

MAINTENANCE (M)

Deactivate the inoperative glareshield panel PTT switch.

- For the captain's glareshield panel PTT switch, open the following P11 panel circuit breakers:
 - INTERPHONE CAPT or INTERPHONE FLT AMPL ASP 1 BAT PWR
 - INTERPHONE CAPT FLT AMPL or INTERPHONE FLT AMPL ASP 1 R PWR
- For the first officer's glareshield panel PTT switch, open the following P11 panel circuit breakers:
 - INTERPHONE F/O AUDIO or INTERPHONE ASP 2 BAT PWR
 - INTERPHONE F/O OBS or INTERPHONE ASP 2 R PWR
- Remove the glareshield panel to gain access to the PTT wires (AMM 25-13-03/401).
- Pull the switch panel out of the glareshield panel and disconnect the wires from the PTT switch.
- Cap and stow the affected wires.
- Install the switch panel in the glareshield panel.
- Reinstall the glareshield panel (AMM 25-13-03/401).
- Close the open circuit breakers.
- Confirm the switch is deactivated:
 - Supply electrical power (AMM 24-22-00/201).
 - Select BOOM on the audio selector panel and use the boom microphone for this test.
 - Push the INT select switch on the associated audio selector panel, confirm the INT MIC light is illuminated and confirm the receiver volume is properly adjusted.
 - For the deactivated switch, speak into the boom microphone while simultaneously pushing the deactivated PTT switch. Confirm no transmission is heard on the other pilot's headset.



- E. (Optional) For the remaining operative switches:
- 1) Speak into the associated pilot's microphone while simultaneously pushing the control wheel PTT switch. Confirm the transmission is clearly heard on the other pilot's headset.
 - 2) Speak into the associated pilot's microphone while simultaneously pushing the audio selector panel PTT switch. Confirm the transmission is clearly heard on the other pilot's headset.


23-51-05 Flight Crew Communication Equipment

Interval	Installed	Required	Procedure
D	-	-	

Any Boom and/or Hand microphone in excess of those required for flight deck crewmembers may be inoperative or missing.

23-51-05 Flight Crew Communication Equipment
23-51-05-01 Boom Microphones

Interval	Installed	Required	Procedure
A	3	0	

May be inoperative or missing provided:

- Associated hand microphone is installed and operates normally.
 - Flight Data Recorder (FDR) operates normally.
 - Repairs are made within three flight days.
-

23-51-05 Flight Crew Communication Equipment
23-51-05-02 Hand Microphones
23-51-05-02A Boom Microphone Operative

Interval	Installed	Required	Procedure
C	3	0	

May be inoperative or missing provided associated boom microphone operates normally.

23-51-05 Flight Crew Communication Equipment
23-51-05-02 Hand Microphones
23-51-05-02B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	3	0	

May be inoperative or missing provided procedures do not require its use.



23-51-05 Flight Crew Communication Equipment

23-51-05-03 TSO Headset Earphones/Headphones

Interval	Installed	Required	Procedure
C	3	1	

Either captain's or first officer's earphone/headphone may be inoperative or missing provided associated flight deck speaker operates normally.


23-70-01 Flight Deck Door Visual Surveillance Systems ©
23-70-01-01 Electronic System

23-70-01-01A Alternate Procedures Required

Interval	Installed	Required	Procedure
A	1	0	(O)

May be inoperative provided:

- Alternate procedures are established and used.
- Repairs are made within three flight days.

NOTE 1: Alternate procedures refer to OM B-757 Part A, V.2, 8.3.16.

 NOTE 2: Flight Deck Door Visual Surveillance systems are not Boeing systems.
 Information applicable to these installations is not provided.

23-70-01 Flight Deck Door Visual Surveillance Systems ©
23-70-01-01 Electronic System

23-70-01-01B Flight Deck Door Viewing Port Installed

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- A flight deck door viewing port is installed and operates normally.
- Alternate procedures are established and used.

NOTE 1: Alternate procedures refer to OM B-757 Part A, V.2, 8.3.16.

 NOTE 2: Flight Deck Door Visual Surveillance systems are not Boeing systems.
 Information applicable to these installations is not provided.

23-70-01 Flight Deck Door Visual Surveillance Systems ©
23-70-01-01 Electronic System

23-70-01-01C Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.


23-70-01 Flight Deck Door Visual Surveillance Systems ©
23-70-01-02 Viewing Ports

23-70-01-02A Alternate Procedures Required

Interval	Installed	Required	Procedure
A	1	0	(O)

May be inoperative provided:

- a. Alternate procedures are established and used.
- b. Repairs are made within three flight days.

NOTE 1: Alternate procedures refer to OM B-757 Part A, V.2, 8.3.16.

 NOTE 2: Flight Deck Door Visual Surveillance systems are not Boeing systems.
 Information applicable to these installations is not provided.

23-70-01 Flight Deck Door Visual Surveillance Systems ©
23-70-01-02 Viewing Ports

23-70-01-02B Electronic Visual Surveillance System Installed

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. An electronic flight deck door visual surveillance system is installed and operates normally.
- b. Alternate procedures are established and used.

NOTE 1: Alternate procedures refer to OM B-757 Part A, V.2, 8.3.16.

 NOTE 2: Flight Deck Door Visual Surveillance systems are not Boeing systems.
 Information applicable to these installations is not provided.



23-71-01 Cockpit Voice Recorder (CVR) System

Interval	Installed	Required	Procedure
A	1	0	

May be inoperative provided:

- a. Flight Data Recorder (FDR) operates normally.
- b. Repairs are made within three flight days.



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Section 2

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24-00-01 Engine Generator Systems (IDG, GCB) (ETOPS)

Interval	Installed	Required	Procedure
A	2	1	(M) (O)

Except for ER operations beyond 120 minutes, one may be inoperative provided:

- Repairs are made within 3 (three) flight legs.
- APU and APU generator operates normally and is used to supply busses of inoperative channel throughout flight.
- All generator control units, including APU, operate normally.
- For ER operations, Hydraulic Motor Generator (HMG) is verified to operate normally.
- If APU has been operating for an extended period of time in heavy falling or blowing snow, inspect inlet plenum before departure to verify that accumulations of snow or ice are not present.

NOTE: Before each flight to perform MANDATORY APU INSPECTION.

MAINTENANCE (M)
MANDATORY APU INSPECTION:

- Perform APU External Inspection IAW (AMM 49-21-00-216-001).
- Make sure the APU oil level is FULL on the sight gage, otherwise fill the APU oil to FULL level IAW (AMM 12-13-04-613-001).

Deactivate the IDG by disconnection, and for ER operations verify the HMG operates normally.

- To deactivate the IDG (AMM 24-11-00/501):
 - Start the associated engine (AMM 71-00-00/201).
 - After stable idle is reached, momentarily press the associated L(R) GEN DRIVE DISC switch.
 - Confirm the following readings for the appropriate power channel on the lower EICAS display:
 - AC-V = 0 ± 5
 - FREQ = 0 ± 5
 - Confirm the following advisory messages are displayed:
 - L(R) GEN OFF
 - L(R) GEN DRIVE

NOTE 1: If the IDG charge pressure switch has been confirmed to be failed, then the L(R) GEN DRIVE message and associated illumination of the drive light on the P5 control panel will not annunciate. In this case, checking for voltage, frequency, and the L(R) GEN OFF message per the above steps is sufficient as an alternate means of verifying IDG disconnect.



NOTE 2: During the authorized repair interval, if the associated engine is operated for more than 50 hours with the IDG disconnected, the IDG should be removed for shop inspection prior to returning the airplane to service.

NOTE 3: It is acceptable to dispatch with low or no oil in the IDG if the IDG is disconnected.

2. For ER operations, confirm the HMG operates normally by performing the Functional Test - Hydraulic Motor Generator System (Short Test) (AMM 24-25-00/501).

OPERATIONS (O)

1. Apply takeoff performance adjustments for APU on.
2. The average fuel consumption for APU operation is 200 lbs (90 kg) per hour.
3. Set the associated GEN CONT switch to OFF.
4. Start the APU.
5. After APU start, confirm the amber BUS OFF, APU GEN OFF and UTILITY BUS OFF lights are not illuminated.

**24-00-02 APU Generator (ETOPS)****24-00-02A Except ER Operations**

Interval	Installed	Required	Procedure
C	1	0	

Except for ER operations, may be inoperative provided both engine generators operate normally.

MAINTENANCE NOTE

If appropriate, remove the APU generator.

1. For failure where APU operation could cause additional generator damage, remove the APU generator for dispatch.
 - A. Remove the APU generator (AMM 24-21-01/401).
 - B. Set the nuts on the APU mount pad studs so that at least one inch is between nuts and seal plates.
 - C. Secure the four power leads disconnected from the generator to prevent damage or arcing.
 - D. Install the APU generator dispatch kit on the APU mounting pad.

NOTE: The APU generator removed dispatch kit, B49006-1, is stowed in the flight dispatch kit in the forward cargo compartment.
 - E. Pass the APU mounting pad studs through the keyholes in the generator cover box.
 - F. Rotate the generator cover box counterclockwise to allow the studs to move into the smaller part of the generator cover box keyholes.
 - G. Tighten the stud nuts to 260-320 pound-inches.
 - H. Replenish APU oil (AMM 12-13-04/301).

OPERATIONS NOTE

1. For APU generator removed, account for the effect on airplane weight and balance.
2. Set the APU GEN switch to OFF.
3. For external power not available, engine start can be accomplished with the following battery start procedure:

NOTE: Ground air source is required.

 - A. Do the FCOM Supplementary Procedure Electrical Power Up to the step "Electrical Power Establish".
 - B. Set the engine ignition selector to 1 or 2.
 - C. Set the isolation switch to ON.
 - D. Position the speedbrake lever DOWN.
 - E. Position the reverse thrust levers down.



- F. Position the forward thrust levers closed.
- G. Set the flap lever to agree with flap position.
- H. Set the parking brake.
- I. Set the fuel control switches to CUTOFF.
- J. Set the left audio selector panel.
- K. Set the hydraulic panel right electric pump switch to ON.
- L. Set the pack control selectors to OFF.
 NOTE: Pack valves, if not closed during previous airplane shutdown, must be closed by the ground crew prior to engine start.
- M. Start one engine using the standby engine indicator. Observe EGT start limit.

24-00-02 APU Generator (ETOPS)
24-00-02B Except ER Operations Beyond 120 Minutes

Interval	Installed	Required	Procedure
B	1	0	(M)

Except for ER operations beyond 120 minutes, may be inoperative provided:

- a. Both engine generators operate normally.
- b. Hydraulic Motor Generator (HMG) is verified to operate normally.

MAINTENANCE (M)

Verify the hydraulic motor generator operates normally and, if appropriate, remove the APU generator.

1. Confirm the HMG operates normally by performing the Functional Test - Hydraulic Motor Generator System (Short Test) (AMM 24-25-00/501).
2. For failure where APU operation could cause additional generator damage, remove the APU generator for dispatch.
 - A. Remove the APU generator (AMM 24-21-01/401).
 - B. Set the nuts on the APU mount pad studs so that at least one inch is between nuts and seal plates.
 - C. Secure the four power leads disconnected from the generator to prevent damage or arcing.
 - D. Install the APU generator dispatch kit on the APU mounting pad.
 NOTE: The APU generator removed dispatch kit, B49006-1, is stowed in the flight dispatch kit in the forward cargo compartment.
 - E. Pass the APU mounting pad studs through the keyholes in the generator cover box.



- F. Rotate the generator cover box counterclockwise to allow the studs to move into the smaller part of the generator cover box keyholes.
- G. Tighten the stud nuts to 260-320 pound-inches.
- H. Replenish APU oil (AMM 12-13-04/301).

OPERATIONS NOTE

- 1. For APU generator removed, account for the effect on airplane weight and balance.
- 2. Set the APU GEN switch to OFF.
- 3. For external power not available, engine start can be accomplished with the following battery start procedure:

NOTE: Ground air source is required.

- A. Do the FCOM Supplementary Procedure Electrical Power Up to the step "Electrical Power Establish".
- B. Set the engine ignition selector to 1 or 2.
- C. Set the isolation switch to ON.
- D. Position the speedbrake lever DOWN.
- E. Position the reverse thrust levers down.
- F. Position the forward thrust levers closed.
- G. Set the flap lever to agree with flap position.
- H. Set the parking brake.
- I. Set the fuel control switches to CUTOFF.
- J. Set the left audio selector panel.
- K. Set the hydraulic panel right electric pump switch to ON.
- L. Set the pack control selectors to OFF.

NOTE: Pack valves, if not closed during previous airplane shutdown, must be closed by the ground crew prior to engine start.

- M. Start one engine using the standby engine indicator. Observe EGT start limit.

**24-11-01 Generator DRIVE Lights****24-11-01A EICAS Message Operative**

Interval	Installed	Required	Procedure
B	2	1	(M)

One may be inoperative off provided associated EICAS message is verified to operate normally.

MAINTENANCE (M)

Verify the associated EICAS message operates normally.

1. Start the associated engine (AMM 71-00-00/201).
2. Disconnect the associated IDG by pushing the disconnect switch on the overhead panel (AMM 24-11-00/501).
3. Confirm the associated L (R) GEN DRIVE message is displayed.
4. Stop the associated engine (AMM 71-00-00/201).
5. Reconnect the associated IDG (AMM 24-11-00/501).

24-11-01 Generator DRIVE Lights**24-11-01B IDG Disconnected**

Interval	Installed	Required	Procedure
B	2	1	(M)

One may be inoperative off provided associated IDG is disconnected.

NOTE: Also dispatch the airplane using MEL Item 24-00-01.

MAINTENANCE (M)

Disconnect the IDG using MEL Item 24-00-01 (M) procedure.



- 24-25-01 Hydraulic Motor Generator (HMG) (ETOPS)**
24-25-01-01 Air Data Computer (ADC) Equipped Airplanes
24-25-01-01A Except ER Operations

Interval	Installed	Required	Procedure
C	1	0	(O)

Except for ER operations, may be inoperative provided:

- Center IRS operates normally.
- First officer's IRS instrument source select switch operates normally.

OPERATIONS (O)

For loss of all AC power, the captain's RDMI information may be lost. The captain's RDMI information may be recovered by selecting ALTN on the first officer's IRS instrument source selector panel.

- 24-25-01 Hydraulic Motor Generator (HMG) (ETOPS)**
24-25-01-01 Air Data Computer (ADC) Equipped Airplanes
24-25-01-01B Except ER Operations, Day VMC Flight

Interval	Installed	Required	Procedure
C	1	0	

Except for ER operations, may be inoperative for Day VMC flight.

- 24-25-01 Hydraulic Motor Generator (HMG) (ETOPS)**
24-25-01-01 Air Data Computer (ADC) Equipped Airplanes
24-25-01-01C Except ER Operations Beyond 120 Minutes

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

For ER operations up to 120 minutes, may be inoperative provided:

- Both engine generators and APU generator operate normally.
- Center IRS operates normally.
- First officer's IRS instrument source select switch operates normally.

**MAINTENANCE (M)**

Deactivate the inoperative HMG and secure the associated HMG shutoff valve in the closed (not running) position.

1. Open and collar the following circuit breakers:
 - A. P6 panel, HYD GEN CONT
 - B. P11 panel, AC BUS SENSE LEFT
 - C. P11 panel, AC BUS SENSE RIGHT
2. Secure the hydraulic motor generator shutoff valve in the closed (not running) position:
 - A. Open the left wheel well door and install the door lock (AMM 32-00-15/201).
 - B. Move the manual override arm indicator on the shutoff valve to the closed position (POS 2).
 - C. Lockwire the manual override arm position indicator (in the closed position) to the metal tab attached to the electrical connector on the valve motor body.
 - D. Remove the wheel well door lock (AMM 32-00-15/201).

OPERATIONS (O)

For loss of all AC power, the captain's RDMI information may be lost. The captain's RDMI information may be recovered by selecting ALTN on the first officer's IRS instrument source selector panel.

24-25-01 Hydraulic Motor Generator (HMG) (ETOPS)**24-25-01-01 Air Data Computer (ADC) Equipped Airplanes****24-25-01-01D APU Run During ETOPS Segment**

Interval	Installed	Required	Procedure
A	1	0	(M) (O)

For ER operations beyond 120 minutes, may be inoperative provided:

- a. Both engine generators and APU generator operate normally.
 - b. APU is started before reaching ETOPS segment, then operated continuously until within 60 minutes of a suitable airport.
 - c. Center IRS operates normally.
 - d. First officer's IRS instrument source select switch operates normally.
 - e. Operations are limited to not more than three flight days before repair is made.
-

**MAINTENANCE (M)**

Deactivate the inoperative HMG and secure the associated HMG shutoff valve in the closed (not running) position.

1. Open and collar the following circuit breakers:
 - A. P6 panel, HYD GEN CONT
 - B. P11 panel, AC BUS SENSE LEFT
 - C. P11 panel, AC BUS SENSE RIGHT
2. Secure the hydraulic motor generator shutoff valve in the closed (not running) position:
 - A. Open the left wheel well door and install the door lock (AMM 32-00-15/201).
 - B. Move the manual override arm indicator on the shutoff valve to the closed position (POS 2).
 - C. Lockwire the manual override arm position indicator (in the closed position) to the metal tab attached to the electrical connector on the valve motor body.
 - D. Remove the wheel well door lock (AMM 32-00-15/201).

OPERATIONS (O)

1. Observe MMEL requirements for operation of APU during the ETOPS segment.
2. The average fuel consumption for APU operation is 200 lbs (90 kg) per hour.
3. For loss of all AC power, the captain's RDMI information may be lost. The captain's RDMI information may be recovered by selecting ALTN on the first officer's IRS instrument source selector panel.



- 24-25-02 Hydraulic Motor Generator Valve (ETOPS)**
24-25-02-01 Air Data Computer (ADC) Equipped Airplanes
24-25-02-01A Except ER Operations

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

Except for ER operations, may be inoperative closed provided:

- Center IRS operates normally.
- First officer's IRS instrument source select switch operates normally.

MAINTENANCE (M)

Secure the HMG valve closed using MEL Item 24-25-01 (M) procedure.

OPERATIONS (O)

For loss of all AC power, the captain's RDMI information may be lost. The captain's RDMI information may be recovered by selecting ALTN on the first officer's IRS instrument source selector panel.

- 24-25-02 Hydraulic Motor Generator Valve (ETOPS)**
24-25-02-01 Air Data Computer (ADC) Equipped Airplanes
24-25-02-01B Except ER Operations, Day VMC Flight

Interval	Installed	Required	Procedure
C	1	0	(M)

Except for ER operations, may be inoperative closed for Day VMC flight.

MAINTENANCE (M)

Secure the HMG valve closed using MEL Item 24-25-01 (M) procedure.

- 24-25-02 Hydraulic Motor Generator Valve (ETOPS)**
24-25-02-01 Air Data Computer (ADC) Equipped Airplanes
24-25-02-01C Except ER Operations Beyond 120 Minutes

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

For ER operations up to 120 minutes, may be inoperative closed provided:

- Both engine generators and APU generator operate normally.



- b. Center IRS operates normally.
 - c. First officer's IRS instrument source select switch operates normally.
-

MAINTENANCE (M)

Secure the HMG valve closed using MEL Item 24-25-01 (M) procedure.

OPERATIONS (O)

For loss of all AC power, the captain's RDML information may be lost. The captain's RDML information may be recovered by selecting ALTN on the first officer's IRS instrument source selector panel.

-
- 24-25-02 Hydraulic Motor Generator Valve (ETOPS)**
24-25-02-01 Air Data Computer (ADC) Equipped Airplanes
24-25-02-01D APU Run During ETOPS Segment

Interval	Installed	Required	Procedure
A	1	0	(M) (O)

For ER operations beyond 120 minutes, may be inoperative closed provided:

- a. Both engine generators and APU generator operate normally.
 - b. APU is started before reaching ETOPS segment, then operated continuously until within 60 minutes of a suitable airport.
 - c. Center IRS operates normally.
 - d. First officer's IRS instrument source select switch operates normally.
 - e. Operations are limited to not more than three flight days before repair is made.
-

MAINTENANCE (M)

Secure the HMG valve closed using MEL Item 24-25-01 (M) procedure.

OPERATIONS (O)

- 1. Observe MMEL requirements for operation of APU during the ETOPS segment.
- 2. The average fuel consumption for APU operation is 200 lbs (90 kg) per hour.
- 3. For loss of all AC power, the captain's RDML information may be lost. The captain's RDML information may be recovered by selecting ALTN on the first officer's IRS instrument source selector panel.



24-25-03 Flight Instrument Bus Power Switch (ETOPS)

Interval	Installed	Required	Procedure
C	1	0	

Except for ER operations, may be inoperative provided HMG is not required.



24-27-01 BUS OFF Lights

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative provided Bus Tie ISLN lights and associated GEN CONT OFF light operates normally.

OPERATIONS (O)

1. After starting engines, confirm the BUS TIE ISLN lights are not illuminated.
2. Confirm the associated GEN CONT OFF light is not illuminated.
3. Inflight illumination of both the BUS TIE ISLN and GEN CONT OFF lights for a bus indicates the bus is unpowered. Do the AC BUS OFF Non-Normal Checklist.

**24-27-02 GEN CONT OFF Lights****24-27-02A Associated EICAS Message Operative**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided associated EICAS message L(R) GEN OFF is verified to operate normally.

MAINTENANCE (M)

Verify the associated EICAS advisory message operates normally.

1. Start the associated engine (AMM 71-00-00/201).
2. Set the associated GEN CONT switch to ON.
3. Confirm the associated L(R) GEN OFF advisory message does not annunciate.
4. Set the associated GEN CONT switch to OFF.
5. Confirm the associated L(R) GEN OFF advisory message annunciates.
6. Set the associated GEN CONT switch to ON.

OPERATIONS (O)

Substitute the L(R) GEN OFF advisory message for the inoperative GEN CONT OFF light in the GENERATOR OFF Non-Normal Checklist.

24-27-02 GEN CONT OFF Lights**24-27-02B Associated Generator Inoperative**

Interval	Installed	Required	Procedure
B	2	1	

One may be inoperative for an associated inoperative generator.

**24-27-03 APU GEN OFF Light (ETOPS)****24-27-03A Associated EICAS Message Operative**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided EICAS message APU GEN OFF is verified to operate normally.

MAINTENANCE (M)

Verify the APU GEN OFF advisory message operates normally.

1. Start the APU (AMM 49-11-00/201).
2. Confirm the APU RUN light illuminates.
3. Set the APU GENERATOR CONTROL switch to OFF.
4. Confirm the APU GEN OFF advisory message annunciates.

24-27-03 APU GEN OFF Light (ETOPS)**24-27-03B APU Generator Not Required**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided APU generator is not required for flight.

NOTE: The APU, and APU generator, may be required for ETOPS dispatch.

OPERATIONS NOTE

The proviso wording “not required for flight” means use of the APU generator cannot be planned, but if there is an IDG failure during flight it could be used.



24-27-04 BUS TIE ISLN Lights

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated BUS OFF light operates normally.



24-27-05

UTILITY BUS OFF Lights

Interval	Installed	Required	Procedure
C	2	0	



24-27-06 Generator FIELD OFF Lights

Interval	Installed	Required	Procedure
D	3	0	



24-30-01 Standby Power Bus OFF Light

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- a. Both EICAS systems operate normally.
- b. All other Standby Bus indications are verified to operate normally.

MAINTENANCE (M)

Verify all other standby bus indications operate normally.

- 1. Supply electrical power (AMM 24-22-00/201).
- 2. Confirm the BAT switch is ON.
- 3. Set the STBY POWER selector to OFF, then BAT, then AUTO and confirm the following conditions:
 - A. OFF - the STANDBY BUS OFF advisory message annunciates.
 - B. BAT - the DISCH light illuminates, the STANDBY BUS OFF advisory message does not annunciate.
 - C. AUTO - the DISCH light extinguishes, the STANDBY BUS OFF advisory message does not annunciate.

OPERATIONS (O)

Substitute the STANDBY BUS OFF advisory message for the inoperative standby power bus OFF light in the STANDBY BUS OFF Non-Normal Checklist.

**24-31-01 APU Battery (ETOPS)**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- APU battery is deactivated or removed.
 - APU is considered inoperative.
 - Operations do not require paralleling of Main and APU batteries.
-

NOTE 1: Also dispatch the airplane using MEL Item 49-11-01.

NOTE 2: The APU battery may be required for those aircraft that have the APU battery paralleled with the main batteries to meet regulatory requirements for standby power. This is not an FAR requirement. Each operator should review their respective regulatory agency requirements to determine whether this MMEL relief is appropriate for their operation.

MAINTENANCE (M)

Deactivate the battery and, if desired, remove it.

- Deactivate the battery:
 - Open and collar the P37 panel APU BATTERY CHARGER circuit breaker.
 - Open and collar the P6 panel APU/MAIN BAT TIE circuit breaker.
 - Open and collar the P11 panel EXT STBY BAT circuit breaker.
 - Open and collar the E6 rack (forward side) APU BAT CHGR circuit breaker.
 - Gain access to the APU battery (AMM 24-31-03/401).
 - Remove the battery MAIN POWER connector.
 - Remove the thermal sensor connector.
- If desired, remove the battery (AMM 24-31-03/401).
- Also dispatch the airplane using MEL Item 49-11-01.

OPERATIONS (O)

- For APU battery removed, account for the effect on airplane weight and balance. The battery weighs 96 lb (44 kg).
- The APU cannot be started with the battery inoperative, deactivated or removed.

**24-31-02 APU Battery Charger (ETOPS)**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. APU battery charger is deactivated or removed.
- b. APU is not required.
- c. Operations do not require paralleling of Main and APU batteries.

NOTE 1: Under standard day conditions, up to 3 APU starts may be made with a fully charged APU battery. This MEL item does not preclude starting the APU, nor does it allow dispatch credit for the APU generator or the APU pneumatics.

NOTE 2: The APU battery may not be fully charged. A fully charged APU battery may be required for those aircraft that have the APU battery paralleled with the main batteries to meet regulatory requirements for standby power. This is not an FAR requirement. Each operator should review their respective regulatory agency requirements to determine whether this MMEL relief is appropriate for their operation.

NOTE 3: The APU, and APU generator, may be required for ETOPS dispatch.

MAINTENANCE (M)

Deactivate or remove the battery charger.

1. To remove the APU battery charger (AMM 24-31-04/401):
 - A. Open and collar the P37 panel APU BATTERY CHARGER circuit breaker.
 - B. Open the E6 rack (forward side) APU BAT CHGR circuit breaker.
 - C. Remove the electrical connector from the charger.
 - D. Cap and stow the connector.
 - E. Remove the terminal block cover from the battery charger.
 - F. Remove terminal block leads from the battery charger and identify for reinstallation.
 - G. Cap and stow the terminal leads.
 - H. Remove the APU battery charger.
 - I. Close the E6 rack (forward side) APU BAT CHGR circuit breaker.
2. To deactivate the APU battery charger without removal:

NOTE: This deactivation procedure will prevent APU start attempts.

- A. Open and collar the P37 panel APU BATTERY CHARGER circuit breaker.



- B. Open and collar the E6 rack (forward side) APU BAT CHGR circuit breaker.

OPERATIONS NOTE

For APU battery charger removed, account for the effect on airplane weight and balance.

**24-32-01 APU Start Transformer Rectifier Unit (ETOPS)****24-32-01A APU Considered Inoperative**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided APU is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 49-11-01

OPERATIONS NOTE

Since the APU TRU is not deactivated, it will not be possible to start the APU while the main AC busses are powered. The APU will not be available in flight.

24-32-01 APU Start Transformer Rectifier Unit (ETOPS)**24-32-01B APU TRU Deactivated**

Interval	Installed	Required	Procedure
D	1	0	(M)

May be inoperative provided APU TRU is deactivated.

MAINTENANCE (M)

Deactivate the APU TRU by opening and collaring the P32 panel APU START TRU POWER circuit breaker (right generator power panel in the main equipment center).

**24-41-01 External Power System**

Interval	Installed	Required	Procedure
C	1	0	

24-41-01 External Power System**24-41-01-01 EXT PWR AVAIL Light (Flight Deck)**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures using hand signals, flight deck to ground communication systems or other means to compensate for the inoperative light.

24-41-01 External Power System**24-41-01-02 EXT PWR ON Light (Flight Deck)**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures using hand signals, flight deck to ground communication systems or other means to compensate for the inoperative light.

24-41-01 External Power System**24-41-01-03 AC PWR CONNECTED Light (External Power Panel)**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures using hand signals, flight deck to ground communication systems or other means to compensate for the inoperative light.



24-41-01 External Power System
24-41-01-04 PWR NOT IN USE Light (External Power Panel)

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures using hand signals, flight deck to ground communication systems or other means to compensate for the inoperative light.

**24-51-01 Utility Bus Systems**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

Left bus may be inoperative provided left bus is deactivated.

MAINTENANCE (M)

Deactivate the inoperative bus.

1. Open and collar the P11 panel UTIL BUS L circuit breaker:
2. Equipment powered by the utility busses varies with airplane configuration. Examine customized airplane documentation for a complete list of equipment powered by the utility busses on specific airplanes. Examples of equipment powered by the left utility bus are given in the following table.

**Left Utility Bus**

Circuit Breaker	MEL Reference
Fwd Cargo Fan	21-40-1
Aft Cargo Heater	21-40-2
Capt Aux Heater Lo	21-45-1
Capt Aux Heater Hi	21-45-1
Door 2 Heaters	21-45-3
Door 4 Heaters	21-45-3
O/W Exit Hatch Heaters-L	21-45-3
Fwd Left Pass Reading Lights	25-20-1
Aft Left Pass Reading Lights	25-20-1
Mid Aft Left Pass Reading Lights	25-20-1
Entertainment Audio-1	25-20-1
Entertainment Audio-2	25-20-1
Video Control Center-AC	25-20-1
VDU Cluster 1-AC	25-20-1
VDU Cluster 2-AC	25-20-1
VDU Cluster 3-AC	25-20-1
VDU Cluster 4-AC	25-20-1
VDU Cluster 5-AC	25-20-1
Logo Lights L	33-45-1
Logo Lights R	33-45-1
Lav Water Heater A	38-10-1
Lav Water Heater B	38-10-1
Lav Water Heater P	38-10-1
Lav Water Heater V	38-10-1

OPERATIONS (O)

1. The forward and/or aft cargo heating systems may be affected. Consider temperature sensitive items loaded in these compartments.



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Section 2

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25-00-01 Crewmember Shoulder Harness (Flight Deck)

Interval	Installed	Required	Procedure
D	4	2	

Any in excess of those required for flight deck crew members (including official observer in observer’s seat) may be inoperative.


25-11-01 Flight Crew Seat
25-11-01-01 Power Adjustment System

Interval	Installed	Required	Procedure
D	2	0	

May be inoperative provided fwd/aft and vertical manual adjustment modes operate normally.

25-11-01 Flight Crew Seat
25-11-01-02 Manual Adjustment System
25-11-01-02-01 Recline

Interval	Installed	Required	Procedure
A	2	0	(M)

May be inoperative provided:

- Seat is secured in upright position and is acceptable to affected crewmember.
- Fwd/Aft and vertical manual adjustment modes operate normally.
- Repairs are made within two flight days.

MAINTENANCE (M)

Confirm the seat is secured in an upright position by performing a functional test to verify the seat back cannot be moved.

25-11-01 Flight Crew Seat
25-11-01-02 Manual Adjustment System
25-11-01-02-02 Armrest

Interval	Installed	Required	Procedure
B	4	0	

May be inoperative provided:

- Affected armrest is in up position or removed.
- Seat is acceptable to affected crewmember.



25-11-01 Flight Crew Seat

25-11-01-02 Manual Adjustment System

25-11-01-02-03 Lumbar, Thigh Supports and Headrest

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided seat is acceptable to affected crewmember.

.....

**25-11-02 Observer Seat(s)****25-11-02-01 Primary Observer Seat (Including Associated Equipment)****25-11-02-01A Passenger Seat Available**

Interval	Installed	Required	Procedure
A	1	0	

May be inoperative provided:

- A passenger seat in passenger cabin is made available to an FAA inspector for performance of official duties.
 - Repairs are made within two flight days.
-

25-11-02 Observer Seat(s)**25-11-02-01 Primary Observer Seat (Including Associated Equipment)****25-11-02-01B Second Observer Seat Available**

Interval	Installed	Required	Procedure
A	1	0	

May be inoperative provided:

- Secondary observer's seat is available to an FAA inspector for performance of official duties.
 - Repairs are made within two flight days.
-

25-11-02 Observer Seat(s)**25-11-02-01 Primary Observer Seat (Including Associated Equipment)****25-11-02-01C Associated Safety Equipment Acceptable**

Interval	Installed	Required	Procedure
A	1	0	

May be inoperative provided:

- Required minimum safety equipment (safety belt and oxygen) is available.
- Seat is acceptable to an FAA inspector for performance of official duties.
- Repairs are made within two flight days.



NOTE 2: Pilot-in-Command will determine if minimum safety equipment is functional for other persons authorized to occupy observer seat(s).

.....

25-11-02-02 Additional Observer Seat(s) (Including Associated Equipment)

Interval	Installed	Required	Procedure
D	1	0	

NOTE: Pilot-in-Command will determine if minimum safety equipment is functional for other persons authorized to occupy additional observer seat(s).



25-20-01 Non-Essential Equipment & Furnishings (NEF)

Interval	Installed	Required	Procedure
	-	0	

May be inoperative, damaged or missing provided that item(s) is deferred in accordance with operator's NEF deferral program. NEF program, procedures and processes are outlined in operator's (NORD WIND) Manual. (M) and (O) procedures, if required, must be available to flight crew and included in operator's appropriate document.

NOTE: Exterior lavatory door ash trays are not considered NEF items.


25-25-01 Flight Attendant Seat Assembly (Single or Dual Position)
25-25-01-01 Required Flight Attendant Seats

Interval	Installed	Required	Procedure
B	4	3	(M) (O)
B	VQ-BBU,VQ-BTO: 5	4	(M) (O)

One seat position or assembly (dual position) may be inoperative provided:

- Affected seat position or seat assembly is not occupied.
- Flight attendant(s) displaced by inoperative seat(s) occupies either an adjacent flight attendant seat or passenger seat which is most accessible to inoperative seat(s), so as to most effectively perform assigned duties.
- Alternate procedures are established and used as published in crewmember manuals.
- Folding type seat stows automatically or is secured in retracted position.
- Passenger seat assigned to flight attendant is placarded FOR FLIGHT ATTENDANT ONLY.

NOTE 1: An automatic folding seat that will not stow automatically is considered inoperative.

NOTE 2: A seat position with an inoperative or missing restraint system is considered inoperative.

NOTE 3: Individual operators, when operating with inoperative seats, will consider locations and combinations of seats to ensure that proximity to exits and distribution requirements of applicable FAR are met.

NOTE 4: If one side of a dual seat assembly is inoperative and a flight attendant is displaced to adjacent seat, adjacent seat must operate normally.

MAINTENANCE (M)

For a folding type seat that does not stow automatically, secure it in the retracted (stowed) position.

OPERATIONS (O)

Have the flight attendant assigned to the affected seat occupy a passenger seat as close to or closer than the nearest seated passenger to the inoperative seat.

NOTE: The flight attendant must be able to reach the assigned emergency exit in essentially the same time as from the normally assigned seat, i.e., a 2 or 3 second time difference is considered "essentially the same time".

**25-25-01 Flight Attendant Seat Assembly (Single or Dual Position)****25-25-01-02 Excess Flight Attendant Seats**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided:

- a. Affected seat position or seat assembly is not occupied.
- b. Folding type seat stows automatically or is secured in retracted position.

NOTE 1: An automatic folding seat that will not stow automatically is considered inoperative.

NOTE 2: A seat position with an inoperative or missing restraint system is considered inoperative.

MAINTENANCE (M)

For a folding type seat that does not stow automatically, secure it in the retracted (stowed) position.


25-25-2 Passenger Seats

Interval	Installed	Required	Procedure
D	230	0	(M)
D	VQ-BKM: 224	0	(M)

May be inoperative provided:

- Seat does not block an Emergency Exit.
- Seat does not restrict any passenger from access to main aircraft aisle.
- Affected seat(s) is blocked and placarded DO NOT OCCUPY.

NOTE 1: A seat with an inoperative seat belt is considered inoperative.

NOTE 2: Inoperative seat(s) does not affect required number of Flight Attendants.

NOTE 3: Affected seat(s) may include seat(s) behind and/or adjacent outboard seats.

MAINTENANCE (M)

Seats are buyer furnished equipment and vary widely across the fleet. Each operator must develop appropriate procedures for their particular seat configuration(s).

- If possible, secure the seat in the breakover position with a strap or rope such that it cannot move during flight.
- For a seat stuck in the reclined position or not secured to prevent it from going to the reclined position, access is restricted to the row aft of the affected seat. The seat row aft of the affected seat must not contain an emergency exit.
 - If the affected seat is in a group of seats adjacent to the airplane sidewall, block off the seat aft of the affected seat and seats outboard from that.

25-25-02 Passenger Seats
25-25-02-01 Recline Mechanism
25-25-02-01A Seat Secured Upright

Interval	Installed	Required	Procedure
D	230	0	(M)
D	VQ-BKM: 224	0	(M)

May be inoperative and seat occupied provided seat is secured in full upright position.


MAINTENANCE (M)

Seats are buyer furnished equipment and vary widely across the fleet. Each operator must develop appropriate procedures for their particular seat configuration(s).

1. Secure the seat in the full upright position.

25-25-02 Passenger Seats
25-25-02-01 Recline Mechanism
25-25-02-01B Seat Immovable Upright

Interval	Installed	Required	Procedure
D	230	0	(M)
D	VQ-BKM: 224	0	(M)

May be inoperative and seat occupied provided seat is immovable in full upright position.

25-25-2 Passenger Seats
25-25-2-2 Underseat Baggage Restraining Bars

Interval	Installed	Required	Procedure
C	72	0	(M) (O)

May be inoperative provided:

- a. Baggage is not stowed under seat with inoperative restraining bar.
- b. Associated seat is placarded DO NOT STOW BAGGAGE UNDER THIS SEAT.
- c. Procedures are established to alert Cabin Crew of inoperative restraining bar.

MAINTENANCE (M)

Seats are buyer furnished equipment and vary widely across the fleet. Each operator must develop appropriate procedures for their particular seat configuration(s).

1. If broken, remove the underseat baggage restraining bar.

OPERATIONS (O)

Establish procedures to identify to the cabin crew the seats with inoperative underseat baggage restraining bars.

**25-25-2 Passenger Seats****25-25-2-3 Armrest****25-25-2-3-1 Armrest with Recline Mechanism**

Interval	Installed	Required	Procedure
D	230	0	(M)
D	VQ-BKM: 224	0	(M)

May be inoperative or missing and seat occupied provided:

- a. Armrest does not block an Emergency Exit.
- b. Armrest does not restrict any passenger from access to main aircraft aisle.
- c. If armrest is missing, seat is secured in upright position.

MAINTENANCE (M)

Seats are buyer furnished equipment and vary widely across the fleet. Each operator must develop appropriate procedures for their particular seat configuration(s).

1. For a missing armrest, secure the seat in the upright position.
2. Determine whether there are electrical power wires within the inoperative/missing armrest and establish procedures to address these wires. Refer to the following for further guidance:
 - A. AMM 23-34-00, Passenger Entertainment System
 - B. AMM 23-34-06, Seat Electronics Box
 - C. AMM 24-22-00, Electrical Power - Control
 - D. Wiring Diagram Manual
3. Consider the electrical power to any associated wires and address the power at the individual seat or section of seats, as appropriate.


25-28-01 Storage Bins/Cabin, Galley and Lavatory Storage Compartments/Closets
25-28-01A Compartment Secured Closed

Interval	Installed	Required	Procedure
C	41	6	(M)

May be inoperative provided:

- Procedures are established to secure affected bin, compartment or closet in closed position.
- Affected bin, compartment or closet is prominently placarded DO NOT USE.
- Any emergency equipment located in affected compartment is considered inoperative.
- Affected bin, compartment or closet is not used for storage of any items except for those permanently affixed.

NOTE: For overhead bins, if no partitions are installed, entire overhead bin is considered inoperative.

MAINTENANCE (M)

Establish procedures to secure and placard inoperative bins, compartments or closets closed.

25-28-01 Storage Bins/Cabin, Galley and Lavatory Storage Compartments/Closets
25-28-01B Door Removed or Retractable Door Secured Open

Interval	Installed	Required	Procedure
C	46	0	(M) (O)

May be inoperative provided:

- For non-retractable doors, affected door is removed.
- For retractable doors, affected door is removed or secured in retracted (fully open) position.
- Affected bin, compartment or closet is not used for storage of any items, except those permanently affixed.
- Affected bin, compartment or closet is prominently placarded DO NOT USE.
- Procedures are established and used to alert crew members and passengers of inoperative bins, compartments or closets.
- Passengers are briefed that affected bin, compartment or closet is not used.

NOTE 1: For overhead bins, if no partitions are installed, entire overhead bin is considered inoperative.



NOTE 2: Any emergency equipment located in affected bin, compartment or closet (permanently affixed) is available for use.

MAINTENANCE (M)

Remove the affected door and placard the associated bin, compartment or closet.

OPERATIONS (O)

Ensure crew members and passengers are briefed that associated bin, compartment or closet is not used.

25-28-01 Storage Bins/Cabin, Galley and Lavatory Storage Compartments/Closets

25-28-01-01 Multi Latch/Quarter Turn Lug Installations

Interval	Installed	Required	Procedure
C	-	0	

- One latch/lug per compartment may be inoperative provided:
- a. Remaining latch(es)/lug(s) on affected compartments operate normally.
 - b. If affected compartment is used for a galley cart, cart remains empty.



25-38-01 Exterior Lavatory Door Ashtrays

**25-38-01-01 Airplanes with More Than One Exterior Lavatory Door
Ashtray Installed**

Interval	Installed	Required	Procedure
A	4	3	

One may be missing provided it is replaced within ten calendar days.

.....

25-38-01 Exterior Lavatory Door Ashtrays

**25-38-01-02 Airplanes with Only One Exterior Lavatory Door
Ashtray Installed**

Interval	Installed	Required	Procedure
A	1	0	

May be missing provided it is replaced within three calendar days.

.....



25-38-02

Galley/Cabin Waste Receptacle Access Doors/Covers

Interval	Installed	Required	Procedure
C	-	0	(M) (O)

May be inoperative provided:

- a. Container is empty and access is secured to prevent waste introduction into compartment.
- b. Procedures are established to ensure that sufficient galley/cabin waste receptacles are available to accommodate all waste that may be generated on flight.

MAINTENANCE (M)

Confirm the container is empty and secure the access door.

1. Empty the associated waste container.
2. Close and lock the associated access door.

OPERATIONS (O)

Ensure sufficient galley waste receptacles are available to accommodate all waste that may be generated on the flight.

**25-41-01 Lavatory Waste Container Flapper/Access Doors**

Interval	Installed	Required	Procedure
C	4	0	(M)

May be inoperative provided:

- Associated lavatory waste container is empty and access is secured to prevent waste introduction into waste container.
- Lavatory is only used by crewmembers.
- Associated lavatory entrance door is locked closed and placarded INOPERATIVE - DO NOT ENTER.

NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers.

MAINTENANCE (M)

Confirm the container is empty, secure the access door, and lock the lavatory.

- Empty the associated waste container.
- Secure the inoperative access door/cover in a manner that will prevent waste from being deposited into the receptacle.
- Close, lock and placard the lavatory entrance INOPERATIVE - DO NOT ENTER.



25-50-01 Lower Cargo Compartment Lining Panels and Floor Panels

Interval	Installed	Required	Procedure
C	1	0	(O)

May be damaged or missing provided procedures are established and used to ensure associated compartment remains empty, or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

OPERATIONS (O)

Establish and use procedures to verify the associated compartment remains empty, or contains only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or fly away kits. Define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.



25-53-01 Cargo Loading Systems

Interval	Installed	Required	Procedure
D	1	0	

NOTE: Any portion of system(s) that operates normally may be used.

**25-54-01 Cargo Restraint Systems/Devices (Including Main Deck 9 “g” Barrier Net)****25-54-01A Cargo Compartment Used**

Interval	Installed	Required	Procedure
A	2	0	(M)

May be inoperative or missing provided:

- Acceptable cargo loading limits from an approved source, i.e., an approved Cargo Loading Manual, Cargo Handling Manual, or Weight and Balance Document are observed.
- Repairs are made prior to completion of next heavy maintenance visit.

NOTE: The Main Deck 9 “g” Barrier Net installation is not a Boeing system. Information applicable to the Main Deck 9 “g” Barrier Net installation is not provided.

MAINTENANCE (M)

Use acceptable cargo loading limits from an approved source.

- Refer to the Weight and Balance Manual for cargo loading limits.
- If the number of inoperative or missing restraint components exceeds the allowance in the Weight and Balance Manual, the affected cargo compartment cannot be used. Refer to MEL Item 25-54-01B.
- Deactivation procedures may or may not be required. Develop deactivation procedures depending on system configuration.

25-54-01 Cargo Restraint Systems/Devices (Including Main Deck 9 “g” Barrier Net)**25-54-01B Cargo Compartment Remains Empty**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative or missing provided associated cargo compartment remains empty.

**25-62-1 Flotation Equipment (Crew and Passengers)****25-62-01A Life Vests**

Interval	Installed	Required	Procedure
D	245	230	
D	245	VQ-BKM: 224	

- a. Any in excess of those required may be inoperative or missing provided required distribution is maintained.
- b. In accordance with Russian regulations each passenger and each crew member must have its own life vest during overwater flight.
-

25-62-1 Flotation Equipment (Crew and Passengers)**25-62-01B Rafts (if installed)**

Interval	Installed	Required	Procedure
D	2	0	

- a. May be missing EXCEPT operating over water more than 90 minutes at cruising speed or 200 nm whichever is less.
- b. Enough life rafts (each equipped with an approved survivor locator light) of a rated capacity and buoyancy to accommodate the occupants of the airplane. Unless excess rafts of enough capacity are provided, the buoyancy and seating capacity beyond the rated capacity of the rafts must accommodate all occupants of the airplane in the event of a loss of one raft of the largest rated capacity.
-



25-63-01 Megaphones

25-63-01-01 Passenger Configuration

Interval	Installed	Required	Procedure
D	VQ-BBU: 3	2	
D	2	2	

Any in excess of those may be inoperative or missing provided:

- a. Inoperative megaphone is removed from passenger cabin.
- b. Associated placard is removed or obscured.
- c. Required distribution is maintained.

**25-63-02 Emergency Evacuation Signal System***********25-63-02A Alternate Procedures Required**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures for initiating an emergency evacuation are established and used.

OPERATIONS (O)

Establish alternate procedures to initiate an emergency evacuation. These procedures may make use of the PA and/or cabin/service interphone (CIS) systems. Prior to flight, have the pilot in command brief cabin crew members on the emergency procedures that will be used.

25-63-02 Emergency Evacuation Signal System*********25-63-02B Procedures Do Not Require Use**

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.



25-63-03 “Fasten Seat Belt While Seated” Signs or Placards ©

Interval	Installed	Required	Procedure
C	-	0	

One or more signs or placards may be illegible or missing provided a legible sign or placard is visible from each occupied passenger seat.



25-63-04

Flight Attendant Flashlight/Holder Assemblies

Interval	Installed	Required	Procedure
C	VQ-BBU: 8	8	
C	VQ-BHR: 6	6	
C	VQ- BKM: 7	7	
C	VQ-BTO: 8	8	

May be inoperative or missing provided crewmember assigned to associated seat has a flashlight of equivalent characteristics readily available.



25-63-10 Emergency Locator Transmitter (ELT) ©

25-63-10-01 Survival Type ELTs

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative or missing.

25-63-10 Emergency Locator Transmitter (ELT) ©

25-63-10-02 Fixed ELTs

Interval	Installed	Required	Procedure
A	1	0	(M)

May be inoperative provided:

- a. System is deactivated.
- b. Repairs are made within 90 days.

MAINTENANCE (M)

Deactivate the inoperative ELT.

- 1. Gain access to the inoperative ELT.
- 2. Disconnect, cap and stow the associated control/indication electrical connector.
- 3. Set the ELT integral control switch to OFF.


25-64-01 Emergency Medical Equipment ©
25-64-01-01 First Aid Kit (FAK) and/or Associated Equipment

Interval	Installed	Required	Procedure
A	3	1	(O)

If more than one is required, only one of required first aid kits may be incomplete, missing or inoperative provided:

- FAK is resealed in a manner that will identify it as a unit that can not be mistaken for a fully serviceable unit.
- Repairs or replacements are made within 1 flight.

OPERATIONS (O)

In accordance with appropriate regulations, Emergency medical equipment:

- Must be inspected regularly in accordance with inspection periods established in the operations specifications to ensure its condition for continued serviceability and immediate readiness to perform its intended emergency purposes;
- Must be readily accessible to the crew and, with regard to equipment located in the passenger compartment, to passengers;
- Must be clearly identified and clearly marked to indicate its method of operation; and
- When carried in a compartment or container, must be carried in a compartment or container marked as to contents and the compartment or container, or the item itself, must be marked as to date of last inspection.

25-64-01 Emergency Medical Equipment ©
25-64-01-02 Emergency Medical Kit (EMK) and/or Associated Equipment

Interval	Installed	Required	Procedure
A	1	0	(O)

May be incomplete, missing or inoperative provided:

- EMK is resealed in a manner that will identify it as a unit that can not be mistaken for a fully serviceable unit.
- Repairs or replacements are made within 1 flight.

OPERATIONS (O)

Refer to MEL item 25-64-1-1 (O) procedure.


25-66-03 Overwing Escape Squib Test System

Interval	Installed	Required	Procedure
A	1	0	(M)

May be inoperative provided:

- a. Overwing escape system is verified to operate normally.
- b. Operations are limited to not more than 50 flight hours before repairs are made.

MAINTENANCE (M)

Verify the overwing escape system operates normally.

1. Confirm each escape slide bottle is properly charged:
 - A. Gain access to the master control valve squib (AMM 25-65-02/401).
 - B. Confirm the pressure indication on the associated pressure gauge shows the bottle is charged.
2. Confirm each bottle squib operates normally. Do step A or B.
 - A. Do the Electrical System Voltage Test (AMM 25-65-00/501).
NOTE: This procedure requires electrical test adapter box, B25001-1.
 - B. Do the Electrical System Voltage Test - Without Test Adapter Box (AMM 25-65-00/501).

25-66-03 Overwing Escape Squib Test System
25-66-03-01 Bottle Pressure Test System

Interval	Installed	Required	Procedure
A	1	0	(M)

May be inoperative provided:

- a. Overwing escape bottle is verified to be properly charged.
- b. Operations are limited to not more than 50 flight hours before repairs are made.

MAINTENANCE (M)

Verify each overwing escape slide bottle is properly charged.

1. Gain access to the master control valve squib (AMM 25-65-02/401).
2. Confirm the pressure indication on the associated pressure gauge shows the bottle is charged.

**25-66-03 Overwing Escape Squib Test System****25-66-03-02 Bottle Squib Test System**

Interval	Installed	Required	Procedure
A	1	0	(M)

May be inoperative provided:

- a. Overwing escape bottle squib is verified to operate normally.
- b. Operations are limited to not more than 50 flight hours before repairs are made.

MAINTENANCE (M)

Verify each overwing escape slide bottle squib operates normally.

1. Do step A or B.
 - A. Do the Electrical System Voltage Test (AMM 25-65-00/501).
NOTE: This procedure requires electrical test adapter box, B25001-1.
 - B. Do the Electrical System Voltage Test - Without Test Adapter Box (AMM 25-65-00/501).



25-66-04 Escape Slide Armed Condition Indicators
25-66-04A Engagement Lights Operative

Interval	Installed	Required	Procedure
C	8	0	

May be inoperative provided associated Escape SLIDE Girt Bar Engagement Light(s) operate normally.

25-66-04 Escape Slide Armed Condition Indicators
25-66-04B Doors w/ Flexible Sweeper Seals

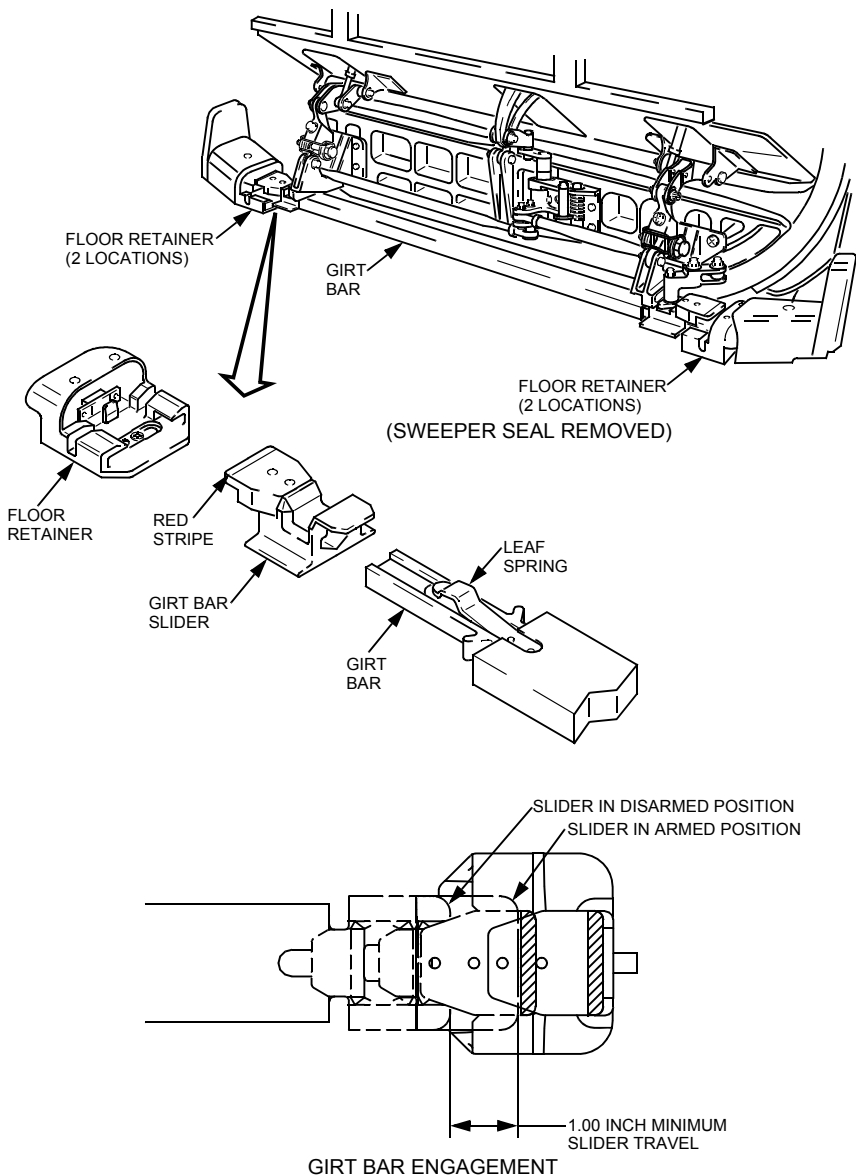
Interval	Installed	Required	Procedure
C	8	0	(O)

For doors with flexible sweeper seals, may be inoperative provided associated slide(s) is visually verified engaged before each departure.

OPERATIONS (O)

Before each departure, visually verify the associated girt bar is engaged.

1. Lift the forward and aft corners of the door sweeper seal.
2. Move the mode select handle between the disarmed and armed mode.
3. Confirm the forward and aft girt bar sliders travel a minimum of 1.00 inch between the disarmed and armed positions and that the sliders overlap the floor retainers.





25-66-04 Escape Slide Armed Condition Indicators
25-66-04C Doors w/ Rigid Sweeper Seals

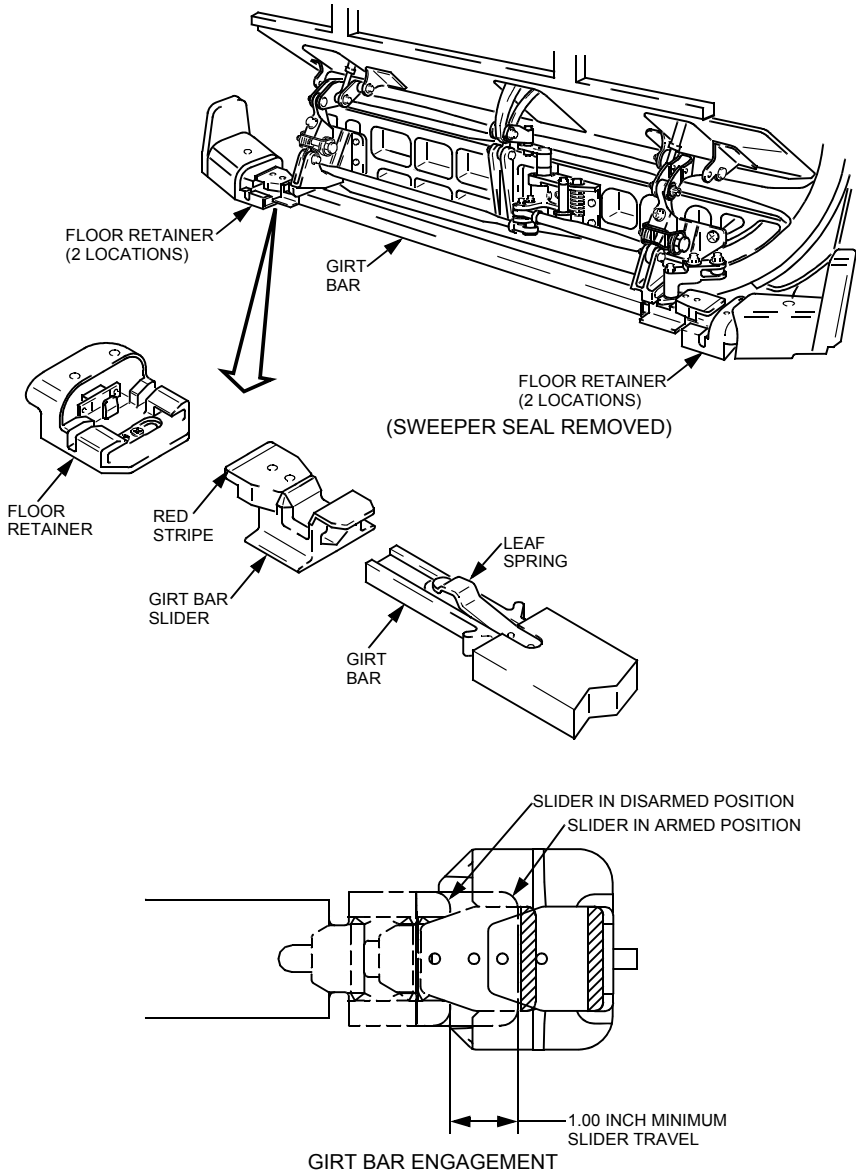
Interval	Installed	Required	Procedure
C	8	0	(M)

For doors with rigid sweeper seals, may be inoperative provided associated slide(s) is verified engaged before each departure.

MAINTENANCE (M)

Before each departure, verify the associated girt bar is engaged.

1. Remove the escape slide bustle to gain access to the girt bar floor fitting area.
2. Move the mode select handle between the disarmed and armed mode.
3. Confirm the forward and aft girt bar sliders travel a minimum of 1.00 inch between the disarmed and armed positions and that the sliders overlap the floor retainers.





25-66-05 Escape SLIDE Girt Bar Engagement Lights
25-66-05A Doors w/ Flexible Sweeper Seals

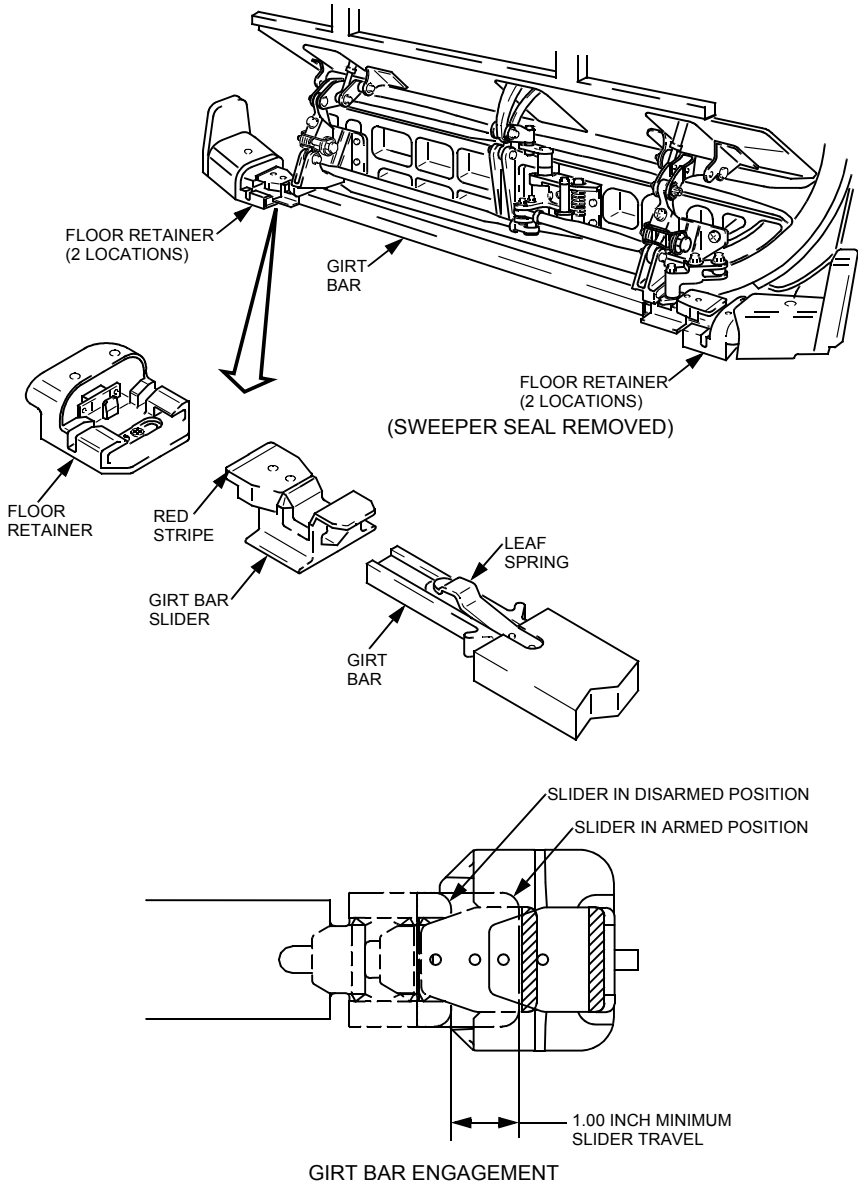
Interval	Installed	Required	Procedure
C	6	0	(O)

For doors with flexible sweeper seals, may be inoperative provided associated slide(s) is visually verified engaged before each departure.

OPERATIONS (O)

Before each departure, visually verify the associated girt bar is engaged.

1. Lift the forward and aft corners of the door sweeper seal.
2. Move the mode select handle between the disarmed and armed mode.
3. Confirm the forward and aft girt bar sliders travel a minimum of 1.00 inch between the disarmed and armed positions and that the sliders overlap the floor retainers.





25-66-05 Escape SLIDE Girt Bar Engagement Lights
25-66-05B Doors w/ Rigid Sweeper Seals

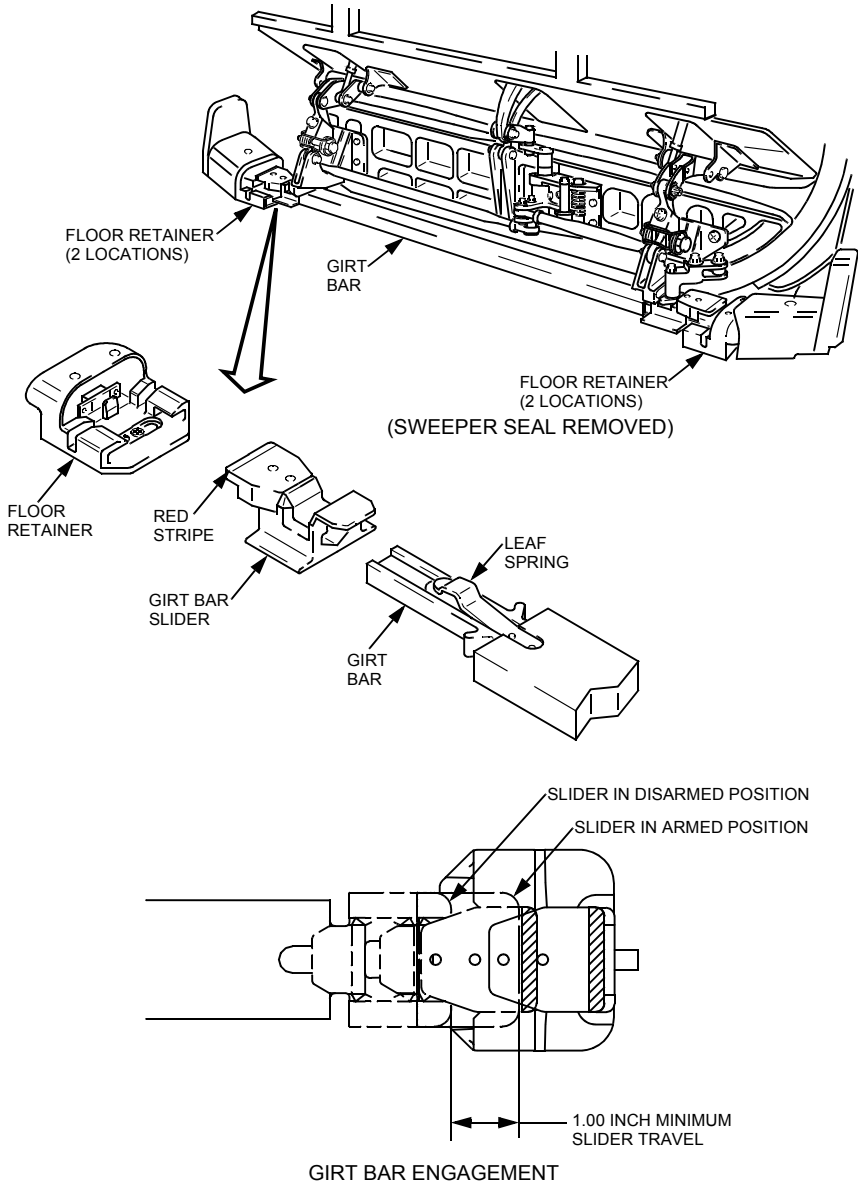
Interval	Installed	Required	Procedure
C	6	0	(M)

For doors with rigid sweeper seals, may be inoperative provided associated slide(s) is verified engaged before each departure.

MAINTENANCE (M)

Before each departure, verify the associated girt bar is engaged.

1. Remove the escape slide bustle to gain access to the girt bar floor fitting area.
2. Move the mode select handle between the disarmed and armed mode.
3. Confirm the forward and aft girt bar sliders travel a minimum of 1.00 inch between the disarmed and armed positions and that the sliders overlap the floor retainers.





26-11-01 Engine Fire Detection Systems (ETOPS)

26-11-01-01 Detection Loops

26-11-03 Engine Nacelle Overheat Detection Systems (ETOPS)

26-11-03-01 Detection Loops

26-15-01 APU Fire Detection System (ETOPS)

26-15-01A *APU Considered Inoperative*

26-15-01B *APU Used On Ground Only*

26-15-01-01 Detection Loops

26-16-01 Lower Cargo Compartment Smoke Detection Systems (Fwd and Aft)

26-16-01-01 Detectors

26-16-01-01-02 Configurations with -136 or Later AFOLTS Card

26-16-01-02 Detector Fans (Passenger)

26-16-01-03 Detector Plenum Pressure Switch

26-17-01 Wheel Well Fire Detection System

26-17-01A *BTMS Operative*

26-17-01B *BTMS Inoperative*

26-18-01 DUCT LEAK Detection Systems

26-18-01-01 Duct Leak Detectors

26-18-01-02 Test Function

26-20-01 Engine Fire Extinguisher Bottle Pressure Indicating System

26-20-02 Fire Extinguisher SQUIB TEST System

26-20-02-01 APU Squib Test Functions

26-20-02-01-01 Two Test Buttons and One APU Fire Extinguisher Bottle Configuration

26-20-02-02 Cargo Squib Test Functions

26-20-02-02A *Extinguisher System Inoperative*

26-20-02-02B *Cargo Compartment Empty*



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26-11-01 Engine Fire Detection Systems (ETOPS)

26-11-01-01 Detection Loops

Interval	Installed	Required	Procedure
C	4	2	

Except for ER operations beyond 120 minutes, one loop per engine may be inoperative.



Interval	Installed	Required	Procedure
C	4	2	

Except for ER operations beyond 120 minutes, one loop per engine may be inoperative.

.....


26-15-01 APU Fire Detection System (ETOPS)
26-15-01A APU Considered Inoperative

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided APU is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 49-11-01.

26-15-01 APU Fire Detection System
26-15-01B APU Used On Ground Only

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- Other procedures do not require use of APU.
- APU is used for ground operations only.
- APU is continuously monitored by ground personnel when operating.
- APU external control system operates normally.
- APU is not used during taxi.

NOTE: The APU, and APU generator, may be required for ETOPS dispatch.

MAINTENANCE (M)

Continuously monitor the APU when it is operating.

- Visually monitor the APU when it is in use on the ground.
- For APU fire observed, manually discharge the APU fire extinguisher using either:
 - APU FIRE SHT DN switch on the APU shutdown panel (P62 on nose gear)
 - APU fire switch on the cargo and APU fire panel (P8 control stand)

OPERATIONS (O)

- For APU use during ground operations, position a fire guard near the tail of the airplane to monitor the APU.
- Do not use the APU inflight or during taxi operations.



26-15-01 APU Fire Detection System (ETOPS)

26-15-01-01 Detection Loops

Interval	Installed	Required	Procedure
C	2	1	

Except for ER operations beyond 120 minutes, one loop may be inoperative.

**26-16-01 Lower Cargo Compartment Smoke Detection Systems (Fwd and Aft)**

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided procedures are established and used to ensure associated compartment remains empty, or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

OPERATIONS (O)

Establish and use procedures to verify the associated compartment remains empty, or contains only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or fly away kits. Define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.

26-16-01 Lower Cargo Compartment Smoke Detection Systems (Fwd and Aft)**26-16-01-01 Detectors****26-16-01-01-02 Configurations with -136 or Later AFOLTS Card**

Interval	Installed	Required	Procedure
C	4	2	

One in each compartment may be inoperative.

26-16-01 Lower Cargo Compartment Smoke Detection Systems (Fwd and Aft)**26-16-01-02 Detector Fans (Passenger)**

Interval	Installed	Required	Procedure
C	4	2	

One in each compartment may be inoperative.

**26-16-01 Lower Cargo Compartment Smoke Detection Systems (Fwd and Aft)****26-16-01-03 Detector Plenum Pressure Switch**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided associated detector fan is verified to operate normally before each departure.

MAINTENANCE (M)

Before each departure, verify the associated detector fan operates normally.

Use one of the following two methods.

1. Method 1 - Smoke Test:
 - A. Make smoke adjacent to one of the six orifices in the associated cargo compartment.
 - B. Confirm the following fire indications occur:
 - 1) Red FWD or AFT CARGO FIRE switchlight (P8)
 - 2) Red FIRE light (P1-3)
 - 3) FWD or AFT CARGO FIRE warning message
 - 4) Red master warning light (P7)
 - 5) Fire bell sounds
 - C. Remove the smoke source.
 - D. Confirm the fire indications go off when there is no smoke.
2. Method 2 - Vacuum Measurement:
 - A. Measure the vacuum at one orifice in the associated cargo compartment.
 - B. Confirm there is a minimum vacuum of 0.5 inches of water at the orifice.


26-17-01 Wheel Well Fire Detection System
26-17-01A BTMS Operative

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided BTMS operates normally.

NOTE: Avoid possibility of retracting an overheated wheel by monitoring brake temperature indications.

MAINTENANCE NOTE

For wheel well detection sensors failed closed, the WHEEL WELL FIRE warning message and the WHL WELL FIRE light may be deactivated:

1. Open and collar the P11 panel W/W FIRE DET circuit breaker.

NOTE: The center panel FIRE light and first officer's panel WHL WELL FIRE light will extinguish. The FIRE light will continue to function for engine fire and overheat detection.

26-17-01 Wheel Well Fire Detection System
26-17-01B BTMS Inoperative

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided an accepted procedure is used to ensure brakes are cool before engine start.

NOTE 1: Avoid possibility of retracting an overheated wheel by leaving landing gear extended for ten minutes after takeoff.

NOTE 2: In case of engine failure after V1, landing gear should be retracted until takeoff obstacles are cleared.

MAINTENANCE (M)

Before engine start confirm the brakes are cool.

1. Confirm a hand can be held on the brake housing prior to engine start.
2. For wheel well detection sensors failed closed, the WHEEL WELL FIRE warning message and the WHL WELL FIRE light may be deactivated:
 - A. Open and collar the P11 panel W/W FIRE DET circuit breaker.



NOTE: The center panel FIRE light and first officer's panel WHL WELL FIRE light will extinguish . The FIRE light will continue to function for engine fire and overheat detection.

OPERATIONS NOTE

1. Leaving the landing gear extended for 10 minutes increases total fuel burn by 1200 lb (550 kg).
2. It is not necessary to apply gear down performance adjustments when dispatching under this item.


26-18-01 DUCT LEAK Detection Systems
26-18-01-01 Duct Leak Detectors

Interval	Installed	Required	Procedure
C	14	7	

One detector in each detection zone may be inoperative.

26-18-01 DUCT LEAK Detection Systems
26-18-01-02 Test Function

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided detection system is verified to operate normally once each flight day.

MAINTENANCE (M)

Once each flight day, verify the detection system operates normally.

Use one of the following two methods.

1. Method 1 - Test with Heat Source:
 - A. Gain access to the detector loops through the ECS bay (AMM 26-18-01/401).
 - B. Use a heat source of approximately 260°F (127°C) to heat a section of the detector element.
 NOTE: The required substitute test heat device must not produce heat greater than 450°F (232°C) in case fuel vapors exist in the area.
 - C. Confirm the associated DUCT LEAK light and L/R BLD DUCT LEAK message illuminates.
2. Method 2 - Examine Fault Codes
 - A. Gain access to the duct leak and wheel well fire control card (M691) on the P50 electrical system card file in the main equipment center (AMM 26-18-00/101).
 - B. Press and release the MEM READ pushbutton.
 - C. Record any fault codes until code 97 (memory read complete) appears.



D. Use the following table to decipher the two digit (XY) fault codes.

X = 1	Left Wing Leading Edge	X = 2	Left A/C Pack Bay
X = 3	Wheel Well ECS	X = 4	Aft Cargo Section 46
X = 5	Aft Bulkhead Section 48	X = 6	Right Wing Leading Edge
X = 7	Right A/C Pack Bay	Y = 0	Short Loop A
Y = 1	Short Loop B	Y = 2	Open Loop A
Y = 3	Open Loop B		

E. For each of the above (X) zones, confirm there are is not a fault in both the A and B loops.

F. Confirm no XY codes appeared other than those listed above.



26-20-01 Engine Fire Extinguisher Bottle Pressure Indicating System

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided an acceptable test procedure is used once each flight day to verify that associated bottle is properly charged.

MAINTENANCE (M)

Once each flight day, verify the associated bottle is properly charged.
Perform procedure 1 (electrical verification) or procedure 2 (bottle weighing). If procedure 1 is attempted and fails, the failure may be in the pressure switch for indication; verify the bottle charge with procedure 2.

- 1. Electrical verification procedure:
 - A. Disconnect the electrical connector from the pressure switch at the bottle with the inoperative light circuit.
 - B. Connect an ohmmeter between pin sockets 1 and 3 of the bottle receptacle.
 - 1) Confirm an open circuit indication (indicates pressurized bottle).
 - 2) Push and hold the pressure switch manual-override button or turn and hold the ground test hex key 1/4 turn counterclockwise on the switch and confirm a closed circuit indication.
 - 3) Release the button or hex key and confirm an open circuit indication.
 - C. Reconnect the electrical connector to the bottle receptacle.
- 2. Bottle weighing procedure:
 - A. Remove the associated bottle (AMM 26-21-01/401).
 - B. Weigh the bottle and confirm it matches the service weight stamped on the fire bottle side (+/- 0.1 pound).
 - C. Replace the serviceable bottle (AMM 26-21-01/401).
 - D. Cap and stow the associated bottle's pressure switch connector.


26-20-02 Fire Extinguisher SQUIB TEST System

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative or individual test functions may be inoperative provided each squib circuit associated with an inoperative test function is verified to operate normally once each flight day.

MAINTENANCE (M)

Once each flight day, verify each squib circuit associated with an inoperative test function operates normally.

NOTE: Test each circuit for which there was no green light when the test button or buttons were pushed. For configurations with two test buttons and only one APU fire extinguisher bottle, if either button illuminates the APU squib test light, the squib circuit is verified.

