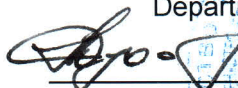

**MINISTRY OF TRANSPORT OF RUSSIAN FEDERATION
FEDERAL AIR TRANSPORT AGENCY**

APPROVED

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Head of Flight Operations
Department

Director of Airworthiness
Department


A. Dukhanin


M. Bulanov

«07» 10 2014г.

«07» 10 2014г.

LLC "NORD WIND"

MINIMUN EQUIPMENT LIST

Fleet BOEING 767-300

A/C Type	Reg. Number	MSN
BOEING 767-300	VP-BWX	27606
BOEING 767-300	VP-BWW	27608
BOEING 767-300	VQ-BPT	27957
BOEING 767-300	VQ-BRA	27310
BOEING 767-300	VQ-BMU	27427
BOEING 767-300	VQ-BMQ	28098
BOEING 767-300	VP-BDI	29618

Revision № 08
15 September 2014

Based on FAA MMEL Revision 36
08 August 2013


7.10.14

 7.10.14

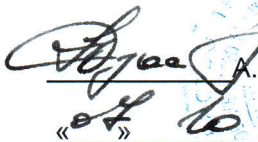
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ФЕДЕРАЦИИ ФЕДЕРАЛЬНОЕ АГЕНТСТВО
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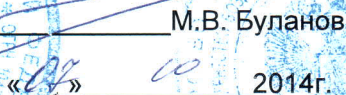
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УТВЕРЖДЕНО

Начальник Управления
Летной Эксплуатации

Начальник Управления
Поддержания Летной
Годности ВС


А.И. Духанин
«07» 2014г.


М.В. Буланов
«07» 2014г.

ООО «Северный Ветер»

**Перечень минимального исправного
оборудования**

BOEING 767-300

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BOEING 767-300	VP-BWW	27608
BOEING 767-300	VQ-BPT	27957
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BOEING 767-300	VP-BDI	29618

Ревизия № 08
15 Сентября 2014

Основан на FAA MMEL Ревизия 36
от 08 Августа 2013


7.10.14


7.10.14

СОГЛАСОВАННО

СОГЛАСОВАННО

Технический директор
ООО «Северный Ветер»

Летный директор
ООО «Северный Ветер»



В.В. Пашаев



А.А. Перепелицын

ООО «Северный Ветер»

Перечень минимального исправного оборудования

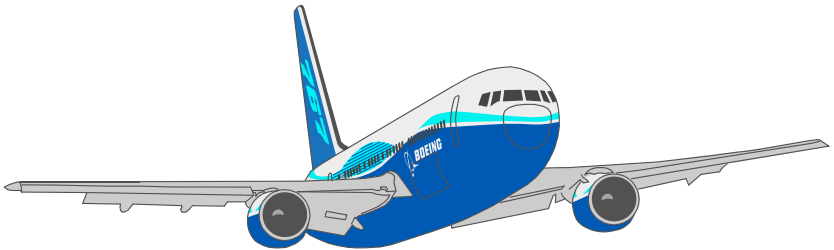
BOEING 767-300

A/C Type	Reg. Number	MSN
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BOEING 767-300	VP-BWW	27608
BOEING 767-300	VQ-BPT	27957
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BOEING 767-300	VQ-BMQ	28098
BOEING 767-300	VP-BDI	29618

Ревизия № 08
15 Сентября 2014

Основан на FAA MMEL Ревизия 36
от 08 Августа 2013

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767 Minimum Equipment List (MEL)

Document Number NRW MEL
Revision Number: 8
Revision Date: September 15, 2014

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NORD WIND AIRLINES

767 MINIMUM EQUIPMENT LIST

Preface

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Section 0	General
Section 1	EICAS Messages
Section 2	MEL
Section 3	CDL
Section 4	Miscellaneous



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Revision Transmittal Letter

To: All holders of Nordwind Airlines 767 Minimum Equipment List.

Subject: Minimum Equipment List (MEL) Revision8.

MEL Revision 8 is a complete revision. MEL Revision 8 incorporates changes in accordance with FAA 767 MMEL Revision 36 (08.08.2013) and FAA 767 AFM Appendix CDL.

FAA Revision 36a (09.12.2013) and Revision 36b (18.09.2014) are not application for Nord Wind fleet Boeing 767.

Revision Record

No.	Revision Date	Date Filed
1	Feb 22, 2010	
3	September 09, 2010	
7	August 20, 2013	

No.	Revision Date	Date Filed
2	May 17, 2010	
4	February 22, 2012	
8	September 15, 2014	

General

The Nordwind Airlines issues 767 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



NORD WIND AIRLINES

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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

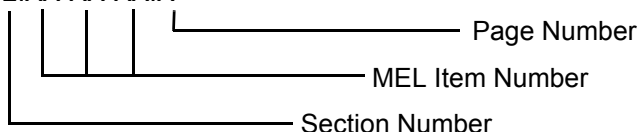
SECTION 1 - EICAS MESSAGES

- 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 Nord Wind Airline's airplane and the description of the condition or fault indicated by the messages can be found in the Nord Wind Airline's Fault Isolation Manual (FIM).

SECTION 2 - MEL

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

2.XX-XX-XX.X



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

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

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

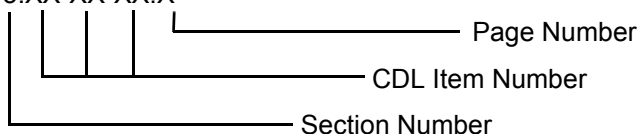
- The procedure is obvious.
- Boeing is not aware of any procedural effects.
- The procedure must be supplied by the airline as it depends on airline operating requirements or a unique configuration.
- The MEL does not require that a procedure be established.

The NWS 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:

3.XX-XX-XX.X



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 and information on the use of annotations for airplane model applicability. It also contains items and information that do not fit into the categories covered by Sections 2 and 3.

Use of Procedures

The procedures and guidance information are technically correct to the best of Boeing's knowledge for Boeing configurations 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 need to develop more suitable procedures based on their airplane configuration, routes, operations specification and maintenance practices. Boeing 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).

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

Operators may purchase DDGs as Hyper Text Markup Language (HTML) or Extensible Markup Language (XML) digital media. 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.



Introduction

EICAS Messages Cross Reference List

EICAS Messages

Maintenance Level Messages

Considerations for Dispatch with Displayed EICAS Messages

Cross Reference List



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EICAS Messages Cross Reference List

A Cross Reference List of Engine Indication and Crew Alerting System (EICAS) messages and corresponding MEL items is provided in this section. The Cross Reference List is intended to assist operators in quickly identifying the proper MEL 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 a MEL Item cross-referenced. If multiple MEL Items are referenced or if dispatch capability is otherwise unclear, consult the 767 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.				
MEL Item	This column lists the appropriate MEL item(s) to consult for possible dispatch relief with the associated message displayed. EICAS messages that do not have a specific MEL 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 MEL item listed because the message does not indicate a system failure.</td></tr><tr><td>None</td><td>There is no MEL item for the failure condition indicated by this message.</td></tr></table>	N/A	Not Applicable: There is no MEL item listed because the message does not indicate a system failure.	None	There is no MEL item for the failure condition indicated by this message.
N/A	Not Applicable: There is no MEL item listed because the message does not indicate a system failure.				
None	There is no MEL 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 Nord Wind Airline'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 MEL 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

767 MINIMUM EQUIPMENT LIST

Section 1

Cross Reference List

Messages

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U
V
W
X
Y
Z

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
A/P SINGLE SYS	Status	22-10-01
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 1A	Status	26-16-01
AFT CARGO DET 1B	Status	26-16-01
AFT CARGO DET 2	Status	26-16-01
AFT CARGO DET 2A	Status	26-16-01
AFT CARGO DET 2B	Status	26-16-01
AFT CARGO DET AIR	Status	26-14-01 26-16-01
AFT CARGO DOOR	Caution	52-71-01
AFT CARGO DOOR	Advisory	52-71-01
AFT CARGO DR IND	Status	52-71-01
AFT CARGO FIRE	Warning	26-16-01
AFT CARGO OVHT	Advisory	21-40-01 21-40-02
AFT DET FAN 1A	Status	26-16-01
AFT DET FAN 1B	Status	26-16-01
AFT EQ EXH FAN 1	Status	21-58-05
AFT EQ EXH FAN 2	Status	21-58-05
AFT EQPT CLG FAN	Status	None
AFT FUEL X-FEED	Advisory	28-22-03


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
AFT GND EXH VAL	Status	N/A
AFT IFE COOLING	Status	21-58-13
AFT TEMP CONT	Status	21-61-04
AILERON LOCKOUT	Advisory	27-11-02
AIR/GND DISAGREE	Status	None
AIR/GND SYS	Advisory	None
AIRSPPEED LOW	Caution	N/A
ALT CALLOUT	Advisory	34-46-01
ALT CALLOUTS	Advisory	34-46-01
ALT DISAGREE	Caution	34-26-01
ALTITUDE ALERT	Caution	N/A
ALTN ANTISKID	Status	32-42-01 32-42-02
ALTN GEAR EXTEND	Status	32-35-01
ANTISKID	Advisory	32-42-01
ANTISKID OFF	Advisory	32-42-01 32-44-02
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 CONTROL	Status	49-61-02
APU DOOR	Status	49-15-01

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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
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 CONTROL	Status	49-11-01
APU FUEL VAL	Advisory	28-25-02
APU GEN OFF	Advisory	24-00-02
APU ISLN VAL	Status	28-25-03
APU OIL QTY	Status	49-94-01
ATC	Comm E	N/A
ATC FAULT	Advisory	34-53-01
ATT DISAGREE	Caution	34-21-01 34-22-03 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
AUTOPILOT DISC	Warning	22-10-01
AUTOTHROT DISC	Caution	22-30-01
AUX PITOT	Advisory	30-31-01 30-31-02

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
BARO SET DISAGREE	Advisory	31-63-02


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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
BATTERY OFF	Advisory	N/A
BBAND SYS SMOKE	Caution	None
BLEED CONTROL L CHAN	Status	36-00-01
BLEED CONTROL R CHAN	Status	36-00-01
BLEED SYSTEM	Status	None
BODY DUCT LEAK	Caution	26-18-01
BODY DUCT LP 1	Status	26-18-01
BODY DUCT LP 2	Status	26-18-01
BRAKE SOURCE	Advisory	32-41-02
BRAKE TEMP	Advisory	32-46-01
BROADBAND SYS	Status	None
BULK CARGO DOOR	Advisory	52-71-01
BULK CARGO FAN	Status	21-40-01
BULK CARGO OVHT	Advisory	21-40-01

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
C ADIRU PITOT	Advisory	None
C AIR DATA	Advisory	34-26-01
C BLD ISLN VAL	Advisory	36-11-07
C DEM HYD OVHT	Advisory	29-32-01
C DPC	Status	31-63-04
C GLS	Advisory	34-60-03
C HYD 1 OVHT	Advisory	None
C HYD 2 OVHT	Advisory	29-11-02 29-32-01
C HYD DEM PUMP	Advisory	29-11-03 29-31-02


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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
C HYD DEM SPD SNSR	Status	None
C HYD GEN ON	Status	N/A
C HYD GEN VAL	Status	24-25-01 24-25-02
C HYD PRIM 1	Advisory	None
C HYD PRIM 2	Advisory	29-11-02 29-31-02
C HYD QTY	Advisory	29-33-01 29-33-02
C HYD SYS MAINT	Status	29-11-03
C HYD SYS PRESS	Caution	29-11-02 29-11-03
C ILS	Advisory	34-31-01
C IRS DC FAIL	Advisory	34-21-01
C IRS FAULT	Advisory	34-21-01
C IRS ON DC	Advisory	34-21-01
C MLS	Advisory	None
C TAIL HYD VAL	Advisory	27-03-01
C WING HYD VAL	Advisory	27-03-01
CABIN ALERT	Comm E	N/A
CABIN ALT AUTO 1	Status	21-31-01
CABIN ALT AUTO 2	Status	21-31-01
CABIN ALTITUDE	Warning	None
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


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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
CAPT PVD	Advisory	N/A
CAPT STBY INV	Status	None
CARGO A/C CONT	Advisory	21-28-01
CARGO A/C CONT	Status	21-28-01
CARGO A/C TEMP	Status	21-28-01
CARGO BTL 1	Advisory	26-23-01
CARGO BTL 2	Advisory	26-23-01
CARGO BTL 2	Status	26-23-01
CARGO BTL 2A	Status	26-23-01
CARGO BTL 2B	Status	26-23-01
CARGO CALL	Comm E	N/A
CARGO DET AIR	Status	26-14-01 26-16-01 26-16-02
CARGO DOORS	Advisory	52-71-01
CARGO EXH FAN	Status	21-28-01
CARGO EXH VALVE	Status	21-28-01
CARGO TRIM AIR	Status	21-28-01
CGO FLOOR OVHT	Advisory	21-28-01
CGO GND EX VALS	Advisory	21-28-01
CGO GND EX VALVE	Status	21-28-01
COMPARATOR BITE	Status	34-22-05 34-25-01
COND CARGO VALVE	Status	21-28-01
CREW REST SMOKE	Advisory	None
CTR L FUEL PUMP	Advisory	28-22-02
CTR R FUEL PUMP	Advisory	28-22-02

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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
CTR L+R FUEL PUMP	Advisory	28-22-02

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
DATALINK AVAIL	Advisory	N/A
DATALINK AVAIL	Comm F	N/A
DATALINK LOST	Advisory	23-22-01
DATALINK SYS	Advisory	23-22-01
DISPLAY RESOURCES	Status	31-63-11
DISPLAY SELECT PANEL	Advisory	None
DISPLAYS CONFIG	Status	None
DUCT LEAK LP	Status	26-18-01

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
E/E ACCESS DOOR	Advisory	52-71-01
EEC CONFIG	Status	73-21-01
EICAS CONT PNL	Advisory	31-41-01
EICAS DISAGREE	Status	31-41-01 73-31-01 79-34-02
EICAS DISPLAY	Advisory	31-41-01
EICAS SCC	Status	31-61-04 31-61-05
EICAS SCC I/F	Status	31-61-04 31-61-05
EICAS SOFTWARE	Status	None
ELEC FILTER	Status	24-51-02
ELEV FEEL	Advisory	None
ELEV FEEL	Status	None