1. Fabricate a squib test lamp with pigtail leads terminating in pins. Use lamp P/N 116-565-1042-001 (28 volt, 40 milliamp) in a suitable holder.
2. Restrict personnel from the fire bottle area while testing and limit squib current to 50 milliamperes maximum.
3. Remove the squib test control panel (AMM 26-21-04/401).
4. Close the open circuit breakers (to provide power to the test lamp).
5. For APU:
 - A. Connect the test lamp between sockets 7 and 12 of connector D3736 (sockets 13 and 14 of connectors D3736 for bottle 2 - if installed).
6. For engines:
 - A. For bottle 1, L Squib: connect the test lamp between sockets 8 and 3 of connector D3734.
 - B. For bottle 1, R Squib: connect the test lamp between sockets 8 and 3 of connector D3736.
 - C. For bottle 2, L Squib: connect the test lamp between sockets 9 and 4 of connector D3734.
 - D. For bottle 2, R Squib: connect the test lamp between sockets 9 and 4 of connector D3736.
7. For lower cargo compartment:
 - A. For bottle 1, FWD CARGO SQUIB: connect the test lamp between sockets 6 and 10 of connector D3736.
 - B. For bottle 1, AFT CARGO SQUIB: connect the test lamp between sockets 6 and 11 of connector D3736.
 - C. For bottle 2, FWD CARGO SQUIB: connect the test lamp between sockets 6 and 10 of connector D3734.



- D. For bottle 2, AFT CARGO SQUIB: connect the test lamp between sockets 6 and 11 of connector D3734.
8. Confirm the lamp illuminates (indicates intact squib).
 9. Remove the test lamp.
 10. Open the circuit breakers identified in AMM 26-21-04/401.
 11. Install the squib test control panel (AMM 26-21-04/401).

26-20-02 Fire Extinguisher SQUIB TEST System
26-20-02-01 APU Squib Test Functions

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided APU is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 49-11-01.

26-20-02 Fire Extinguisher SQUIB TEST System
26-20-02-01 APU Squib Test Functions
26-20-02-01-01 Two Test Buttons and One APU Fire Extinguisher Bottle Configuration

Interval	Installed	Required	Procedure
C	2	1	

26-20-02 Fire Extinguisher SQUIB TEST System
26-20-02-02 Cargo Squib Test Functions
26-20-02-02A Extinguisher System Inoperative

Interval	Installed	Required	Procedure
C	4	0	

May be inoperative provided extinguisher system is inoperative.

NOTE: Also dispatch the airplane using MEL Item 26-23-01.

**26-20-02 Fire Extinguisher SQUIB TEST System****26-20-02-02 Cargo Squib Test Functions****26-20-02-02B Cargo Compartment Empty**

Interval	Installed	Required	Procedure
C	4	0	(O)

May be inoperative provided procedures are established and used to ensure associated compartment remains empty, or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

OPERATIONS (O)

Establish and use procedures to verify the associated compartment remains empty, or contains only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or fly away kits. Define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.


26-22-01 APU Fire Extinguisher System (ETOPS)
26-22-01A Except ER Operations

Interval	Installed	Required	Procedure
C	1	0	

Except for ER operations, may be inoperative provided APU is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 49-11-01.

26-22-01 APU Fire Extinguisher System (ETOPS)
26-22-01B Except ER Operations Beyond 120 Minutes

Interval	Installed	Required	Procedure
B	1	0	

Except for ER operations beyond 120 minutes, may be inoperative provided APU is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 49-11-01.

26-22-01 APU Fire Extinguisher System (ETOPS)
26-22-01-01 Fire Extinguisher Bottle (Two Bottle System)

Interval	Installed	Required	Procedure
C	2	1	

26-22-01 APU Fire Extinguisher System
26-22-01-02 Fire Extinguisher Bottle Pressure Indicating System
26-22-01-02A Two Bottle System, One Inoperative

Interval	Installed	Required	Procedure
C	2	1	



- 26-22-01 APU Fire Extinguisher System (ETOPS)
26-22-01-02 Fire Extinguisher Bottle Pressure Indicating System
26-22-01-02B Bottle Charge Verified

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided an acceptable test procedure is used once each flight day to verify that associated bottle(s) is properly charged.

MAINTENANCE (M)

Once each flight day, verify the associated bottle is properly charged.

Perform procedure 1 (electrical verification) or procedure 2 (bottle weighing). If procedure 1 is attempted and fails, the failure may be in the pressure switch for indication; verify the bottle charge with procedure 2.

1. Electrical verification procedure:
 - A. Disconnect the electrical connector from the pressure switch at the bottle with the inoperative light circuit.
 - B. Connect an ohmmeter between pin sockets 1 and 3 of bottle receptacle.
 - 1) Confirm an open circuit indication (indicates pressurized bottle).
 - 2) Push and hold the pressure switch manual-override button or turn and hold the ground test hex key 1/4 turn counterclockwise on the switch and confirm a closed circuit indication.
 - 3) Release the button or hex key and confirm an open circuit indication.
 - C. Reconnect the electrical connector to the bottle receptacle.
2. Bottle weighing procedure:
 - A. Remove the associated bottle (AMM 26-22-01/401).
 - B. Weigh the bottle and confirm it matches the service weight stamped on the fire bottle side (+/- 0.1 pound).
 - C. Replace the serviceable bottle (AMM 26-22-01/401).
 - D. Cap and stow the associated bottle's pressure switch connector.



**26-23-01 Lower Cargo Compartment Fire Extinguisher System
(Metered or Non-Metered)**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

OPERATIONS (O)

Establish and use procedures to verify the lower cargo compartments remain empty, or contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or fly away kits. Define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.

**26-23-01 Lower Cargo Compartment Fire Extinguisher System
(Metered or Non-Metered)**
26-23-01-01 Fire Extinguisher Bottle No. 2

Interval	Installed	Required	Procedure
C	1	0	(O)

Extinguisher bottle No. 2 may be inoperative with cargo carried in compartments provided:

- a. Airplane is operated pressurized.
- b. Airplane remains within 80 minutes of a suitable airport.

OPERATIONS (O)

1. The lower cargo fire procedures in the AFM are unchanged.
2. The fire suppressing capability of the system is reduced as follows:
 - A. Reduced to EIGHTY MINUTES.



- 26-23-01 Lower Cargo Compartment Fire Extinguisher System (Metered or Non-Metered)**
- 26-23-01-02 Fire Extinguisher Bottle Pressure Indicating System**
- 26-23-01-02A Bottle Charge Verified**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided an acceptable test procedure is used once each flight day to verify that associated bottle(s) is properly charged.

MAINTENANCE (M)

Once each flight day, verify each associated bottle is properly charged.

Perform procedure 1 (electrical verification) or procedure 2 (bottle weighing). If procedure 1 is attempted and fails, the failure may be in the pressure switch for indication; verify the bottle charge with procedure 2.

NOTE: For airplanes equipped with a single cargo fire bottle discharge switch, perform the procedure for both cargo fire bottles. For airplanes with dual cargo fire bottle discharge switches, perform the procedure for the bottle associated with the inoperative pressure indicating system.

1. Electrical verification procedure:
 - A. Disconnect the electrical connector from the pressure switch at the bottle with the inoperative light circuit.
 - B. Connect an ohmmeter between pin sockets 2 and 3 of the bottle receptacle.
 - 1) Confirm an open circuit indication (indicates pressurized bottle).
 - 2) Press the test switch on the end of the pressure switch or turn the hex key 1/4 turn counterclockwise and confirm a closed circuit indication.
 - 3) Release the test switch or hex key and confirm an open circuit indication.
 - C. Reconnect the electrical connector to the bottle receptacle.
2. Bottle weighing procedure:
 - A. Remove the associated bottle (AMM 26-23-02/401).
 - B. Weigh the bottle and confirm it matches the service weight stamped on the fire bottle side (+/- 0.1 pound).
 - C. Replace the serviceable bottle (AMM 26-23-02/401).
 - D. Cap and stow the associated bottle's pressure switch connector.



26-23-01	Lower Cargo Compartment Fire Extinguisher System (Metered or Non-Metered)
26-23-01-02	Fire Extinguisher Bottle Pressure Indicating System
26-23-01-02B	Associated Fire Bottle Considered Inoperative

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated fire bottle(s) is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 26-23-01 for the associated bottle.

**26-26-01 Portable Fire Extinguishers**

Interval	Installed	Required	Procedure
D	VQ-BBU, VQ-BTO: 6	4	
D	VQ-BHR: 5	4	
D	VQ-BKM: 4	4	

Any in excess of those required may be inoperative or missing provided:

- Inoperative fire extinguisher is tagged inoperative, removed from installed location, and placed out of sight so it can not be mistaken for a functional unit.
 - Required distribution is maintained.
-

MAINTENANCE NOTE

Stow the inoperative fire extinguisher and confirm required distribution is maintained.

- Stow the out-of-service extinguisher in a place (possibly in a bag) where it will not be used by mistake, until it can be removed from the airplane at the next available maintenance base.
- Confirm required distribution of serviceable extinguishers is maintained throughout the airplane.

NOTE: Determine extinguisher requirements based on airplane configuration and number of seats.

**26-26-02 Lavatory Fire Extinguisher Systems****26-26-02-01 Passenger Configuration****26-26-02-01A Smoke Detector System Operative**

Interval	Installed	Required	Procedure
C	4	0	

For each lavatory, lavatory fire extinguisher system may be inoperative provided associated lavatory smoke detection system operates normally.

26-26-02 Lavatory Fire Extinguisher Systems**26-26-02-01 Passenger Configuration****26-26-02-01B Smoke Detector System Inoperative**

Interval	Installed	Required	Procedure
C	4	0	(M) (O)

For each lavatory, lavatory fire extinguisher system may be inoperative provided:

- Lavatory waste receptacle is empty.
- Associated lavatory door is locked closed and placarded INOPERATIVE - DO NOT ENTER.
- Lavatory is used only by crewmembers.

NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers.

MAINTENANCE (M)

Confirm the lavatory waste receptacle is empty and close, lock and placard the lavatory door.

OPERATIONS (O)

Confirm the associated lavatory door remains locked and is not entered except for use or inspection by crewmembers.

**26-26-03 Lavatory Smoke Detection System****26-26-03-01 Passenger Configuration**

Interval	Installed	Required	Procedure
C	4	0	(M) (O)

For each lavatory, lavatory smoke detection system may be inoperative provided:

- Lavatory waste receptacle is empty.
- Associated lavatory door is locked closed and placarded INOPERATIVE - DO NOT ENTER.
- Lavatory is used only by crewmembers.

NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers.

MAINTENANCE (M)

Confirm the lavatory waste receptacle is empty and close, lock & placard the lavatory door.

OPERATIONS (O)

Confirm the associated lavatory door remains locked and is not entered except for use or inspection by crewmembers.



Section 2

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27-03-01 FLT CONTROL SHUTOFF Valves

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative open.

MAINTENANCE (M)

Confirm the affected valve is open:

1. Supply hydraulic pressure (AMM 29-11-00/201) for the associated system, only.
2. Displace the control column.
3. Confirm elevator deflection on EICAS.
4. If appropriate, deactivate the inoperative valve in the open position by opening and collaring the associated P11 panel circuit breaker:
 - A. FLT CONT S/O TAIL L
 - B. FLT CONT S/O TAIL C
 - C. FLT CONT S/O TAIL R

**27-03-02 FLT CONTROL SHUTOFF OFF Lights**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided associated valve is verified open before each departure.

MAINTENANCE (M)

Before each departure, verify the associated valve is open.

1. Supply hydraulic pressure (AMM 29-11-00/201) for the associated system, only.
2. Establish communications between the flight deck and a ground observer or use the EICAS control surface position display.
3. Displace the control column full aft, then full forward.
4. Confirm both elevators deflect up, then down.

**27-08-01 Control Surface Position Indicating System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided a visual flight control check is accomplished before each departure.

MAINTENANCE (M)

Before each departure, visually check control surface movement.

1. Supply hydraulic pressure (AMM 29-11-00/201).
2. Establish communications - flight deck to ground or an observer.
3. Perform the following procedures:
 - A. Displace the control wheel full left.
 - 1) Confirm five left wing spoilers extend. Spoilers 1, 2, 3, and 5 will extend approximately 45°. Spoiler 6 will extend approximately 30°.
 - 2) Confirm the left aileron is up and right aileron is down. Ailerons move up 20° and down 20°.
 - B. Displace the control wheel full right.
 - 1) Confirm five right wing spoilers extend (as above).
 - 2) Confirm the right aileron is up and left aileron is down (as above).
 - C. Displace the control column full aft, then full forward.
 - 1) Confirm both elevators move up, then down. Elevator deflection will be trailing edge approximately 30° up and 20° down.
 - D. Displace pedals for full left rudder, then full right rudder.
 - 1) Confirm the rudder moves left, then right. Rudder deflection will be approximately 30° left or right.



Interval	Installed	Required	Procedure
C	2	1	

NRW MEL

**27-09-01 Yaw Damper Stabilizer Trim Module (YSM)**

Interval	Installed	Required	Procedure
B	2	1	(M) (O)

One may be inoperative.

NOTE: Associated autopilot will not engage until Approach Mode engages.

NOTE: Also dispatch the airplane using MEL Item 22-21-01.

MAINTENANCE (M)

1. The associated L or R yaw damper channel will be inoperative, annunciated by the L (R) YAW DAMPER advisory message.
2. The inoperative YSM must remain installed until replacement can be made.
3. The inoperative YSM will result in MCDP ground test faults due to loss of the associated autopilot autotrim interface.
 - A. GT30 will report the following INFC FAULTS (these faults are also reported by GT01 FCC LRU test):
 - 1) 30 NO INFC FCC L (C, R)
 - 2) AUTO TRIM VLD 1 (2)
 - B. GT30 will also report the following CURRENT OP FAULTS:
 - 1) 30 CURRENT FAULT
 - 2) YSM L(R)/FCC L(C, R)

OPERATIONS (O)

The associated L or R autopilot channel cannot be selected manually. This channel will engage automatically when using one of the remaining channels in Approach mode, so autoland status is not affected.

**27-11-01 Aileron Trim System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. One autopilot operates normally.
 - b. Aileron trim system is verified centered.
-

MAINTENANCE (M)

Verify the aileron trim system is centered.

1. Observe control wheel position and aileron trim indicator reading.
2. For control wheel position essentially centered (aileron trim indicator reads approximately zero), open and collar the P11 panel AILERON TRIM circuit breaker.
3. For control wheel not centered, install a dummy link to maintain a centered system:
 - A. Remove the aileron trim actuator (AMM 27-11-14/201).
 - B. Cap and secure the electrical connector.
 - C. Align rig pin holes A-1 and install the rigging pin.
 - D. Install aileron trim actuator dummy link part number A27088-18 or equivalent.
 - E. Remove the rigging pin from rig pin holes A-1.



27-11-02 Control Wheel Damper

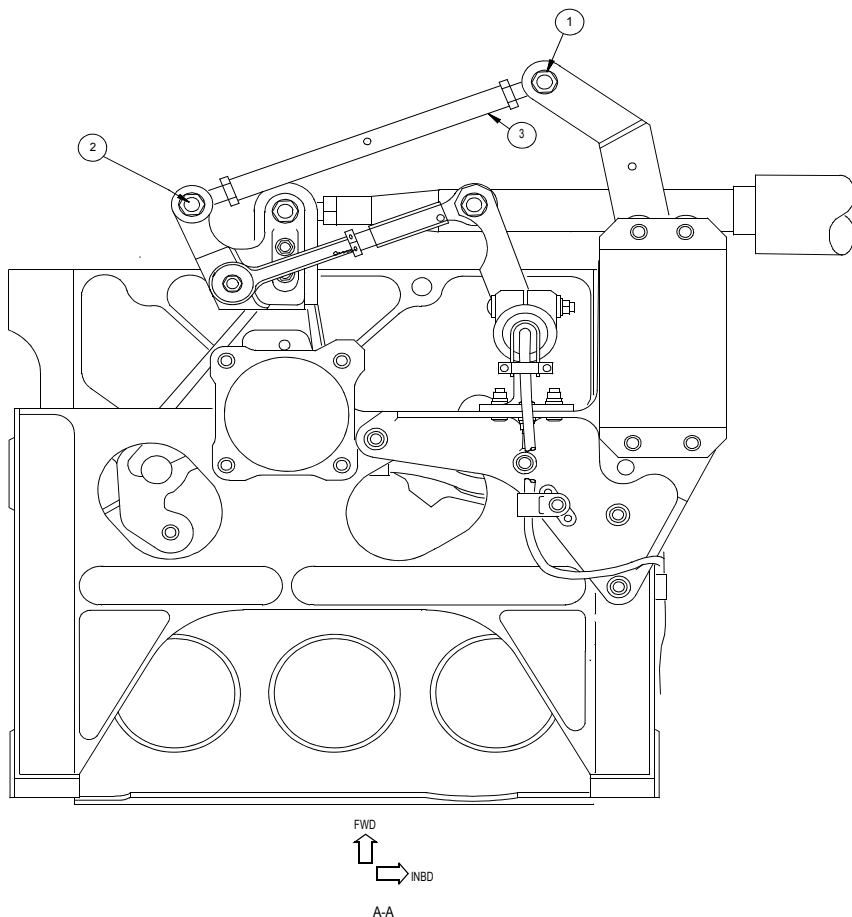
Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided damper is deactivated.

MAINTENANCE (M)

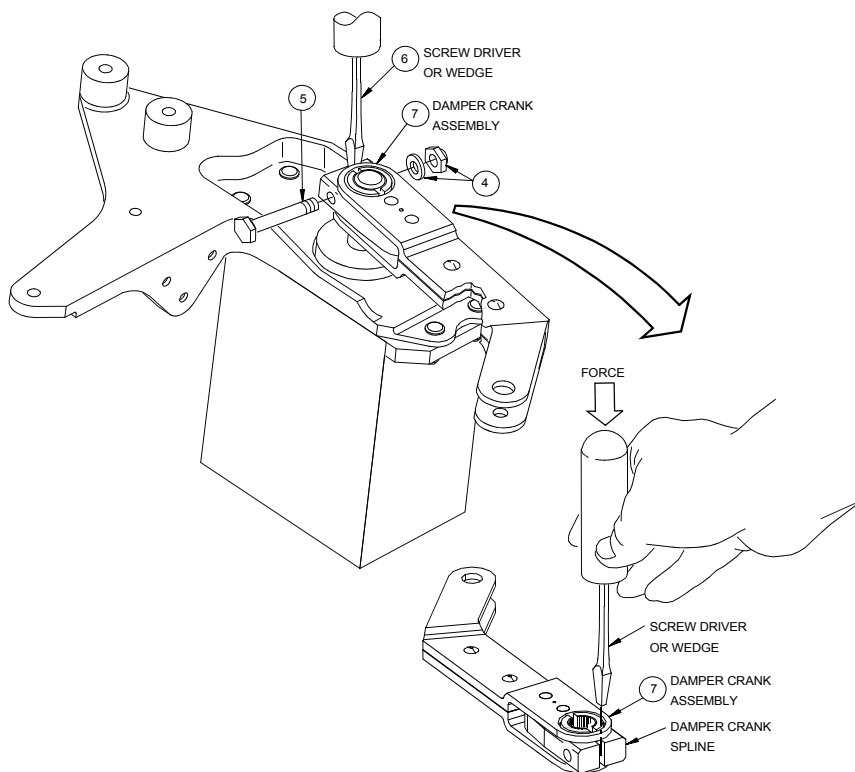
Deactivate the control wheel damper.

1. Provide electrical power (AMM 24-22-00/201).
2. Confirm landing gear downlocks are installed (AMM 32-00-20/201) and wheels are adequately chocked.
3. Install landing gear door locks (AMM 32-00-15/201).
4. Depressurize the left, right and center hydraulic systems (AMM 29-11-00/201).
5. Gain access to the control wheel damper (AMM 27-11-03/201).
6. Remove the following components from each end of the control wheel damper rod assembly (diagram callouts #1 and #2):
 - A. Hex head bolt.
 - B. Plain bushing.
 - C. Flat washer.
 - D. Self-locking nut.



CONTROL WHEEL DAMPER ROD ASSEMBLY VIEW A-A

7. Remove the rod assembly 250N2004-338 (diagram callout #3).
8. Remove the following components from the control wheel damper crank assembly (diagram callouts #4 and #5):
 - A. Nut.
 - B. Flat washer.
 - C. Bolt



CONTROL WHEEL DAMPER CRANK ASSEMBLY

9. Open the damper crank spline with a screw driver or wedge (diagram callout #6):
10. Remove the damper crank assembly 251N1028-2 (diagram callout #7).

**27-21-01 Rudder Ratio Light**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative off provided:

- RUDDER RATIO message on EICAS is verified to operate normally.
- Both control channels operate normally.

MAINTENANCE (M)

Verify the RUDDER RATIO advisory message operates normally.

- Do the Rudder Ratio Changer System - Test within the System Test - Rudder and Rudder Trim Control task (AMM 27-21-00/501).
- Ignore steps regarding the RUDDER RATIO light.
- Confirm steps regarding the RUDDER RATIO advisory message.


27-21-02 Power Control Unit Monitor System (Including Pressure Differential Sensors)

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided Power Control Unit Actuators are verified to operate normally by performing a single hydraulic system flight controls check with each hydraulic system before each departure.

MAINTENANCE (M)

Before each departure, perform a single hydraulic system flight controls check with each of the three hydraulic systems.

1. Supply pressure to the left, right and center hydraulic systems (AMM 29-11-00/201).
 2. Successively, establish the following hydraulic configurations:
 - A. Center system test:
 - 1) Set the hydraulic panel center electric pump switches ON.
 - 2) Confirm the center electric pump PRESS lights are extinguished.

NOTE: If the airplane is using only APU or ground power, there is no power to the number 2 pump therefore only the number 1 center electric pump will come on and only the PRESS light for the number 1 pump will extinguish.

 - 3) Set left and right pump switches OFF.
 - B. Left system test:
 - 1) Set the hydraulic panel left engine or left electric pump switch ON.
 - 2) Confirm the associated pump PRESS light is extinguished.
 - 3) Set all right and center pump switches OFF.
 - C. Right system test:
 - 1) Set the hydraulic panel right engine or right electric pump switch ON.
 - 2) Confirm the associated pump PRESS light is extinguished.
 - 3) Set all left and center pump switches OFF.
3. For each hydraulic configuration, perform the following checks:
 - A. Rudder check:



NOTE: Hold the nose wheel steering tiller stationary during rudder check to prevent nose wheel movement.

- 1) Displace the rudder in both directions while observing rudder deflection on the EICAS status display.
- 2) Confirm movement in the proper direction and confirm deflection rate is normal. Rate is non-normal if control surface deflection lags significantly behind pilot input.

B. Elevator check:

- 1) Set the stabilizer to 7 units.
- 2) Displace the control column forward and aft while observing elevator deflection on the EICAS status display. The control column sweep should be accomplished at a rate of 8-12 seconds for a full column sweep (from neutral to full nose up to full nose down to neutral).
- 3) Confirm movement in the proper direction and confirm deflection rate is normal. Rate is non-normal if control surface deflection lags significantly behind pilot input.
- 4) Also confirm both elevators track the column input and that there is no significant disagreement between the two surfaces.
- 5) Confirm each surface returns to the neutral position when the column is returned to neutral.

NOTE: The SPOILERS light and message may illuminate if the control wheel is displaced with only center system hydraulics available. The light will extinguish after the left and right hydraulic systems are powered.

4. Restore hydraulic panel pump switch settings as required and observe pump PRESS lights are as appropriate.
5. Reset the stabilizer to takeoff trim setting, as required.

**27-21-03 Rudder Trim Indication System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Rudder trim actuator operates normally.
 - b. Rudder control surface position indicating system operates normally.
 - c. Rudder trim is verified to be centered before each departure.
-

MAINTENANCE (M)

Confirm the rudder trim actuator operates normally, and before each departure verify the rudder trim is centered.

1. Confirm rudder trim actuator operates normally:
 - A. Supply electrical power (AMM 24-22-00/201).
 - B. Supply hydraulic pressure (AMM 29-11-00/201).
 - C. Select STATUS on the EICAS DISPLAY panel to display the flight controls position indications.
 - D. Rotate the rudder trim control to NOSE LEFT.
 - 1) On both the captain's and first officer's sides, confirm the left rudder pedals move forward and the right rudder pedals move aft.
 - 2) Confirm the rudder position indication on EICAS indicates rudder moving to the left.
 - E. Rotate the rudder trim control to NOSE RIGHT.
 - 1) On both the captain's and first officer's sides, confirm the left rudder pedals move aft and the right rudder pedals move forward.
 - 2) Confirm the rudder position indication on EICAS indicates rudder moving to the right.
2. Before each departure verify the rudder trim is centered:
 - A. Set the rudder trim control to the neutral position.
 - 1) On both the captain's and first officer's sides, confirm the rudder pedals are aligned.
 - 2) Confirm the rudder position indication on EICAS indicates rudder is centered.


27-32-01 Stall Warning Test Systems

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided operation of associated system is verified once each flight day.

MAINTENANCE (M)

Once each flight day, verify operation of the associated system.

1. Confirm the trailing edge flaps and leading edge slats are fully retracted with the flap lever in the zero (flaps up) detent.
2. Supply electrical power (AMM 24-22-00/201).
3. Supply left hydraulic system pressure (AMM 29-11-00/201).
4. Set the flap lever in the 1-unit detent and confirm the flaps and slats extend.
5. Confirm the left and right angle-of-attack vanes are parallel to the ground.
6. Provide a pressure source to pressurize the upper left and upper right pitot probes to 140-150 knots (0.47 -0.54 psig) regulated air pressure (AMM 34-11-00/501).
7. For left stall warning test system inoperative:
 - A. Open the following circuit breakers:
 - 1) P6 panel, CAPT MAIN PITOT HEAT
 - 2) P6 panel, F/O MAIN PITOT HEAT
 - 3) P6 panel, L AUX PITOT HEAT and R AUX PITOT HEAT
 - 4) P6 panel, L AOA PROBE HT
 - 5) P11 panel, LANDING GEAR AIR/GND SYS 1
 - B. Confirm the left AOA vane is cool enough to touch.
 - C. Rotate the left AOA vane counterclockwise (vane trailing edge up) approximately 20 degrees, and confirm the left stick shaker shakes the control column and that slats deploy.
 - D. Rotate the left AOA vane to the original position, and confirm the left stick shaker stops shaking and slats return to the sealed position.
 - E. Close the open circuit breakers.
8. For right stall warning test system inoperative:
 - A. Open the following circuit breakers:
 - 1) P6 panel, CAPT MAIN PITOT HEAT
 - 2) P6 panel, F/O MAIN PITOT HEAT
 - 3) P6 panel, L AUX PITOT HEAT and R AUX PITOT HEAT
 - 4) P6 panel, R AOA PROBE HT
 - 5) P11 panel, LANDING GEAR AIR/GND SYS 2



- B. Confirm the right AOA vane is cool enough to touch.
- C. Rotate the right AOA vane clockwise (vane trailing edge up) approximately 20 degrees, and confirm the right stick shaker shakes the control column and that slats deploy.
- D. Rotate the right AOA vane to the original position, and confirm the right stick shaker stops shaking and slats return to the sealed position.
- E. Close the open circuit breakers.

**27-32-02 Stall Warning/Autoslat Systems**

Interval	Installed	Required	Procedure
A	2	1	(M)

One may be inoperative provided:

- Remaining system is verified to operate normally before each departure.
- Operations are limited to not more than three flight days before repair is made.

MAINTENANCE (M)

Before each departure, verify the remaining stall warning/autoslat system operates normally.

- Supply electrical power (AMM 24-22-00/201).
- Open the following P11 panel circuit breakers:
 - WARN ELEX A
 - WARN ELEX B
- Close the WARN ELEX A circuit breaker.
- Supply left hydraulic system pressure (AMM 29-11-00/201).
- Set the flap lever in the 1-unit detent and confirm the flaps move to 1 (one) and the slats move to the intermediate (takeoff) position.
- Hold both P61 panel L/R STALL TEST switches in the STALL position.
- Confirm one stick shaker operates normally (both may operate if the deferral is for a nuisance condition) and confirm the slats move to the fully extended (landing) position.
- Release the L/R STALL TEST switches.
- Confirm stick shaker stops and the slats retract to the intermediate (takeoff) position.
- Open the P11 panel WARN ELEX A circuit breaker.
- Close the WARN ELEX B circuit breaker.
- Hold both P61 panel L/R STALL TEST switches in the STALL position.
- Confirm the same stick shaker operates normally (both may operate if the deferral is for a nuisance condition) and confirm the slats move to the fully extended (landing) position.
- Release the L/R STALL TEST switches.
- Confirm stick shaker stops and the slats retract to the intermediate (takeoff) position.
- Close the WARN ELEX A circuit breaker.
- For a nuisance stick shaker or autoslat activation, open and collar the associated P11 panel STICK SHAKER L (R) circuit breaker.



18. For a nuisance autoslat activation, remove the associated stall warning module (SWM):
- A. Open the following P11 panel circuit breakers:
 - 1) WARN ELEX A
 - 2) WARN ELEX B
 - B. Gain access to the SWM (27-32-01/401).
 - C. Remove the associated SWM (AMM 20-10-01/401):
 - 1) Module M615, left stall warning module
 - 2) Module M938, right stall warning module
 - D. Close the open circuit breakers.
 - E. Confirm slats are in the intermediate position with the flap lever in the 1-unit detent.

**27-41-01 Control Wheel Trim Switch Systems**

Interval	Installed	Required	Procedure
B	2	1	(M)

One may be inoperative on non-flying pilot's side provided stabilizer trim system is verified to operate normally.

MAINTENANCE (M)

Verify the stabilizer trim system operates normally.

1. Confirm the stabilizer trim system operates normally using MEL Item 27-41-02 (M) procedure.
 - A. Use the remaining set of control wheel trim switches to do the steps.
 - B. Confirm the remaining switches are operative in each direction for at least three seconds and observe corresponding stabilizer motion.
 - C. Confirm the remaining switches are operative for both configurations of the stabilizer cutout switches (both STCMs are operative).



27-41-02 Horizontal Stabilizer Primary Trim Channels

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

Two required for CAT IIIb approach.

One may be inoperative provided:

- a. Horizontal stabilizer trim operates normally using stabilizer trim levers (Alternate Stabilizer Trim Switches).
- b. Approach minimums do not require use of three autopilots.
- c. No arm or control valves are failed in energized position.

NOTE: Minimum One Active System is required for LVO Operation.

MAINTENANCE (M)

Confirm horizontal stabilizer trim operates normally using the stabilizer trim levers (or electric alternate trim switches), and confirm no arm or control valve is failed in the energized position.

- 1. Supply electrical power (AMM 24-22-00/201).
- 2. Supply right and center hydraulic system power (AMM 29-11-00/201).
- 3. Confirm the following P11 panel circuit breakers are closed:
 - A. STAB TRIM SHUTOFF L
 - B. STAB TRIM SHUTOFF R
 - C. STAB TRIM CONT L
- 4. Confirm the stabilizer is positioned between 6 and 12 units of trim.
- 5. Confirm the P61 panel R and C FLT CONTROL SHUTOFF switches are ON.
- 6. Set the R STAB TRIM cutout switch on the control stand to NORM and the C STAB TRIM cutout switch to CUTOUT.
 - A. Move either the captain's or the first officer's stabilizer trim control wheel switches up and then down. If the stabilizer does not move as commanded, the right stabilizer trim control module is inoperative.
 - B. Move both stabilizer manual trim levers (or electric alternate trim switches) on the control stand in both the airplane nose up and airplane nose down directions. Confirm the stabilizer moves in both directions.
- 7. Set the R STAB TRIM cutout switch to CUTOUT and the C STAB TRIM cutout switch to NORM.
 - A. Move either the captain's or the first officer's stabilizer trim control wheel switches up and then down. If the stabilizer does not move as commanded, the left stabilizer trim control module is inoperative.



-
- B. Move both stabilizer manual trim levers (or electric alternate trim switches) on the control stand in both the airplane nose up and airplane nose down directions. Confirm the stabilizer moves in both directions.
 8. Set the R STAB TRIM cutout switch to NORM.
 9. Move the left stabilizer manual trim lever (or electric alternate trim switch) on the control stand in both the airplane nose up and airplane nose down directions. Confirm the stabilizer does not move.
 10. Move the right stabilizer manual trim lever (or electric alternate trim switch) on the control stand in both the airplane nose up and airplane nose down directions. Confirm the stabilizer does not move.
 11. Placard the autopilot channel associated with the inoperative stabilizer trim control module (STCM):
 - A. For left STCM inoperative, L autopilot channel - INOP.
 - B. For right STCM inoperative, R autopilot channel - INOP.

NOTE: It is not necessary to perform the MAINTENANCE steps for the inoperative autopilot (MEL Item 22-10-01).

OPERATIONS (O)

1. The STAB TRIM Light may illuminate.
2. If the light illuminates, trimming using the control wheel switches will be reduced to half the normal rate.
3. Full trim rate is available from the alternate trim system.



27-48-01 STAB TRIM Indicators

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided faulty indicator is not visible.



27-51-01 Automatic Flap Load Relief Retraction System
(Trailing Edge)

Interval	Installed	Required	Procedure
C	1	0	(O)

Flaps 30 retractor may be inoperative provided Flaps 30 adjusted maximum landing weight is observed.

NOTE: Flaps 25 may be used to AFM limit maximum landing weight.

OPERATIONS (O)

Adjust maximum landing weights as follows:

Maximum Landing Weight

For 757-200:

183,000 lb

For 757-200:

83,000 kg

**27-51-02 Flap Isolation Valve (Flap/Slat Depressurization Module - Shutoff Function)****27-51-02-01 Airplanes Not Equipped with FSAM**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative open provided FSEUs and by-pass valves are verified to operate normally.

MAINTENANCE (M)

Confirm the flap isolation valve is open and verify the FSEUs and bypass valves operate normally.

1. Confirm the flap isolation valve (shutoff valve in the depressurization module) is open:
 - A. Supply electrical power (AMM 24-22-00/201).
 - B. Supply left hydraulic system pressure (AMM 29-11-00/201).
 - C. Set the flap lever in two different detents and confirm the flaps move as commanded.
2. Verify the bypass valves operate normally:
 - A. Set the flap lever in the 1-unit detent.
 - B. Open the P11 panel FLAP/SLAT SHUTOFF 1 circuit breaker.
 - C. Gain access to the FSEU data bus (AMM 27-58-01/501).
 - D. Do one of the following:
 - 1) For configurations with pin #4 on the FSEU data bus test receptacle, ground the pin for at least ten seconds.
 - 2) For airplanes without this pin, apply a ground to any of the four pins in terminal block TB183-YA19 on the back of the E5-1 shelf.
 - E. Confirm the LE SLAT ASYM caution message appears and the amber LEADING EDGE light illuminates.
 - F. Set the flap lever in the 15-unit detent.
 - G. Confirm there is no flap or slat motion.
 - H. Set the flap lever in the 1-unit detent.
 - I. Position an observer to watch the slats.
 - J. Hold both P61 panel L/R STALL TEST switches in the STALL position.
 - K. Confirm through the observer there is no slat motion.
 - L. Close the open circuit breaker.
 - M. Open and then close the P11 panel FLAP/SLAT ELEC UNIT 1 PWR circuit breaker to clear the LE SLAT ASYM caution message.



-
3. Verify the flap slat electronic units (FSEUs) operate normally. Do one of the following:
 - A. Confirm the three FSEUs operate normally by performing the FSEU BITE procedure (AMM 27-51-00/501).
 - B. With all buses normally powered, confirm neither the FLAP/SLAT ELEC status message or the FLAP/SLAT BITE maintenance message is displayed.


27-59-01 Trailing Edge Flap Skew Sensors

Interval	Installed	Required	Procedure
C	8	6	(M)

One pair may be inoperative on one flap segment provided both sensors are deactivated.

MAINTENANCE (M)

Deactivate the inboard and outboard skew sensors on the associated flap segment.

1. Supply electrical power (AMM 24-22-00/201).
2. Supply left hydraulic system pressure (AMM 29-11-00/201).
3. Set the flap lever in the 30-unit detent.
4. Remove power from the left hydraulic system (AMM 29-11-00/201).
5. Open the following P11 panel circuit breakers:
 - A. WARN ELEX B
 - B. HYDRAULICS PTU CONT
 - C. FLAP/SLAT ACCESSORY MODULE CONT
 - D. FLAP/SLAT ACCESSORY MODULE SENSOR
 - E. FLAP/SLAT ALTN DR SHUTOFF ARM
 - F. FLAP LOAD RELIEF
 - G. WARN ELEX A
6. Open the following P6 panel circuit breakers:
 - A. ALTN SLAT PWR
 - B. ALTN FLAP PWR
7. Install a PDU lock on the TE flap PDU.
8. Gain access to the affected flap skew sensors (AMM 27-59-01/401).
9. Disconnect, cap and stow the electrical connector from the flap skew sensors (inboard and outboard end) on the associated flap segment.
10. Close the open circuit breakers.
11. Remove the PDU lock on the TE flap PDU.
12. Confirm the flaps operate normally:
 - A. Supply left hydraulic system pressure (AMM 29-11-00/201).
 - B. Set the flap lever in the UP detent. Confirm the trailing edge flaps fully retract.
 - C. Set the flap lever in the 30 unit detent. Confirm the trailing edge flaps fully extend.
 - D. Set the flap lever as required.


27-61-01 Spoiler Systems
27-61-01-01 Ground Spoilers

Interval	Installed	Required	Procedure
C	2	0	(M) (O)

One symmetrical pair may be inoperative in down position provided:

- a. All flight spoilers are verified to operate normally once each flight day.
- b. Antiskid system operates normally.
- c. Flaps 1 takeoff operation is prohibited.
- d. Appropriate performance adjustments are applied.

NOTE: This relief does not apply if spoiler panel is detached from the actuator.

MAINTENANCE (M)

Verify all flight spoilers operate normally once each flight day and, if necessary, deactivate the affected spoiler pair in the down position.

1. Once each flight day, verify all flight spoilers operate normally:
 - A. Turn the control wheel full counterclockwise. Confirm the left wing flight spoilers extend.
 NOTE: Spoilers 1, 2, 3, and 5 will extend approximately 45°. Spoiler number 6 will extend approximately 30°.
 - B. Confirm the #4 spoiler remains down.
 - C. Center the control wheel. Confirm the left wing flight spoilers retract.
 - D. Turn the control wheel full clockwise. Confirm the right wing flight spoilers extend.
 NOTE: Spoilers 8, 10, 11, and 12 will extend approximately 45°. Spoiler number 7 will extend approximately 30°.
 - E. Confirm the #9 spoiler remains down.
 - F. Center the control wheel. Confirm the right wing flight spoilers retract.
 - G. Set the speedbrake lever in the UP position. Confirm the flight spoilers extend to their up positions.
 NOTE: Spoilers 1, 2, 3, 5, 8, 10, 11 and 12 will extend approximately 45°. Spoilers 6 and 7 will extend approximately 30°.
 - H. Confirm the ground spoilers (4 and 9) remain down.
 - I. Set the speedbrake lever in the DOWN position. Confirm the flight spoilers retract.
2. To deactivate the affected spoiler pair and secure it in the retracted position:



NOTE: It is permissible to dispatch with the spoiler pair not deactivated provided the spoiler panels remain in the retracted position with both wheel and speedbrake lever input.

- A. Do the deactivation procedure for the spoiler/speedbrake control system (AMM 27-61-00/201).
- B. Remove power from the left, right, and center hydraulic systems (AMM 29-11-00/201).
- C. Operate the manual release cam on the bottom of the PCA and manually move the spoiler panel to the up position.
- D. Disconnect, cap and stow the electrical connector from the PCA.
- E. Manually move the spoiler panel to a position slightly above the neutral position.
- F. Do the activation procedure for the spoiler/speedbrake control system (AMM 27-61-00/201).
- G. Pressurize the left, center, and right hydraulic systems (AMM 29-11-00/201).
- H. Confirm the deactivated spoiler panels return to their neutral positions and are held in this position by their PCAs.
- I. Confirm the operative spoilers operate normally with the "once each flight day" procedure.

OPERATIONS (O)

1. Do not use Flaps 1 for takeoff.
2. The minimum takeoff field length required is 6,000 feet.
3. Apply the following performance adjustments:

Runway Condition	Takeoff Field Length Limited Weight Reduction	Adjustment in V1	Required Landing Field Length Adjustment (Flaps 25 & 30)
Dry	2,200 lbs. (1000 kg.)	-2 knots	+500 ft
Wet	2,100 lbs. (950 kg.)	-1 knot	+600 ft
Slippery	2,600 lbs. (1200 kg.)	-2 knots	+600 ft
Slush/ Standing Water	2,700 lbs. (1225 kg.)	-2 knots	N/A

4. The amber SPOILERS light will be illuminated and the SPOILERS advisory message will be displayed.


27-61-01 Spoiler Systems
27-61-01-02 Flight Spoilers

Interval	Installed	Required	Procedure
C	10	8	(M) (O)

One symmetrical pair may be inoperative in down position provided:

- Ground spoilers are verified to operate normally once each flight day.
- Antiskid system operates normally.
- Flaps 1 takeoff operation is prohibited.
- Airplane remains at or below FL 300.
- Airspeed does not exceed 270 knots or .70 Mach, whichever is lower.
- Autoland operation is prohibited.
- Autospoiler operation is prohibited for landing, and AFM decrements are applied.
- Appropriate performance adjustments are applied.

NOTE: This relief does not apply if spoiler panel is detached from the actuator.

MAINTENANCE (M)

Verify the ground spoilers and the operative flight spoilers operate normally once each flight day and, if necessary, deactivate the affected spoiler pair in the down position.

- Once each flight day, verify operative spoilers operate normally:
 - Turn the control wheel full counterclockwise. Confirm the operative left wing flight spoilers extend.
NOTE: Spoilers 1, 2, 3, and 5 will extend approximately 45°. Spoiler number 6 will extend approximately 30°.
 - Confirm the inoperative left wing spoiler remains down.
 - Center the control wheel. Confirm the operative left wing flight spoilers retract.
 - Turn the control wheel full clockwise. Confirm the operative right wing flight spoilers extend.
NOTE: Spoilers 8, 10, 11, and 12 will extend approximately 45°. Spoiler number 7 will extend approximately 30°.
 - Confirm the inoperative right wing spoiler remains down.
 - Center the control wheel. Confirm the operative right wing flight spoilers retract.
 - Set the speedbrake lever in the UP position. Confirm all operative spoilers extend to their up positions.



NOTE: 1, 2, 3, 5, 8, 10, 11 and 12 will extend approximately 45°. Spoilers 6 and 7 will extend approximately 30°. Spoilers 4 and 9 will extend approximately 55°.

- H. Confirm the inoperative spoiler pair remains down.
 - I. Set the speedbrake lever in the DOWN position. Confirm the operative spoilers retract.
2. To deactivate the affected spoiler pair and secure it in the retracted position:

NOTE: It is permissible to dispatch with the spoiler pair not deactivated provided the spoiler panels remain in the retracted position with both wheel and speedbrake lever input.

- A. Do the deactivation procedure for the spoiler/speedbrake control system (AMM 27-61-00/201).
- B. Remove power from the left, right, and center hydraulic systems (AMM 29-11-00/201).
- C. Operate the manual release cam on the bottom of the PCA and manually move the spoiler panel to the up position.
- D. Disconnect, cap and stow the electrical connector from the PCA.
- E. Manually move the spoiler panel to a position slightly above the neutral position.
- F. Do the activation procedure for the spoiler/speedbrake control system (AMM 27-61-00/201).
- G. Pressurize the left, center, and right hydraulic systems (AMM 29-11-00/201).
- H. Confirm the deactivated spoiler panels return to their neutral positions and are held in this position by their PCAs.
- I. Confirm the operative spoilers operate normally with the "once each flight day" procedure.

OPERATIONS (O)

- 1. Do not use Flaps 1 for takeoff.
- 2. Maximum takeoff weight (MTOW) is 217,000 lb (98,436 kg)
- 3. The minimum takeoff field length required is 6,000 feet.



4. Apply the following performance adjustments:

Runway Condition	Takeoff Field Length Limited Weight Reduction	Adjustment in V1	Required Landing Field Length Adjustment (Flaps 25 & 30)
Dry	2,200 lbs. (1000 kg.)	-2 knots	+500 ft
Wet	2,100 lbs. (950 kg.)	-1 knot	+600 ft
Slippery	2,600 lbs. (1200 kg.)	-2 knots	+600 ft
Slush/ Standing Water	2,700 lbs. (1225 kg.)	-2 knots	N/A

5. The amber SPOILERS light will be illuminated and the SPOILERS advisory message will be displayed.
6. Do not exceed FL300.
7. Do not exceed 270 knots or .70 Mach .
8. Do not use autoland.
9. Do not use auto speedbrakes.
- A. Change the normal landing checklist from
SPEEDBRAKE.....ARMED to SPEEDBRAKE.....DOWN.
- B. Confirm the airplane nose is lowering toward the runway before speedbrakes are deployed.

27-61-01 Spoiler Systems

27-61-01-03 Speed Brake Load Alleviation System (VQ-BHR, VQ-BKM)

27-61-01-03A All Takeoff Weights

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- Speedbrake handle forces are verified normal from full down to full up position.
- Airspeed does not exceed 275 KIAS when inflight gross weight is in excess of 221,000 pounds (100,246 kg).
- Severe turbulent air penetration speed is 275 KIAS or .78 Mach, whichever is lower, when inflight gross weight is in excess of 221,000 pounds (100,246 kg).

**MAINTENANCE (M)**

Deactivate the speedbrake autostow controller and verify speedbrake handle forces are normal from the full down to the full up position.

1. Open and collar the P6 panel SPDBRK AUTOSTOW circuit breaker.
2. Open the P11 panel AUTO SPEED BRAKE circuit breaker.
3. Remove the airplane harness connector from the speedbrake autostow controller (SAC) and remove the cover from the adjacent test connector.
4. Install the airplane harness connector on the adjacent test connector and install the test cover on the SAC connector.
5. Close the P11 panel AUTO SPEED BRAKE circuit breaker.
6. Set the speedbrake lever to UP and then back to DOWN. Confirm the speedbrake handle forces are normal throughout the range of motion.

27-61-01 Spoiler Systems**27-61-01-03 Speed Brake Load Alleviation System (VQ-BHR, VQ-BKM)****27-61-01-03B TO Weight 221,500 lb Or Less**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Speedbrake handle forces are verified normal from full down to full up position.
 - b. Takeoff weight does not exceed 221,500 pounds (100,470 kg).
-

MAINTENANCE (M)

Deactivate the speedbrake autostow controller and verify speedbrake handle forces are normal from the full down to the full up position.

1. Open and collar the P6 panel SPDBRK AUTOSTOW circuit breaker.
2. Open the P11 panel AUTO SPEED BRAKE circuit breaker.
3. Remove the airplane harness connector from the speedbrake autostow controller (SAC) and remove the cover from the adjacent test connector.
4. Install the airplane harness connector on the adjacent test connector and install the test cover on the SAC connector.
5. Close the P11 panel AUTO SPEED BRAKE circuit breaker.
6. Set the speedbrake lever to UP and then back to DOWN. Confirm the speedbrake handle forces are normal throughout the range of motion.

**27-61-02 Spoiler Inhibit System*********

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided system is deactivated.

MAINTENANCE (M)

Deactivate the spoiler inhibit system.

Open and collar the following P11 panel circuit breakers:

1. CSEU 1L-DC or FLT CONT ELEC 1L DC
2. CSEU 2L-DC or FLT CONT ELEC 2L DC


27-62-01 Auto Speed Brake System
27-62-01-01 Airplanes without Speed Brake Load Alleviation System

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- a. System is deactivated.
- b. Appropriate performance adjustments are applied.

MAINTENANCE (M)

Deactivate the auto speedbrake system.

1. Open and collar the P11 panel AUTO SPEED BRAKE circuit breaker.
2. Place tape over the AUTO SPDBRK light or remove the bulb.

OPERATIONS (O)

1. For airplanes certified based on landing field length credit for auto speedbrakes, use AFM penalties for manual speedbrake operation.
2. Extend speedbrakes manually for rejected takeoff or landing.
 - A. For rejected takeoff:
 - 1) Simultaneously close the thrust levers, disengage the autothrottles and apply maximum manual wheel brakes or verify operation of RTO autobrakes.
 - 2) Manually raise the speedbrake lever.
 - 3) Apply the maximum amount of reverse thrust consistent with conditions.
 - B. For landing, do the AUTO SPEEDBRAKE Non-Normal Checklist.

27-62-01 Auto Speed Brake System
27-62-01-02 Airplanes with Speed Brake Load Alleviation System (VQ-BHR, VQ-BKM)
27-62-01-02A All Takeoff Weights

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- a. System is deactivated.
- b. Appropriate performance adjustments are applied.
- c. Airspeed does not exceed 275 KIAS when inflight gross weight is in excess of 221,000 pounds (100,246 kg).



- d. Severe turbulent air penetration speed is 275 KIAS or .78 Mach, whichever is lower, when inflight gross weight is in excess of 221,000 pounds (100,246 kg).

MAINTENANCE (M)

Deactivate the auto speedbrake system and the speedbrake load alleviation system.

1. Open and collar the P11 panel AUTO SPEED BRAKE circuit breaker.
2. Place tape over the AUTO SPDBRK light or remove the bulb.
3. Open and collar the P6 panel SPDBRK AUTOSTOW circuit breaker.
4. Remove the airplane harness connector from the speedbrake autostow controller (SAC) and remove the cover from the adjacent test connector.
5. Install the airplane harness connector on the adjacent test connector and install the test cover on the SAC connector.
6. Set the speedbrake lever to UP and then back to DOWN. Confirm the speedbrake handle forces are normal throughout the range of motion.

OPERATIONS (O)

1. For airplanes certified based on landing field length credit for auto speedbrakes, use AFM penalties for manual speedbrake operation.
2. Extend speedbrakes manually for rejected takeoff or landing.
 - A. For rejected takeoff:
 - 1) Simultaneously close the thrust levers, disengage the autothrottles and apply maximum manual wheel brakes or verify operation of RTO autobrakes.
 - 2) Manually raise the speedbrake lever.
 - 3) Apply the maximum amount of reverse thrust consistent with conditions.
 - B. For landing, do the AUTO SPEEDBRAKE Non-Normal Checklist.

27-62-01 Auto Speed Brake System

27-62-01-02 Airplanes with Speed Brake Load Alleviation System (VQ-BHR, VQ-BKM)

27-62-01-02B TO Weight 221,500 lb Or Less

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- a. System is deactivated.
- b. Appropriate performance adjustments are applied.



- c. Takeoff weight does not exceed 221,500 pounds (100,470 kg).
-

MAINTENANCE (M)

Deactivate the auto speedbrake system and the speedbrake load alleviation system.

1. Open and collar the P11 panel AUTO SPEED BRAKE circuit breaker.
2. Place tape over the AUTO SPDBRK light or remove the bulb.
3. Open and collar the P6 panel SPDBRK AUTOSTOW circuit breaker.
4. Remove the airplane harness connector from the speedbrake autostow controller (SAC) and remove the cover from the adjacent test connector.
5. Install the airplane harness connector on the adjacent test connector and install the test cover on the SAC connector.
6. Set the speedbrake lever to UP and then back to DOWN. Confirm the speedbrake handle forces are normal throughout the range of motion.

OPERATIONS (O)

1. For airplanes certified based on landing field length credit for auto speedbrakes, use AFM penalties for manual speedbrake operation.
2. Extend speedbrakes manually for rejected takeoff or landing.
 - A. For rejected takeoff:
 - 1) Simultaneously close the thrust levers, disengage the autothrottles and apply maximum manual wheel brakes or verify operation of RTO autobrakes.
 - 2) Manually raise the speedbrake lever.
 - 3) Apply the maximum amount of reverse thrust consistent with conditions.
 - B. For landing, do the AUTO SPEEDBRAKE Non-Normal Checklist.



27-62-02 Speedbrake Caution Indication System

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided speedbrake lever is not positioned beyond ARMED position inflight below 800 feet radio altitude or when landing flaps are extended.

OPERATIONS (O)

Do not position the speed brake lever beyond the arm detent inflight below 800 ft radio altitude or when landing flaps are extended.


27-63-01 AUTO SPDBRK, SPOILERS, and STAB TRIM Lights

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided associated EICAS message is verified to operate once each flight day.

MAINTENANCE (M)

Once each flight day, verify the associated advisory message operates normally.

For AUTO SPDBRK light inoperative:

1. Open the P11 panel AUTO SPEED BRAKE circuit breaker.
2. Confirm the AUTO SPEEDBRAKE advisory message is displayed.
3. Close the open circuit breaker.
4. Confirm the AUTO SPEEDBRAKE advisory message is not displayed.

For SPOILERS light inoperative:

1. Set the EICAS control panel COMPUTER selector to AUTO.
2. Open the following P11 panel circuit breakers:
 - A. FLT CONT ELEC 1L AC
 - B. FLT CONT ELEC 1R AC
 - C. FLT CONT ELEC 2L AC
 - D. FLT CONT ELEC 2R AC
3. Confirm the SPOILERS advisory message is displayed.
4. Close the open circuit breakers.
5. Confirm the SPOILERS advisory message is not displayed.

For STAB TRIM light inoperative:

1. Supply electrical power (AMM 24-22-00/201).
2. Supply hydraulic power to the center and right hydraulic systems (AMM 29-11-00/201).
3. Confirm the following P11 panel circuit breakers are closed:
 - A. STAB TRIM CONT L
 - B. STAB TRIM SHUTOFF L
 - C. STAB TRIM SHUTOFF R
 - D. L STAB TRIM POS IND
 - E. R STAB TRIM POS IND
4. Set the stabilizer between 4 and 14 units.
5. Set the P61 panel C FLT CONTROL SHUTOFF and R FLT CONTROL SHUTOFF switches to ON.
6. Set the EICAS control panel COMPUTER selector to R.
7. Set the C STAB TRIM cutout switch to NORM.



8. Set the R STAB TRIM cutout switch to CUTOUT.
9. Trim the stabilizer in the airplane nose down direction with the wheel mounted thumb switches and confirm the STAB TRIM advisory message is displayed.
10. Set the R STAB TRIM cutout switch to NORM.
11. Trim the stabilizer in the airplane nose down direction with the wheel mounted thumb switches and confirm the STAB TRIM advisory message is not displayed.
12. Set the EICAS control panel COMPUTER selector to AUTO.

**27-81-01 Inboard Slat Loss Sensing System**

Interval	Installed	Required	Procedure
A	2	1	(M) (O)

Either left or right switch may be inoperative provided:

- Slat loss sensing system is deactivated.
- Minimum approach speeds are increased by 10 kts for each approach.
- Repair is made within one flight day.

MAINTENANCE (M)

Deactivate the slat loss sensing system.

- Confirm there is no damage to the slat, slat main tracks, and slat auxiliary arms (AMM 27-81-01/601, Inboard Leading Edge Slat - Inspection/Check).
- Gain access to the inboard slat loss sensing switch (AMM 27-81-41/401).
- Disconnect, tape and stow the wire from the inboard slat loss sensing switch (WDM 27-81-31):
 - For airplanes delivered prior to line number 689, wire number 3
 - For airplanes delivered prior to line number 689 with Service Bulletin 757-27-0117 incorporated, wire number 2
 - For airplanes line number 689 and later, wire number 2
- Cap the slat loss sensing switch.
- Set the Flap lever to the 25-unit detent to extend the slats to the landing position.
- Confirm the slats operate normally.
- Confirm the LE SLAT ASYM caution message is not displayed.

OPERATIONS (O)

- Increase VREF speed by 10 kts.
- Adjust the landing field length required as follows:
 - 200, Flaps 25 & 30, Dry Runway: add 700 ft
 - 200, Flaps 25 & 30, Wet Runway: add 800 ft
 - 300: use the Boeing Landing Module with the 10 knot increase to VREF speed to calculate the increased field length required.



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Section 2

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**28-11-01 Sump Drain Valves**

Interval	Installed	Required	Procedure
C	6	5	(M)

One may be inoperative closed.

MAINTENANCE (M)

Confirm there is no unacceptable leakage and take precautions to prevent fuel contamination.

1. Visually inspect exterior surface location of the inoperative sump drain valve for evidence of fuel leakage.
2. Confirm the leakage rate is within specified tolerances (AMM 28-11-00/601).
3. Before and after each fuel service, confirm fueling equipment has not accumulated moisture.

**28-21-01 Pressure Fueling System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided alternate procedures are established and used.

MAINTENANCE (M)

Use alternate procedures for refueling.

NOTE: The auto overfill system may be overridden with the overfill reset switch.

1. Use individual components of the pressure fuel system that operate normally.
2. For the entire system inoperative, use overwing fueling (AMM 12-11-02/301).
3. For the automatic function of fuel shutoff valves inoperative, use manual operation (AMM 12-11-01/301).

28-21-01 Pressure Fueling System**28-21-01-01 Fuel Shutoff Valves**

Interval	Installed	Required	Procedure
C	4	0	(M)

May be inoperative closed.

MAINTENANCE (M)

Open the fueling shutoff valve and fuel the airplane in accordance with established procedures.

1. Gain access to the inoperative fueling shutoff valve (AMM 28-21-02/401).
2. Remove the lockwire on the manual override knob.
3. Open the fueling shutoff valve.
4. Fuel the airplane in accordance with established procedures (AMM 12-11-01/301).
5. Close the fueling shutoff valve.
6. Replace the lockwire on the manual override knob.


28-22-01 Main Tank Fuel Pumps (ETOPS)

Interval	Installed	Required	Procedure
C	4	3	(M) (O)

Except for ER operations beyond 120 minutes, one may be inoperative provided:

- a. Inoperative pump is deactivated.
- b. Both main tank quantity indications operate normally.
- c. Appropriate minimum fuel quantities are maintained in affected tank for associated flight condition.

MAINTENANCE (M)

Deactivate the inoperative pump.

1. Set the affected fuel pump switch to OFF.
2. Open and collar the associated P6 panel circuit breaker:
 - A. L AFT FUEL BOOST PUMP
 - B. L FWD FUEL BOOST PUMP
 - C. R AFT FUEL BOOST PUMP
 - D. R FWD FUEL BOOST PUMP

OPERATIONS (O)

1. Ensure the following minimum fuel quantities are available for takeoff and landing:

Flight Condition	Boost Pump Inoperative	
	FWD Pump	AFT Pump
Takeoff	8,000 lb	12,200 lb
	3,629 kg	5,534 kg
Landing (at flight termination)	1,500 lb	1,500 lb
	680 kg	680 kg

2. The minimum fuel quantities provide sufficient fuel to ensure the operable main tank pump inlet and suction bypass inlet will remain covered at expected pitch attitudes during takeoff and landing.
3. The landing minimum fuel quantity must be considered unusable.
4. For left, forward main tank fuel pump inoperative, the fuel remaining in the center tank after center tank pumps are selected off should be considered unusable. The unusable fuel is about 23 gallons.

**28-22-01 Main Tank Fuel Pumps (ETOPS)****28-22-01-01 Automatic Function of Left FWD Pump**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

1. Start the APU.
2. With the APU running and AC power available, set the left forward fuel pump switch to ON.


28-22-02 Center Tank Fuel Pumps
28-22-02A One Inoperative, Center Tank Fuel Used

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative with center tank fueled provided:

- Fuel quantity in main tanks is adequate to reach a suitable airport if remaining pump fails at any time.
- Zero fuel weight calculations are adjusted by weight of center tank fuel.
- Effect on airplane balance, in event fuel cannot be used, is accounted for.
- Low PRESS light operates normally on remaining pump.
- Center tank quantity indication operates normally.
- Affected pump is deactivated.

MAINTENANCE (M)

Deactivate the inoperative pump.

- Set the inoperative fuel pump switch to OFF.
- Open and collar the associated P6 panel circuit breaker:
 - L FUEL OVRD PUMP
 - R FUEL OVRD PUMP

OPERATIONS (O)

- Adjust the zero fuel weight of the airplane by including the weight of center tank fuel, or adjust the maximum zero fuel weight by subtracting the weight of center tank fuel.
- Fuel configuration should be all operable fuel boost pumps ON and crossfeed selector OPEN until center tank pumps are selected OFF per AFM fuel usage procedures.
- When center tank pumps are selected OFF, set the fuel crossfeed switch to OFF.

28-22-02 Center Tank Fuel Pumps
28-22-02B Center Tank Remains Empty

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided:

- Center tank remains empty.
- Center tank is verified to be empty before each refueling.



- c. Affected pumps are deactivated.
-

MAINTENANCE (M)

Verify the center tank is empty before each refueling, and deactivate inoperative pumps.

1. Confirm the center tank is empty using the P5 panel fuel quantity indicator or the P28 fueling control panel indicator.
2. Set the inoperative fuel pump switch to OFF.
3. Open and collar the associated P6 panel circuit breaker:
 - A. L FUEL OVRD PUMP
 - B. R FUEL OVRD PUMP

**28-22-03 Dual Fuel Crossfeed Valves (ETOPS)**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided:

- Affected valve is secured closed.
 - Remaining valve operates normally.
 - For ER operations, remaining valve is exercised during last hour of flight.
-

MAINTENANCE (M)

Deactivate and secure the affected valve in the closed position.

- Open and collar the associated P11 panel circuit breaker:
 - FWD FUEL CROSSFEED VALVE
 - AFT FUEL CROSSFEED VALVE
- Gain access to the inoperative fuel crossfeed valve actuator (AMM 28-22-12/401).
- Rotate the valve manual override lever to the closed position.
- Lockwire the valve lever in the closed position.
- Remove, cap and stow the electrical connector.
- Position an observer on an elevated platform to observe the operative crossfeed valve.
- Supply electrical power (AMM 24-22-00/201).
- Do the following steps several times to confirm valve operation:
 - Set the operative FUEL XFEED switch on (bar in view), then off.
 - Confirm the valve actuator manual override lever moves from the CLOSED position to OPEN, and then back to CLOSED.

OPERATIONS (O)

During the last hour of cruise on all ETOPS flights, exercise the operative valve:

- Set the FUEL XFEED switch on. Confirm the VALVE light illuminates and then extinguishes.
- Select the FUEL XFEED switch off. Confirm the VALVE light illuminates and then extinguishes.

**28-25-01 APU (DC) Fuel Pump**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- Both left fuel tank boost pumps operate normally when APU is required for dispatch.
- Pump is deactivated.

MAINTENANCE (M)

Deactivate the APU (DC) fuel pump by opening and collaring the P11 panel FUEL DC PUMP APU circuit breaker.



28-25-02 APU Fuel Shutoff Valve

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. APU is considered inoperative.
- b. Valve is secured closed.

NOTE: Also dispatch the airplane using MEL Item 49-11-01.

MAINTENANCE (M)

Deactivate and secure the valve in the closed position.

- 1. Open and collar the P6 panel FUEL S/O VLV - APU circuit breaker.
- 2. Confirm the landing gear downlocks are installed (AMM 32-00-20/201).
- 3. Open the main gear doors and install the door locks (AMM 32-00-15/201).
- 4. Gain access to the APU fuel shutoff valve actuator (AMM 28-25-11/401).
- 5. Remove, cap and stow the electrical connector from the actuator.
- 6. Lockwire the manual override lever in the CLOSED position.

**28-26-01 Defuel Valves**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative closed.

MAINTENANCE (M)

Deactivate and secure the valve in the closed position.

1. Open and collar the associated P70 panel circuit breaker:
 - A. L TANK DEFUELING VALVE
 - B. R TANK DEFUELING VALVE
2. Gain access to the associated defueling valve actuator (AMM 28-26-02/401).
3. Lockwire the actuator manual override handle in the CLOSED position.
4. Remove, cap and stow the valve electrical connector.


28-40-01 Crossfeed VALVE Light(s) (ETOPS)
28-40-01-01 Single VALVE Installation

Interval	Installed	Required	Procedure
C	1	0	(M)

Except for ER operations, may be inoperative provided:

- Crossfeed valve is verified to operate normally.
- Both main fuel quantity indications operate normally.

MAINTENANCE (M)

Verify the crossfeed valve operates normally.

- Open the left main gear doors and install the door locks (AMM 32-00-15/201).
- Gain access to the crossfeed valve actuator (AMM 28-22-12/401).
- Position an observer on an elevated platform to observe valve operation.
- Supply electrical power (AMM 24-22-00/201).
- Do the following steps several times to confirm valve operation:
 - Set the FUEL XFEED switch on (bar in view), then off.
 - Confirm the valve actuator manual override lever moves from the CLOSED position to OPEN, and then back to CLOSED.

28-40-01 Crossfeed VALVE Light(s) (ETOPS)
28-40-01-02 Dual VALVE Installation
28-40-01-02A One Inoperative

Interval	Installed	Required	Procedure
C	2	1	(M)

May be inoperative provided:

- One crossfeed valve is verified to operate normally.
- Both main fuel quantity indications operate normally.

MAINTENANCE (M)

Verify the associated crossfeed valve operates normally.

- Open the left main gear doors and install the door locks (AMM 32-00-15/201).
- Gain access to the associated crossfeed valve actuator (AMM 28-22-12/401).
- Position an observer on an elevated platform to observe valve operation.



4. Supply electrical power (AMM 24-22-00/201).
5. Do the following steps several times to confirm valve operation:
 - A. Set the associated FUEL XFEED switch on (bar in view), then off.
 - B. Confirm the valve actuator manual override lever moves from the CLOSED position to OPEN, and then back to CLOSED.

28-40-01 Crossfeed VALVE Light(s) (ETOPS)**28-40-01-02 Dual VALVE Installation****28-40-01-02B Both Inoperative**

Interval	Installed	Required	Procedure
C	2	0	(M)

Except for ER operations, may be inoperative provided:

- a. Both crossfeed valves are verified to operate normally.
 - b. Both main fuel quantity indications operate normally.
-

MAINTENANCE (M)

Verify both crossfeed valves operate normally.

1. Open the left main gear doors and install the door locks (AMM 32-00-15/201).
2. Gain access to the crossfeed valve actuators (AMM 28-22-12/401).
3. Position an observer on an elevated platform to observe valve operation.
4. Supply electrical power (AMM 24-22-00/201).
5. Do the following steps several times to confirm valve operation:
 - A. For each crossfeed valve, set the FUEL XFEED switch on (bar in view), then off.
 - B. Confirm the valve actuator manual override lever moves from the CLOSED position to OPEN, and then back to CLOSED.


28-40-02 SPAR VALVE Lights

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided spar valve is verified to operate normally once each flight day.

MAINTENANCE (M)

Once each flight day, verify the associated spar valve operates normally.

1. To verify operation of the spar valve without gaining access to the valve:

- A. Start the associated engine using standard procedures.
- B. Open the associated P6 panel circuit breaker:
 - 1) L FUEL COND CONT
 - 2) R FUEL COND CONT
- C. Set the FUEL CONTROL switch on the control stand to CUTOFF.
- D. Confirm the engine shuts down in approximately 40 seconds.
- E. Close the open circuit breaker.
- F. Erase the the L(R) ENG LP PUMP status message.

NOTE: When the above procedure is performed, this message will annunciate. The message is a result of the spar valve check and does not indicate a fault.

2. To verify operation of the spar valve without running engines:

- A. Open the applicable left or right main gear door and install the door locks (AMM 32-00-15/201).
- B. Deactivate the flaps and slats:
 - 1) Depressurize the right and center hydraulic systems (AMM 29-11-00/201).
 - 2) Open the P6 panel ALTN FLAP PWR circuit breaker.
- C. Gain access to the associated spar valve (AMM 28-22-01/401).
- D. Open the associated P6 panel circuit breaker:
 - 1) L FUEL COND CONT
 - 2) R FUEL COND CONT
- E. Position a ground observer to view the spar valve.
- F. Do the following steps several times to confirm valve operation:
 - 1) Set the associated FUEL CONTROL switch on the control stand to RUN, and then to CUTOFF.
 - 2) Confirm the valve actuator manual override lever moves to the open position, and then to the closed position.



- G. Activate the flaps and slats.
 - 1) Pressurize the right and center hydraulic systems (AMM 29-11-00/201).
 - 2) Close the ALTN FLAP PWR circuit breaker.
- H. Close the open circuit breaker.

**28-41-01 Fuel Tank Quantity Indication Systems (Flight Deck) (ETOPS)****28-41-01-01 Main Tank Indicators**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

Except for ER operations, one may be inoperative provided:

- Fuel quantity in associated tank is verified by an alternate procedure.
- Fuel flow indications operate normally.
- FMC FUEL is initialized with known total fuel quantity.
- Procedures to identify and contain an inflight engine fuel leak are used.
- All main tank boost pumps operate normally.
- Fuel pump low PRESS lights for associated tank operate normally.
- Thrust Management System operates normally.

NOTE: FUEL CONFIG advisory message for lateral imbalance may be inhibited.

NOTE: Also dispatch the airplane using MEL Item 28-41-07.

MAINTENANCE (M)

Verify the fuel quantity in the associated tank.

- Do one of the following procedures:
 - For associated tank P28 fuel quantity indicator operative, use the indicator to determine the fuel quantity in the tank with the inoperative flight deck indicator.
 - Use measuring sticks and the fuel measuring stick manual provided with the airplane.
 - Defuel the associated tank, then refill with a known quantity of fuel using the refuel truck meter or transfer fuel from a tank with an operative fuel quantity indicator.
 - For a flight not requiring additional fuel, determine the associated tank quantity using the FMC CALCULATED fuel from the previous flight and the operating fuel quantity indications. Fuel quantity in the affected tank may be determined by subtracting the fuel in the tanks with functional indicators from the FMC CALCULATED fuel quantity recorded.
- Total fuel quantity indication will be blank.
- MMEL relief for the following combinations of FQIS and other inoperative equipment may be limited or not allowed:
 - FQIS and 28-22-01 Main Tank Fuel Pumps



- B. FQIS and 28-22-02 Center Tank Fuel Pumps
- C. FQIS and 28-22-05 Automatic Shut Off System
- D. FQIS and 28-40-01 Crossfeed VALVE Light(s)
- E. FQIS and 28-41-02 Fuel Qty Processor Channels
- F. FQIS and 73-31-01 Fuel Flow Indications

OPERATIONS (O)

- 1. Total fuel quantity indication will be blank.
- 2. Manually initialize FMC FUEL with a known total fuel quantity.
- 3. Operate the flight with fuel crossfeed valve(s) closed (unless directed otherwise below).
- 4. Compare FMC CALCULATED fuel with the flight plan fuel remaining at each way-point or fix for which predicted fuel use is available.
- 5. FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
- 6. Monitor fuel usage for any unusual decrease in fuel quantity and/or a fuel imbalance.
- 7. For operation with center tank fuel:
 - A. When center tank fuel is depleted, confirm the airplane is at the point predicted by the flight plan.
 - B. If center tank fuel exhaustion precedes the predicted point, a fuel leak should be suspected.
- 8. A fuel leak may be evidenced by one or more of the following:
 - A. Fuel quantity decreasing at an abnormal rate.
 - B. Excessive fuel flow.
 - C. Fuel imbalance - an increasing fuel imbalance rate of approximately 2,000 lb/hr (900 kg/hr) or more should be considered a fuel leak.
NOTE: The FUEL CONFIG advisory message and light will not display for a fuel imbalance condition when left or right FQIS is inoperative.
 - D. Excessive lateral trim - an imbalance of 1,600 lb (725 kg) will require approximately one unit of aileron displacement to hold wings level.
 - E. Visual observation of fuel spray from the strut/engine.
 - F. An engine flameout.
NOTE: Optional procedures to confirm an engine fuel leak are contained in Miscellaneous Section 4, Item 4.28-01-00.
- 9. If an engine fuel leak is confirmed, do the ENGINE FUEL LEAK Non-Normal Checklist.

**28-41-01 Fuel Tank Quantity Indication Systems (Flight Deck) (ETOPS)****28-41-01-02 Center Tank Indicator**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Center tank remains empty.
- b. Center tank is verified to be empty before each refueling.

NOTE: Also dispatch the airplane using MEL Item 28-41-07.

MAINTENANCE (M)

Before each refueling, verify the center tank is empty of fuel.

1. Do one of the following procedures:
 - A. For associated tank P28 fuel quantity indicator operative, use the indicator to determine the fuel quantity in the tank with the inoperative flight deck indicator.
 - B. Use measuring sticks and the fuel measuring stick manual provided with the airplane.
 - C. Defuel the associated tank, then refill with a known quantity of fuel using the refuel truck meter or transfer fuel from a tank with an operative fuel quantity indicator.
 - D. For a flight not requiring additional fuel, determine the associated tank quantity using the FMC CALCULATED fuel from the previous flight and the operating fuel quantity indications. Fuel quantity in the affected tank may be determined by subtracting the fuel in the tanks with functional indicators from the FMC CALCULATED fuel quantity recorded.
2. Total fuel quantity indication will be blank.
3. MMEL relief for the following combinations of FQIS and other inoperative equipment may be limited or not allowed:
 - A. FQIS and 28-22-01 Main Tank Fuel Pumps
 - B. FQIS and 28-22-02 Center Tank Fuel Pumps
 - C. FQIS and 28-22-05 Automatic Shut Off System
 - D. FQIS and 28-40-01 Crossfeed VALVE Light(s)
 - E. FQIS and 28-41-02 Fuel Qty Processor Channels
 - F. FQIS and 73-31-01 Fuel Flow Indications


28-41-01 Fuel Tank Quantity Indication Systems (Flight Deck) (ETOPS)
28-41-01-02 Center Tank Indicator
28-41-01-02-01 Airplanes with Automatic Shut Off System

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

Except for ER operations, may be inoperative provided:

- a. Fuel quantity in associated tank is verified by an alternate procedure.
- b. Fuel flow indications operate normally.
- c. FMC FUEL is initialized with known total fuel quantity.
- d. Both main tank indicators operate normally.
- e. Procedures to identify and contain an inflight engine fuel leak are used.
- f. Both center tank boost pumps operate normally.
- g. Center tank fuel pump low PRESS lights operate normally.

NOTE: Also dispatch the airplane using MEL Item 28-41-07.

MAINTENANCE (M)

Verify the fuel quantity in the center tank.

1. Do one of the following procedures:
 - A. For associated tank P28 fuel quantity indicator operative, use the indicator to determine the fuel quantity in the tank with the inoperative flight deck indicator.
 - B. Use measuring sticks and the fuel measuring stick manual provided with the airplane.
 - C. Defuel the associated tank, then refill with a known quantity of fuel using the refuel truck meter or transfer fuel from a tank with an operative fuel quantity indicator.
 - D. For a flight not requiring additional fuel, determine the associated tank quantity using the FMC CALCULATED fuel from the previous flight and the operating fuel quantity indications. Fuel quantity in the affected tank may be determined by subtracting the fuel in the tanks with functional indicators from the FMC CALCULATED fuel quantity recorded.
2. Total fuel quantity indication will be blank.
3. MMEL relief for the following combinations of FQIS and other inoperative equipment may be limited or not allowed:
 - A. FQIS and 28-22-01 Main Tank Fuel Pumps
 - B. FQIS and 28-22-02 Center Tank Fuel Pumps
 - C. FQIS and 28-22-05 Automatic Shut Off System



- D. FQIS and 28-40-01 Crossfeed VALVE Light(s)
- E. FQIS and 28-41-02 Fuel Qty Processor Channels
- F. FQIS and 73-31-01 Fuel Flow Indications

OPERATIONS (O)

1. Total fuel quantity indication will be blank.
2. Manually initialize FMC FUEL with a known total fuel quantity.
3. Operate the flight with fuel crossfeed valve(s) closed (unless directed otherwise below).
4. Compare FMC CALCULATED fuel with the flight plan fuel remaining at each way-point or fix for which predicted fuel use is available.
5. FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
6. Monitor fuel usage for any unusual decrease in fuel quantity and/or a fuel imbalance.
7. For operation with center tank fuel:
 - A. When center tank fuel is depleted, confirm the airplane is at the point predicted by the flight plan.
 - B. If center tank fuel exhaustion precedes the predicted point, a fuel leak should be suspected.
8. A fuel leak may be evidenced by one or more of the following:
 - A. Fuel quantity decreasing at an abnormal rate.
 - B. Excessive fuel flow.
 - C. Fuel imbalance - an increasing fuel imbalance rate of approximately 2,000 lb/hr (900 kg/hr) or more should be considered a fuel leak.

NOTE: The FUEL CONFIG advisory message and light will not display for a fuel imbalance condition when left or right FQIS is inoperative.
 - D. Excessive lateral trim - an imbalance of 1,600 lb (725 kg) will require approximately one unit of aileron displacement to hold wings level.
 - E. Visual observation of fuel spray from the strut/engine.
 - F. An engine flameout.

NOTE: Optional procedures to confirm an engine fuel leak are contained in Miscellaneous Section 4, Item 4.28-01-00.
9. If an engine fuel leak is confirmed, do the ENGINE FUEL LEAK Non-Normal Checklist.



28-41-01 Fuel Tank Quantity Indication Systems (Flight Deck) (ETOPS)

28-41-01-03 Fuel Quantity Densitometers

28-41-01-03-02 B.F Goodrich (Simmonds)

Interval	Installed	Required	Procedure
C	3	0	

**28-41-02 Fuel Quantity Processor Channels (ETOPS)****28-41-02-02 B. F. Goodrich (Simmonds) FQIS**

Interval	Installed	Required	Procedure
B	2	1	(O)

Except for ER operations, one channel may be inoperative provided:

- a. All flight deck fuel indications operate normally.
- b. Fuel flow indications operate normally.
- c. FMC TOTALIZER FUEL quantity agrees with fuel quantity indications.
- d. Thrust Management System operates normally.