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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
ELEV FEEL LIM	Status	27-31-01
ELT ON	Advisory	None
EMER DOORS	Advisory	52-71-01
EMER LIGHTS	Advisory	None
ENG BTL 1	Advisory	26-20-01
ENG BTL 2	Advisory	26-20-01
ENG MACH PROBES	Advisory	30-34-02
ENGINE CONTROLS	Advisory	73-21-01

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
F/O DISPLAY T-R UNIT	Status	24-32-02
F/O INSTR XFER	Status	None
F/O PITOT	Advisory	30-31-01 30-31-05
F/O PVD	Advisory	None
FAST/SLOW FAIL	Advisory	22-30-01 34-22-04 34-13-10
FD COMMAND FAIL	Advisory	34-22-04
FIRE/OVHT SYS	Advisory	26-11-01 26-11-02 26-15-01 26-16-01
FLAP LD RELIEF	Advisory	27-51-01
FLAP POS SNSR	Status	27-08-02
FLAP/SLAT ELEC	Status	None
FLAPS	Warning	None
FLT CONT VALS	Advisory	27-03-01


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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
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 TEMP CONT	Status	21-61-04
FLT REST SMK VAL	Status	None
FLT REST SOV	Status	None
FMC	Comm E	N/A
FMC MESSAGE	Advisory	34-61-01
FUEL CONFIG	Advisory	28-22-02 28-41-01 28-41-02
FUEL CROSSFEED	Advisory	28-22-03
FUEL JET NOZ	Advisory	28-31-03
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 A TEMP CONT	Status	21-61-04
FWD B TEMP CONT	Status	21-61-04
FWD ACCESS DOOR	Advisory	52-71-01
FWD CABIN TEMP	Advisory	21-61-01 21-61-04 21-61-06
FWD CARGO A/C	Advisory	21-28-01


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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
FWD CARGO DET 1	Status	26-16-01
FWD CARGO DET 1A	Status	26-16-01
FWD CARGO DET 1B	Status	26-16-01
FWD CARGO DET 2	Status	26-16-01
FWD CARGO DET 2A	Status	26-16-01
FWD CARGO DET 2B	Status	26-16-01
FWD CARGO DET AIR	Status	26-14-01 26-16-01
FWD CARGO DOOR	Advisory	52-71-01
FWD CARGO DOOR	Caution	52-71-01
FWD CARGO DR IND	Status	52-71-01
FWD CARGO FAN	Status	21-28-01
FWD CARGO FIRE	Warning	26-16-01
FWD CARGO OVHT	Advisory	21-40-01 21-40-02
FWD CGO BACKUP	Advisory	21-28-01
FWD DET FAN 1A	Status	26-16-01
FWD DET FAN 1B	Status	26-16-01
FWD EQ EXH FAN	Status	21-58-04
FWD EQ SUP FAN 1	Status	21-58-03
FWD EQ SUP FAN 2	Status	21-58-03
FWD EQPT COOLING	Caution	21-58-01 21-58-02 21-58-03 21-58-04
FWD EQPT OVHT	Advisory	21-58-01 21-58-02 21-58-03 21-58-04

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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
FWD EQPT SMOKE	Advisory	21-58-16
FWD EQPT VAL	Advisory	21-58-06 21-58-07 21-58-08 21-58-10 21-64-02
FWD FUEL X-FEED	Advisory	28-22-03
FWD GND EXH VAL	Status	21-58-14
FWD IFE COOLING	Status	21-58-13

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
G/S DISAGREE	Advisory	34-31-01
G/S FAIL	Advisory	None
GEAR CONTROL	Status	32-31-02
GEAR DISAGREE	Caution	None
GEAR DOORS	Advisory	None
GEAR NOT DOWN	Warning	None
GND EXH VALS	Advisory	21-58-01 21-58-14
GND PROX BITE	Status	34-46-01 34-33-01
GND PROX SYS	Advisory	34-46-01 34-33-01
GND PROX SYS	Status	34-46-01 34-33-01
GPS	Advisory	34-60-03
GPS FAIL	Advisory	34-60-03
GROUND CALL	Comm E	N/A


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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
HDG DISAGREE	Advisory	34-21-01 34-22-03 34-22-05
HDG FAIL	Advisory	34-25-01
HF DATALINK	Advisory	23-11-01
HF DATALINK OFF	Comm F	N/A
HI FLOW INHIBIT	Status	21-25-01 21-51-01 21-51-02
HI FLOW ON	Status	21-25-01 21-51-01 21-51-02
HUD ALERT	Caution	None
HUD EXCESS DEV	Caution	None
HUD GUIDANCE	Advisory	None
HUD NO AII	Advisory	None
HUD NO AIII	Advisory	None
HUD NO GND ROLL	Advisory	None
HUD SYS	Advisory	None
HUD SYS	Status	None
HUD WARN	Caution	None
HYD GEN ON	Status	N/A
HYD GEN VAL	Status	24-25-01 24-25-02

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
IAS DISAGREE	Caution	None
IAS/ALT DIFF	Advisory	None



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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
IAS/ALT DIFF	Status	None
ICE DET OFF	Advisory	N/A
ICE DET ON	Advisory	N/A
ICE DETECTORS	Advisory	30-80-01
ICING ENGINE	Caution	30-80-01
ICING WING	Advisory	30-80-01
IDLE DISAGREE	Advisory	73-21-08
INSTR SWITCH	Caution	34-00-01 34-22-05

<u>Message</u>	<u>Level</u>	<u>MELMEL Item</u>
L AC BUS OFF	Caution	None
L AFT EMER DOOR	Advisory	52-71-01
L AFT ENT DOOR	Advisory	52-71-01
L AFT FUEL PUMP	Advisory	28-22-01
L AIR DATA	Advisory	34-26-01
L ALTN T/R	Advisory	78-31-01
L ANALOG N2	Status	77-12-02
L AOA PROBE	Advisory	30-32-01
L AUTO IGNITION	Status	74-00-02
L AUX PITOT	Advisory	30-31-01
L BLD DUCT LEAK	Caution	26-18-01
L BLD ISLN VAL	Advisory	36-11-06
L BLEED FAMV	Status	36-12-02
L BLEED HPSOV	Status	36-11-02
L BLEED PRESS SENSOR	Status	36-21-03
L BLEED PRSOV	Status	36-11-01


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<u>Message</u>	<u>Level</u>	<u>MELMEL Item</u>
L BLEED PRV	Status	36-11-08
L BLEED TEMP SENSOR	Status	36-22-07
L BUS ISOLATED	Advisory	None
L CAB TEMP CONT	Status	21-61-08
L COND TEMP CONT	Status	21-52-08
L COWL DUCT LEAK	Status	30-21-01
L COWL OVHT	Caution	30-21-03
L CPRSR SNSR	Status	21-52-07
L CTR ENT DOOR	Advisory	52-71-01
L DATALINK SYS	Status	23-22-01
L DCU	Status	None
L DEM HYD OVHT	Advisory	None
L DPC	Status	31-63-04
L DRAG BRACE	Caution	None
L DUCT LEAK LP 1	Status	26-18-01
L DUCT LEAK LP 2	Status	26-18-01
L ECON CLG VALVE	Status	None
L EEC OFF	Caution	N/A
L EEC TEST PWR	Status	N/A
L EFIS CONTROL PNL	Advisory	31-63-02
L EFIS CONTROL PNL	Status	31-63-02
L EICAS CMPTR	Status	31-41-01
L EMER DOOR	Advisory	52-71-01
L ENG A/O VALVE	Status	75-21-02
L ENG ANALOG N2	Status	None
L ENG ANALOG N3	Status	77-12-04

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<u>Message</u>	<u>Level</u>	<u>MELMEL Item</u>
L ENG ANTI-ICE	Advisory	30-21-01 30-21-02
L ENG BLD OVHT	Advisory	None
L ENG BLEED OFF	Advisory	36-11-01
L ENG BLEED VAL	Caution	36-11-02
L ENG BTL 1	Advisory	26-20-01
L ENG BTL 2	Advisory	26-20-01
L ENG CH/A INHIB	Status	None
L ENG CONTROL	Advisory	None
L ENG CONTROL	Status	None
L ENG EEC	Advisory	73-21-01 73-21-02
L ENG EEC C1	Status	73-21-01
L ENG EEC MODE	Advisory	73-21-01
L ENG EEC PROBE	Advisory	30-34-01
L ENG ESCV	Status	75-24-02
L ENG FAIL	Caution	None
L ENG FIRE LP 1	Status	26-11-01
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 FWSOV	Caution	36-11-09
L ENG HI STAGE	Advisory	36-11-02 36-12-02 36-22-02
L ENG HPSOV	Caution	36-11-02


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<u>Message</u>	<u>Level</u>	<u>MELMEL Item</u>
L ENG HPSOV	Advisory	36-11-02
L ENG HPSOV	Status	36-11-02
L ENG IGNITOR 1	Status	74-00-01
L ENG IGNITOR 2	Status	74-00-01
L ENG LIM PROT	Advisory	None
L ENG LOW IDLE	Advisory	None
L ENG LOW N1	Advisory	None
L ENG LP PUMP	Status	None
L ENG O/S GOV	Status	73-21-07
L ENG OH LP 1	Status	26-11-02
L ENG OH LP 2	Status	26-11-02
L ENG OIL PRESS	Caution	79-33-01
L ENG OIL PRESS	Advisory	79-33-01
L ENG OVHT	Caution	None
L ENG PRV	Caution	36-11-08
L ENG PRV	Advisory	36-11-08
L ENG PRV	Status	36-11-08
L ENG REV LIMTD	Advisory	78-36-03
L ENG REV LIMTD	Status	78-36-03
L ENG REV POS	Status	78-36-03
L ENG RPM LIM	Advisory	N/A
L ENG SCAV FILT	Status	79-35-03
L ENG SHUTDOWN	Caution	None
L ENG SPEED CARD	Status	None
L ENG START EGT	Status	None

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<u>Message</u>	<u>Level</u>	<u>MELMEL Item</u>
L ENG STARTER	Advisory	80-00-01 80-00-02 80-11-02
L ENG TAI VALVE	Status	30-21-01
L ENG TURB OVSP	Status	73-21-06
L ENGINE CONTROLS	Advisory	73-21-01
L ENGINE FIRE	Warning	None
L ENTRY DOORS	Advisory	52-71-01
L FLT DK WINDOW	Advisory	N/A
L FMC FAIL	Advisory	34-61-01
L FUEL HEAT VAL	Advisory	73-14-01
L FUEL JET PUMP	Advisory	28-31-03
L FUEL SPAR VAL	Advisory	None
L FUEL SYS PRESS	Caution	None
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 GEN DRIVE	Advisory	24-00-01
L GEN OFF	Advisory (Caution for CAA)	24-00-01
L GLS	Advisory	34-60-03
L GPS	Advisory	34-60-03
L GPS FAIL	Advisory	34-60-03
L HF DATALINK	Status	23-11-01
L HYD DEM PUMP	Advisory	None


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<u>Message</u>	<u>Level</u>	<u>MELMEL Item</u>
L HYD FUEL PR	Advisory	None
L HYD GEN ON	Status	N/A
L HYD GEN VAL	Status	24-25-01 24-25-02
L HYD PRIM PUMP	Advisory	None
L HYD QTY	Advisory	29-33-01 29-33-02
L HYD SYS MAINT	Status	None
L HYD SYS PRESS	Caution	None
L ICE DETECTOR	Status	30-80-01
L IDG FILTER	Status	24-00-01
L IDG OIL TEMP	Status	24-00-01
L IDG TEMP SENS	Status	24-00-01
L IDG VALVE	Status	75-21-01
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 JET XFR VALVE	Advisory	28-31-03
L MAN PRESS SENSOR	Status	36-21-01
L MLS	Advisory	None
L N1/N2 MSMATCH	Advisory	None
L OIL FILTER	Advisory	79-35-01 79-35-02
L OIL FILTER	Status	79-35-01 79-35-02
L OIL PRESS MON	Status	79-32-01

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<u>Message</u>	<u>Level</u>	<u>MELMEL Item</u>
L OIL PRESS SNS	Status	None
L PACK	Status	21-51-01 21-51-02
L PACK ACM	Status	21-51-07
L PACK MODE	Advisory	21-51-07 21-52-08
L PACK OFF	Advisory	21-51-01 21-51-02 21-51-03
L PACK OUT SNSR	Status	21-52-06
L PACK TEMP	Advisory	21-51-01 21-51-02 21-51-03
L PDCU	Status	31-63-10
L PRIM HYD OVHT	Advisory	None
L RAM INLET DOOR	Status	21-53-01
L RECIR FAN	Advisory	21-25-01
L REV INTERLOCK	Status	78-34-02
L REV ISLN VAL	Advisory	78-31-01
L REV ISLN VAL	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 SCAV TEMP 1	Status	79-34-01
L SCAV TEMP 2	Status	79-34-01
L SEC HX SNSR	Status	21-52-05


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<u>Message</u>	<u>Level</u>	<u>MELMEL Item</u>
L SIDE BRACE	Caution	None
L SIDE WINDOW	Advisory	30-41-01 30-41-02
L STARTER CUTOUT	Caution	80-00-02 80-11-02
L STRUT DCT LEAK	Caution	36-11-08 26-18-01 26-12-01
L STRUT DCT LP 1	Status	26-18-01
L STRUT DCT LP 2	Status	26-18-01
L TAIL HYD VAL	Advisory	27-03-01
L TAT PROBE	Advisory	30-31-02 30-33-01
L TRIM AIR	Advisory	21-61-03
L TRIM AIR CONT	Status	21-61-03
L TURB OH DET 1	Status	77-22-01
L TURB OH DET 2	Status	77-22-01
L TURB OVSP SYS	Status	73-21-06
L UTIL BUS OFF	Advisory	24-51-01
L WING ANTI-ICE	Advisory	30-11-01 30-11-02
L WING HYD VAL	Advisory	27-03-01
L WING SLIDE	Advisory	52-71-01
L YAW DAMPER	Advisory	22-21-01
L+C HYD SYS PRESS	Caution	None
L+C+R HYD SYS PRESS	Caution	None
L+R AC BUS OFF	Caution	None
L+R FMC FAIL	Advisory	34-61-01

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<u>Message</u>	<u>Level</u>	<u>MELMEL Item</u>
L+R HYD SYS PRESS	Caution	None
LAVATORY SMOKE	Caution	26-26-03
LAVATORY SMOKE	Advisory	26-26-03
LDG GEAR MONITOR	Status	32-61-02
LE SLAT ASYM	Caution	None
LE SLAT DISAGREE	Caution	None
LE SLAT SHUTDOWN	Status	None
LFDS	Status	None
LOC DISAGREE	Advisory	34-31-01
LOC FAIL	Advisory	34-31-01
LOW CREW OXYGEN	Advisory	35-11-02
LOW FUEL	Caution	None

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
MAIN BAT CHGR	Status	None
MAIN BAT DISCH	Advisory	None
MAIN CARGO DOOR	Warning	None
MAIN CARGO DOOR	Caution	52-71-01
MAIN CARGO FIRE	Warning	None
MID A TEMP CONT	Status	21-61-04
MID B TEMP CONT	Status	21-61-04
MID CABIN TEMP	Advisory	21-61-01 21-61-04 21-61-06
MN CARGO DR IND	Status	52-71-01
MN CARGO LOOP 1	Status	26-16-02
MN CARGO LOOP 2	Status	26-16-02



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
NITROGN GEN PERF	Status	47-11-01
NITROGN GEN SYS	Status	47-11-01
NO AUTOLAND	Advisory	22-14-02
NO AUTOLAND	Caution	22-14-02
NO AUTOLAND	Status	22-14-02
NO LAND 3	Advisory	22-14-02
NO LAND 3	Caution	22-14-02
NO LAND 3	Status	22-14-02
NORM ANTISKID	Status	32-42-01
NOSE A/G DISAGRE	Status	None
NOSE A/G SYS	Advisory	None

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
OVERSPEED	Warning	None

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
PARK BRAKE	Advisory	32-44-03
PARKING BRAKE	Warning	N/A
PARKING BRAKE	Advisory	32-44-03
PASS OXYGEN LOW	Advisory	35-21-01
PASS OXYGEN ON	Advisory	35-21-01
PILOT RESPONSE	Warning	None
PILOT RESPONSE	Caution	None
PILOT RESPONSE	Advisory	None
PRIMARY BLD SYS	Status	None
PRINTER	Comm E	N/A



Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
PRINTER	Comm F	N/A
PROBE HEAT	Advisory	30-31-02 30-31-05 30-32-01 30-33-01 30-34-01

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R AC BUS OFF	Caution	None
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 AIR DATA	Advisory	34-26-01
R ANALOG N2	Status	77-12-02
R ALTN T/R	Advisory	78-31-01
R AOA PROBE	Advisory	30-32-01
R AUTO IGNITION	Status	74-00-02
R AUX PITOT	Advisory	30-31-01
R BLD DUCT LEAK	Caution	26-18-01
R BLD ISLN VAL	Advisory	36-11-06
R BLEED FAMV	Status	36-12-02
R BLEED HPSOV	Status	36-11-02
R BLEED PRESS SENSOR	Status	36-21-03
R BLEED PRSOV	Status	36-11-01
R BLEED PRV	Status	36-11-08
R BLEED TEMP SENSOR	Status	36-22-07
R BUS ISOLATED	Advisory	None
R CAB TEMP CONT	Status	21-61-08


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R COND TEMP CONT	Status	21-52-08
R COWL DUCT LEAK	Status	30-21-01
R COWL OVHT	Caution	30-21-03
R CPRSR SNSR	Status	21-52-07
R CTR ENT DOOR	Advisory	52-71-01
R DATALINK SYS	Status	23-22-01
R DCU	Status	None
R DEM HYD OVHT	Advisory	None
R DPC	Status	31-63-04
R DRAG BRACE	Caution	None
R DUCT LEAK LP 1	Status	26-18-01
R DUCT LEAK LP 2	Status	26-18-01
R ECON CLG VALVE	Status	None
R EEC OFF	Caution	N/A
R EEC TEST PWR	Status	N/A
R EFIS CONTROL PNL	Advisory	31-63-02
R EFIS CONTROL PNL	Status	31-63-02
R EICAS CMPTR	Status	31-41-01
R EMER DOOR	Advisory	52-71-01
R ENG A/O VALVE	Status	75-21-02
R ENG ANALOG N2	Status	None
R ENG ANALOG N3	Status	77-12-04
R ENG ANTI-ICE	Advisory	30-21-01 30-21-02
R ENG BLD OVHT	Advisory	None
R ENG BLEED OFF	Advisory	36-11-01

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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R ENG BLEED VAL	Caution	36-11-02
R ENG BTL 1	Advisory	26-20-01
R ENG BTL 2	Advisory	26-20-01
R ENG CH/A INHIB	Status	None
R ENG CONTROL	Advisory	None
R ENG CONTROL	Status	None
R ENG EEC	Advisory	73-21-01 73-21-02
R ENG EEC C1	Status	73-21-01
R ENG EEC MODE	Advisory	73-21-01
R ENG EEC PROBE	Advisory	30-34-01
R ENG ESCV	Status	75-24-02
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 FWSOV	Caution	36-11-09
R ENG HI STAGE	Advisory	36-11-02 36-12-02 36-22-02
R ENG HPSOV	Caution	36-11-02
R ENG HPSOV	Advisory	36-11-02
R ENG HPSOV	Status	36-11-02
R ENG IGNITOR 1	Status	74-00-01
R ENG IGNITOR 2	Status	74-00-01


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R ENG LIM PROT	Advisory	None
R ENG LOW IDLE	Advisory	None
R ENG LOW N1	Advisory	None
R ENG LP PUMP	Status	None
R ENG O/S GOV	Status	73-21-07
R ENG OH LP 1	Status	26-11-02
R ENG OH LP 2	Status	26-11-02
R ENG OIL PRESS	Caution	79-33-01
R ENG OIL PRESS	Advisory	79-33-01
R ENG OVHT	Caution	None
R ENG PRV	Caution	36-11-08
R ENG PRV	Advisory	36-11-08
R ENG PRV	Status	36-11-08
R ENG REV LIMTD	Advisory	78-36-03
R ENG REV LIMTD	Status	78-36-03
R ENG REV POS	Status	78-36-03
R ENG RPM LIM	Advisory	N/A
R ENG SCAV FILT	Status	79-35-03
R ENG SHUTDOWN	Caution	None
R ENG SPEED CARD	Status	None
R ENG START EGT	Status	None
R ENG STARTER	Advisory	80-00-01 80-00-02 80-11-02
R ENG TAI VALVE	Status	30-21-01
R ENG TURB OVSP	Status	73-21-06
R ENGINE CONTROLS	Advisory	73-21-01

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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R ENGINE FIRE	Warning	None
R ENTRY DOORS	Advisory	52-71-01
R FLT DK WINDOW	Advisory	None
R FMC FAIL	Advisory	34-61-01
R FUEL HEAT VAL	Advisory	73-14-01
R FUEL JET PUMP	Advisory	28-31-03
R FUEL SPAR VAL	Advisory	None
R FUEL SYS PRESS	Caution	None
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 GEN DRIVE	Advisory	24-00-01
R GEN OFF	Advisory (Caution for CAA)	24-00-01
R GLS	Advisory	34-60-03
R GPS	Advisory	34-60-03
R GPS FAIL	Advisory	34-60-03
R HF DATALINK	Status	23-11-01
R HYD DEM PUMP	Advisory	None
R HYD FUEL PR	Advisory	None
R HYD GEN ON	Status	None
R HYD GEN VAL	Status	24-25-01 24-25-02
R HYD PRIM PUMP	Advisory	None


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R HYD QTY	Advisory	29-33-01 29-33-02
R HYD SYS MAINT	Status	None
R HYD SYS PRESS	Caution	None
R ICE DETECTOR	Status	30-80-01
R IDG FILTER	Status	24-00-01
R IDG OIL TEMP	Status	24-00-01
R IDG TEMP SENS	Status	24-00-01
R IDG VALVE	Status	75-21-01
R ILS	Advisory	34-31-01
R IRS DC FAIL	Advisory	34-21-01
R IRS FAULT	Advisory	34-21-01
R IRS ON DC	Advisory	34-21-01
R JET XFR VALVE	Advisory	28-31-03
R MAN PRESS SENSOR	Status	36-21-01
R MLS	Advisory	None
R N1/N2 MSMATCH	Advisory	None
R OIL FILTER	Advisory	79-35-01 79-35-02
R OIL FILTER	Status	79-35-01 79-35-02
R OIL PRESS MON	Status	79-32-01
R OIL PRESS SNS	Status	None
R PACK	Status	21-51-01 21-51-02
R PACK ACM	Status	21-51-07
R PACK MODE	Advisory	21-51-07 21-52-08

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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R PACK OFF	Advisory	21-51-01 21-51-02 21-51-03
R PACK OUT SNSR	Status	21-52-06
R PACK TEMP	Advisory	21-51-01 21-51-02 21-51-03
R PDCU	Status	31-63-10
R PRIM HYD OVHT	Advisory	None
R RAM INLET DOOR	Status	21-53-01
R RECIR FAN	Advisory	21-25-01
R REV INTERLOCK	Status	78-34-02
R REV ISLN VAL	Advisory	78-31-01
R REV ISLN VAL	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 SCAV TEMP 1	Status	79-34-01
R SCAV TEMP 2	Status	79-34-01
R SEC HX SNSR	Status	21-52-05
R SIDE BRACE	Caution	None
R SIDE WINDOW	Advisory	30-41-01 30-41-02
R STARTER CUTOUT	Caution	80-00-02 80-11-02


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
R STRUT DCT LEAK	Caution	36-11-08 26-18-01 26-12-01
R STRUT DCT LP 1	Status	26-18-01
R STRUT DCT LP 2	Status	26-18-01
R TAIL HYD VAL	Advisory	27-03-01
R TAT PROBE	Advisory	30-31-02 30-33-01
R TRIM AIR	Advisory	21-61-03
R TRIM AIR CONT	Status	21-61-03
R TURB OH DET 1	Status	77-22-01
R TURB OH DET 2	Status	77-22-01
R TURB OVSP SYS	Status	73-21-06
R UTIL BUS OFF	Advisory	24-51-01
R WING ANTI-ICE	Advisory	30-11-01 30-11-02
R WING HYD VAL	Advisory	27-03-01
R WING SLIDE	Advisory	52-71-01
R YAW DAMPER	Advisory	22-21-01
R+C HYD SYS PRESS	Caution	None
RA DISAGREE	Advisory	34-33-01
RADIO TRANSMIT	Advisory	23-11-01 23-51-04
RAT UNLOCKED	Advisory	None
REMOTE LIGHT SENSOR	Status	31-63-07
RSV BRAKE VAL	Advisory	None
RUDDER RATIO	Advisory	None

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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
SATCOM	Advisory	23-25-01
SATCOM DATA	Status	23-22-01 23-25-01
SATCOM DATALINK	Advisory	23-25-01
SATCOM HIGH GAIN	Status	23-25-01
SATCOM LOW GAIN	Status	23-25-01
SATCOM MESSAGE	Comm E	N/A
SATCOM VOICE	Advisory	23-25-01
SATVOICE AVAIL	Advisory	N/A
SATVOICE AVAIL	Comm F	N/A
SATVOICE LOST	Advisory	23-25-01
SELCAL	Comm E	N/A
SGL SOURCE DISPLAYS	Caution	None
SGL SOURCE FLT DIR	Advisory	N/A
SGL SOURCE ILS	Advisory	34-31-01
SGL SOURCE IRS	Advisory	N/A
SGL SOURCE RAD ALT	Advisory	34-33-01
SINGLE AIR DATA	Advisory	N/A
SPEED BRAKES EXT	Caution	27-62-02
SPOILERS	Warning	None
SPOILERS	Advisory	None
STAB TRIM	Advisory	27-41-02 29-31-01 29-33-01
STABILIZER	Warning	None
STANDBY BUS OFF	Advisory	None


Cross Reference List

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
STBY AUX PITOT	Advisory	30-31-01 30-31-02
STBY INST PITOT	Advisory	30-31-01 30-31-02
STBY INVERTER	Status	None

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
T-R UNIT	Status	None
TAI N1	Advisory	30-34-02
TAILSKID	Advisory	32-71-01
TAILSTRIKE AHEAD	Caution	N/A
TAT PROBE	Advisory	30-31-02 30-33-01
TCAS	Advisory	34-45-01
TCAS FAIL	Advisory	34-45-01
TCAS OFF	Advisory	34-45-01
TE FLAP ASYM	Caution	None
TE FLAP DISAGREE	Caution	None
TE FLAP SHUTDOWN	Status	None
TERR OVRD	Advisory	34-46-01
TERR POS	Advisory	34-46-01
TERR SYS	Status	34-46-01
THERAP OXY ON	Advisory	None
TIRE PRESSURE	Advisory	32-45-03
TIRE PRESSURE	Status	32-45-03
TRACK DISAGREE	Advisory	34-21-01 34-22-03 34-22-05

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<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
TRACK FAIL	Advisory	34-25-01
TRIM AIR	Advisory	21-61-03 21-61-04

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
UNABLE RNP	Caution	N/A
UNABLE RNP	Advisory	N/A
UNSCHD STAB TRIM	Caution	None

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
VHF DATA OFF	Comm F	N/A

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
WARN ELEX	Status	27-32-02 34-61-01
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	34-46-01 34-43-01
WNSHR ALERT SYS	Advisory	34-46-01
WXR SYS	Status	34-43-01

<u>Message</u>	<u>Level</u>	<u>MEL Item</u>
YSM	Status	27-09-01



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Introduction

General Notes

MEL Definitions

FAA MMEL Preamble

"NORDWIND" MEL Preamble

ATA 21 - Air Conditioning

ATA 22 - Auto Flight

ATA 23 - Communications

ATA 24 - Electrical Power

ATA 25 - Equipment and Furnishings

ATA 26 - Fire Protection

ATA 27 - Flight Controls

ATA 28 - Fuel

ATA 29 - Hydraulics

ATA 30 - Ice and Rain Protection

ATA 31 - Indicating/Recording Systems

ATA 32 - Landing Gear

ATA 33 - Lights

ATA 34 - Navigation

ATA 35 - Oxygen

ATA 36 - Pneumatics

ATA 38 - Water/Waste

ATA 46 - Information Systems

ATA 49 - Airborne Auxiliary Power

ATA 52 - Doors

ATA 56 - Windows

ATA 73 - Engine Fuel & Control

**Table of Contents****ATA 74 - Engine Ignition****ATA 75 - Bleed Air****ATA 77 - Engine Indicating****ATA 78 - Engine Exhaust****ATA 79 - Engine Oil****ATA 80 - Starting**



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 MMEL 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).