OPERATIONS (O)

1. Prior to each engine start, confirm the FMC PERF INIT page FUEL is automatically initialized with the known total fuel quantity. Do not manually enter fuel quantity.
2. Prior to each engine start, confirm fuel flow system inputs are valid on the FMC SENSOR STATUS page 1 (PIP/PEGASUS airplanes - Left and Right EICAS OK or non-PIP airplanes - Left and Right FUEL FLO OK).

**28-41-06 Fuel Quantity Indications (Fueling Panel)**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided alternate fueling procedures are established and used.

MAINTENANCE (M)

Use alternate fueling procedures to fuel the airplane.

NOTE: With the load select function inoperative at the external fueling station, automatic shutdown or overfill protection may not exist.

1. Method 1: Use fuel quantity indicators on pilots' overhead instrument panel.
2. Method 2: Use measuring sticks and the fuel measuring stick document (Ref. D345N004 lb or D345N005 kg) provided with the airplane.
3. Method 3: Tank-to-tank transfer:
 - A. Confirm the tank to which fuel is to be transferred has sufficient capacity to receive the fuel from the tank with the inoperative gauge.
 - B. Open the appropriate defueling valve (AMM 28-26-00/201).
 - C. Open the fueling valve for the tank to receive fuel.
 - D. Turn on the fuel pumps in the tank being defueled.
 - E. After the tank is emptied, re-transfer the desired quantity of fuel into it using the operative gauge of the supplying tank for measuring, or pump in a known quantity from the refueling truck using the truck meter.
 - F. Fuel the remaining tanks to the desired quantity in the normal manner.

**28-41-07 Total Fuel Quantity Indication****28-41-07A FMC Initialized With Known Total Fuel Quantity**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. FMC is initialized with known total fuel quantity.
- b. Fuel flow indications operate normally.
- c. Both FMCs operate normally.
- d. Thrust Management System operates normally.

NOTE: If total fuel quantity is inoperative as a result of an individual tank quantity indication, also dispatch the airplane using MEL Item 28-41-01.

OPERATIONS (O)

1. Manually initialize FMC FUEL with a known quantity of fuel prior to engine start.
2. Prior to each engine start, confirm fuel flow system inputs are valid on the FMC SENSOR STATUS Page 1 (PIP/PEGASUS airplanes - Left and Right EICAS OK or non-PIP airplanes - Left and Right FUEL FLO OK).
3. FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
4. Prior to each engine shutdown, record FMC CALCULATED FUEL QTY. For flights not requiring additional fuel, this value may be used as a means of determining total fuel quantity.
5. In case of enroute failure of the FMC CALCULATED total fuel quantity, flight crew must keep a fuel log for the remainder of the flight.
 - A. The PROGRESS page 1 display of FUEL quantity and ATA at the last waypoint prior to failure may be used as a starting point.
 - B. In some failure modes, PROGRESS page 2 FUEL USED data may be available.
 - C. Aileron trim indication on the control wheel may be used to determine if a fuel imbalance condition exists. At cruise conditions, an imbalance of 1,600 lbs (725 kg) will require approximately one unit of aileron trim to hold wings level.

**28-41-07 Total Fuel Quantity Indication****28-41-07B Center Tank Fuel Quantity Indicator Considered Inoperative**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- Main tank fuel quantity indicators operate normally.
- Center tank fuel quantity indicator is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 28-41-01.

OPERATIONS (O)

If FMC CALCULATED total fuel quantity is not available, use the two main tank fuel quantity indicators to calculate total fuel quantity.


28-42-01 Fuel Pump Low PRESS Lights
28-42-01A Associated Pump Inoperative

Interval	Installed	Required	Procedure
C	6	3	

May be inoperative for an associated inoperative pump.

28-42-01 Fuel Pump Low PRESS Lights
28-42-01B Associated EICAS Message Operative

Interval	Installed	Required	Procedure
C	6	3	(M)

May be inoperative provided associated EICAS message is verified to operate normally once each flight day.

MAINTENANCE (M)

Once each flight day, verify the associated EICAS message operates normally.

1. For main tank pumps:
 - A. With the crossfeed valve(s) closed, turn off all fuel pumps.
 - B. Confirm the L FUEL SYS PRESS and R FUEL SYS PRESS caution messages are displayed.
 - C. Turn on operative main tank fuel pumps.
NOTE: Ensure tanks contain sufficient fuel to cover the pump inlets.
 - D. Confirm the L FUEL SYS PRESS and R FUEL SYS PRESS caution messages are not displayed.
 - E. For operative main tank pumps, confirm the following associated advisory messages are not displayed:
 - 1) L FWD FUEL PUMP
 - 2) L AFT FUEL PUMP
 - 3) R FWD FUEL PUMP
 - 4) R AFT FUEL PUMP
 - F. Open the crossfeed valve(s).
 - G. One at a time, turn off the fuel pump associated with the inoperative light(s). Confirm the associated advisory message is displayed.
 - H. Turn all fuel pumps off and close the crossfeed valve(s).
2. For center tank pumps:
 - A. With the crossfeed valve(s) closed, turn off all fuel pumps.



- B. Confirm the L FUEL SYS PRESS and R FUEL SYS PRESS caution messages are displayed.
- C. Turn on operative center and main tank fuel pumps.
NOTE: Ensure tanks contain sufficient fuel to cover the pump inlets.
- D. Confirm the L FUEL SYS PRESS and R FUEL SYS PRESS caution messages are not displayed.
- E. Confirm the CTR L FUEL PUMP and CTR R FUEL PUMP advisory messages are displayed.
- F. Open the fueling panel door.
- G. For operative center tank pumps, confirm the following associated advisory messages are not displayed:
 - 1) CTR L FUEL PUMP
 - 2) CTR R FUEL PUMP
- H. Close the fueling panel door and turn off all fuel pumps.



28-43-01 FUEL TEMP Indicating System

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided Total Air Temperature (TAT) is used as an indication of fuel temperature.

NOTE: Static Air Temperature may be used provided appropriate ram rise factor is applied.

OPERATIONS (O)

1. Use Total Air Temperature (TAT) for fuel temperature.
2. See the table in MEL Item 34-13-07 for Static Air Temperature (SAT) conversion.



28-44-01 Measuring Sticks

Interval	Installed	Required	Procedure
C	14	0	

May be inoperative provided fuel quantity is determined by other approved means.



29-11-01 Engine Driven Hydraulic Pumps

29-11-01-01 Depressurization Function

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29-11-01 Engine Driven Hydraulic Pumps

29-11-01-01 Depressurization Function

Interval	Installed	Required	Procedure
C	2	0	PLACARD

**29-11-02 Center System (Electric) Hydraulic Pumps**

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided pump is deactivated.

MAINTENANCE (M)

Deactivate the affected pump and confirm the remaining center system pump operates normally.

1. Open and collar the associated P11 panel ELEC HYD PUMP C1 or ELEC HYD PUMP C2 circuit breaker.
2. Supply electrical power (AMM 24-22-00/201).
3. Set both generator control switches to OFF.
4. Set the operative hydraulic panel C1 or C2 ELEC pump switch to ON.
5. Confirm the center hydraulic pressure on EICAS is a minimum of 2900 psi.



29-18-01

Remote Quantity Indicator

Interval	Installed	Required	Procedure
C	1	0	PLACARD

**29-31-01 Hydraulic Low SYS PRESS Lights**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided:

- Associated pump low PRESS lights operate normally.
- Associated HYD SYS PRESS EICAS indication is verified to operate normally.

MAINTENANCE (M)

Verify the associated HYD SYS PRESS EICAS indication operates normally.

- Set all hydraulic pump switches to OFF.
- Confirm the associated L (C or R) HYD SYS PRESS caution message is displayed.
- Set the associated hydraulic panel electric pump switch to ON.
- Confirm the associated L (C or R) HYD SYS PRESS caution message is not displayed.


29-31-02 Pump Low PRESS Indication Systems
29-31-02-01 Left Pump Indication Systems

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided:

- a. Associated low SYS PRESS light operates normally.
- b. Associated pump is verified to operate normally before each departure.

MAINTENANCE (M)

Before each departure, verify the associated pump operates normally.

NOTE: During ground operation of the affected pump, to prevent hydraulic pump damage from overheat, do not operate pumps without minimum quantities of fuel in the tanks (AMM 29-11-00)

1. For the left engine driven pump (includes PTU control logic verification):

NOTE: These same steps may also be accomplished under the OPERATIONS (O) procedure.

- A. With engines off, set the flap lever to UP.
- B. Confirm the P11 panel HYDRAULICS PTU CONT circuit breaker is closed.
- C. Set the hydraulic panel R ENG and R ELEC pump switches to ON.
- D. Set the hydraulic panel L ENG pump switch to ON.
- E. Set the hydraulic panel L ELEC pump switch to OFF.
- F. Start the right engine.
- G. Confirm the L HYD PRESS reading on EICAS is greater than or equal to 2600 psi.
- H. Start the left engine.
- I. Confirm the L HYD PRESS reading on EICAS is greater than or equal to 2850 psi.
- J. Open the P11 panel HYDRAULICS PTU CONT circuit breaker.
- K. Set the hydraulic panel L ENG pump switch to OFF.
- L. Set the flap lever to 1.
- M. Confirm the L HYD PRESS reading on EICAS is less than or equal to 1500 psi.

NOTE: The TE FLAP DISAGREE message will display.

- N. Set the hydraulic panel L ENG pump switch to ON.
- O. Set the flap lever to UP.
- P. Confirm the L HYD PRESS reading on EICAS is greater than or equal to 2850 psi.



- Q. Arm and disarm the ALTN flap switches to clear the TE FLAP DISAGREE message.
- R. Close the open circuit breaker.
- S. Set the hydraulic panel L ENG pump switch to OFF.
- T. Confirm the L HYD PRESS reading on EICAS is greater than or equal to 2600 psi.

OPERATIONS (O)

Before each departure, verify the associated pump operates normally.

NOTE: During ground operation of the affected pump, to prevent hydraulic pump damage from overheat, do not operate pumps without minimum quantities of fuel in the tanks (AMM 29-11-00)

1. For left engine driven pump (includes PTU control logic verification):

NOTE: These same steps may also be accomplished under the MAINTENANCE (M) procedure.

- A. With engines off, set the flap lever to UP.
- B. Confirm the P11 panel HYDRAULICS PTU CONT circuit breaker is closed.
- C. Set the hydraulic panel R ENG and R ELEC pump switches to ON.
- D. Set the hydraulic panel L ENG pump switch to ON.
- E. Set the hydraulic panel L ELEC pump switch to OFF.
- F. Start the right engine.
- G. Confirm the L HYD PRESS reading on EICAS is greater than or equal to 2600 psi.
- H. Start the left engine.
- I. Confirm the L HYD PRESS reading on EICAS is greater than or equal to 2850 psi.
- J. Open the P11 panel HYDRAULICS PTU CONT circuit breaker.
- K. Set the hydraulic panel L ENG pump switch to OFF.
- L. Set the flap lever to 1.
- M. Confirm the L HYD PRESS reading on EICAS is less than or equal to 1500 psi.

NOTE: The TE FLAP DISAGREE message will display.

- N. Set the hydraulic panel L ENG pump switch to ON.
- O. Set the flap lever to UP.
- P. Confirm the L HYD PRESS reading on EICAS is greater than or equal to 2850 psi.
- Q. Arm and disarm the ALTN flap switches to clear the TE FLAP DISAGREE message.
- R. Close the open circuit breaker.
- S. Set the hydraulic panel L ENG pump switch to OFF.



- T. Confirm the L HYD PRESS reading on EICAS is greater than or equal to 2600 psi.
2. For the left alternating current motor pump:
- A. Confirm personnel are clear of flight controls.
 - B. Supply electrical power (AMM 24-22-00/201).
 - C. Set the hydraulic panel L ELEC pump switch to ON.
 - D. Confirm the hydraulic panel L ENG pump switch is OFF.
 - E. Confirm the L HYD PRESS reading on EICAS is 2850 to 3150 psig.

29-31-02 Pump Low PRESS Indication Systems**29-31-02-02 Center and Right Pump Indication Systems**

Interval	Installed	Required	Procedure
C	4	2	(O)

One in each hydraulic system may be inoperative provided:

- a. Associated low SYS PRESS light operates normally.
- b. Associated pump is verified to operate normally before each departure.

OPERATIONS (O)

Before each departure, verify the associated pump operates normally.

NOTE: During ground operation of the affected pump, to prevent hydraulic pump damage from overheat, do not operate pumps without minimum quantities of fuel in the tanks (AMM 29-11-00)

1. For the right engine driven pump:
- NOTE: When running the right engine (EDP) the PTU will pressurize the flap/slat and landing gear hydraulic systems. If desired, deactivate the PTU by opening the P11 panel HYDRAULICS PTU CONT circuit breaker before engine start.
- A. Confirm personnel are clear of flight controls.
 - B. Set the parking brake.
 - C. Set the hydraulic panel R ELEC pump switch to OFF.
 - D. With right engine running, set the hydraulic panel R ENG pump switch to ON.
 - E. Confirm the R HYD PRESS reading on EICAS is 2850 to 3150 psig.
 - F. If deactivated, reactivate the PTU before engine start by closing the open circuit breaker.
2. For the associated alternating current motor pump:
- A. Confirm personnel are clear of flight controls.
 - B. Supply electrical power (AMM 24-22-00/201).
 - C. Set the associated hydraulic panel ELEC pump switch to ON.



- D. Confirm the pump selected ON is the only pump operating within the related hydraulic system.
- E. Confirm the associated HYD PRESS reading on EICAS is 2850 to 3150 psig.

29-31-02 Pump Low PRESS Indication Systems

29-31-02-03 Center Electric Pump Indication Systems

Interval	Installed	Required	Procedure
C	2	1	PLACARD

One may be inoperative provided associated pump is selected OFF.



29-31-03 HYD PRESS Indications (EICAS)

Interval	Installed	Required	Procedure
D	3	0	


29-32-01 Pump OVHT Indication Systems
29-32-01-01 Left, Center, and Right Pump OVHT Lights

Interval	Installed	Required	Procedure
C	6	3	(O)

One in each hydraulic system may be inoperative provided:

- a. Associated low SYS PRESS light or pump low PRESS light operates normally.
- b. Associated pump is verified to operate normally before each departure.

OPERATIONS (O)

Before each departure, verify the associated pump operates normally.

NOTE: During ground operation of the affected pump, to prevent hydraulic pump damage from overheat, do not operate pumps without minimum quantities of fuel in the tanks (AMM 29-11-00)

1. For engine driven pump:

NOTE: When running the right engine (EDP) the PTU will pressurize the flap/slat and landing gear hydraulic systems. If desired, deactivate the PTU by opening the P11 panel HYDRAULICS PTU CONT circuit breaker before engine start.

- A. Confirm personnel are clear of flight controls.
- B. Set the parking brake.
- C. Set the associated hydraulic panel ELEC pump switch to OFF.
- D. With associated engine running, set the associated hydraulic panel ENG pump switch to ON.
- E. Confirm the associated HYD PRESS reading on EICAS is 2850 to 3150 psig.
- F. Confirm the associated HYD TEMP reading on EICAS is below 80°C after stabilization.
- G. If deactivated, reactivate the PTU before engine start by closing the open circuit breaker.

2. For alternating current motor pump:

- A. Confirm personnel are clear of flight controls.
- B. Supply electrical power (AMM 24-22-00/201).
- C. Set the associated hydraulic panel ELEC pump switch to ON.
- D. Confirm the pump selected ON is the only pump operating within the related hydraulic system.
- E. Confirm the associated HYD PRESS reading on EICAS is 2850 to 3150 psig.



- F. Confirm the associated HYD TEMP reading on EICAS is below 80°C after stabilization.

29-32-01 Pump OVHT Indication Systems

29-32-01-02 Center Electric Pump Indication Systems

Interval	Installed	Required	Procedure
C	2	1	PLACARD

One may be inoperative provided associated pump is selected OFF.

**29-33-01 Hydraulic System Low QTY or RSVR Lights****29-33-01A HYD QTY Indications Operative**

Interval	Installed	Required	Procedure
C	3	0	PLACARD

May be inoperative provided associated HYD QTY indication operates normally.

29-33-01 Hydraulic System Low QTY or RSVR Lights**29-33-01B Reservoir Level Verified Normal**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided:

- Associated reservoir level(s) is verified normal before each departure.
 - Associated SYS PRESS lights operate normally.
-

MAINTENANCE (M)

Before each departure, verify the associated reservoir level is normal.

- Check the reservoir fluid quantity using the fill indicator at the fill station.

NOTE: If the fill indicator at the fill station is inoperative, the sight gauge installed on each reservoir may be used to check the reservoir fluid level.

- Service the reservoir as required (AMM 12-12-01/301).

**29-33-02 HYD QTY Indications**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided:

- a. Associated reservoir level(s) is verified normal before each departure.
- b. Associated SYS PRESS lights operate normally.

MAINTENANCE (M)

Before each departure, verify the associated reservoir level is normal.

1. Check the reservoir fluid quantity using the fill indicator at the fill station.
NOTE: If the fill indicator at the fill station is inoperative, the sight gauge installed on each reservoir may be used to check the reservoir fluid level.
2. Service the reservoir as required (AMM 12-12-01/301).



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Section 2

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30-11-01 Wing Anti-Ice Valves (ETOPS)

Interval	Installed	Required	Procedure
C	2	0	(M)

Except for ER operations beyond 120 minutes, may be inoperative closed provided airplane is not operated in known or forecast icing conditions.

MAINTENANCE (M)

Lock the wing anti-ice valve in the closed position.

- 1. Confirm the WING ANTI-ICE switch is OFF.
- 2. Gain access to the wing anti-ice valve (AMM 30-11-02/401). Access the manual drive nut through fixed wing lower panel 521AB (left wing) or 621AB (right wing).
- 3. For valve not closed, wrench the manual drive nut (7/16 inch hex drive) counterclockwise to close the valve.
- 4. Lift and rotate the valve lock 90° clockwise to lock the valve closed.


30-11-02 Wing Anti-Ice VALVE Lights
30-11-02A Wing Anti-Ice Valve Operative

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided associated valve operates normally.

OPERATIONS (O)

During operations in icing conditions, monitor valve operation by observing the pressure indicator when repositioning the WING ANTI-ICE switch. Pressure fluctuation is an indication of valve movement.

30-11-02 Wing Anti-Ice VALVE Lights
30-11-02B Wing Anti-Ice Valve Inoperative

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated valve is inoperative.

30-11-02 Wing Anti-Ice VALVE Lights
30-11-02C Associated EICAS Message Operative

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated EICAS Advisory message L/R WING ANTI-ICE operates normally.



30-11-03 Wing Anti-Ice Ground Test

Interval	Installed	Required	Procedure
C	1	0	


30-21-01 Engine Anti-Ice Valves (ETOPS)

Interval	Installed	Required	Procedure
C	2	1	(M)

Except for ER operations beyond 120 minutes, one may be inoperative closed provided airplane is not operated in known or forecast icing conditions.

MAINTENANCE (M)

Lock the cowl valve in the closed position.

1. Gain access to the affected engine inlet thermal anti-ice valve (AMM 30-21-03/401).
2. Disconnect, cap and stow the TAI valve connector.

NOTE: Disconnecting the TAI valve connector will cause the associated engine anti-ice switch-light to remain illuminated for the duration of the flight.

3. Confirm the vane manual drive indicates the valve is CLOSED.
4. Pull the vane lock out and rotate it 90° clockwise to the LOCK CLOSED position.

OPERATIONS NOTE

The associated engine anti-ice switch-light will remain illuminated for the duration of the flight.

30-21-01 Engine Anti-Ice Valves (ETOPS)
30-21-01-02 PW

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative locked open provided:

- a. Reduced Thrust or Derate operation is not permitted.
- b. Improved climb performance operation is not permitted.
- c. Anti-ice OFF thrust settings are reduced by appropriate values.
- d. Forecast ambient temperature cannot be greater than 38 degrees C.
- e. Engine anti-ice is selected ON for affected engine during entire flight.
- f. Appropriate performance adjustments are applied.

MAINTENANCE (M)

Lock the cowl valve in the open position.

1. Gain access to the affected engine inlet thermal anti-ice valve (AMM 30-21-03/401).



2. Disconnect, cap and stow the TAI valve connector.

NOTE: Disconnecting the TAI valve connector will cause the associated engine anti-ice switch-light to remain illuminated for the duration of the flight.

3. Confirm the vane manual drive indicates the valve is OPEN.
4. Pull the vane lock out and rotate it 90° counterclockwise to the LOCK OPEN position.

NOTE: Close the valve during ground operations when the associated pneumatic duct is pressurized by the APU or ground cart air. Reopen the valve for dispatch.

OPERATIONS (O)

1. Do not do reduced thrust takeoffs (derate or assumed temperature).
2. Apply the following EPR adjustments:

Thrust Setting	EPR Adjustments				
	Altitude (1,000 feet)				
	-1 to 6	6.1 to 15	15.1 to 25	25.1 to 40	40.1 to 42
All Thrust Settings	-0.03	-0.04	-0.05	-0.07	-0.085

3. Apply the following performance limited weight reductions:

Model/Engine	Takeoff & Landing	TakeoffObstacle/ Enroute Climb
-200/PW2000	14,600 lb	22,400 lb
-200/PW2000	6,640 kg	10,180 kg

NOTE: Enroute climb penalties are based on single engine operating speeds that approximate maximum lift-to-drag ratio speed. To account for the difference in level off altitude when operating at other speeds, multiply the enroute climb weight penalty listed above by the appropriate factor listed in MEL Section 3, Enroute Diversion Speed Effects.

4. Increase V1 and VR by 1 knot.
5. Set the associated engine anti-ice switch to ON for the duration of the flight.
NOTE: Ensure the valve is closed during ground operations when the associated pneumatic duct is pressurized by the APU or ground cart air. The valve must be reopened prior to dispatch.
6. The associated engine anti-ice switch-light will remain illuminated for the duration of the flight.


30-21-02 Engine Anti-Ice VALVE Lights
30-21-02A Valve Verified Operative For Icing Conditions

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided associated valve is verified to operate normally before operating in known or forecast icing conditions.

MAINTENANCE (M)

For operation into known or forecast icing conditions, verify the associated engine anti-ice valve operates normally.

1. Supply electrical power (AMM 24-22-00/201).
2. Gain access to the engine anti-ice valve (AMM 30-21-03/401).
3. Station an observer near the associated valve.
4. Set the associated engine anti-ice switch to ON and then to OFF.
5. Confirm the ground observer hears the solenoid operate. If necessary, open the access door or cowl to aid in hearing the solenoid.

30-21-02 Engine Anti-Ice VALVE Lights
30-21-02B Valve Inoperative

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided associated valve is inoperative.

30-21-02 Engine Anti-Ice VALVE Lights
30-21-02C Associated EICAS Message Operative

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided associated EICAS Advisory message L/R ENG ANTI-ICE operates normally.



30-31-01 Pitot Probe Heater Systems (ETOPS)

Interval	Installed	Required	Procedure
B	4	3	

Except for ER operations beyond 120 minutes, one probe heater may be inoperative provided airplane is not operated in visible moisture, or in known or forecast icing conditions.


30-31-02 Probe Heat Lights (Except CAPT and F/O PITOT)

Interval	Installed	Required	Procedure
B	2	0	(M)

May be inoperative provided:

- a. Associated EICAS Advisory message is verified to operate normally.
- b. Probe heater systems operate normally.

MAINTENANCE (M)

Verify the associated advisory message operates normally.

1. Supply electrical power (AMM 24-22-00/201).
2. Close all probe heat (pitot, AOA and TAT) and probe heat indication circuit breakers.
3. Confirm the PROBE HEAT advisory message is displayed.
4. On the P61 TEST panel, hold the WING ANTI ICE - WINDOW/PROBE HEAT switch in the WINDOW/PROBE HEAT position.
5. Confirm no probe heat advisory messages are displayed.
6. Release the test switch.
7. Open the associated probe heat circuit breaker.
8. Hold the test switch in the WINDOW/PROBE HEAT position.
9. Confirm the associated probe heat advisory message annunciates (L/R AUX PITOT, STBY INST PITOT, C ADIRU PITOT, TAT PROBE, L/R TAT PROBE, or L/R AOA PROBE).
10. Close the open circuit breaker.
11. If desired, probe heater functions may be confirmed as follows (AMM 30-31-00/501):
 - A. On the P61 Test Panel, hold the test switch in the WINDOW/PROBE HEAT position.
 - B. Hold a hand near the probe and confirm probe is warming up. Release the test switch.

30-31-02 Probe Heat Lights (Except CAPT and F/O PITOT)
30-31-02-01 Pitot Probe Heat Lights

Interval	Installed	Required	Procedure
B	2	1	

May be inoperative provided associated probe heater is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 30-31-01.



30-31-02 Probe Heat Lights (Except CAPT and F/O PITOT)
30-31-02-02 Angle of Attack (AOA) and Temperature (TAT) Probe Heat Lights

Interval	Installed	Required	Procedure
C	3	1	

May be inoperative provided associated probe heater is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 30-32-01 or 30-33-01.



30-31-05 CAPT PITOT and F/O PITOT Heat Indicating
Systems (Heater OFF Monitor) (ETOPS)

Interval	Installed	Required	Procedure
B	2	0	

Except for ER operations beyond 120 minutes, may be inoperative provided:

- a. Pitot heater systems operate normally.
 - b. Remaining probe heater indicating systems for operative probe heaters operate normally.
 - c. Airplane is not operated in known or forecast icing conditions.
-



30-32-01 Angle of Attack Sensor Heater Systems

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided:

- a. Associated AOA vane is verified intact.
- b. Remaining probe heater indicating systems for operative probe heaters operate normally.
- c. Airplane is not operated in known or forecast icing conditions.

MAINTENANCE (M)

Verify the associated vane is intact by visually inspecting it to ensure it is not bent or missing and it moves freely.

**30-33-01 Temperature (TAT) Probe Heater Systems (ETOPS)**

Interval	Installed	Required	Procedure
C	1	0	(O)

Except for ER operations beyond 120 minutes, may be inoperative provided:

- a. Remaining probe heater indicating systems for operative probe heaters operate normally.
 - b. Airplane is not operated in known or forecast icing conditions.
-

OPERATIONS (O)

1. With the TAT probe heater system inoperative, the TMC considers temperature from the TAT to be invalid and disconnects the autothrottle (MMEL Item 22-30-01).
2. Both ADC sources are declared invalid when the TAT probe heater system is inoperative. LNAV and VNAV will not be available, waypoints in the FMC flight plan will not be sequenced, and performance predictions will be unavailable. Navigation calculations will be unaffected.



30-34-01 Engine Probe Heater Systems (ETOPS)

Interval	Installed	Required	Procedure
C	2	1	

Except for ER operations beyond 120 minutes, one may be inoperative provided airplane is not operated in known or forecast icing conditions.


30-41-01 Flight Deck Window Heat Systems (ETOPS)
30-41-01-01 No. 1 (fwd) Windows

Interval	Installed	Required	Procedure
C	2	1	(M)

Except for ER operations beyond 120 minutes, one may be inoperative provided:

- Airplane is not operated in known or forecast icing conditions.
- Both No. 2 (side) window heaters operate normally.
- Associated windshield pneumatic anti-fog system operates normally.
- Associated window heat is deactivated.

MAINTENANCE (M)

Deactivate the affected flight deck window heat by opening and collaring the associated WINDOW HTR 1L or WINDOW HTR 1R circuit breaker.

OPERATIONS NOTE

The L(R) FWD WINDOW advisory message will be annunciated as the associated circuit breaker has been opened, or the WINDOW HEAT advisory message will be annunciated for multiple window heaters inoperative.

30-41-01 Flight Deck Window Heat Systems (ETOPS)
30-41-01-02 No. 2 (side) Windows

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided:

- Both No. 1 (fwd) window heaters operate normally.
- Associated window heat is deactivated.

MAINTENANCE (M)

Deactivate the affected flight deck window heat.

- Open and collar the associated WINDOW HTR 2L or WINDOW HTR 2R circuit breaker.
- Set the associated SIDE window heat switch to ON.
- Confirm the associated No. 2 window heat is deactivated by touching the window.
- Confirm the associated No. 3 window heat is operates normally by touching the window.

**OPERATIONS NOTE**

The L(R) SIDE WINDOW advisory message will be annunciated as the associated circuit breaker has been opened, or the WINDOW HEAT advisory message will be annunciated for multiple window heaters inoperative.

30-41-01 Flight Deck Window Heat Systems (ETOPS)**30-41-01-03 No. 3 (side) Windows**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided associated window heat is deactivated.

MAINTENANCE (M)

Deactivate the affected flight deck window heat.

1. Open and collar the associated WINDOW HTR 3L or WINDOW HTR 3R circuit breaker.
2. Set the associated SIDE window heat switch to ON.
3. Confirm the associated No. 3 window heat is deactivated by touching the window.
4. Confirm the associated No. 2 window heat is operates normally by touching the window.

OPERATIONS NOTE

The L(R) SIDE WINDOW advisory message will be annunciated as the associated circuit breaker has been opened, or the WINDOW HEAT advisory message will be annunciated for multiple window heaters inoperative.

**30-41-02 Window Heat INOP Lights****30-41-02A Window Heat Verified Operative**

Interval	Installed	Required	Procedure
C	4	0	(M)

May be inoperative provided associated window heat system is verified to operate normally before each departure.

MAINTENANCE (M)

Before each departure, verify the associated window heat system operates normally.

1. Supply electrical power to the left and right main AC buses (AMM 24-22-00/201).
2. Set the four P5 panel WINDOW HEAT switches off.
3. Confirm the WINDOW HEAT advisory message is displayed.
4. Set the four WINDOW HEAT switches to ON.
5. Confirm none of the following advisory messages are displayed:
 - A. WINDOW HEAT
 - B. L SIDE WINDOW
 - C. L FWD WINDOW
 - D. R SIDE WINDOW
 - E. R FWD WINDOW
6. Set the L FWD WINDOW HEAT switch off.
7. Confirm the L FWD WINDOW advisory message is displayed.
8. Set the L FWD WINDOW HEAT switch to ON.
9. Set the R FWD WINDOW HEAT switch off.
10. Confirm the R FWD WINDOW advisory message is displayed.
11. Set the R FWD WINDOW HEAT switch to ON.
12. Set the L SIDE WINDOW HEAT switch off.
13. Confirm the L SIDE WINDOW advisory message is displayed.
14. Set the L SIDE WINDOW HEAT switch to ON.
15. Set the R SIDE WINDOW HEAT switch off.
16. Confirm the R SIDE WINDOW message is displayed.
17. Set the R SIDE WINDOW HEAT switch to ON.



30-41-02 Window Heat INOP Lights

30-41-02B Window Heat Inoperative

Interval	Installed	Required	Procedure
C	4	1	

May be inoperative provided associated window heat system is inoperative.



30-41-03 Window/Probe Heat Ground Test System

Interval	Installed	Required	Procedure
C	1	0	

**30-42-01 Windshield Wipers**

Interval	Installed	Required	Procedure
C	2	0	

Two required for CAT II/IIIa/IIIb approach Operation.

May be inoperative provided airplane is not operated in precipitation within 5 statute miles of airport of takeoff or intended landing.

30-42-01 Windshield Wipers**30-42-01-01 High Speed**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided low speed operates normally.

NOTE: When dispatching from base airport LH windshield wiper must be operated, excluding the departure to destination where repair or replacement can be accomplished.

30-42-01 Windshield Wipers**30-42-01-02 Low Speed**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided high speed operates normally.



30-43-01 Rain Repellent System

Interval	Installed	Required	Procedure
D	1	0	

**30-71-01 Drain Mast Heaters**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided water supply to associated galley, lavatory sink and drinking fountain is secured OFF.

MAINTENANCE (M)

Secure the water supply off to associated equipment.

1. Close the associated water supply shutoff valves:
 - A. Galley shutoff valve (AMM 38-10-00).
 - B. Lavatory shutoff valve (AMM 38-11-04/401).
2. For both drain mast heaters inoperative, open and collar the following circuit breakers:
 - A. P37 panel, DRAIN MAST HTR-AIR
 - B. P34 panel, DRAIN MAST HTR-GND
3. For one drain mast heater inoperative (forward or aft), refer to Wiring Diagram Manual 30-71-11 for airplane specific wiring information and perform the following:
 - A. Open the following circuit breakers:
 - 1) P37 panel, DRAIN MAST HTR-AIR
 - 2) P34 panel, DRAIN MAST HTR-GND
 - B. Disconnect, cap and stow the power wire for the affected drain mast heater at the nearest terminal block.
 - C. Close the open circuit breakers.

**30-80-01 Ice Detection System****30-80-01-01 Advisory**

Interval	Installed	Required	Procedure
D	1	0	

30-80-01 Ice Detection System**30-80-01-02 Primary**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish procedures to increase flight crew awareness of possible ice accumulation on the airframe and to manually operate the anti-ice system in icing conditions.



31-25-01 Clocks

31-31-01 Flight Data Recorder (FDR) System (Includes Digital Flight Data Acquisition Unit (DFDAU))

31-31-01A One Operative

31-31-01B All Inoperative

31-31-01-03 Quick Access Recorder (QAR)

31-35-01 Performance and Maintenance Recorder (PMR)

31-35-03 Aircraft Condition Monitoring System (ACMS)

31-41-01 Engine Indication and Crew Alerting Systems (EICAS) (ETOPS)

31-41-01-01 Display Unit (DU)

31-41-01-02 Computer

31-51-01 Master Caution/Warning Systems

31-51-01-01 Master Warning Lights (Pilot's Glare Shield)

31-51-01-02 Master Caution Lights (Pilot's Glare Shield)

31-51-02 Takeoff Configuration Check (T/O CHK) Switch

31-51-02A Repair Interval Category C

31-51-02B Procedures Do Not Require Use

31-61-04 EICAS Status Messages

31-61-04A Associated Equipment Verified Operative

31-61-04B Associated Equipment Considered Inoperative



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31-25-01

Clocks

Interval	Installed	Required	Procedure
C	2	1	


31-31-01 Flight Data Recorder (FDR) System (Includes Digital Flight Data Acquisition Unit (DFDAU))
31-31-01A One Operative

Interval	Installed	Required	Procedure
C	1	0	

OPERATIONS NOTE

Required for CAT IIa / IIIb approach.

31-31-01 Flight Data Recorder (FDR) System (Includes Digital Flight Data Acquisition Unit (DFDAU))
31-31-01B All Inoperative

Interval	Installed	Required	Procedure
A	1	0	

May be inoperative provided:

- a. Cockpit Voice Recorder (CVR) operates normally.
- b. Airplane is not dispatched from a designated airport as listed in operator's MEL unless:
 - 1) FDR failure occurs after pushback but prior to takeoff, or
 - 2) FDR repair was attempted but was not successful.
- c. In those cases where repair is attempted but not successful, aircraft may be dispatched on a flight or series of flights until next designated airport where repair must be accomplished prior to dispatch.
- d. Repairs are made within three flight days.

OPERATIONS NOTE

Required for CAT IIa / IIIb approach.

31-31-01 Flight Data Recorder (FDR) System (Includes Digital Flight Data Acquisition Unit (DFDAU))
31-31-01-03 Quick Access Recorder (QAR)

Interval	Installed	Required	Procedure
D	1	0	



31-35-01 Performance and Maintenance Recorder (PMR)

Interval	Installed	Required	Procedure
D	1	0	



31-35-03 Aircraft Condition Monitoring System (ACMS)

Interval	Installed	Required	Procedure
D	1	0	

**31-41-01 Engine Indication and Crew Alerting Systems (EICAS) (ETOPS)****31-41-01-01 Display Unit (DU)**

Interval	Installed	Required	Procedure
A	2	1	(M) (O)

Except for ER operations, one may be inoperative provided:

- Standby Engine Instruments operate normally and are turned ON.
- Cargo FIRE/OVHT test is performed before each departure.
- Electronic Engine Control or autothrottle system operates normally.
- At least one autopilot operates normally.
- All EICAS computers operate normally.
- Repairs or replacements are made within one flight day.

NOTE: In event of an additional DU failure enroute, flight crew should consider landing as soon as practical.

MAINTENANCE (M)

Deactivate the inoperative DU.

- Open and collar the P11 panel circuit breaker for the associated inoperative EICAS DU:
 - For the upper DU, EICAS UPPER DSPL
 - For the lower DU, EICAS LOWER DSPL

OPERATIONS (O)

- Confirm the standby engine instruments are turned ON.
- Before each departure, perform the cargo FIRE/OVHT test by pushing the ENG/APU/CARGO test switch on the Fire/Overheat Test panel.
- Set power for takeoff using EICAS.
- If remaining EICAS DU fails inflight:
 - Use the SEI to observe engine parameters.
 - Consider landing as soon as practical.
 - Prior to descent, scan the overhead panel for possible abnormal indications.

31-41-01 Engine Indication and Crew Alerting Systems (EICAS) (ETOPS)**31-41-01-02 Computer**

Interval	Installed	Required	Procedure
A	2	1	(M) (O)



Except for ER operations, one may be inoperative provided:

- a. Standby Engine Instruments operate normally and are turned ON.
- b. Electronic Engine Control or autothrottle system operates normally.
- c. At least one autopilot operates normally.
- d. Both Display Units operate normally.
- e. Repairs or replacements are made within one flight day.

NOTE: In event of an additional computer failure enroute, flight crew should consider landing as soon as practical.

MAINTENANCE (M)

Test the remaining operative computer and deactivate the inoperative computer.

1. Test the remaining (operative) computer as follows (AMM 31-41-00/501):
 - A. Set the parking brake ON to enable the EICAS test function.
 - B. Set the computer select switch to the operative computer.
 - C. Press the P61 panel EICAS MAINT TEST switch.
 - D. Confirm normal test completion messages are displayed (TEST OK or SELF TEST COMPLETE, NO INTERFACE FAULTS, NO INTERNAL FAULTS).
2. Deactivate the inoperative computer:
 - A. For the left computer, open and collar the P11 panel circuit breaker L EICAS COMPUTER.
 - B. For the right computer, open and collar the P11 panel circuit breaker R EICAS COMPUTER.

OPERATIONS (O)

1. Before takeoff, with engines running, compare the engine display on EICAS with the standby engine indicator. Confirm the EICAS/SEI engine display differences are within the following tolerances:

Engine Display	EICAS/SEI Engine Display Cross-Compare Tolerance
EPR	.01
EGT	12.0°C
N1	.2%
N2	1.0%

2. Set power for takeoff using EICAS.
3. If the remaining EICAS computer fails inflight:
 - A. Use the SEI to observe engine parameters.
 - B. Consider landing as soon as practical.



- C. Prior to descent, scan the overhead panel for possible abnormal indications.
- 4. The FMC may determine flight completion during high speed taxi resulting in high IRU residual ground speed.

**31-51-01 Master Caution/Warning Systems****31-51-01-01 Master Warning Lights (Pilot's Glare Shield)**

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided master warning aural system and all discrete warning lights operate normally.

31-51-01 Master Caution/Warning Systems**31-51-01-02 Master Caution Lights (Pilot's Glare Shield)**

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided master caution aural system and all discrete caution lights operate normally.



31-51-02 Takeoff Configuration Check (T/O CHK) Switch

31-51-02A Repair Interval Category C

Interval	Installed	Required	Procedure
C	1	0	

31-51-02 Takeoff Configuration Check (T/O CHK) Switch

31-51-02B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.


31-61-04 EICAS Status Messages
31-61-04A Associated Equipment Verified Operative

Interval	Installed	Required	Procedure
C	-	0	(M) (O)

May be inoperative provided associated equipment is verified to operate normally before each departure.

NOTE: This MEL item is intended for nuisance Status level messages. A nuisance message is one that is displayed when there is no actual equipment fault.

MAINTENANCE (M)

Before each departure, verify the associated equipment operates normally.

1. For the FUEL QTY CHANNEL status message, confirm the fuel quantity indication system (FQIS) operates normally:
 - A. Record the last flight leg fault to develop fault history.
 - B. Run the FQIS self test (AMM 28-41-00/501).
 - C. Confirm no faults are displayed.
2. For the POWER XFER UNIT status message, confirm the power transfer unit (PTU) operates normally:
 - A. Display the ELEC/HYD page on EICAS.
 - B. Supply right hydraulic system pressure with the ACMP (AMM 29-11-00/201). Confirm the HYD PUMPS L ELEC switch (left ACMP) is OFF.
 - C. Open the P11 panel ENGINE SPEED CARD R circuit breaker.
 - D. Confirm left hydraulic system pressure is high (PTU is ON).
 - E. Set the HYD PUMPS R ELEC switch (right ACMP) OFF.
 - F. Confirm right hydraulic system pressure decays to less than 200 psi.
 - G. Confirm left hydraulic system pressure decays to less than 200 psi.
 - H. Set the HYD PUMPS R ELEC switch (right ACMP) ON and confirm pressure rises in the right hydraulic system.
 - I. Confirm there is no rise in left hydraulic system pressure.
 - J. Close the open circuit breaker.
 - K. Erase the ECS/HYD Maintenance Page.
 - L. Start the right engine and set the HYD PUMPS L and R ENG switches (both EDPs) and L and R ELEC switches (left and right ACMPs) ON.
 - M. Set the HYD PUMPS L ELEC switch (left ACMP) OFF.
 - N. Confirm left hydraulic system pressure is high.
 - O. Start the left engine.



- P. Set the HYD PUMPS L ENG switch OFF and confirm the HYD PUMPS L ELEC switch remains OFF.
 - Q. Confirm left hydraulic system pressure remains high.
 - R. Set the HYD PUMPS L ENG switch ON.
 - S. Confirm the HYD PUMPS L ENG PRESS light extinguishes.
 - T. Open the P11 panel HYDRAULICS PTU CONT circuit breaker.
 - U. Set the HYD PUMPS L ENG switch OFF.
 - V. Confirm left system pressure is low.
 - W. Close the open circuit breaker and confirm left hydraulic system pressure is high.
3. For the L(R) OIL SCAV VAL status message, confirm the scavenge valve operates normally and the #4 carbon seal is intact:
- A. Operate the engine on the ground at an N2 speed greater than 88% or examine data taken from an EICAS manual event with a burner pressure greater than 300 psig.
 - B. Use the EICAS Perf/APU page, the Status page, and the Exceedence page to do the following:
 - 1) Confirm the scavenge oil pressure (SCAV) shown on the Perf/APU page is between 45 and 155 psig.
 - 2) Confirm there has not been a main oil temperature exceedence on the previous flight.
 - 3) Confirm there has not been a step increase in oil consumption.
 - 4) Confirm the affected engine does not display any of the following EICAS messages:
 - a. L(R) ENG OIL SEAL
 - b. L(R) OIL FILTER
 - c. L(R) OIL SCAV OPEN
4. For other nuisance status level messages, operators must establish their own procedures to verify the associated equipment operates normally. FIM and/or AMM procedures may be relevant.
- NOTE: Boeing Service Letter 31-012 discusses EICAS messages that have been known to be nuisance messages.

OPERATIONS (O)

- 1. For FUEL QTY CHANNEL, POWER XFER UNIT and L(R) OIL SCAV VAL messages, there are no Operations (O) procedures.
- 2. For other nuisance status level messages, operators must establish their own procedures to verify the associated equipment operates normally.

**31-61-04 EICAS Status Messages****31-61-04B Associated Equipment Considered Inoperative**

Interval	Installed	Required	Procedure
C	-	0	(M) (O)

May be inoperative provided dispatch deviations for associated equipment are observed.

NOTE: This MEL item is intended for nuisance Status level messages. A nuisance message is one that is displayed when there is no actual equipment fault.

MAINTENANCE (M)

Verify maintenance dispatch deviations are observed for associated equipment.

OPERATIONS (O)

Verify operations dispatch deviations are observed for associated equipment.



Section 2

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**32-00-01 Gear Door Ground Control Switches/Lights (P72 Panel)****32-00-01-01 Gear Door Close Switches**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided alternate procedures are established and used.

MAINTENANCE (M)

Establish alternate procedures to use when the gear door close switch is inoperative.

1. To open the landing gear door(s) with the gear door close switch failed closed:
 - A. Install downlocks on the nose and main landing gear (AMM 32-00-20/201).
 - B. Remove hydraulic pressure from the left and right hydraulic systems (AMM 29-11-00/201).
 - C. Set the landing gear lever to OFF.
 - D. Open and collar the P11 panel DOOR CLOSE GND ACCESS circuit breaker.
 - E. Open the gear doors and install the door lock pins (AMM 32-00-15/201).
 - F. Set the landing gear lever to DN.
2. To close the landing gear door(s) with the gear door close switch failed closed:
 - A. Remove hydraulic pressure from the left and right hydraulic systems (AMM 29-11-00/201).
 - B. Set the landing gear lever to OFF.
 - C. Open the P11 panel DOOR CLOSE GND ACCESS circuit breaker.
 - D. Remove the door locks from the landing gear doors (AMM 32-00-15/201).
 - E. Close the P11 panel DOOR CLOSE GND ACCESS circuit breaker.
 - F. Pressurize the left hydraulic system (AMM 29-11-00/201).
 - G. Confirm the wheel well areas are clear.
 - H. Set the landing gear lever to DN. This will automatically close the landing gear door(s).
 - I. Remove hydraulic pressure from the left hydraulic system if it is not needed (AMM 29-11-00/201).



3. To close the landing gear door(s) with the gear door close switch failed open:
 - A. Install downlocks on the nose and main landing gear (AMM 32-00-20/201).
 - B. Remove hydraulic pressure from the left and right hydraulic systems (AMM 29-11-00/201).
 - C. Set the landing gear lever to OFF.
 - D. Remove the door locks from the landing gear doors (AMM 32-00-15/201).
 - E. Manually reset the safety valve by rotating the latch holding the door safety valve cam (main gear door) or by rotating the latch holding the sequencing crank (nose gear door). The return springs will reset the safety valve when the latch is rotated, and the DOOR UNSAFE Light will illuminate.
 - F. Pressurize the left hydraulic system (AMM 29-11-00/201).
 - G. Confirm the wheel well areas are clear
 - H. Set the landing gear lever to DN. This will automatically close the landing gear door(s).
 - I. Remove hydraulic pressure from the left system if it is not needed (AMM 29-11-00/201).

32-00-01 Gear Door Ground Control Switches/Lights (P72 Panel)
32-00-01-02 Gear Door Open/Door Arm Switches

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided:

- a. Inoperative switch is verified failed in open circuit position.
- b. Alternate gear extension switch ALTN GEAR EXTEND on flight deck is verified to operate normally.

MAINTENANCE (M)

Verify the inoperative switch is failed in the open circuit position and that the ALTN GEAR EXTEND switch operates normally.

1. To verify the gear door open/door arm switch is failed in the open circuit position:
 - A. Confirm the wheel well areas are clear.
 - B. One at a time, cycle the switches. Confirm the gear doors do not move when the switches are cycled.
2. To verify the ALTN GEAR EXTEND switch operates normally:
 - A. Confirm the wheel well areas are clear.



- B. Close the gears doors.
- C. Set the ALTN GEAR EXTEND switch to DN.
- D. Confirm the gear doors open.

32-00-01 Gear Door Ground Control Switches/Lights (P72 Panel)**32-00-01-03 Gear Door Unlock/Unsafe Lights**

Interval	Installed	Required	Procedure
C	3	0	

**32-30-01 Landing Gear Retracting System**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- Inoperative components are properly secured by an accepted procedure.
- Airplane is dispatched in accordance with appropriate AFM Landing Gear Extended Appendix.

MAINTENANCE (M)

Secure the inoperative components.

- Install landing gear downlock pins in the main and nose gear as follows:
 - Install landing gear door locks (AMM 32-00-15/201).
 - Set the landing gear control lever to DN.
 - Install downlocks on the nose and main landing gear (AMM 32-00-20/201).
 - Return the landing gear door locks to the normal condition.
- Open and collar the P11 panel LANDING GEAR LEVER LOCK circuit breaker.
- Set the ALTERNATE Vmo/Mmo select switch to ALTN (AMM 34-12-00/1).

OPERATIONS (O)

- Operate the airplane in accordance with the AFM Landing Gear Extended appendix.
- Base flight plan on landing gear extended.
- The ALTERNATE Vmo/Mmo select switch to the air data computer has been set to provide gear down Vmo/Mmo data for display on airspeed indicators. The aural warning, red warning lights on the glareshield, and the RED OVSPD warning light on the captain's panel will come on when the gear down Vmo/Mmo is exceeded.
- The following flight deck effects will occur while the gear is extended:
 - Gear down lights (NOSE, LEFT, RIGHT) will remain illuminated.
 - Altitude alerting will be available.
 - If flaps are lowered to a landing flap position (25 or 30), GPWS Mode 3 ("Don't Sink") and Mode 4 ("Too Low Terrain") will not be available.
 - TCAS lower antenna will not switch to omnidirectional.

**32-31-01 Landing Gear Lever Lock Solenoid**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative in latched position provided override mechanism is verified to operate normally.

MAINTENANCE (M)

Verify the override mechanism operates normally.

1. Confirm the following P11 panel circuit breakers are closed:
 - A. LANDING GEAR POS SYS 1
 - B. LANDING GEAR POS SYS 2
 - C. IND LIGHTS 4
 - D. R IND LTS 1
 - E. LANDING GEAR LEVER LOCK
2. Confirm the LOCK OVRD button operates normally:
 - A. Install downlocks on the nose and main landing gear (AMM 32-00-20/201).
 - B. Supply electrical power (AMM 24-22-00/201).
 - C. Confirm wheel well areas are clear.
 - D. Pressurize the left hydraulic system (AMM 29-11-00/201).
 - E. Open the P11 panel LANDING GEAR LEVER LOCK circuit breaker.
 - F. Confirm the landing gear lever cannot be moved to UP without the lever lock override button pushed in.
 - G. Push the lever lock override button and confirm the control lever will move to UP.
 - H. Set the landing gear lever to DN. Confirm the green NOSE, LEFT, and RIGHT landing gear down lights are on.
 - I. Close the open circuit breaker.
 - J. Remove the pressure from the left hydraulic system if no longer necessary.
 - K. Remove landing gear down locks (AMM 32-00-20/201).

OPERATIONS (O)

For gear retraction use the following procedure:

1. Push the landing gear LOCK OVRD switch.
2. Set the landing gear lever to UP.
3. After the GEAR light extinguishes, set the landing gear lever to OFF.

**32-32-01 Main Landing Gear Uplock Springs**

Interval	Installed	Required	Procedure
B	4	3	(M)

One spring on one main gear uplock mechanism may be missing provided landing gear lever remains in UP position until gear extension is required.

MAINTENANCE (M)

Remove the affected main landing gear uplock spring.


32-41-01 Wheel Brakes
32-41-01A Deactivation Tool Used

Interval	Installed	Required	Procedure
C	8	7	(M) (O)

One brake may be deactivated with a deactivation tool provided:

- a. Performance complies with AFM for one brake deactivated.
- b. Antiskid operates normally on remaining wheels.

MAINTENANCE (M)

Deactivate the brake with a deactivation tool.

1. Install the brake deactivation tool:

NOTE 1: Boeing P/N B32022-1 or -6 bag of parts includes Dowty deactivation tool P/N 2-7461-1 which is usable on S274T120-1, -4, -6 and -8 shuttle valves.

NOTE 2: Boeing P/N A32080-1 bag of parts includes Boeing deactivation tool P/N A32080-4 which can be used on all dash numbers of the S274T120 shuttle valves. Dowty deactivation tool P/N 2-7461-3 is also usable on all S274T120 shuttle valves.

- A. Install landing gear door locks (AMM 32-00-15/201).
- B. Install landing gear downlocks (AMM 32-00-20/201).
- C. Ensure wheels are adequately chocked.
- D. Depressurize the right and left hydraulic systems, including reservoirs (AMM 29-11-00/201).
- E. Release the parking brakes by depressing both brake pedals fully and releasing. Confirm the PARK BRAKE light extinguishes.
- F. Discharge parking brake accumulator hydraulic pressure using either the captain's or first officer's brake pedals. Fully depress and release both pedals at the same time, ten times minimum, until the cockpit brake pressure gauge indication no longer decreases.
- G. Gain access to the antiskid shuttle valve module (AMM 32-42-07/401).
- H. Remove the appropriate antiskid shuttle valve slide plug (just the slide plug, not the shuttle valve) from the module. The following tables identify which shuttle valve slide plug should be removed to deactivate a particular brake (AMM 32-42-00/1).


Table I: Airplanes without SB 757-32-21 or production equivalent installed

LEFT GEAR WHEEL BRAKE	LEFT ANTISKID SHUTTLE VALVE MODULE	RIGHT GEAR WHEEL BRAKE	RIGHT ANTISKID SHUTTLE VALVE MODULE
No. 1 (FWD OUTBD)	* VALVE "BRK B"	No. 3 (FWD INBD)	* VALVE "BRK C"
No. 2 (FWD INBD)	* VALVE "BRK A"	No. 4 (FWD OUTBD)	* VALVE "BRK D"
No. 5 (AFT OUTBD)	* VALVE "BRK D"	No. 7 (AFT INBD)	* VALVE "BRK A"
No. 6 (AFT INBD)	* VALVE "BRK C"	No. 8 (AFT OUTBD)	* VALVE "BRK B"
* IDENTIFICATION IS MARKED ON MODULE			

Table II: Airplanes with SB 757-32-21 or production equivalent installed

LEFT GEAR WHEEL BRAKE	LEFT ANTISKID SHUTTLE VALVE MODULE	RIGHT GEAR WHEEL BRAKE	RIGHT ANTISKID SHUTTLE VALVE MODULE
No. 1 (FWD OUTBD)	* VALVE "BRK B"	No. 3 (FWD INBD)	* VALVE "BRK D"
No. 2 (FWD INBD)	* VALVE "BRK A"	No. 4 (FWD OUTBD)	* VALVE "BRK C"
No. 5 (AFT OUTBD)	* VALVE "BRK D"	No. 7 (AFT INBD)	* VALVE "BRK B"
No. 6 (AFT INBD)	* VALVE "BRK C"	No. 8 (AFT OUTBD)	* VALVE "BRK A"
* IDENTIFICATION IS MARKED ON MODULE			

- I. Install the special brake dispatch disconnect tool in place of the removed shuttle valve slide plug. Tighten the disconnect tool to 50 pound-inches, and lockwire.
- J. Gain access to the antiskid/autobrake control unit (AMM 32-42-01/401).
- K. Set the BRAKE TEST/DISABLE selector to the brake that was deactivated.
2. Test proper deactivation of the wheel brake:
 - A. Supply right hydraulic system pressure (AMM 29-11-00/201).



- B. Depress and release either the captain's or first officer's brake pedals several times. Confirm brake wear indicator pins (or pistons and adjusters) on the deactivated brake do not move or change position, while movement is observed for all other brakes.

OPERATIONS (O)

Stopping distances will be increased with a brake deactivated. Adjust takeoff and landing performance in compliance with AFM data for one brake deactivated.

32-41-01 Wheel Brakes

32-41-01B Brake Line Capped

Interval	Installed	Required	Procedure
C	8	7	(M) (O)

One brake may be deactivated by capping off brake line provided:

- Takeoff performance is based on Landing Gear Extended.
- Takeoff and landing performance complies with AFM for one brake inoperative.
- After takeoff, gear remains extended for two minutes prior to retraction.
- Antiskid operates normally on remaining wheels.

MAINTENANCE (M)

Deactivate the brake by capping the brake line.

- Disconnect the hydraulic supply by removing the hose half of the self sealing quick-disconnect fitting on the brake:
 - Install landing gear downlocks (AMM 32-00-20/201).
 - Ensure wheels are adequately chocked.
 - Depressurize the right and left hydraulic systems, including reservoirs (AMM 29-11-00/201).
 - Install main gear door locks (AMM 32-00-15/201).
 - Remove the three screws securing the hose half of the self-sealing disconnect fitting to the brake, and pull the hose and its attached fitting half free of the brake.
 - Stow the hose and hose half fitting with the disconnect fitting still connected to the hose, and ensure no interference with gear rotation and retraction.
 - Open the brake bleed fitting approximately 1-1/2 full turns and then lockwire it in this open position.
 - Gain access to the antiskid/autobrake control unit (AMM 32-42-01/401).
 - Set the BRAKE TEST/DISABLE selector to the brake that was deactivated.



- J. Supply right hydraulic system pressure (AMM 29-11-00/201).
- K. Apply brake pressure by depressing the brake pedal and check for leaks.

OPERATIONS (O)

1. After takeoff, leave the landing gear extended for two minutes to allow the wheels to spin down prior to gear retraction.
2. The allowable takeoff weight is the lowest of the brake deactivated field length, adjusted climb or the adjusted obstacle limited weight.
 - A. Adjust takeoff and landing field length performance in compliance with AFM data for one brake deactivated. Do not use improved climb performance.
 - B. Reduce the AFM second segment (gear up) climb limited weight with the climb limit adjustment shown in the table below. The adjustment does not affect final climb segment because the gear is retracted after two minutes.
 - C. Reduce the obstacle clearance limited weight with the obstacle clearance adjustment shown in the table below. The obstacle clearance adjustments assume use of extended second segment procedures with MCT cleanup. All obstacles must be cleared by the height achieved at the end of extended second segment climb.

Model/Engine	Flap	Takeoff Climb	Takeoff Obstacle Clearance

-200/PW2037	5	31,200 lb	34,300 lb
	15	24,600 lb	27,400 lb
	20	17,900 lb	20,400 lb

-200/PW2037	5	14,200 kg	15,600 kg
	15	11,200 kg	12,400 kg
	20	8,100 kg	9,300 kg

-200/PW2040	5	33,700 lb	36,300 lb
	15	26,500 lb	28,400 lb
	20	19,400 lb	20,900 lb

-200/PW2040	5	15,300 kg	16,500 kg
	15	12,100 kg	12,900 kg
	20	8,800 kg	9,500 kg


32-41-02 BRAKE SOURCE Indication System
32-41-02A EICAS Message Operation Verified

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided associated EICAS Advisory message is verified to operate normally.

MAINTENANCE (M)

Verify the associated advisory message operates normally.

1. Supply electrical power (AMM 24-22-00/201).
2. Supply hydraulic power (AMM 29-11-00/201).
3. Set the HYD PUMPS L and R ELEC pump swithes to OFF.
4. Confirm the BRAKE SOURCE advisory message illuminates.
5. Set the HYD PUMPS L and R ELEC pump swithes to ON.
6. Confirm the BRAKE SOURCE advisory message extinguishes.

OPERATIONS (O)

Use the BRAKE SOURCE advisory level message in lieu of the BRAKE SOURCE light for the BRAKE SOURCE Non-Normal Checklist.

32-41-02 BRAKE SOURCE Indication System
32-41-02B Brake System Operation Verified

Interval	Installed	Required	Procedure
B	1	0	(M)

May be inoperative provided:

- a. L and R hydraulic low SYS PRESS lights operate normally.
- b. Normal and alternate brake systems and brake accumulator are verified to operate normally.

MAINTENANCE (M)

Verify the normal and alternate brake systems and brake accumulator operate normally.

1. Install landing gear down locks (AMM 32-00-20/201) and ensure wheels are adequately chocked.
2. Release the parking brakes by depressing both the captain's or first officer's brake pedals to the stops and releasing.
3. Supply right hydraulic system pressure with one electric pump (AMM 29-11-00/201). Confirm the R SYS PRESS light is not illuminated.



4. Depress and release both the captain's or first officer's brake pedals ten times minimum. The brake pressure gauge should dip momentarily (2000 to 2500 psi) at each brake application.
NOTE: Both brake pedals should be depressed and released at the same time. Pause a minimum of five seconds after each brake application before the next application.
5. Confirm the BRAKE PRESS pressure gage on the first officer's instrument panel indicates 2850 to 3150 psig.
6. Supply left hydraulic system pressure with one electric pump (AMM 29-11-00/201). Confirm the L SYS PRESS light is not illuminated.
7. Depressurize the right hydraulic system without applying brakes (AMM 29-11-00/201). Confirm the R SYS PRESS light illuminates and indicated pressure for the right hydraulic system is less than 500 psi.
8. Slowly depress and release both the captain's or first officer's brake pedals seven times minimum. Confirm the brake pressure gauge does not dip with brake application.
NOTE: Both brake pedals should be depressed and released at the same time. Pause a minimum of five seconds after each brake application before the next application.
9. Confirm the BRAKE PRESS pressure gage on the first officer's instrument panel indicates 2850 to 3150 psig.
10. Depressurize the left hydraulic system (AMM 29-11-00/201).
11. Depress and release both the captain's or first officer's brake pedals seven times minimum.
12. Confirm the BRAKE PRESS pressure gage on the first officer's instrument panel indicates a lower value each time the brakes are applied. Final pressure should be about 1150 - 1500 psig.



32-41-03 Gear Retraction Braking System

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. After takeoff, gear remains down for two minutes before retraction.
- b. Takeoff performance is based on Landing Gear Extended.

OPERATIONS (O)

- 1. After takeoff, leave the landing gear extended for two minutes to allow the wheels to spin down prior to gear retraction.
- 2. Base takeoff performance on landing gear extended. Reduce performance limited weights using MEL Item 32-41-01 (O) procedure for Brake Line Capped.

**32-42-01 Antiskid System**

Interval	Installed	Required	Procedure
C	1	0	(O)

Required for CAT II/IIIa/IIIb approach Operation.

May be inoperative provided:

- AFM decrements are applied for antiskid inoperative operations.
- Approach minimums do not require its use.

NOTE: MEL Item 32-42-01 applies to all normal and alternate antiskid system faults (including transducer faults) except for alternate antiskid valve faults. For alternate antiskid valve faults, consult MEL Item 32-42-02 for possible dispatch relief.

MAINTENANCE NOTE

Deactivate two or more inoperative antiskid channels or deactivate the entire system.

NOTE: It is recommended that inoperative antiskid channels are deactivated and operative channels remain operative. Step 1 is provided to deactivate only the inoperative channels for dispatch. Alternately, step 2 is provided to deactivate the entire antiskid system.

- Deactivate inoperative antiskid channels using either procedure A or B below (operative channels remain available).
 - Deactivate the inoperative channels using antiskid advisory messages (this procedure is applicable only for airplanes with an Antiskid (ON/OFF) switch on the P5 panel):
 - With electrical power on the airplane, open the following P11 panel circuit breakers. The ANTISKID OFF advisory message should appear.
 - LANDING GEAR ANTISKID 1-5
 - LANDING GEAR ANTISKID 2-6
 - LANDING GEAR ANTISKID 3-7
 - LANDING GEAR ANTISKID 4-8
 - One at a time, close each circuit breaker and perform the following:
 - If the advisory message ANTISKID OFF remains with the circuit breaker closed, this pair of channels is faulty. Open and collar the circuit breaker.



- b. If the advisory message ANTISKID OFF is no longer displayed and the advisory message ANTISKID displays, this pair of channels is operative. Re-open the circuit breaker for this pair of operative channels prior to checking other channels.
 - 3) After all four pairs of channels have been checked, close the circuit breakers for all operative channels.
 - 4) Set the AUTO BRAKES selector to OFF.
 - B. Deactivate the inoperative channels using BITE check:
 - 1) Gain access to antiskid/autobrake control unit (AMM 32-42-01/401).
 - 2) Note all faults by pressing BIT until TEST END.
 - 3) Clear faults by pushing RESET.
 - 4) Note recurrent faults by pressing BIT until TEST END.
 - 5) Open and collar the P11 panel LANDING GEAR ANTISKID 1-5 circuit breaker for channels that display the following fault codes:
 - a. XDCR1
 - b. XDCR5
 - c. BOX 1-5
 - 6) Open and collar the P11 panel LANDING GEAR ANTISKID 2-6 circuit breaker for channels that display the following fault codes:
 - a. XDCR2
 - b. XDCR6
 - c. BOX 2-6
 - 7) Open and collar the P11 panel LANDING GEAR ANTISKID 3-7 circuit breaker for channels that display the following fault codes:
 - a. XDCR3
 - b. XDCR7
 - c. BOX 3-7
 - 8) Open and collar the P11 panel LANDING GEAR ANTISKID 4-8 circuit breaker for channels that display the following fault codes:
 - a. XDCR4
 - b. XDCR8
 - c. BOX 4-8
 - 9) Set the AUTO BRAKES selector to OFF.
 2. Deactivate the antiskid system as follows:
 - A. Open and collar the following P11 panel circuit breakers:
 - 1) LANDING GEAR ANTISKID 1-5



- 2) LANDING GEAR ANTISKID 2-6
- 3) LANDING GEAR ANTISKID 3-7
- 4) LANDING GEAR ANTISKID 4-8

B. Set the AUTO BRAKES selector to OFF.

OPERATIONS (O)

1. Takeoff and landing performance must be in compliance with AFM for antiskid inoperative.
2. Do not use autobrakes. Set the AUTO BRAKES selector to OFF.
3. When stopping after landing and for refused takeoffs:
 - A. Close thrust levers and raise speedbrakes.
 - B. Initiate wheel braking using light pedal pressure and increase as ground speed decreases.
4. Category III weather minima operations may require an operative autobrake system.
5. For a transducer fault, ALTN ANTISKID status message will remain displayed. For a subsequent enroute loss of the right hydraulic system the ANTISKID light and advisory message will illuminate. Braking effectiveness on the alternate system is reduced - brake with caution.

32-42-01 Antiskid System

32-42-01-01 Channels

Interval	Installed	Required	Procedure
C	8	7	(M) (O)

One channel and associated brake may be inoperative (brake deactivated or line capped) provided:

- a. Brake is deactivated by an acceptable procedure.
- b. AFM decrements are applied for selected procedure.

MAINTENANCE (M)

Deactivate the brake associated with one antiskid channel using MEL Item 32-41-01 (M) procedure.

OPERATIONS (O)

1. For brake disconnect tool installed, use MEL Item 32-41-01A (O) procedure.
2. For brake line capped, use MEL Item 32-41-01B (O) procedure.
3. For a transducer fault, ALTN ANTISKID status message will remain displayed. For a subsequent enroute loss of the right hydraulic system the ANTISKID light and advisory message will illuminate. Braking effectiveness on the alternate system is reduced - brake with caution.

**32-42-02 Alternate Antiskid Valves****32-42-02A Normal Antiskid System Operative**

Interval	Installed	Required	Procedure
C	4	0	(M) (O)

May be inoperative provided:

- Manual braking capability on alternate brake system is verified on associated wheels.
- Normal antiskid system operates normally.

NOTE: For normal and alternate antiskid system faults other than alternate antiskid valve faults, consult MEL Item 32-42-01 for possible dispatch relief.

MAINTENANCE (M)

Verify manual braking capability on the alternate brake system is available on the associated wheels.

- Supply electrical power (AMM 24-22-00/201) and ensure wheels are adequately chocked.
- Release the parking brake.
- Depressurize the right hydraulic system (29-11-00/201).
- Supply left hydraulic system pressure (29-11-00/201).
- Depress and release the brake pedals. Observe the brake wear indicator pins on each brake to confirm the brakes apply and release.
- If the brakes apply and release on all brakes, manual braking capability on the alternate brake system is confirmed.
- For manual braking not available on all brakes, deactivate the alternate antiskid valve(s) for the affected brakes.
 - Disconnect and stow the connector for the associated alternate antiskid valve (AMM 32-42-03/401).
 - Depress and release the brake pedals. Observe the brake unit wear indicator pins to confirm all brakes apply and release.

OPERATIONS (O)

- Inoperative alternate antiskid valves do not affect the normal braking system.
- Enroute loss of the right hydraulic system will result in illumination of the ANTISKID light and message, indicating reduced braking effectiveness on the alternate system. If this occurs, brake with caution.

**32-42-02 Alternate Antiskid Valves****32-42-02B Antiskid Inoperative Penalties Applied**

Interval	Installed	Required	Procedure
C	4	0	(M) (O)

May be inoperative provided:

- Manual braking capability on alternate brake system is verified on associated wheels.
- AFM decrements are applied for antiskid inoperative operations.

NOTE: For normal and alternate antiskid system faults other than alternate antiskid valve faults, consult MEL item 32-42-01 for possible dispatch relief.

MAINTENANCE (M)

Verify manual braking capability on the alternate brake system is available on the associated wheels.

- Supply electrical power (AMM 24-22-00/201) and ensure wheels are adequately chocked.
- Release the parking brake.
- Depressurize right hydraulic system (29-11-00/201).
- Supply left hydraulic system pressure (29-11-00/201).
- Depress and release the brake pedals. Observe the brake wear indicator pins on each brake to confirm the brakes apply and release.
- If the brakes apply and release on all brakes, manual braking capability on the alternate brake system is confirmed.
- For manual braking not available on all brakes, deactivate the antiskid system.
 - For brakes that do not apply and release on the left gear, open and collar the associated P11 panel circuit breakers:
 - LANDING GEAR ANTISKID 1-5
 - LANDING GEAR ANTISKID 2-6
 - For brakes that do not apply and release on the right gear, open and collar the associated P11 panel circuit breakers:
 - LANDING GEAR ANTISKID 3-7
 - LANDING GEAR ANTISKID 4-8
 - Depress and release the brake pedals. Observe the brake unit wear indicator pins to confirm all brakes apply and release.

OPERATIONS (O)

- Takeoff and landing performance must be in compliance with AFM for antiskid inoperative.



2. Do not use autobrakes. Set the AUTO BRAKES selector to OFF.
3. When stopping after landing and for refused takeoffs:
 - A. Close thrust levers and raise speedbrakes.
 - B. Initiate wheel braking using light pedal pressure and increase as ground speed decreases.


32-42-03 ANTISKID Light
32-42-03A Antiskid System Operative

Interval	Installed	Required	Procedure
C	1	0	(M)

Required for II / IIIa / IIIb approach.

May be inoperative provided antiskid system is verified to operate normally.

MAINTENANCE (M)

Verify the antiskid system operates normally.

1. Supply electrical power (AMM 24-22-00/201).
2. Ensure wheels are adequately chocked.
3. Release the parking brake.
4. Confirm the parking brake valve is full open:
 - A. Install main landing gear door locks (AMM 32-00-15/201).
 - B. Gain access to the parking brake valve (AMM 32-44-03/401).
 - C. Confirm the override lever on the parking brake valve is at POS 1.
5. Gain access to the antiskid/autobrake control unit (AMM 32-42-01/401).
6. Press the BIT switch to recall all faults until the unit display reads TEST END.
7. Confirm no faults are displayed.
8. Press the RESET switch to clear memory.

32-42-03 ANTISKID Light
32-42-03B Antiskid Inoperative Penalties Applied

Interval	Installed	Required	Procedure
C	1	0	(O)

Required for II / IIIa / IIIb approach.

May be inoperative provided AFM decrements are applied for antiskid inoperative operations.

OPERATIONS (O)

1. Takeoff and landing performance must be in compliance with AFM for antiskid inoperative.
2. Antiskid system is assumed to be inoperative. Do not use autobrakes. Set the AUTO BRAKES selector to OFF.



3. When stopping after landing and for refused takeoffs:
 - A. Close thrust levers and raise speedbrakes.
 - B. Initiate wheel braking using light pedal pressure and increase as ground speed decreases.


32-42-04 Autobrake System
32-42-04A AUTO BRAKES Light Not Illuminated

Interval	Installed	Required	Procedure
C	1	0	

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided:

- AUTO BRAKES light is not illuminated with autobrake switch OFF.
- Approach minimums do not require its use.

32-42-04 Autobrake System
32-42-04B Autobrake Solenoid Valve Verified Closed

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative with AUTO BRAKES light illuminated and autobrake switch OFF provided:

- Autobrake solenoid valve is verified closed.
- Approach minimums do not require its use.

MAINTENANCE (M)

Verify the autobrake solenoid valve is closed.

- Supply electrical power (AMM 24-22-00/201).
- Ensure wheels are adequately chocked.
- Release the parking brake.
- Retard both thrust levers.
- Set the AUTO BRAKES selector to OFF.
- Supply right hydraulic system pressure (AMM 29-11-00/201).
- For AUTO BRAKES light not illuminated, the autobrake solenoid valve is confirmed closed.
- For AUTO BRAKES light illuminated:
 - Depressurize the right and left hydraulic systems (AMM 29-11-00/201).
 - Pump the brake pedals until the brake accumulator pressure gage on the first officer's panel will reduce no further (approximately 1300 psi).
 - For AUTO BRAKES light illuminated, the autobrake solenoid valve is confirmed closed.

**32-42-04 Autobrake System****32-42-04C Autobrake Module Deactivated**

Interval	Installed	Required	Procedure
C	1	0	(M)

Required for CAT II / IIIa / IIIb approach.

May be inoperative with AUTO BRAKES light illuminated and autobrake switch OFF provided:

- a. Module is deactivated in accordance with an accepted procedure.
- b. Approach minimums do not require its use.

MAINTENANCE (M)

Deactivate the autobrake module.

1. Depressurize the right and left hydraulic systems (AMM 29-11-00/201).
2. Depressurize the right hydraulic system reservoir (AMM 29-11-00/201).
3. Pump the brake pedals until the brake accumulator pressure gage on the first officer's panel will reduce no further (approximately 1300 psi).
4. Open the following P11 panel circuit breakers:
 - A. LDG GEAR AUTOBK ANTISKID TEST IND 1
 - B. LDG GEAR AUTOBK ANTISKID TEST IND 2
5. Gain access to the autobrake module (AMM 32-42-09/401).
6. Remove, cap, and stow the following electrical connectors:
 - A. D2668
 - B. D2670
 - C. D2672
 - D. D2674
7. Perform step A or step B.
 - A. Disable the autobrake valve module in place:
 - 1) Disconnect and cap the supply pressure hydraulic line (271N6441-1006) at the module with BAC P20AU8J, K or S.
 - 2) Plug the valve pressure port.
 - B. Remove the autobrake valve module:
 - 1) Remove the autobrake valve module (AMM 32-42-09/401).
 - 2) Cap the supply pressure hydraulic line (271N6441-1006) with BAC P20AU8J, K or S.
 - 3) Interconnect the brake and return lines with a suitable section of tubing or flexible hose (AMM 20-10-09).
8. Close the open circuit breakers.



9. Supply right hydraulic system power (AMM 29-11-00/201) and check for leaks.

**32-44-02 Parking Brake Valve**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

Required for CAT II / IIIa / IIIb approach.

May be inoperative closed provided AFM decrements are applied for antiskid inoperative operations.

MAINTENANCE (M)

Confirm the parking brake valve is fully closed.

1. Supply electrical power (AMM 24-22-00/201).
2. Ensure wheels are adequately chocked.
3. Release the parking brake.
4. Open and collar the P6 panel LANDING GEAR PARKING BRAKE VLV circuit breaker.
5. Gain access to the parking brake valve (AMM 32-44-03/401).
6. Set the override lever on the parking brake valve to POS2.
7. With the parking brake released, confirm the antiskid light and the ANTISKID OFF advisory message are annunciated.
8. With the parking brake set, position and hold the P61 panel configuration test switch in the T/O position.
 - A. Confirm the PARKING BRAKE takeoff warning message is displayed.
 - B. Release the parking brake.
 - C. Confirm the PARKING BRAKE takeoff warning message is not displayed.

OPERATIONS (O)

1. Takeoff and landing performance must be in compliance with AFM for antiskid inoperative.



2. The antiskid system is inoperative. Do not use autobrakes. Set the AUTO BRAKES selector to OFF.
3. When stopping after landing and for refused takeoffs:
 - A. Close thrust levers and raise speedbrakes.
 - B. Initiate wheel braking using light pedal pressure and increase as ground speed decreases.

**32-44-03 Parking Brake Lights****32-44-03-01 PARK BRAKE Light****32-44-03-01A Antiskid Light Verified Operative**

Interval	Installed	Required	Procedure
C	1	0	(M)

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided:

- Parking brake valve operates normally.
- Antiskid light is verified to operate normally once each flight day.

MAINTENANCE (M)

Once each flight day, verify the antiskid light operates normally.

- Supply electrical power (AMM 24-22-00/201).
- Supply right hydraulic system power (AMM 29-11-00/201).
- Confirm the P6 panel LANDING GEAR PARKING BRAKE VLV circuit breaker is closed.
- Set the parking brakes by pulling the PARK BRAKE handle and depressing both captain's brake pedals to the stops and releasing.
- Confirm the ANTISKID light is not illuminated.
- Open the P6 panel LANDING GEAR PARKING BRAKE VLV circuit breaker.
- After approximately 3 seconds, confirm the ANTISKID light illuminates.
- Release the parking brakes by depressing the brake pedals.
- Close the open circuit breaker and confirm the ANTISKID light extinguishes.
- Set the parking brakes by pulling the PARK BRAKE handle and depressing both captain's brake pedals to the stops and releasing.
- Position and hold the P61 TEST panel CONFIG switch in the T/O position.
- Confirm the PARKING BRAKE takeoff warning message is displayed.
- Release the parking brakes.
- Confirm the PARKING BRAKE takeoff warning message is not displayed.
- Confirm the ANTISKID light is extinguished.
- Release the P61 TEST panel CONFIG switch.
- Open the P6 panel LANDING GEAR PARKING BRAKE VLV circuit breaker.
- Confirm the ANTISKID light is extinguished (wait at least three seconds).
- Close the open circuit breaker.

**32-44-03 Parking Brake Lights****32-44-03-01 PARK BRAKE Light****32-44-03-01B Antiskid Inoperative Penalties Applied**

Interval	Installed	Required	Procedure
C	1	0	(O)

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided AFM decrements are applied for antiskid inoperative operations.

OPERATIONS (O)

1. Takeoff and landing performance must be in compliance with AFM for antiskid inoperative.
2. The antiskid system is assumed to be inoperative. Do not use autobrakes. Set the AUTO BRAKES selector to OFF.
3. When stopping after landing and for refused takeoffs:
 - A. Close thrust levers and raise speedbrakes.
 - B. Initiate wheel braking using light pedal pressure and increase as ground speed decreases.

32-44-03 Parking Brake Lights**32-44-03-01 PARK BRAKE Light****32-44-03-01C PARKING BRAKE Message Verified Operative**

Interval	Installed	Required	Procedure
C	1	0	(O)

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided EICAS Advisory message PARKING BRAKE is verified to operate normally.

OPERATIONS (O)

Verify the PARKING BRAKE advisory message operates normally.

1. Confirm the PARKING BRAKE advisory message is displayed with the parking brake set.
2. Release the parking brake.
3. Confirm the ANTISKID light extinguishes.


32-44-03 Parking Brake Lights
32-44-03-02 Nose Gear Parking Brake Status Indicator Light (PARKING BRAKE ON)

32-44-03-02A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided alternate procedures are established and used.

MAINTENANCE (M)

Establish alternate procedures for when the PARKING BRAKE ON light is inoperative.

1. Establish communications between ground and flight deck.
2. Have the flight crew notify the ground crew when the parking brake is set.

OPERATIONS (O)

Establish alternate procedures for when the PARKING BRAKE ON light is inoperative.

1. Establish communications between ground and flight deck.
2. Notify the ground crew when the parking brake is set.

32-44-03 Parking Brake Lights
32-44-03-02 Nose Gear Parking Brake Status Indicator Light (PARKING BRAKE ON)

32-44-03-02B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	1	0	

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided procedures do not require its use.



32-44-04 Brake Accumulator Pressure Gauge (Wing Fairing)

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided associated flight deck indication operates normally.



32-44-05 BRAKE PRESS Gauge (Flight Deck)

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Brake accumulator charge is verified normal once each flight day.
- b. Right low SYS PRESS light operates normally.

MAINTENANCE (M)

Once each flight day, verify the brake accumulator charge is normal.

- 1. Install landing gear downlocks (AMM 32-00-20/201).
- 2. Ensure wheels are adequately chocked.
- 3. Depressurize the right and left hydraulic systems (AMM 29-11-00/201).
- 4. Confirm the R SYS PRESS indicator light is illuminated.
- 5. Supply electrical power to the hydraulic brake system (AMM 24-22-00/201).
- 6. Supply right hydraulic system pressure (AMM 29-11-00/201).
- 7. Confirm the R SYS PRESS indicator light is extinguished.
- 8. Gain access to the parking brake accumulator pressure gauge (AMM 12-15-04/301).
- 9. Confirm the pressure gauge indicates 2850 to 3150 psig.
- 10. Turn off the hydraulic pump.
- 11. Discharge hydraulic pressure from the parking brake accumulator using either the captain's or first officer's brake pedals. Fully depress and release both pedals at the same time, ten times minimum. Confirm the R SYS PRESS indicator light is illuminated.

NOTE: Pause a minimum of 5 seconds after each brake application before next application.

- 12. Confirm proper brake accumulator pressure, between 1150 and 1500 psig depending on ambient temperature, as indicated on a placard near the accumulator.

**32-45-02 Nose Wheel Spin Brakes (Snubbers)**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be damaged or missing.

MAINTENANCE (M)

1. Confirm there are no exposed bolts or metal pieces that could cut the tire.
2. For part of the brake shoe pad missing, remove any exposed bolts/rivets as necessary.
3. For spring arm broken, remove the bolts and remaining piece.



32-46-01 Brake Temperature Monitoring System (BTMS)

Interval	Installed	Required	Procedure
D	1	0	

**32-51-01 Rudder Pedal Nose Wheel Steering**

Interval	Installed	Required	Procedure
B	1	0	(M) (O)

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided:

- Approach minimums do not require its use.
 - All takeoffs and landings are made by a pilot with access to an operating tiller.
-

MAINTENANCE (M)

Inspect the rudder pedal interconnect mechanism and test the tiller steering system.

- Confirm the rudder pedal interconnect mechanism failure will not jam other system controls:
 - Visually inspect the mechanism below the flight compartment floor for broken or disconnected components.
 - Displace the rudder pedals full travel in both directions to confirm the pedals move freely.
- Test the tiller steering system:
 - Install downlocks for the nose and main landing gear (AMM 32-00-20/201).
 - Open the doors for the nose landing gear and install the door locks (AMM 32-00-15/201).
 - Disconnect the nose gear torque links and stow them to avoid any interference when the nose gear tiller is moved full left and right.
 - Supply left hydraulic system pressure (AMM 29-11-00/201).
 - Using the captain's tiller, operate steering through full left and right envelope and confirm no system binding occurs.
 - Depressurize the left hydraulic system (AMM 29-11-00/201).
 - Reconnect the nose gear torque links.

OPERATIONS (O)

The flight crewmember with access to the tiller will be flying. Use the following procedures.

TAKEOFF:

The pilot flying should steer the airplane, manipulating the nose wheel steering tiller, until the rudder becomes effective (approximately 40 to 60 kts). The pilot monitoring should assist by keeping the wings level and applying a light forward pressure on the control column until the tiller is no longer required for steering.

LANDING:



The pilot flying should use the rudder and nose wheel steering tiller as required during the landing roll. The pilot monitoring should assist by keeping the wings level and applying a forward pressure on the control column.

**32-61-01 Landing Gear DOORS Light System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided EICAS Advisory message GEAR DOORS is verified to operate normally.

MAINTENANCE (M)

Verify the GEAR DOORS advisory message operates normally.

1. Open the main landing gear doors and install landing gear door locks (AMM 32-00-15/201).
2. Confirm the GEAR DOORS advisory message illuminates after a 35 second time delay.
3. Remove landing gear door locks and close the main gear doors (AMM 32-00-15/201).

**32-61-02 Landing Gear Position Sensors****32-61-02-01 Nose Gear Up Sensors**

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided nose gear door sensors are verified to operate normally.

MAINTENANCE (M)

Verify the nose gear door closed sensors operate normally.

1. Gain access to the proximity switch electronics unit (PSEU) (AMM 32-09-04/401).
2. Perform the PSEU BITE test.
3. For faults displayed, confirm they are nose gear up faults only.
4. Open the gear doors and install the door locks (AMM 32-00-15/201).
5. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
6. Place targets on the following sensors to simulate the main gear doors being closed:
NOTE: Use proximity sensor actuator/deactuator set A27092-61 to simulate the desired position of the sensors.
 - A. System 1 Right Gear Door Closed S10241.
 - B. System 2 Right Gear Door Closed S10072.
 - C. System 1 Left Gear Door Closed S10242.
 - D. System 2 Left Gear Door Closed S10076.
 - E. System 1 Nose Gear Door Closed S10243.
 - F. System 2 Nose Gear Door Closed S10081.
7. Confirm the GEAR DOORS advisory message is not displayed.
8. Remove the targets from S10243 and S10081 nose gear door closed sensors.
9. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
10. Remove all targets.


32-61-02 Landing Gear Position Sensors
32-61-02-02 Main Gear Up and Locked Sensors
32-61-02-02-01 System One

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided:

- a. Main gear door closed sensors are verified to operate normally.
- b. Both main gear up and locked sensors from System 2 are verified to operate normally.

MAINTENANCE (M)

Verify the main gear door closed sensors and the main gear up and locked sensors from System 2 operate normally.

1. To verify the main gear door closed sensors operate normally:
 - A. Gain access to the proximity switch electronics unit (PSEU) (AMM 32-09-04/401).
 - B. Perform the PSEU BITE test.
 - C. Confirm there are no main gear door sensor faults.
 - D. Open the gear doors and install the door locks (AMM 32-00-15/201).
 - E. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
 - F. Place targets on the following sensors to simulate the gear doors being closed:

NOTE: Use proximity sensor actuator/deactuator set A27092-61 to simulate the desired position of the sensors.

 - 1) System 1 Nose Gear Door Closed S10243.
 - 2) System 2 Nose Gear Door Closed S10081.
 - 3) System 1 Left Gear Door Closed S10242.
 - 4) System 2 Left Gear Door Closed S10076.
 - 5) System 1 Right Gear Door Closed S10241.
 - 6) System 2 Right Gear Door Closed S10072.
 - G. Confirm the GEAR DOORS advisory message is not displayed.
 - H. Remove the targets from S10241 and S10072 right gear door closed sensors.
 - I. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
 - J. Reinstall targets on S10241 and S10072 right gear door closed sensors.
 - K. Confirm the GEAR DOORS advisory message is not displayed.



- L. Remove the targets from S10242 and S10076 left gear door closed sensors.
- M. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
- N. Remove all targets.
- 2. To verify the main gear up and locked System 2 sensors operate normally:
 - A. Gain access to the proximity switch electronics unit (PSEU) (AMM 32-09-04/401).
 - B. Perform the PSEU BITE test.
 - C. Confirm there are no System 2 main gear up and locked sensor faults.
 - D. Install landing gear downlocks (AMM 32-00-20/201).
 - E. Set the landing gear lever to OFF.
 - F. Place targets on the following System 2 sensors:
NOTE: Use proximity sensor actuator/deactuator set A27092-61 to simulate the desired position of the sensors.
 - 1) Nose Gear Up S10077.
 - 2) Nose Gear Locked S10078.
 - 3) Right Gear Up and Locked S10069.
 - 4) Left Gear Up and Locked S10073.
 - G. Confirm the GEAR DISAGREE caution message is not displayed.
 - H. Remove the target from the S10069 right gear up and locked sensor.
 - I. Confirm the GEAR DISAGREE caution message is displayed after 25 seconds.
 - J. Reinstall the target on the S10069 right gear up and locked sensor. Confirm the GEAR DISAGREE caution message is not displayed.
 - K. Remove the target from the S10073 left gear up and locked sensor.
 - L. Confirm the GEAR DISAGREE caution message is displayed after 25 seconds.
 - M. Remove all targets.

32-61-02 Landing Gear Position Sensors**32-61-02-02 Main Gear Up and Locked Sensors****32-61-02-02-02 System Two**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided:

- a. Main gear door closed sensors are verified to operate normally.



- b. Both main gear up and locked sensors from System 1 are verified to operate normally.

MAINTENANCE (M)

Verify the main gear door closed sensors and the main gear up and locked sensors from System 1 operate normally.

1. To verify the main gear door closed sensors operate normally:
 - A. Gain access to the proximity switch electronics unit (PSEU) (AMM 32-09-04/401).
 - B. Perform the PSEU BITE test.
 - C. Confirm there are no main gear door sensor faults.
 - D. Open the gear doors and install the door locks (AMM 32-00-15/201).
 - E. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
 - F. Place targets on the following sensors to simulate the gear doors being closed:

NOTE: Use proximity sensor actuator/deactuator set A27092-61 to simulate the desired position of the sensors.

 - 1) System 1 Nose Gear Door Closed S10243.
 - 2) System 2 Nose Gear Door Closed S10081.
 - 3) System 1 Left Gear Door Closed S10242.
 - 4) System 2 Left Gear Door Closed S10076.
 - 5) System 1 Right Gear Door Closed S10241.
 - 6) System 2 Right Gear Door Closed S10072.
 - G. Confirm the GEAR DOORS advisory message is not displayed.
 - H. Remove the targets from S10241 and S10072 right gear door closed sensors.
 - I. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
 - J. Reinstall targets on S10241 and S10072 right gear door closed sensors.
 - K. Confirm the GEAR DOORS advisory message is not displayed.
 - L. Remove the targets from S10242 and S10076 left gear door closed sensors.
 - M. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
 - N. Remove all targets.
2. To verify the main gear up and locked System 1 sensors operate normally:
 - A. Gain access to the proximity switch electronics unit (PSEU) (AMM 32-09-04/401).
 - B. Perform the PSEU BITE test.



- C. Confirm there are no System 1 main gear up and locked sensor faults.
- D. Install landing gear downlocks (AMM 32-00-20/201).
- E. Set the landing gear lever to OFF.
- F. Place targets on the following System 1 sensors:
NOTE: Use proximity sensor actuator/deactuator set A27092-61 to simulate the desired position of the sensors.
 - 1) Nose Gear Up S10238
 - 2) Nose Gear Locked S10065.
 - 3) Right Gear Up and Locked S10239.
 - 4) Left Gear Up and Locked S10240.
- G. Confirm the GEAR DISAGREE caution message is not displayed.
- H. Remove the target from the S10239 right gear up and locked sensor.
- I. Confirm the GEAR DISAGREE caution message is displayed after 25 seconds.
- J. Reinstall the target on the S10239 right gear up and locked sensor. Confirm the GEAR DISAGREE caution message is not displayed.
- K. Remove the target from the S10240 left gear up and locked sensor.
- L. Confirm the GEAR DISAGREE caution message is displayed after 25 seconds.
- M. Remove all targets.

32-61-02 Landing Gear Position Sensors

32-61-02-03 Gear Door Position Sensors

32-61-02-03-01 System One

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided System 2 door sensors are verified to operate normally.

NOTE: The "gear door position sensors" are the nose and main gear door closed sensors (AMM 32-61-00).

MAINTENANCE (M)

Verify the System 2 nose and main gear door closed sensors operate normally.

1. Gain access to the proximity switch electronics unit (PSEU) (AMM 32-09-04/401).
2. Perform the PSEU BITE test.
3. Confirm there are no System 2 gear door closed position sensor faults.
4. Open the gear doors and install the door locks (AMM 32-00-15/201).



5. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
6. Place targets on the following System 2 sensors:
NOTE: Use proximity sensor actuator/deactuator set A27092-61 to simulate the desired position of the sensors.
 - A. Nose Gear Door Closed S10081 sensor.
 - B. Left Gear Door Closed S10076 sensor.
 - C. Right Gear Door Closed S10072 sensor.
7. Perform a PSEU target test (AMM 32-61-02, -03) and confirm sensors S10081, S10076, and S10072 are all TARGET NEAR.
8. Remove all targets.

32-61-02 Landing Gear Position Sensors**32-61-02-03 Gear Door Position Sensors****32-61-02-03-02 System Two**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided System 1 door sensors are verified to operate normally.

NOTE: The "gear door position sensors" are the nose and main gear door closed sensors (AMM 32-61-00).

MAINTENANCE (M)

Verify the System 1 nose and main gear door closed sensors operate normally.

1. Gain access to the proximity switch electronics unit (PSEU) (AMM 32-09-04/401).
2. Perform the PSEU BITE test.
3. Confirm there are no System 1 gear door closed position sensor faults.
4. Open the gear doors and install the door locks (AMM 32-00-15/201).
5. Confirm the GEAR DOORS advisory message is displayed after 35 seconds.
6. Place targets on the following System 1 sensors:
NOTE: Use proximity sensor actuator/deactuator set A27092-61 to simulate the desired position of the sensors.
 - A. Nose Gear Door Closed S10243 sensor.
 - B. Left Gear Door Closed S10242 sensor.
 - C. Right Gear Door Closed S10241 sensor.
7. Perform a PSEU target test (AMM 32-61-02, -03) and confirm sensors S10243, S10242, and S10241 are all TARGET NEAR.



8. Remove all targets.



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Section 2

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33-11-01 Flight Compartment and Instrument Lighting System

Interval	Installed	Required	Procedure
C	72	36	

Individual lights may be inoperative provided remaining lights are:

- a. Not on emergency bus.
- b. Sufficient to clearly illuminate all required instruments, controls, and other devices for which it is provided.
- c. Positioned so direct rays are shielded from flight crewmembers' eyes.
- d. Lighting configuration and intensity is acceptable to flight crew.

NOTE 1: Individual button/switch lights and/or annunciations/indications are excluded from this relief.

NOTE 2: Unaided operation (without night vision gear (NVG)) may be permitted with inoperative NVG supplemental lights or cracked or missing filters.


33-16-01 Master Dim and Test System
33-16-01-01 Test Function

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided intended function of associated light(s) is verified.

MAINTENANCE (M)

Verify the intended function of individual lights by testing the associated indication/alerting system to ensure the affected light functions as intended.

33-16-01 Master Dim and Test System
33-16-01-02 Dim Function

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided:

- a. BRT functions operate normally.
- b. Light intensity is acceptable to flight crew for type and duration of operations.



33-21-01 Cabin Interior Illumination System (ETOPS)
**33-21-1 A Passenger Configurations With Photoluminescent
 Emergency Escape Path Marking System**

Interval	Installed	Required	Procedure
C	122	92	

Individual lights may be inoperative provided:

- a. Remaining lighting is sufficient for cabin attendants to perform their duties.
- b. Every two adjacent general lighting ceiling fluorescent tubes may be inoperative provided:
 - 1) At least two tubes are operative in between,
 - 2) The tubes at the same body station and adjacent in other ceiling lights strip are operative.
 - 3) The tubes at the same body station and adjacent in other sidewall lights strip are operative.
- c. Every two adjacent general lighting sidewall fluorescent tubes may be inoperative provided:
 - 1) At least two tubes are operative in between,
 - 2) The tubes at the same body station in all other sidewall lights strip are operative.
- d. General lighting window fluorescent tubes may be inoperative,
- e. All lamps in the region of the life raft storage are as must be operative,
- f. Entry way lighting must operate in «BRIGHT» setting,
- g. For night ER operations, at least 75% of the Night Lights must operate.

OPERATIONS NOTE

For the photoluminescent proximity lighting system, the following minimum interior lighting requirements apply:

1. Fifty percent of the sidewall fluorescent lights may be inoperative provided opposite and adjacent lights operate normally.
2. Ten percent of the sidewall fluorescent lights may be inoperative provided opposite and adjacent lights operate normally.
3. A maximum of ten percent of the indirect ceiling fluorescent lights may be inoperative provided opposite and adjacent lights operate normally.
4. At least three of five lamps in sidewall exit indicators and flood lights must operate normally.
5. A maximum of five inches of any 72 inch length of photoluminescent strip may be inoperative except at the overwing exits aisles where the strips must be fully operational in the zone four feet forward of the forward overwing hatch to four feet aft of the aft overwing hatch.


33-24-01 Passenger Lighted Information Signs
33-24-01A PA System Inoperative

Interval	Installed	Required	Procedure
C	155	117	(M)

May be inoperative provided:

- Associated passenger seat or lavatory is not occupied from which a passenger lighted information sign is not readily legible.
- Associated seat or lavatory must be blocked and placarded DO NOT OCCUPY.

NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers.

MAINTENANCE (M)

Block and placard each associated passenger seat or lavatory.

- Install tapes or ropes of conspicuous contrasting colors to block access to unusable seats/lavatories/bunks prior to boarding of passengers.
- Install conspicuous signs or placards in appropriate locations to indicate seats/lavatories/bunks that are not to be occupied by passengers, cabin attendants, or additional flight crew members.

33-24-01 Passenger Lighted Information Signs
33-24-01B PA System Operates Normally

Interval	Installed	Required	Procedure
C	155	0	(O)

May be inoperative and associated passenger seat or lavatory may be occupied provided:

- PA system operates normally.
- PA system is used to notify passengers and cabin crew when associated sign(s) are placed on or off.

OPERATIONS (O)

Establish procedures for notifying passengers when seat belts should be fastened, when smoking is prohibited, and when passengers should return to their seats.



33-24-01 Passenger Lighted Information Signs

33-24-01-02 Aural Tone System

Interval	Installed	Required	Procedure
C	1	0	

33-24-01 Passenger Lighted Information Signs

33-24-01-03 Flight Deck Automatic Function

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. Manual control function operates normally.
- b. Alternate procedures are established and used.

OPERATIONS (O)

Establish procedures for notifying passengers when seat belts should be fastened, when smoking is prohibited, and when passengers should return to their seats.

**33-25-01 Sterile Flight Compartment Light System***********33-25-01A Alternate Procedures Required**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures for notifying cabin attendants when a sterile flight compartment condition exists.

33-25-01 Sterile Flight Compartment Light System*********33-25-01B Procedures Do Not Require Use**

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.



33-31-01 Wheel Well Lights

Interval	Installed	Required	Procedure
C	8	0	



33-31-02 Exterior Cargo Loading Area Lights

Interval	Installed	Required	Procedure
D	10	0	



33-31-03 Service Lights

Interval	Installed	Required	Procedure
C	11	0	



33-31-04 Electrical Equipment Center Lights

Interval	Installed	Required	Procedure
C	10	0	



33-37-01 Cargo Compartment Lights

Interval	Installed	Required	Procedure
C	12	0	

33-37-01 Cargo Compartment Lights

33-37-01-01 Light Lens

Interval	Installed	Required	Procedure
C	12	0	(M)

May be broken/missing provided associated light bulb is removed.

MAINTENANCE (M)

Remove the associated light bulb and tape the opening created by the broken or removed light lens with fiberglass tape.



33-41-01 Wing Illumination Lights

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided ground deicing procedures do not require their use.

OPERATIONS (O)

Lighting requirements for wing illumination during ground de-icing must be determined by each operator.



33-42-01 Landing Lights

33-42-01A All Operations

Interval	Installed	Required	Procedure
C	4	2	

One nose gear and/or one wing mounted light may be inoperative.

33-42-01 Landing Lights

33-42-01B Day Operations

Interval	Installed	Required	Procedure
C	4	0	

May be inoperative for day operations.



33-42-02 Taxi Lights

Interval	Installed	Required	Procedure
C	2	0	



33-42-03

Runway Turnoff Lights

Interval	Installed	Required	Procedure
C	2	0	



33-43-01 Position Lights (Bulbs)
33-43-01A All Operations

Interval	Installed	Required	Procedure
C	8	4	

One stationary light on forward and aft tip of each wing may be inoperative.

33-43-01 Position Lights (Bulbs)
33-43-01B Day Operations

Interval	Installed	Required	Procedure
C	8	0	

May be inoperative for day operations.



33-44-01 Anti-Collision Lights (Red Strobes/White Strobes)

33-44-01A Red Lights Inoperative

Interval	Installed	Required	Procedure
C	4	2	

Upper and lower red fuselage strobe lights may be inoperative provided wing tip white strobe lights operate normally.

33-44-01 Anti-Collision Lights (Red Strobes/White Strobes)

33-44-01B White Lights Inoperative

Interval	Installed	Required	Procedure
C	4	2	

Wing tip white strobe lights may be inoperative provided upper and lower red fuselage strobe lights operate normally.

33-44-01 Anti-Collision Lights (Red Strobes/White Strobes)

33-44-01C Day Operations

Interval	Installed	Required	Procedure
C	4	0	

May be inoperative for day operations.



33-45-01 Logo Lights

Interval	Installed	Required	Procedure
D	4	0	



33-51-01 Interior Emergency Lights (Battery Powered)

Interval	Installed	Required	Procedure
C	1	1	

Light assemblies installed above aisle (curved edge of stowage bins) may be inoperative provided no two adjacent (opposite side) light assemblies are inoperative.



33-51-02 Exterior Emergency Lighting System (Battery Powered)

Interval	Installed	Required	Procedure
B	1	0	

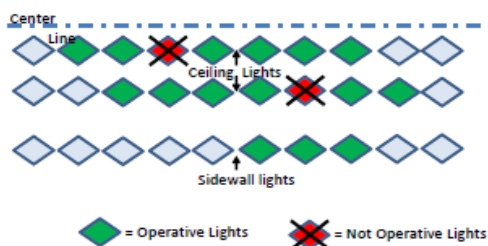
May be inoperative for day operations.

33-51-03 Emergency Escape Path Marking System
33-51-03-02 Photoluminescent Lighting System

Interval	Installed	Required	Procedure
C	1	0	

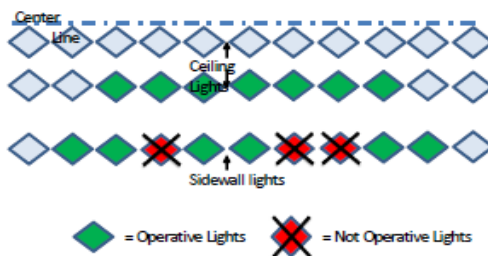
- Cabin configuration with two rows ceiling light per aisle.
A maximum of four fluorescent tubes per cabin zone may be inoperative under the following circumstances:

Two general lighting ceiling fluorescent tubes may be inoperative provided:



- at least two tubes adjacent to inoperative tubes in longitudinal direction are operative in between,
- all adjacent ceiling and sidewall tubes around (incl. diagonal located tubes) are operative.

Two adjacent general lighting sidewall fluorescent tubes may be inoperative provided:



- at least two tubes in longitudinal direction are operative in between,
- all adjacent sidewall and ceiling tubes around (incl. diagonal located tubes) are operative

2. Cabin configuration with one row ceiling light per aisle.



- Fluorescent ceiling (Cabin, Entry, Galley) and sidewall tubes must be operative at all exits (incl. overwing) and FWD and AFT of an exit.
- Two ceiling or two sidewall tubes at same bodystation may be inoperative, provided adjacent ceiling and sidewall tubes in longitudinal direction are operative.

OPERATIONS NOTE

1. The maximum length of a dark cabin period without recharging the system is 8 hours 40 minutes if the cabin lights are switched to the "bright" position for at least 15 minutes.
2. The maximum length of a dark cabin period without recharging the system is 10 hours if the cabin lights are switched to the "bright" position for at least 20 minutes.
3. The maximum length of a dark cabin period without recharging the system is 11 hours if the cabin lights are switched to the "bright" position for at least 30 minutes.

NOTE: Any cabin illumination in "bright" for passenger services during flight is considered as charging time.



Section 2

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**34-00-01 Instrument Source Select Switches (ETOPS)**

Interval	Installed	Required	Procedure
C	8	0	(O)

May be inoperative provided:

- Associated instruments operate from isolated sources.
- Inoperative switches are not moved in flight.
- For ER operations, at least one FMC, EFI, and IRS switch must operate normally.

OPERATIONS (O)

Ensure instruments are operating from isolated sources as follows:

- FLT DIR Source Selector:
 - Set the captain's or first officer's unaffected source selector so both pilots' instruments are operating from different sources.
 - Set the captain's and first officer's F/D switches to ON.
 - For the affected source selector, remove power from the associated FCC by pulling the associated circuit breaker:
 - FLT CONT CMPTR PWR, L
 - FLT CONT CMPTR PWR, C
 - FLT CONT CMPTR PWR, R
 - Confirm the flight director command bars disappear on the associated ADI and remain in view on the opposite side ADI.
 - Close the open circuit breaker.
 - For the unaffected source selector, remove power from the associated FCC by pulling the associated circuit breaker:
 - FLT CONT CMPTR PWR, L
 - FLT CONT CMPTR PWR, C
 - FLT CONT CMPTR PWR, R
 - Confirm the flight director command bars disappear on the associated ADI and remain in view on the opposite side ADI.
 - Close the open circuit breaker.
 - Do not move the inoperative source selector in flight.
- FMC switch or NAV Source Selector:
 - Set an operative NAV source selector to the offside FMC.
 - Confirm a green FMC L or FMC R annunciation does not appear in the lower center portion of the HSI.
 - Set the NAV source selector to the original selection.
 - Do not move the inoperative switch or source selector in flight.



3. EFI Switch:
 - A. Set the HSI mode selector to VOR on the captain's side, and set ILS or APP on the first officer's side.
 - B. Confirm the selected modes are displayed on each HSI.
 - C. Do not move the inoperative EFI switch in flight.
4. IRS Switch:
 - A. Set only the center IRS mode selector switch to ALIGN.
 - B. Confirm at least one ADI has the normal background (shaded sky and ground).
 - C. Do not move the inoperative IRS switch in flight.
5. AIR DATA Switch:
 - A. Set the L AIR DATA COMPTR TEST switch in the test position.
 - B. Confirm test data (airspeed, altitude, etc.) are displayed on only one pilot's instruments.
 - C. Do not move the inoperative AIR DATA switch in flight.

**34-13-01 MACH/Airspeed Indicators***********34-13-01-01 Mach Indicators****34-13-01-01A One Inoperative**

Interval	Installed	Required	Procedure
C	2	1	

NOTE: This relief is for round dial Mach indicators only. See MEL Item 34-22-07 for relief of MACH indications on the EFIS speed tape.

34-13-01 MACH/Airspeed Indicators*********34-13-01-01 Mach Indicators****34-13-01-01B Both Inoperative, EFIS Mach Indications Operative**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided EFIS Mach indications are installed and operating normally at respective pilot's station.

NOTE: This relief is for round dial Mach indicators only. See MEL Item 34-22-07 for relief of MACH indications on the EFIS speed tape.

34-13-01 MACH/Airspeed Indicators*********34-13-01-01 Mach Indicators****34-13-01-01C Both Inoperative, Flight Remains At Or Below FL300**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided:

- Airplane remains at or below FL 300.
- A placard with this limitation is affixed to instrument panel.

NOTE: This relief is for round dial Mach indicators only. See MEL Item 34-22-07 for relief of MACH indications on the EFIS speed tape.

**34-13-01 MACH/Airspeed Indicators**

34-13-01-02 Command Airspeed Cursors

Interval	Installed	Required	Procedure
C	2	0	

34-13-01 MACH/Airspeed Indicators

34-13-01-03 Airspeed Indicators

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided EFIS airspeed indications are installed and operating normally at respective pilot's station.

NOTE: This relief is for round dial airspeed indicators only. See MEL Item 34-22-07 for relief of MACH/Airspeed indications on the EFIS speed tape.

34-13-01 MACH/Airspeed Indicators

34-13-01-04 External Airspeed Markers (Bugs)

Interval	Installed	Required	Procedure
C	8	0	(O)

May be inoperative or missing provided alternate procedures are established and used.

OPERATIONS (O)

Establish alternate procedures to assure flight crew awareness of operational reference speeds. This may include use of takeoff cards or placards.



34-13-02

Mach/Airspeed Warning Systems (Visual and Aural)

Interval	Installed	Required	Procedure
B	2	1	



34-13-06 Standby Altimeter Vibrator

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided VMC exists at departure and arrival airports.



34-13-07 Total Air Temperature (TAT) Indication

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided one other temperature indication (RAT or SAT) is available.


OPERATIONS (O)

SAT is available on FMC Progress Page 2/2. With static air temperature available, the following table may be used to determine TAT:

TOTAL AIR TEMPERATURE (°C) vs STATIC AIR TEMPERATURE (°C)

SAT (°C)	TAT (°C)											
	M.50	M.60	M.68	M.70	M.72	M.74	M.76	M.78	M.80	M.82	M.84	M.86
40	56	62	69	70								
35	51	57	64	65	66	68	70					
30	45	52	58	59	61	63	65	67	68	70		
25	40	47	52	54	56	57	59	61	63	64	66	68
20	35	41	47	48	50	51	53	55	57	58	60	63
15	30	36	42	43	44	46	48	49	51	53	55	57
10	24	31	36	37	38	40	43	44	46	47	49	51
5	19	25	31	32	33	35	37	38	40	41	43	45
0	13	20	25	26	28	29	31	33	34	36	38	40
-5	8	14	20	21	22	24	26	27	29	30	32	34
-10	3	9	14	15	17	19	20	22	23	25	26	28
-15	-2	3	9	10	11	13	14	16	17	19	21	23
-20	-7	-2	3	4	6	7	9	10	12	13	15	17
-25	-12	-7	-3	-1	0	2	3	5	6	8	9	11
-30	-18	-12	-8	-7	-5	-4	-2	-1	1	2	4	6
-35	-23	-17	-13	-12	-10	-9	-8	-7	-5	-4	-2	0
-40	-28	-23	-18	-17	-16	-15	-13	-12	-11	-9	-7	-6
-45	-34	-29	-24	-23	-21	-20	-19	-17	-16	-14	-13	-11
-50	-39	-34	-29	-28	-27	-26	-24	-23	-22	-20	-19	-17
-55	-44	-39	-35	-34	-32	-31	-30	-29	-27	-26	-24	-23
-60	-49	-45	-40	-39	-38	-37	-35	-34	-33	-31	-30	-29
-65	-55	-50	-46	-45	-43	-42	-41	-40	-38	-37	-36	-34
-70	-60	-55	-51	-50	-49	-48	-47	-45	-44	-43	-41	-40



34-13-08 Static Air Temperature (SAT) Indicator (Center Panel)

Interval	Installed	Required	Procedure
D	1	0	



34-13-09 True Airspeed (TAS) Indicator (Center Panel)

Interval	Installed	Required	Procedure
D	1	0	



34-13-10 Speed Command (Fast-Slow) Indicators

Interval	Installed	Required	Procedure
C	2	0	

**34-16-01 Altitude Alerting System**

Interval	Installed	Required	Procedure
A	1	0	(O)

May be inoperative provided:

- a. Autopilot with altitude hold and altitude capture operates normally.
 - b. Enroute operations, i.e., RVSM, do not require its use.
 - c. Repairs are made within three flight days.
 - d. Airplane does not depart from a designated airport (as listed in operator's MEL) where repair or replacement can be made.
-

OPERATIONS (O)

1. Enroute operations that require altitude alerting (such as RVSM) may not be conducted.
2. Use the autopilot and altitude hold for all operations for which it is appropriate.
3. The usual alerts for altitude deviations will not occur.
4. Cross-check the captain's and first officer's altitude displays upon reaching and departing an assigned altitude. Periodically cross-check altitude indications when maintaining an assigned altitude.
5. The pilot monitoring should call out approaching and departing assigned altitudes.

**34-21-01 Inertial Reference Systems (IRS) (ETOPS)****34-21-01-01 IRU (Air Data Computer Equipped Airplanes)****34-21-01-01-03 Airplanes with HMG Installed****34-21-01-01-03A Except ER Operations, Left or Right Inoperative**

Interval	Installed	Required	Procedure
C	3	2	(M) (O)

Except for ER operations, left or right may be inoperative provided:

- Approach minimums do not require its use.
- Center is selected and isolation is verified once each flight day.
- First officer's IRS instrument source select switch operates normally.

NOTE 1: IRUs are interchangeable.

NOTE 2: For non-EGPWS configurations, if the left IRU is inoperative, the windshear guidance and alerting system will be inoperative. Also dispatch the airplane using MEL Item 34-46-01.

MAINTENANCE (M)

Select the center IRU and verify IRU data source isolation once each flight day.

- Set the associated IRS switch to ALTN.
- Set the IRS mode selector to ALIGN for one of the operating IRUs.
- Confirm one (not both) pilot's EADI and EHSI lose attitude and heading information.
- Set the IRS mode selector to NAV.

OPERATIONS (O)

- To ensure display of the flight director bars:
 - For left IRU inoperative, set the left FLT DIR source selector to C prior to takeoff.
 - For right IRU inoperative, set the right FLT DIR source selector to C prior to takeoff.
 - Inflight, set the center A/P ENGAGE switch to engage the autopilot.
 - For airplanes without the full time flight director option, for the pilot with C FLT DIR selected, set the selector back to the usual position.
- For left IRU inoperative, integrated standby flight display (ISFD) heading information will not be available.
- For operations on standby battery power, the captain's RDMI information may be lost. If the center IRU is operating normally, the captain's RDMI can be restored by switching the first officer's IRS switch to ALTN.



34-21-01 Inertial Reference Systems (IRS) (ETOPS)
34-21-01-01 IRU (Air Data Computer Equipped Airplanes)
34-21-01-01-03 Airplanes with HMG Installed
34-21-01-01-03B ER Operations Allowed, Right Inoperative

Interval	Installed	Required	Procedure
C	3	2	(M) (O)

Three required for CAT IIIb approach.

Two required for CAT II / IIIa approach.

Right may be inoperative provided:

- Approach minimums do not require its use.
 - Center is selected and isolation is verified once each flight day.
 - First officer's IRS instrument source select switch operates normally.
 - Left and center operate normally.
-

NOTE: IRUs are interchangeable.

MAINTENANCE (M)

Select the center IRU and verify IRU data source isolation once each flight day.

- Set the right IRS switch to ALTN.
- Set the IRS mode selector to ALIGN for one of the operating IRUs.
- Confirm one (not both) pilot's EADI and EHSI lose attitude and heading information.
- Set the IRS mode selector to NAV.

OPERATIONS (O)

- To ensure display of the flight director bars:
 - Set the right FLT DIR source selector to C prior to takeoff.
 - Inflight, set the center A/P ENGAGE switch to engage the autopilot.
 - For airplanes without the full time flight director option, set the right FLT DIR source selector back to the usual position.
- For operations on standby battery power, the captain's RDMI information may be lost. If the center IRU is operating normally, the captain's RDMI can be restored by switching the first officer's IRS switch to ALTN.



- 34-21-01 Inertial Reference Systems (IRS) (ETOPS)**
34-21-01-01 IRU (Air Data Computer Equipped Airplanes)
34-21-01-01-03 Airplanes with HMG Installed
34-21-01-01-03C Center Inoperative

Interval	Installed	Required	Procedure
C	3	2	

Center may be inoperative for Day VMC flight.

NOTE: IRUs are interchangeable.

- 34-21-01 Inertial Reference Systems (IRS) (ETOPS)**
34-21-01-03 IRS Mode Selector Panel - Display and Keyboard Functions

- 34-21-01-03A ER Operations Allowed**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided both FMCS CDUs operate normally.

- 34-21-01 Inertial Reference Systems (IRS) (ETOPS)**
34-21-01-03 IRS Mode Selector Panel - Display and Keyboard Functions

- 34-21-01-03B Except ER Operations**

Interval	Installed	Required	Procedure
C	1	0	

Except for ER operations, may be inoperative provided one FMCS CDU operates normally.

**34-22-03 Radio Distance Magnetic Indicators (RDMI)****34-22-03A Right Inoperative**

Interval	Installed	Required	Procedure
C	2	1	

Right may be inoperative.

34-22-03 Radio Distance Magnetic Indicators (RDMI)**34-22-03B Left Inoperative**

Interval	Installed	Required	Procedure
C	2	1	

Left may be inoperative provided flight is restricted to Day VMC.



34-22-04 Flight Director Systems

Interval	Installed	Required	Procedure
C	3	0	

Two required for CAT II / IIIa/ IIIb approach.
May be inoperative provided approach minimums do not require their use.

34-22-04 Flight Director Systems

34-22-04-01 Displays

Interval	Installed	Required	Procedure
C	2	0	

Two required for CAT II / IIIa/ IIIb approach.
May be inoperative provided approach minimums do not require their use.
NOTE: Windshear guidance may be unavailable.

**34-22-05 Electronic Flight Instrument (EFIS) Symbol
Generators (ETOPS)****34-22-05A Except ER Operations**

Interval	Installed	Required	Procedure
C	3	2	(M)

Except for ER operations, one may be inoperative provided symbol generator isolation is verified once each flight day.

MAINTENANCE (M)

Once each flight day, verify symbol generator isolation.

1. Set the captain's or first officer's INSTR SOURCE SEL EFI switch to ALTN and confirm the COMPARATOR BITE status message extinguishes.
2. For left EFIS symbol generator inoperative, confirm the captain's and first officer's symbol generators are isolated:
 - A. Set the captain's INSTR SOURCE SEL EFI switch to ALTN.
 - B. Set the first officer's INSTR SOURCE SEL EFI switch to the normal position.
 - C. Set the first officer's HSI mode selector to VOR (EXP if installed).
 - D. Set the captain's HSI mode selector to ILS or APP (EXP if installed).
 - E. Confirm VOR R is annunciated on the first officer's HSI.
3. For center EFIS symbol generator inoperative, confirm the captain's and first officer's symbol generators are isolated:
 - A. Set the captain's INSTR SOURCE SEL EFI switch to the normal position.
 - B. Set the first officer's INSTR SOURCE SEL EFI switch to the normal position.
 - C. Set the first officer's HSI mode selector to VOR (EXP if installed).
 - D. Set the captain's HSI mode selector to ILS or APP (EXP if installed).
 - E. Confirm VOR R is annunciated on the first officer's HSI.
 - F. Set the captain's HSI mode selector to VOR (EXP if installed).
 - G. Set the first officer's HSI mode selector to ILS or APP (EXP if installed).
 - H. Confirm VOR L is annunciated on the captain's HSI.
4. For right EFIS symbol generator inoperative, confirm the captain's and first officer's symbol generators are isolated:
 - A. Set the first officer's INSTR SOURCE SEL EFI switch to ALTN.
 - B. Set the captain's INSTR SOURCE SEL EFI switch to the normal position.
 - C. Set the captain's HSI mode selector to VOR (EXP if installed).



- D. Set the first officer's HSI mode selector to ILS or APP (EXP if installed).
- E. Confirm VOR L is annunciated on the captain's HSI.

34-22-05 Electronic Flight Instrument (EFIS) Symbol Generators (ETOPS)
34-22-05B ER Operations Allowed

Interval	Installed	Required	Procedure
C	3	2	(M)

Left or right may be inoperative provided symbol generator isolation is verified once each flight day.

NOTE: Symbol generators are interchangeable.

MAINTENANCE (M)

Once each flight day, verify symbol generator isolation.

1. Set the captain's or first officer's INSTR SOURCE SEL EFI switch to ALTN and confirm the COMPARATOR BITE status message extinguishes.
2. For left EFIS symbol generator inoperative, confirm the captain's and first officer's symbol generators are isolated:
 - A. Set the captain's INSTR SOURCE SEL EFI switch to ALTN.
 - B. Set the first officer's INSTR SOURCE SEL EFI switch to the normal position.
 - C. Set the first officer's HSI mode selector to VOR (EXP if installed).
 - D. Set the captain's HSI mode selector to ILS or APP (EXP if installed).
 - E. Confirm VOR R is annunciated on the first officer's HSI.
3. For center EFIS symbol generator inoperative, confirm the captain's and first officer's symbol generators are isolated:
 - A. Set the captain's INSTR SOURCE SEL EFI switch to the normal position.
 - B. Set the first officer's INSTR SOURCE SEL EFI switch to the normal position.
 - C. Set the first officer's HSI mode selector to VOR (EXP if installed).
 - D. Set the captain's HSI mode selector to ILS or APP (EXP if installed).
 - E. Confirm VOR R is annunciated on the first officer's HSI.
 - F. Set the captain's HSI mode selector to VOR (EXP if installed).
 - G. Set the first officer's HSI mode selector to ILS or APP (EXP if installed).
 - H. Confirm VOR L is annunciated on the captain's HSI.



-
4. For right EFIS symbol generator inoperative, confirm the captain's and first officer's symbol generators are isolated:
 - A. Set the first officer's INSTR SOURCE SEL EFI switch to ALTN.
 - B. Set the captain's INSTR SOURCE SEL EFI switch to the normal position.
 - C. Set the captain's HSI mode selector to VOR (EXP if installed).
 - D. Set the first officer's HSI mode selector to ILS or APP (EXP if installed).
 - E. Confirm VOR L is annunciated on the captain's HSI.



34-22-06 EFIS Controls
34-22-06-01 Switches (NAV AID/ARPT/RTE
DATA/WPT/WXR/TERR)

Interval	Installed	Required	Procedure
C	8	4	

One switch for each function may be inoperative provided procedures do not require its use.

34-22-06 EFIS Controls
34-22-06-03 Decision Height Indication (DH REF)

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided approach procedures do not require its use.

NOTE: Flight crew use EADI DH indication.

34-22-06 EFIS Controls
34-22-06-03 Decision Height Indication (DH REF)
34-22-06-03-01 Airplanes without Radio Altitude Indicators (Tape)

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative.

NOTE: Flight crew use EADI DH indication.

**34-22-06 EFIS Controls****34-22-06-03 Decision Height Indication (DH REF)****34-22-06-03-02 Airplanes with Radio Altitude Indicators (Tape)**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided Radio Altitude Indicators (Tape) are installed and operate normally.

NOTE: Flight crew use EADI DH indication.

34-22-06 EFIS Controls**34-22-06-04 HSI Mode Selector****34-22-06-04-01 MAP Position**

Interval	Installed	Required	Procedure
B	2	1	(O)

May be inoperative provided:

- Both FMCs operate normally.
- Alternate procedures are established and used.

OPERATIONS (O)

Use the appropriate HSI mode and FMC CDU page to display the desired flight information.

34-22-06 EFIS Controls**34-22-06-04 HSI Mode Selector****34-22-06-04-02 PLAN Position**

Interval	Installed	Required	Procedure
B	2	1	(O)

May be inoperative provided:

- Both FMCs operate normally.
- Alternate procedures are established and used.



OPERATIONS (O)

Use the appropriate HSI mode and FMC CDU page to display the desired flight information.

- 34-22-06 EFIS Controls
- 34-22-06-05 HSI Range Selector

Interval	Installed	Required	Procedure
C	2	1	

May be inoperative provided both FMCs operate normally.


34-22-07 EFIS Speed Tape

34-22-07-01 Mach Indications
34-22-07-01A One Inoperative

Interval	Installed	Required	Procedure
C	2	1	

34-22-07 EFIS Speed Tape

34-22-07-01 Mach Indications
34-22-07-01B Mach Indicators Operative

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided MACH indicators are installed and operating normally at respective pilot's station.

34-22-07 EFIS Speed Tape

34-22-07-01 Mach Indications
34-22-07-01C Flight Remains At Or Below FL300

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided:

- Airplane remains at or below FL 300.
- A placard with this limitation is affixed to instrument panel.

34-22-07 EFIS Speed Tape

34-22-07-02 Airspeed Indications

Interval	Installed	Required	Procedure
C	2	0	



May be inoperative provided airspeed indicators are installed and operating normally at respective pilot's station.



34-22-08 Pitch Limit Indicators

Interval	Installed	Required	Procedure
C	2	0	



34-22-30 Heading Reference (HDG REF) Switch
34-22-30-01 TRUE Function

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided enroute procedures do not require its use.

OPERATIONS (O)

Ensure operations are not conducted in regions where true referencing is required.

**34-23-01 Magnetic Compass (Standby)****34-23-01A Three Gyro Or INS (IRU) Compass Systems Operative**

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative provided any combination of three gyro or INS (IRS) stabilized compass systems operate normally.

OPERATIONS (O)

Ensure operations and planned routes comply with limitations.

34-23-01 Magnetic Compass (Standby)**34-23-01B Two Gyro Or INS (IRU) Compass Systems Operative**

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative provided:

- Any combination of two gyro or INS (IRS) stabilized compass systems operate normally.
- Airplane is operated with dual independent navigation capability and under positive radar control by ATC on enroute portion of flight.

OPERATIONS (O)

Ensure operations and planned routes comply with limitations.

34-23-01 Magnetic Compass (Standby)**34-23-01C Flights Within Areas of Magnetic Unreliability**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative for flights that are entirely within areas of magnetic unreliability provided at least two stabilized directional gyro systems are installed, operative, and used in conjunction with approved free gyro navigation techniques.

OPERATIONS (O)

Ensure operations and planned routes comply with limitations.



34-24-01 Standby Attitude/ILS Indicator
34-24-01-01 Attitude Display

Interval	Installed	Required	Procedure
B	1	0	

- May be inoperative provided:
- a. Operations are conducted in Day VMC only.
 - b. Operations are not conducted into known or forecast over-the-top conditions.
-

34-24-01 Standby Attitude/ILS Indicator
34-24-01-02 Approach Mode

Interval	Installed	Required	Procedure
C	1	0	

**34-31-01 ILS Systems**

Interval	Installed	Required	Procedure
C	3	1	

Three required for CAT IIIb approach.

Two required for CAT II / IIIa approach.

Any not powered by a Standby Bus, may be inoperative.

Two may be inoperative provided:

- a. "C" ILS System is operative
- b. Approach minimums do not require their use.

NOTE: The Instrument Landing System function may be implemented by using either a dedicated ILS receiver or an ILS module within the Mult-Mode Receiver (MMR). This MEL item is intended to provide relief for the ILS function.

OPERATIONS NOTE

Minimum One Active System is required for LVO Operation.



34-32-01 Marker Beacon System

Interval	Installed	Required	Procedure
C	1	0	

Required for CAT II / IIIa / IIIb approach.

May be inoperative provided approach minimums do not require its use.

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34-33-01 Radio Altimeter (RA) Systems (EADI)
34-33-01-01 Single Source Datalink to GPWS
34-33-01-01-01 Left RA

Interval	Installed	Required	Procedure
A	1	0	(O)

May be inoperative provided:

- Approach minimums or operating procedures do not require its use.
- Repairs are made within two flight days.

MAINTENANCE NOTE

- Operation of the test switch for the landing configuration warning will show the function to be faulty. However, flap-based monitoring modes of the landing configuration remain operational and, if desired, can be verified as follows:
 - Open the P11 panel circuit breakers:
 - LANDING GEAR POS SYS 1
 - LANDING GEAR POS SYS 2
 - LANDING GEAR POS SYS 2 ALTN
 - With landing flaps extended, all warning indications will be activated.
 - With flaps up, the configuration warning light and associated warning message will illuminate with at least one throttle at idle.
 - Close the open circuit breakers.

OPERATIONS (O)

- The flight crew should expect to see the following flight deck effects for landing configuration warning:
 - If the landing gear is not down and locked, the flaps are retracted, and either engine throttle is at idle the CONFIG warning light will illuminate and the GEAR NOT DOWN warning message will annunciate. The siren will not sound and the master warning lights will not illuminate.
 - If the landing gear is not down and locked, the flaps are not fully retracted and either engine throttle is at idle, the gear not down warning will operate normally. The CONFIG warning light will illuminate, the GEAR NOT DOWN warning message will annunciate, the siren will sound and the master warning lights will illuminate.
 - If the landing gear is not down and locked, the flaps are set at 25 or 30, and the throttles are at any position, the gear not down warning will operate normally. The CONFIG warning light will illuminate, the GEAR NOT DOWN warning message will annunciate, the siren will sound and the master warning lights will illuminate.



- 2. For one RA inoperative, the autoland status annunciators will indicate NO LAND 3.
- 3. For more than one RA inoperative, the autoland status annunciators will indicate NO AUTOLAND.
- 4. TCAS may be inoperative (depending on RA inputs to TCAS).

34-33-01 Radio Altimeter (RA) Systems (EADI)

34-33-01-01 Single Source Datalink to GPWS

34-33-01-01-02 Center/Right RA

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided approach minimums or operating procedures do not require its use.

OPERATIONS (O)

- 1. For one RA inoperative, the autoland status annunciators will indicate NO LAND 3.
- 2. For more than one RA inoperative, the autoland status annunciators will indicate NO AUTOLAND.
- 3. For more than one RA inoperative, TCAS may be inoperative (depending on RA inputs to TCAS).



34-33-02 Radio Altitude Indicators (Altitude Tape)

Interval	Installed	Required	Procedure
D	2	0	(O)

May be inoperative provided approach minimums or operating procedures do not require their use.

OPERATIONS (O)

Establish alternate procedures to assure flight crew awareness of airplane altitude. This may include flight crew use of all airplane systems available and/or flight crew altitude callouts.



34-43-01 Weather Radar Systems (ETOPS)

Interval	Installed	Required	Procedure
C	1	0	

34-43-01 Weather Radar Systems (ETOPS)

34-43-01-03 Indicators

Interval	Installed	Required	Procedure
D	2	1	

34-43-01 Weather Radar Systems (ETOPS)

34-43-01-04 Autotilt/Multiscan Function

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided manual tilt function operates normally.

34-43-01 Weather Radar Systems (ETOPS)

34-43-01-05 WXR ON Light

Interval	Installed	Required	Procedure
D	2	0	(O)

May be inoperative provided alternate procedures are established and used.


OPERATIONS (O)

Determine status of the weather radar by viewing the EHSI display. Some weather radars annunciate GAIN, MODE, and TILT on the display when the weather radar is ON. If these annunciations are not available, WXR status may be determined by observing the EHSI for raster and return indications. If no return is indicated and there is doubt about the status of the radar, the antenna may be tilted downward to determine if ground return is indicated on the EHSI.

34-43-01 Weather Radar Systems (ETOPS)
34-43-01-07 Windshear Alert Mode (Predictive)

34-43-01-07A Reactive Windshear Inoperative

Interval	Installed	Required	Procedure
B	-	0	(O)

May be inoperative provided alternate procedures are established and used.

NOTE: Operator's alternate procedures should include reviewing windshear avoidance and windshear recovery procedures.

OPERATIONS (O)

If normal procedures are based on using predictive windshear, establish alternate procedures to increase flight crew awareness of airplane configuration, altitude and flight path. This may include flight crew use of all airplane systems available (reactive windshear, autopilot, autoland, ILS, FMCS) and flight crew review of minimum enroute altitudes and altitude callouts (refer to Supplementary Normal Procedures for Windshear).

34-43-01 Weather Radar Systems (ETOPS)
34-43-01-07 Windshear Alert Mode (Predictive)

34-43-01-07B Reactive Windshear Operative

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided:

- Alternate procedures are established and used.
- Windshear Warning and Guidance System (Reactive) operates normally.

**OPERATIONS (O)**

If normal procedures are based on using predictive windshear, establish alternate procedures to increase flight crew awareness of airplane configuration, altitude and flight path. This may include flight crew use of all airplane systems available (reactive windshear, autopilot, autoland, ILS, FMCS) and flight crew review of minimum enroute altitudes and altitude callouts (refer to Supplementary Normal Procedures for Windshear).


34-46-01 Ground Proximity Warning System (GPWS) ©

Interval	Installed	Required	Procedure
A	1	0	(O)

May be inoperative provided:

- Alternate procedures are used.
- Repairs are made within two flight days.

OPERATIONS (O)

Alternate procedures must be used. These procedures must maintain flight crew awareness of airplane altitude and flight path. They may include flight crew use of all systems available (autopilot, autoland, ILS and FMCS), and approach altitude callouts.

NORD WIND PROCEDURE:

- Flight Crew is made aware of the inoperative GPWS.
- Flight Crew is advised to rely on flight instruments to conduct the flight.
- Flight crew must review of Minimum Enroute Altitudes when dispatching with GPWS inoperative.
- Crew must maintain awareness of aircraft altitude and flight path. This may include flight crew use of all airplane systems available (autopilot, autoland, ILS, FMCS).
- Crew must maintain awareness of aircraft configuration and using audible approach altitude callouts.

34-46-01 Ground Proximity Warning System (GPWS) ©
34-46-01-01 Modes 1-4

Interval	Installed	Required	Procedure
A	4	0	(O)

May be inoperative provided:

- Alternate procedures are established and used.
- Repairs are made within two flight days.

OPERATIONS (O)

Alternate procedures must be used. These procedures must maintain flight crew awareness of airplane altitude and flight path. They may include flight crew use of all systems available (autopilot, autoland, ILS and FMCS), and approach altitude callouts.

NOTE: Refer to MEL 34-46-1 (O) procedure.


34-46-01 Ground Proximity Warning System (GPWS) ©
34-46-01-02 Test Mode

Interval	Installed	Required	Procedure
A	1	0	

May be inoperative provided:

- GPWS is considered inoperative.
- Repairs are made within two flight days.

NOTE: Also dispatch the airplane using MEL Item 34-46-01 for GPWS system relief.

34-46-01 Ground Proximity Warning System (GPWS) ©
34-46-01-03 Glideslope Deviation (Mode 5)

Interval	Installed	Required	Procedure
B	1	0	

34-46-01 Ground Proximity Warning System (GPWS) ©
34-46-01-04 Advisory Callouts (Mode 6)

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative provided alternate procedures are used.

OPERATIONS (O)

Alternate procedures must be used. These procedures must maintain flight crew awareness of airplane altitude and flight path. They may include flight crew use of all systems available (autopilot, autoland, ILS and FMCS), and approach altitude callouts.

34-46-01 Ground Proximity Warning System (GPWS) ©
34-46-01-05 Windshear Alert Mode (Reactive) (Mode 7)

34-46-01-05A Alternate Procedures Required

Interval	Installed	Required	Procedure
B	1	0	(O)



May be inoperative provided alternate procedures are used.

NOTE: Operator's alternate procedures should include reviewing windshear avoidance and windshear recovery procedures.

OPERATIONS (O)

NOTE: The WINDSHEAR SYS advisory message will be displayed.

NORD WIND PROCEDURE:

1. Do not conduct takeoffs and landings in known or forecast windshear conditions.
2. For takeoff, do not use the assumed temperature method for reduced thrust. Use maximum thrust for takeoff.
3. Refer to NORD WIND Flight Operations Manual, Volume B, B757, Chapter 3.16.7 for windshear avoidance or encounter operations.

34-46-01 Ground Proximity Warning System (GPWS) ©

34-46-01-05 Windshear Alert Mode (Reactive) (Mode 7)

34-46-01-05B Predictive Windshear Operative

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. Alternate procedures are used.
- b. Windshear Detection and Avoidance System (Predictive) operates normally.

OPERATIONS (O)

Alternate procedures must be used.

NOTE 1: The WINDSHEAR SYS advisory message will be displayed.

NOTE 2: Refer to MEL item 34-46-5A (O) procedure.



34-51-01 VOR Navigation Systems ©

Interval	Installed	Required	Procedure
C	2	1	

Any not powered by a Standby Bus, may be inoperative.

OPERATIONS NOTE

- NOTE 1: MIN one active system required for MNPS, RVSM, P-RNAV and RNP operative.
- NOTE 2: If a power supply anomaly causes the L VOR navigation system to be inoperative, the marker beacon system may also be inoperative. See MEL Item 34-32-1 for an inoperative marker beacon system.



34-53-01 ATC Transponders and Automatic Altitude Reporting Systems ©

Interval	Installed	Required	Procedure
B	2	1	

May be inoperative provided:

- a. Operations do not require its use.
- b. Prior to flight, approval is obtained from ATC facilities having jurisdiction over planned route of flight.

OPERATIONS NOTE

NOTE: One active system required for MNPS and RVSM operative.

**34-55-01 Distance Measuring Equipment Systems ©**

Interval	Installed	Required	Procedure
D	2	1	

OPERATIONS NOTE

NOTE: One active system required for MNPS, RVSM, P-RNAV and RNP operative.

**34-57-01 Radio Compass (ADF) Systems ©**

Interval	Installed	Required	Procedure
D	2	1	

May be inoperative provided enroute navigation or instrument approach is not predicated on Low Frequency (ADF) Navigation.

OPERATIONS NOTE

NOTE 1: Dispatch and/or Flight Crew must verify the requirements for the ADF system prior to the flight considering Departure, Destination, Alternate airports, and possible enroute diversion.

NOTE 2: Refer to MEL 34-51-1.



34-60-03 Global Positioning System (GPS)

Interval	Installed	Required	Procedure
D	2	1	

May be inoperative provided procedures do not require its use.

NOTE: Minimum One Active System is required for MNPS and RNP, PRNAV Operations.

NOTE: The Global Positioning System function may be implemented by using either a dedicated GPS receiver or a GPS module within the Multi-Mode Receiver (MMR). This MEL item is intended to provide relief for the GPS function, regardless of how the function is implemented.

OPERATIONS NOTE

Determine navigational requirements depending on company route structure. Inoperative GPS may impact RNP operations.

**34-61-01 Flight Management Computer Systems (FMCS)
(Including CDU/HMCDU/MCDU) (ETOPS)****34-61-01A Except ER Operations, One Inoperative**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

Except for ER and MNPS, RNP, PRNAV operations, one may be inoperative provided enroute operations do not require its use.

MAINTENANCE (M)

Confirm the airplane can be dispatched with the WARN ELEX status message annunciated.

For WARN ELEX status message annunciated:

1. Perform the following prior to each flight:
 - A. Confirm the P51 WEU BITE module displays only fault code D7 (FMC invalid).
 - B. Confirm the WEU power supplies are operating normally by performing the WEU Power Supply Fault Indicators Test (AMM 31-51-00/501). An inoperative WEU power supply constitutes a no dispatch situation.

OPERATIONS (O)

NOTE: Operators must consult their Operations Specification for route flight management computing system requirements such as those required for Required Navigation Performance (RNP) routes.

For all operations with one FMC inoperative:

1. IRS alignment must be completed before the airplane moves.

NOTE: Some aircraft are configured with IRS's without keypads. When this type of airplane is dispatched with one FMC inoperative and the second FMC fails, there will no longer be a means to align the IRS once the electrical power is removed from the airplane or the IRS mode selector switch is moved from the NAV position.
2. Use of LNAV and VNAV with flight director:
 - A. Airplanes with HMCDU/MCDU:
 - 1) On the side with the inoperative FMC, set the NAV source selector to the opposite FMC or the on-side CDU.



- 2) LEFT FMC INOPERATIVE - When operating in flight director mode with both F/D switches ON, LNAV and VNAV will engage if the captain's NAV source selector is set to R FMC or L CDU. Otherwise, LNAV and VNAV will engage if the right autopilot is engaged or only the right F/D is ON. Turning off the left F/D switch would allow use of LNAV and VNAV, but only the right flight director would operate.

Procedure: After liftoff (with F/D in TO mode), use HDG SEL and FL CH modes as desired until captain's NAV source selector is moved to an alternate source, or right autopilot is engaged. Then use LNAV and VNAV as desired.

- 3) RIGHT FMC INOPERATIVE - When operating in flight director mode with both F/D switches ON, LNAV and VNAV will engage. If the first officer's NAV source selector is set to L FMC or R CDU, LNAV and VNAV will engage with any autopilot engaged. Otherwise, LNAV and VNAV will engage if the left or center is engaged or the left F/D is ON.

Procedure: After liftoff (with F/D in TO mode), use HDG SEL and FL CH modes as desired until first officer's NAV source selector is moved to an alternate source, or left or center autopilot is engaged. Then use LNAV and VNAV as desired.

3. During VOR approaches, one pilot must have raw data from the VOR associated with the approach displayed on the RDMI, RMI, or HSI in a VOR mode no later than the final approach fix.

34-61-01 Flight Management Computer Systems (FMCS) (Including CDU/HMCDU/MCDU) (ETOPS)

34-61-01B Except ER Operations, Both Inoperative

Interval	Installed	Required	Procedure
C	2	0	(M) (O)

Except for ER and MNPS, RNP, PRNAV operations, may be inoperative provided:

- Both Fuel Quantity Indicating System (FQIS) processor channels are verified to operate normally.
- All flight deck fuel quantity indications operate normally.
- Enroute operations do not require its use.

MAINTENANCE (M)

Verify both FQIS processor channels operate normally and confirm the airplane can be dispatched with the WARN ELEX status message annunciated.

- Perform the following test to confirm FQIS processor channels operate normally:



NOTE: It is preferable that this test be performed with less than 15,000 lbs (7000 kgs) total fuel.

- A. Apply electrical power (AMM 24-22-00/201).
 - B. Close the fueling panel door.
 - C. Open the P11 panel FUEL QTY L and FUEL QTY R circuit breakers.
 - D. Confirm the FUEL QTY displays have gone blank.
 - E. To test the FQIS processor channels:
 - 1) Close the FUEL QTY L circuit breaker, wait ten seconds, and record the indicated fuel quantity for each tank (processor channel 1 test).
 - 2) Open the FUEL QTY L circuit breaker and then close the FUEL QTY R circuit breaker, wait 10 seconds and record the indicated fuel quantity for each tank (processor channel 2 test).
 - 3) Close the open circuit breaker.
 - 4) Compare the recorded quantities. If quantities differ by 400 lbs (200 kgs) or less per tank, the fuel quantity indicating processor unit is acceptable.
2. For WARN ELEX status message annunciated:
- A. Perform the following prior to each flight:
 - 1) Confirm the P51 WEU BITE module displays only fault code D7 (FMC invalid).
 - 2) Confirm the WEU power supplies are operating normally by performing the WEU Power Supply Fault Indicators Test (AMM 31-51-00/501). An inoperative WEU power supply constitutes a no dispatch situation.

OPERATIONS (O)

NOTE: Operators must consult their Operations Specification for route flight management computing system requirements such as those required for Required Navigation Performance (RNP) routes.

1. For dispatch with both FMCs inoperative, enter airplane present position using the IRS mode selector panel (FCOM, Supplementary Procedures - Flight Management, Navigation).
2. For all operations with one FMC inoperative:
 - A. IRS alignment must be completed before the airplane moves.

NOTE: Some aircraft are configured with IRS's without keypads. When this type of airplane is dispatched with one FMC inoperative and the second FMC fails, there will no longer be a means to align the IRS once the electrical power is removed from the airplane or the IRS mode selector switch is moved from the NAV position.



- B. Use of LNAV and VNAV with flight director:
- 1) Airplanes with HMCDU/MCDU:
 - a. On the side with the inoperative FMC, set the NAV source selector to the opposite FMC or the on-side CDU.
 - b. LEFT FMC INOPERATIVE - When operating in flight director mode with both F/D switches ON, LNAV and VNAV will engage if the captain's NAV source selector is set to R FMC or L CDU. Otherwise, LNAV and VNAV will engage if the right autopilot is engaged or only the right F/D is ON. Turning off the left F/D switch would allow use of LNAV and VNAV, but only the right flight director would operate.
Procedure: After liftoff (with F/D in TO mode), use HDG SEL and FL CH modes as desired until captain's NAV source selector is moved to an alternate source, or right autopilot is engaged. Then use LNAV and VNAV as desired.
 - c. RIGHT FMC INOPERATIVE - When operating in flight director mode with both F/D switches ON, LNAV and VNAV will engage. If the first officer's NAV source selector is set to L FMC or R CDU, LNAV and VNAV will engage with any autopilot engaged. Otherwise, LNAV and VNAV will engage if the left or center is engaged or the left F/D is ON.
Procedure: After liftoff (with F/D in TO mode), use HDG SEL and FL CH modes as desired until first officer's NAV source selector is moved to an alternate source, or left or center autopilot is engaged. Then use LNAV and VNAV as desired.
- C. During VOR approaches, one pilot must have raw data from the VOR associated with the approach displayed on the RDMI, RMI, or HSI in a VOR mode no later than the final approach fix.

**34-61-01 Flight Management Computer Systems (FMCS)
(Including CDU/HMCDU/MCDU) (ETOPS)****34-61-01C Long-range Navigation Operation**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

For long-range navigation operation, one FMC may be inoperative provided other approved means of navigation is available.

NOTE 1: An associated HMCDU or MCDU if operative, may be used to meet navigation requirements.

NOTE 2: Minimum One Active System is required for RVSM Operation.

MAINTENANCE (M)

Confirm the airplane can be dispatched with the WARN ELEX status message annunciated.

For WARN ELEX status message annunciated:

1. Perform the following prior to each flight:
 - A. Confirm the P51 WEU BITE module displays only fault code D7 (FMC invalid).
 - B. Confirm the WEU power supplies are operating normally by performing the WEU Power Supply Fault Indicators Test (AMM 31-51-00/501). An inoperative WEU power supply constitutes a no dispatch situation.

OPERATIONS (O)

NOTE: Operators must consult their Operations Specification for route flight management computing system requirements such as those required for Required Navigation Performance (RNP) routes.

1. For all operations with one FMC inoperative:
 - A. IRS alignment must be completed before the airplane moves.

NOTE: Some aircraft are configured with IRS's without keypads. When this type of airplane is dispatched with one FMC inoperative and the second FMC fails, there will no longer be a means to align the IRS once the electrical power is removed from the airplane or the IRS mode selector switch is moved from the NAV position.
 - B. Use of LNAV and VNAV with flight director:
 - 1) Airplanes with HMCDU/MCDU:
 - a. On the side with the inoperative FMC, set the NAV source selector to the opposite FMC or the on-side CDU.



- b. LEFT FMC INOPERATIVE - When operating in flight director mode with both F/D switches ON, LNAV and VNAV will engage if the captain's NAV source selector is set to R FMC or L CDU. Otherwise, LNAV and VNAV will engage if the right autopilot is engaged or only the right F/D is ON. Turning off the left F/D switch would allow use of LNAV and VNAV, but only the right flight director would operate.

Procedure: After liftoff (with F/D in TO mode), use HDG SEL and FL CH modes as desired until captain's NAV source selector is moved to an alternate source, or right autopilot is engaged. Then use LNAV and VNAV as desired.

- c. RIGHT FMC INOPERATIVE - When operating in flight director mode with both F/D switches ON, LNAV and VNAV will engage. If the first officer's NAV source selector is set to L FMC or R CDU, LNAV and VNAV will engage with any autopilot engaged. Otherwise, LNAV and VNAV will engage if the left or center is engaged or the left F/D is ON.

Procedure: After liftoff (with F/D in TO mode), use HDG SEL and FL CH modes as desired until first officer's NAV source selector is moved to an alternate source, or left or center autopilot is engaged. Then use LNAV and VNAV as desired.

- C. During VOR approaches, one pilot must have raw data from the VOR associated with the approach displayed on the RDMI, RMI, or HSI in a VOR mode no later than the final approach fix.
2. For long-range navigation operations with one FMC inoperative:

NOTE 1: NAV source selector with CDU-L and CDU-R positions must be installed.

NOTE 2: One FMC, in conjunction with two IRS systems in navigation mode and two HMCDUs or MCDUs will meet the requirements for dispatch (Airplane Flight Manual, Section 3, FMCS).

- A. Prior to takeoff accomplish the following as appropriate:

- 1) For an inoperative left FMC:

- a. Set the captain's NAV source selector to FMC-R to load data from the right FMC into the left CDU.

NOTE: The NAV source selector should remain in this position for at least one minute after flight planning is completed or after any flight plan modifications prior to takeoff.

- b. After a minimum of one minute, set the captain's NAV source selector to CDU-L.



- c. Confirm the captain's EHSI Map display changes to a simplified route display without normal navigation database symbology. This confirms availability of the Alternate Navigation system.
 - d. Prior to takeoff, set the captain's NAV source selector to FMC-R.
- 2) For an inoperative right FMC:
- a. Set the first officer's FMC NAV source selector to FMC-L to load data from the left FMC into the right CDU.
 NOTE: The NAV source selector should remain in this position for at least one minute after flight planning is completed or after any flight plan modifications prior to takeoff.
 - b. After a minimum of one minute, set the first officer's NAV source selector to CDU-R.
 - c. Confirm the first officer's EHSI Map display changes to a simplified route display without normal navigation database symbology. This confirms availability of the Alternate Navigation system.
 - d. Prior to takeoff, set the first officer's NAV source selector to FMC-L.

34-61-01 Flight Management Computer Systems (FMCS) (Including CDU/HMCDU/MCDU) (ETOPS)

34-61-01-01 Navigation Databases

Interval	Installed	Required	Procedure
C	2	0	(O)

May be out of currency provided:

- a. Current aeronautical charts are used to verify navigation fixes prior to dispatch.
- b. Procedures are established and used to verify status and suitability of navigation facilities used to define route of flight.
- c. Approach navigation radios are manually tuned and identified.

OPERATIONS (O)

- 1. Verify navigation fixes prior to dispatch with current aeronautical charts.
- 2. Verify status and suitability of navigation facilities used to define the route of flight using established procedures.
- 3. Manually identify and tune approach navigation radios.

**34-61-01 Flight Management Computer Systems (FMCS)
(Including CDU/HMCDU/MCDU) (ETOPS)****34-61-01-02 FMC Annunciator Light**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided CDU MSG light and EICAS Advisory message FMC MESSAGE are verified to operate normally.

MAINTENANCE (M)

Verify the CDU MSG light and FMC MESSAGE advisory message operate normally.

1. Open the P11 panel FMCS CMPTR RIGHT circuit breaker.
2. Push the CLR key on the left CDU to clear all messages on the left CDU.
3. Push the TEST button on the front of the left FMC.
4. Confirm the FMC MESSAGE advisory message is shown and the CDU MSG light is illuminated.
5. Close the open circuit breaker.
6. Open the P11 panel FMCS CMPTR LEFT circuit breaker.
7. Push the CLR key on the right CDU to clear all messages on the right CDU.
8. Push the TEST button on the front of the right FMC.
9. Confirm the FMC MESSAGE advisory message is shown and the CDU MSG light is illuminated.
10. Close the open circuit breaker.


34-61-02 Traffic Alert Collision Avoidance System (TCAS II) ©

Interval	Installed	Required	Procedure
B	1	0	(M) (O)

Flight can be performed to the destination where system troubleshooting can be performed.

May be inoperative provided:

- System is deactivated and secured.
- Enroute or approach procedures do not require its use.

MAINTENANCE (M)

Deactivate and secure the system by opening and collaring the P11 panel TCAS circuit breaker.

OPERATIONS (O)
NRW OPERATIONS:

FCC must request permission for a flight by the Russian aviation authorities.

34-61-02 Traffic Alert Collision Avoidance System (TCAS II) ©
34-61-02-02 Resolution Advisory (RA) Display System(s)

Interval	Installed	Required	Procedure
C	2	1	(O)

May be inoperative on non-flying pilot side.

OPERATIONS (O)
NRW OPERATIONS:

FCC must request permission for a flight by the Russian aviation authorities.

34-61-02 Traffic Alert Collision Avoidance System (TCAS II) ©
34-61-02-03 Traffic Alert (TA) Display System(s)

Interval	Installed	Required	Procedure
C	2	0	(O)

Flight can be performed to the destination where system troubleshooting can be performed.

May be inoperative provided:

- RA visual display and audio functions operate normally.



b. Enroute or approach procedures do not require its use.

OPERATIONS (O)

Observe operative indications and advisories. Respond as appropriate.

NRW OPERATIONS:

FCC must request permission for a flight by the Russian aviation authorities.

34-61-02 Traffic Alert Collision Avoidance System (TCAS II) ©
34-61-02-04 Audio Functions

Interval	Installed	Required	Procedure
B	1	0	(O)

Flight can be performed to the destination where system troubleshooting can be performed.

May be inoperative provided enroute or approach procedures do not require use of TCAS.

OPERATIONS (O)

NRW OPERATIONS:

FCC must request permission for a flight by the Russian aviation authorities.



Intentionally
Blank



35-11-02 Crew Oxygen System

35-11-02-01 Pressure Indication System (EICAS)

35-11-02-02 Bottle Gage

35-11-02-02-01 Single Bottle System

35-11-02-03 Supernumerary Oxygen Masks

35-11-02-03A *Associated Seat Not Occupied*

35-11-02-03B *Flight At or Below 10,000 ft MSL*

35-11-02-04 Oxygen Thermal Relief Indicator

35-20-01 PBE Smoke Hoods

35-21-01 Passenger Oxygen System (Chemical or Gaseous)

35-21-01A *Airplane Remains At Or Below FL250*

35-21-01B *Flight Conducted At Or Below 10,000 Feet
MSL*

35-21-01-01 Passenger Service Units (PSUs)

35-21-01-02 Automatic Presentation System

35-31-01 Portable Oxygen Dispensing Units (Bottle and Mask)



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35-11-02 Crew Oxygen System
35-11-02-01 Pressure Indication System (EICAS)

Interval	Installed	Required	Procedure
B	1	0	(M)

May be inoperative provided oxygen supply is verified to be above minimum required before each departure.

MAINTENANCE (M)

Before each departure verify the oxygen supply is above the minimum required.

1. Confirm the crew oxygen cylinder shutoff valve is open.
2. Determine the crew oxygen system pressure by reading the pressure gage at the crew oxygen cylinder (bottle) in the forward cargo compartment.
3. Determine the oxygen bottle temperature. Measure the temperature of the oxygen cylinder directly or use ambient air temperature if the bottle has stabilized to the air temperature (10 to 15 minutes at stable air temperature conditions).
4. Contact dispatch to determine the required oxygen bottle pressure.
5. Compare the measured pressure with the required pressure and confirm the pressure is sufficient for dispatch.

35-11-02 Crew Oxygen System
35-11-02-02 Bottle Gage
35-11-02-02-01 Single Bottle System

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided pressure indication (EICAS) operates normally.

35-11-02 Crew Oxygen System
35-11-02-03 Supernumerary Oxygen Masks
35-11-02-03A Associated Seat Not Occupied

Interval	Installed	Required	Procedure
C	227	0	

May be inoperative provided associated seat is not occupied.



- 35-11-02 Crew Oxygen System**
35-11-02-03 Supernumerary Oxygen Masks
35-11-02-03B Flight At or Below 10,000 ft MSL

Interval	Installed	Required	Procedure
C	227	0	

May be inoperative provided flight is not conducted above 10,000 feet MSL.

- 35-11-02 Crew Oxygen System**
35-11-02-04 Oxygen Thermal Relief Indicator

Interval	Installed	Required	Procedure
C	1	0	(O)

May be damaged or missing.

OPERATIONS (O)

Confirm the oxygen pressure is adequate for dispatch:

1. Select the EICAS status page and note the oxygen pressure.
2. Set the oxygen mask NORMAL/100% switch to 100%.
3. Push down and hold the RESET/TEST switch (slide lever).
4. Confirm a yellow cross appears momentarily in the oxygen flow indicator.
5. Use the EMERGENCY/TEST selector.
 - A. While holding the RESET/TEST switch down, push the EMERGENCY TEST selector and confirm a yellow cross appears in the oxygen flow indicator.
 - B. Confirm the oxygen pressure did not decrease during the test.



35-20-01 PBE Smoke Hoods

Interval	Installed	Required	Procedure
D	VQ-BBU, VQ-BTO: 11	6	
D	VQ-BKM: 6	6	
D	VQ-BHR: 8	6	

Any in excess of those may be inoperative or missing.


35-21-01 Passenger Oxygen System (Chemical or Gaseous)
35-21-01A Airplane Remains At Or Below FL250

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative provided:

- Flight is not conducted where minimum enroute altitude is above 14,000 feet MSL.
- Both air conditioning packs operate normally.
- All other components of pressurization system operate normally.
- Airplane remains at or below FL 250.
- Portable oxygen units are provided for 10% of passengers.
- Passengers are appropriately briefed.