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 767-300 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 767-300 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.



21-24-01	Gasper Fan	
21-25-01	Recirculation Fans	
21-25-01-01A	One Inoperative	
21-25-01-01B	Both Inoperative	
21-25-02	Recirculation Fan INOP Lights	
21-28-01	Forward Cargo Air Conditioning System	
21-31-01	Auto Cabin Pressure Control Systems	
21-31-01A	One Inoperative	
21-31-01B	Both Inoperative, Manual Operative	
21-31-01C	Both Inoperative, Manual Inoperative	
21-31-02	Manual Cabin Pressure Control System	
21-31-03	Outflow Valve	
21-32-01	Positive Pressure Relief Valves	
21-32-01A	Pressurized Flight	
21-32-01B	Unpressurized Flight, Manual Pressure Control Operative	
21-32-01C	Unpressurized Flight, Extended Overwater Flight Not Allowed	
21-33-01	CABIN RATE of Climb Indicator	
21-33-01A	Pressurized Flight	
21-33-01B	Unpressurized Flight	
21-33-02	CABIN DIFF Pressure Indicator	
21-33-02A	Pressurized Flight	
21-33-02B	Unpressurized Flight	
21-33-03	CABIN ALT Indicator	
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21-40-01-02 Bulk

21-40-01-02-01 Bulk Cargo Vent Fan

21-40-02 Cargo Heat Indicating Systems (OVHT and/or ON Light)

21-40-02-01 Fwd and Aft

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Operative*21-40-02-01B *Associated Cargo Heat System Selected
OFF*

21-40-02-02 Bulk

21-40-02-02-01A *Overheat Protective System Verified
Operative*21-40-02-02-01B *Bulk Cargo Heat System Selected OFF***21-45-01 Flight Crew Auxiliary Heat Systems**21-45-01A *Inoperative Off*21-45-01B *Deactivated***21-45-03 Door Heater Systems (Type A, I, III Doors)****21-51-01 Air Conditioning Packs**

21-51-01-01 Departure from base airport

21-51-01-02 One Pack Inoperative

21-51-01-03 Two Packs Inoperative

21-51-02 Pack Flow Control/Shutoff Valves

21-51-02-01 Hi Flow Mode

21-51-03 Pack Temperature Control Systems

21-51-03-01 Auto Mode

21-51-03-02 Standby Mode

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 - 21-58-12A *ER Operations Allowed*
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 - 21-58-14-02A *One Inoperative, Secured Open*
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- 21-61-01 Cabin COMPT TEMP Control Systems**
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21-24-01 Gasper Fan

Effectivity: VP-BDI

Interval	Installed	Required	Procedure
D	1	0	

**21-25-01 Recirculation Fans****21-25-01-01A One Inoperative**

Interval	Installed	Required	Procedure
C	2	1	

OPERATIONS NOTE

For a recirculation fan failed or turned off, the associated a/c pack goes to the high flow mode.

21-25-01 Recirculation Fans**21-25-01-01B Both Inoperative**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided both packs operate normally.

OPERATIONS 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.
2. For a recirculation fan failed or turned off, the associated a/c pack goes to the high flow mode.
3. For both recirculation fans inoperative the fuel burn will increase approximately 0.6%.

**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 (AMM 21-00-00/901).

1. Set the recirculation fan switches to ON.
2. Open the P36 panel RECIRC FAN, L circuit breaker.
3. Confirm the L RECIR FAN advisory message is displayed.
4. Close the open circuit breaker.
5. Open the P37 panel RECIRC FAN, R circuit breaker.
6. Confirm the R RECIR FAN advisory message is displayed.
7. Close the open circuit breaker.


21-28-01 Forward Cargo Air Conditioning System
Effectivity: BPT, BMU, BMQ, BWX, BWW

Interval	Installed	Required	Procedure
D	1	0	

MAINTENANCE NOTE

1. See AMM 21-00-00/901.
2. Carriage of animals and perishables in the forward cargo compartment may be affected.
3. The forward cargo air conditioning A/C system consists of several components which may be inoperative as outlined below. Airplanes with this system may have all or a subset of the equipment identified below.
4. The following may be inoperative and forward cargo air conditioning used in the Normal mode:
 - A. Forward cargo ventilation fan.
 - B. Forward cargo A/C ground exhaust fan.
 - C. Forward cargo A/C temperature bulb provided forward cargo A/C Normal mode operates normally.
 - D. Forward cargo heat switch (45°F) provided:
 - 1) Forward cargo heat remains OFF.
 - 2) P5 panel FWD cargo heat switch is placarded FWD CARGO HEAT INOP.
 - 3) The forward cargo heat flow control valve is deactivated. Do the Forward Cargo Heating Flow Control Valve Deactivation Procedure on the following pages.
 - E. Forward cargo A/C exhaust valve provided the valve is deactivated closed. Do the Forward Cargo A/C Exhaust Valve Deactivation Procedure on the following pages.
 - F. Forward cargo A/C ground exhaust valves (primary and/or backup) provided both valves are deactivated closed. Do the Forward Cargo A/C Ground Exhaust Valve Deactivation Procedure on the following pages.
5. The following may be inoperative provided forward cargo A/C is verified to operate in the backup mode (EICAS message FWD CGO BACKUP appears when Forward Cargo A/C switch is ON):
 - A. Either or both forward cargo A/C temperature sensors.
 - B. Forward cargo A/C trim air modulating valve provided:
 - 1) Valve is deactivated closed. Do the Forward Cargo A/C Trim Air Modulating Valve Deactivation Procedure on the following pages.



- 2) Cargo A/C trim/heat shutoff valve operates normally.
- 3) If installed, a forward cargo heating flow control valve operates normally.
- C. Any or all forward cargo A/C duct/compartiment overheat switches provided one of the following is accomplished:
 - 1) Forward cargo A/C trim air modulating valve is deactivated closed. Do the Forward Cargo A/C Trim Air Modulating Valve Deactivation Procedure on the following pages.
 - 2) Forward cargo trim/heat shutoff valve is deactivated closed. Do the Forward Cargo Trim/Heat Shutoff Valve Deactivation Procedure on the following pages.
- D. Forward cargo trim/heat shutoff valve provided valve is deactivated closed. Do the Forward Cargo Trim/Heat Shutoff Valve Deactivation Procedure on the following pages.
6. Forward cargo A/C will be unavailable and should be placarded FORWARD CARGO A/C INOP when the following components are inoperative:
 - A. Forward cargo A/C shutoff valve provided the valve is deactivated closed. Do the Forward Cargo A/C Shutoff Valve Deactivation Procedure on the following pages.
 - B. Forward cargo temperature selector.
 - C. Except for ER operations, pack flow and cargo air conditioning controller (PFCAC) provided:
 - 1) Flight must remain at or below FL350.
 - 2) The left pack flow control valve is secured closed. Use MEL Item 21-51-02 (M) procedure.
 - 3) Forward cargo A/C shutoff valve is deactivated closed. Do the Forward Cargo A/C Shutoff Valve Deactivation Procedure on the following pages.
 - 4) Forward cargo trim/heat shutoff valve is deactivated closed. Do the Forward Cargo Trim/Heat Shutoff Valve Deactivation Procedure on the following pages.
 - 5) Forward cargo A/C trim air modulating valve is deactivated closed. Do the Forward Cargo A/C Trim Air Modulating Valve Deactivation Procedure on the following pages.
 - 6) Forward cargo A/C exhaust valve is deactivated closed. Do the Forward Cargo A/C Exhaust Valve Deactivation Procedure on the following pages.
 - 7) Forward cargo A/C exhaust fan is deactivated. Do the Forward Cargo A/C Exhaust Fan Deactivation Procedure on the following pages.

Forward cargo A/C exhaust valve deactivation procedure:

1. Open and collar the P11 panel CARGO EXH VLV circuit breaker.



2. Open the forward cargo door.
3. Remove the floor panels that are four feet aft of the forward bulkhead and near the center line of the cargo compartment.
4. Confirm the valve is in the CLOSED position.
5. Disconnect, cap and stow the electrical connector from the exhaust valve.
6. Install the floor panels in the forward cargo compartment.
7. Close the forward cargo door.

Forward cargo A/C ground exhaust valve deactivation procedure:

1. Set the P5 panel FWD CARGO A/C switch to OFF.
 - A. Confirm the ON light goes off.
2. Open the main equipment center access door.
3. Open and collar the P37 panel CARGO GND EXH VLV circuit breaker.
4. Open the forward cargo door.
5. Remove the floor panels that are six feet aft of the forward cargo door and near the center line of the cargo compartment.

NOTE: The ground exhaust valve is the valve that is nearest to the overboard outlets. The ground exhaust backup valve is the valve that is nearest to the ground exhaust fan.
6. Confirm the valve is in the CLOSED position.
7. Install the floor panels in the forward cargo compartment.
8. Close the forward cargo door.
9. Close the main equipment center access door.

Forward cargo A/C ground exhaust backup valve deactivation procedure:

1. Set the P5 panel FWD CARGO A/C switch to OFF.
 - A. Confirm the ON light goes off.
2. Open the forward cargo door.
3. Remove the floor panels that are six feet aft of the forward cargo door and near the center line of the cargo compartment.

NOTE: The ground exhaust valve is the valve that is nearest to the overboard outlets. The ground exhaust backup valve is the valve that is nearest to the ground exhaust fan.
4. Use the manual override actuator (which is also the position indicator) to close the valve, or do the following steps:
 - A. Open the main equipment center access door.
 - B. Close the P36 panel CARGO GND EXH B/U VLV circuit breaker.
 - C. Deactivate the spoilers or move all persons and equipment away from the spoilers.
 - D. Perform the Flight Mode Simulation Deactivation procedure for the No. 1 air/ground system.
5. Open and collar the P36 panel CGO CARGO GND EXH B/U VLV circuit breaker.



6. Confirm the valve is in the CLOSED position.
7. Install the floor panels in the forward cargo compartment.
8. Close the forward cargo door.
9. Close the main equipment center access door.
10. Put the airplane back to the ground mode.
11. Reactivate the spoilers if appropriate.

Forward cargo A/C trim air modulating valve deactivation procedure:

[For forward cargo A/C rotary selector:](#)

1. Set the P5 panel FWD CARGO AIR COND selector to OFF.

[For forward cargo A/C push button switchlight:](#)

2. Set the P5 panel FWD CARGO A/C switch to the off position.
 - A. Confirm the ON light goes off.
3. Open the following P11 panel circuit breakers:
 - A. FWD CARGO TEMP CONT
 - B. FWD CARGO DUCT OVHT/INOP
4. Open the forward cargo door.
5. Remove the aft bulkhead lining of the forward cargo compartment.
6. Confirm the valve is in the CLOSED position.
7. Disconnect, cap, and stow the electrical connector from the trim air modulating valve.
8. Install the bulkhead lining in the forward cargo compartment.
9. Close the forward cargo door.
10. Close the open circuit breakers.

Forward cargo A/C shutoff valve deactivation procedure:

[For forward cargo A/C rotary selector:](#)

1. Set the P5 panel FWD CARGO AIR COND selector to OFF.

[For forward cargo A/C push button switchlight:](#)

2. Set the P5 panel FWD CARGO A/C switch to the off position.
 - A. Confirm the ON light goes off.
3. Open the main equipment center access door.
4. Open and collar the P37 panel CARGO A/C SOV circuit breaker.
5. Open the forward cargo door.
6. Remove the aft bulkhead lining of the forward cargo compartment.
7. Confirm the valve is in the CLOSED position.
8. Disconnect, cap and stow the electrical connector from the shutoff valve.
9. Install the bulkhead lining in the forward cargo compartment.
10. Close the forward cargo door.
11. Close the main equipment center access door.

Forward cargo trim/heat shutoff valve deactivation procedure:

[For forward cargo A/C rotary selector:](#)

1. Set the P5 panel FWD CARGO AIR COND selector to OFF.

**For forward cargo A/C push button switchlight:**

2. Set the P5 panel FWD CARGO A/C switch to the off position.
 - A. Confirm the ON light goes off.
3. Set the P5 panel FWD CARGO HEAT switch to the off position.
 - A. Confirm the ON light goes off.
4. Open and collar the P11 panel CARGO HEAT OVERRIDE, FWD circuit breaker.
5. Open the right ECS access door.
6. Confirm the valve is in the CLOSED position.
7. Disconnect, cap and stow the electrical connector from the inoperative shutoff valve.
8. Close the right ECS access door.

Forward cargo heating flow control valve deactivation procedure:**For forward cargo A/C rotary selector:**

1. Set the P5 panel FWD CARGO AIR COND selector to OFF.

For forward cargo A/C push button switchlight:

2. Set the P5 panel FWD CARGO A/C switch to the off position.
 - A. Confirm the ON light goes off.
3. Set the P5 panel FWD CARGO HEAT switch to the off position.
 - A. Confirm the ON light goes off.
4. Open and collar the P11 panel CARGO HEAT FWD CONT circuit breaker
5. Open the forward cargo door.
6. Remove the aft bulkhead lining of the forward cargo compartment.
7. Confirm the valve is in the CLOSED position.
8. Disconnect, cap and stow the electrical connector from the inoperative control valve.
9. Install the bulkhead lining in the forward cargo compartment.
10. Close the forward cargo door.

Forward cargo a/c exhaust fan deactivation procedure:

1. Set the P5 panel FWD CARGO A/C switch to the off position.
 - A. Confirm the ON light goes off.
2. Open the main equipment center access door.
3. Open and collar the P37 panel CARGO GND EXH FAN circuit breaker.
4. Open the forward cargo door.
5. Remove the floor panels that are six feet aft of the forward cargo door and near the center line of the cargo compartment.
6. Disconnect, cap and stow the electrical connector from the ground exhaust fan.
7. Install the floor panels in the forward cargo compartment.
8. Close the forward cargo door.



-
9. Close the main equipment center access door.

OPERATIONS NOTE

Backup Mode Operation:

1. Adjust the forward cargo air conditioning temperature control selector as necessary to maintain appropriate forward cargo temperature.
2. Confirm the P5 panel FWD CARGO HEAT switch and/or FWD CARGO AIR COND switch (push type or rotary) remains OFF.


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

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
ETOPS

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

May be inoperative provided:

- a. Flight is conducted in an unpressurized configuration.
- b. Manual cabin pressure control system operates normally.
- c. For cargo compartments with Class C fire suppression, procedures are established and used to ensure lower 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.
- d. For forward lower lobe cargo compartments with Class E fire suppression, procedures are established and used to ensure forward lower lobe 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)

Configure the airplane for unpressurized flight (AMM 21-00-00/901).

1. Configure the outflow valve:
 - A. Set the P5 panel CABIN ALTITUDE CONTROL MODE SELECT selector to MAN.
 - B. Rotate the MANUAL selector toward CLIMB (to open the valve) or DESCEND (to close the valve) until the valve position indicator reads approximately 25% open.



- C. Measure the distance between the outflow valve flappers and adjust the MANUAL selector if necessary to ensure the distance between the outflow valve flappers is 0.35" open (+0.05", -0.00") or 8.9 mm open (+1.2mm, -0.0mm).
- 2. Establish the required RECIRC FAN configuration:
 - A. For zero (0) operating packs, two (2) recirculation fans are required.
 - B. For one (1) operating pack, a minimum of one (1) recirculation fan is required.

NOTE: Do not operate more than one pack in this configuration.
Placard the P5 panel as appropriate.

- 3. Configure the airplane to ensure adequate equipment cooling and smoke clearance capability:

For airplanes with the two equipment cooling supply fan system:

- A. Set the EQUIP COOLING mode selector to STBY and placard LEAVE IN STBY.
- B. Wait a minimum of 30 seconds after selecting STBY to allow the overboard valves to close.
- C. Open and collar the following P11 panel circuit breakers:
 - 1) CABIN ALT CONTROL AUTO 1
 - 2) CABIN ALT CONTROL AUTO 2
 - 3) EQUIPMENT COOLING OUTBD VALVES
- D. Open and collar the following forward galley panel circuit breakers:
 - 1) CHILLER No. 1 - AC
 - 2) CHILLER No. 1 - DC
- E. Manually fully open the E/E cooling system overboard exhaust valve from outside the airplane using a 3/8 inch drive wrench. Push in the valve manual override to engage the drive and rotate past the point of initial resistance to the full open stop.
- F. Remove, cap, and stow the electrical connector on the E/E cooling system manifold interconnect valve. Manually operate the valve from the A TO B position, placing it in the C TO B position.
- G. For airplanes configured with no packs operating, disable the ground crew call horn:
 - 1) Open and collar the P6 panel EQUIP COOL GND WARN circuit breaker.
 - 2) To avoid battery discharge, confirm the right AC bus is powered if any IRUs are ON.

For airplanes with the one equipment cooling supply fan system:

- A. Open and collar the following P11 panel circuit breakers:
 - 1) CABIN ALT CONTROL AUTO 1
 - 2) CABIN ALT CONTROL AUTO 2
- B. Set the EQUIP COOLING selector to AUTO and placard LEAVE IN AUTO.



- C. Open and collar the following P11 panel circuit breakers:
 - 1) EQUIPMENT COOLING OUTBD VALVES
 - 2) EQUIPMENT COOLING STANDBY
- D. Open the overboard exhaust valve from outside the airplane using a 3/8 inch drive wrench. Push in the valve manual override to engage the drive and rotate past the point of initial resistance to the full open stop.
- E. Remove, cap, and stow the electrical connector on the E/E cooling system manifold interconnect valve. Confirm the valve position indicator is in the C TO B position.
- F. Gain access to the forward equipment cooling inboard supply valve (AMM 21-58-07/401). Confirm the valve is open.
- G. Gain access to the forward equipment cooling shutoff valve (heat exchanger shutoff valve, some configurations). Confirm the valve is closed.

For airplanes with air conditioning refrigeration unit (ACRU):

- H. Perform the following:
 - 1) Gain access to the forward equipment cooling bypass valve. Confirm the valve is closed.
 - 2) Gain access to the ACRU isolation valve. Confirm the valve is open.
- I. On the P37 panel perform the following:
 - 1) Remove wire W192-72N from terminal block TB274 at XC12 and stow.
 - 2) Fabricate, per standard Wiring Practices D6-54446, ATA 20-90-11, a jumper wire with 10 feet (3 meters) of 20 gauge wire, pin connector BACC47DE7, and pin connector M39029/11-145.
- J. For airplanes configured with no packs operating, disable the ground crew call horn:
 - 1) Open and collar the P6 panel EQUIP COOL GND WARN circuit breaker.
 - 2) To avoid battery discharge, confirm the right AC bus is powered if any IRUs are ON.

OPERATIONS (O)

- 1. During engine start, low flow indication may occur due to a momentary pack off condition.

For cargo compartments with Class C fire suppression:

- 2. For cargo compartments with Class C fire suppression, confirm the forward, aft and bulk cargo compartments are empty, or contain only empty cargo containers, pallets, ballast, or cargo restraint components.
- 3. E/E cooling system is configured for smoke removal:
 - A. Do not use the EQUIPMENT SMOKE Non-Normal Checklist.



- B. Ignore the E/E cooling VALVE annunciator and FWD EQPT VAL advisory message.
- 4. Limit enroute altitude to less than 10,000 feet if possible.
 - A. At or above 10,000 feet, be prepared for the CABIN ALT (red) light to illuminate and the aural warning to sound. The aural warning can be silenced.
 - B. Flight above 10,000 feet is allowed only if special oxygen requirements are satisfied for flight crew, cabin crew and passengers.
- 5. To avoid passenger/flight crew discomfort, after takeoff obstacle clearance has been assured, limit climb and descent to approximately 500 fpm.
- 6. Give consideration to passenger comfort due to reduced air circulation and temperature control. If both recirculation fans are operative, use both.
- 7. Notify flight attendants the forward galley chiller is inoperative.
- 8. Do not change the outflow valve position with manual control except as required for ditching.
- 9. For ditching operation, push in the EQUIPMENT COOLING OUTBD VALVES circuit breaker.

21-31-01 Auto Cabin Pressure Control Systems

21-31-01C Both Inoperative, Manual Inoperative

ETOPS

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

May be inoperative provided:

- a. Flight is conducted in an unpressurized configuration.
- b. Extended overwater flight is prohibited.
- c. For cargo compartments with Class C fire suppression, procedures are established and used to ensure lower 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.
- d. For forward lower lobe cargo compartments with Class E fire suppression, procedures are established and used to ensure forward lower lobe 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)**

Configure the airplane for unpressurized flight (AMM 21-00-00/901).

1. Configure the outflow valve:
 - A. Open and collar the P11 panel CABIN ALTITUDE CONTROL MANUAL circuit breaker.
 - B. Gain access to the outflow valve actuator through the bulk cargo compartment.
 - C. Disconnect the outflow valve actuator connecting rod from the actuator drive arm and valve linkage. Stow the connecting rod.
 - D. Remove the connecting pin from the outflow valve hold open tool (Boeing drawing A21008). Install tool halves to the outflow valve linkage and to the surrounding structure.
 - E. Adjust the rod end of the hold open tool until the distance between outflow valve flappers is 0.35 inches when the tool is connected.
 - F. Install the connecting pin in the hold open tool. Lockwire the valve attach bolt and thumbscrew.
2. Establish the required RECIRC FAN configuration:
 - A. For zero (0) operating packs, two (2) recirculation fans are required.
 - B. For one (1) operating pack, a minimum of one (1) recirculation fan is required.

NOTE: Do not operate more than one pack in this configuration.
Placard P5 panel as appropriate.

3. Configure the airplane to ensure adequate equipment cooling and smoke clearance capability:

For airplanes with the two equipment cooling supply fan system:

- A. Set the EQUIP COOLING mode selector to STBY and placard LEAVE IN STBY.
- B. Wait a minimum of 30 seconds after selecting STBY to allow the overboard valves to close.
- C. Open and collar the following P11 panel circuit breakers:
 - 1) CABIN ALT CONTROL AUTO 1
 - 2) CABIN ALT CONTROL AUTO 2
 - 3) CABIN ALT CONTROL SELECT
 - 4) EQUIPMENT COOLING OUTBD VALVES
- D. Open and collar the following forward galley panel circuit breakers:
 - 1) CHILLER No. 1 - AC
 - 2) CHILLER No. 1 - DC
- E. Manually fully open the E/E cooling system overboard exhaust valve from outside the airplane using a 3/8 inch drive wrench. Push in the valve manual override to engage the drive and rotate past the point of initial resistance to the full open stop.



- F. Remove, cap, and stow the electrical connector on the E/E cooling system manifold interconnect valve. Manually operate the valve from the A TO B position, placing it in the C TO B position.
- G. For airplanes configured with no packs operating, disable the ground crew call horn:
 - 1) Open and collar the P6 panel EQUIP COOL GND WARN circuit breaker.
 - 2) To avoid battery discharge, confirm the right AC bus is powered if any IRUs are ON.

For airplanes with the one equipment cooling supply fan system:

- A. Open and collar the following P11 panel circuit breakers:
 - 1) CABIN ALT CONTROL AUTO 1
 - 2) CABIN ALT CONTROL AUTO 2
 - 3) CABIN ALT CONTROL SELECT
- B. Set the EQUIP COOLING selector to AUTO and placard LEAVE IN AUTO.
- C. Open and collar the following P11 panel circuit breakers:
 - 1) EQUIPMENT COOLING OUTBD VALVES
 - 2) EQUIPMENT COOLING STANDBY
- D. Open the overboard exhaust valve from outside the airplane using a 3/8 inch drive wrench. Push in the valve manual override to engage drive and rotate past the point of initial resistance to the full open stop.
- E. Remove, cap, and stow the electrical connector on the E/E cooling system manifold interconnect valve. Confirm the valve position indicator is in the C TO B position.
- F. Gain access to the forward equipment cooling inboard supply valve. Confirm the valve is open.
- G. Gain access to the forward equipment cooling shutoff valve (heat exchanger shutoff valve, some configurations). Confirm the valve is closed.

For airplanes with air conditioning refrigeration unit (ACRU):

- H. Perform the following:
 - 1) Gain access to the forward equipment cooling bypass valve. Confirm the valve is closed.
 - 2) Gain access to the ACRU isolation valve. Confirm the valve is open.
- I. On the P37 panel perform the following:
 - 1) Remove wire W192-72N from terminal block TB274 at XC12 and stow.



- 2) Fabricate, per standard Wiring Practices D6-54446, ATA 20-90-11, a jumper wire with 10 feet (3 meters) of 20 gauge wire, pin connector BACC47DE7, and pin connector M39029/11-145.
- 3) Add the jumper wire between TB274 XC12 and GDX1-DC.
- J. For airplanes configured with no packs operating, disable the ground crew call horn:
 - 1) Open and collar the P6 panel EQUIP COOL GND WARN circuit breaker.
 - 2) To avoid battery discharge, confirm the right AC bus is powered if any IRUs are ON.

OPERATIONS (O)

1. Extended overwater flight is prohibited.
2. During engine start, low flow indication may occur due to a momentary pack off condition.

For cargo compartments with Class C fire suppression:

3. For cargo compartments with Class C fire suppression, confirm forward, aft and bulk cargo compartments are empty, or contain only empty cargo containers, pallets, ballast, or cargo restraint components.
4. E/E cooling system is configured for smoke removal:
 - A. Do not use the EQUIPMENT SMOKE Non-Normal Checklist.
 - B. Ignore the E/E cooling VALVE annunciator and FWD EQPT VAL advisory message.
5. Limit enroute altitude to less than 10,000 feet if possible.
 - A. At or above 10,000 feet, be prepared for the CABIN ALT (red) light to illuminate and the aural warning to sound. The aural warning can be silenced.
 - B. Flight above 10,000 feet is allowed only if special oxygen requirements are satisfied for flight crew, cabin crew and passengers.
6. Do not use two air conditioning packs.
- 7.
8. To avoid passenger/flight crew discomfort, after takeoff obstacle clearance has been assured, limit climb and descent to approximately 500 fpm.
9. Give consideration to passenger comfort due to reduced air circulation and temperature control. If both recirculation fans are operative, use both.
10. Notify flight attendants the forward galley chiller is inoperative.
11. For ditching operation, push in the EQUIPMENT COOLING OUTBD VALVES circuit breaker.



21-31-02 Manual Cabin Pressure Control System
ETOPS

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. For cargo compartments with Class C fire suppression, procedures are established and used to ensure lower 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.
- d. For forward lower lobe cargo compartments with Class E fire suppression, procedures are established and used to ensure forward lower lobe 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: For items are approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 2). Do not use any combustible and flammable materials as ballast if required to be installed.

MAINTENANCE (M)

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

OPERATIONS (O)

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

**21-31-03 Outflow Valve****ETOPS**

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.
- For cargo compartments with Class C fire suppression, procedures are established and used to ensure lower 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.
- For forward lower lobe cargo compartments with Class E fire suppression, procedures are established and used to ensure forward lower lobe 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: For items are approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 2). Do not use any combustible and flammable materials as ballast if required to be installed.

MAINTENANCE (M)

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

OPERATIONS (O)

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


21-32-01 Positive Pressure Relief Valves
21-32-01A Pressurized Flight
ETOPS

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative closed.

MAINTENANCE (M)

Configure the airplane with the inoperative valve closed (AMM 21-00-00/901).

1. Gain access to the valve.
2. For valve flapper doors open, press the flapper doors closed from outside the airplane.
3. 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).
4. 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).
5. 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.

6. 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
21-32-01B Unpressurized Flight, Manual Pressure Control Operative
ETOPS

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

May be inoperative provided:

- a. Flight is conducted in an unpressurized configuration.
- b. Manual cabin pressure control system operates normally.



- c. For cargo compartments with Class C fire suppression, procedures are established and used to ensure lower 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.
- d. For forward lower lobe cargo compartments with Class E fire suppression, procedures are established and used to ensure forward lower lobe 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: For items are approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 2). Do not use any combustible and flammable materials as ballast if required to be installed.