MAINTENANCE NOTE

NOTE: For a pack to be operating normally, certain items associated with that system must be operative. See MEL Item 21-51-01 for a listing of those items.

OPERATIONS (O)

- Plan flight over route with minimum enroute altitude equal to or lower than 14,000 feet MSL.
- Flight must remain at or below FL250.
- Prior to flight, the pilot in command should brief the cabin crew on the alternate emergency procedures that will be used.

35-21-01 Passenger Oxygen System (Chemical or Gaseous)
35-21-01B Flight Conducted At Or Below 10,000 Feet MSL

Interval	Installed	Required	Procedure
B	1	0	

May be inoperative provided flight is conducted at or below 10,000 feet MSL.

35-21-01 Passenger Oxygen System (Chemical or Gaseous)
35-21-01-01 Passenger Service Units (PSUs)

Interval	Installed	Required	Procedure
B	83	0	(M)



May be inoperative with no flight altitude restriction provided affected seats are blocked and placarded to prevent occupancy.

NOTE: For flight attendant seat affected by the inoperative PSU, also dispatch the airplane using MEL Item 25-25-01.

MAINTENANCE (M)

Block and placard the affected seats.

1. Close the inoperative PSU door and secure it using adhesive tape.
2. Rope, tie, tape or otherwise block the passenger seats, flight attendant seat and lavatory doors serviced by the inoperative PSU.
3. Placard the affected seats or lavatories.

35-21-01 Passenger Oxygen System (Chemical or Gaseous)

35-21-01-02 Automatic Presentation System

Interval	Installed	Required	Procedure
B	1	0	(M)

May be inoperative provided:

- a. Manual deployment system is verified to operate normally.
 - b. Airplane remains at or below FL 300.
-

MAINTENANCE (M)

Verify the manual deployment system operates normally by performing the Door Latch Mechanism Test task within the Passenger Oxygen System - Adjustment/Test (AMM 35-21-00/501).

OPERATIONS NOTE

1. Flight must remain at or below FL300.
2. Be prepared to deploy passenger masks manually using the PASS OXY switch.

**35-31-01 Portable Oxygen Dispensing Units (Bottle and Mask)**

Interval	Installed	Required	Procedure
D	VQ-BHR: 9	5	(M)
D	VQ-BKM: 5	5	(M)
D	VQ-BBU, VQBTO: 6	5	(M)

Any in excess of those may be unserviceable or missing provided:

- Required distribution of serviceable bottles is maintained throughout aircraft.
- Bottles not properly serviced are replaced, serviced, or removed at next available maintenance facility.

MAINTENANCE (M)

Stow the inoperative unit and ensure the required distribution of serviceable units is maintained.

- Stow the out-of-service unit where it will not be used by mistake, until it can be removed from the airplane at the next available maintenance base.
- Maintain the required distribution of serviceable bottles.



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ATA 36

- 36-11-01 Pressure Regulating and Shutoff Valves (PRSOV) (ETOPS)**
- 36-11-02 High Pressure Shutoff Valve (HPSOV) Systems (ETOPS)**
- 36-11-03 Intermediate Pressure Check Valves (ETOPS)**
- 36-11-04 APU Shutoff Valve**
- 36-11-05 APU Check Valve**
- 36-11-06 Bleed Air ISLN Valve (ETOPS)**
- 36-12-01 Precoolers (ETOPS)**
- 36-12-02 Fan Air (Precooler) Control Systems (ETOPS)**
- 36-21-01 Bleed Air DUCT PRESS Indicating System**
 - 36-21-01-01 DUCT PRESS Indicators (P5 Panel)
- 36-21-02 Pressure Regulating and Shutoff Valve Closed Position Indicating System**
 - 36-21-02A *Valve Verified Operative*
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- 36-22-01 BLEED Lights**
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- 36-22-02 HI STAGE Lights**
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 - 36-22-02B *Bleed System Inoperative*
- 36-22-04 Bleed ISLN Valve Light**



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**36-11-01 Pressure Regulating and Shutoff Valves (PRSOV)
(ETOPS)**

Interval	Installed	Required	Procedure
C	2	1	(M)

Except for ER operations beyond 120 minutes, one may be inoperative provided:

- a. PRSOV is closed.
- b. Associated ENG bleed air switch remains OFF.
- c. Airplane is not operated in known or forecast icing conditions.
- d. Remaining (opposite) engine bleed system and its associated pack operate normally.
- e. Airplane remains at or below FL 350.

MAINTENANCE (M)

NOTE 1: For a pack to be operating normally, certain items associated with that system must be operative. See MEL Item 21-51-01 for a listing of those items.

NOTE 2: For an engine bleed system to be operating normally, the following associated items must be operative:

MEL Item	Item Title
36-11-01	Pressure Regulating and Shutoff Valves (PRSOV)
36-11-02	High Pressure Shutoff Valve (HPSOV) Systems
36-11-03	Intermediate Pressure Check Valves
36-12-01	Precoolers
36-12-02	Fan Air (Precooler) Control Systems
36-22-01	BLEED Lights
36-22-02	HI STAGE Lights

Verify the affected PRSOV is closed.

1. Set the associated ENG bleed air switch to OFF. Confirm the OFF light illuminates.
2. For OFF light not illuminated:
 - A. Gain access to the inoperative PRSOV (AMM 36-11-09/201).
 - B. Rotate the manual override hex nut on the pressure regulating and shutoff valve clockwise until the poppet valve lever falls into the lock arm assembly notch.



- C. Confirm the word "LOCKED" is visible on the valve body beneath the cam.
- D. Confirm the poppet valve lever is not in the detent position.

OPERATIONS NOTE

1. Set the associated PACK control selector to OFF.
2. With the isolation valve OFF, wing and engine anti-ice are not available on the affected side.
3. For left PRSOV inoperative, the left pack may be operated using APU bleed air below 17,000 feet.
4. When the APU is used as a bleed air source, average fuel consumption of the APU is 200 pounds (90 kilograms) per hour.
5. For in-flight failure of the operating A/C pack, opening the isolation valve will permit operation of the opposite side A/C pack.


36-11-02 High Pressure Shutoff Valve (HPSOV) Systems (ETOPS)

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided:

- a. Valve is secured closed.
- b. A minimum N1 is maintained on associated engine in icing conditions as follows:
 - 70% N1 above 10,000 feet MSL,
 - 60% N1 below 10,000 feet MSL.
- c. Descent, approach and landing are not made in icing conditions within 5,000 feet AGL.
- d. Remaining (opposite) engine bleed system operates normally.

MAINTENANCE (M)

NOTE: For an engine bleed system to be operating normally, certain items associated with that system must be operative. See MEL Item 36-11-01 for a listing of those items.

Lock the affected HPSOV in the closed position.

1. Gain access to the HPSOV (AMM 36-11-07/401).
2. Rotate the manual override hex nut on the high pressure shutoff valve clockwise until the poppet valve lever falls into the lock arm assembly notch.
3. Confirm the word "LOCKED" is visible on the valve body beneath the cam. Confirm the poppet valve lever is not in the detent position.
4. Disconnect, cap and stow the high stage pilot electrical connector.

OPERATIONS (O)

1. At low engine power settings, the associated air conditioning pack may shut down.
2. For icing conditions, maintain a minimum of 70% N1 above 10,000 feet MSL and 60% N1 below 10,000 feet MSL on the associated engine.

**36-11-03 Intermediate Pressure Check Valves (ETOPS)**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative open provided:

- Associated HPSOV is secured closed.
 - A minimum N1 is maintained on associated engine in icing conditions as follows:
70% N1 above 10,000 feet MSL,
60% N1 below 10,000 feet MSL.
 - Descent, approach and landing are not made in icing conditions within 5,000 feet AGL.
 - Remaining (opposite) engine bleed system operates normally.
 - Isolation valve remains closed, except for engine start.
-

MAINTENANCE (M)

NOTE: For an engine bleed system to be operating normally, certain items associated with that system must be operative. See MEL Item 36-11-01 for a listing of those items.

Lock the associated HPSOV in the closed position and confirm the isolation valve can be closed.

- Lock the associated HPSOV in the closed position using MEL Item 36-11-02 (M) procedure.
- Set the bleed air ISOLATION switch to the off position. Confirm the bar light is off and the VALVE light illuminates and then goes off.

OPERATIONS (O)

- For icing conditions, maintain a minimum of 70% N1 above 10,000 feet MSL and 60% N1 below 10,000 feet MSL on the associated engine.



36-11-04 APU Shutoff Valve

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Valve is closed.
- b. APU bleed air switch remains OFF.

NOTE: APU may be used for electrical power.

MAINTENANCE (M)

Close the APU shutoff valve.

- 1. Set the APU bleed air switch to OFF.
- 2. For VALVE light illuminated, manually close the APU valve:
 - A. Open and collar the P11 panel APU BLEED PWR circuit breaker.
 - B. Gain access to the APU shutoff valve (AMM 36-11-10/401).
 - C. Set the position indicator on the APU air supply shutoff valve to CLOSE.



36-11-05 APU Check Valve

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided APU shutoff valve remains closed, except for engine start.



36-11-06 Bleed Air ISLN Valve (ETOPS)

Interval	Installed	Required	Procedure
C	1	0	(M)

Except for ER operations beyond 120 minutes, may be inoperative provided:

- a. Valve is closed except for engine start.
- b. Airplane is not operated in known or forecast icing conditions.
- c. Both engine PRSOVs operate normally.

MAINTENANCE (M)

Lock the isolation valve in the closed position after engine start.

- 1. Open and collar the P11 panel AIR SUPPLY ISOLATION VALVE POWER circuit breaker.
- 2. Gain access to the isolation valve (AMM 36-11-04/401).
- 3. Set the override lever to OPEN for engine start.
- 4. Following engine start, set the manual override lever to CLOSE.


36-12-01 Precoolers (ETOPS)

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

Except for ER operations beyond 120 minutes, one may be inoperative provided:

- a. Associated engine PRSOV is closed.
- b. Airplane is not operated in known or forecast icing conditions.

MAINTENANCE (M)

Deactivate or lock the associated PRSOV in the closed position.

1. Set the associated L ENG or R ENG bleed air switch to OFF. Confirm the bar light extinguishes and OFF light illuminates.
2. Perform procedure A or procedure B.
 - A. Deactivate the associated PRSOV to ensure it remains closed.
 - 1) Open and collar the associated P11 panel circuit breaker.
 - a. L ENG BLEED CONT
 - b. R ENG BLEED CONT
 - 2) Also dispatch the airplane using MEL Item 21-51-01.
 NOTE: The APU shutoff valve also closes, shutting off the alternate bleed source for the associated air conditioning pack.
 - B. Manually lock both the associated PRSOV and HPSOV closed.
 - 1) Gain access to the PRSOV and the HPSOV (AMM 36-11-07/401 and 36-11-09/401).
 - 2) Rotate the manual override hex nut on the pressure regulating and shutoff valve until the position indicator is in CLOSE.
 - 3) Rotate the manual override hex nut on the HPSOV until the position indicator is in CLOSE.

OPERATIONS (O)

Do not operate the airplane in known or forecast icing conditions.



36-12-02 Fan Air (Precooler) Control Systems (ETOPS)

Interval	Installed	Required	Procedure
C	2	0	(M)

Except for ER operations beyond 120 minutes, may be inoperative provided:

- a. Associated fan air modulation valve is secured full open.
- b. Airplane is not operated in known or forecast icing conditions.

MAINTENANCE (M)

Lock the associated fan air modulation valve full open.

- 1. Gain access to the associated FAMV (AMM 36-11-16/401).
- 2. Push the lock lever on the FAMV to disengage the pawl.
- 3. Rotate the manual override hex nut approximately 90 degrees clockwise until the pawl is engaged in the open detent. Confirm the position indicator agrees with the selected detent.



Interval	Installed	Required	Procedure
C	2	1	


**36-21-02 Pressure Regulating and Shutoff Valve Closed
Position Indicating System**
36-21-02A Valve Verified Operative

Interval	Installed	Required	Procedure
C	2	0	(M) (O)

May be inoperative provided associated valve is verified to operate normally once each flight day.

NOTE: This item includes the engine bleed air OFF Lights.

MAINTENANCE (M)

Verify the associated PRSOV operates normally.

1. Start the engine on the affected side.
2. Set the APU selector or APU bleed air switch to OFF.
3. Confirm the bleed air ISOLATION switch is set off.
4. Set the associated bleed air switch to ON.
5. Confirm bleed air DUCT PRESS on the affected side is normal (approximately 20 psi).
6. Set the associated bleed air switch to OFF.
7. Confirm bleed air DUCT PRESS on the affected side is 0.

OPERATIONS (O)

1. For a PRSOV position switch failed in the CLOSED position, inflight, the APU shutoff valve will not be commanded closed when engine bleed is selected ON. Set the APU selector or APU bleed air switch OFF before selecting the associated engine bleed ON.
2. For the left position switch failed OPEN, inflight, the APU shutoff valve will be commanded closed and the APU will not be available as a pneumatic source.
3. For the right position switch failed OPEN, inflight, the APU shutoff valve will be commanded closed when the bleed air isolation valve is open.
4. On the ground, the engine start switches override the PRSOV logic in the APU bleed air control logic and the APU can be used for engine start.

**36-21-02 Pressure Regulating and Shutoff Valve Closed
Position Indicating System**
36-21-02B Valve Inoperative

Interval	Installed	Required	Procedure
C	2	1	



NOTE: This item includes the engine bleed air OFF Lights.


36-22-01 BLEED Lights
36-22-01A HPSOV Locked Closed

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided:

- a. Associated HPSOV is secured closed.
- b. A minimum N1 is maintained on associated engine in icing conditions as follows:
 - 70% N1 above 10,000 feet MSL,
 - 60% N1 below 10,000 feet MSL.
- c. Descent, approach and landing are not made in icing conditions within 5,000 feet AGL.
- d. Remaining (opposite) engine bleed system operates normally.

MAINTENANCE (M)

NOTE: For an engine bleed system to be operating normally, certain items associated with that system must be operative. See MEL Item 36-11-01 for a listing of those items.

Lock the associated HPSOV in the closed position using MEL Item 36-11-02 (M) procedure.

OPERATIONS (O)

1. For icing conditions, maintain a minimum of 70% N1 above 10,000 feet MSL and 60% N1 below 10,000 feet MSL on the associated engine.

36-22-01 BLEED Lights
36-22-01B Bleed System Inoperative

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative for associated inoperative PRSOV.


36-22-02 HI STAGE Lights
36-22-02A HPSOV Locked Closed

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided:

- Associated HPSOV is secured closed.
- A minimum N1 is maintained on associated engine in icing conditions as follows:
 - 70% N1 above 10,000 feet MSL,
 - 60% N1 below 10,000 feet MSL.
- Descent, approach and landing are not made in icing conditions within 5,000 feet AGL.
- Remaining (opposite) engine bleed system operates normally.

MAINTENANCE (M)

NOTE: For an engine bleed system to be operating normally, certain items associated with that system must be operative. See MEL Item 36-11-01 for a listing of those items.

Lock the associated HPSOV in the closed position using MEL Item 36-11-02 (M) procedure.

OPERATIONS (O)

- For icing conditions, maintain a minimum of 70% N1 above 10,000 feet MSL and 60% N1 below 10,000 feet MSL on the associated engine.

36-22-02 HI STAGE Lights
36-22-02B Bleed System Inoperative

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative for associated inoperative PRSOV.



36-22-04 Bleed ISLN Valve Light

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided both duct pressure indicators operate normally.

OPERATIONS (O)

Confirm proper operation of the isolation valve using the ECS/MSG maintenance display page or duct pressure indications.



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38-10-01 Potable Water Systems

38-10-01A *Components Deactivated or Isolated*

38-10-01B *System Drained*

38-30-01 Lavatory Waste Systems (Including Wheelchair Accessible Lavatories)

38-30-01A *Components Deactivated or Isolated*

38-30-01B *Lavatory Not Used*



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38-10-01 Potable Water Systems

38-10-01A Components Deactivated or Isolated

Interval	Installed	Required	Procedure
C	4	0	(M)

Individual components may be inoperative provided:

- Associated components are deactivated or isolated.
- Associated system components are verified not to have leaks.

NOTE: Any portion of system that operates normally may be used.

MAINTENANCE (M)

Deactivate or isolate inoperative components and verify associated system components do not have leaks (AMM 38-11-00/501).

NOTE: Operators must develop procedures tailored to their specific installations.

38-10-01 Potable Water Systems

38-10-01B System Drained

Interval	Installed	Required	Procedure
C	4	0	(M)

May be inoperative provided:

- System is drained.
- Procedures are established to ensure that system is not serviced.

MAINTENANCE (M)

Drain the potable water system (AMM 12-14-01/301) and establish procedures to ensure the system is not serviced.

NOTE: Operators must develop procedures tailored to their specific installations.


38-30-01 Lavatory Waste Systems (Including Wheelchair Accessible Lavatories)
38-30-01A Components Deactivated or Isolated

Interval	Installed	Required	Procedure
C	4	0	(M)

Individual components may be inoperative provided:

- Associated components are deactivated or isolated.
- Associated system components are verified not to have leaks.

NOTE: Any portion of system that operates normally may be used.

MAINTENANCE (M)

Deactivate or isolate inoperative components (AMM 38-32-00/201) and verify associated system components do not have leaks (AMM 38-32-00/501).

NOTE: Operators must develop procedures tailored to their specific installations.

38-30-01 Lavatory Waste Systems (Including Wheelchair Accessible Lavatories)
38-30-01B Lavatory Not Used

Interval	Installed	Required	Procedure
C	4	0	(M)

Associated lavatory system(s) may be inoperative provided:

- Associated components are deactivated or isolated to prevent leaks.
- Associated lavatory door(s) is secured closed and placarded INOPERATIVE - DO NOT ENTER.

NOTE: These provisos are not intended to prohibit inspections by crewmembers.

MAINTENANCE (M)

Deactivate or isolate inoperative components to prevent leaks, and secure closed the associated lavatory door.

- Drain the associated waste tank (AMM 12-17-01/301). Do not add the precharge chemical to the associated waste tank.
- Close, lock and placard the associated lavatory door.



46-20-01 Electronic Flight Bag (EFB) System (Is Not Used)

46-20-01-01 Class 3 EFB (Boeing)

46-20-01-01A One Inoperative

46-20-01-01B Alternate Procedures Required

46-20-01-01C Procedures Do Not Require Use

46-20-01-02 Airport Moving Map Database

46-20-01-02-01 STC ST02053LA

46-20-01-03 Navigation Database

46-20-01-03-01 STC ST02053LA

46-20-01-03-01A Merging and Spacing Operations Prohibited

46-20-01-03-01B Merge Waypoint Not Inserted



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- 46-20-01 Electronic Flight Bag (EFB) System (Is Not Used)

46-20-01-01 Class 3 EFB (Boeing)
46-20-01-01A One Inoperative

Interval	Installed	Required	Procedure
C	2	1	

NOTE: Any function, program or document that operates normally may be used.

- 46-20-01 Electronic Flight Bag (EFB) System (Is Not Used)

46-20-01-01 Class 3 EFB (Boeing)
46-20-01-01B Alternate Procedures Required

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided alternate procedures are established and used.

NOTE: Any function, program or document that operates normally may be used.

OPERATIONS (O)

Establish alternate procedures to use when the EFB system is inoperative.

- 46-20-01 Electronic Flight Bag (EFB) System (Is Not Used)

46-20-01-01 Class 3 EFB (Boeing)
46-20-01-01C Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	2	0	

May be inoperative provided procedures do not require its use.

**46-20-01 Electronic Flight Bag (EFB) System (Is Not Used)**
*********46-20-01-02 Airport Moving Map Database***********46-20-01-02-01 STC ST02053LA**

Interval	Installed	Required	Procedure
D	2	0	(O)

May be out of date provided alternate procedures are established and used.

NOTE: The Airport Moving Map Database installation based on STC ST02053LA is not a Boeing system. Information applicable to this installation is not provided.

46-20-01 Electronic Flight Bag (EFB) System (Is Not Used)
*********46-20-01-03 Navigation Database***********46-20-01-03-01 STC ST02053LA****46-20-01-03-01A Merging and Spacing Operations Prohibited**

Interval	Installed	Required	Procedure
D	1	0	

May be out of date provided Merging and Spacing operations are prohibited.

46-20-01 Electronic Flight Bag (EFB) System (Is Not Used)
*********46-20-01-03 Navigation Database***********46-20-01-03-01 STC ST02053LA****46-20-01-03-01B Merge Waypoint Not Inserted**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be out of date provided merge waypoint is not inserted for Merging and Spacing function.

NOTE: The Airport Moving Map Database installation based on STC ST02053LA is not a Boeing system. Information applicable to this installation is not provided.



47-11-01 Nitrogen Generation System (NGS)



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47-11-01 Nitrogen Generation System (NGS)

Interval	Installed	Required	Procedure
A	1	0	(M)

May be inoperative provided:

- a. NGS shutoff valve is deactivated closed.
- b. Repairs are made within ten flight days.

MAINTENANCE (M)

Deactivate the NGS shutoff valve closed.

- 1. Gain access to the NGS shutoff valve (AMM 47-32-01/401).
- 2. Position the valve’s manual lock arm to the CLOSED position.



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49-11-01 Auxiliary Power Unit (APU) (ETOPS)

49-11-01A *Except ER Operations*

49-11-01B *Except ER Operations Beyond 120 Minutes*

49-11-01-01 Pneumatic Function

49-15-01 APU Air Intake Door Actuation System (ETOPS)

49-15-01-01 Door Closed

49-15-01-02 Door Open

49-61-01 APU External Control System

49-61-01A *Qualified Operator On Flight Deck*

49-61-01B *Automatic Fire Extinguishing System
Installed*

49-70-01 APU FAULT Light

49-70-02 APU RUN Light

49-71-01 APU EGT Indication

49-72-01 APU Hourmeter System

49-72-01A *Alternate Procedures Required*

49-72-01B *Procedures Do Not Require Use*

49-72-02 APU Cyclemeter System

49-72-02A *Alternate Procedures Required*

49-72-02B *Procedures Do Not Require Use*

49-73-01 APU RPM Indication

49-94-01 APU OIL QTY Indication

49-94-01A *APU Considered Inoperative*

49-94-01B *Oil Quantity Verified*



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49-11-01 Auxiliary Power Unit (APU) (ETOPS)
49-11-01A Except ER Operations

Interval	Installed	Required	Procedure
C	1	0	

Except for ER operations, may be inoperative provided both engine generators operate normally.

MAINTENANCE NOTE

1. The APU may be removed for dispatch (AMM 49-11-02/201).

OPERATIONS NOTE

1. Use MEL Item 24-00-02 (O) procedure for a battery start if external power is not available.
2. For APU removed, the APU FAULT light may remain illuminated, and advisory messages APU BLD VAL, APU FUEL VAL, and APU GEN OFF may display after engine start.

49-11-01 Auxiliary Power Unit (APU) (ETOPS)
49-11-01B Except ER Operations Beyond 120 Minutes

Interval	Installed	Required	Procedure
B	1	0	(M)

Except for ER operations beyond 120 minutes, may be inoperative provided:

- a. Both engine generators operate normally.
- b. Hydraulic Motor Generator (HMG) is verified to operate normally.

MAINTENANCE (M)

Verify the hydraulic motor generator (HMG) operates normally and, if desired, remove the APU.

1. Verify the HMG operates normally by performing the Operational Test (AMM 24-25-00/501).
2. The APU may be removed for dispatch (AMM 49-11-02/201).

OPERATIONS NOTE

1. Use MEL Item 24-00-02 (O) procedure for a battery start if external power is not available.
2. For APU removed, the APU FAULT light may remain illuminated, and advisory messages APU BLD VAL, APU FUEL VAL, and APU GEN OFF may display after engine start.

**49-11-01 Auxiliary Power Unit (APU) (ETOPS)****49-11-01-01 Pneumatic Function**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided procedures do not require its use.

MAINTENANCE NOTE

1. Use MEL Item 36-11-04 (M) procedure to close the APU shutoff valve.
2. For only the pneumatic function of the APU inoperative, the APU will be capable of generating electrical power and ETOPS beyond 120 minutes are allowed.


49-15-01 APU Air Intake Door Actuation System (ETOPS)
49-15-01-01 Door Closed

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative secured closed provided APU is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 49-11-01.

MAINTENANCE (M)

Secure the APU air intake door closed.

1. For door not closed, manually position the door:
 - A. Remove hydraulic power to the left, right, and center systems (AMM 29-11-00).
 - B. Set the APU selector to OFF.
 - C. Set the L, C, and R FLT CONTROL SHUTOFF switches to OFF.
 - D. Set the C and R STAB TRIM cutout switches to CUTOUT.
 - E. Open the following circuit breakers:
 - 1) P11 panel, FLT CONT SHUTOFF TAIL LEFT
 - 2) P11 panel, FLT CONT SHUTOFF TAIL CTR
 - 3) P11 panel, FLT CONT SHUTOFF TAIL RIGHT
 - 4) P11 panel, STAB TRIM SHUTOFF LEFT
 - 5) P11 panel, STAB TRIM SHUTOFF RIGHT
 - 6) P11 panel, APU MN BAT CONT or APU ALTN CONT
 - 7) P49 panel (on E6 rack), APU CONT
 - 8) P49 panel (on E6 rack) APU INLET DR ACT
 - F. Gain access to the APU intake door actuator from inside the airplane (AMM 49-15-06/401).
 - G. Hand crank the door actuator to position the door closed:
 - 1) Insert a 1/4 inch square drive into the manual/electrical selector shaft located on the forward end of the actuator. Push inward and rotate counterclockwise (about 90°) until the manual drive socket is exposed. Do not exceed 10 pound-inches torque.
 - 2) Insert the square drive into the revealed socket and turn counterclockwise until the door is closed. Do not exceed 65 pound-inches torque.
 - 3) Insert the square drive into the manual/electric selector shaft. Push inward and rotate clockwise until the manual drive socket is covered.
 - H. Close the following circuit breakers:
 - 1) P11 panel, FLT CONT SHUTOFF TAIL LEFT



- 2) P11 panel, FLT CONT SHUTOFF TAIL CTR
- 3) P11 panel, FLT CONT SHUTOFF TAIL RIGHT
- 4) P11 panel, STAB TRIM SHUTOFF LEFT
- 5) P11 panel, STAB TRIM SHUTOFF RIGHT
- 6) P11 panel, APU MN BAT CONT or APU ALTN CONT
- 7) P49 panel (on E6 rack), APU CONT
- I. Set the L, C, and R FLT CONTROL SHUTOFF switches to ON.
- J. Set the C and R STAB TRIM cutout switches to NORM.
2. Secure the APU air intake door in position.
 - A. Collar or open and collar the P49 panel (on E6 rack) APU INLET DR ACT circuit breaker.

49-15-01 APU Air Intake Door Actuation System (ETOPS)
49-15-01-02 Door Open

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative secured open provided:

- a. APU is operated continuously during flight.
- b. Appropriate AFM performance adjustments are applied.

MAINTENANCE (M)

Secure the APU air intake door open.

1. For door not open, manually position the door:
 - A. Remove hydraulic power to the left, right, and center systems (AMM 29-11-00).
 - B. Set the APU selector to OFF.
 - C. Set the L, C, and R FLT CONTROL SHUTOFF switches to OFF.
 - D. Set the C and R STAB TRIM cutout switches to CUTOUT.
 - E. Open the following circuit breakers:
 - 1) P11 panel, FLT CONT SHUTOFF TAIL LEFT
 - 2) P11 panel, FLT CONT SHUTOFF TAIL CTR
 - 3) P11 panel, FLT CONT SHUTOFF TAIL RIGHT
 - 4) P11 panel, STAB TRIM SHUTOFF LEFT
 - 5) P11 panel, STAB TRIM SHUTOFF RIGHT
 - 6) P11 panel, APU MN BAT CONT or APU ALTN CONT
 - 7) P49 panel (on E6 rack), APU CONT
 - 8) P49 panel (on E6 rack), APU INLET DR ACT
 - F. Gain access to the APU intake door actuator from inside the airplane (AMM 49-15-06/401).



- G. Hand crank the door actuator to position the door open.
 - 1) Insert a 1/4 inch square drive into the manual/electrical selector shaft located on the forward end of the actuator. Push inward and rotate counterclockwise (about 90°) until the manual drive socket is exposed. Do not exceed 10 pound-inches torque.
 - 2) Insert the square drive into the revealed socket and turn clockwise until the door is open. Do not exceed 65 pound-inches torque.
 - 3) Insert the square drive into the manual/electric selector shaft. Push inward and rotate clockwise until the manual drive socket is covered.
- H. Close the following circuit breakers:
 - 1) P11 panel, FLT CONT SHUTOFF TAIL LEFT
 - 2) P11 panel, FLT CONT SHUTOFF TAIL CTR
 - 3) P11 panel, FLT CONT SHUTOFF TAIL RIGHT
 - 4) P11 panel, STAB TRIM SHUTOFF LEFT
 - 5) P11 panel, STAB TRIM SHUTOFF RIGHT
 - 6) P11 panel, APU MN BAT CONT or APU ALTN CONT
 - 7) P49 panel (on E6 rack), APU CONT
- I. Set the L, C, and R FLT CONTROL SHUTOFF switches to ON.
- J. Set the C and R STAB TRIM cutout switches to NORM.
- 2. Secure the APU air intake door in position.
 - A. Collar or open and collar the P49 panel (on E6 rack) APU INLET DR ACT circuit breaker.

OPERATIONS (O)

- 1. Apply AFM performance adjustments for APU ON.
- 2. Increase planned fuel burn by 200 lbs (90 kg) per hour.


49-61-01 APU External Control System
49-61-01A Qualified Operator On Flight Deck

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative and APU used, provided a qualified operator remains in vicinity of flight deck APU control.

49-61-01 APU External Control System
49-61-01B Automatic Fire Extinguishing System Installed

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative and APU used, provided an APU automatic fire extinguishing system is installed and verified to operate normally.

MAINTENANCE (M)

Verify the APU fire extinguishing system operates normally.

1. Push the ENG/APU/CARGO switch on the aft aisle stand FIRE/OVHT TEST panel. The fire bell will ring intermittently. Confirm the following lights illuminate:
 - A. Discrete FIRE warning light.
 - B. Fuel control switches.
 - C. L and R ENG OVHT.
 - D. LEFT, RIGHT, and APU fire switches.
 - E. FWD and AFT cargo fire.
2. For each APU bottle, push the appropriate P61 panel SQUIB TEST switch, TEST 1 or TEST 2. Confirm the APU squib light illuminates green.
3. Release the TEST 1 or TEST 2 switch. Confirm the APU squib light extinguishes.



49-70-01 APU FAULT Light

Interval	Installed	Required	Procedure
C	1	0	

**49-70-02 APU RUN Light**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided another acceptable means to verify APU condition is available and used.

OPERATIONS (O)

APU Start-up:

1. Monitor APU RPM and EGT.
2. Load the APU when the RPM is 95% or greater.

APU Shutdown:

1. Set the APU VALVE switch to OFF. Confirm the APU VALVE light does not illuminate.
2. Wait 120 seconds for the APU to cool down.
3. Set the APU selector to OFF.
4. Wait 20 seconds and confirm the APU FAULT light momentarily illuminates to indicate the APU fuel valve is in transit to closed.



49-71-01 APU EGT Indication

Interval	Installed	Required	Procedure
C	1	0	

**49-72-01 APU Hourmeter System***********49-72-01A Alternate Procedures Required**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided alternate procedures are established and used.

MAINTENANCE (M)

Establish a means of estimating and recording the APU run time. This may be accomplished by recording run time manually, or using a proportional method of computing APU time that is based on a factored airplane operational time, or any other equivalent procedure.

49-72-01 APU Hourmeter System*********49-72-01B Procedures Do Not Require Use**

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.



49-72-02 APU Cyclemeter System

49-72-02A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided alternate procedures are established and used.

MAINTENANCE (M)

Establish a means of estimating and recording the APU run time. This may be accomplished by recording run time manually, or using a proportional method of computing APU time that is based on a factored airplane operational time, or any other equivalent procedure.

49-72-02 APU Cyclemeter System

49-72-02B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.



49-73-01 APU RPM Indication

Interval	Installed	Required	Procedure
D	1	0	

**49-94-01 APU OIL QTY Indication****49-94-01A APU Considered Inoperative**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided APU is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 49-11-01.

49-94-01 APU OIL QTY Indication**49-94-01B Oil Quantity Verified**

Interval	Installed	Required	Procedure
D	1	0	(M)

May be inoperative provided oil quantity is verified by alternate means.

MAINTENANCE (M)

Verify APU oil quantity (AMM 12-13-04/301).

1. Inspect the APU oil level sight glass.
2. Confirm the oil is at FULL level.



Intentionally
Blank



- 52-11-02 Main Entry/Service Door Arming Lever Hinged Covers**
- 52-11-05 Door Pressure Stop Fittings (ETOPS)**
 - 52-11-05-01 Number 2 and Number 4 (Left and Right) Passenger Doors/Lower Cargo Doors
 - 52-11-05-02 Number 2 and Number 4 (Left and Right) Passenger Doors
- 52-30-01 Cargo Door Hinge Drive Units**
- 52-32-01 Main Deck Cargo Door**
 - 52-32-01-01 Electrical Control (Open/Close) System
- 52-51-03 Boeing/C&D Aerospace Enhanced Flight Deck Security Door Automatic Locking System**
 - 52-51-03-01 Flight Deck Access Panel System (Keypad, Door Chime)
 - 52-51-03-01-01 LEDs
 - 52-51-03-01-02 Door Bell Mode
 - 52-51-03-01-03 Switch Guard
 - 52-51-03-02 Flight Deck Door LOCK FAIL Light
 - 52-51-03-03 Flight Deck Door AUTO UNLK Light
 - 52-51-03-04 Flight Deck Door Lock Control Selector
- 52-51-04 Boeing/C&D Aerospace Enhanced Flight Deck Security Door Dead Bolt**
- 52-51-08 Boeing/C&D Aerospace Enhanced Flight Deck Security Door Pressure Relief Panels**
- 52-71-01 Door Indication Systems**



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52-11-02

Main Entry/Service Door Arming Lever Hinged Covers

Interval	Installed	Required	Procedure
D	8	0	

May be damaged or missing.



52-11-05 Door Pressure Stop Fittings (ETOPS)
52-11-05-01 Number 2 and Number 4 (Left and Right) Passenger Doors/Lower Cargo Doors

Interval	Installed	Required	Procedure
C	14	13	(M) (O)

One per door may be broken or missing provided:

- Flight is conducted in an unpressurized configuration.
- Procedures are established and used to ensure lower cargo compartments remain empty, or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), and/or Fly Away Kits.

NOTE: Operator MELs must define which items are approved for inclusion in Fly Away Kits, and which materials can be used as ballast.

NOTE: A door pressure stop consists of two mating stop fittings, one attached to the door and the other attached to the fuselage. Either or both stop fittings may be broken or missing at a single door pressure stop location.

MAINTENANCE (M)

Confirm only one pressure stop fitting pair per door is inoperative and configure the airplane for unpressurized flight.

- Visually inspect the remaining fittings on each associated door and confirm there are no defects.
- Use MEL Item 21-31-01 (M) procedure to configure the airplane for unpressurized flight.

OPERATIONS (O)

Use MEL Item 21-31-01 (O) procedure for unpressurized flight.

52-11-05 Door Pressure Stop Fittings (ETOPS)
52-11-05-02 Number 2 and Number 4 (Left and Right) Passenger Doors

Interval	Installed	Required	Procedure
C	12	11	(M) (O)

One per door may be broken or missing provided:

- There are no visible defects on other fittings for associated doors.
- Both auto cabin pressure control systems operate normally.
- CABIN ALT indicator operates normally.
- CABIN DIFF pressure indicator operates normally.



- e. Airplane remains at or below FL 200.
-

NOTE: A door pressure stop consists of two mating stop fittings, one attached to the door and the other attached to the fuselage. Either or both stop fittings may be broken or missing at a single door pressure stop location.

MAINTENANCE (M)

Confirm only one pressure stop fitting pair per door is inoperative.

1. Visually inspect the remaining fittings on each associated door and confirm there are no defects.

OPERATIONS (O)

1. Operate the cabin altitude controller in AUTO mode.
2. Limit airplane operating altitude to FL200 to ensure that CABIN DIFF pressure does not exceed 7.0 psi.
3. Set the landing altitude selector to 2,500 feet, or actual landing altitude, whichever is higher.
4. For actual landing altitude lower than 2,500 feet, after descending below 16,000 feet, reset the landing altitude selector to actual landing altitude.



52-30-01 Cargo Door Hinge Drive Units

Interval	Installed	Required	Procedure
C	2	0	

Both electrical and manual drive functions may be inoperative.

**52-32-01 Main Deck Cargo Door****52-32-01-01 Electrical Control (Open/Close) System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided alternate procedures for opening and closing cargo door are established and used.

MAINTENANCE (M)

Establish alternate procedures for opening and closing the main deck cargo door.

1. To open or close the door, use AMM procedure 52-32-00/201, Manual Operation of the Main Cargo Door with the Hydraulic Hand Pump.

NOTE: Access to the left wheel well is necessary to do this procedure.


**52-51-03 Boeing/C&D Aerospace Enhanced Flight Deck
Security Door Automatic Locking System**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- Automatic locking system is deactivated.
- Door dead bolt operates normally and is used to lock door.
- Alternate procedures are established and used for locking and unlocking door using dead bolt.

MAINTENANCE (M)

Deactivate the automatic locking system by setting the FLIGHT DECK ACCESS SYSTEM switch OFF (guard extended).

NOTE: The LOCK FAIL light may remain illuminated when the flight deck access system switch is OFF.

OPERATIONS (O)

Establish and use alternate procedures based on company security requirements for allowing and denying access to the flight deck.

**52-51-03 Boeing/C&D Aerospace Enhanced Flight Deck
Security Door Automatic Locking System**
**52-51-03-01 Flight Deck Access Panel System
(Keypad, Door Chime)**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- Keypad is deactivated.
- Alternate procedures are established and used.

MAINTENANCE (M)

Deactivate the keypad.

- Open the P11 panel F/D DOOR LOCK circuit breaker.
- Remove the keypad.
- Disconnect the electrical connector from the keypad.



- 4. Install the keypad.
- 5. Close the open circuit breaker.
- 6. When the flight deck door is closed with the flight deck not occupied, confirm the FLIGHT DECK ACCESS SYSTEM switch is OFF (guard extended).

OPERATIONS (O)

Establish and use alternate procedures based on company security requirements for allowing and denying access to the flight deck.

NOTE: Confirm the FLIGHT DECK ACCESS SYSTEM switch is OFF (guard extended) when the flight deck door is to be closed and the flight deck not occupied.

52-51-03 Boeing/C&D Aerospace Enhanced Flight Deck Security Door Automatic Locking System

52-51-03-01 Flight Deck Access Panel System (Keypad, Door Chime)

52-51-03-01-01 LEDs

Interval	Installed	Required	Procedure
C	3	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Establish and use alternate procedures based on company security requirements for allowing and denying access to the flight deck.

52-51-03 Boeing/C&D Aerospace Enhanced Flight Deck Security Door Automatic Locking System

52-51-03-01 Flight Deck Access Panel System (Keypad, Door Chime)

52-51-03-01-02 Door Bell Mode

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.


OPERATIONS (O)

Establish and use alternate procedures based on company security requirements for allowing and denying access to the flight deck.

52-51-03 Boeing/C&D Aerospace Enhanced Flight Deck Security Door Automatic Locking System
52-51-03-01 Flight Deck Access Panel System (Keypad, Door Chime)
52-51-03-01-03 Switch Guard

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative or missing provided flight deck door LOCK FAIL light operates normally.

52-51-03 Boeing/C&D Aerospace Enhanced Flight Deck Security Door Automatic Locking System
52-51-03-02 Flight Deck Door LOCK FAIL Light

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided automatic lock controls are verified to operate normally.

MAINTENANCE (M)

Verify the automatic lock controls operate normally.

1. Confirm the flight deck door is open.
2. Supply electrical power (AMM 24-22-00/201).
3. Set the FLIGHT DECK ACCESS SYSTEM switch to NORM (guard closed).
4. Set the FLT DK DOOR lock selector to AUTO.
5. Confirm the electric strike is in the locked position (the solenoid pin in the electric strike will be extended up so strike cannot be rotated).
6. Enter the keypad access code and confirm the door chime sounds.
7. Set the FLT DK DOOR lock selector to DENY.
8. Before the DENY time delay has expired, enter the keypad access code and confirm the door chime does not sound.



9. Set and hold the FLT DK DOOR lock selector to UNLKD.
10. Confirm the electric strike is in the unlocked position (the solenoid pin in the electric strike will retract down so the strike can be rotated).
11. Set the FLT DK DOOR lock selector to AUTO.
12. Confirm the electric strike is in the locked position (the solenoid pin in the electric strike will be extended up so the strike cannot be rotated).

**52-51-03 Boeing/C&D Aerospace Enhanced Flight Deck
Security Door Automatic Locking System****52-51-03-03 Flight Deck Door AUTO UNLK Light**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Automatic lock controls are verified to operate normally.
- b. Door chime operates normally.

MAINTENANCE (M)

Verify the automatic lock controls operate normally.

1. Confirm the flight deck door is open.
2. Supply electrical power (AMM 24-22-00/201).
3. Set the FLIGHT DECK ACCESS SYSTEM switch to NORM (guard closed).
4. Set the FLT DK DOOR lock selector to AUTO.
5. Confirm the electric strike is in the locked position (the solenoid pin in the electric strike will be extended up so strike cannot be rotated).
6. Enter the keypad access code and confirm the door chime sounds.
7. Set the FLT DK DOOR lock selector to DENY.
8. Before the DENY time delay has expired, enter the keypad access code and confirm the door chime does not sound.
9. Set and hold the FLT DK DOOR lock selector to UNLKD.
10. Confirm the electric strike is in the unlocked position (the solenoid pin in the electric strike will retract down so the strike can be rotated).
11. Set the FLT DK DOOR lock selector to AUTO.
12. Confirm the electric strike is in the locked position (the solenoid pin in the electric strike will be extended up so the strike cannot be rotated).

**52-51-03 Boeing/C&D Aerospace Enhanced Flight Deck
Security Door Automatic Locking System****52-51-03-04 Flight Deck Door Lock Control Selector**

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided:

- Keypad is deactivated.
 - Automatic lock is verified to operate normally.
 - Alternate procedures are established and used.
-

MAINTENANCE (M)

Deactivate the keypad and verify the automatic lock operates normally.

- For deactivating the keypad:
 - Open the P11 panel F/D DOOR LOCK circuit breaker.
 - Remove the keypad.
 - Disconnect the electrical connector from the keypad.
 - Install the keypad.
 - Close the open circuit breaker.
 - When the flight deck door is closed with the flight deck not occupied, confirm the FLIGHT DECK ACCESS SYSTEM switch is OFF (guard extended).
- For verifying the automatic lock is operating normally:
 - Confirm the flight deck door is open.
 - Supply electrical power (AMM 24-22-00/201).
 - Set the FLIGHT DECK ACCESS SYSTEM switch to NORM (guard closed).
 - Set the FLT DK DOOR lock selector to AUTO.
 - Confirm the electric strike is in the locked position (the solenoid pin in the electric strike will be extended up so strike cannot be rotated).
 - Enter the keypad access code and confirm the door chime sounds.
 - Set the FLT DK DOOR lock selector to DENY.
 - Before the DENY time delay has expired, enter the keypad access code and confirm the door chime does not sound.
 - Set and hold the FLT DK DOOR lock selector to UNLKD.
 - Confirm the electric strike is in the unlocked position (the solenoid pin in the electric strike will retract down so the strike can be rotated).
 - Set the FLT DK DOOR lock selector to AUTO.



- L. Confirm the electric strike is in the locked position (the solenoid pin in the electric strike will be extended up so the strike cannot be rotated).

OPERATIONS (O)

Establish and use alternate procedures based on company security requirements for allowing and denying access to the flight deck.

NOTE: Confirm the FLIGHT DECK ACCESS SYSTEM switch is OFF (guard extended) when the flight deck door is to be closed and the flight deck not occupied.



**52-51-04 Boeing/C&D Aerospace Enhanced Flight Deck
Security Door Dead Bolt**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided primary locking system operates normally.



52-51-08 Boeing/C&D Aerospace Enhanced Flight Deck
Security Door Pressure Relief Panels

Interval	Installed	Required	Procedure
A	2	0	

May be inoperative provided:

- a. Panels are in latched position.
- b. Repairs are made within two flight days.


52-71-01 Door Indication Systems

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided associated door(s) is verified closed, latched, and locked before each departure.

MAINTENANCE (M)

Verify each associated door is closed, latched and locked before each departure.

1. For No. 1, 2, or 4 (L or R) Passenger Door:
 - A. Confirm the door is faired with the fuselage.
 - B. Confirm all exterior/interior door handles are in the proper closed/faired position.
 - C. Do one of the following to confirm the girt bar mechanism is engaged:
 - 1) Use the warning light and indicator:
 - a. Confirm the mode selector lever is at the ENGAGE position.
 - b. Confirm the Armed Condition Indicator above the interior handle is extended.
 - c. Confirm the girt bar engaged warning light above the door is illuminated.
 - 2) Use MEL Item 25-66-05 (M) or (O) procedure, as appropriate.
2. For the -200PF Crew Entry Door:
 - A. Confirm the door is faired with the fuselage.
 - B. Confirm all exterior/interior door handles are in the proper closed/faired position.
3. For No. 3 (L or R) Emergency Exit Door or Overwing Emergency Exit Hatch:
 - A. Confirm the door is faired with the fuselage.
 - B. Confirm all exterior/interior door handles are in the proper closed/faired position.
 - C. For No. 3 Emergency Exit Door, confirm the vent door is closed.
4. For L or R Off-Wing Slide Compartment Door:
 - A. Confirm the door is faired with the fuselage.
 - B. Open the maintenance access door.
 - C. Confirm the round crank handle is in the locked position (AMM 25-65-00).
 - D. Close the maintenance access door.



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5. For No. 1, 2, or 3 Cargo Door:
- A. Unload cargo as necessary to place a crew member with a flashlight in the cargo bay to observe the cargo door closing.
 - B. Place a crew member in the cargo bay.
 - C. Close door normally.
 - D. Have the crew member inside the bay confirm proper door closing:
 - 1) For No. 1 or 2 Cargo Door (AMM 52-34-00):
 - a. Confirm the latch crank moves to the latched position.
 - b. Confirm the movable upper stop moves into position behind the upper door frame stops.
 - c. Confirm the vent door closes.
 - d. Confirm all door stops align with frame stops.
 - 2) For No. 3 Cargo Door (AMM 52-36-00):
 - a. Confirm the latch cam moves to the latched position.
 - b. Confirm all door stops align with frame stops.
 - E. Open the cargo door (allow crewmember to exit).
 - F. Reload cargo as necessary.
 - G. Close the door normally.
 - 1) Confirm the door is faired with the fuselage.
 - 2) Confirm the door handle(s) is in the proper faired/stowed position.
 - 3) For No. 1 or 2 Cargo Door, confirm the vent door is closed.
6. For Main Cargo Door:
- A. For MAIN CARGO DOOR SYS message displayed with no other main cargo door indications, perform the following:
 - 1) Arm the cargo door system.
 - 2) Confirm the cargo door indication system is operating:
 - a. Confirm the MAIN CARGO DOOR message is displayed.
 - b. Confirm the (pilots' overhead) CARGO DOORS light illuminates.
 - c. Confirm the cargo door arming switch illuminates.
 - 3) Confirm the main cargo door is closed and locked (AMM 52-32-00):
 - a. Confirm the cargo door is closed and faired.
 - b. Confirm the pressure doors are closed.
 - c. Confirm four white flags are in the lock view ports.
 - 4) Install the landing gear ground lock pins (AMM 32-00-20).
 - 5) Depressurize the door hydraulic circuit by setting the GEAR select handle in the OFF position.
 - 6) Erase the MAIN CARGO DOOR SYS message.



-
- 7) Confirm a shut-off valve indication system fault by confirming the MAIN CARGO DOOR SYS message appears after 15 seconds.
 - B. For MAIN CARGO DOOR SYS message displayed with another main cargo door indication, confirm the main cargo door is closed and locked per the following (AMM 52-32-00):
 - 1) Confirm the cargo door is closed and faired.
 - 2) Confirm the pressure doors are closed.
 - 3) Confirm four white flags are in the lock view ports.
 - 7. For Forward Access Door or Electrical/Electronic Access Door:
 - A. Confirm from outside the airplane (AMM 52-48-00):
 - 1) The door is faired with the fuselage.
 - 2) The door latch handle is faired with the door.
 - 3) The door does not open inward/upward when pushed upon by hand (confirms latch pin engagement).



73-21-01 Electronic Engine Control (EEC) Systems (ETOPS)

73-21-01-02 PW

73-21-01-02-01 Control Channels

73-21-03 Fuel Control ENG VALVE Lights (ETOPS)

73-21-04 Electronic Engine Control “ENG LIM PROT” Lights (PW)

73-21-05 ENG LOW N1 Indication (EICAS)

73-21-08 Minimum Idle

73-31-01 Fuel Flow Indications (ETOPS)

73-31-01-01 PW



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**73-21-01 Electronic Engine Control (EEC) Systems (ETOPS)****73-21-01-02 PW****73-21-01-02-01 Control Channels**

Interval	Installed	Required	Procedure
B	4	3	(M) (O)

Except for ER operations, one control channel may be inoperative provided:

- Associated thrust reverser is verified to operate normally or is deactivated.
- Appropriate AFM performance adjustments are applied.

MAINTENANCE (M)

Verify the associated thrust reverser operates normally or deactivate it.

- Confirm only one of the following STATUS messages is displayed:
 - L or R ENG PRI CONT
 - L or R ENG SEC CONT
 - L or R ENG SEC SEL
- For ENG SEC SEL message displayed:
 - Set the associated P61 panel EEC MAINT CHANNEL SEL switch to the AUTO position.
 - For the ENG SEC SEL message not cleared, the associated primary channel is inoperative.
- For ENG SEC CONT message displayed:
 - Set the associated P61 panel EEC MAINT CHANNEL SEL switch to AUTO.
 - Open and collar the associated P11 panel circuit breaker:
 - LEFT EEC CHANNEL SEL
 - RIGHT EEC CHANNEL SEL
 - Confirm the primary EEC channel is in control of the associated engine:
 - Set the associated P61 panel EEC MAINT POWER switch to ALTN.
 - Select the EICAS EPCS page on the P61 panel.
 - Confirm a white box is displayed around PRI for the associated engine on the EPCS page.
 - Set the P61 panel EEC MAINT POWER switch to NORM.
- For ENG PRI CONT message displayed:
 - Set the associated P61 panel EEC MAINT POWER switch to ALTN.
 - Select the EICAS EPCS page on the P61 panel.



- C. Confirm none of the following messages are displayed:
 - 1) P(S) 351-23
 - 2) P(S) SVA OR FCU/EEC
- D. Set the P61 panel EEC MAINT POWER switch to NORM.
- 5. Do one of the following:
 - A. Verify the associated thrust reverser operates normally.
 - 1) Do the AMM 78-31-00/501 procedure, Thrust Reverser Operational Test - Engine Not Running.
 - B. Deactivate the associated thrust reverser.
 - 1) Deactivate and defer the thrust reverser using MEL item 78-31-01.
 - 2) Confirm thrust control operates normally:
 - a. Advance thrust levers to the full forward position.
 - b. Confirm the Thrust Lever Resolver (TLR) measurements on the EICAS EPCS page read between 80.5 and 83 degrees.
 - c. Move the thrust levers to the idle position.
 - d. Confirm the TLR measurements on the EICAS EPCS page read 38+/- 0.25 degrees.
 - e. Confirm the thrust reverser position (RVA) measurement on the EICAS EPCS page reads 0 +/- 2.0 for the PRI and SEC channels of both EECs.
 - f. Confirm the P61 panel EEC MAINT POWER switch is in NORM.

OPERATIONS (O)

- 1. For thrust reverser deactivated, use MEL Item 78-31-01 (O) procedure.
- 2. For EPR not displayed, also dispatch the airplane using MEL Item 77-11-01.
- 3. For EPR displayed, confirm the EEC is operating in the EPR mode and not the N1 control mode:

NOTE: Some EEC faults are inhibited until the engine is running and above idle.

 - A. After engine start, advance the thrust lever until EPR equals 1.1.
 - B. Retard the thrust lever to idle.
 - C. If EPR blanks, also dispatch the airplane using MEL Item 77-11-01.



73-21-03 Fuel Control ENG VALVE Lights (ETOPS)

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided associated engine fuel valve is verified to operate normally.

MAINTENANCE (M)

Verify the associated engine fuel valve operates normally.

1. With the associated engine running, open the associated P6 panel L (R) SPAR FUEL VALVE circuit breaker.
2. Set the associated FUEL CONTROL switch to CUTOFF.
3. Confirm the engine stops running.
4. Close the open circuit breaker.



73-21-04 Electronic Engine Control “ENG LIM PROT” Lights
(PW)

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided both EECs operate normally.

MAINTENANCE (M)

Confirm there are no EICAS caution, advisory, status or EPCS maintenance page messages related to EEC.



73-21-05 ENG LOW N1 Indication (EICAS)

Interval	Installed	Required	Procedure
C	2	1	

**73-21-08 Minimum Idle**

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided:

- Approach idle operates normally.
 - Appropriate performance adjustments are applied.
-

OPERATIONS (O)

- Reduce takeoff and landing field length performance limited weights 10,100 lb (4580 kg).
- Base descent profile on approach idle.

**73-31-01 Fuel Flow Indications (ETOPS)****73-31-01-01 PW**

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided:

- Associated N1, N2, and EPR indications operate normally.
- Main tank fuel quantity indicators operate normally.

MAINTENANCE NOTE

For an intermittent fuel flow transmitter, disconnect the transmitter.

NOTE: An intermittent transmitter may cause a FUEL DISAGREE message on the FMC in conjunction with an EICAS DISAGREE status message.

- Supply electrical power (AMM 24-22-00/201).
- Confirm the following P6 panel circuit breakers are closed:
 - FUEL COND CONT L
 - FUEL COND CONT R
 - FUEL VALVES L SPAR
 - FUEL VALVES R SPAR
- Set the associated FUEL CONTROL switch to CUTOFF.
- Confirm the associated ENG VALVE and SPAR VALVE lights are off.
- Open the following associated P6 panel circuit breakers:
 - FUEL COND CONT L
 - FUEL COND CONT R
 - FUEL VALVES L SPAR
 - FUEL VALVES R SPAR
- Gain access to the fuel flow transmitter (AMM 73-31-01/401).
- Disconnect, cap and stow the fuel flow transmitter electrical connector.
- Install a protective cover over the cap on the transmitter connector.
- Close the open circuit breakers.

OPERATIONS NOTE

- FMC CALCULATED, associated engine FUEL USED and FUEL USED TOT indications are inoperative.
- The FMC may determine flight completion during high speed taxi resulting in high IRU residual ground speed.



3. Aileron trim indication on the control wheel can be used to determine if a fuel imbalance condition exists. At cruise airspeeds, an imbalance of 1,600 lb (725 kg) will require approximately one unit of aileron displacement to hold wings level, while 4,000 lb (1815 kg) will require 2 units of aileron displacement.
4. In case of enroute failure of FQIS, keep a fuel log for the remainder of the flight.

Sample Fuel Log: Condition: Both engines operating; FQIS inflight failure

TIME	EICAS FUEL FLOW	TOTAL FUEL BURN (both engines)	TOTAL FUEL REMAINING
1200 UT	-	-	49000
1300 UT	4500	9000	40000
1400 UT	4600	9200	30800

1. Starting time for the fuel log is the time at the last known waypoint, found via FMC.
2. EICAS FUEL FLOW is in lb/hr (or kg/hr) as shown on EICAS secondary display or EICAS compact displays. This is the fuel flow indicated from the operative fuel flow sensor.
3. TOTAL FUEL BURN is EICAS FUEL FLOW multiplied by 2. Assume fuel flow on each engine is approximately the same.
4. TOTAL REMAINING FUEL starts at the last known recorded total fuel remaining data point, found via FMC. As time progresses, TOTAL FUEL REMAINING is start fuel minus TOTAL FUEL BURN.

The starting data point for this fuel log is recorded by the FMC at the last waypoint prior to FQIS failure. This is found as follows:

1. POS REPORT page:
 - A. Line 1 displays:
 - 1) Last Waypoint
 - 2) Time
 - 3) Altitude
 - B. Line 5 displays:
 - 1) POS FUEL. This is the Total Fuel Remaining at the last waypoint displayed on line 1.



74-00-01 Ignition Systems (ETOPS)

74-00-01A *ER Operations Allowed*

74-00-01B *Except ER Operations*



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74-00-01 Ignition Systems (ETOPS)

74-00-01A ER Operations Allowed

Interval	Installed	Required	Procedure
A	4	3	(O)

One may be inoperative provided:

- a. Ignition selector remains in BOTH position.
- b. Engine anti-ice system operates normally on associated engine.
- c. Repair is made within one flight day.

OPERATIONS (O)

Maintain the ignition selector in the BOTH position.

74-00-01 Ignition Systems (ETOPS)

74-00-01B Except ER Operations

Interval	Installed	Required	Procedure
C	4	2	(O)

Except for ER operations, one per engine may be inoperative provided:

- a. Ignition selector remains in BOTH position.
- b. Engine anti-ice systems operate normally on associated engine(s).

OPERATIONS (O)

Maintain the ignition selector in the BOTH position.



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75-24-01 Active Clearance Control (ACC) Cooling System Valves (PW)

75-24-01-01 Low Pressure Turbine ACC Valves

75-24-01-02 High Pressure Turbine ACC Valves

75-24-02 Turbine Cooling Air Systems (PW)



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75-24-01 Active Clearance Control (ACC) Cooling System Valves (PW)
75-24-01-01 Low Pressure Turbine ACC Valves

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided valve is verified open.

MAINTENANCE (M)

Verify the affected valve is open.

NOTE: Use the EPCS display to determine the fault is with the low pressure turbine ACC valve (LCC/EEC message). See FIM chapter 71.

1. Gain access to the low pressure turbine case cooling air valve (AMM 75-24-01/401).
2. Confirm the position indicator shows the valve is in the fully open position ("O" lines up with the index line).

NOTE: Pratt and Whitney recommends the valve be replaced when practical to reduce the loss of performance due to seal rubbing.

3. Disconnect, cap and stow the valve electrical connector.

75-24-01 Active Clearance Control (ACC) Cooling System Valves (PW)
75-24-01-02 High Pressure Turbine ACC Valves

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative closed provided valve is verified closed or blanked with a blanking plate.

MAINTENANCE (M)

Verify the affected valve is closed or blanked with a blanking plate.

NOTE: Use the EPCS display to determine the fault is with the high pressure turbine ACC valves (HCC/EEC message). See FIM chapter 71.

1. Gain access to the high pressure turbine case cooling air valve (AMM 75-24-03/401).
2. Do one of the following:
 - A. Confirm the position indicator shows the valve is in the closed position ("C" lines up with the index line).
 - B. Install a blanking plate per the AMM 75-24-05/401 procedure.



3. Disconnect, cap and stow the valve electrical connector.

**75-24-02 Turbine Cooling Air Systems (PW)**

Interval	Installed	Required	Procedure
D	2	0	(M)

May be inoperative provided associated turbine cooling valves are deactivated open.

MAINTENANCE (M)

Deactivate the associated valves open.

1. Review EPCS messages (FIM chapter 71). For P(S) 354-20 EPCS maintenance message displayed, follow the FIM procedures.
2. Gain access to the associated turbine cooling air valve actuator (AMM 75-24-23/401).
3. Remove the bolt and nut from the threaded rod end and the actuator shaft clevis.
4. Move the threaded rod end down and using the removed bolt and nut attach the connecting rod to the hole provided in the upper shelf of the bracket assembly. Torque the nut to 36 to 40 inch-lb.
5. Erase the EICAS status message.

NOTE: Status message L(R) ENG TURB COOL may be ignored after de-activation provided EPCS Maintenance message 354-20 does not appear.

6. For a leaking TCA actuator, remove the fuel pressure and return hoses. See AMM 75-24-23/401, Alternate Method - Remove TCAV actuator flexhoses and install caps at fuel port. For each hose:
 - A. Loosen the connections at the actuator and the hard line tube assembly.
 - B. Remove the flex hose and the adapter.
 - C. Remove and discard the packings.
 - D. Install the appropriate plug and new packing into the appropriate actuator port and tighten per AMM instructions.
 - E. Install the appropriate cap assembly and packing to the tube assembly and tighten per AMM instructions.



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77-00-01 Target Parameter Indications

77-11-01 Engine Pressure Ratio (EPR) Systems

77-11-01-02 PW

77-21-01 EGT Indications (Standby Engine Indicator)

77-21-01-02 PW

77-31-01 Vibration Indicating Systems

77-31-01-02 PW



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77-00-01 Target Parameter Indications

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided an alternate means of achieving desired values is available and used.

OPERATIONS (O)

Observe the desired values are achieved. Only the items listed below may be inoperative (may not appear on display).

- 1. Reference EPR
- 2. Assumed temperature
- 3. Maximum EPR line
- 4. Reference/target EPR indication
- 5. Command thrust level
- 6. Commanded EPR sector
- 7. TAI indication
- 8. TAI bug
- 9. Crossbleed start indication

**77-11-01 Engine Pressure Ratio (EPR) Systems****77-11-01-02 PW**

Interval	Installed	Required	Procedure
C	2	1	(O)

EICAS and/or STANDBY indications for one engine may be inoperative provided:

- Appropriate procedures, AFM limitations and performance decrements are applied.
 - Fuel flow indications for associated engine operate normally.
 - Approach minimums do not require its use.
-

OPERATIONS (O)

- Operation must be in accordance with the AFM Alternate Thrust Setting appendix.
- Use FCOM or Flight Planning and Performance Manual "Alternate Thrust Setting" section to determine N1 settings for maximum takeoff, maximum climb, maximum cruise, maximum go-around, initial maximum continuous and maximum continuous thrust. Determine other thrust settings by use of N1 from the engine with the operable EPR indication.



77-21-01 EGT Indications (Standby Engine Indicator)

77-21-01-02 PW

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided EPR EICAS indications for both engines operate normally.

.....



77-31-01-02 PW

Interval	Installed	Required	Procedure
C	2	1	



- 78-31-01 Thrust Reversers (PW)**
- 78-34-01 REV ISLN Valve Light**
- 78-34-02 Thrust Lever Interlock Actuator (PW)**
- 78-36-01 REV Unlock Indications**
- 78-36-02 Full REV Position Indications**



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**78-31-01 Thrust Reversers (PW)**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided:

- Inoperative reverser is secured in forward thrust position.
- Associated engine thrust control is verified to operate normally.
- Appropriate performance adjustments are applied.

NOTE: During landing roll-out, differential braking may be required to maintain directional control.

MAINTENANCE (M)

Deactivate and secure the affected thrust reverser in the forward thrust position and verify the associated engine thrust control operates normally.

- For one or both sync-locks inoperative, verify they are inoperative in the locked position:
 - Open fan cowl panels per AMM 71-11-04/201.
 - Operate the unlock handle on the thrust reverser locking actuator to the unlocked position, and then release.

CAUTION: DO NOT USE AN EXTENSION BAR OR OTHER TOOLS TO MOVE THE UNLOCK LEVER. IF YOU USE AN EXTENSION BAR OR OTHER TOOLS, DAMAGE TO THE UNLOCK LEVER OR ACTUATOR CAN OCCUR.

- Confirm both left and right translating sleeves do not move aft more than approximately one sixteenth of an inch.
- Open fan cowl panels per AMM 71-11-04/201.
 - Open aft fairing access door.
 - Obtain isolation valve deactivation pin B78001-3 (part of B78001-2 Dispatch Kit) from the nacelle stowage location or the fly-away equipment stowage container in the forward cargo compartment.
 - Install deactivation pin in the manual lockout hole on the thrust reverser isolation valve and install cotter pin or lockwire.
 - Depress the bypass valve handle on the thrust reverser isolation valve and install a streamered deactivation pin (0.125 inch diameter X 1.1 inch, part of B78001-1 lock assembly).



NOTE: The streamer pins and the hitch pins are found in the deactivation pin container on the forward surface of the isolation valve (if installed).

7. For each reverser sleeve:

- A. If the sleeve is extended, turn manual drive with 3/8 inch square drive to retract per AMM 78-31-00/201. Manual cranking of the sleeve will return sleeve to within approximately 0.75 inch of the stowed position.

NOTE: The manual drive has an override clutch which limits the amount of torque that can be applied. Due to seal forces, the clutch will ratchet before the sleeve is fully retracted and locking is complete.

- B. Remove the two thrust reverser sleeve plugs. Loosen the primary deactivation eyebolt nut until the eyebolt can be aligned with the hole in the thrust reverser sleeve.
- C. Remove the two deactivation pins from the stowage position below the center hydraulic actuator. Install the sleeve plugs in the deactivation pin stowage position.
- D. If airplane is equipped with thrust reverser sync-locks perform the following to unlock the sync-locks.

1) Confirm the following circuit breakers are closed:

- a. AIR/GND SYS 1
- b. AIR/GND SYS 2
- c. LANDING GEAR POS SYS 1
- d. LANDING GEAR POS SYS 2
- e. L T/R SYNC-LOCK or R T/R SYNC-LOCK

- E. Supply electrical power (Ref AMM 24-22-00).
- F. Raise the left (right) reverse thrust lever to the deploy position.
- G. Install primary deactivation pin through the thrust reverser sleeve into the primary deactivation eyebolt.
- H. Tighten the primary deactivation eyebolt nut to retract the thrust reverser sleeve until the secondary deactivation pin can be installed through the the thrust reverser sleeve into the torque box structure.

NOTE: On airplanes equipped with sync-locks, if the sync-locks cannot be electrically unlocked, it will be necessary to unlock the sync-lock manually by engaging the manual drive and rotating the manual drive in the stow direction while at the same time tightening the primary deactivation eyebolt nut.



CAUTION: **CONFIRM THE MANUAL DRIVE IS FULLY ENGAGED WITH THE SYNC- LOCK DRIVE SHAFT BEFORE ROTATION AND THAT IT STAYS FULLY ENGAGED DURING THE FULL ROTATION. IF THE MANUAL DRIVE IS NOT FULLY ENGAGED, DAMAGE TO THE SYNC-LOCK CAN OCCUR.**

- I. Confirm the locking feature on the deactivation pins and/or captive nuts as follows:
 - 1) Fully engage the deactivation pin in the thrust reverser captive nut.
 - 2) Measure the "breakaway" torque value as the the deactivation pin is rotated in the remove direction until the locking feature on the pin and/or nut is disengaged.

NOTE: There should be no axial load on the captive nut when the torque is measured.
 - 3) Confirm the deactivation pin and/or captive nut have a minimum breakaway torque of 18 inch-pounds.
 - 4) If the deactivation pin and captive nut combination include a breakaway torque of less than 18 inch-pounds, replace the deactivation pin and/or captive nut as necessary.
- J. Tighten both deactivation pins to 120 to 150 pound-inches.
- 8. On airplanes equipped with sync-locks, move the left (right) reverse thrust lever to the stow position.
- 9. Remove the streamered pin from the bypass valve handle on the thrust reverser isolation valve allowing the valve to return to its normally closed position.
- 10. Close aft fairing access door.
- 11. Close fan cowl panels per AMM 71-11-04/201.
- 12. Open and collar the appropriate P6 panel SYNC-LOCK circuit breakers:
 - A. For the left engine, L ENG SYNC-LOCK CONTROL [L T/R SYNC-LOCK]
 - B. For the right engine, R ENG SYNC-LOCK CONTROL [R T/R SYNC-LOCK]
- 13. Verify thrust control operates normally:
 - A. Prior to engine start, set the EEC POWER switch on the EEC Maintenance Panel (P61) to the ALTN position.
 - B. Advance thrust levers to the full forward position.
 - C. Confirm the Thrust Lever Resolver (TLR) measurements on the EICAS EPCS page read between 80.5 and 83 degrees.
 - D. Move the thrust levers to the idle position.
 - E. Confirm the TLR measurements on the EICAS EPCS page read 38+/- 0.2 degrees.



- F. Confirm the RVA measurement on the EICAS EPCS page reads 0 +/- 2.0 for the PRI and SEC channels of both EECs.
- G. Set the EEC POWER switch to the NORM position.

OPERATIONS (O)

For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.


78-34-01 REV ISLN Valve Light

Interval	Installed	Required	Procedure
C	1	0	(M) (O)

May be inoperative provided reverser isolation valves and reverser unlock indications operate normally.

MAINTENANCE (M)

Confirm the fault is with the REV ISLN light.

1. For REV ISLN light failed to illuminate:
 - A. Open one of the following P11 panel circuit breakers:
 - 1) LEFT ENGINE T/R IND
 - 2) RIGHT ENGINE T/R IND
 - B. Confirm the REV ISLN VAL (or associated L or R REV ISLN VAL) advisory message appears.
 - C. For advisory message displayed but light not illuminated, placard the light INOP.
 - D. Close the open circuit breaker.
2. For REV ISLN light on:
 - A. For REV ISLN VAL (L or R REV ISLN VAL) advisory message displayed, dispatch the airplane using MMEL Item 78-31-01.
 NOTE: On airplanes that display the REV ISLN VAL advisory message, access the maintenance page to determine which thrust reverser is causing the fault.
 - B. For REV ISLN VAL (L or R REV ISLN VAL) advisory message not displayed:
 - 1) Open the following P11 panel circuit breakers:
 - a. LEFT ENGINE T/R IND
 - b. RIGHT ENGINE T/R IND
 - 2) Confirm the REV ISLN VAL (L and R REV ISLN VAL) advisory message is displayed.
 NOTE: On airplanes that display the REV ISLN VAL advisory message, access the maintenance page to confirm both L and R REV ISLN VAL messages appear.
 - 3) For both messages displayed, placard the REV ISLN light INOP.
 - 4) For both messages not displayed, dispatch the airplane using MEL Item 78-31-1 to defer the thrust reverser for which the message did not appear.
 - 5) Close the open circuit breakers.

**OPERATIONS (O)**

1. In flight, assume reversers may be armed.
2. A subsequent system failure could render a reverser inoperative.

**78-34-02 Thrust Lever Interlock Actuator (PW)**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided actuator is disconnected.

MAINTENANCE (M)

Disconnect the affected thrust lever interlock actuator.

1. Confirm the forward thrust lever is in the idle position and the reverse thrust lever is fully forward.
2. Open and collar the associated P6 panel L INTERLOCK T/L or R INTERLOCK T/L circuit breaker.
3. Open the associated P11 panel T/R CONT/SCAV PRESS-L or T/R CONT/SCAV PRESS-R circuit breaker.
4. Gain access to the thrust lever interlock actuator (AMM 78-34-03/401).
5. Disconnect, cap and stow the associated electrical connector.
6. Disconnect the actuator by removing the bolts attaching the actuator rod end to the autothrottle quadrant. Secure the actuator rod to the autothrottle drive assembly sideframe.
7. Operate the associated forward and reverse thrust levers and confirm adequate clearance exists between the disconnected actuator and the thrust lever linkage through the full range of motion.
8. Close the associated P11 panel T/R CONT/SCAV PRESS-L or T/R CONT/SCAV PRESS-R circuit breaker.

OPERATIONS (O)

1. Use normal reversing procedures and techniques.
2. The Electronic Engine Control (EEC) will continue to limit thrust to idle whenever the associated thrust reverser is in transit, independent of thrust lever position.

**78-36-01 REV Unlock Indications**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided:

- No thrust reverser damage exists which would adversely affect airplane operation.
 - Thrust reverser for associated engine is deactivated and locked in stowed (forward thrust) position.
 - Appropriate performance adjustments are applied.
-

MAINTENANCE (M)

Verify no damage exists on the associated thrust reverser, and deactivate and secure it in the forward position.

- Visually confirm the thrust reverser has no visible damage and the thrust reverser sleeve is in alignment.
- Secure the thrust reverser in the forward thrust position using MEL Item 78-31-01 (M) procedure.

OPERATIONS (O)

For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.



78-36-02 Full REV Position Indications

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated reverser unlock indication operates normally.



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- 79-21-01 #4 Bearing Oil Seals (PW)**
- 79-21-02 #4 Bearing Scavenge Valve (PW)**
- 79-31-01 OIL QTY Indications**
- 79-34-02 ENG OIL TEMP Sensing Elements**



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**79-21-01 #4 Bearing Oil Seals (PW)**

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be leaking provided associated bearing scavenge valve operates normally.

MAINTENANCE NOTE

If the ENG OIL SEAL message appears sporadically it may be a nuisance message that can be deferred under MEL Item 31-61-04, "EICAS Status Messages."

OPERATIONS (O)

Verify the associated bearing scavenge valve operates normally:

1. Confirm the associated L(R) OIL SCAV OPEN Maintenance message is not displayed on the ECS/MSG EICAS Maintenance page.
2. Confirm the associated L(R) OIL SCAV VAL Status message is not displayed on the EICAS Status page.

**79-21-02 #4 Bearing Scavenge Valve (PW)**

Interval	Installed	Required	Procedure
A	2	1	(O)

One may be inoperative open provided:

- a. Associated oil seal is not leaking.
- b. Repairs are made within three flight days.

OPERATIONS (O)

Verify the #4 bearing scavenge valve is open and the associated oil seal is not leaking.

1. Confirm the associated L(R) ENG OIL SEAL message is not displayed.
2. Confirm the associated L(R) OIL SCAV VAL message is not displayed.
3. Run the associated engine at idle power setting.
4. Confirm the SCAV pressure reading on the EICAS PERF/APU page is less than 3 psi.



79-31-01 OIL QTY Indications

Interval	Installed	Required	Procedure
B	2	1	(M)

One may be inoperative provided:

- a. Oil tank is filled to recommended capacity before each departure.
- b. There is no evidence of above normal oil consumption or leakage.
- c. Associated ENG OIL PRESS and OIL TEMP indications operate normally.
- d. Associated low ENG OIL PRESS light operates normally.

MAINTENANCE (M)

Verify the oil tank is filled to the recommended level before each departure, and confirm there is no evidence of above normal oil consumption or leakage.

- 1. Before each departure, confirm the associated engine oil tank is filled to the recommended level (AMM 12-13-01/301).
- 2. Examine the engine exterior, including the fan stream area, and confirm there is no evidence of oil leakage.
- 3. Confirm the associated engine oil consumption is within limits.



79-34-02 ENG OIL TEMP Sensing Elements

Interval	Installed	Required	Procedure
C	4	2	(O)

One sensing element on each engine may be inoperative provided both engine oil temperature indications are available from one EICAS computer.

OPERATIONS (O)

Set the EICAS COMPUTER selector to AUTO, L, or R as necessary to display both engine oil temperatures at the same time.



80-00-01 Engine Start VALVE Lights

80-00-02 Engine Start Valves

80-11-02 Starter Switch Holding/Cutout Systems



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**80-00-01 Engine Start VALVE Lights**

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative provided associated valve is verified closed after engine start.

OPERATIONS (O)

Verify the associated valve is closed after engine start.

1. Start the associated engine first, using pneumatic duct pressure indication to confirm the start valve has closed. Use normal engine start procedures except:
 - A. Set the associated engine bleed air switch to OFF.
 - B. When the ENG START selector is moved to GND, observe a drop in duct pressure, followed by a partial recovery.
 - C. After the engine reaches 53% N2:
 - 1) Confirm the ENG START selector returns to AUTO.
 - 2) Confirm duct pressure returns to its original level.
 - D. Set the associated engine bleed air switch to ON.
2. For duct pressure that does not return to the prestart level (also indicated by a L(R) STARTER CUTOUT message):
 - A. The associated valve is not verified closed after engine start.
 - B. Do the STARTER CUTOUT Non-Normal Checklist. Assume the VALVE light stays illuminated.
 - C. Shut down the associated engine.

**80-00-02 Engine Start Valves**

Interval	Installed	Required	Procedure
C	2	1	(M) (O)

One may be inoperative provided:

- Associated start VALVE light operates normally.
 - Manual override start procedures are used.
-

MAINTENANCE (M)

Start the associated engine by manual override of the starter control valve (AMM 71-00-00/201).

- Gain access to the starter control valve.
- Establish communication with the flight crew.
- Insert a 3/8-inch square drive 18-inch extension through the access port in the right fan cowl and engage the drive into the valve override internal receptacle.
- Upon command from the flight crew, turn the drive extension to open the starter control valve.
- Upon command from the flight crew, turn the drive extension to close the starter control valve.

OPERATIONS (O)

- Use normal engine start procedures except:
 - Announce "OPEN START VALVE." Set the associated engine start selector to GND.
 - At 51% N2 announce "CLOSE START VALVE." Confirm the engine start selector returns to AUTO, and the start VALVE light momentarily illuminates, then extinguishes.
- For inflight start of the associated engine, use a windmilling start.



80-11-02 Starter Switch Holding/Cutout Systems

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided:

- a. For RR, associated engine start valve operates normally.
- b. For RR, associated Engine Limiter Control (ELC) system operates normally.
- c. Alternate procedures are established and used.

OPERATIONS (O)

Start the associated engine using normal engine start procedures with the flight crew manually operating the engine start selector.

- 1. Set the engine start selector to GND and hold if required.
- 2. Set the engine start selector to AUTO at 51-52% N2.
- 3. Confirm the start VALVE light momentarily illuminates, then extinguishes.



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Introduction

General Notes

Limitations

Weight Reductions

Enroute Diversion Speed Effects

Enroute Fuel Mileage Effects

ATA 21 - Air Conditioning

ATA 23 - Communications

ATA 27 - Flight Controls

ATA 28 - Fuel

ATA 32 - Landing Gear

ATA 33 - Lights

ATA 52 - Doors

ATA 53 - Fuselage

ATA 55 - Empennage

ATA 57 - Wings

ATA 71 - Power Plant

ATA 78 - Exhaust

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General Notes

This section contains locations, illustrations and performance information for all of the CDL items from the 757 Airplane Flight Manual (AFM) Appendix Configuration Deviation List (CDL).

Limitations

The associated limitations must be listed on a placard affixed in the cockpit in clear view of the pilot-in-command and other appropriate crew members.

Operation with those missing parts requiring a reduction of VMO/MMO is permitted only when the airplane has the maximum airspeed limit indication and the Mach airspeed warning system programmed for the altitude/speed schedule specified for the applicable missing part.

The pilot-in-command will be notified of each operation with a missing or damaged part by listing the missing or damaged parts in the flight or dispatch release.

The operator will list in the aircraft logbook an appropriate notation covering the missing or damaged parts on each flight.

If an additional part is lost in flight the airplane may not depart the airport at which it landed following this event until it again complies with CDL limitations. This does not preclude the issuance of a ferry permit to allow the airplane to be flown to a point where the necessary repairs or replacements can be made.

No more than one part for any one sub-system may be missing unless specifically designated combinations are indicated in the CDL. Unless otherwise specified, parts from different sub-systems may be missing.

Weight Reductions

The performance penalties are cumulative unless specifically designated penalties for combination of missing parts are indicated. Where performance penalties are listed as negligible, no more than three negligible items may be missing or damaged without taking further penalty. For each missing or damaged item more than three, reduce the takeoff, landing and enroute climb limits by 100 pounds (46 kilograms). Where performance penalties are listed as no penalty, any accumulative number of items listed as no penalty may be missing without further penalty.



Enroute Diversion Speed Effects

The enroute climb weight penalties listed are based on operating speeds that approximate the maximum lift-to-drag ratio speed. To account for the difference in level off altitude when operating at other speeds, multiply the enroute climb weight penalty listed by the following appropriate factor:

Diversion Speed	Factor
LRC	1.9
290 KIAS	2.8
310 KIAS	3.1
330 KIAS	3.9
340 KIAS	4.9

Enroute Fuel Mileage Effects

The drag effects of many 757 CDL items are so small that the changes in flight planning fuel are negligible. For items that have enroute climb weight penalties listed, an increase in flight planning fuel of 0.7% per 1,000 lb (454 kg) of enroute climb weight penalty (non-factored penalty) may be used to account for the drag increase.



21-32-01 Cabin Pressure Safety Relief Valve Flapper Door



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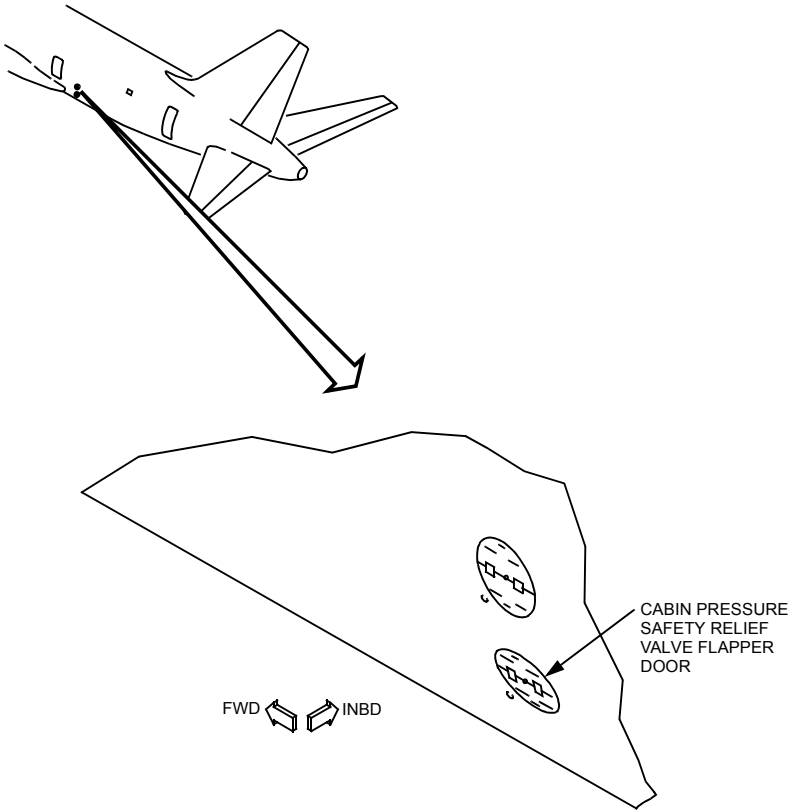


21-32-01 Cabin Pressure Safety Relief Valve Flapper Door

Any number or combination may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2 Pairs	Negligible penalty	Negligible penalty





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23-41-01 Interphone Access Panel (Wing-to-Body Fairing)

23-61-01 Static Discharger (Trailing Edge and Tip Type)



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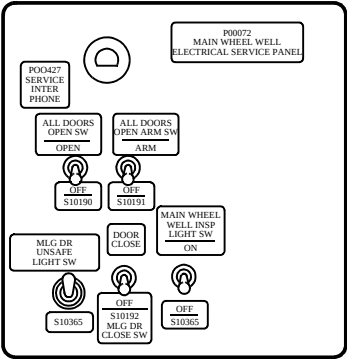
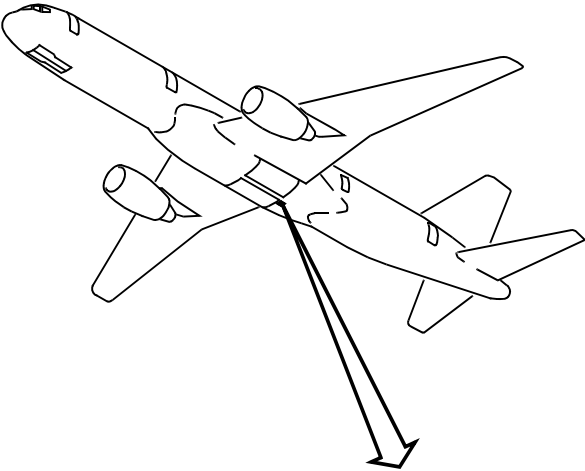


23-41-01 Interphone Access Panel (Wing-to-Body Fairing)

One or both may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty



(PANEL SHOWN REMOVED)

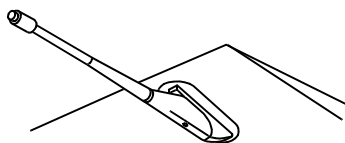
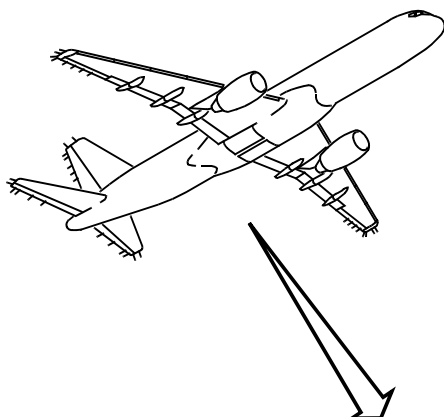
**23-61-01****Static Discharger (Trailing Edge and Tip Type)**

1. A minimum of seventeen dischargers are required when operations are dependent on ADF capability. Trailing edge or tip type dischargers must be installed in three of the five most-outboard positions on each horizontal stabilizer/elevator assembly, vertical stabilizer/rudder assembly, and in four of the five most-outboard positions on each wing.
2. Static dischargers are not required when operations are not dependent upon ADF capability.

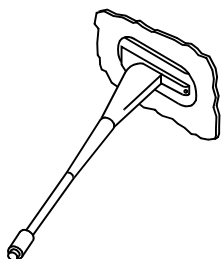
Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

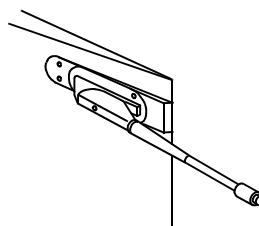
31	No penalty	No penalty



EXAMPLE TRAILING EDGE
SURFACE INSTALLATION



EXAMPLE STABILIZER TIP, WING TIP
AND FIN CAP INSTALLATION



EXAMPLE TRAILING EDGE SURFACE
INSTALLATION WITH ADAPTER ASSEMBLY



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- 27-21-01 Rudder-to-Body Edge Seal**
- 27-50-01 Inboard Trailing Edge Flap Seal Plate (Elephant Ear)**
- 27-51-01 Flap Track Fairing**
- 27-51-02 Flap Track Fairing Seals**



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27-21-01 Rudder-to-Body Edge Seal

May be missing.

Performance limited weights are reduced by the following:

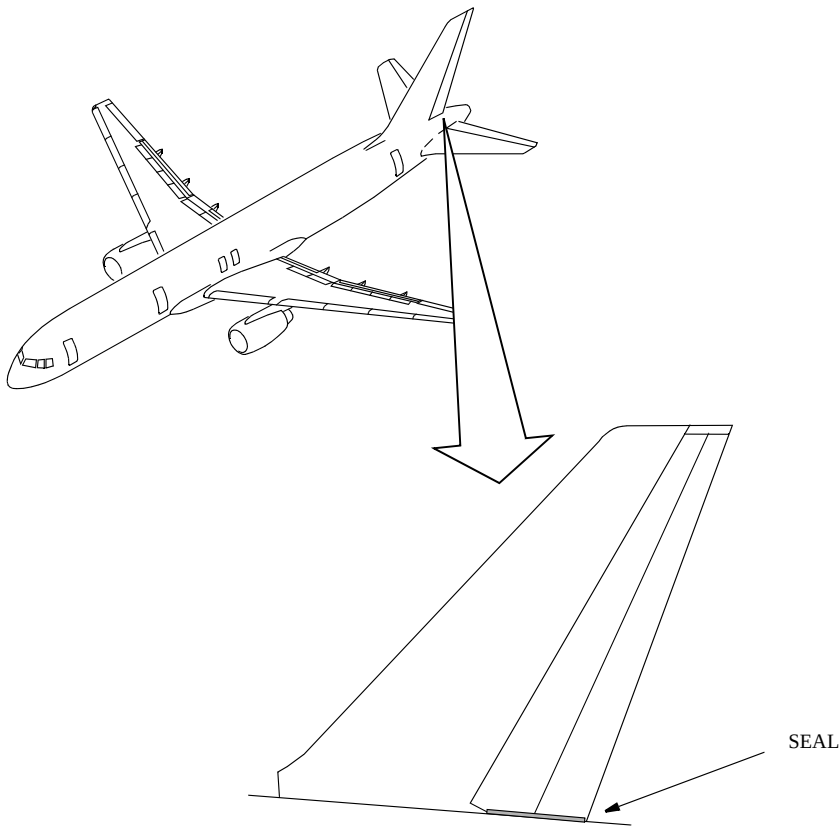
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

1	372 lb	552 lb

For -200:

1	169 kg	250 kg



**27-50-01 Inboard Trailing Edge Flap Seal Plate (Elephant Ear)**

Both may be missing.

Performance limited weights are reduced by the following:

Normal Operation		
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2 (1 per side)	904 lb/side	615 lb/side

For -200:

2 (1 per side)	410 kg/side	279 kg/side

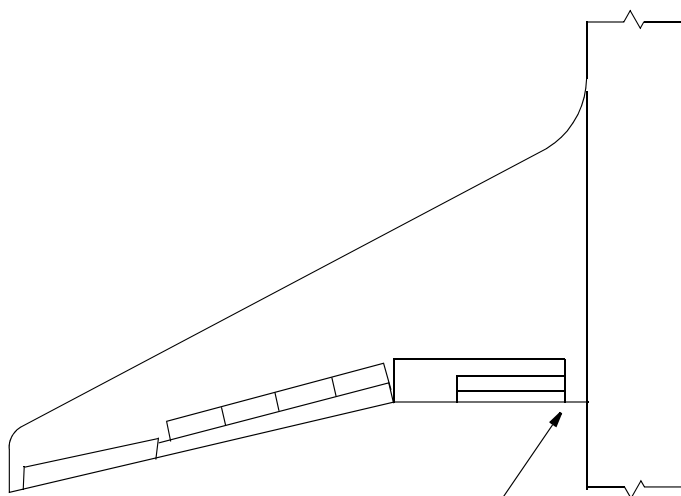
Gear Down Dispatch		
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2 (1 per side)	904 lb/side	1343 lb/side

For -200:

2 (1 per side)	410 kg/side	610 kg/side



INBOARD TRAILING EDGE FLAP SEAL PLATE

**27-51-01 Flap Track Fairing**

One may be missing per side.

NOTE 1: Only one flap track fairing or gear trunnion fairing (CDL Item 32-12-02) per side may be missing.

NOTE 2: If the front section is removed, then also remove the aft section. The aft section may be removed alone.

NOTE 3 Only one fairing may be missing on one wing. Deactivate the flap skew detection system by disconnecting and stowing the electrical connector to the sensor on the aft part of the flap track. Refer to MMEL Item 27-59-01 for dispatch requirements.

Performance limited weights are reduced by the following:

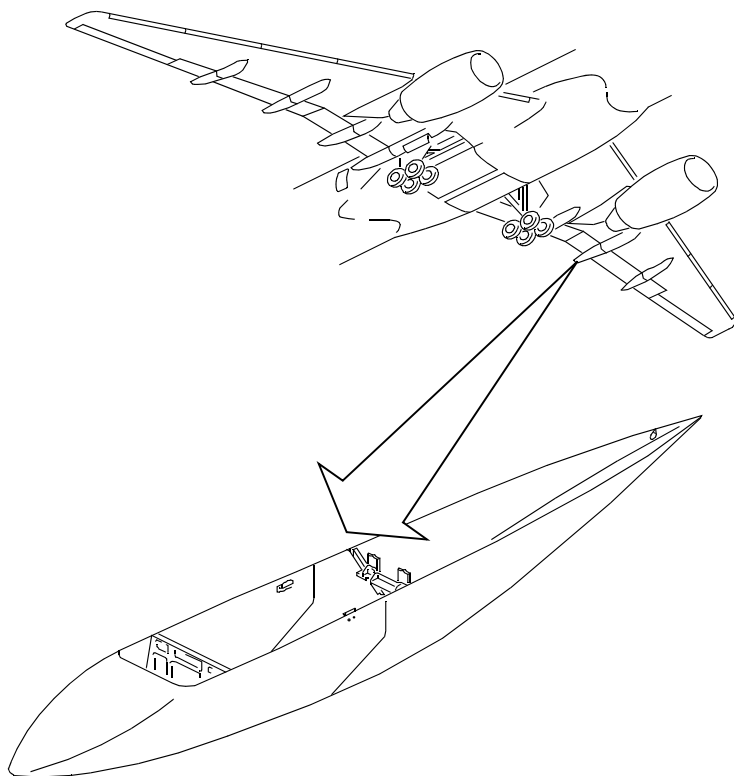
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

6	1620 lb/side	2407 lb/side

For -200:

6	735 kg/side	1092 kg/side



**27-51-02 Flap Track Fairing Seals**

One set may be missing per side.

NOTE: Only one set of flap track fairing seals or gear trunnion fairing seals (CDL Item 32-12-03) per side may be missing.

Performance limited weights are reduced by the following:

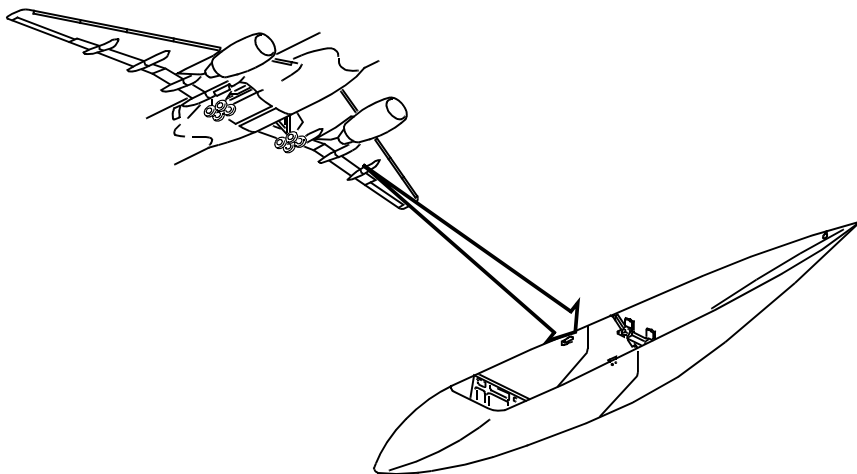
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

6 sets	920 lb/side	1370 lb/side

For -200:

6 sets	417 kg/side	621 kg/side





28-44-01 Fuel Quantity Measuring Stick



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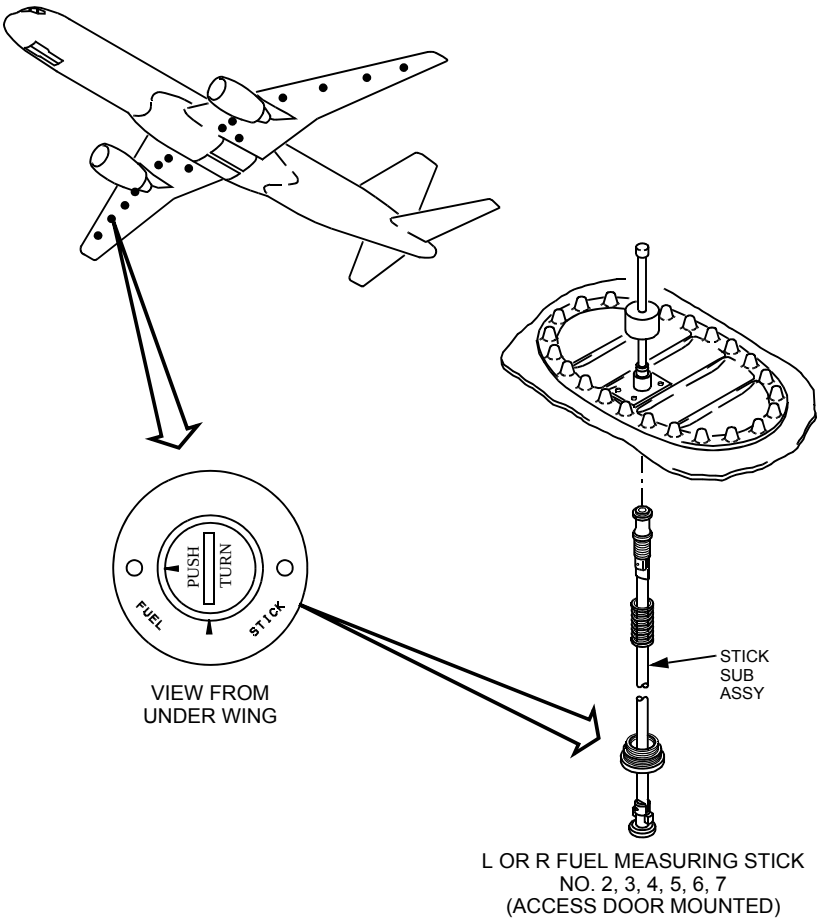
28-44-01 Fuel Quantity Measuring Stick

Any number or combination may be missing.

NOTE: Refer to MEL Item 28-44-01 for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
14	Negligible penalty	Negligible penalty





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- 32-11-01 Shield Installation (Main Landing Gear Truck)**
- 32-12-01 Main Landing Gear Strut Door**
- 32-12-02 Main Landing Gear Trunnion Fairing**
- 32-12-03 Main Landing Gear Trunnion Fairing Seals**
- 32-71-01 Tail Skid Door Seal**
- 32-71-02 Tail Skid Door, Including Seal**
- 32-72-01 Tail Strike Indicator Fin**



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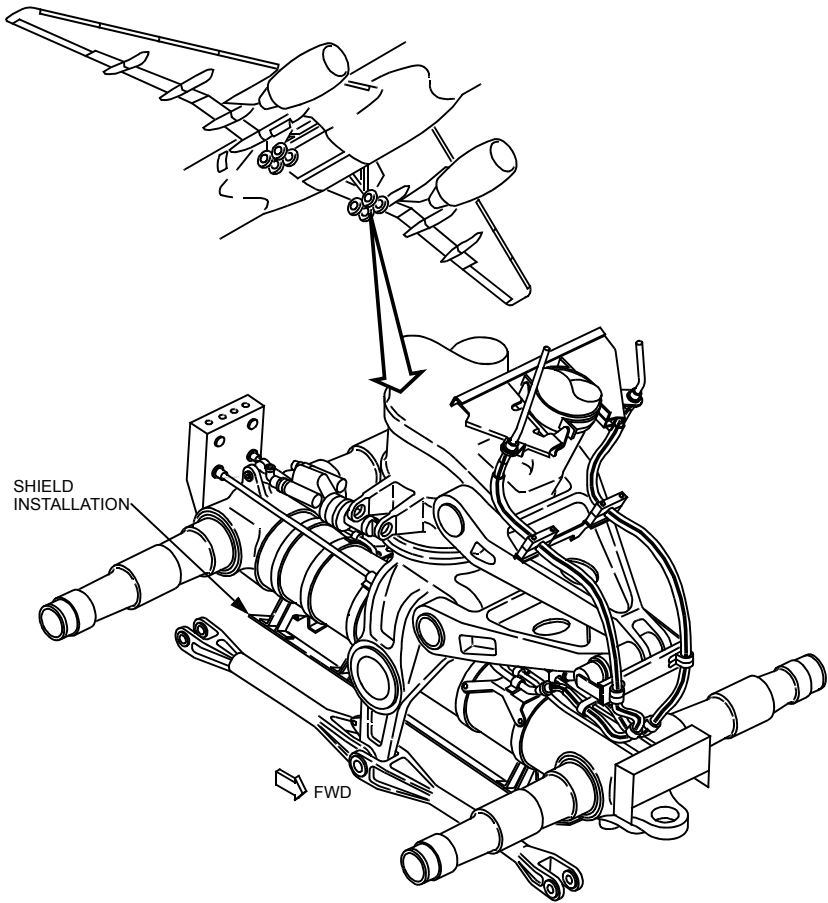
32-11-01 Shield Installation (Main Landing Gear Truck)

One or both may be missing.

NOTE: The shield should be replaced as soon as possible. Visually inspect the lower surface of the beam for surface damage before initial dispatch with the shield removed and before replacing the shield.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	No penalty	No penalty



32-12-01 Main Landing Gear Strut Door

One may be missing.

NOTE: The trunnion fairing door also must be removed.

Performance limited weights are reduced by the following:

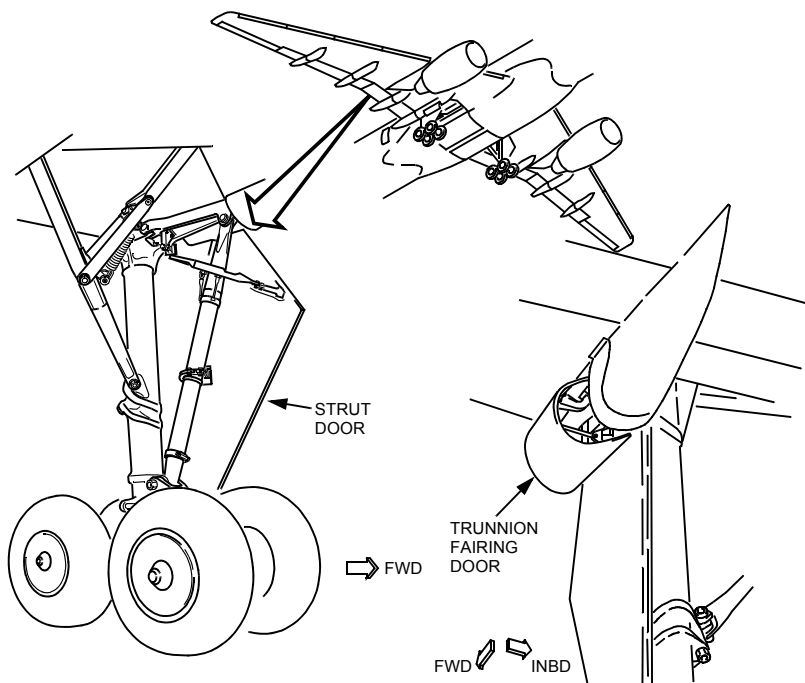
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2	1051 lb	1562 lb

For -200:

2	477 kg	709 kg



**32-12-02 Main Landing Gear Trunnion Fairing**

One or both may be missing.

NOTE 1: Only one gear trunnion fairing or flap track fairing (CDL Item 27-51-01) per side may be missing.

NOTE 2: If the front section is removed, then also remove the middle and aft sections. If the middle section is removed, then remove the aft section also. The aft section may be removed alone.

For each missing fairing, performance limited weights are reduced by the following:

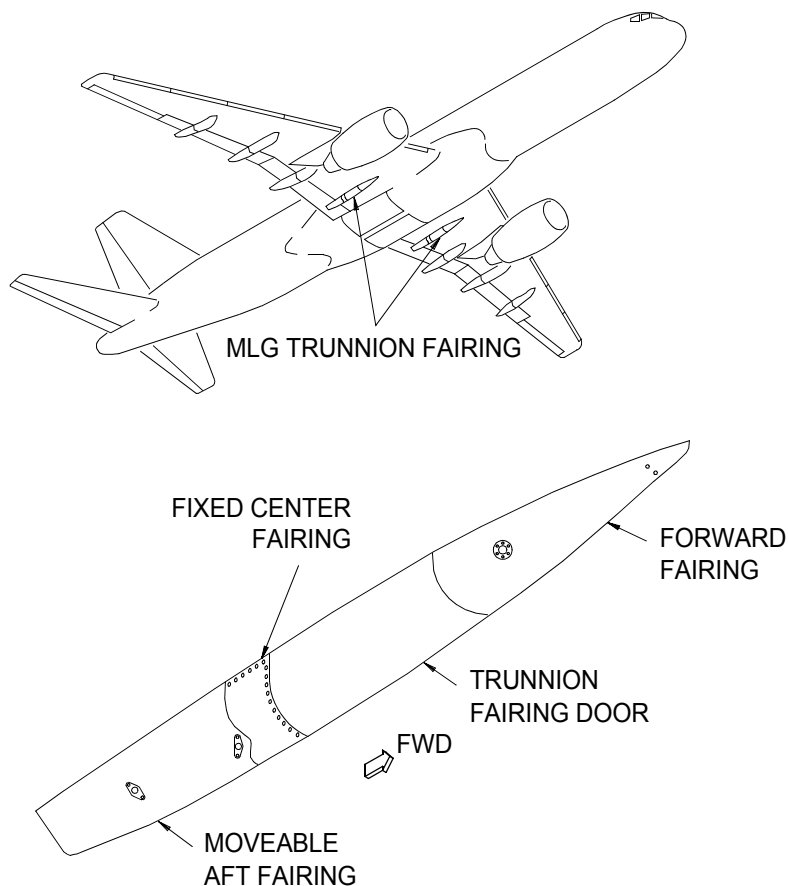
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2	1620 lb	2407 lb

For -200:

2	735 kg	1092 kg





32-12-03 Main Landing Gear Trunnion Fairing Seals

One or both sets may be missing.

NOTE: Only one set of gear trunnion fairing seals or flap track fairing seals (CDL Item 27-51-02) per side may be missing.

For each set of missing seals, performance limited weights are reduced by the following:

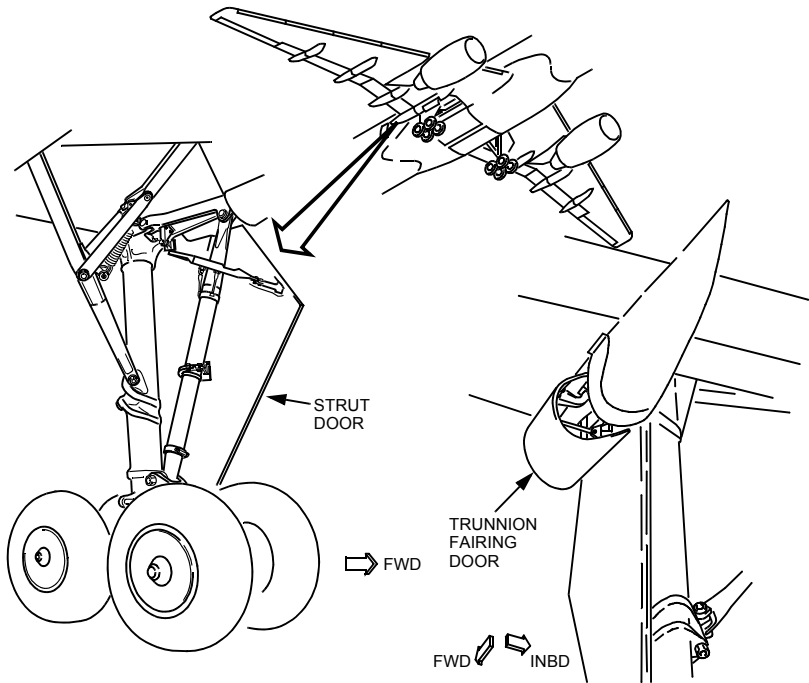
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2 Sets	920 lb	1370 lb

For -200:

2 Sets	417 kg	621 kg





32-71-01 Tail Skid Door Seal

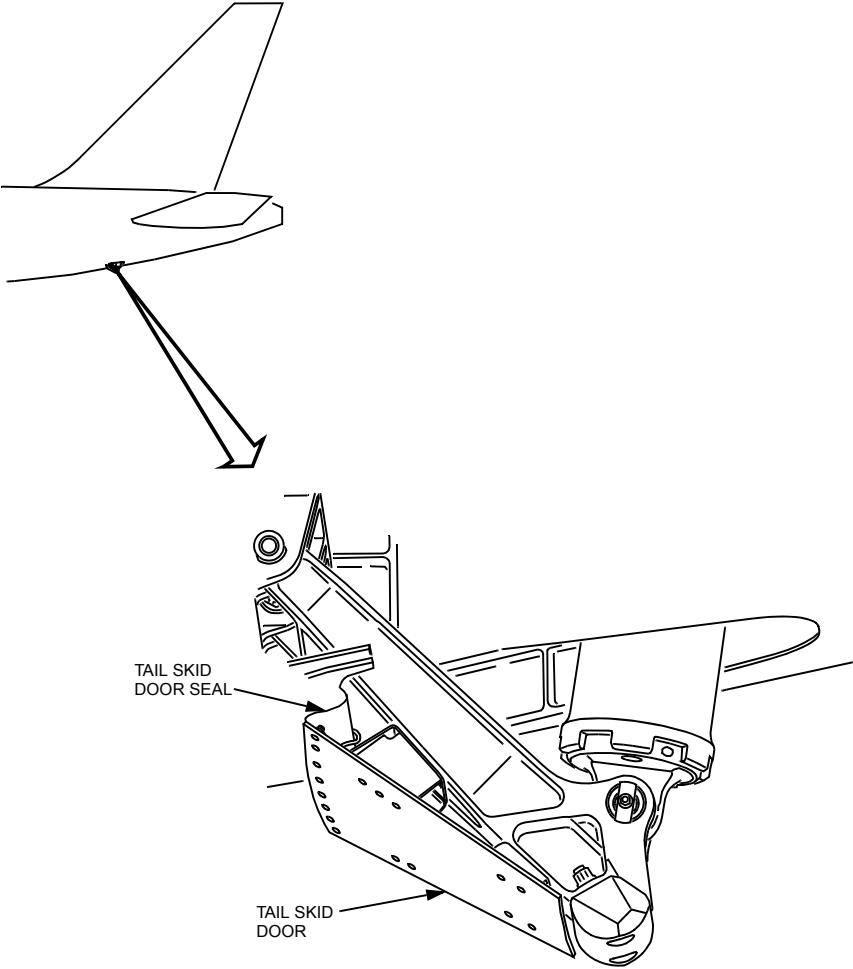
May be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -300:

1	Negligible penalty	Negligible penalty





32-71-02 Tail Skid Door, Including Seal

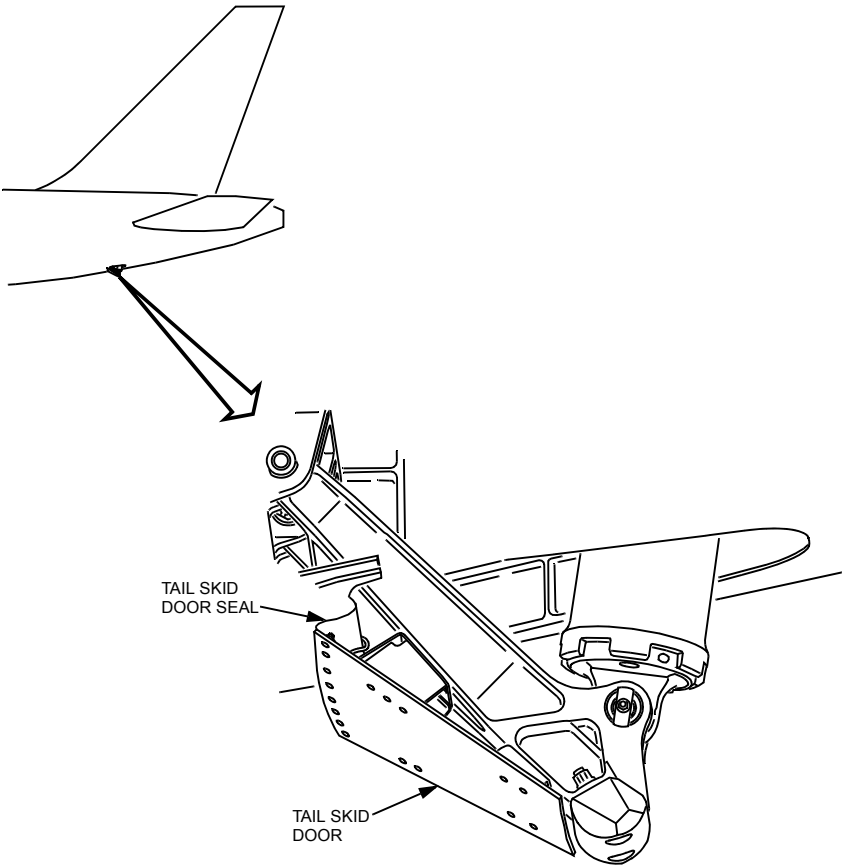
May be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -300:

1	Negligible penalty	Negligible penalty



32-72-01 Tail Strike Indicator Fin

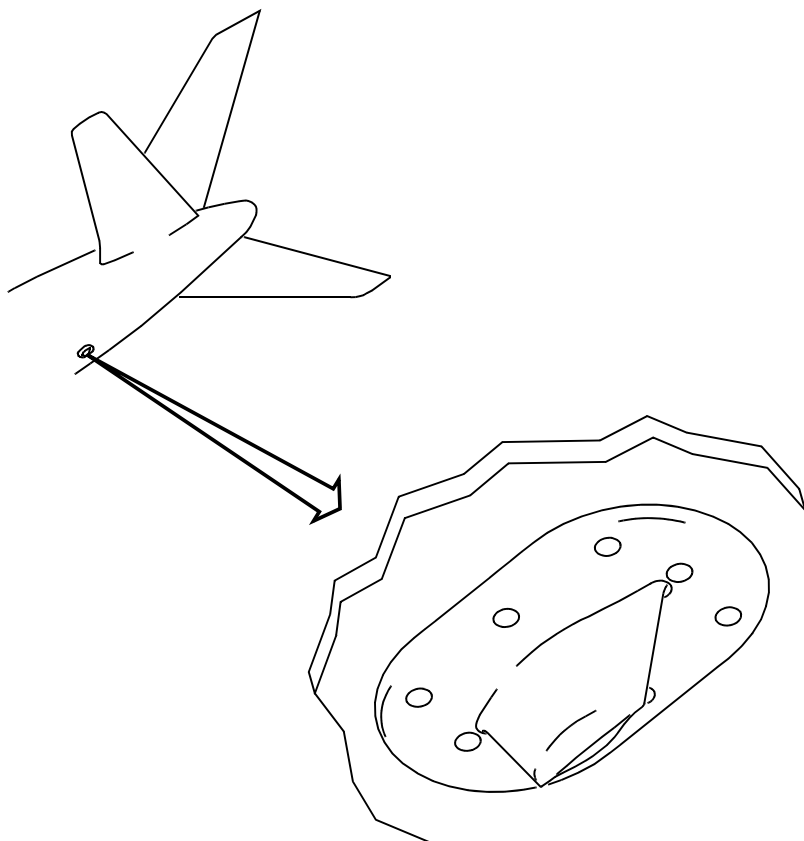
This item may be damaged or missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -300:

1	Negligible penalty	Negligible penalty





- 33-41-01 Wing Illumination Light Lens**
- 33-42-01 Runway Turnoff Light**
- 33-42-02 Nose Gear Landing Light**
- 33-42-03 Nose Gear Taxi Light (Double and Single Configuration)**
- 33-43-01 Wing Tip Position Light Lens (Forward)**
- 33-43-02 Wing Tip Position Light Lens (Rear)**
- 33-44-01 Lower Body Anti-Collision Light Lens**
- 33-44-02 Upper Body Anti-Collision Light Lens**
- 33-44-03 Wing Tip Anti-Collision Light Lens**
- 33-45-01 Logo Illumination Light Cover (Horizontal Stabilizer)**
- 33-51-01 External Emergency Escape Light Cover (Wing and Door Slide Configuration)**



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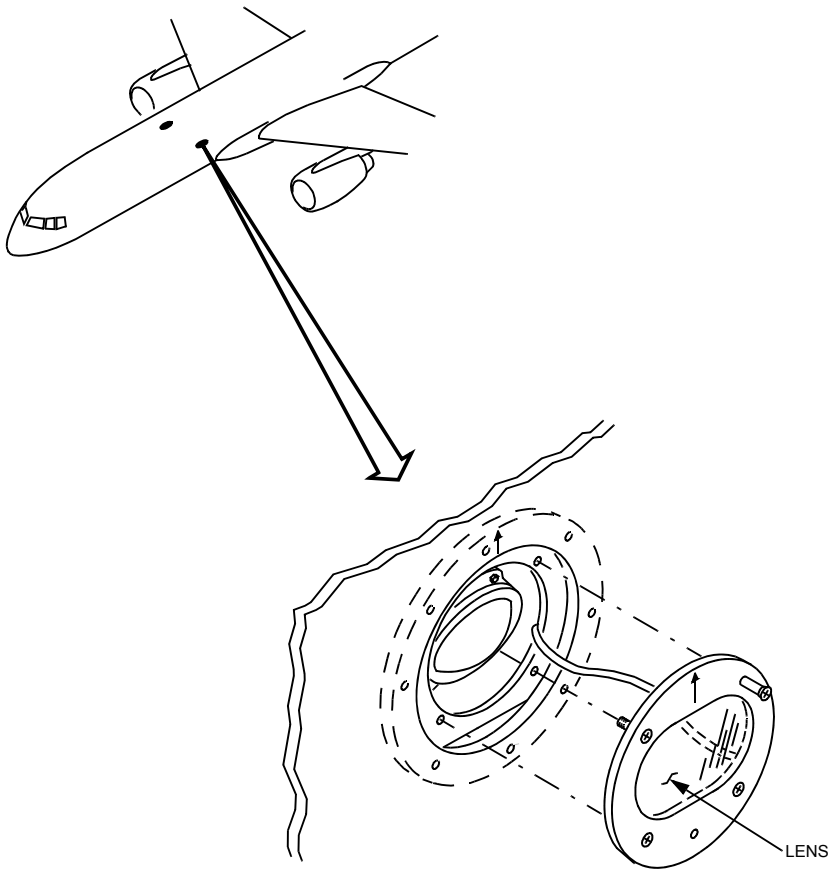
33-41-01 Wing Illumination Light Lens

One or both may be missing.

NOTE: Refer to MEL Item 33-41-01 for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty





33-42-01 Runway Turnoff Light

One or both may be missing.

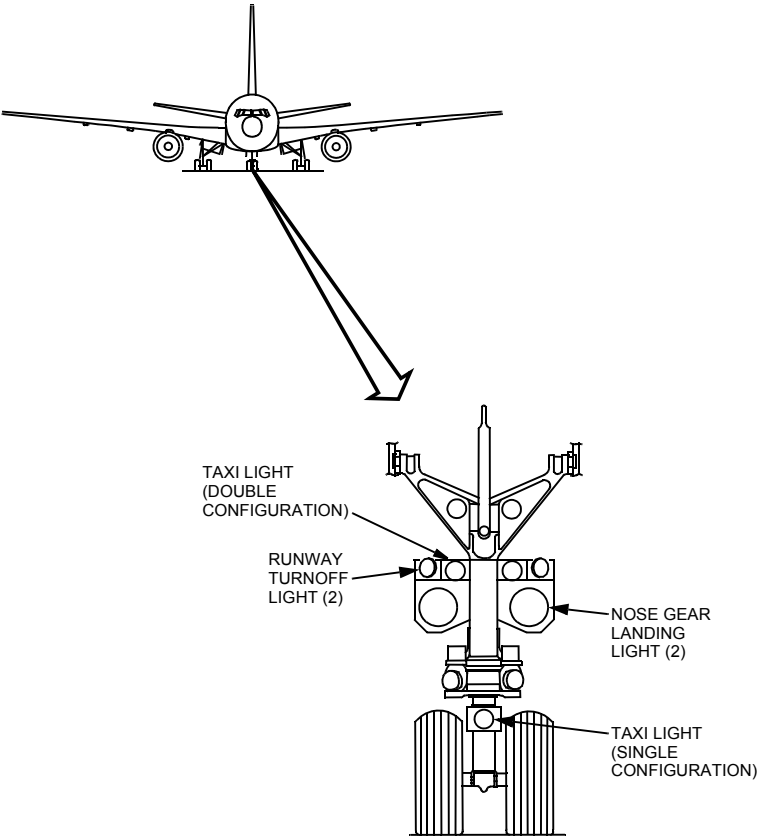
NOTE 1: Any combination of the authorized numbers of CDL Items 33-42-01, -02 and -03 may be missing.

NOTE 2: The light assemblies must remain intact. The light bulb(s) may be missing.

NOTE 3: Refer to MEL Item 33-42-03 for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	No penalty	No penalty





33-42-02 **Nose Gear Landing Light**

One may be missing.

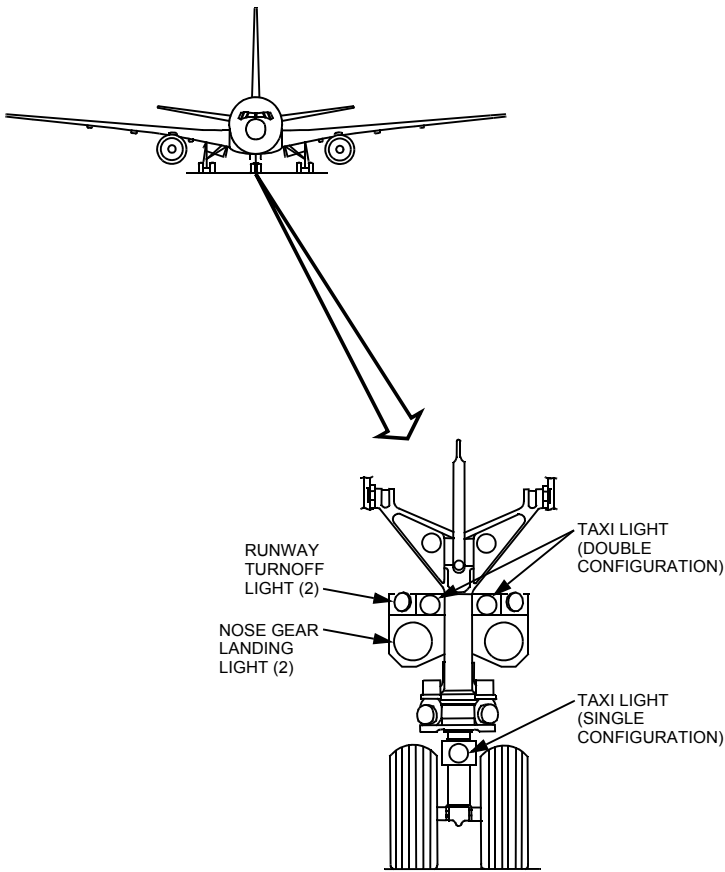
NOTE 1: Any combination of the authorized numbers of CDL Items 33-42-01, -02 and -03 may be missing.

NOTE 2: The light assemblies must remain intact. The light bulb(s) may be missing.

NOTE 3: Refer to MEL Item 33-42-01 for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	No penalty	No penalty



**33-42-03 Nose Gear Taxi Light (Double and Single Configuration)**

Any number or combination may be missing.

NOTE 1: Any combination of the authorized numbers of CDL Items 33-42-01, -02 and -03 may be missing.

NOTE 2: The light assemblies must remain intact. The light bulb(s) may be missing.

NOTE 3: Refer to MEL Item 33-42-02 for dispatch requirements.

Performance limited weights are reduced by the following:

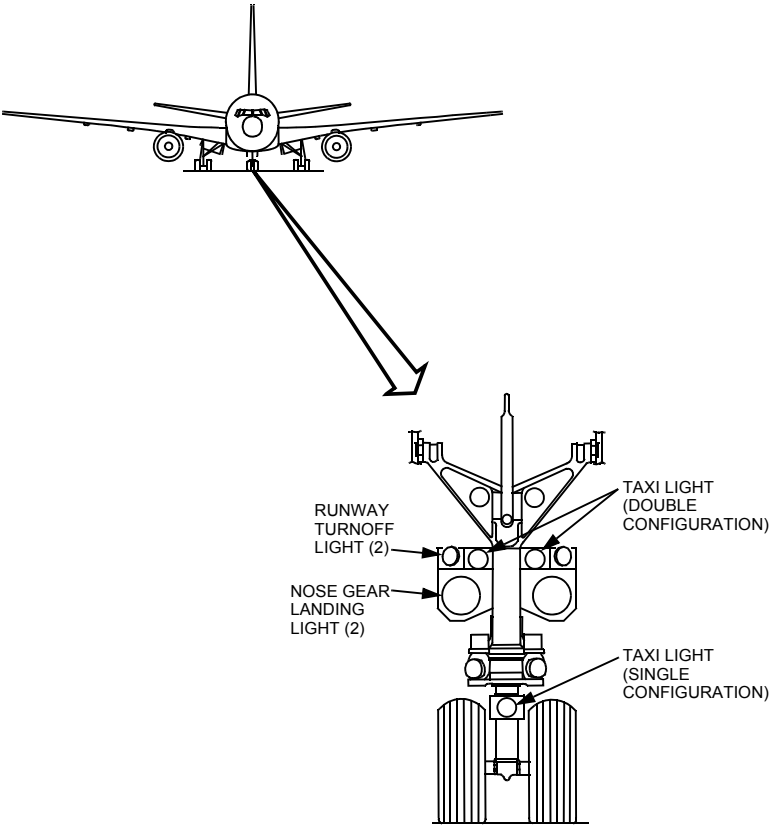
Number Installed	Takeoff & Landing	Enroute Climb

For Single Configuration:

1	No penalty	No penalty

For Double Configuration:

2	No penalty	No penalty



33-43-01 Wing Tip Position Light Lens (Forward)

One or both may be missing.

NOTE 1: Any combination of the authorized numbers of CDL Items 33-43-01 and -02 may be missing.

NOTE 2: Refer to MMEL Item 33-43-01 for dispatch requirements.

Performance limited weights are reduced by the following:

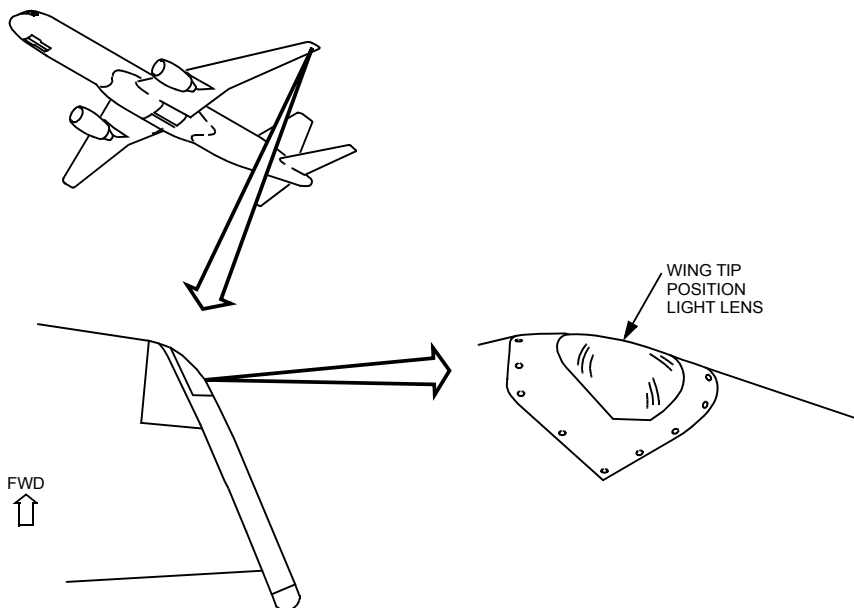
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2	320 lb/lens	476 lb/lens

For -200:

2	145 kg/lens	216 kg/lens





33-43-02 Wing Tip Position Light Lens (Rear)

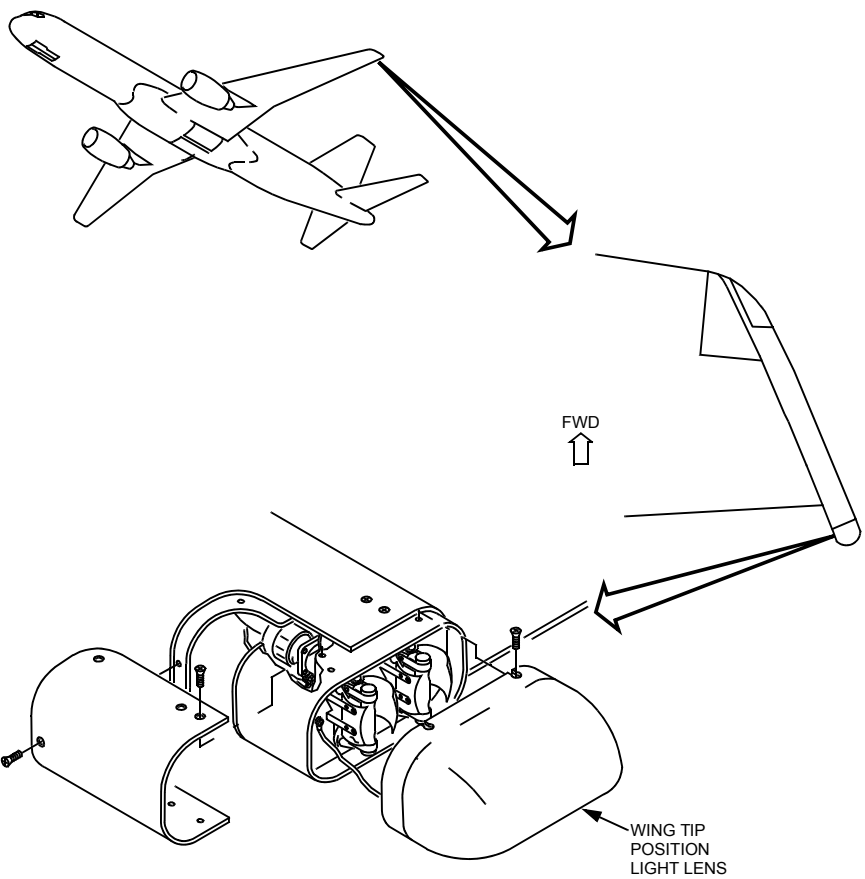
One or both may be missing.

NOTE 1: Any combination of the authorized numbers of CDL Items 33-43-01 and -02 may be missing at the same time.

NOTE 2: Refer to MEL Item 33-43-01 for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	No penalty	No penalty



33-44-01 Lower Body Anti-Collision Light Lens

May be missing.

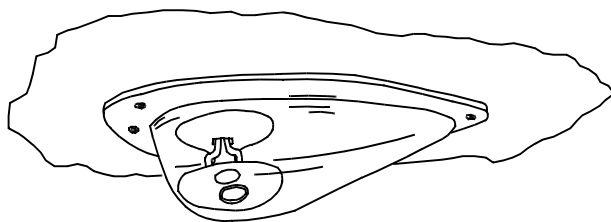
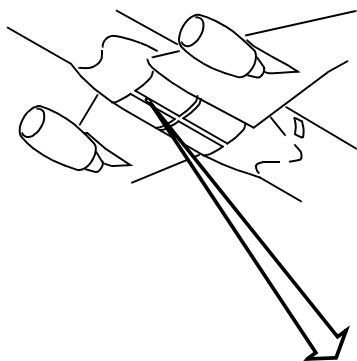
NOTE 1: Any combination of the authorized numbers of CDL Items 33-44-01, -02 and -03 may be missing.

NOTE 2: Refer to MEL Item 33-44-01 for dispatch requirements.

NOTE 3: When a lens is missing, disconnect, cap, and stow the electrical connector. Remove the light bulb, reflector, lens cover and lens cover support. With the rest of the light assembly intact, cover the opening with appropriate material (Speed Tape, for example).

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	No penalty	No penalty



LOWER ANTI-COLLISION LIGHT ASSEMBLY

33-44-02 Upper Body Anti-Collision Light Lens

May be missing.

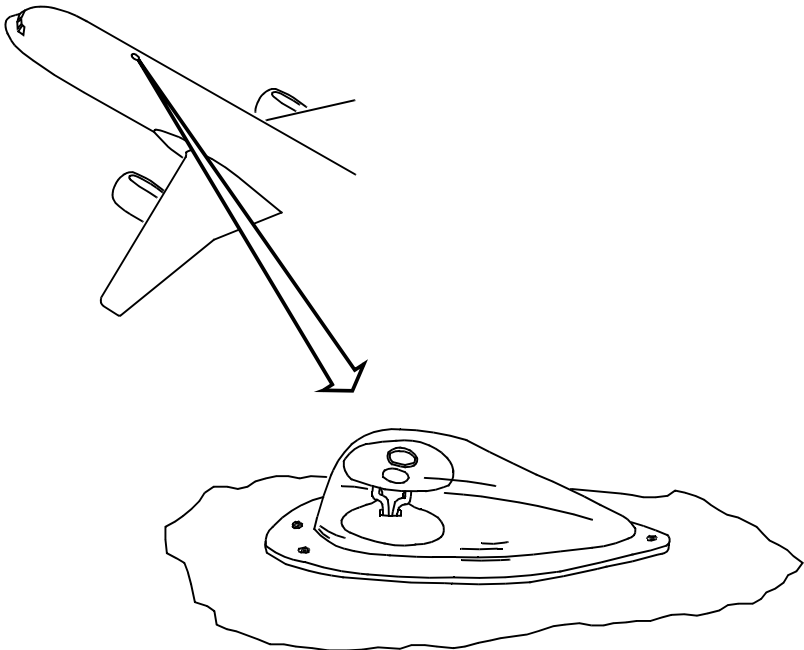
NOTE 1: Any combination of the authorized numbers of CDL Items 33-44-01, -02 and -03 may be missing.

NOTE 2: Refer to MEL Item 33-44-01 for dispatch requirements.

NOTE 3: When a lens is missing, disconnect, cap, and stow the electrical connector. Remove the light bulb, reflector, lens cover and lens cover support. With the rest of the light assembly intact, cover the opening with appropriate material (Speed Tape, for example).

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	No penalty	No penalty



UPPER ANTI-COLLISION LIGHT ASSEMBLY

33-44-03 Wing Tip Anti-Collision Light Lens

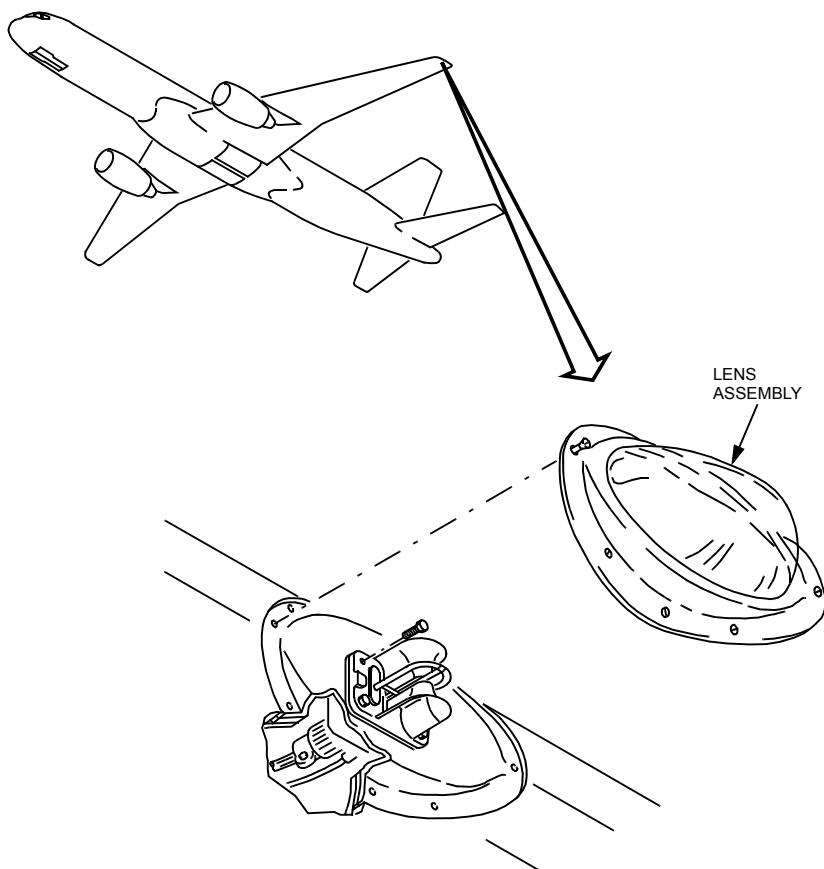
One or both may be missing.

NOTE 1: Any combination of the authorized numbers of CDL Items 33-44-01, -02 and -03 may be missing.

NOTE 2: Refer to MEL Item 33-44-01 for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	No penalty	No penalty





33-45-01 Logo Illumination Light Cover (Horizontal Stabilizer)

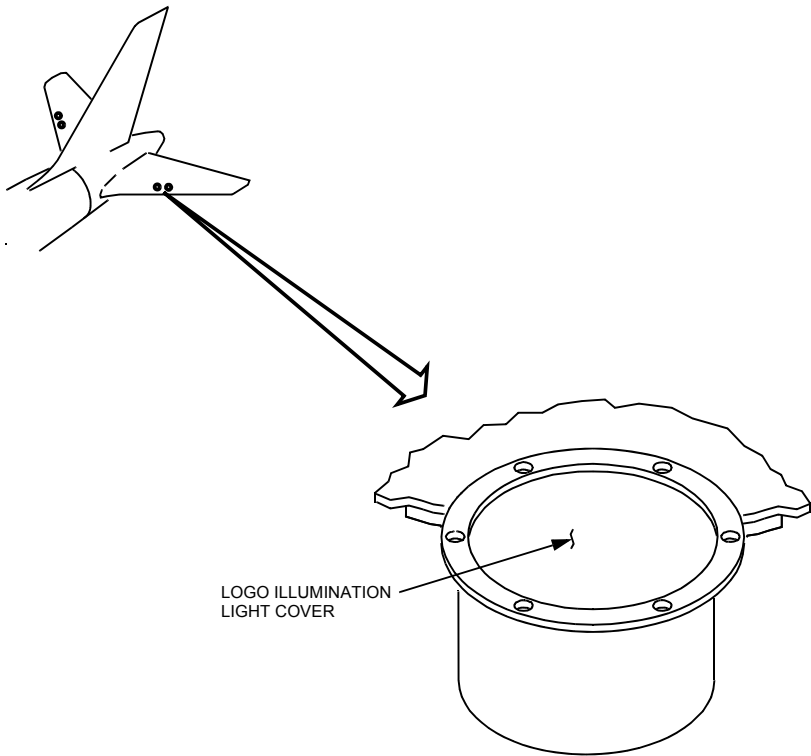
Any number or combination may be missing.

NOTE 1: If desired, openings created by missing light covers may be covered with "speed tape" (Permacel II or 3M425), then also pull and collar the logo light circuit breaker. Inspect the condition of the "speed tape" every other flight.

NOTE 2: Refer to MEL Item 33-45-01 for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
4	Negligible penalty	Negligible penalty



**33-51-01 External Emergency Escape Light Cover (Wing and Door Slide Configuration)**

Any number or combination may be missing.

NOTE 1: This item is for the external emergency light covers installed adjacent to emergency exits.

NOTE 2: Refer to MEL Item 33-51-02 for dispatch requirements.

Performance limited weights are reduced by the following:

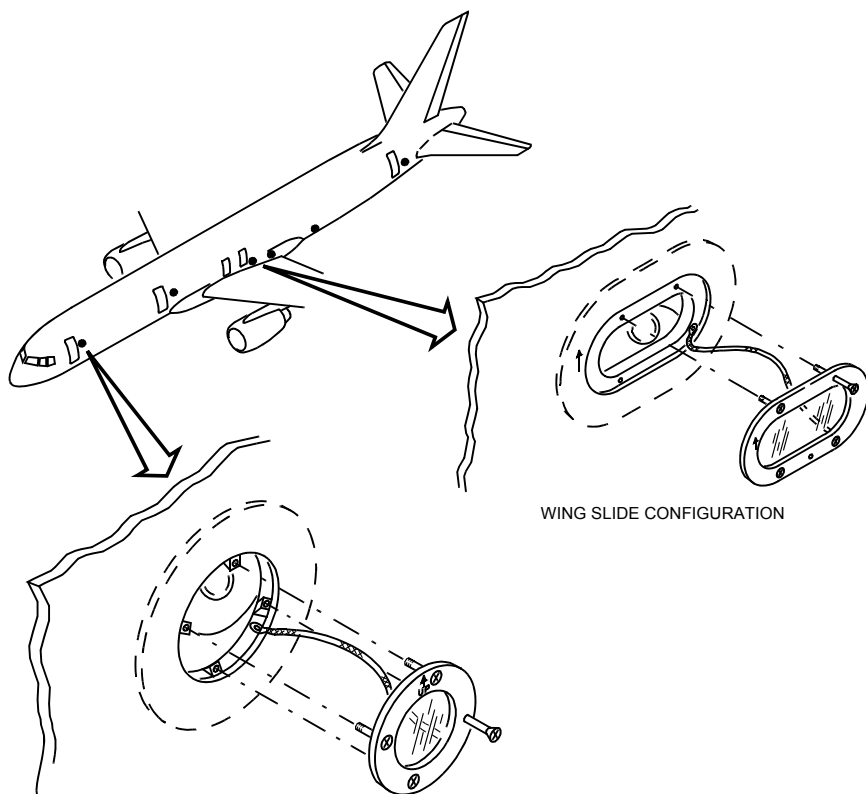
Number Installed	Takeoff & Landing	Enroute Climb

For Wing Slide Configuration:

12	Negligible penalty	Negligible penalty

For Door Slide Configuration:

8	Negligible penalty	Negligible penalty



WING SLIDE CONFIGURATION

DOOR SLIDE CONFIGURATION

EXTERNAL EMERGENCY ESCAPE LIGHT COVER



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- 52-11-01 Entry and Service Door Hinge Covers**
- 52-11-02 Entry and Service Door Exterior Handle Covers**
- 52-48-01 Air Conditioning Access Panel (Pneumatic Ground Service Connector Door)**
- 52-48-02 Waste Disposal Access Panel (Forward Lavatory Service Access Panel)**
- 52-48-03 Toilet Drain Access Panel (Mid Lavatory Service Access Panel)**
- 52-48-04 Toilet Drain Access Panel (Aft Lavatory Service Access Panel)**
- 52-48-05 Air Conditioning Inlet Access Panel (Ram Air Actuator Access Panel)**
- 52-48-06 Water Drain Mast Access Panel (Forward)**
- 52-48-07 Ground Service Door (Air Conditioning Ground Connection Door)**
- 52-48-08 Water Service Door (Forward and Aft Potable Water Access Panels)**
- 52-49-01 Fuel Drain Access Panel (Lower Mid Wing Fairing)**
- 52-49-02 Auxiliary External Electrical Power Access Panel**
- 52-49-03 Forward Cargo Door Switch Access Panel**
- 52-49-04 Aft Cargo Door Switch Access Panel**
- 52-49-05 Refueling Access Panel**



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**52-11-01 Entry and Service Door Hinge Covers**

Any number or combination may be missing.

Performance limited weights are reduced by the following:

Less than twelve covers missing:

Number Installed	Takeoff & Landing	Enroute Climb
44	Negligible penalty	Negligible penalty

Twelve or more covers missing:

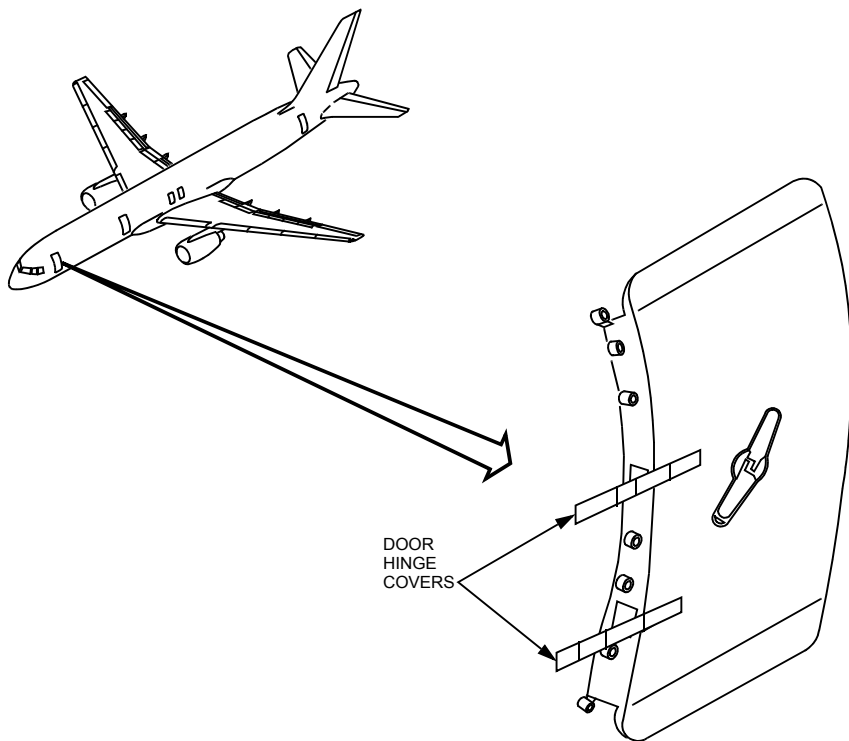
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

44	130 lb	200 lb

For -200:

44	59 kg	91 kg



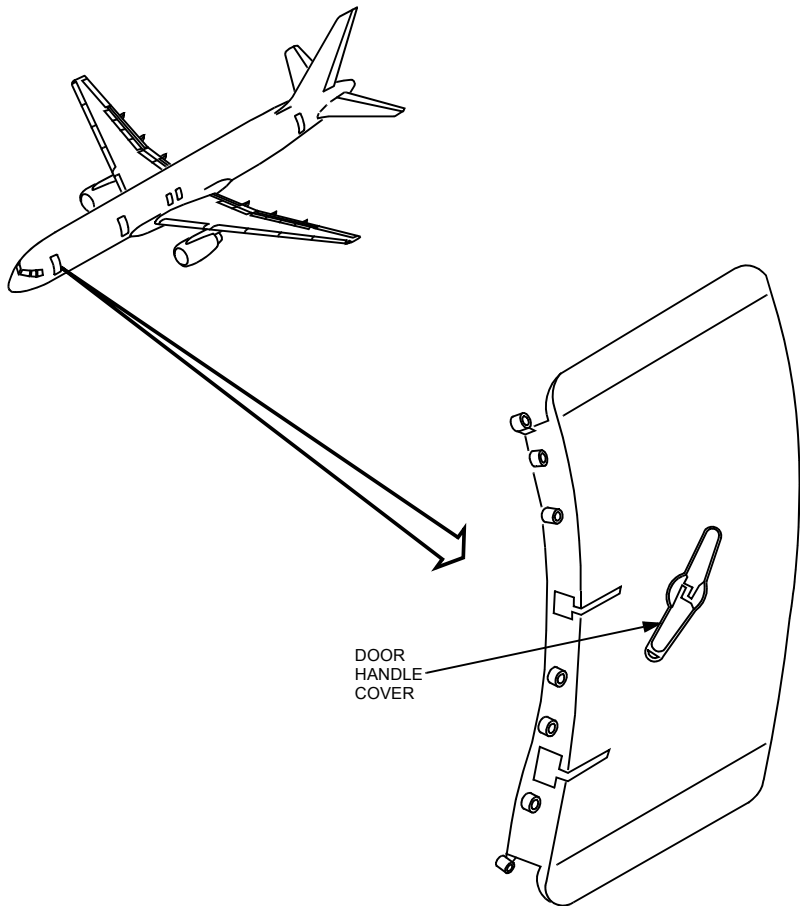


52-11-02 Entry and Service Door Exterior Handle Covers

Any number or combination may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
12	Negligible penalty	Negligible penalty



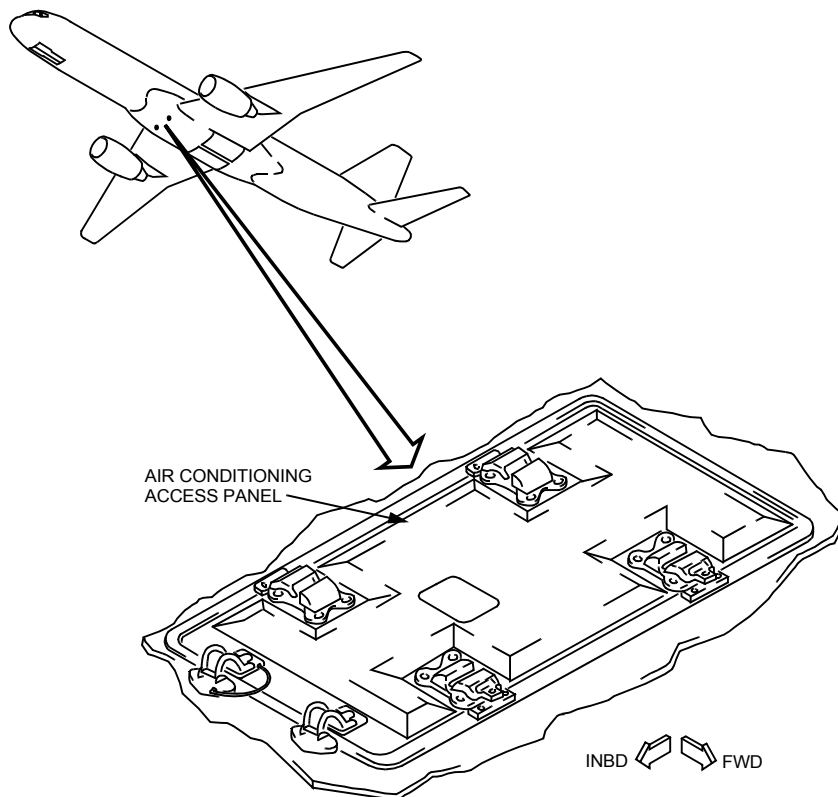
52-48-01 Air Conditioning Access Panel (Pneumatic Ground Service Connector Door)

One or both may be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-48-01, -02, -03, -04, -05, -06, -07 and -08 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	116 lb	172 lb
2	53 kg	78 kg





52-48-02 Waste Disposal Access Panel (Forward Lavatory Service Access Panel)

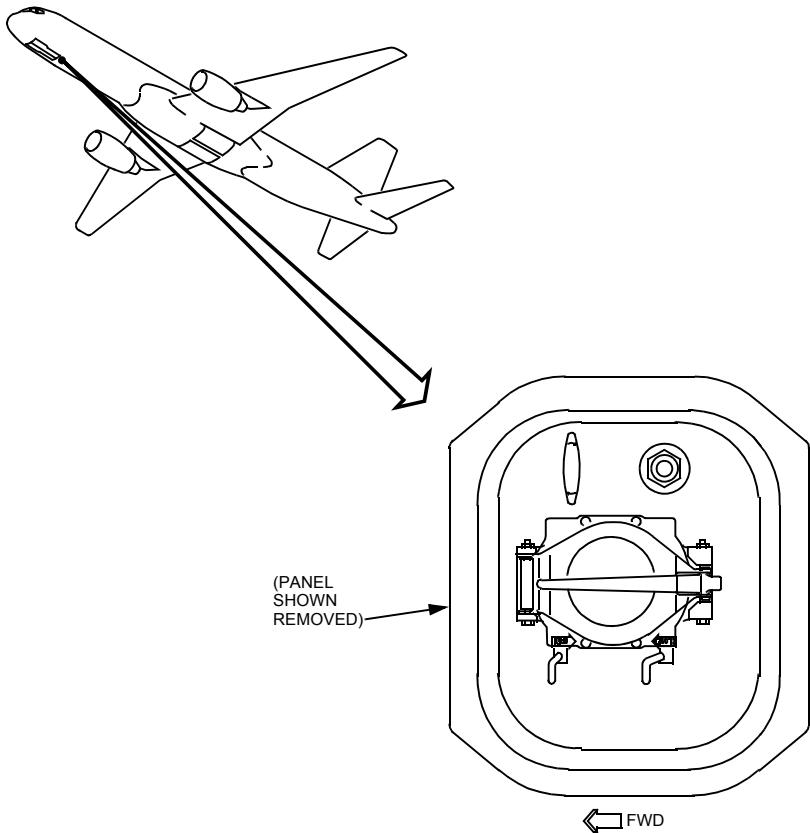
May be missing.

NOTE 1: The drain valve must be securely closed.

NOTE 2: Any combination of the authorized numbers of CDL Items 52-48-01, -02, -03, -04, -05, -06, -07 and -08 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty



52-48-03 Toilet Drain Access Panel (Mid Lavatory Service Access Panel)

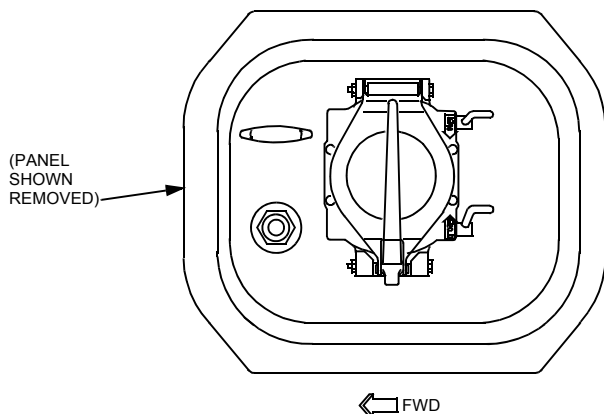
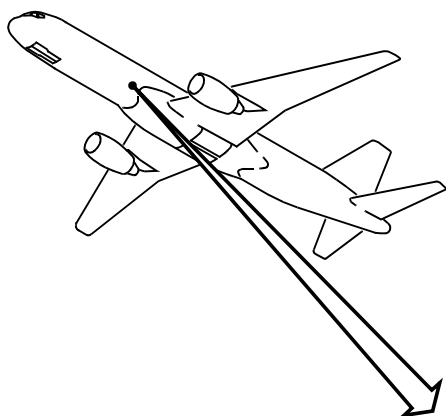
May be missing.

NOTE 1: The drain valve must be securely closed.

NOTE 2: Any combination of the authorized numbers of CDL Items 52-48-01, -02, -03, -04, -05, -06, -07 and -08 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty





52-48-04 Toilet Drain Access Panel (Aft Lavatory Service Access Panel)

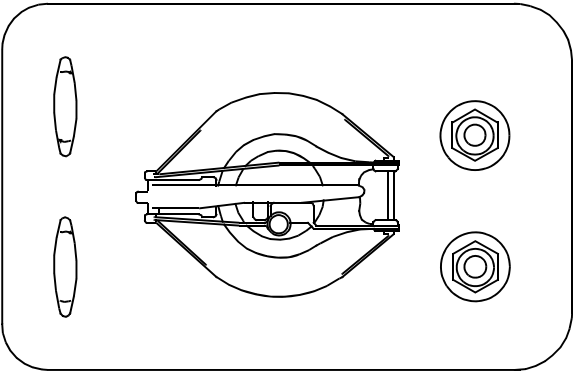
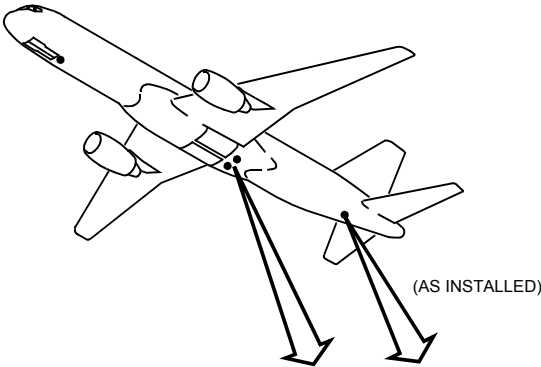
May be missing.