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

21-32-01C Unpressurized Flight, Extended Overwater Flight Not Allowed

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

May be inoperative provided:

- a. Flight is conducted in an unpressurized configuration.
- b. Extended overwater flight is prohibited.
- c. For cargo compartments with Class C fire suppression, procedures are established and used to ensure lower 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.
- d. For forward lower lobe cargo compartments with Class E fire suppression, procedures are established and used to ensure forward lower lobe 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: For items are approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 2). Do not use any combustible and flammable materials as ballast if required to be installed.

MAINTENANCE (M)

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

OPERATIONS (O)

Use MEL Item 21-31-01C (O) procedure for unpressurized flight.

21-33-01 CABIN RATE of Climb Indicator
21-33-01A Pressurized Flight
ETOPS

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
21-33-01B Unpressurized Flight
ETOPS

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

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- For cargo compartments with Class C fire suppression, procedures are established and used to ensure lower 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.
- For forward lower lobe cargo compartments with Class E fire suppression, procedures are established and used to ensure forward lower lobe 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 items are approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 2). Do not use any combustible and flammable materials as ballast if required to be installed.

NOTE 1: If manual cabin pressure control system is inoperative Extended Overwater Flight is prohibited. Advise dispatch.

MAINTENANCE (M)

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

OPERATIONS (O)

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



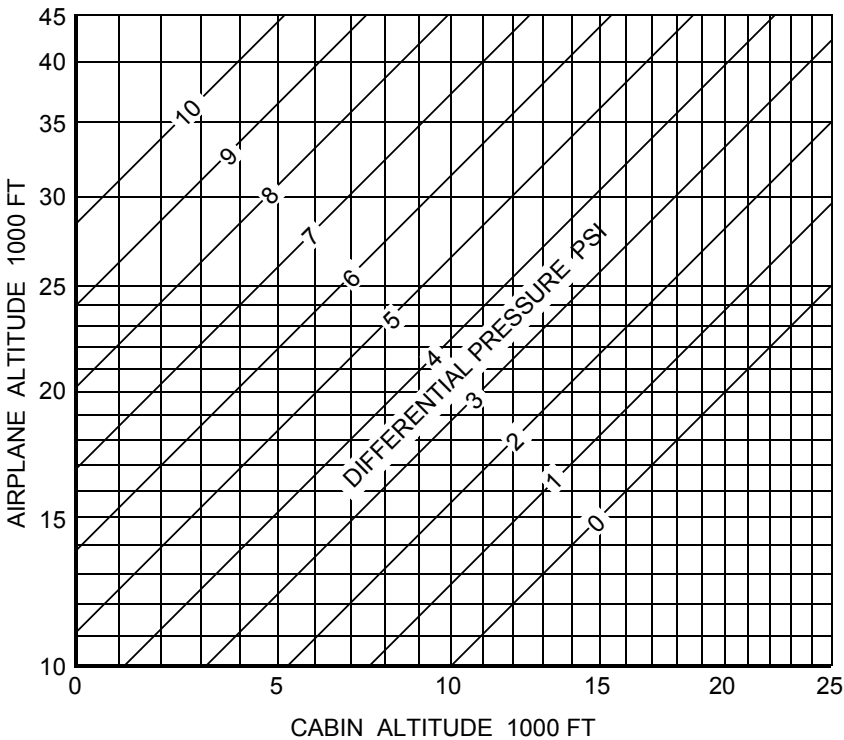
21-33-02 CABIN DIFF Pressure Indicator
21-33-02A Pressurized Flight

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****21-33-02B Unpressurized Flight**

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

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- For cargo compartments with Class C fire suppression, procedures are established and used to ensure lower 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.
- For forward lower lobe cargo compartments with Class E fire suppression, procedures are established and used to ensure forward lower lobe 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 1: For items are approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 2). Do not use any combustible and flammable materials as ballast if required to be installed.

NOTE 2: If manual cabin pressure control system is inoperative Extended Overwater Flight is prohibited. Advise dispatch.

MAINTENANCE (M)

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

OPERATIONS (O)

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


21-33-03 CABIN ALT Indicator
21-33-03A Pressurized Flight
ETOPS

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 21-33-02A (O) procedure.

21-33-03 CABIN ALT Indicator
21-33-03B Unpressurized Flight
ETOPS

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

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- For cargo compartments with Class C fire suppression, procedures are established and used to ensure lower 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.
- For forward lower lobe cargo compartments with Class E fire suppression, procedures are established and used to ensure forward lower lobe 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 1: For items approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 2). Do not use any combustible and flammable materials as ballast if required to be installed.

NOTE 2: If manual cabin pressure control system is inoperative Extended Overwater Flight is prohibited. Advise dispatch.

MAINTENANCE (M)

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

**OPERATIONS (O)**

Configure the airplane for unpressurized flight using MEL item 21-31-01B or 21-31-01C (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.

**21-40-01 Cargo Heating Systems****21-40-01-01 Fwd and Aft**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative deactivated.

MAINTENANCE (M)

Deactivate the affected cargo heating system (AMM 21-00-00/901).

NOTE: The shutoff valve and flow control valve are in series. Only one of these valves needs to be closed and electrically disconnected to deactivate the system.

1. For forward system, gain access to the associated cargo heating shutoff or flow control valve.
2. For aft system, gain access to the associated cargo heating shutoff or flow control valve.
3. Remove, cap and stow either the shutoff valve or the flow control valve electrical connector.
4. Manually close the valve by moving the manual override and position indicator lever to the closed position.

Effectivity: BRA, BOQ

5. Optional step: To inhibit the FWD CARGO OVHT advisory message and OVHT light when forward cargo heat is deactivated, perform one of the following:
 - A. Open and collar the P11 panel CARGO HEAT CONTROL, FWD circuit breaker.
 - B. Remove S363 FWD CARGO OVHT TEMP thermostat.
 - C. Remove P37 panel relay K231.

Effectivity: BPT, BMU, BMQ, BWX, BWW

6. Optional step: To inhibit the FWD CARGO OVHT advisory message and OVHT light when forward cargo heat is deactivated, perform the following:
 - A. Cap and stow the wire to the S363 FWD CARGO OVHT TEMP thermostat.
 - B. Remove P37 panel relay K231.
7. Optional step: To inhibit the AFT CARGO OVHT advisory message and AFT OVHT light when aft cargo heat is deactivated, do one of the following:
 - A. Remove S64 AFT CARGO OVHT TEMP switch.
 - B. Remove P49 panel AFT CARGO OVHT relay K229.

**OPERATIONS NOTE**

1. With cargo heat inoperative, the associated cargo compartment temperature may drop below freezing.

21-40-01 Cargo Heating Systems**21-40-01-02 Bulk**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative deactivated.

MAINTENANCE (M)

Deactivate the bulk cargo heating system (AMM 21-00-00/-901).

NOTE: The shutoff valve and flow control valve are in series. Only one of these valves needs to be closed and electrically disconnected to deactivate the system.

1. Gain access to the bulk cargo heating shutoff or flow control valve.
2. Remove, cap and stow either the shutoff valve or the flow control valve electrical connector.
3. Manually close the valve by moving the manual override and position indicator lever to the closed position.
4. Optional step: To inhibit the BULK CARGO OVHT advisory message and BULK OVHT light when bulk cargo heat is deactivated, perform one of the following:
 - A. Remove the S500 BULK CARGO OVHT TEMP switch.
 - B. Remove the P33 panel BULK CARGO OVHT relay K729.

OPERATIONS NOTE

1. With cargo heat inoperative, the associated cargo compartment temperature may drop below freezing.
2. Animals should not be carried in the bulk cargo compartment with the bulk cargo heating system inoperative unless consideration is given to heat, humidity, and CO2 conditions for flight.

21-40-01 Cargo Heating Systems**21-40-01-02 Bulk****21-40-01-02-01 Bulk Cargo Vent Fan**

Interval	Installed	Required	Procedure
C	1	0	(O)



May be inoperative provided BULK CARGO HEAT selector remains in NORM position.

OPERATIONS (O)

Animals should not be carried in the bulk cargo compartment with the bulk cargo vent fan inoperative unless consideration is given to heat, humidity, and CO2 conditions for flight.

**21-40-02 Cargo Heat Indicating Systems (OVHT and/or ON Light)****21-40-02-01 Fwd and Aft****21-40-02-01A Overheat Protective System Verified Operative**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided overheat protective system(s) is verified to operate normally.

MAINTENANCE (M)

Verify the overheat protective system operates normally (AMM 21-00-00/901).

1. Gain access to the associated cargo heat overheat switch.
2. Attach a thermometer adjacent to the cargo heat overheat switch.
3. Using a heat source directed at the overheat switch and thermometer, heat the overheat switch until the thermometer indicates 90 +/-5 degrees Fahrenheit.
4. Confirm the associated shutoff valve closes.

OPERATIONS NOTE

1. For an inoperative light: a cargo compartment overheat will be annunciated by the FWD CARGO OVHT or AFT CARGO OVHT advisory message.
2. For an inoperative relay: the advisory message may not operate.

21-40-02 Cargo Heat Indicating Systems (OVHT and/or ON Light)**21-40-02-01 Fwd and Aft****21-40-02-01B Associated Cargo Heat System Selected OFF**

Interval	Installed	Required	Procedure
C	3	0	

May be inoperative provided associated cargo heat system is selected OFF.

OPERATIONS NOTE

Consideration should be given to the heat, humidity, and CO2 affects on any animals carried in the associated compartment.

**21-40-02 Cargo Heat Indicating Systems (OVHT and/or ON Light)****21-40-02-02 Bulk****21-40-02-02-01A Overheat Protective System Verified Operative**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided overheat protective system(s) is verified to operate normally.

MAINTENANCE (M)

Verify the overheat protective system operates normally (AMM 21-00-00/901).

1. Gain access to the bulk cargo heat overheat switch.
2. Attach a thermometer adjacent to the cargo heat overheat switch.
3. Using a heat source directed at the overheat switch and thermometer, heat the overheat switch until the thermometer indicates 90 +/-5 degrees Fahrenheit.
4. Confirm the bulk cargo heat shutoff valve closes.

OPERATIONS NOTE

1. For an inoperative light: a cargo compartment overheat will be annunciated by the BULK CARGO OVHT advisory message.
2. For an inoperative relay: the advisory message may not operate.

21-40-02 Cargo Heat Indicating Systems (OVHT and/or ON Light)**21-40-02-02 Bulk****21-40-02-02-01B Bulk Cargo Heat System Selected OFF**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided bulk cargo heat system is selected OFF.

OPERATIONS NOTE

Consideration should be given to the heat, humidity, and CO2 affects on any animals carried in the associated compartment.

**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 (AMM 21-00-00/901).

1. Open and collar the associated circuit breaker for the inoperative heater:
 - A. P36 panel, AUXILIARY HEATERS, CAPT, LOW
 - B. P36 panel, AUXILIARY HEATERS, CAPT, HIGH
 - C. P37 panel, AUXILIARY HEATERS, F/O, LOW
 - D. P37 panel, AUXILIARY HEATERS, F/O, HIGH

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

Interval	Installed	Required	Procedure
C	-	0	(M)

May be inoperative deactivated.

MAINTENANCE (M)

Deactivate the inoperative heater system (AMM 21-00-00/901).

1. Do one of the following:
 - A. To deactivate all heaters associated with the inoperative heater power circuit breaker:
 - 1) Open and collar the associated power circuit breaker.
 - B. To allow operative heater associated with the inoperative heater power circuit breaker to be used:
 - 1) Open the associated power circuit breaker.
 - 2) Gain access to the inoperative heater.
 - 3) Disconnect, cap, and stow the electrical connector from the inoperative heater.
 - 4) Close the open circuit breaker.


21-51-01 Air Conditioning Packs
21-51-01-01 Departure from base airport
ETOPS

Interval	Installed	Required	Procedure
C	2	2	

Departure from base airport is prohibited

21-51-01 Air Conditioning Packs
21-51-01-02 One Pack Inoperative
ETOPS

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative provided:

- Airplane remains at or below FL 350.
- Remaining (opposite) pack operates normally.
- Flight remains within 60 minutes of landing at a suitable airport.

OPERATIONS (O)

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
21-53-01	Ram Air Inlet/Exhaust Door Systems

- Flight must remain at or below FL350.
- Flight must remain within 60 minutes of landing at a suitable airport.
- Set the associated PACK control selector to OFF. The associated PACK OFF light and L(R) PACK OFF advisory message will illuminate.

Effectivity: BPT, BMU, BMQ, BWX, BWW

- Forward cargo air conditioning is not available.



5. The associated engine bleed OFF Light and L(R) ENG BLEED OFF advisory message may display during periods of low bleed air demand.

21-51-01 Air Conditioning Packs**21-51-01-03 Two Packs Inoperative****ETOPS**

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

May be inoperative provided:

- Flight is conducted in an unpressurized configuration.
- Both recirculation fans operate 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 1: Operator MELs must define which items are approved for inclusion in fly away kits, and which material can be used as ballast.

NOTE 2: Classic Interior is on most -200/-300 passenger airplanes. All 767 passenger airplanes built prior to March 2000 and some built since then have classic interior.

NOTE 3: 767 New Look Interior (NLI) looks similar to 777 interior. NLI, also referred to as Signature Series Interior, was first installed in 767 in March 2000.

MAINTENANCE (M)

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.
- Some ventilation will be available in the cabin due to air being drawn into the outflow valve and exhausted out through the E/E cooling exhaust valve.
- Do the following to minimize temperature rise:
 - Minimize flight deck lighting intensity.
 - Install flight deck sunvisors during daylight operations.
 - Instruct flight attendants to:
 - Select all galley equipment off.
 - Select in flight entertainment main power off.
 - Reduce cabin lighting to minimum needed.
 - Close cabin window shades during daylight operations.
 - Select main cabin door heaters off.
 - Keep recirculation fans on.

- E. Operate airplane at Mach 0.4, or slowest safe operating speed. For planning purposes and additional information, refer to Holding text and table in FCOM Performance Inflight Chapter PI.
4. Use TABLE 1 to estimate expected cabin and flight deck temperatures.