NOTE 1: The drain valve must be securely closed.

NOTE 2: Any combination of the authorized numbers of CDL Items 52-48-01, -02, -03, -04, -05, -06, -07 and -08 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty



(PANEL SHOWN REMOVED)

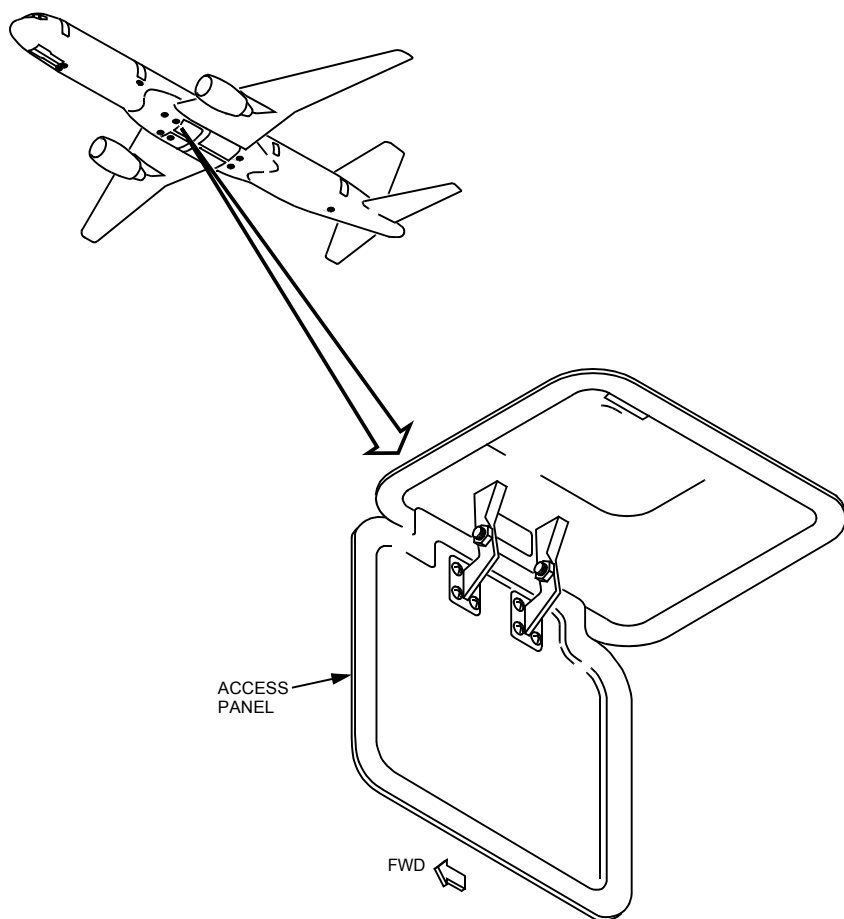
**52-48-05 Air Conditioning Inlet Access Panel (Ram Air
Actuator Access Panel)**

May be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-48-01, -02, -03, -04, -05, -06, -07 and -08 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty





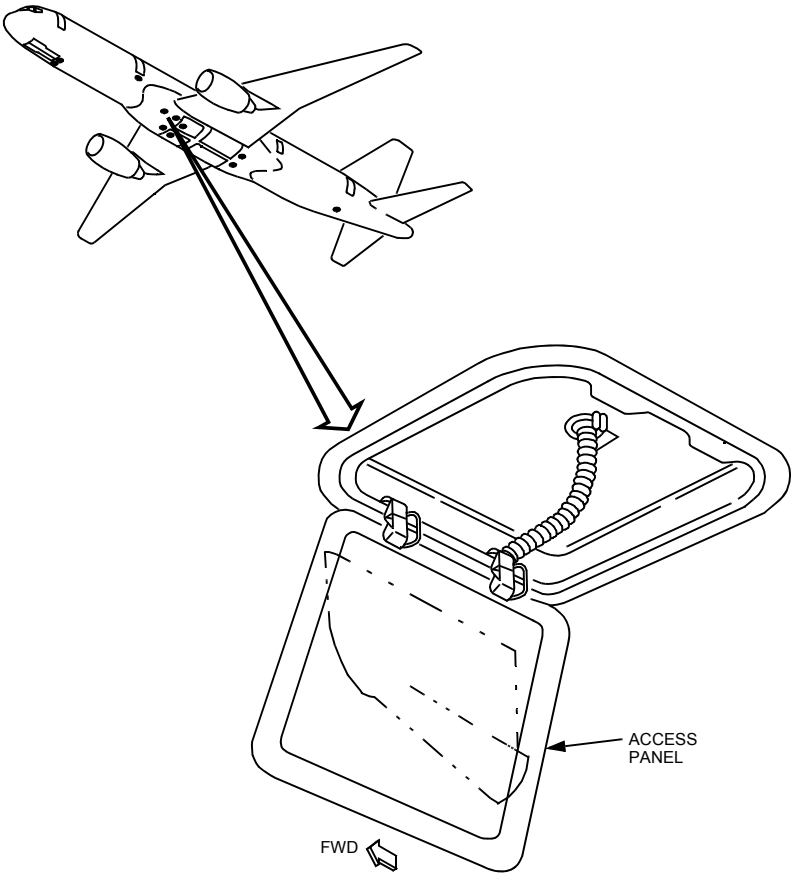
52-48-06 Water Drain Mast Access Panel (Forward)

May be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-48-01, -02, -03, -04, -05, -06, -07 and -08 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty



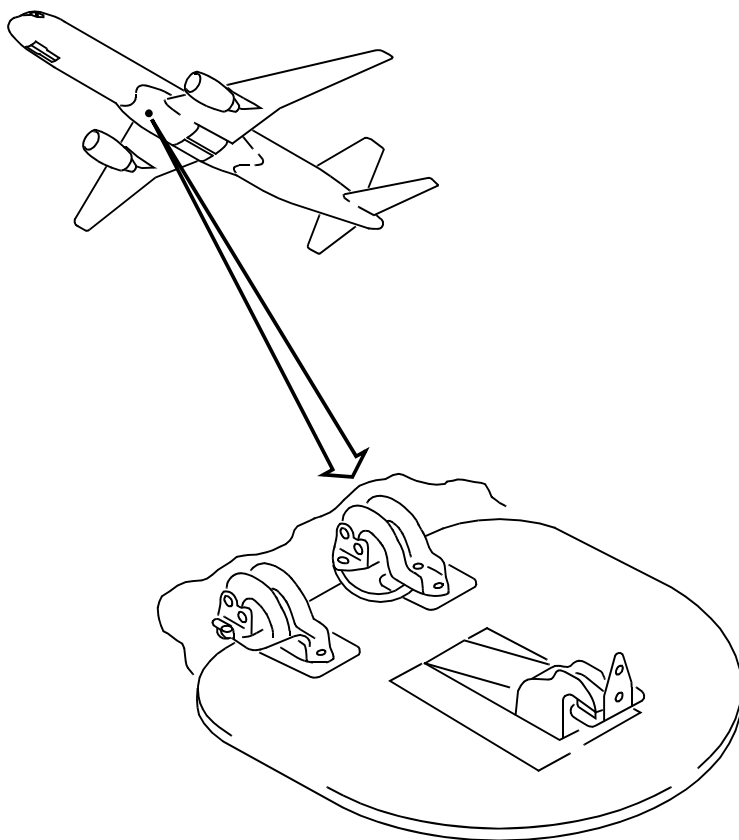
52-48-07 Ground Service Door (Air Conditioning Ground Connection Door)

May be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-48-01, -02, -03, -04, -05, -06, -07 and -08 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty



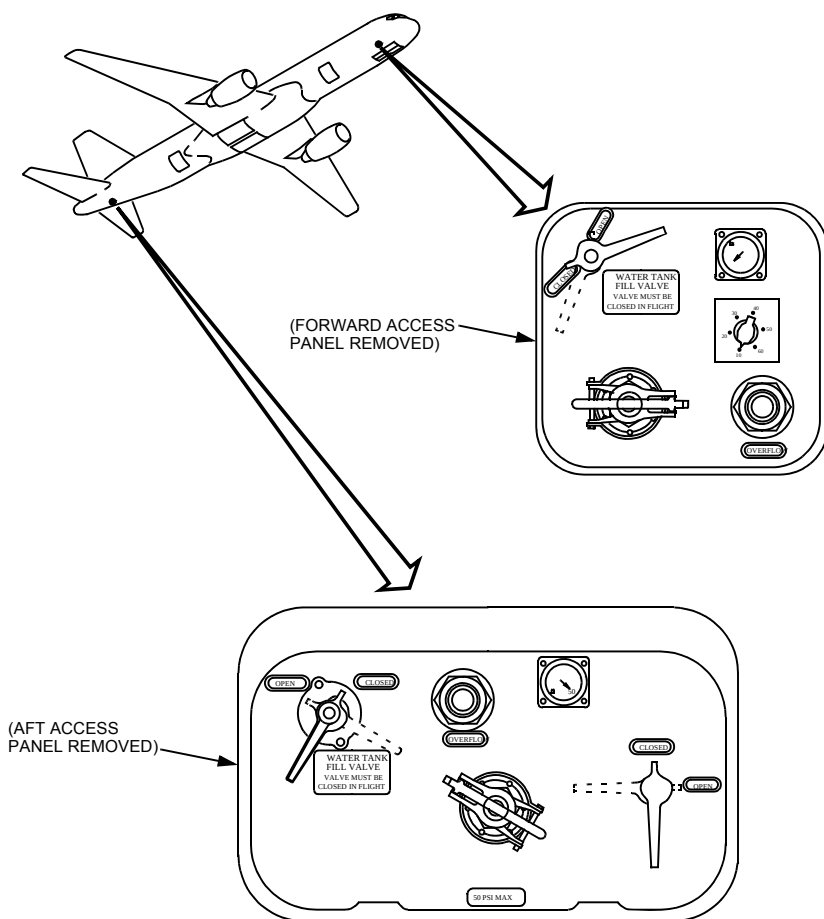
52-48-08 Water Service Door (Forward and Aft Potable Water Access Panels)

One or both may be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-48-01, -02, -03, -04, -05, -06, -07 and -08 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty



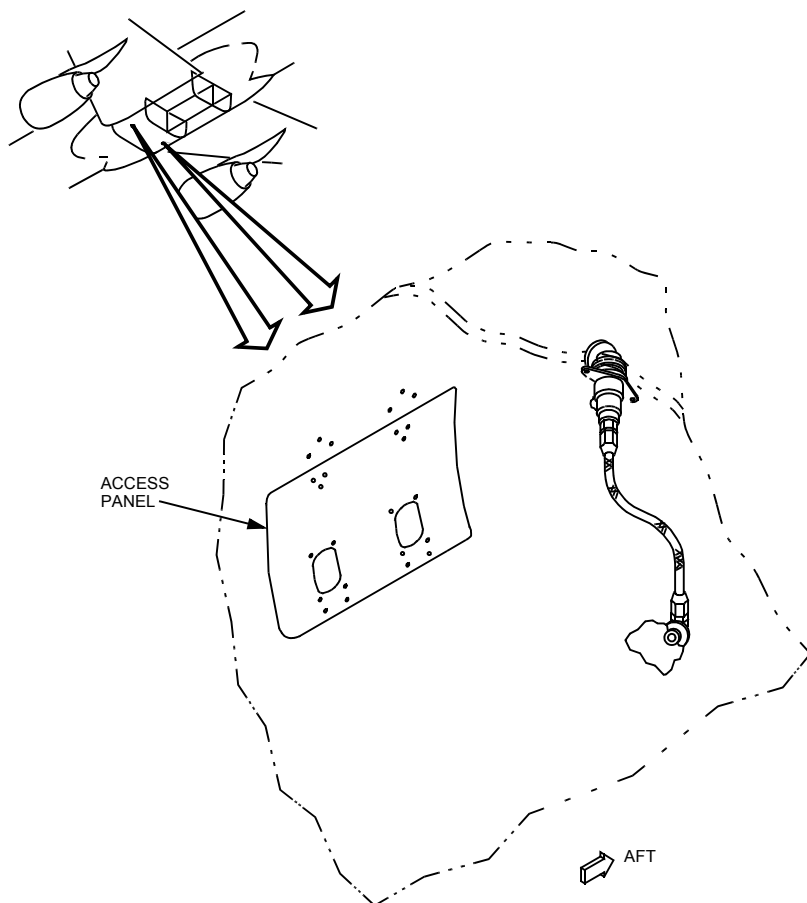
52-49-01 Fuel Drain Access Panel (Lower Mid Wing Fairing)

One may be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-49-01, -02, -03, -04, and -05 may be missing at the same time.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty





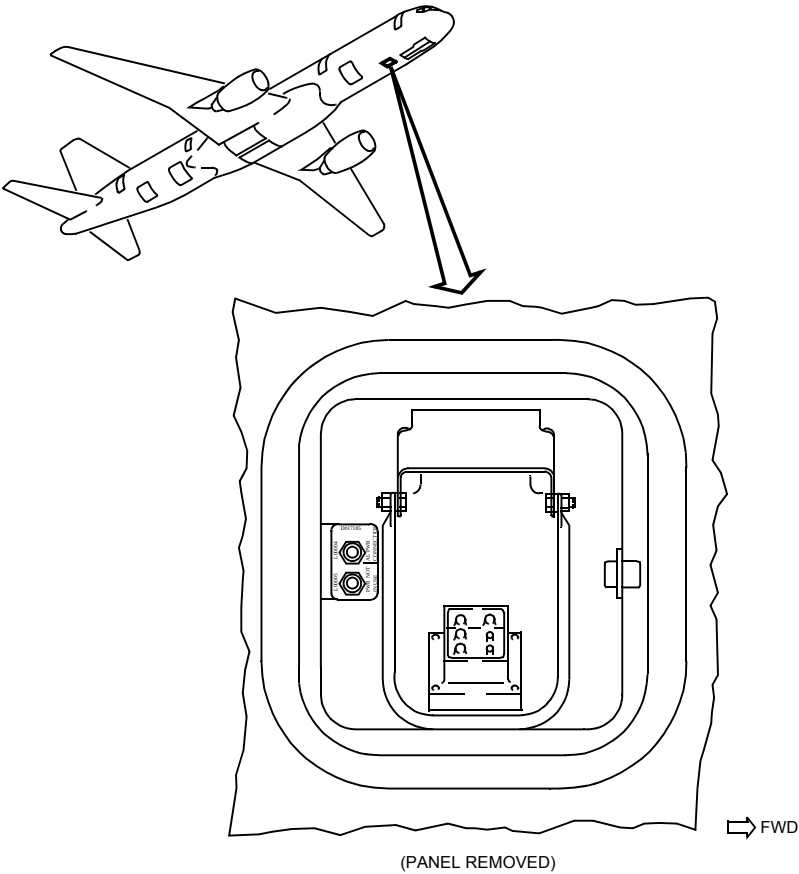
52-49-02 Auxiliary External Electrical Power Access Panel

May be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-49-01, -02, -03, -04, and -05 may be missing at the same time.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty





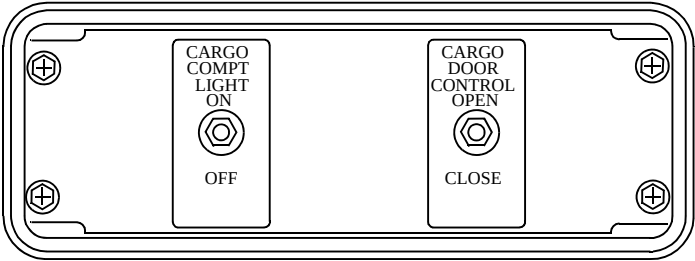
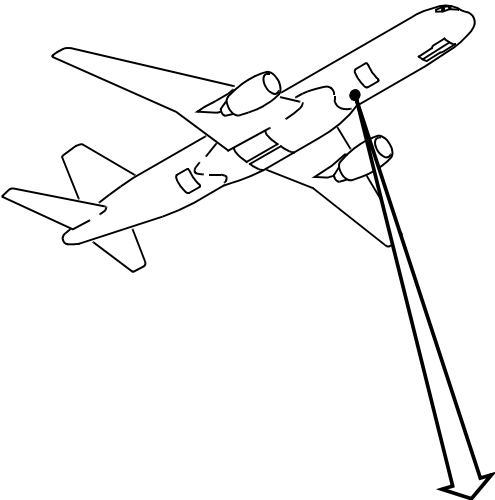
52-49-03 Forward Cargo Door Switch Access Panel

May be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-49-01, -02, -03, -04, and -05 may be missing at the same time.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty



(PANEL REMOVED)



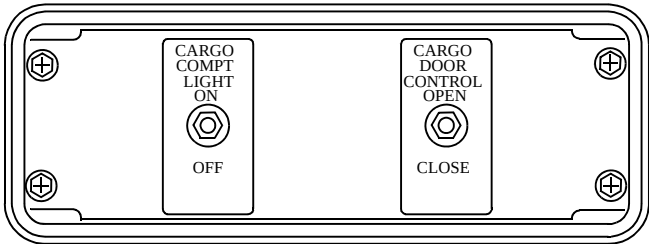
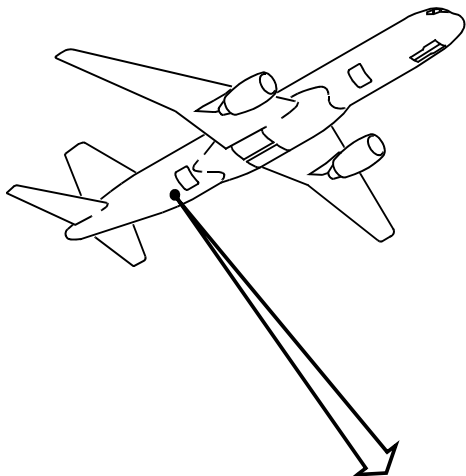
52-49-04 Aft Cargo Door Switch Access Panel

May be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-49-01, -02, -03, -04, and -05 may be missing at the same time.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty



(PANEL REMOVED)

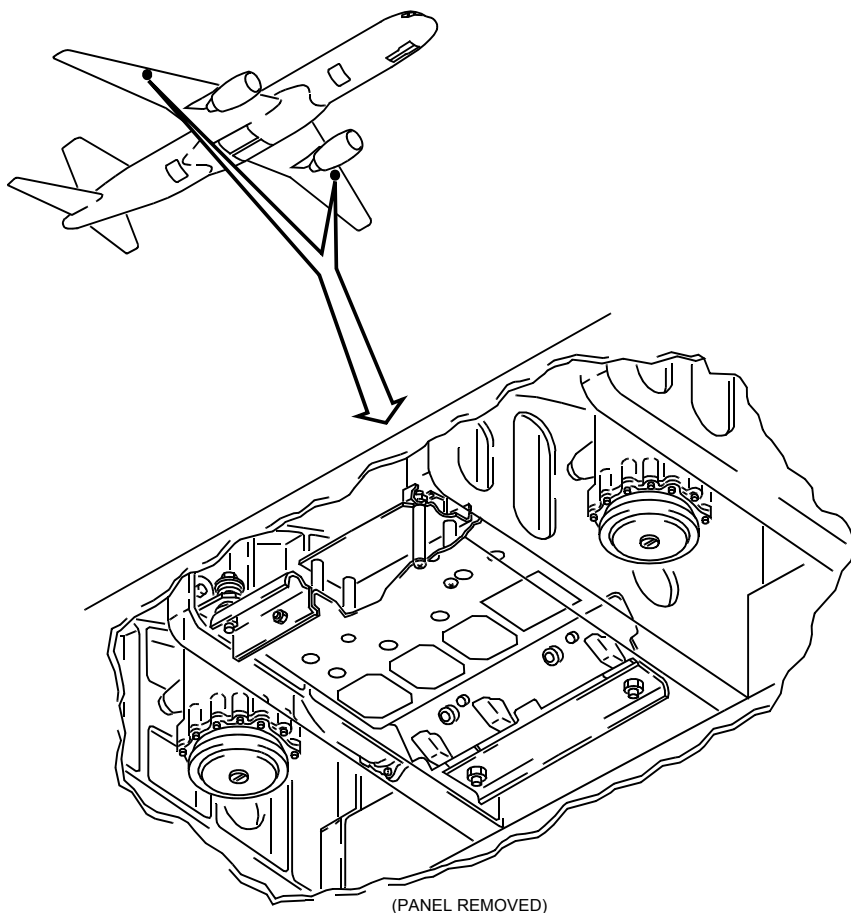
52-49-05 Refueling Access Panel

May be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-49-01, -02, -03, -04, and -05 may be missing at the same time.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty





53-42-01 Flap Torque Tube Slot Seal Door

53-86-01 Tail Scrape Damage Limiter



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53-42-01 Flap Torque Tube Slot Seal Door

Any number or combination may be missing.

Performance limited weights are reduced by the following:

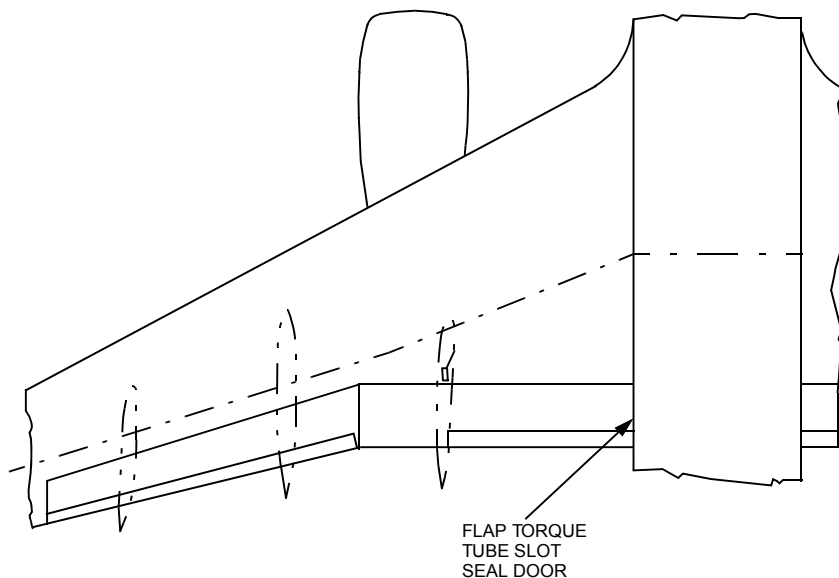
Number Installed	Takeoff & Enroute Climb	Landing Climb

For -200:

4	No penalty	4700 lb

For -200:

4	No penalty	2132 kg



LEFT WING SHOWN
(RIGHT WING SIMILAR)



53-86-01 Tail Scrape Damage Limiter

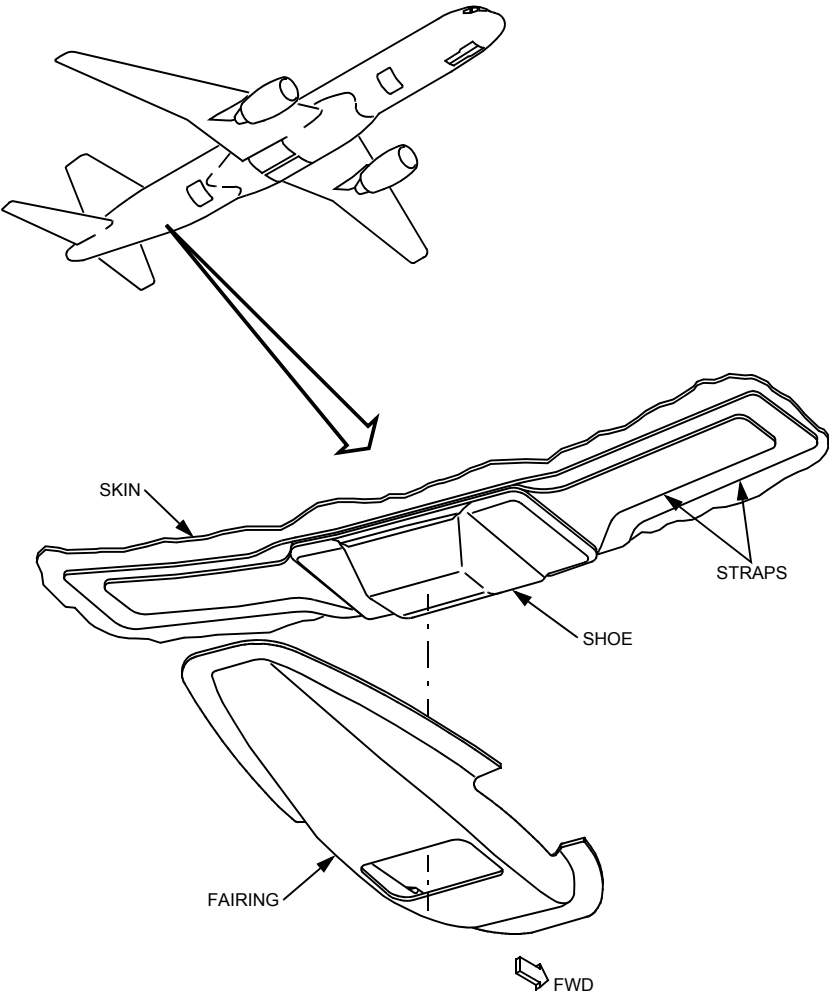
May be missing. Removal of shoe and fairing are required.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -200:

1	No penalty	No penalty





Section 3

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ATA 55

- 55-10-01 Horizontal Stabilizer Leading Edge**
- 55-10-02 Horizontal Stabilizer Fixed Trailing Edge**
- 55-20-01 Elevator**
- 55-40-01 Rudder**



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55-10-01 Horizontal Stabilizer Leading Edge

None may be missing. May have damage due to on-ground hail.
If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, for each damaged leading edge the performance limited weights are reduced by the following:

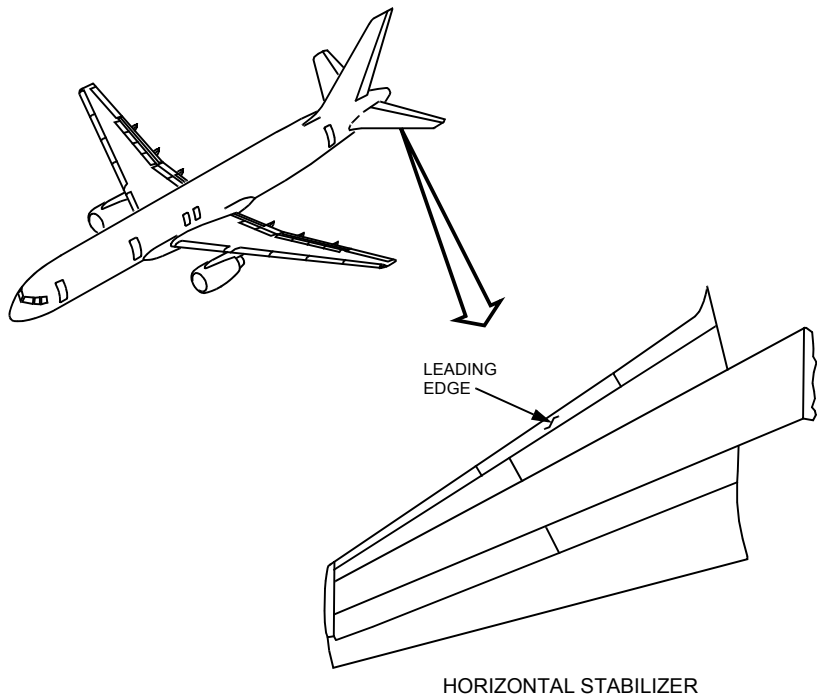
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2 (1 per side)	330 lb/side	480 lb/side

For -200:

2 (1 per side)	150 kg/side	218 kg/side



55-10-02 Horizontal Stabilizer Fixed Trailing Edge

None may be missing. May have damage due to on-ground hail.

If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, for each damaged fixed trailing edge the performance limited weights are reduced by the following:

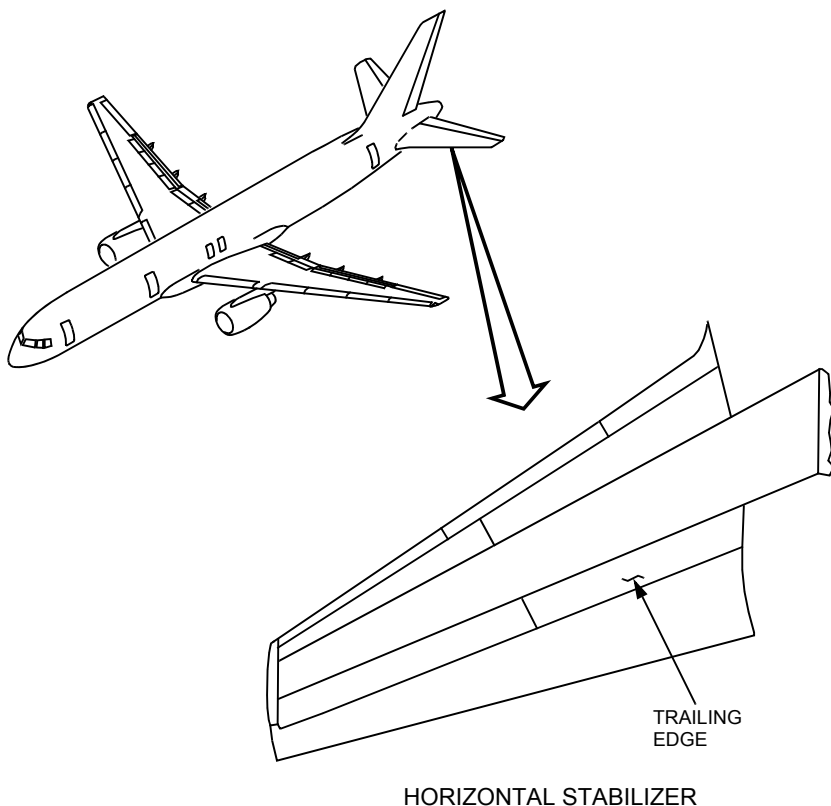
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2 (1 per side)	150 lb/side	230 lb/side

For -200:

2 (1 per side)	68 kg/side	105 kg/side




55-20-01 Elevator

None may be missing. May have damage due to on-ground hail.

If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, for each elevator the performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2	280 lb/side	410 lb/side

For -200:

2	127 kg/side	186 kg/side

In addition, if one or both elevators are damaged, the forward Center of Gravity (CG) Limit must be restricted to be no further forward than the following:

(Interpolate linearly between listed values.)

Weight (thousands lb)	CG Limit (%MAC)

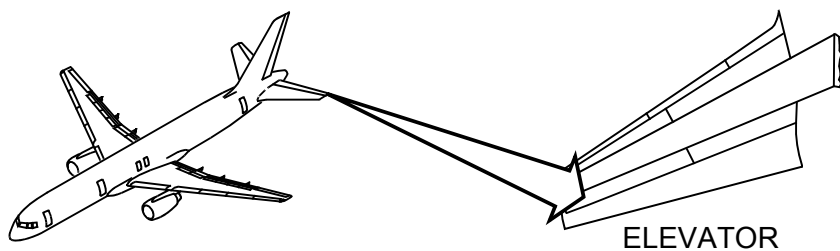
For -200:

140.0	12.0
221.0	12.0
254.2	17.05
256.0	20.0

Weight (thousands kg)	CG Limit (%MAC)

For -200:

63.5	12.0
100.2	12.0
115.3	17.05
116.1	20.0

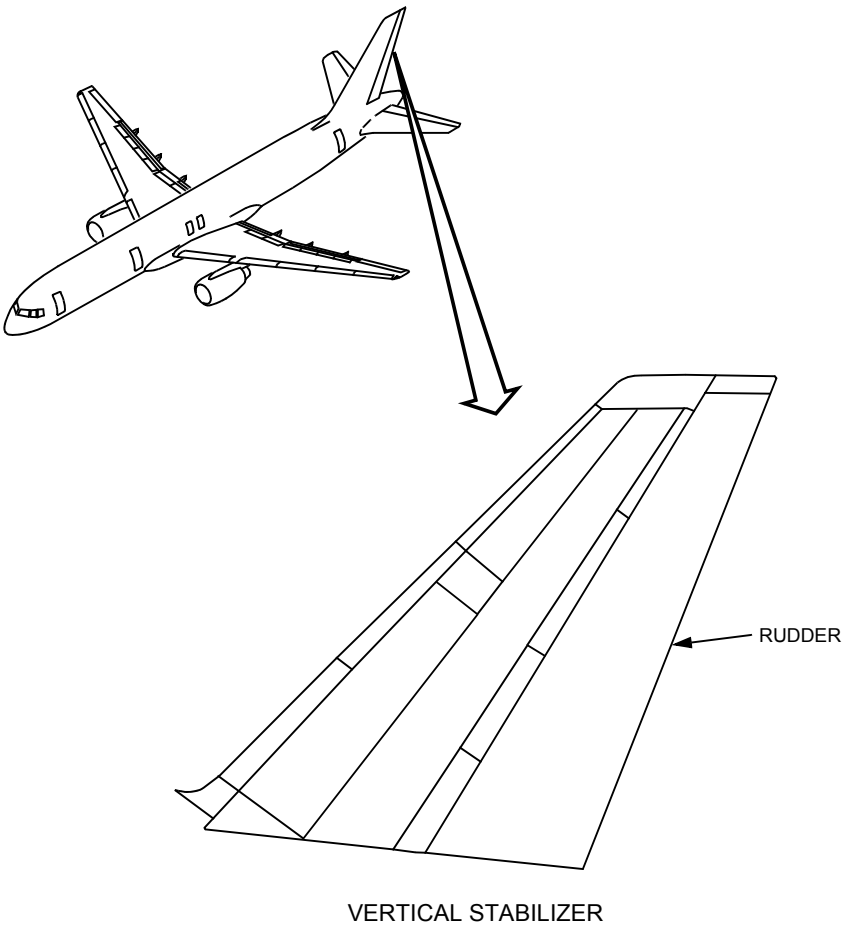




55-40-01 Rudder

May not be missing. May have damage due to on-ground hail.
If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, the performance limited weights are reduced by the following.

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty





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57-00-01	Vortex Generators
57-20-01	Main Slat Track Skirt Extensions
57-20-02	Auxiliary Slat Track Skirt Extensions
57-41-01	Outboard Main Flap Leading Edge Vortex Generators (Flap Vortilons)
57-43-01	Wing Slat Trailing Edge Wedge Panel
57-51-01	Wing Fixed Trailing Edge Panel
57-51-02	Trunnion Fairing Door Seal
57-53-01	Inboard Trailing Edge Flap
57-53-02	Outboard Trailing Edge Flap
57-60-01	Aileron
57-60-02	Aileron Fairing Seal
57-70-01	Spoiler Panel
57-70-02	Spoiler Air Dam



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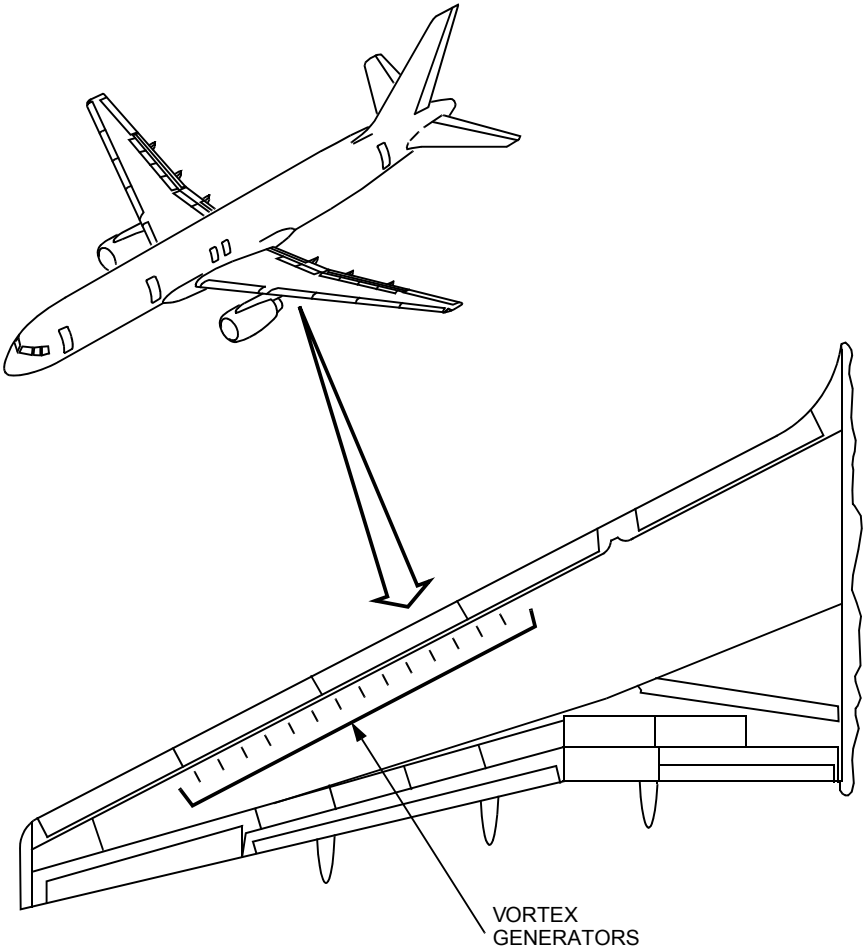
**57-00-01****Vortex Generators**

One or two (not adjacent to each other and only one of the five most outboard) may be missing on each wing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

38	No penalty	No penalty





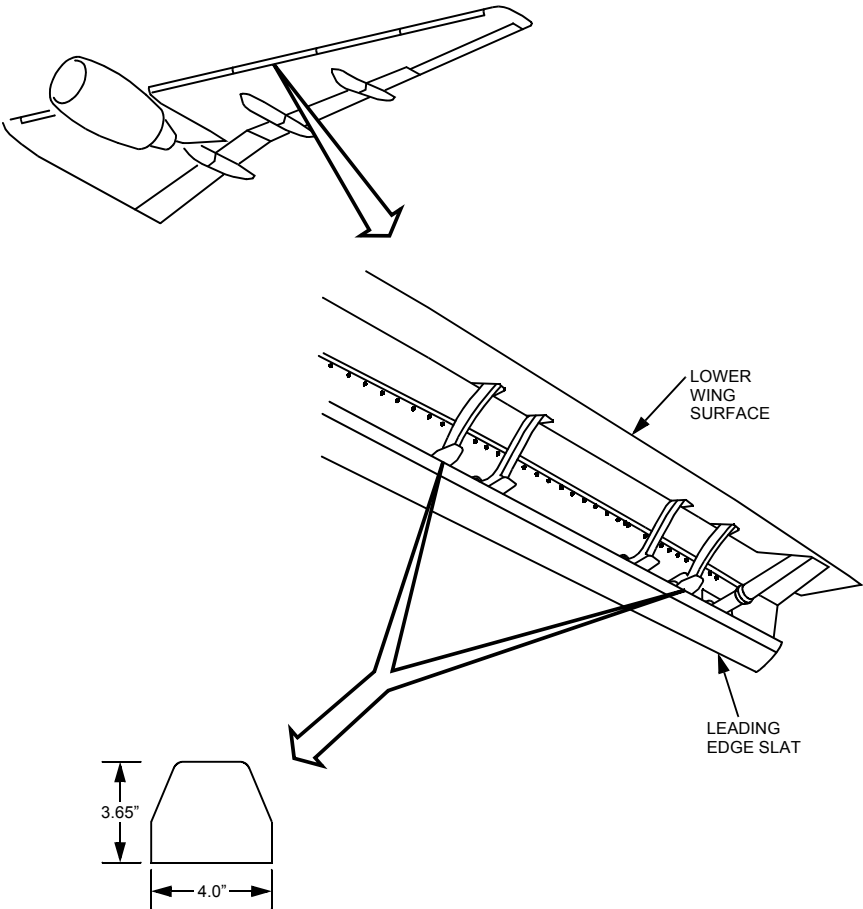
57-20-01 Main Slat Track Skirt Extensions

Any number or combination may be missing.
Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -200:

20	Negligible penalty	Negligible penalty





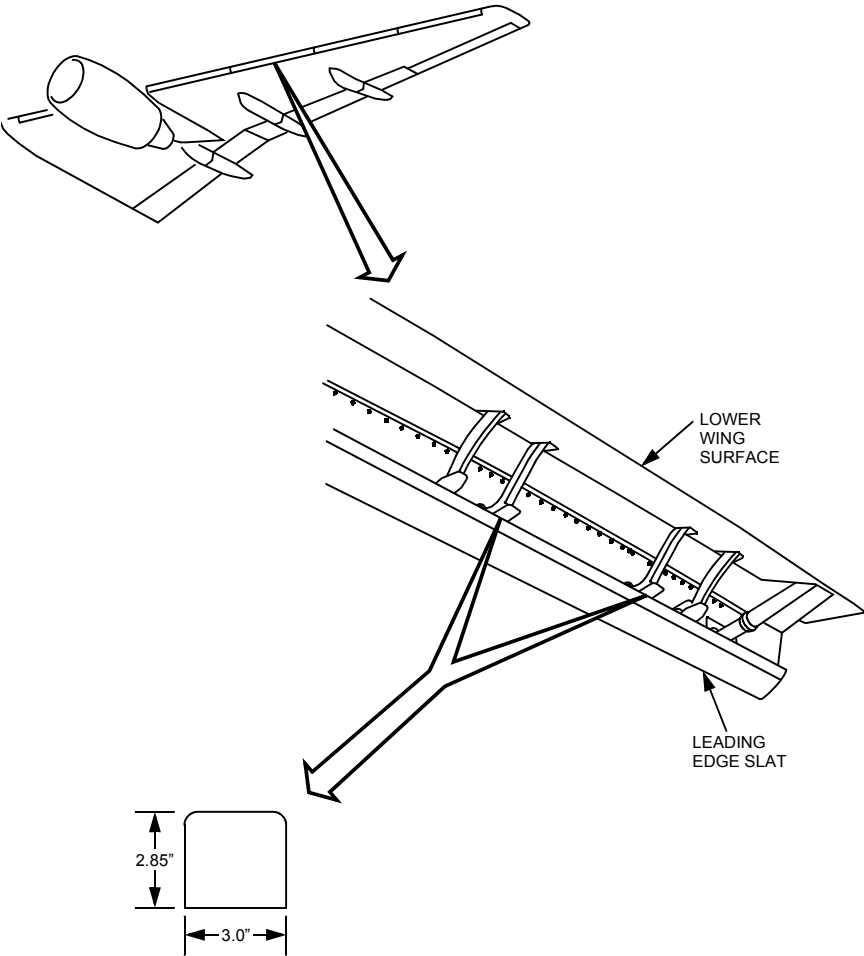
57-20-02 Auxiliary Slat Track Skirt Extensions

Any number or combination may be missing.
Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -200:

20	Negligible penalty	Negligible penalty





57-41-01 Outboard Main Flap Leading Edge Vortex Generators
(Flap Vortilons)

For -200:

For all 757-200 airplanes with vortilons installed (in production or by Boeing Service Bulletin 757-57-0058), the following applies:

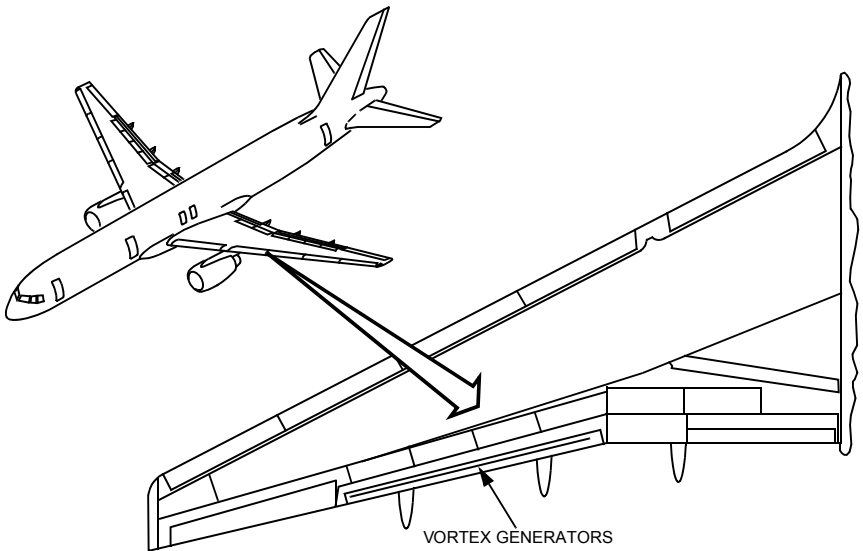
Any number of vortex generators may be missing on each side. If more than one vortex generator is missing on either side, use of Flaps 30 for landing is prohibited. When using Flaps 25, strictly maintain the recommended approach speed to help reduce the chance of a tail strike.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -200:

22 (11 per side)	No penalty	No penalty



57-43-01

Wing Slat Trailing Edge Wedge Panel

None may be missing. May have damage due to on-ground hail.

If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, for each damaged panel the performance limited weights are reduced by the following:

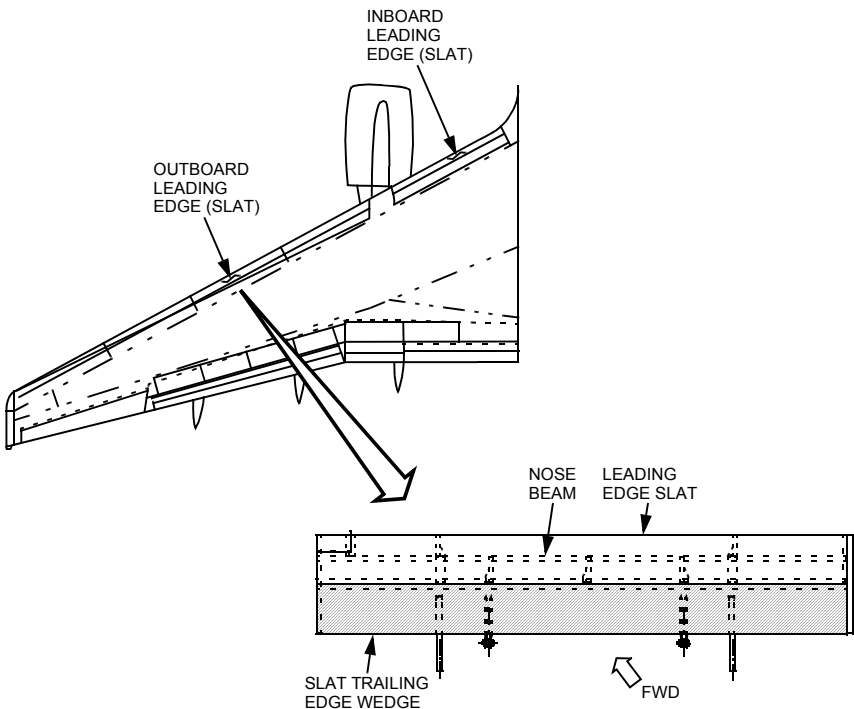
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

10	170 lb	240 lb

For -200:

10	78 kg	109 kg





57-51-01 Wing Fixed Trailing Edge Panel

None may be missing. May have damage due to on-ground hail.
If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, for each damaged panel the performance limited weights are reduced by the following:

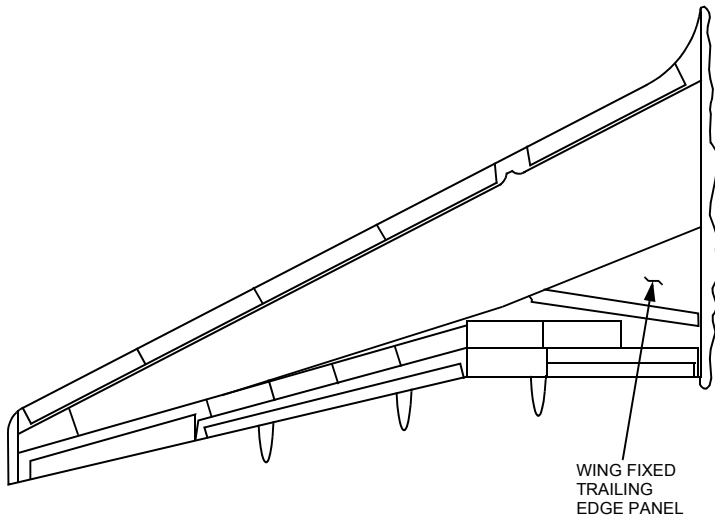
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2	580 lb	860 lb

For -200:

2	264 kg	390 kg



57-51-02 Trunnion Fairing Door Seal

One or both may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -200:

For one missing:

2	Negligible penalty	Negligible penalty

For -200:

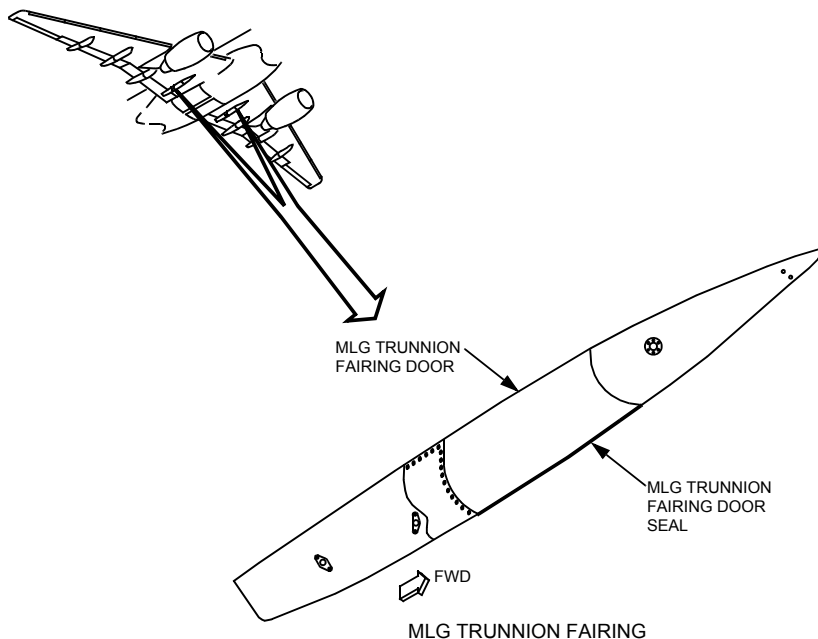
For both missing:

2	120 lb	170 lb

For -200:

For both missing:

2	55 kg	78 kg





57-53-01 Inboard Trailing Edge Flap

None may be missing. May have damage due to on-ground hail.

If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, for each damaged flap the performance limited weights are reduced by the following:

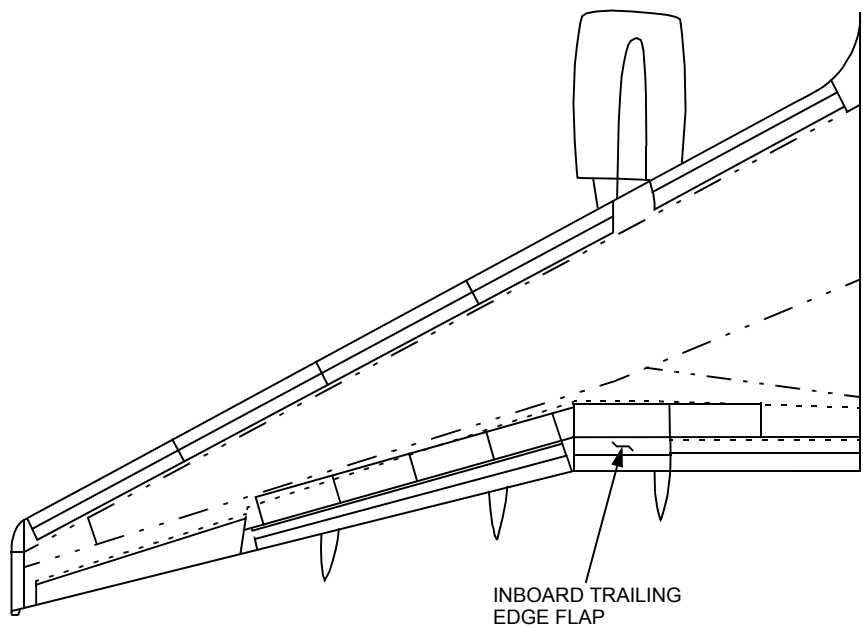
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2	490 lb	720 lb

For -200:

2	223 kg	327 kg



57-53-02 Outboard Trailing Edge Flap

None may be missing. May have damage due to on-ground hail.

If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, for each damaged flap the performance limited weights are reduced by the following:

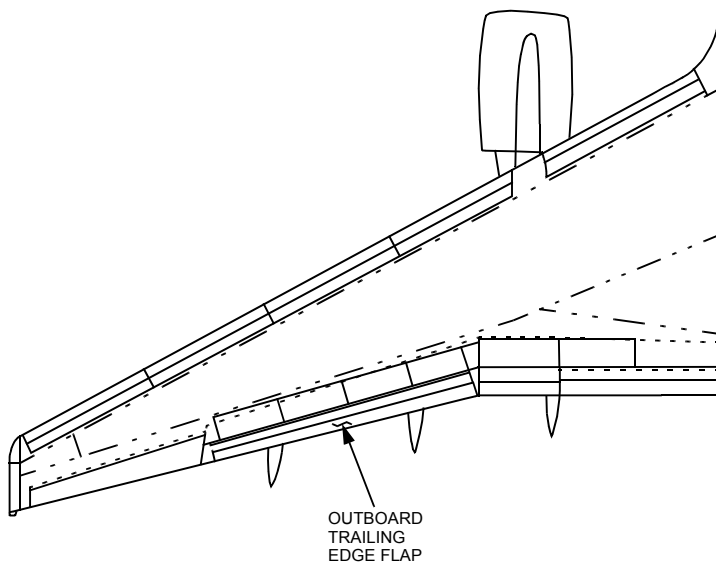
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2	580 lb	860 lb

For -200:

2	264 kg	391 kg





57-60-01 Aileron

None may be missing. May have damage due to on-ground hail.
If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, for each damaged aileron the performance limited weights are reduced by the following:

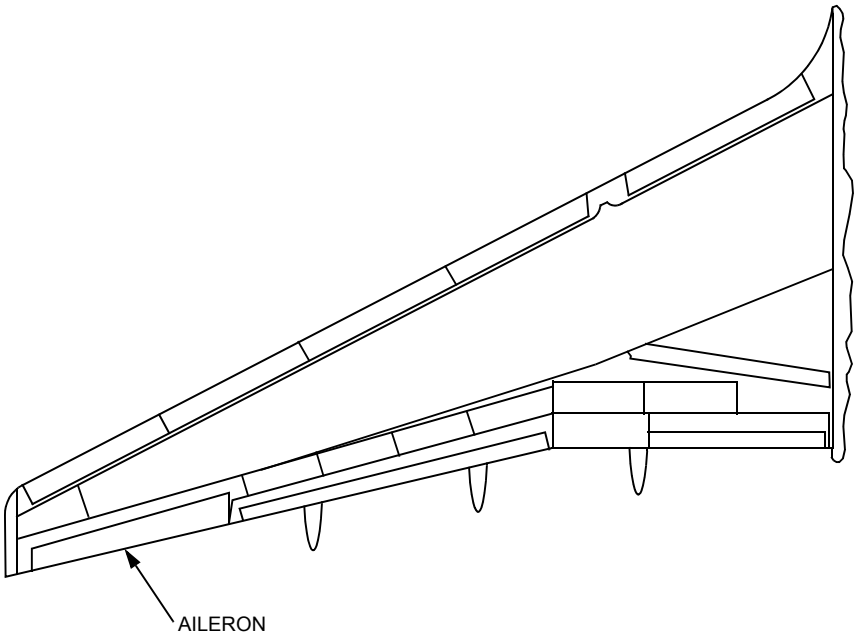
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

2	100 lb	150 lb

For -200:

2	46 kg	68 kg



**57-60-02 Aileron Fairing Seal**

Any number or combination may be missing.

Performance limited weights are reduced by the following for each missing item:

Number Installed	Takeoff & Landing	Enroute Climb

For one missing:

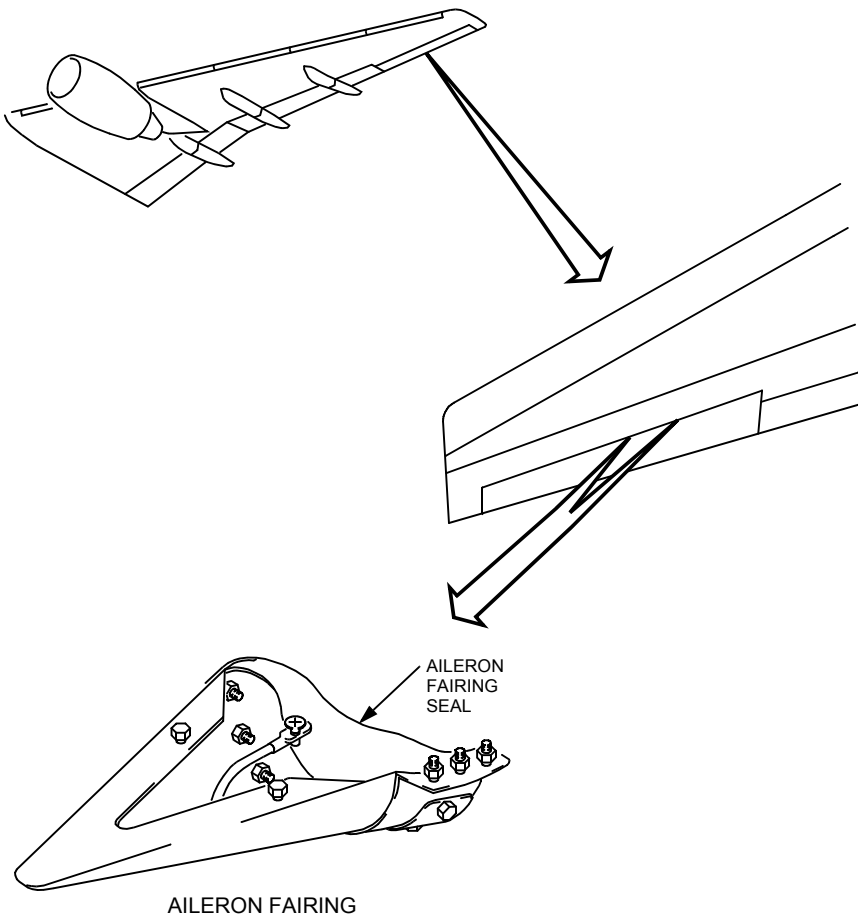
4	Negligible penalty	Negligible penalty

For two or more missing:

4	60 lb	90 lb

For two or more missing:

4	28 kg	41 kg



57-70-01 Spoiler Panel

None may be missing. May have damage due to on-ground hail.

If a performance restriction is required due to on-ground hail damage, as assessed in the Structural Repair Manual 51-10-04, for each damaged panel the performance limited weights are reduced by the following:

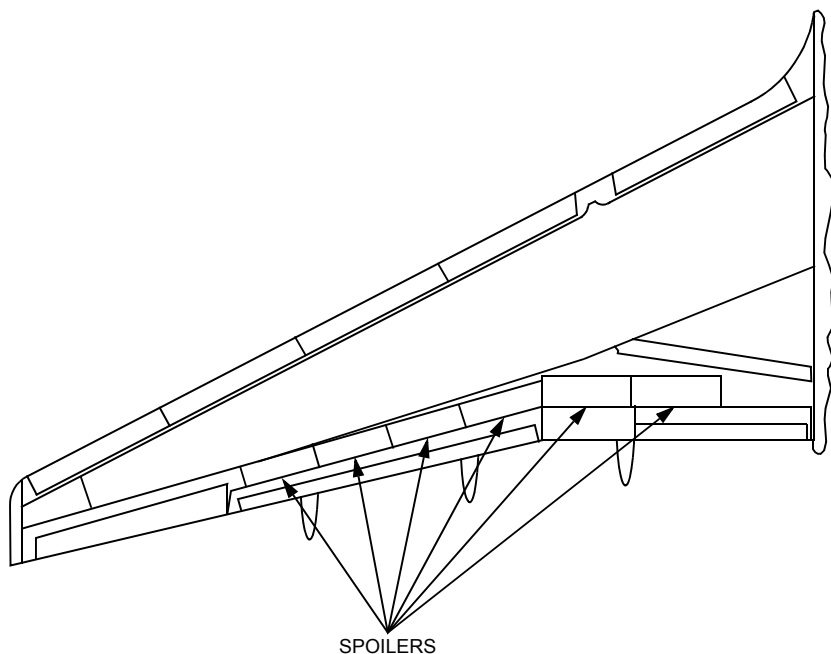
Number Installed	Takeoff & Landing	Enroute Climb

For -200:

12	210 lb	360 lb

For -200:

12	96 kg	164 kg





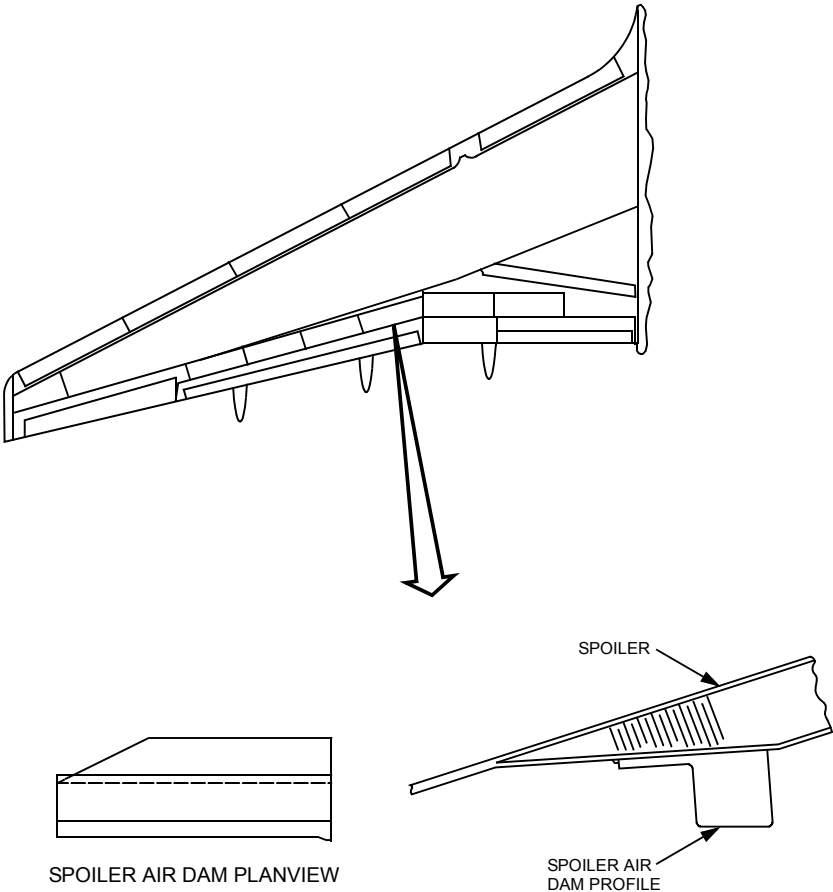
57-70-02 Spoiler Air Dam

One or both may be missing.
Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For 200:

2	No penalty	No penalty





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71-11-01 Inlet PT2/TT2 Probe Access Panel

71-11-02 Inlet Cowl Pressure Relief/TAI Vented Door



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**71-11-01 Inlet PT2/TT2 Probe Access Panel**

One or both may be missing.

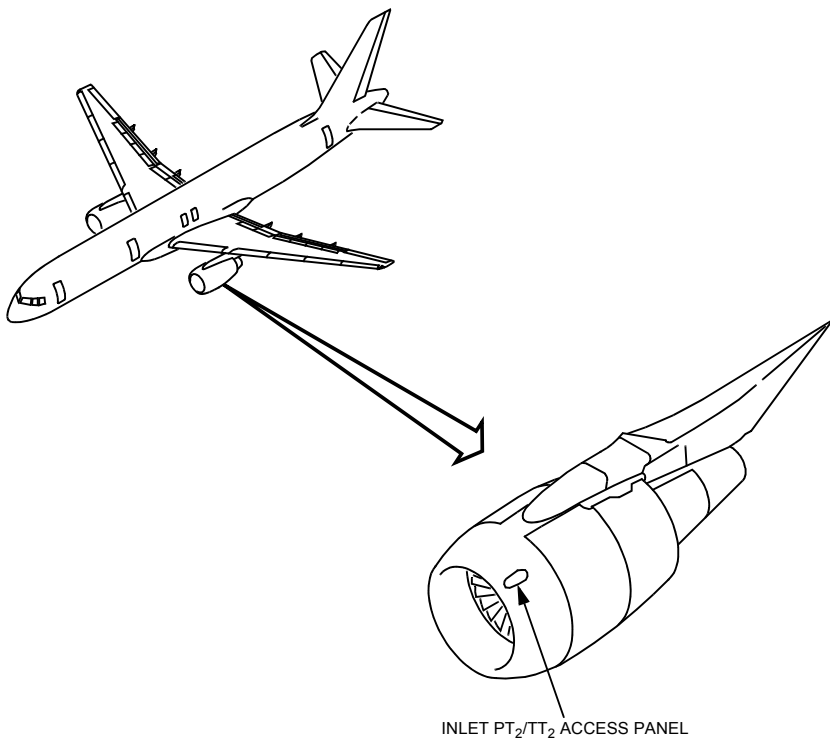
NOTE: Any combination of the authorized numbers of CDL Items 71-11-01 and 71-11-02 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For PW:

2	Negligible penalty	Negligible penalty





71-11-02 Inlet Cowl Pressure Relief/TAI Vented Door

One or both may be missing.

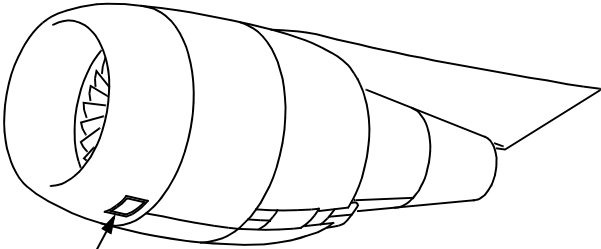
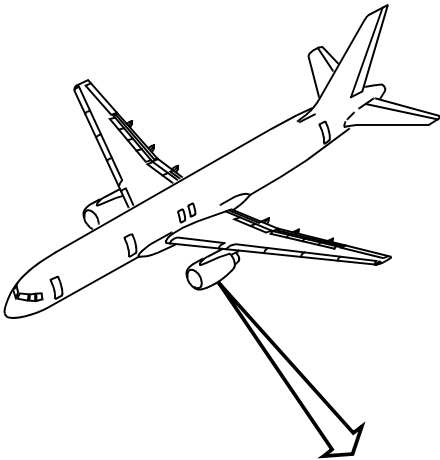
NOTE: Any combination of the authorized numbers of CDL Items 71-11-01 and 71-11-02 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For PW:

2	Negligible penalty	Negligible penalty



INLET COWL PRESSURE
RELIEF/TAI VENTED DOOR



- 78-31-01 Thrust Reverser Actuator Access Panel**
- 78-31-02 Thrust Reverser Blocker Door**
- 78-31-03 Thrust Reverser Vented Door**
- 78-31-04 Thrust Reverser Sleeve Assembly Seal (Bull Nose Seal)**



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Blank



78-31-01 Thrust Reverser Actuator Access Panel

Any number or combination may be missing.

For PW:

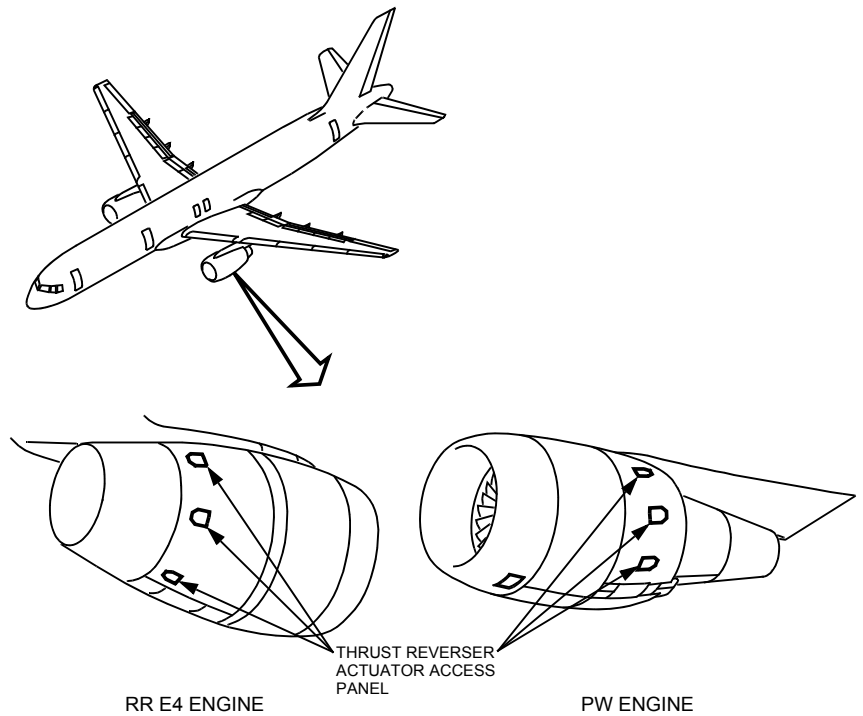
NOTE: Any combination of the authorized numbers of CDL Items 78-31-01, -02, -03 and -04 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For PW:

12	Negligible penalty	Negligible penalty



**78-31-02 Thrust Reverser Blocker Door**

One or two may be missing from each reverser half of one engine, provided the thrust reverser for that engine is deactivated (refer to MEL Item 78-31-01).

[For PW:](#)

NOTE: Any combination of the authorized numbers of CDL Items 78-31-01, -02, -03 and -04 may be missing.

Performance limited weights are reduced by the following:

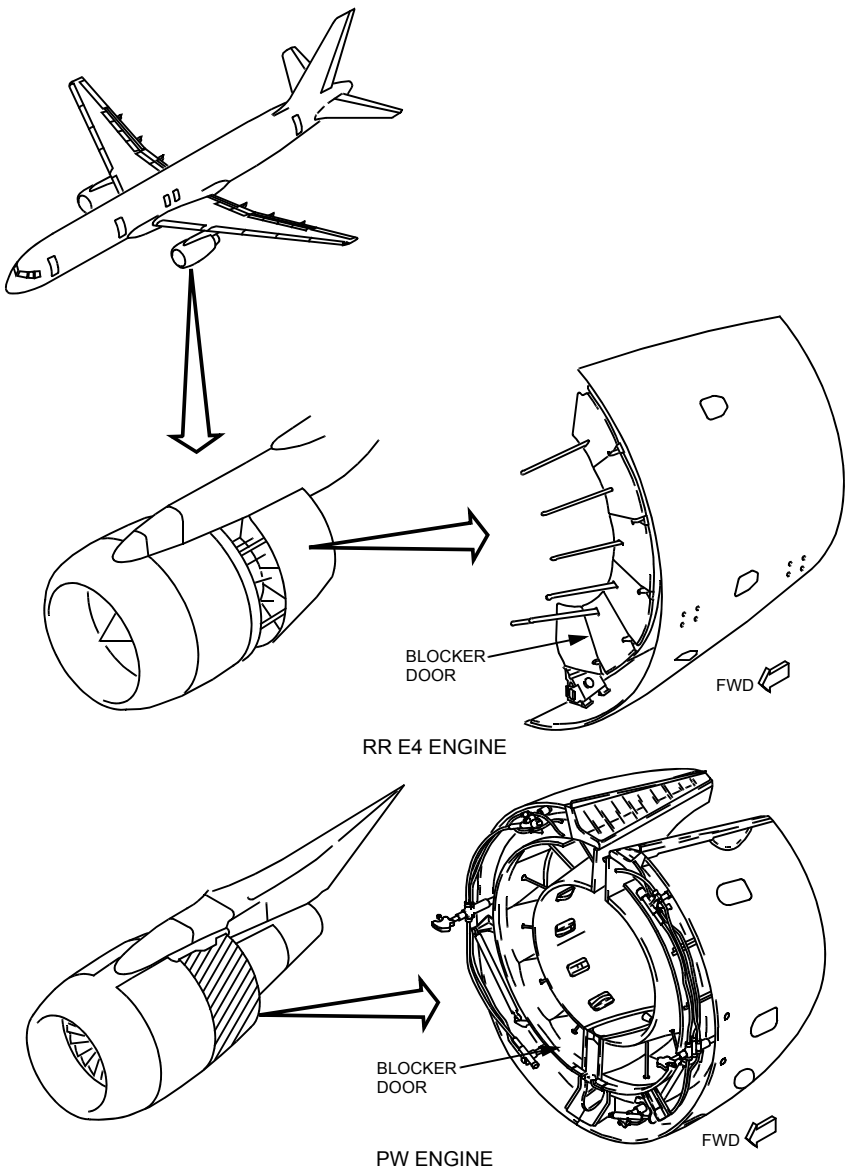
Number Installed	Takeoff & Landing	Enroute Climb

[For -200 and PW:](#)

24	600 lb/door	600 lb/door

[For -200 and PW:](#)

24	272 kg/door	272 kg/door



**78-31-03 Thrust Reverser Vented Door**

Any number or combination may be missing.

NOTE: Any combination of the authorized numbers of CDL Items 78-31-01, -02, -03 and -04 may be missing.

Performance limited weights are reduced by the following for each missing item:

Number Installed	Takeoff & Landing	Enroute Climb

For PW:

For one missing:

4	Negligible penalty	Negligible penalty

For PW:

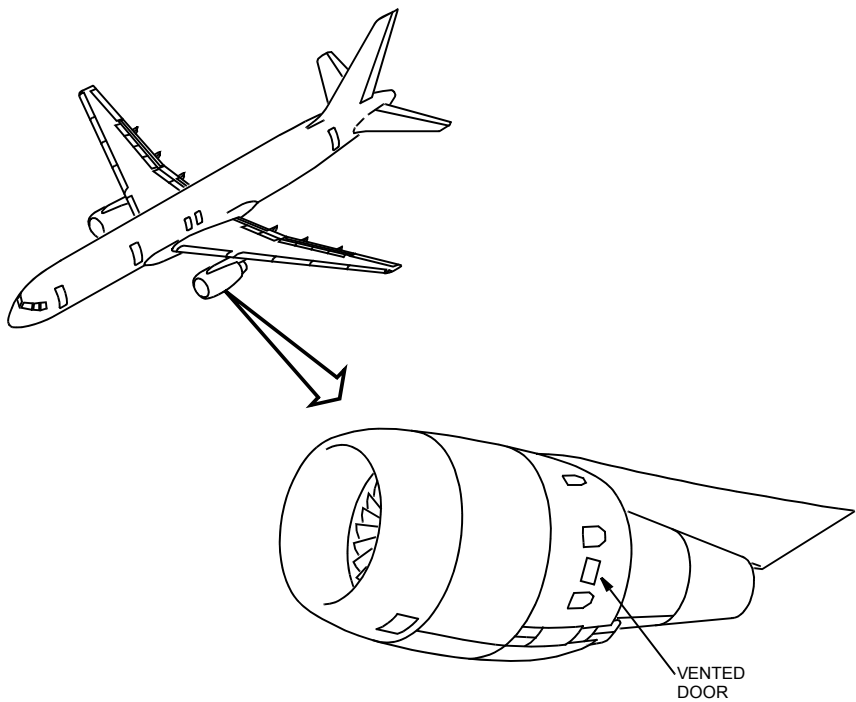
For two or more missing:

4	60 lb	60 lb

For PW:

For two or more missing:

4	28 kg	28 kg



**78-31-04 Thrust Reverser Sleeve Assembly Seal (Bull Nose Seal)****For PW:**

20% of the seal may be missing from each reverser half.

NOTE: Any combination of the authorized numbers of CDL Items
78-31-01, -02, -03 and -04 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

For -200 and PW:

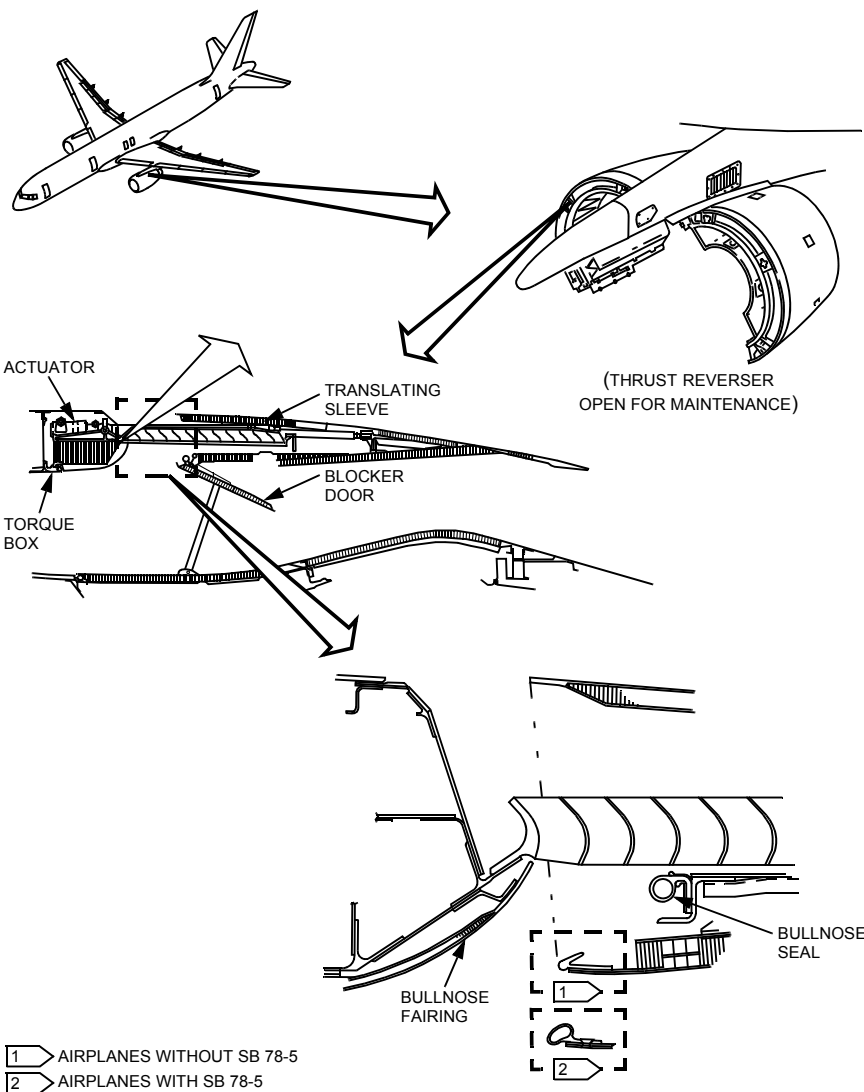
4	400 lb	500 lb

For -200 and PW:

4	182 kg	227 kg



For PW:



PW2000



Intentionally
Blank



Section 4

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Intentionally
Blank



Section 4

General

Miscellaneous

MEL Numbering Examples

The following examples for generic MMEL Items 22-11-6 and 52-51-2, denote the numbering format used in the NRW MEL. The MEL numbers are presented in bold font above each associated MMEL entry.