Air Temperature			Temperature During Climb/Descent (°F)		Temperature During Cruise (°F)	
Ground	Cruise	PAX Load	Flight Deck	Cabin	Flight Deck	Cabin
86°F/30°C	50°F/10°C	0	114	102	108	96
ISA +15°C		25	114	102	108	96
		200	NR	NR	NR	NR
59°F/15°C	23°F/-5°C	0	87	73	83	70
ISA		25	88	81	84	79
		200	95	91	91	91
41°F/5°C	5°F/-15°C	0	74	62	71	59
ISA -10°C		25	76	72	73	71
		200	88	88	83	86

TABLE 1: MAXIMUM TEMPERATURE LEVEL WITH BOTH PACKS INOPERATIVE.

NOTE 1: NR = Not Recommended.

NOTE 2: Flight temperatures based on maximum solar radiation. For night time flight, expected temperatures will be 7°F (4°C) cooler.

NOTE 3: It is recommended flights are operated to ensure a flight deck temperature of 115°F (46°C) is not exceeded for more than several minutes (limited to takeoff and landing).

NOTE 4: Airplane interior is assumed to be 75°F (24°C) initially using a ground cart prior to No Packs Dispatch.

NOTE 5: Ground time was assumed to be 7 minutes prior to takeoff and after landing. Additional ground time would add heat and humidity to flight deck and cabin.

NOTE 6: 4-hour flight duration assumed. Short flight (1/2 hour in duration) on a 30 °C day will reduce temperatures by about 7°F (4°C) in the flight deck, 2°F (1°C) in the cabin.

NOTE 7: 50% relative humidity was assumed on the ground. Additional humidity adds to passenger and pilot discomfort.



NOTE 8: Live animal carriage should not be used for dispatch with both packs inoperative.

**21-51-02 Pack Flow Control/Shutoff Valves****ETOPS**

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

May be inoperative closed for an associated inoperative pack.

MAINTENANCE (M)

Manually close the pack flow control/shutoff valve (AMM 21-00-00/901).

1. Set the associated PACK control selector to OFF.
2. Gain access to the valve.
3. Manually close the valve by turning the manual-override-actuator nut in the direction indicated on the nut (clockwise).

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

4. For both pack flow control/shutoff valves inoperative use MEL Item 21-31-01 (M) procedure to configure the airplane for unpressurized flight.

OPERATIONS (O)

1. For one or both pack flow control/shutoff valves inoperative use MEL Item 21-51-01 (O) procedure.
2. The associated engine bleed OFF light and L(R) ENG BLEED OFF advisory message may display during periods of low bleed air demand.

Effectivity: BPT, BMU, BMQ, BWX, BWW

3. Forward cargo air conditioning is not available.

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

Interval	Installed	Required	Procedure
C	2	1	

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

OPERATIONS 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.



21-51-03 Pack Temperature Control Systems**ETOPS**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative OFF for an associated inoperative pack.

21-51-03 Pack Temperature Control Systems**21-51-03-01 Auto Mode****ETOPS**

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****ETOPS**

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
ETOPS

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

One may be inoperative deactivated in mid position provided:

- Associated pack is operated in STBY.
- 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.

Deactivate the valve in the mid position (AMM 21-00-00/901).

- Gain access to the pack temperature control valve.
- Rotate the manual override knob on the pack temperature control valve until the visual position indicator is midway between the open and closed positions.
- Disconnect, cap and stow both electrical connectors on the pack temperature control valve.

OPERATIONS (O)

Set the associated PACK control selector to STBY.

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

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 (AMM 21-00-00/901).

- 1. Gain access to the pack temperature control valve.
- 2. Confirm the manual override indicates closed. If required, rotate the knob to the closed position.
- 3. Confirm the ram air inlet and the 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

ETOPS

Interval	Installed	Required	Procedure
C	2	-	

May be inoperative for an associated inoperative pack.



21-51-05 Pack Altitude Switch

Interval	Installed	Required	Procedure
C	1	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 flow control valve in associated pack operates normally (AMM 21-00-00/901).

OPERATIONS (O)

- The associated engine bleed OFF light and L(R) ENG BLEED OFF advisory message may display during periods of low bleed air demand.
- Temperatures in the flight deck, cabin and cargo compartments may become uncomfortably warm above the following outside air temperatures at the listed flight levels:
 - FL350: -20F (-29C)
 - FL370: -40F (-40C)
 - FL390: -60F (-51C)
 - FL430: -70F (-57C)
- If comfortable temperatures inside the airplane cannot be maintained at altitude, descend to a lower flight level to improve cooling.
- 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.

MAINTENANCE 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.

21-52-01 PACK RESET Switches

21-52-01B Associated Pack Inoperative

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative for an associated inoperative pack(s).



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 advisory message operates normally (AMM 21-00-00/901).

1. Set the associated air conditioning PACK control selector to OFF.
2. Confirm the associated L(R) PACK OFF advisory message displays.
3. Set the associated air conditioning PACK control selector as required.

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

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 (AMM 21-00-00/901).

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.
 - b. Ram Air Exhaust Door Actuator.
 - 2) Fabricate an actuator link 11.1 inch long with rod ends compatible with the door actuator fittings. Alternately, Boeing tool No. A21007-2 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 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. L PACK PWR STBY
 - b. R PACK PWR STBY



- 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 UA (BMS 13-48 TY VIII 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, 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.

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.

21-53-01 Ram Air Inlet/Exhaust Door Systems

21-53-01B Associated Pack Inoperative

ETOPS

Interval	Installed	Required	Procedure
C	2	0	(M)

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 (AMM 21-00-00/901).

1. Set the associated PACK control selector to OFF. Confirm the PACK OFF light illuminates.
2. Measure the inlet and exit throat gap. Confirm the exit throat gap is at least 1.15 times the inlet throat gap, to prevent noise and vibration due to possible adverse pressure gradient.
3. Open and collar the associated P11 panel circuit breaker:
 - A. LEFT PACK FLOW CONT
 - B. RIGHT PACK FLOW CONT



21-58-01 Forward Equipment Cooling AUTO System ©

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided STBY control system is used.

OPERATIONS NOTE

1. To minimize the risk of equipment cooling overheat at high ambient temperatures, avoid extended ground operations in this configuration.
[For two supply fan installation:](#)
2. To ensure adequate equipment cooling during ground operations, operate at least one pack at ambient temperatures above 32°C (90° F) and both packs at ambient temperatures above 46°C (115°F).
[For one supply fan installation:](#)
3. To ensure adequate equipment cooling during ground operations, operate both packs at ambient temperatures above 29°C (85°F).

**21-58-02 Forward Equipment Cooling Temperature Control System (Two Supply Fan Installation)**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- STBY control system is used.
 - Heat exchanger bypass valve is deactivated CLOSED.
-

MAINTENANCE (M)

Deactivate the heat exchanger bypass valve closed (AMM 21-00-00/901).

- Set the EQUIP COOLING selector to STBY.
- Gain access to the heat exchanger bypass valve.
- Remove, cap and stow the electrical connector.
- Confirm the valve position indicator reads CLOSED.
- For valve not closed, rotate the valve manual drive counterclockwise until the valve position indicator shows CLOSED.
- To ensure adequate equipment cooling during ground operations, operate 1 pack at ambient temperatures over 32°C (90°F) and 2 packs at ambient temperatures over 46°C (115°F).

OPERATIONS NOTE

To ensure adequate equipment cooling during ground operations, operate 1 pack at ambient temperatures over 32°C (90°F) and 2 packs at ambient temperatures over 46°C (115°F).


21-58-03 Forward Equipment Cooling Supply Fans
21-58-03-01 Two Supply Fan Installation
ETOPS

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided:

- Forward equipment cooling exhaust fan operates normally.
- Automatic control system operates normally.

MAINTENANCE NOTE

Optional procedure: Deactivate the forward equipment cooling supply fan.

- Open and collar the following circuit breakers for the associated fan (SSM 21-58-04/101):
 - P6 panel, EQUIP COOL FAN SPLY 1
 - P11 panel, EQUIP COOLING SUPPLY FAN 1
 - P6 panel, EQUIP COOL FAN SPLY 2
 - P11 panel, EQUIP COOLING SUPPLY FAN 2

21-58-03 Forward Equipment Cooling Supply Fans
21-58-03-02 One Supply Fan Installation
ETOPS

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided:

- Forward equipment cooling exhaust fan operates normally.
- STBY control system is used.
- For ground operation above 29 degrees C OAT, main cabin is supplied with conditioned air.

MAINTENANCE NOTE

- To minimize the risk of equipment cooling overheat at high ambient temperatures, avoid extended ground operations in this configuration.
- Optional procedure: Deactivate the forward equipment cooling supply fan:
 - Open and collar the following circuit breakers:
 - P6 panel, EQUIP COOL FAN SPLY 1
 - P11 panel, EQUIP COOLING SUPPLY FAN 1

**21-58-04 Forward Equipment Cooling Exhaust Fan****21-58-04-01 Two Supply Fan Installation**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided both forward equipment cooling supply fans operate normally.

MAINTENANCE NOTE

Optional procedure: Deactivate the forward equipment cooling exhaust fan.

1. Open and collar the following circuit breakers:
 - A. P6 panel, EQUIP COOL FAN FWD EXH
 - B. P11 panel, EQUIP COOLING EXHAUST FAN FWD

21-58-04 Forward Equipment Cooling Exhaust Fan**21-58-04-02 One Supply Fan Installation**

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided:

- a. Forward equipment cooling supply fan operates normally.
- b. STBY control system is used.
- c. For ground operation above 29 degrees C OAT, main cabin is supplied with conditioned air.

MAINTENANCE NOTE

1. To minimize the risk of equipment cooling overheat at high ambient temperatures, avoid extended ground operations in this configuration.
2. Optional procedure: Deactivate the forward equipment cooling exhaust fan.
 - A. Open and collar the following circuit breakers:
 - 1) P6 panel, EQUIP COOL FAN FWD EXH
 - 2) P11 panel, EQUIP COOLING EXHAUST FAN FWD



21-58-05

Aft Equipment/Lav/Galley Exhaust (Vent) Fans

Interval	Installed	Required	Procedure
C	2	1	

**21-58-07 Forward Equipment Cooling Overboard Exhaust Valve****21-58-07-01 Two Supply Fan Installation**

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

May be inoperative secured closed.

MAINTENANCE (M)

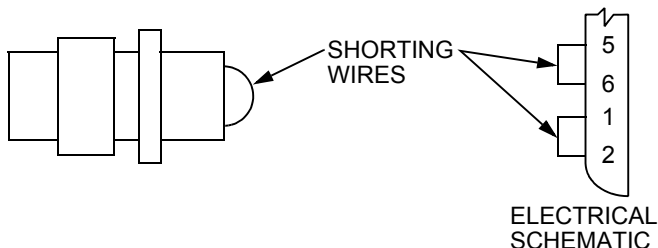
Secure the valve closed (AMM 21-00-00/901).

1. Perform one of the following procedures:
 - A. Procedure 1:
 - 1) Gain access to the forward equipment cooling overboard exhaust valve.
 - 2) Open the P11 panel EQUIPMENT COOLING OUTBD VALVES circuit breaker.
 - 3) Disconnect, cap and stow the overboard exhaust valve electrical connector.
 - 4) Fabricate a shorting connector per the figure below, or fabricate shorting jumper wires with the same wire and pins, but without the shorting receptacle.
 - 5) Connect sockets 1 and 2, and optionally 5 and 6, on the valve ship side electrical connector. If using jumper wires without a shorting receptacle, stow the jumper wires securely using a bundle strap.

NOTE: Installing a wire on the shorting connector between pins 1 and 2 will prevent the VALVE light and FWD EQPT VAL advisory message from illuminating when the engines are operating on the ground. Installing a wire on the shorting connector between pins 5 and 6 will prevent the VALVE light and FWD EQPT VAL advisory message from illuminating when the engines are not operating on the ground.

WIRE NOTES:

1. FABRICATE SHORTING CONNECTOR.
2. 20 GA. WIRE (TYPE 6A OR EQUIVALENT PER BOEING SWPM 20-00-14)
3. 20 GA. PINS (BACC47CP-1T OR EQUIVALENT PER BOEING SWPM 20-61-11)
4. CUT WIRE 2 TO 4 INCHES.
5. WIRE CONNECTING PINS 5 AND 6 IS OPTIONAL.

**SHORTING RECEPTACLE
CONNECTOR P/N BACC45FN12-12P**

- 6) Close the open circuit breaker.
 - 7) Close the valve from outside the airplane using a 3/8 inch 0-150 inch-pound torque wrench to rotate the manual override drive past the overcenter lock until the valve is fully closed. Torque should be at least 28 inch-pounds but not exceed 100 inch-pounds to lock the door in place. If torque exceeds 100 inch-pounds, check the door and mating seat for obstructions and damage.
 - 8) Confirm the valve is closed by visual check of the flapper valve position.
- B. Procedure 2:
- 1) Set the EQUIP COOLING selector to STBY.
 - 2) Open and collar the P11 panel EQUIPMENT COOLING OUTBD VALVES circuit breaker.
 - 3) From outside the airplane, confirm the following valves are closed:
 - a. Forward equipment cooling ground supply valve.
 - b. Forward equipment cooling overboard exhaust valve.
 - c. ACRU Supply Valve (if installed).



- 4) For each valve not closed, from outside the airplane at the valve discharge ports use a 3/8 inch 0-150 inch-pound torque wrench to rotate the manual override drive past the overcenter lock until the valve is fully closed. Torque should be at least 28 inch-pounds but not exceed 100 inch-pounds to lock the door in place. If torque exceeds 100 inch-pounds, check the door and mating seat for obstructions and damage.
 - 5) Confirm the valve is closed by visual check of the flapper valve position.
2. To ensure adequate equipment cooling during ground operations, operate at least one (1) pack at ambient temperatures over 32°C (90°F) and two (2) packs at ambient temperatures over 46°C (115°F).