Example 1, MMEL Item 22-11-6:

22-11-06

-11-6 Mode Control Panel
Switches

22-11-06-01A

1) A/P Engage
Switches

C 2 1

22-11-06-01B

B 2 0

(O) May be inoperative provided:
a) Approach minimums do not require use of the autopilots,
b) Number of flight segments and segment duration is acceptable to flight crew, and
c) Enroute operations do not require use of the autopilots.

22-11-06-02A

2) Autothrottle Arm
Switches
(A/T ARM L, R)

C 2 1

(M) (O) One may be inoperative provided:
a) Associated servo motor is deactivated,
b) Both thrust levers are manually set for takeoff and go-around thrust, and
c) Flight remains within 180 minutes of landing at a suitable airport.

22-11-06-02B

C 2 0

May be inoperative provided:
a) Approach minimums do not require autothrottle use, and
b) Flight remains within 180 minutes of landing at a suitable airport.

22-11-06-03

3) A/T Engage
Switch

C 1 0

May be inoperative provided:
a) Approach minimums do not require autothrottle use, and
b) Flight remains within 180 minutes of landing at a suitable airport.

22-11-06-04

4) F/D Switches

C 2 0

May be inoperative provided approach minimums do not require flight director use.

22-11-06-05

5) IAS - MACH
Reference
Switch

C 1 0

May be inoperative provided IAS is displayed in associated window.


Example 1, MMEL Item 22-11-6 (Cont'd):
22-11-06-06

6) HDG - TRK Reference Switch	C	1	0	May be inoperative provided HDG is displayed in associated window.

22-11-06-07

7) V/S - FPA Reference Switch	C	1	0	

22-11-06-08

8) APP Switch	C	1	0	May be inoperative provided approach minimums do not require use of autopilot or flight director.

22-11-06-09

9) CLB CON, LNAV, VNAV, FLCH, VS/FPA, Heading/Track HOLD, Altitude HOLD, and LOC Switches	C	8	0	May be inoperative provided enroute operations do not require their use.

22-11-06-10

10) Arm/Engage Lights	C	11	0	May be inoperative provided the associated mode indications on both PFDs operate normally.

Example 2, MMEL Item 52-51-2:
52-51-02

51-2 Boeing Enhanced Flight Deck Security Door Automatic Locking System (FAR 25.795 Compliant) (Passenger)	A	1	0	(M) (O) May be inoperative provided: a) Automatic locking system is deactivated, b) Door dead bolt operates normally and is used to lock the door, c) Alternate procedures are established and used for locking and unlocking the door using the dead bolt, and d) Repairs are made within two flight days.

52-51-02-01

1) Flight Deck Access System (Keypad, Door Chime)	B	1	0	(M) (O) May be inoperative provided: a) Keypad is deactivated, and b) Alternate procedures are established and used.

52-51-02-01-01

a) LEDs	C	3	0	(O) May be inoperative provided alternate procedures are established and used.

52-51-02-01-02

b) Door Bell *** Mode	C	1	0	(O) May be inoperative provided alternate procedures are established and used.

52-51-02-01-03

c) Switch Guard	C	1	0	May be inoperative or missing provided the flight deck door LOCK FAIL light operates normally.



Example 2, MMEL Item 51-51-2 (Cont'd):
52-51-02-02

2) Flight Deck Door LOCK FAIL Light	B	1	0	(M) May be inoperative provided automatic lock controls are verified to operate normally.

52-51-02-03

3) Flight Deck Door AUTO UNLK Light	B	1	0	(M) May be inoperative provided: a) Automatic lock controls are verified to operate normally, and b) Door chime operates normally.

52-51-02-04

4) Flight Deck Door Lock Control Selector	B	1	0	(M) (O) May be inoperative provided: a) Keypad is deactivated, b) Automatic lock is verified to operate normally, and c) Alternate procedures are established and used.

52-51-02-05

5) Pressure Rate-of- Change Sensing Module	A	1	0	(M) May be inoperative provided: a) Pressure sensing module is deactivated, and b) Repairs are made within two flight days.



Configuration Specific Annotation

Where applicable, an annotation is included above affected text to identify information that is specific to a particular configuration. The annotation applies only to text aligned immediately below it and any associated indented text. The following example illustrates the engine configuration applicability for a Maintenance procedure:

MAINTENANCE (M)

Verify that the associated engine fuel shutoff valve is operating normally once each flight day (AMM 73-00-00/901).

For PW:

1. If MAT is available, confirm that both maintenance messages are displayed for the associated status message.
 - A. For status message ENG FUEL VALVE L, 73-40231 and 73-50231.
 - B. For status message ENG FUEL VALVE R, 73-40232 and 73-50232.
2. Start the associated engine and allow engine to stabilize at ground idle (AMM 71-00-00/201).
3. Open the P11 panel FUEL SPAR VALVE circuit breaker for the associated engine.
4. After minimum engine operating time, position the associated engine FUEL CONTROL switch to CUTOFF and confirm engine shutdown.
5. For engine not shutdown, the fuel shutoff valve is not operating normally.
 - A. Monitor EGT and be prepared to motor the engine.
 - B. Close the P11 panel FUEL SPAR VALVE circuit breaker.

For PW or RR:

- C. The engine may continue to operate for one minute.

For GE:

- D. The engine may continue to operate for 10 seconds.
6. Confirm the associated FUEL SPAR VALVE L or R status message is displayed.
7. Erase the latched FUEL SPAR VALVE L or R status message (AMM 31-61-00/201).
8. After engine has stopped rotating, close the P11 panel FUEL SPAR VALVE circuit breaker.

For this item, the applicability for the maintenance procedures is as follows:

- For PW: Steps 1, 1.A, 1.B, 2, 3, 4, 5, 5.A, 5.B, 5.C, 6, 7 and 8 apply.
- For RR: Steps 2, 3, 4, 5, 5.A, 5.B, 5.C, 6, 7 and 8 apply.
- For GE: Steps 2, 3, 4, 5, 5.A, 5.B, 5.D, 6, 7 and 8 apply.



Section 4

Fuel

Miscellaneous

Inoperative FQIS Engine Fuel Leak Detection Procedures:

OPERATIONS (O)

1. CENTER TANK FQIS INOPERATIVE (with or without usable center tank fuel) - engine fuel leak detection:
 - A. Verify both engines do not have a fuel leak (use following procedure and form):
 - 1) Configure the fuel system for verification that both engines do not have an engine fuel leak:
 - a. Ensure all operable main tank fuel pumps are set ON.
 - b. Ensure the fuel crossfeed valve(s) is set OFF.
 - c. Set the center tank fuel pumps OFF.

Note: FUEL CONFIG advisory message and light are displayed when usable fuel remains in the center tank.

Note: Left main tank now supplies fuel to left engine and right main tank supplies fuel to right engine

	L & R FUEL QUANTITY INDICATOR			FMC FUEL USED			
	A	B	C	D	E	F	
	Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Used	End Check Fuel Used	Engine Fuel Used (E minus D)	Detected Leak Rate (C-F)x10
L Tank/ L Eng							
R Tank/ R Eng							

ENGINE LEAK DETECTION FORM

(Left & Right Tank Supplies Left & Right Engine Respectively)



- 2) At start of check:
- From FQIS, record L FUEL QTY and R FUEL QTY in Column A.

L FUEL QTY →	L 40.5	C 	R 40.5	← R FUEL QTY
	15 FUEL TEMP °C	FUEL QTY X 1000	 TOTAL QTY	

FQIS

- From FMC, record L FUEL USED and R FUEL USED in Column D.

	PROGRESS 2 / 2 <table style="width: 100%; font-family: monospace; font-size: 0.9em;"> <tr> <td>H / WIND</td> <td>WIND</td> <td>X / WIND</td> </tr> <tr> <td>32 KT</td> <td>080° / 57</td> <td>L 23 KT</td> </tr> <tr> <td>XTK ERROR</td> <td>VTK ERROR</td> <td></td> </tr> <tr> <td>L 0.1 NM</td> <td></td> <td>+10 FT</td> </tr> <tr> <td>TAS</td> <td></td> <td>SAT</td> </tr> <tr> <td>470 KT</td> <td></td> <td>-23 °C</td> </tr> <tr> <td colspan="3" style="padding-top: 10px;">FUEL USED</td> </tr> <tr> <td>L 2.0</td> <td>TOT 4.1</td> <td>R 2.1</td> </tr> <tr> <td colspan="3" style="padding-top: 10px;">FUEL QTY</td> </tr> <tr> <td colspan="2">TOTALIZER</td> <td>CALCULATED</td> </tr> <tr> <td colspan="2"></td> <td>25.8</td> </tr> </table>	H / WIND	WIND	X / WIND	32 KT	080° / 57	L 23 KT	XTK ERROR	VTK ERROR		L 0.1 NM		+10 FT	TAS		SAT	470 KT		-23 °C	FUEL USED			L 2.0	TOT 4.1	R 2.1	FUEL QTY			TOTALIZER		CALCULATED			25.8	
H / WIND	WIND	X / WIND																																	
32 KT	080° / 57	L 23 KT																																	
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L 2.0	TOT 4.1	R 2.1																																	
FUEL QTY																																			
TOTALIZER		CALCULATED																																	
		25.8																																	
L FUEL USED →		← R FUEL USED																																	

FMC

- At 6 minutes elapsed time:
 - From FQIS, record L FUEL QTY and R FUEL QTY in Column B.
 - From FMC, record L FUEL USED and R FUEL USED in Column E.
 - If usable fuel in center tank, set center tank fuel pumps ON.
- Subtract Column B from A and record in Column C.
- Subtract Column D from E and record in Column F.



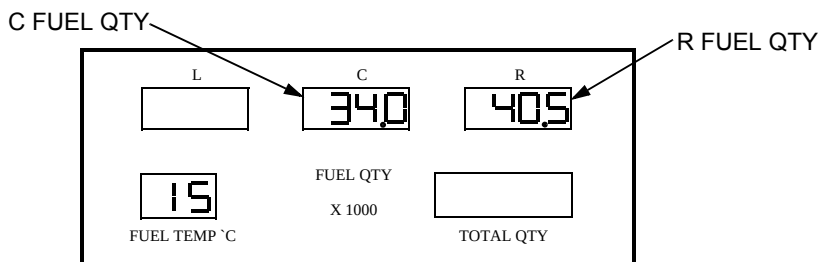
- 6) Subtract Column F from Column C, multiply by 10 to obtain detected fuel leak per hour rate. Record in Column G. A leak rate amount of approximately 2000 lb/hr (900 kg/hr) or more should be considered a fuel leak.
 - B. If an engine fuel leak is confirmed, perform Engine Fuel Leak Non-Normal Checklist.
 - C. If no leak, resume normal fuel management.
 - 2. LEFT TANK FQIS INOPERATIVE (with usable center tank fuel) - engine fuel leak detection:
 - A. Verify both engines do not have a fuel leak (use following procedure and form):
 - 1) Configure the fuel system for verification that both engines do not have an engine fuel leak:
 - a. Ensure all operable main tank fuel pumps are set ON.
 - b. Ensure the fuel crossfeed valve(s) is set OFF.
 - c. Set the center right fuel pump OFF.
- Note: FUEL CONFIG advisory message and light are displayed.
- Note: Center tank now supplies fuel to left engine and right main tank supplies fuel to right engine

C & R FUEL QUANTITY INDICATOR			FMC FUEL USED			
A	B	C	D	E	F	G
Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Used	End Check Fuel Used	Engine Fuel Used (E minus D)	Detected Leak Rate (C-F)x10
C Tank/ L Eng						
R Tank/ R Eng						

ENGINE FUEL LEAK DETECTION FORM
(Center Tank Supplies Left Engine & Right Tank Supplies Right Engine)

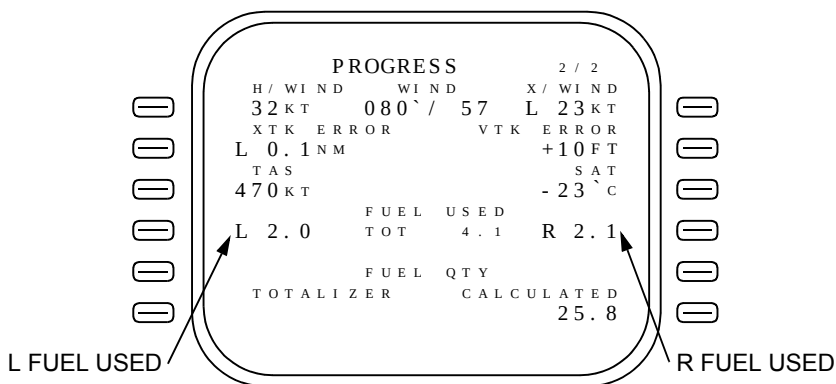


- 2) At start of check:
 - a. From FQIS, record C FUEL QTY and R FUEL QTY in Column A.



FQIS

- b. From FMC, record L FUEL USED and R FUEL USED in Column D.



FMC

- 3) At 6 min time:
 - a. From FQIS, record C FUEL QTY and R FUEL QTY in Column B.
 - b. From FMC, record L FUEL USED and R FUEL USED in Column E.
 - c. Set center right fuel pump ON.
- 4) Subtract Column B from A and record in Column C.
- 5) Subtract Column D from E and record in Column F.



- 6) Subtract Column F from Column C, multiply by 10 to obtain detected fuel leak per hour rate. Record in Column G. A leak rate amount of approximately 2000 lb/hr (900 kg/hr) or more should be considered a fuel leak.
- B. If an engine fuel leak is confirmed, perform Engine Fuel Leak Non-Normal Checklist.
- C. If no leak, resume normal fuel management.
- Note: Prior to resumption of normal fuel management, main tank fuel may be rebalanced by selecting center left fuel pump OFF for 6 min.
3. LEFT TANK FQIS INOPERATIVE (without usable center tank fuel) - engine fuel leak detection:
- A. Verify right engine does not have an engine fuel leak (use following form and procedure).

R FUEL QUANTITY INDICATOR			FMC RIGHT ENGINE FUEL USED			
A	B	C	D	E	F	G
Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Used	End Check Fuel Used	Engine Fuel Used (E minus D)	Detected Leak Rate (C-F)x10
R Tank/ R Eng						

RIGHT ENGINE FUEL LEAK DETECTION FORM
(Right Tank Supplies Right Engine)

- 1) At start of check:
- a. From FQIS, record R FUEL QTY in Column A.



L 	C 0.0	R 38.5
15	FUEL QTY X 1000	
FUEL TEMP °C		TOTAL QTY

R FUEL QTY

FQIS

- b. From FMC, record R FUEL USED in Column D.

PROGRESS				2 / 2
H / WIND	WIND	X / WIND		
32 Kt	080° / 57	L 23 Kt		
XTK ERROR		VTX ERROR		
L 0.1 NM		+10 FT		
TAS		SAT		
470 Kt		-23° C		
FUEL USED				
L 2.0	TOT 4.1	R 2.1		
FUEL QTY				
TOTALIZER		CALCULATED		
		25.8		

R FUEL USED

FMC

- 2) At 6 min time:
 - a. From FQIS, record R FUEL QTY in Column B.
 - b. From FMC, record R FUEL USED in Column E.
- 3) Subtract Column B from A and record in Column C.
- 4) Subtract Column D from E and record in Column F.
- 5) Subtract Column F from Column C, multiply by 10 to obtain detected fuel leak per hour rate. Record in Column G. A leak rate amount of approximately 2000 lb/hr (900 kg/hr) or more should be considered a fuel leak.
- 6) If an engine fuel leak is confirmed, perform Engine Fuel Leak Non-Normal Checklist.



- B. Verify left engine does not have an engine fuel leak (use following procedure and form):
- 1) Configure the fuel system for verification that the left engine does not have an engine fuel leak (without usable center tank fuel):
- a. Set fuel crossfeed valve(s) ON.
 - b. Set left main tank pumps OFF.

Note: Right main tank now supplies fuel to both engines.

R FUEL QUANTITY INDICATOR			FMC CALCULATED FUEL			
A	B	C	D	E	F	G
Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Qty	End Check Fuel Qty	Engine Fuel Used (D minus E)	Detected Leak Rate (C-F)x10

LEFT ENGINE FUEL LEAK DETECTION FORM
(Right Tank Supplies Both Engines)

- 2) At start of check:
- a. From FQIS, record R FUEL QTY in Column A.

L

C

R

0.0

38.5

15

FUEL QTY
X 1000

FUEL TEMP °C

TOTAL QTY

R FUEL QTY

FQIS

- b. From FMC, record FUEL QTY CALCULATED in Column D.



PROGRESS				2 / 2
H / WIND	WIND	X / WIND		
32 KT	080° / 57	L 23 KT		
XTK ERROR		VTX ERROR		
L 0.1 NM		+10 FT		
TAS		SAT		
470 KT		- 23° C		
	FUEL USED			
L 2.0	TOT 4.1	R 2.1		
	FUEL QTY			
TOTALIZER	CALCULATED			
	25.8			

FUEL QTY CALCULATED

FMC

- 3) At 6 min time:
 - a. From FQIS, record R FUEL QTY in Column B.
 - b. From FMC, record FUEL QTY CALCULATED in Column E.
 - c. Set left main tank pumps ON.
 - d. Set fuel crossfeed valve(s) OFF.
- 4) Subtract Column B from A and record in Column C.
- 5) Subtract Column E from D and record in Column F.
- 6) Subtract Column F from Column C, multiply by 10 to obtain detected fuel leak per hour rate. Record in Column G. A leak rate amount of approximately 2000 lb/hr (900 kg/hr) or more should be considered a fuel leak.
- 7) If an engine fuel leak is confirmed, perform Engine Fuel Leak Non-Normal Checklist.
- 8) If no leak, resume normal fuel management.

Note: Prior to resumption of normal fuel management, main tank fuel may be rebalanced by selecting crossfeed valve(s) ON, left main tank fuel pumps ON and right main tank fuel pumps OFF for 6 min.



4. RIGHT TANK FQIS INOPERATIVE (with usable center tank fuel) - engine fuel leak detection:

- A. Verify both engines do not have a fuel leak (use following procedure and form):
- 1) Configure the fuel system for verification that both engines do not have an engine fuel leak:
 - a. Ensure all operable main tank fuel pumps are set ON.
 - b. Ensure fuel crossfeed valve(s) is set OFF.
 - c. Set center left fuel pump OFF.

Note: FUEL CONFIG advisory message and light are displayed.

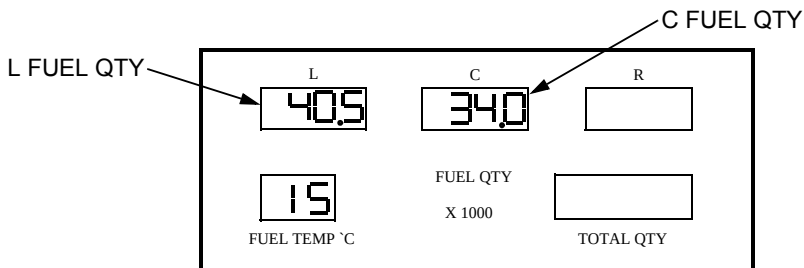
Note: Center tank now supplies fuel to right engine and left main tank supplies fuel to left engine

	L & C FUEL QUANTITY INDICATOR			FMC ENGINE FUEL USED			
	A	B	C	D	E	F	G
	Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Used	End Check Fuel Used	Engine Fuel Used (E minus D)	Detected Leak Rate (C-F)x10
L Tank/ L Eng							
C Tank/ R Eng							

ENGINE FUEL LEAK DETECTION FORM

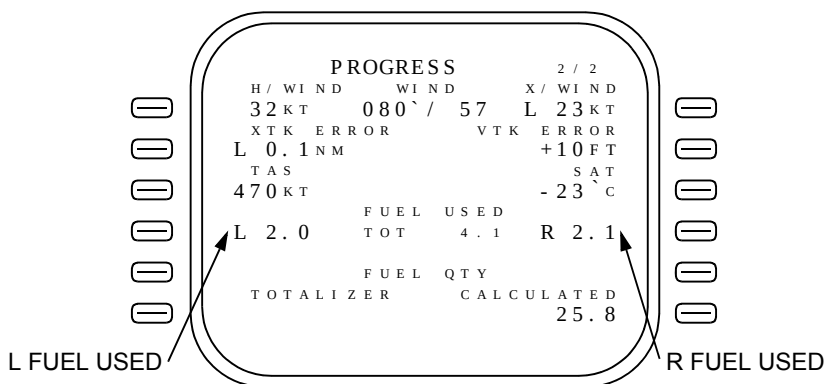
(Center Tank Supplies Right Engine & Left Tank Supplies Left Engine)

- 2) At start of check:
 - a. From FQIS, record L FUEL QTY and C FUEL QTY in Column A.



FQIS

- b. From FMC, record L FUEL USED and R FUEL USED in Column D.



FMC

- 3) At 6 min time:
 - a. From FQIS, record L FUEL QTY and C FUEL QTY in Column B.
 - b. From FMC, record L FUEL USED and R FUEL USED in Column E.
 - c. Set center left fuel pump ON.
- 4) Subtract Column B from A and record in Column C.
- 5) Subtract Column D from E and record in Column F.
- 6) Subtract Column F from Column C, multiply by 10 to obtain detected fuel leak per hour rate. Record in Column G. A leak rate amount of approximately 2000 lb/hr (900 kg/hr) or more should be considered a fuel leak.



- B. If an engine fuel leak is confirmed, perform Engine Fuel Leak Non-Normal Checklist.
- C. If no leak, resume normal fuel management.

Note: Prior to resumption of normal fuel management, main tank fuel may be rebalanced by selecting center right fuel pump OFF for 6 min.

- 5. RIGHT TANK FQIS INOPERATIVE (without usable center tank fuel) - engine fuel leak detection:
 - A. Verify left engine does not have an engine fuel leak (use following form and procedure).

	L FUEL QUANTITY INDICATOR			FMC LEFT ENGINE FUEL USED			
	A	B	C	D	E	F	
	Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Used	End Check Fuel Used	Engine Fuel Used (E minus D)	
L Tank/ L Eng							

LEFT ENGINE FUEL LEAK DETECTION FORM
(Left Tank Supplies Left Engine)

- 1) At start of check:
 - a. From FQIS, record L FUEL QTY in Column A.

L FUEL QTY →

L38.5

C0.0

R

15

FUEL QTY X 1000

FUEL TEMP °C

TOTAL QTY

FQIS

- b. From FMC, record L FUEL USED in Column D.



PROGRESS				2 / 2
H / WIND	WIND	X / WIND		
32 KT	080° / 57	L 23 KT		
XTK ERROR		VTX ERROR		
L 0.1 NM		+10 FT		
TAS		SAT		
470 KT		-23° C		
	FUEL USED			
L 2.0	TOT 4.1	R 2.1		
	FUEL QTY			
TOTALIZER	CALCULATED			
				25.8

L FUEL USED →

FMC

- 2) At 6 min time:
 - a. From FQIS, record L FUEL QTY in Column B.
 - b. From FMC, record L FUEL USED in Column E.
 - 3) Subtract Column B from A and record in Column C.
 - 4) Subtract Column D from E and record in Column F.
 - 5) Subtract Column F from Column C, multiply by 10 to obtain detected fuel leak per hour rate. Record in Column G. A leak rate amount of approximately 2000 lb/hr (900 kg/hr) or more should be considered a fuel leak.
 - 6) If an engine fuel leak is confirmed, perform Engine Fuel Leak Non-Normal Checklist.
 - 7) If no leak, resume normal fuel management.
- B. Verify right engine does not have an engine fuel leak (use following procedure and form):
- 1) Configure the fuel system for verification that the right engine does not have an engine fuel leak:
 - a. Set fuel crossfeed valve(s) ON.
 - b. Set right main tank pumps OFF.

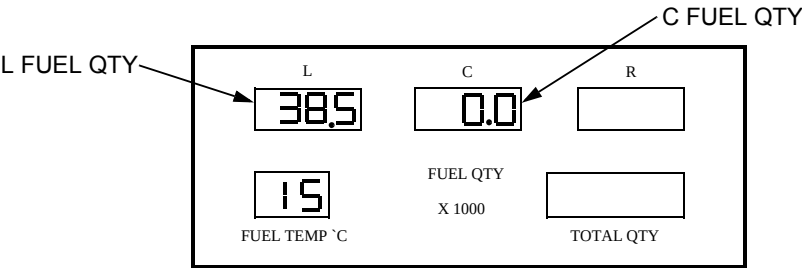
Note: Left main tank now supplies fuel to both engines.



L FUEL QUANTITY INDICATOR			FMC CALCULATED FUEL			
A	B	C	D	E	F	G
Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Qty	End Check Fuel Qty	Engine Fuel Used (D minus E)	Detected Leak Rate (C-F)x10

RIGHT ENGINE FUEL LEAK DETECTION FORM
(Left Tank Supplies Both Engines)

- 2) At start of check:
- a. From FQIS, record L FUEL QTY in Column A.



FQIS

- b. From FMC, record FUEL QTY CALCULATED in Column D.



PROGRESS				2 / 2
H/ WIND	WIND	X/ WIND		
32 KT	080` / 57	L 23 KT		
XTK ERROR	VTK ERROR			
L 0.1 NM		+10 FT		
TAS		SAT		
470 KT		- 23` C		
	FUEL USED			
L 2.0	TOT 4.1	R 2.1		
	FUEL QTY			
TOTALIZER	CALCULATED			
		25.8		

FUEL QTY CALCULATED

FMC

- 3) At 6 min time:
 - a. From FQIS, record L FUEL QTY in Column B.
 - b. From FMC, record FUEL QTY CALCULATED in Column E.
 - c. Set right main tank pumps ON.
 - d. Set fuel crossfeed valve(s) OFF.
- 4) Subtract Column B from A and record in Column C.
- 5) Subtract Column E from D and record in Column F.
- 6) Subtract Column F from Column C, multiply by 10 to obtain detected fuel leak per hour rate. Record in Column G. A leak rate amount of approximately 2000 lb/hr (900 kg/hr) or more should be considered a fuel leak.
- 7) If an engine fuel leak is confirmed, perform Engine Fuel Leak Non-Normal Checklist.
- 8) If no leak, resume normal fuel management.

Note: Prior to resumption of normal fuel management, main tank fuel may be rebalanced by selecting crossfeed valve(s) ON, right main tank fuel pumps ON and left main tank fuel pumps OFF for 6 min.



Landing Gear Down Dispatch

The FMC does not incorporate a gear position input, except for squat switch position. There is no accountability for gear drag and no adjustment to placard and minimum speeds for gear position. There are also no provisions for the FMC to generate climb, cruise, and descent speed schedules appropriate for gear down flight. Although pilot entry of target speeds is possible the resulting FMC performance predictions can be grossly in error. For example, gear down trip fuel estimates can be non-conservative by a factor of two. Similarly, optimum and maximum altitude data will be in error by 10,000 to 15,000 feet. The FMC guidance capability in descent is also affected since the overly shallow descent path which will be generated and guided to will cause undesirable speed shifts and throttle cycling.

The preceding discussion indicates that engaging VNAV gear down dispatch is undesirable, as is the display of VNAV performance predictions. These predictions are displayed, even if VNAV is not engaged, as long as the minimum CDU inputs for VNAV operation are supplied by the flight crew (cost index, gross weight and cruise altitude). If the flight crew were to input only gross weight data on the PERF INIT CDU page during preflight, then VNAV could not be engaged and VNAV predictions would be suppressed. By design, when only gross weight is entered the FMC will perform gross weight tracking and will compute and display VREF speeds on the APPROACH REF CDU page.

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NORDWIND AIRLINES

Boeing 757

**Non-Essential Equipment &
Furnishings
Procedures Manual**

NWS-757-NEF

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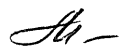
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DISTRIBUTION LIST

ITEM	HOLDERS/LOCATIONS
1	CONTINUING AIRWORTHINESS DEPARTMENT
2	QUALITY ASSURANCE
3	MAINTROL
4	MAINTENANCE SHOPE
5	LINE STATIONS
6	DIRECTOR OF FLIGHT OPERATIONS
7	AIRCRAFT
8	NORDWIND AIRLINES LOCAL NETWORK

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LIST OF EFFECTIVE PAGES

(*): I = Initial A = Added R = Revised

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Cover Page	1	I	00	13-Dec-2013
Approval Page	2	I	00	13-Dec-2013
Distribution List	3	I	00	13-Dec-2013
List of Effective Pages	4	I	00	13-Dec-2013
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	10	I	01	13-Dec-2013
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	24	I	00	13-Dec-2013
	25	I	00	13-Dec-2013
	26	I	00	13-Dec-2013
	27	I	00	13-Dec-2013
	28	I	01	13-Dec-2013
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INTRODUCTION

NordWind Airlines has used the deferral authority granted in the MMEL as basis for developing Nonessential Equipment and Furnishings Program, approved through the MEL, that provides relief for inoperative, damaged, or missing nonessential equipment and furnishings located throughout aircraft. NordWind Airlines is responsible for designing, implementing, maintaining and revising the NEF program.

NordWind Airlines has developed a Nonessential Equipment and Furnishings program, policy and procedures based in part through the use of the following documentation:

- FAA Order 8900.10, Volume 4, Chapter 4,
- MMEL Global Change GC-138 (PL-116), and
- NEF Universal List (attachment to PL-116)

The Nord Wind Airlines` NEF program is approved by the Aviation Authority of the Russian Federation via an entry in the Nord Wind Airlines` MEL in Chapter 25 Item "Non-Essential Equipment & Furnishings".

Before approval NordWind Airlines need submit their NEF deferral program (and NEF Item list) to the Federal Air Transport Agency for review.

NONESSENTIAL EQUIPMENT AND FURNISHINGS (NEF)

NEF are those items installed on the aircraft as part of the original type certification, supplemental type certificate, or other forms of alteration that have no effect on the safe operation of flight and would not be required by the applicable certification rules or operational rules. They are those items that, if damaged, inoperative, or missing, have no effect on the aircraft's ability to be operated safely under all operational conditions.

These nonessential items may be installed in areas including, but not limited to, the passenger compartment, flight deck area, service areas, cargo areas, crew rest areas, lavatories, and galley areas. NEF items are not items already identified in the MEL or CDL of the applicable aircraft. They do not include items that are functionally required to meet the certification rule or for compliance with any operational rule.

The NordWind Airlines` NEF program shall not provide for deferral of items within serviceable limits identified in the manufacturer's maintenance manual or NordWind Airlines` approved maintenance program such as wear limits, fuel/hydraulic leak rates, oil consumption, etc.



NEF PROGRAM

NORDWIND AIRLINES NEF POLICY:

- USE THIS PROGRAM FOR DEFERING DEFECTS IN ACCORDANCE WITH MEL'S ITEM 25-20-01.
- THE NUMBER OF NEF DEFERRED DEFECTS MUST BE RESTRICTED IN SOME AREAS OF AIRCRAFT IN ACCORDANCE WITH THE FOLLOWING TABLE.

AREA OF AIRCRAFT	MAX NUMBER OF DEFERRED DEFECTS
Cockpit Area	3
Galleys Area	5
Passenger Cabin	8
In-Flight Entertainment	8
Passenger Seats	23
Lavatories	4
Closets and Vestibule	3
Service Bay Areas	3
Cargo/Baggage Compartment	4

TOTAL NUMBER OF DEFERRED DEFECTS MAY NOT BE MORE THAN 30

**NOTE: ALL NEF DEFERRED DEFECTS MUST BE INSERTED IN
COMPUTERIZED SYSTEM "WINGS" UNDER TASK CODE "NF"**

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NORDWIND AIRLINES` NEF Program is as follows:

- A. The NEF Item List has been developed, and NEF Items are tracked through the use of the Aircraft's Technical Log/Cabin Technical Log and NEF Universal List (attach. 2 to FAA MMEL Policy Letter #116).
- B. The NEF List includes the following information for each NEF item:
 - Repair Interval (in accordance with MEL Repair intervals)
 - Maintenance (M) Procedure (If required)
 - Operations (O) Procedure (If required)
 - Statement either prohibiting or permitting operation with items inoperative, provisos (Conditions and limitations) for such operation
- C. The NEF Item evaluation process will include the following items:
 - Is the item required for the operational rules in which the aircraft is operated?
 - Does it create the potential for fire/smoke or other hazardous conditions?
 - Could it have an adverse effect on other required systems or components?
 - Does its condition potentially affect the safety of crew, passengers, or service personal?
 - Could it have a negative impact on emergency or abnormal procedures?
 - Does it create additional workload for the crew at critical times of flight or flight preparation?
 - Crewmembers may need to evaluate the deferred NEF on a flight-by-flight basis.

NOTE: The above evaluation process must be accomplished for the damaged, inoperative, or missing items at each face value, and also for the underlying cause of the discrepancy.

D. Placarding Procedure:

Each inoperative Item when they are accessible to the crew or flight attendants in flight, the control(s) and/or inoperative unit(s) or component(s) must be clearly placarded. Display an Inoperative Placard on or near of inoperative unit(s) or component(s) and note it in the Aircraft Technical Log (Cabin Technical Log).

NOTE: To the extent practical, placards should be located adjacent to the control or indicator for the item affected; however, unless otherwise specified, placard wording and location will be determined by the qualified maintenance personal.

- E. NordWind Airlines` NEF Program & Procedures Manual will be kept in the aircraft specific Minimum Equipment List (MEL) Binder.
- F. NordWind Airlines` aircraft's MEL has incorporated the requirements of Master Minimum Equipment List (MMEL) Global Change GC-138 (PL116) in Chapter 25.

- G. If a discrepancy is discovered that is not covered by the aircraft's Configuration Deviation List (CDL), MEL or NEF Item List. The Flight Crew, with the assistance of the Technical Department and/or personnel of Maintenance Control Center; may perform the NEF Item Process to determine if the discrepancy can be classified as the NEF Item and subsequently deferred. The discrepancy must meet the intent of the NEF Item Process or it will require the issue to be resolved before further flight. NordWind Airlines will continually add items to the NEF list as they see fit. Upon conclusion of the procedures and it is determined that the discrepancy can be added to the NEF list, revision of the NEF List shall be completed with next intended revision of NordWind Airlines` NEF Program and Procedures Manual.
- H. If a discrepancy is discovered during Before Departure Check, upon conclusion of the NEF Item Process, and it is determined that the inoperative equipment can be classified as NEF Item, defect can be deferred up to 10 days. In this case, use the following digits and letters to create new NEF item number, to enter an information system and to make records: the first digit - the number of the fault zone, then the abbreviation **NNI** – New NEF Item. For example, new NEF item in the Galley zone - 2.NNI. Then within 24 hours, the ERR with the full description of a new item and information on the execution of the NEF Item Process should be submitted to the Engineering Department. Engineering Department analyzes ERR, determines repair Interval for new item and assigns a number with the index "t" which means "temporary" to the new item. All this information should be contained in the response to the ERR. Response to the ERR must be made within 10 working days. Further records of the fault should be remade with a new number. Temporary number is changed, in the process of next intended revision to permanent, by removing the index "t". During weekends and official holidays the request similar to mentioned above should be sent to Maintrol Manager, or its Deputy instead of issuing the ERR.
- I. Because the NEF program is a standard of NordWind Airlines, increasing the maximal number of deferred defects and extension of the NEF Item Repair Interval does not require approval of the Aviation Authorities.
- J. In case of exceeding the allowable number of deferred defects, technical staff should issue request to the Engineering Department via ERR. Engineering Department makes an analysis and develops appropriate solutions approved by the Head of Technical Department.
- K. If the deferred defect cannot be eliminated within the prescribed period due to delayed delivery of spare parts or the impossibility of carrying out works in line maintenance, extension of the NEF Item Repair Interval is performed by the decision of Engineering Department, in accordance with the submitted ERR. After NEF Item is extended, the maximum allowable threshold for rectification of NEF Item must be prior to the completion of the next heavy maintenance visit. During weekends and official holidays the request similar to mentioned above should be sent to Maintrol Manager, or its Deputy instead of issuing the ERR.
- L. In some cases, repair of the affected equipment or components may be postponed until the next heavy maintenance visit.



- M. In case of exceeding the maximum allowable number of deferred defects, recognizing during the current (on-going) maintenance just before departure, one-time permission for flight (or series flights) can be issued by Production Manager or its Duty via E-mail or Telex. Such E-mail or Telex should be send to the following addresses: Flight Dispatch; Line Station Shift Managers; Line Station Managers; Maintenance Control Center; Production Department Manager.
- N. Allowed that the decorative elements (such as linings, trims, arm caps, moldings, etc.) can carry the scars of operational wear and tear. Such traces are not considered a defect in the following conditions:
- remains a decorative element complete working capacity,
 - item has no cracks, breaks, chips, burrs and other damage can cause injury to passengers, crew members and service personal,
 - worn with complete loss of the original color does not exceed 30% of the entire area of a decorative element.

If the worn with complete loss of the original color exceeds 30% of the entire area of a decorative element and such defects cannot be eliminated by simple repairs, the repair or replacement of decorative elements may be deferred until the next heavy maintenance visit.

- O. Section 10 "Miscellaneous" of the NEF Item List covers defects which may be located throughout the aircraft such as: Placards/Decals; Surface Appearance (paint, coating, contamination surfaces); Seals/Sealant.
- P. Placards / Decals: all marking, which installation is regulated by Airworthiness Directives or noted by an asterisk in Airplane Maintenance Manual (AMM) is REQUIRED. If excessive wear of such decal doesn't allow reading information correctly it will be necessary to repair or replace by the new one before next flight. If REQUIRED marking has edge delamination, but the decal information is legible, perform edge sealing before next flight.

If marking has no specified requirements, it is considered as NON-REQUIRED. Such marking if damaged or missing has no effect on the aircraft ability to be operated safely under operational conditions. It is allowed to be postponed this marking installation or recovering in accordance with NEF Program (Refer to NEF Item List, Section 10). If NON-REQUIRED marking has edge delamination but the decal information is legible, perform edge sealing within 3 days.

- Q. Paint: decorative paint peeling has no effect on the aircraft ability to be operated safely under operational conditions, therefore is not considered a defect, and so if any findings are not revealed, the touch-up painting is recommended to postpone until the earliest convenient maintenance opportunity.

The NEF Program is used for damages to Decorative aircraft painting that are considered as appearance items and are cosmetic in nature. Decorative means the upper layers of paint not including primer. The type of these damages to paint (interior and exterior) include items that are soiled, worn, cracked, scratched,

marred, or blemished (Refer to NEF Item List, Section 10). Damages that are not decorative and not cosmetic in nature may be evaluated for deferral using the MEL/CDL, SRM or AMM requirements.

- R. Seals: the Dacron cloth common to the seals can be frayed provided there is no damage to the silicon rubber portion of the seal. If the silicon rubber portion has damages as light wear marks, minor tears, flaking and cracking, but the seals still perform their intended function, repair or replacement of this seal can be deferred in accordance with NEF Program (Refer to NEF Item List, Section 10).

The intended function means that the seal still keeps the aerodynamic elasticity and flexibility, seal has no loss of material portions, contact to matched part is obeyed per the AMM clearance requirements, the cabin leakage rate is within AMM data.

Seals that are found to be excessively worn or damaged so that they do not perform their intended function should be replaced before any more flight.

- S. Sealant: NordWind Airlines NEF Program allows to postpone restoration of sealant if the following restrictions provided:

- Bad sealant condition is not associated with corrosion.

NOTE: For this reason the requirements from Structural Repair Manual (SRM) must be taken into account and the visual inspection of affected area for cracks, scratches, corrosion or other damage evidence has to be done. Also sealant bad condition can trap moisture which could lead to corrosion. If any findings are found the appropriate repairing must be performed before next flight.

- Daily detail visual inspection of structure at affected area of damaged sealant for cracks, scratches, corrosion or other damage evidence is done.

NEF ITEM PROCESS

The following flow chart will be used for decision making in determining if a discrepancy meets the intent of a NEF Item. If a discrepancy is discovered that is not covered by the aircraft's Configuration Deviation List (CDL), MEL or NEF List, the Flight Crew, with the assistance of the Technical Department, and/or personnel of Maintenance Control Center should collaborate together to ensure that additional NEF Items can be added to the NEF List are based on the logic requirements of the following flow chart, and subsequently deferred.

Upon conclusion of the procedures of the flow chart and it is determined that the discrepancy can be added to the NEF list, item can be deferred before flight.

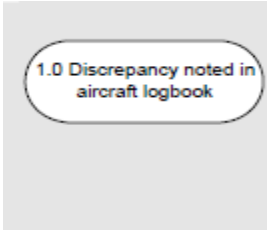
After completed of NEF Item Process you should inform about it Engineering Department using Engineering Recommendation Request (ERR) within 24 hours.

Revision of the NEF List shall be completed with next intended revision of NordWind Airlines NEF Program and Procedures Manual.

NEF ITEM PROCESS FLOWCHART

1.0 Discrepancy noted in aircraft logbook.

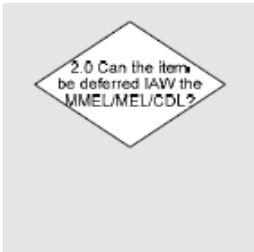
The inoperative, damaged or missing item must be identified and documented in the aircraft technical logbook (or other approved location) by:



1.0 Discrepancy noted in aircraft logbook

1. Flight Crew; or
2. Company maintenance personnel; or
3. Personnel authorized and approved to perform such functions.

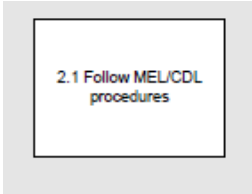
2.0 Can the item be deferred in accordance with (IAW) the MMEL, CDL, or the MEL?



2.0 Can the item be deferred IAW the MMEL/MEL/CDL?

1. If the inoperative, damaged, or missing item is listed in the MMEL, CDL, or the MEL, then the deferral procedures for that item must be followed. If the item is a subcomponent of a primary system identified in the MMEL/MEL/CDL, where no previous relief was authorized, the subcomponent may not be deferred in accordance with the NEF procedures outlined in Chapter 25 of the MMEL or MEL.

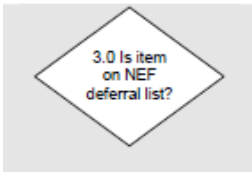
2.1 Follow MEL/CDL procedures.



2.1 Follow MEL/CDL procedures

1. If the item is identified in another part of the MEL/CDL, then the procedures approved for the deferral of such item must be followed.

3.0 Is item on the NEF deferral list?



3.0 Is item on NEF deferral list?

1. Is the item on the NEF list? If yes, then follow the NEF deferral procedures in step 3.1. (Items that are not previously on the NEF list should proceed to step 4.0)

3.1 Defer item IAW the NEF deferral program.

3.1 Defer item
IAW the NEF
program

1. If the item is identified in the NEF deferral list, then the procedures approved for the deferral of such item shall be followed.

4.0 Does the item affect the safety of flight?

4.0 Does the Item
affect the safety of
flight?

1. Is it obvious from a maintenance or operational perspective that the item, in and of itself, could have an adverse effect on the safe conduct of flight? If there is an obvious safety-of-flight issue, then the inoperative, damaged, or missing item may not be deferred and step 4.1 shall be followed.

4.1 Repair item prior to flight.

4.1 Repair Item prior to
flight.

1. The item may not be deferred and must be repaired prior to flight.

5.0 Can source (underlying cause) of the discrepancy be identified? (If applicable)

5.0 Can source
(underlying cause)
of the discrepancy
be identified?

1. Can the source of the discrepancy be identified? This step may or may not apply to the item under consideration. If the source can be identified, then proceed to step 6.0, otherwise proceed to step 4.1.

6.0 Can source (underlying cause) of discrepancy affect equivalent levels of safety?

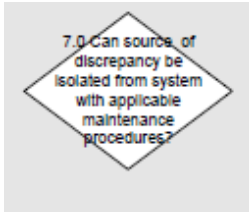
4.1 Repair Item prior to
flight.

1. If the source (underlying cause) of the discrepancy affect equivalent levels of safety, then it must be determined if it can be isolated from all other systems so as to alleviate any safety concern.

Note: In making this determination, very close coordination between the Flight Crew, maintenance and operations personnel may be required.

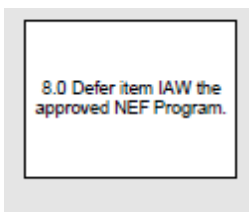
2. If, after review, the source of the discrepancy could be considered a safety-of-flight concern, the item must be repaired prior to flight (step 4.1). If the source of the discrepancy is not a safety-of-flight concern then defer the item in accordance with the approved NEF procedures in step 8.0. If it cannot be determined, or is uncertain, that the source of the discrepancy is a safety-offlight concern then proceed to 7.0.

7.0 Can source (underlying cause) of discrepancy be isolated from the system with applicable maintenance procedures?



1. If applicable, the source (underlying cause) of the discrepancy must be isolated from all other systems so as to alleviate the safety-of-flight concern.
2. If the item cannot be safely isolated then the item must be repaired prior to flight (step 4.1).
3. If isolated, the isolation of the source must pass the entire test identified in the evaluative process (steps 4.0-7.0) for the item.
4. If source can be isolated then proceed to step 8.0.

8.0 Defer Item IAW the existing NEF program.



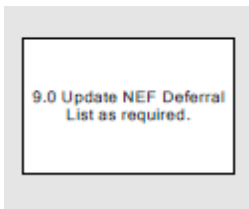
1. Defer the item if, after completing the previous 8 steps, the item can be deferred IAW the NEF program.

Note: Before an item can be deferred as an NEF item, the NEF program evaluation process for determining shall be followed if an item can be considered a NEF. Although NEF items are not safety-of-flight items, they have not been evaluated through the normal AEG review process and therefore require the concurrence of the Flight Crew, Maintenance, and Operational personnel, if applicable. NEF items are **not** deferred under the authority of an airframe and powerplant certificate but rather the item is deferred under the NEF program.

The evaluation process should determine items such as:

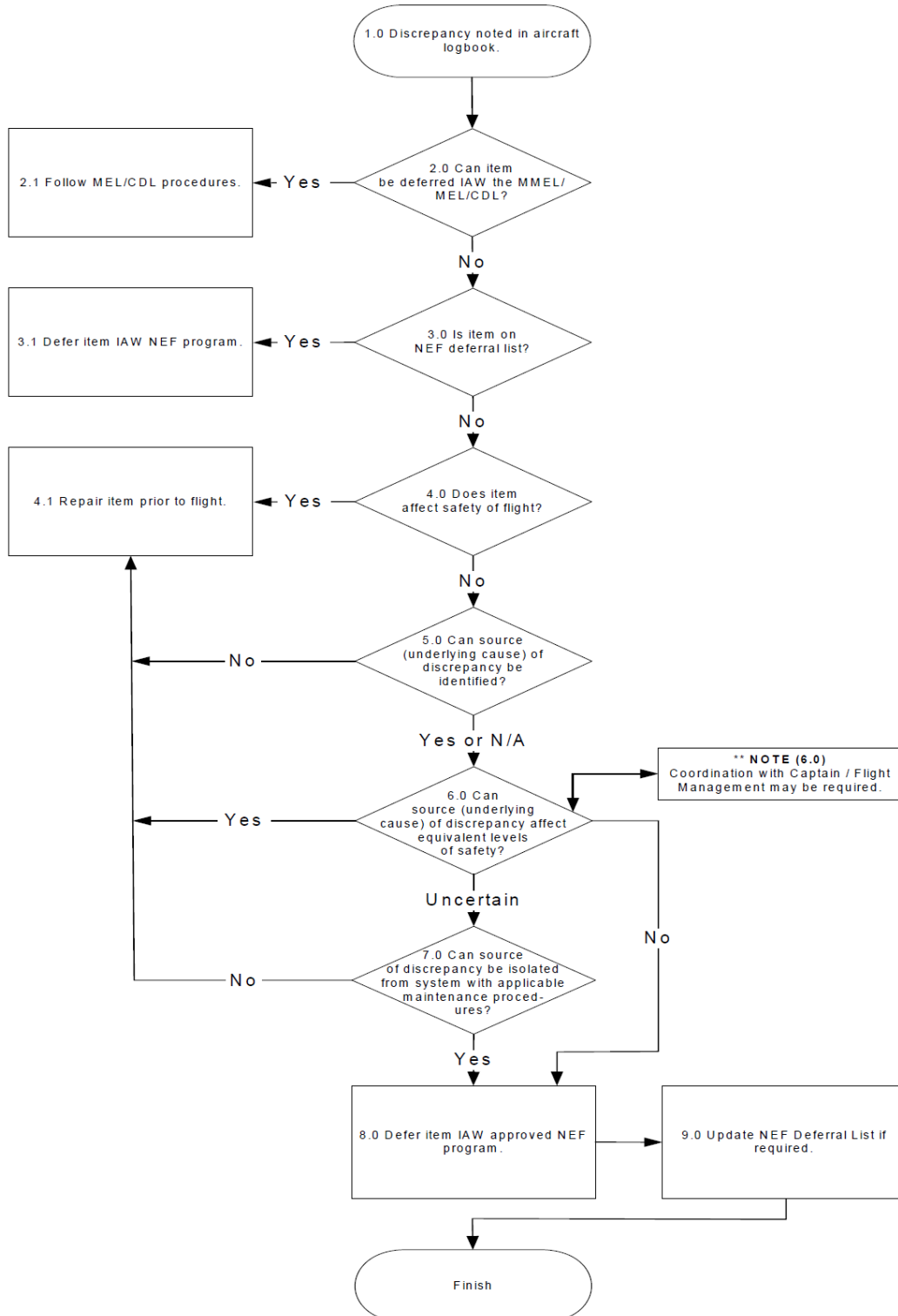
- a. Is the item required for the operational rules in which the aircraft is operated?
- b. Does it create the potential for fire/smoke or other hazardous conditions?
- c. Could it have an adverse effect on other required systems or components?
- d. Does its condition potentially affect the safety of passengers, crew, or service personnel?
- e. Could it have a negative impact on emergency or abnormal procedures?
- f. Does it create additional workload for the crew at critical times of flight or flight preparation?
- g. Crewmembers may need to evaluate the deferred NEF on a flightby-flight basis.

9.0 Update NEF deferral list as required.



1. NordWind Airlines will continually add items to the NEF list as they see fit.
2. Upon conclusion of the procedures and it is determined that the discrepancy can be added to the NEF list, necessary inform about it Engineering Department using Engineering Recommendation Request (ERR) within 24 hours. Revision of the NEF List shall be completed with next intended revision of NordWind Airlines NEF Program and Procedures Manual.

M MEL Chapter 25 Equipment and Furnishings Nonessential Equipment and Furnishings (NEF)



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NEF ITEM LIST

The following items may be deferred in accordance with the NEF program.

##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
1. COCKPIT (Max number of defects - 3)			
1.1	Sunshades	A	May be inoperative, damaged or missing provided: a. Defect is acceptable for Flight Crew, and b. Repair or replacement must be made within 40 days.
1.2	Cup Holders	D	May be damaged, inoperative or missing.
1.3	Curtains	D	May be worn, damaged, inoperative or missing.
1.4	Cushions	D	May be worn, torn, frayed or stained as long as the item is serviceable as determined by the Flight Crew.
1.5	Vent knobs	D	May be inoperative, damaged or missing as long as the air flow through the vent is acceptable to the Flight Crew.
1.6	Gaspers	D	May be inoperative, damaged or missing as long as the air flow through the vent is acceptable to the Flight Crew.
1.7	Upholstery	D	May be worn, soiled, frayed or stained.
1.8	Trim: overhead, sidewall, seat etc.	D	May be worn, damaged, or missing provided it does not present hazard to crew or ground personal.
1.9	Smoke Goggle Stowage Bags	D	May be inoperative or missing as long as the crew has an alternate location for Smoke Goggle storage.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
1.10	Side Panel Map Cases	D	May be inoperative, damaged or missing as long as the crew has an alternate location for map storage.
1.11	Side View Mirrors	D	May be damaged, inoperative or missing.
1.12	Foot Rests	D	May be damaged, inoperative or missing.
1.13	Yoke Clips	D	May be damaged, inoperative or missing.
1.14	Hand Microphone /Headset Holders	D	May be damaged, inoperative or missing.
1.15	Access Compartment Latches	D	May be damaged, inoperative or missing provided compartment is not used.
1.16	Ashtrays	D	May be damaged, inoperative or missing.
1.17	Coat and/or Hat Hooks	D	May be damaged, inoperative or missing.
1.18	Document Holders	D	May be damaged, inoperative or missing.
1.19	Spring Clips	D	May be damaged, inoperative or missing.
1.20	Carpets	D	May be worn, soiled, or stained as long as the item is serviceable as determined by the Flight Crew.
1.21	Logbook Holder	D	May be damaged, inoperative or missing.
1.22	Observer's Storage Compartment	D	May be inoperative or missing. (M) Maintenance will secure the door closed. Flight Crew may perform task if Maintenance is not available.
1.23	Observer's Foot Rest/Foot Holder	D	May be damaged, inoperative or missing.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
1.24	Note Pads Holders	D	May be damaged, inoperative or missing.
1.25	Pens / Pencils Holders	D	May be damaged, inoperative or missing.
1.26	Wall Coverings (including sidewall panels)	D	May be worn, soiled, frayed or have minor damage as long as the item is serviceable as determined by the Flight Crew.
1.27	Electrical Outlets and Covers	D	The outlets may be inoperative. The covers may be damaged or missing. (M) If required, Maintenance will electrically isolate the affected outlet by pulling and collaring the appropriate circuit breaker. Flight Crew may perform task if Maintenance is not available. If the cover is damaged or missing, no maintenance action is required.
1.28	Various Forms of Small Interior Parts (bumpers; linings; stoppers; moldings; decorative items etc.)	D	May be inoperative, damaged or missing provided It has not effect on performance of other equipment, It does not present hazard to pax/crew or impede emergency egress, and it does not prevent the implementation of the necessary procedures.
2. GALLEYS (Max number of defects – 5 for each galleys)			
2.1	Coffee Makers	D	May be inoperative. (M) Unserviceable unit placarded inoperative, removed from aircraft, appropriate circuit breaker opened and sealed in open position. Flight Crew may perform task if Maintenance is not available.
2.2	Convection Oven and Controls	D	May be inoperative. (M) Unserviceable unit placarded inoperative, removed from aircraft, appropriate circuit breaker opened and sealed in open position. Flight Crew may perform task if Maintenance is not available.
2.3	Hot Cup and Controls	D	May be inoperative. (M) Unserviceable unit placarded inoperative, removed from aircraft, appropriate circuit breaker opened and sealed in open position. Flight Crew may perform task if Maintenance is not available.
2.4	Trash Compactor	D	May be inoperative. (M) Unserviceable unit placarded inoperative, removed from aircraft, appropriate circuit breaker opened and sealed in open position. Flight Crew may perform task if Maintenance is not available.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
2.5	Espresso Machine and Controls	D	May be inoperative. (M) Unserviceable unit placarded inoperative, removed from aircraft, appropriate circuit breaker opened and sealed in open position. Flight Crew may perform task if Maintenance is not available.
2.6	Ice Container(s)	D	May be inoperative provided unserviceable unit removed from aircraft.
2.7	Water Boilers/ Heaters	D	May be inoperative. (M) Unserviceable unit placarded inoperative, switched off or removed from aircraft, appropriate circuit breaker opened and sealed in open position. Flight Crew may perform task if Maintenance is not available.
2.8	Waste Containers	C	(M) May be inoperative provided unserviceable unit removed from aircraft and container access is secured to prevent waste introduction into compartment.
2.9	Work Lights and Controls	D	May be inoperative provided remaining lighting is sufficient for cabin attendants to perform their duties.
2.10	Sink Drains and Water Spigots	D	May be inoperative provided associated components are deactivated and secured, and it does not prevent the implementation of the necessary procedures.
2.11	Work table/ container retrievers	D	May be inoperative or missing provided that it does not prevent for cabin attendants to perform their duties safely.
2.12	Chilers	D	May be inoperative.
2.13	Gaspers	D	May be inoperative, damaged or missing.
2.14	Electrical Outlets and Covers	D	The outlets may be inoperative. The covers may be damaged or missing. (M) If required, Maintenance will electrically isolate the affected outlet by pulling and collaring the appropriate circuit breaker. Flight Crew may perform task if Maintenance is not available. If the cover is damaged or missing, no maintenance action is required.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
2.15	Galley Supplement Heaters and Controls	D	May be inoperative provided: a. Appropriate circuit breakers of affected Galley Heater opened and collared, and b. Placard INOP is installed near affected Galley Temperature Control Switch. (M) Appropriate C/B's are located P110 Power on Management Panel: for <u>Forward</u> Galley - FWD GLY HTR(A2) and FWD GLY HTR CTRL (H22); for <u>Middle</u> Galley - MID GLY HTR(D5) and MID GLY HTR CTRL (J19); for <u>Aft</u> Galley – AFT GLY HTR1(B2); AFT GLY HTR2(C2) and AFT GLY HTR CTRL1.2 (H21).
2.16	Coating of working surfaces	D	May be damaged provided it does not prevent cabin attendants of performing their duties.
2.17	Galley Speaker Grill	D	May be damaged provided speaker operates normally.
2.18	Floor Mat	D	May be worn, frayed, or soiled provided that it does not prevent for cabin attendants to perform their duties safely.
2.19	Lightning Dim/Bright Push-buttons	D	May be inoperative provided that it does not prevent for cabin attendants to perform their duties.
2.20	Various Forms of Small Interior Parts (bumpers; stoppers; moldings; linings; decorative items etc.)	D	May be worn, inoperative, damaged or missing provided It has not effect on performance of other equipment, It does not present hazard to pax/crew or impede emergency egress, and it does not prevent the implementation of the necessary procedures.
3.PASSENGER CABIN (Max number of defects - 8)			
3.1	Miscellaneous Cabin Forms	D	May be missing, damaged, needs painting or replenishing.
3.2	Appearance Items:		
a.	Cabin Interior Trim	D	May be worn, damaged or missing provided it does not present hazard to pax/crew or impede emergency egress as long as the item is serviceable as determined by the Flight Crew.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
b.	Carpet/Floor Coverings	D	May be worn, frayed, or soiled provided it does not present hazard to pax/crew or impede emergency egress as long as the item is serviceable as determined by the Flight Crew.
c.	Curtains / Tiebacks	D	May be worn, soiled, frayed, damaged or missing provided does not present hazard to pax/crew or impede emergency egress.
d.	Wall Coverings (including sidewall panels)	D	May be worn, frayed, discoloration or have minor damage as long as the item is serviceable as determined by the Flight Crew.
3.3	Cabin Lighting / Signs :	May be inoperative or missing if items not covered by MEL ATA 33	
a.	Reading Lights	A	May be inoperative or missing provided repair or replacement must be made within 30 days.
b.	Light Lens/ Covers	D	May be damaged or missing but light functions properly.
c.	Lavatory Occupied Lights	A	May be inoperative or missing provided repair or replacement must be made within 30 days.
3.4	Safety Demo Equipment: Demo Tape / CD	C	May be inoperative, damaged or missing. (M) Notify flight attendant, physical demo may be required.
3.5	Safety Demo Equipment: Safety Belt, Life Vest, and O2 Mask	C	May be inoperative, damaged or missing provided safety video is available.
3.6	Spare Life Vests	D	Any of excess of those that required by MEL Item 25-18-01 may be inoperative or missing provided is placarded inoperative, removed from the installed location, and placed out of sight so it cannot be mistaken for a functional unit.
3.7	Magazine Rack / Restraint	D	May be damaged, inoperative or missing.
3.8	Gaspers	D	May be inoperative as long as the air flow through the gasper is acceptable for passenger comfort.
3.9	Ash Trays	D	May be damaged, inoperative or missing provided it does not present hazard to pax/crew.
3.10	Decorative Trim / Trim Strips	D	May be worn, missing or have minor damages provided it does not present hazard to pax/crew or impede emergency egress.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
3.11	Cushions / Upholstery (including F/A seats)	D	May be worn, frayed or soiled provided it does not present hazard to pax/crew or impede emergency egress as long as the item is serviceable as determined by the Flight Crew.
3.12	Electrical Outlets and Covers	D	The outlets may be inoperative. The covers may be damaged or missing. (M) If required, Maintenance will electrically isolate the affected outlet by pulling and collaring the appropriate circuit breaker. Flight Crew may perform task if Maintenance is not available. If the cover is damaged or missing, no maintenance action is required.
3.13	Cabin Mirrors	D	May be damaged or missing provided it does not present hazard to pax/crew or impede emergency egress.
3.14	Cabin Windows	D	May be needs cleaning, moisture between panes.
a.	Interior Panel:	D	May be damaged, needs cleaning.
b.	Shades	D	May be damaged, inoperative or missing provided it does not present hazard to pax/crew or impede emergency egress.
c.	Window Trim	D	May be inoperative or missing provided it not present hazard to pax/crew or impede emergency egress.
3.15	Seat Track Covers	D	May be damaged or missing.
3.16	Attendant Storage Box	D	May be inoperative or damaged, provided affected compartment is not used for storage of any item.
3.17	Seatback/Sidewall Literature Pockets	D	May be damaged or missing.
3.18	Aircraft Removable Equipment	D	May be damaged, inoperative or missing.
3.19	Bassinet or its attachment point	D	May be inoperative or missing.
3.20	Air Grill Covers	D	May be damaged, inoperative or missing provided it does not present hazard to pax/crew or impede emergency egress.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS,EXCEPTIONS & PROCEDURES
3.21	Paint or Coating inside Luggage Racks/Overhead Storage Bins/ Cabin Storage Compartments etc	D	May be damaged or needs cleaning provided: a. Appropriate Luggage Racks/ Overhead Storage Bins/ Cabin Storage Compartments operates normally, b. It does not present hazard to pax/crew.
3.22	Cabin Handset Cradle	D	May be damaged provided handset operates normally and can be secured during flight.
3.23	Cabin Handset Directory Placard	D	May be damaged or missing provided handset operates normally and it does not prevent for cabin attendants to perform their duties.
3.24	Various Forms of Small Interior Parts (bumpers; stoppers;moldings; linings; decorative items etc.)	D	May be inoperative, damaged or missing provided It has not effect on performance of other equipment, It does not present hazard to pax/crew or impede emergency egress, and it does not prevent the implementation of the necessary procedures.
3.25	Seat Belt Extensions	D	Any of excess of that required may be inoperative and missing.
3.26	Seat Number Placards	D	May be damaged or missing.
4. IN-FLIGHT ENTERTAINMENT(Max number of defects - 8)			
4.1	Individual Video Screens	D	May be inoperative or damaged provided it does not present hazard to pax/crew or impede emergency egress.
4.2	Entertainment Controllers	D	One controller per passenger compartment may be inoperative provided it acceptable for passenger comfort.
4.3	Airshow System	D	May be inoperative as long as it acceptable for passenger comfort.
4.4	PSE Preview Screen Function	D	May be inoperative.
4.5	Movie Projectors (includes VCR's, DVD players)	D	May be inoperative or missing.
4.6	Boarding Music	D	May be inoperative.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
4.7	Video Monitor(s) (wall- or overhead mounted units)	D	May be inoperative or damaged.
4.8	IFE Video Monitor Shroud(s)	D	May be damaged or missing.
4.9	In-Seat Video Player(s)/Personal Video Players	D	May be inoperative or missing.
4.10	Audio Entertainment System(s)	D	May be inoperative.
4.11	Information Storage Devices (CD; Video Tape; Hard Disc etc)	D	May be inoperative or missing.
4.12	Video/Projector Screen	D	May be damaged or missing.
5. PASSENGER SEATS (Max number of defects – 23)			
5.1	Passenger Seat Tray Table Assembly	D	(M) May be inoperative or missing as long as it acceptable for passenger comfort provided that all required actions are performed to prevent injury to passengers and crew.
5.2	Passenger Seat Call Light(s)	D	May be inoperative or missing.
5.3	Passenger Seat Call Button(s)	D	May be inoperative or missing provided Passenger Seat Call Button on the nearest seat operates normally.
5.4	IFE system Jack(s)	D	May be damaged, inoperative or missing provided it does not present hazard to pax/crew or impede emergency egress.
5.5	Passenger Snake Reading Light(s)	D	May be inoperative or missing.
5.6	Passenger Seat Headrest	A	May be damaged, missing or needs cleaning provided: a. Appropriate Passenger Seat operates normally, b. It acceptable for passenger comfort, c. It does not present hazard to pax/crew or impede emergency egress, and d. Repair or replacement must be made within 30 days.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
5.7	Passenger Seat Foot Rest(s)	D	May be inoperative or missing provided it does not present hazard to pax/crew or impede emergency egress.
5.8	Passenger Seat Trim /Molding/Fairing	D	May be worn, damaged or missing provided it does not present hazard to pax/crew or impede emergency egress.
5.9	In-Seat Power Supply System	D	May be inoperative provided it does not present hazard to pax/crew and that acceptable for passenger comfort.
5.10	Passenger Seat Cushion(s)	D	May be worn, torn, frayed or stained as long as the item is otherwise serviceable as determined by the Flight Crew.
5.11	Passenger Seat Armcap	D	May be damaged or missing as long as the item is serviceable as determined by the Flight Crew and provided it not present hazard to pax/crew or impede emergency egress.
5.12	Digital Passenger Control Unit/ Handset	D	May be inoperative provided that acceptable for passenger comfort.
5.13	Passenger Seats Life Vest Container Cover	D	May be damaged, missing or needs cleaning provided: a. Appropriate Passenger Seat operates normally, b. It acceptable for passenger comfort, c. It does not present hazard to pax/crew or impede emergency egress, and d. Repair or replacement must be made within 30 days.
6. LAVATORIES (Max number of defects – 4)			
6.1	Door Spring	D	May be inoperative or missing.
6.2	Sanitizer Dispenser	D	May be inoperative or missing.
6.3	Seal Strips on Lavatory Door	D	May be damaged or missing.
6.4	Privacy Stop on Lavatory Door	D	May be damaged, inoperative or missing provided Lavatory Occupied Lights operate normally.
6.5	Vanity Mirror	D	May be damaged or missing provided it does not present hazard to pax/crew or impede emergency egress.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
6.6	Lavatory Seat Cover Holder	D	May be damaged, inoperative or missing.
6.7	Toilet Paper / Roller	D	May be damaged, inoperative or missing.
6.8	Dome /Mirror Incandescent Lights	C	May be inoperative provided that Mirror Fluorescent lights, Lavatory Occupied Lights, Lavatory Call and Signs operates normally.
6.9	Mirror Fluorescent Lights	D	May be inoperative provided that Dome/ Mirror Incandescent lights, Lavatory Occupied Lights, Lavatory Call and Signs operates normally.
6.10	Assist Handles	D	May be missing.
6.11	Soap Dispenser	D	May be inoperative or missing.
6.12	Faucet Aerator	D	May be damaged, inoperative or missing.
6.13	Hot and Cold Faucet Indicators	D	May be damaged, inoperative or missing.
6.14	Cup Holder	D	May be damaged or missing.
6.15	Coat Hook	D	May be damaged or missing.
6.16	Deodorizer Holder	D	May be damaged or missing.
6.17	Sink Drain Valves	D	May be damaged or missing.
6.18	Electrical Outlets and Covers	D	The outlets may be inoperative. The covers may be damaged or missing. (M) If required, Maintenance will electrically isolate the affected outlet by pulling and collaring the appropriate circuit breaker. Flight Crew may perform task if Maintenance is not available. If the cover is damaged or missing, no maintenance action is required.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
6.19	Paper Towels Holder/Towel Rod	D	May be inoperative or missing provided it does not present hazard to pax/crew.
6.20	Interior Wall Coverings/ Trim	D	May be worn, frayed, discoloration or have minor damage provided it does not present hazard to pax/crew or impede emergency egress.
6.21	Tissue Dispenser	D	May be inoperative or missing provided it does not present hazard to pax/crew.
6.22	Floor Mat	D	May be worn, frayed, or soiled provided that it does not prevent for cabin attendants to perform their duties safely.
6.23	Gaspers	D	May be inoperative or missing provided it does not present hazard to pax/crew.
6.24	Toilet door latch sign "occupied/ vacant"	D	May be inoperative provided toilet door latch operates normally and the repair or replacing must be made as part will be available.
6.25	Passenger to Attendant call system	D	May be inoperative provided PA system and alternate Lavatory smoke detector alert (visual or aural) operates normally, passenger lighted information sign in affected lavatory is readily legible.
6.26	Open Position Stop Cable of Waste Compartment Door	D	May be Inoperative or missing provided: a. It does not present to pax/crew, and b. Waste Door latch operates normally.
6.27	Various Forms of Small Interior Parts (bumpers; stoppers; moldings; linings; decorative items etc)	D	May be inoperative, damaged or missing provided It has not effect on performance of other equipment, It does not present hazard to pax/crew or impede emergency egress, and it does not prevent the implementation of the necessary procedures.
7. CLOSETS AND VESTIBULE (Max number of defects – 3)			
7.1	Closet Doors/ Curtains	D	May be damaged, inoperative or missing.
7.2	Manual Storage Compartments	D	May be damaged provided compartment is not used.
7.3	Coat Rods	D	May be damaged or missing.
7.4	Coat Hangers	D	May be damaged or missing.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
7.5	Interior Wall Coverings/Trim	D	May be worn, frayed, discoloration or have minor damage provided it does not present hazard to pax/crew.
7.6	Closet Lights	C	May be inoperative or missing.
7.7	Carpets	D	May be worn, frayed or oiled provided it does not present hazard to pax/crew or impede emergency egress as long as the item is serviceable as determined by the Flight Crew.
7.8	Overhead Lights (without Emerg. and MEL ATA 33Items)	D	May be inoperative or missing.
7.9	Gaspers	D	May be inoperative or missing provided it does not present hazard to pax/crew.
7.10	Entry/Service Door/Slide Cover	D	May be dirty, have minor/insignificant damages (cracks, scratches, chips, dents, etc.) provided: a. There are no door's structure damages, b. It does not affect the performance of other equipment , c. It does not present hazard to pax/crew or impede emergency egress.
7.11	Door Slide Cover Inspection Window Decorative Glass	A	May be missing, or have minor/insignificant damages provided: a. It does not prevent pressure check in the Slide Air Bottle, b. All required actions are performed to prevent foreign objects entering the inner section of the Slide Cover, and c. Repair or replacement must be made within 30 days.
7.12	Various Forms of Small Interior Parts (bumpers; stoppers; moldings; linings; decorative items etc)	D	May be inoperative, damaged or missing provided It has not effect on performance of other equipment, It does not present hazard to pax/crew or impede emergency egress, and it does not prevent the implementation of the necessary procedures.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
7.13	Electrical Outlets and Covers	D	The outlets may be inoperative. The covers may be damaged or missing. (M) If required, Maintenance will electrically isolate the affected outlet by pulling and collaring the appropriate circuit breaker. Flight Crew may perform task if Maintenance is not available. If the cover is damaged or missing, no maintenance action is required.
8. SERVICE BAYS (Max number of defects - 3)			
8.1	External Power Connections		
a.	Hold open rods or lanyards	D	May be damaged or missing.
b.	Compartment lighting switches	D	May be inoperative or missing.
8.2	Potable Water Service Bay		
a.	Hold open rods or lanyards	D	May be damaged or missing.
b.	Compartment lighting lenses	D	May be damaged or missing.
c.	Compartment lighting switches	D	May be inoperative or missing.
d.	Dust cover caps for service ports	-	<u>Must be installed.</u>
e.	Water quantity indication system	D	May be inoperative.
8.3	Toilet Service		
a.	Hold open rods or lanyards	D	May be damaged or missing.
b.	Compartment lighting/ lenses	D	May be damaged or missing.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
c.	Compartment lighting switches	D	May be inoperative or missing.
d.	Dust cover caps for service ports	-	<u>Must be installed.</u>
e.	Dust cover cap chains or lanyards	D	May be damaged or missing.
8.4	Hydraulic Service Bay		
a.	Hold open rods or lanyards	D	May be damaged or missing.
b.	Compartment lighting lenses	D	May be damaged or missing.
c.	Compartment lighting switches	D	May be inoperative or missing.
d.	Dust cover caps for service ports	D	May be damaged or missing.
e.	Dust cover cap chains or lanyards	D	May be damaged or missing.
8.5	Ground Air Service Bay		
a.	Hold open rods or lanyards	D	May be damaged or missing.
b.	Compartment lighting lenses	D	May be damaged or missing.
c.	Compartment lighting switches	D	May be inoperative or missing.
d.	Dust cover caps for service ports	D	May be damaged or missing.
8.6	AFT Fuselage/Tail Access		

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
a.	Compartment lighting lenses	D	May be damaged or missing.
b.	Compartment lighting switches	D	May be inoperative or missing.
c.	Hold open rods	D	May be damaged or missing.
8.7	Fuel Service Bay		
a.	Hold open rods or lanyards	D	May be inoperative or missing.
b.	Compartment lighting lenses	C	May be inoperative or missing.
c.	Compartment lighting switches	C	May be inoperative or missing.
d.	Dust cover caps for service ports	D	May be inoperative or missing.
e.	Dust cover cap chains or lanyards	D	May be inoperative or missing.
8.8	Oxygen Service Bay		
a.	Hold open rods or lanyards	D	May be inoperative or missing.
b.	Compartment lighting lenses	D	May be inoperative or missing.
c.	Compartment lighting switches	D	May be inoperative or missing.
9. CARGO/BAGGAGE COMPARTMENT (Max number of defects - 4)			
9.1	Air Outlet(s):		

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a.	Trim piece	D	May be missing.
b.	Vent grill	D	May be damaged.
9.2	Ballmats	D	May be worn.
9.3	Anti-skid paint	D	May be worn or missing.
9.4	Non-slip tape	D	May be worn or missing.
9.5	Fwd/ Aft Cargo Compartment` Side Wall/ Selling Panels & Covering; Dividers	A	May have cuts or breaks length up to 2 inches provided: a. They are sealed by adhesive tape, b. There are no airframe structure damages, c. It has no effect on the performance of other equipment, d. It does not present hazard to crew members and ground personnel, and e. Repair or replacement must be made within 30 days.
9.6	Trim/ Rubstrips/ Trimstrips	D	May be damaged or missing provided that the airframe structure is not damaged.
10. MISCELLANEOUS			
10.1	Placards/Decals		
a.	Placards/Decals, Exterior, Required	A	May have wear with damages such tears, scuff marks, losing color etc., but the decal information is still legible provided: a. Daily inspection for condition should be done until marking replacement, and b. Marking replacement must be made within 10 days c. Except of placards
b.	Placards/Decals, Exterior, Non-Required	A	May be degraded, missing or information is non-legible provided installation or replacement must be made on next A - Check.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
c.	Placards/Decals, Interior, Required	A	May have wear with damages such tears, scuff marks, losing color etc., but the decal information is still legible provided: a. Daily inspection for condition should be done until marking replacement, and b. Marking replacement must be made within 10 days
d.	Placards/Decals, Interior, Non-Required	A	May be degraded, missing or information is non-legible provided installation or replacement must be made on next A – Check.
10.2	Surface Appearance		
a.	Paint, Interior Decorative	D	May have damages such as soiled, worn, cracked, scratched, marred, or blemished.
b.	Coating, Interior, Decorative	D	May have damages such as soiled, worn, cracked, scratched, marred, or blemished.
c.	Contamination of External Surfaces	A	External Surfaces (including landing gear and wheel wells) may be dirty provided that any visual inspection in this area required by current maintenance visit can be performed properly. Cleaning must be performed within 30 days.
10.3	Seals/Sealant		
a.	Seals Silicon Rubber Portion	D	May have light wear marks, minor tears, flaking and cracking provided: a. Seal still perform their intended function, b. Daily detailed visual inspection of affected area should be done until seals replacement.
b.	Sealant, Aerodynamics	D	May have peeling, delamination, partially missing provided a. Bad sealant condition is not associated with corrosion, b. Daily detailed visual inspection of affected area should be done until sealant recovery.