OPERATIONS (O)

1. For dispatch using MEL (M) Procedure 1, use the EQUIP COOLING selector in accordance with the FCOM.
2. For dispatch using MEL (M) Procedure 2:
 - A. Set the EQUIP COOLING selector to STBY.
 - B. Do not use the AUTO position.
 - C. Use the OVRD position in accordance with Non-Normal Checklist procedures.
 - D. For a faulty valve closed position switch, the VALVE light and FWD EQPT VAL advisory message may remain illuminated until liftoff, and may re-illuminate on touchdown.
3. To minimize the risk of equipment cooling overheat at high ambient temperatures, avoid extended ground operations in this configuration.
4. To ensure adequate equipment cooling during ground operations, operate at least one (1) pack at ambient temperatures over 32°C (90°F) and two (2) packs at ambient temperatures over 46°C (115°F).

21-58-07 Forward Equipment Cooling Overboard Exhaust Valve

21-58-07-02 One Supply Fan Installation

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

May be inoperative secured closed provided:

- a. STBY control system is used.
- b. For ground operation above 29 degrees C OAT, main cabin is supplied with conditioned air.

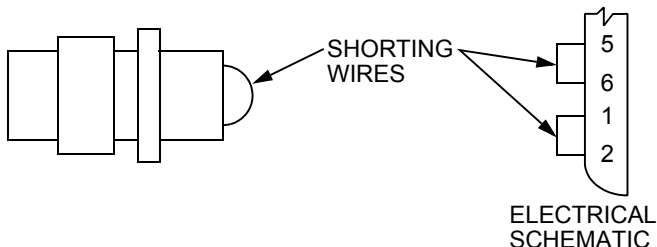
MAINTENANCE (M)

Secure the valve closed (AMM 21-00-00/901).

1. Perform one of the following procedures:
 - A. Procedure 1:
 - 1) Gain access to the forward equipment cooling overboard exhaust valve.
 - 2) Open the P11 panel EQUIPMENT COOLING OUTBD VALVES circuit breaker.
 - 3) Disconnect, cap and stow the overboard exhaust valve electrical connector.
 - 4) Fabricate a shorting connector per the figure below, or fabricate shorting jumper wires with the same wire and pins, but without the shorting receptacle.

WIRE NOTES:

1. FABRICATE SHORTING CONNECTOR.
2. 20 GA. WIRE (TYPE 6A OR EQUIVALENT PER BOEING SWPM 20-00-14)
3. 20 GA. PINS (BACC47CP-1T OR EQUIVALENT PER BOEING SWPM 20-61-11)
4. CUT WIRE 2 TO 4 INCHES.
5. WIRE CONNECTING PINS 5 AND 6 IS OPTIONAL.

**SHORTING RECEPTACLE
CONNECTOR P/N BACC45FN12-12P**

- 5) Connect sockets 1 and 2, and optionally 5 and 6, on the valve ship side electrical connector. If using jumper wires without a shorting receptacle, stow the jumper wires securely using a bundle strap.



NOTE: Installing a wire on the shorting connector between pins 1 and 2 will prevent the VALVE light and FWD EQPT VAL advisory message from illuminating when the engines are operating on the ground or in the air. Installing a wire on the shorting connector between pins 5 and 6 will prevent the VALVE light and FWD EQPT VAL advisory message from illuminating when the engines are not operating on the ground.

- 6) Close the open circuit breaker.
- 7) Close the valve from outside the airplane using a 3/8 inch 0-150 inch-pound torque wrench to rotate the manual override drive past the overcenter lock until the valve is fully closed. Torque should be at least 28 inch-pounds but not exceed 100 inch-pounds to lock the door in place. If torque exceeds 100 inch-pounds, check the door and mating seat for obstructions and damage.
- 8) Confirm the valve is closed by visual check of the flapper valve position.
- 9) Set the EQUIP COOLING selector to STBY.

B. Procedure 2:

- 1) Set the EQUIP COOLING selector to STBY.
 - 2) Open and collar the P11 panel EQUIPMENT COOLING OUTBD VALVES circuit breaker.
 - 3) From outside the airplane, confirm the following valves are closed:
 - a. Forward equipment cooling overboard exhaust valve.
 - b. ACRU supply valve (if installed).
 - 4) For each valve not closed, from outside the airplane at the valve discharge ports use a 3/8 inch 0-150 inch-pound torque wrench to rotate the manual override drive past the overcenter lock until the valve is fully closed. Torque should be at least 28 inch-pounds but not exceed 100 inch-pounds to lock the door in place. If torque exceeds 100 inch-pounds, check the door and mating seat for obstructions and damage.
 - 5) Confirm the valve is closed by visual check of the flapper valve position.
2. To ensure adequate equipment cooling during ground operations, operate two (2) packs at ambient temperatures above 29°C (85°F).

OPERATIONS (O)

1. Select the EQUIP COOLING selector to STBY.
2. Do not use the AUTO position.
3. Use the OVRD position in accordance with Non-Normal Checklist procedures.



4. To minimize the risk of equipment cooling overheat at high ambient temperatures, avoid extended ground operations in this configuration.
5. To ensure adequate equipment cooling during ground operations, operate two (2) packs at ambient temperatures above 29°C (85°F).
6. For dispatch using MEL (M) Procedure 2, for a faulty valve closed position switch, the VALVE light and FWD EQPT VAL advisory message may remain illuminated at all times.

21-58-08 Forward Equipment Cooling Inboard Supply Valve
21-58-08-01 One Supply Fan Installation

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative secured closed provided:

- STBY control system is used.
- For ground operation above 29 degrees C OAT, main cabin is supplied with conditioned air.

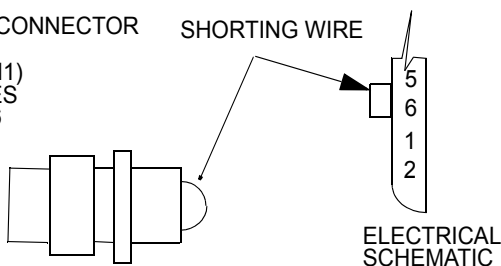
MAINTENANCE (M)

Secure the equipment cooling inboard supply valve closed (AMM 21-00-00/901).

- Gain access to the inboard supply valve.
- Disconnect the valve electrical connector.
- Fabricate a shorting connector per the figure below, or fabricate a shorting jumper wire with the same wire and pins, but without the shorting receptacle.

WIRE NOTES:

- FABRICATE SHORTING CONNECTOR
- 20 GA. WIRE (TYPE 6A)
- 20 GA. PINS (BACC47CN1)
- CUT WIRE 2 TO 4 INCHES
- CONNECT PINS 5 AND 6


SHORTING RECEPTACLE CONNECTOR P/N BACC45FN14A15P

- Connect sockets 5 and 6 on the valve ship side electrical connector. If using a jumper wire without a shorting receptacle, stow the jumper wire securely using a bundle strap.
- Cap and stow the valve electrical connector.
- Rotate the manual drive until the valve position indicator shows the valve is closed.

OPERATIONS NOTE

To minimize the risk of equipment cooling overheat at high ambient temperatures, avoid extended ground operations in this configuration.



21-58-09 Avionics Cooling Refrigeration Unit (ACRU)

Effectivity: BPT, BMQ, BRA, BWX, BWW, BDI

Interval	Installed	Required	Procedure
D	1	0	


21-58-10 ACRU Supply Valve

Effectivity: BPT, BMQ, BRA, BWX, BWW, BDI

Interval	Installed	Required	Procedure
D	1	0	(M)

May be inoperative secured closed.

MAINTENANCE (M)

Secure the valve closed (AMM 21-00-00/901).

For two supply fan configuration:

1. Perform one of the following procedures:

NOTE: With Procedure 1, the VALVE light and FWD EQPT VAL advisory message will remain illuminated until liftoff and will reilluminate on touchdown. With Procedure 2, the same may occur if the valve closed position switch is faulty.

A. Procedure 1:

- 1) Gain access to the ACRU valve.
- 2) Disconnect, cap and stow the valve electrical connector.
- 3) For valve flapper not closed, from outside the aircraft insert a 3/8 inch drive wrench into the valve manual drive and rotate past the overcenter lock until the valve is fully closed.

B. Procedure 2:

- 1) Set the EQUIP COOLING selector to STBY.
- 2) Open and collar the P11 panel EQUIPMENT COOLING OUTBD VALVES circuit breaker.
- 3) From outside the airplane, confirm the following valves are closed:
 - a. Forward equipment cooling ground supply valve.
 - b. Forward equipment cooling overboard exhaust valve.
 - c. ACRU Supply Valve.
- 4) For each valve not closed, from outside the airplane at the valve discharge ports use a 3/8 inch drive wrench and rotate the manual drive past the overcenter lock until the valve is fully closed.
- 5) Set the EQUIP COOLING selector to AUTO.

2. To ensure adequate equipment cooling during ground operations, operate at least one (1) pack at ambient temperatures over 32°C (90°F) and two (2) packs at ambient temperatures over 46°C (115°F).

For one supply fan configuration:

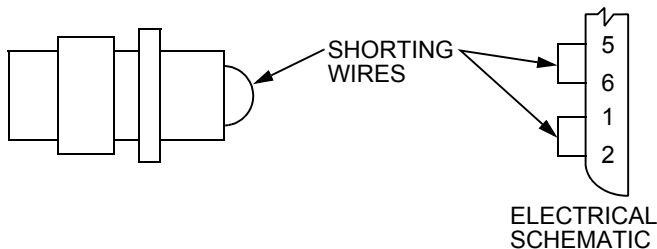
1. Gain access to the ACRU valve.
2. Disconnect, cap and stow the valve electrical connector.

3. Attach a shorting connector per the figure below to the valve ship side electrical connector.

NOTE: Installing a wire on the shorting connector between pins 1 and 2 will prevent the VALVE light and FWD EQPT VAL advisory message from illuminating when the engines are operating on the ground or in the air. Installing a wire on the shorting connector between pins 5 and 6 will prevent the VALVE light and FWD EQPT VAL advisory message from illuminating when the engines are not operating on the ground.

WIRE NOTES:

1. FABRICATE SHORTING CONNECTOR.
2. 20 GA. WIRE (TYPE 6A)
3. 20 GA. PINS (BACC47CP-1T)
4. CUT WIRE 2 TO 4 INCHES.
5. WIRE CONNECTING PINS 5 AND 6 IS OPTIONAL.

**SHORTING RECEPTACLE
CONNECTOR P/N BACC45FN12-12P**

4. Stow the ship side electrical connector.
5. For valve flapper not closed, from outside the aircraft insert a 3/8 inch drive wrench into the valve manual drive and rotate past the overcenter lock until the valve is fully closed.
6. To ensure adequate equipment cooling during ground operations, operate both packs at ambient temperatures above 29°C (85°F).

OPERATIONS NOTE**For two supply fan installation:**

1. For dispatch using MEL (M) Procedure 1, the VALVE light and FWD EQPT VAL advisory message will remain illuminated until liftoff and will reilluminate on touchdown.
2. For dispatch using MEL (M) Procedure 2, set the EQUIP COOLING selector to AUTO.



3. For dispatch using MEL (M) Procedure 2 for a faulty valve closed position switch, the VALVE light and FWD EQPT VAL advisory message may remain illuminated until liftoff, and may re-illuminate on touchdown.
4. To ensure adequate equipment cooling during ground operations, operate at least one pack at ambient temperatures above 32°C (90° F) and both packs at ambient temperatures above 46°C (115°F).

For one supply fan installation:

To ensure adequate equipment cooling during ground operations, operate both packs at ambient temperatures above 29°C (85°F).



21-58-11 ACRU Isolation Valve

Effectivity: BPT, BMQ, BRA, BWX, BWW, BDI

Interval	Installed	Required	Procedure
D	1	0	(M)

May be inoperative secured open.

MAINTENANCE (M)

Secure the valve open (AMM 21-00-00/901).

1. Gain access to the ACRU isolation valve.
2. Disconnect, cap and stow the electrical connector.
3. Confirm the valve position indicator shows the valve OPEN. If required, open the valve by rotating the manual drive in a clockwise direction until the position indicator shows the valve OPEN.


21-58-12 Instrument Cooling Monitor System
21-58-12A ER Operations Allowed
ETOPS
Effectivity: BPT, BMQ, BRA, BWX, BWW, BDI

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided availability of adequate air flow is verified before each departure.

MAINTENANCE (M)

Verify availability of adequate air flow before each departure (AMM 21-00-00/901). Perform one of the following procedures:

1. Procedure 1 (test gauge A21012 or equivalent is available):
 - A. Confirm the P5 panel EQUIP COOLING selector is in AUTO or STBY.
 - B. Confirm the following P11 panel circuit breakers are closed:
 - 1) EQUIP COOLING SUPPLY FAN 1
 - 2) EQUIP COOL CONTROL
 - 3) EQUIP COOLING SUPPLY FAN 2
 - 4) EQUIPMENT COOLING EXHAUST FAN FWD
 - C. Gain access to the P61 E/E COOLING MONITOR panel indicator tygon tubes:

For standard installation (-200/-300 nine ball indicator):

 - 1) Loosen four quarter turn screws on the indicator and carefully slide the indicator into the cockpit assuring tygon tubes remain attached to the indicator.

For optional installation (electric low flow sensor switch):

 - 2) Gain access to the following low flow sensors:
 - a. Flight deck instrument low flow sensors (4).
 - b. Forward E/E compartment low flow sensors (4).
 - c. Mid equipment center low flow sensor (1).
 - D. Perform the following procedure for each flow indicator ball that appears inoperative:
 - 1) Disconnect the tygon tube.
 - 2) Use test gauge A21012 or equivalent to confirm gauge static pressure measured on the ground is a minimum of 0.80 inches of water. Measure static pressure at the disconnected tube end, taking care to seal the tube end while taking the pressure measurement, otherwise a false reading of insufficient pressure may result.
 - 3) Reinstall the tygon tube.



For standard installation (-200/-300 nine ball indicator or -400ER six ball indicator):

2. Procedure 2 (at least one flow indicator ball operates normally):
 - A. Confirm the P5 panel EQUIP COOLING selector is in AUTO or STBY.
 - B. Confirm the following P11 panel circuit breakers are closed:
 - 1) EQUIP COOLING SUPPLY FAN 1
 - 2) EQUIP COOL CONTROL
 - 3) EQUIP COOLING SUPPLY FAN 2
 - 4) EQUIPMENT COOLING EXHAUST FAN FWD
 - C. Perform the following procedure for each flow indicator ball that appears inoperative:
 - 1) Gain access to the P61 E/E COOLING MONITOR panel indicator tygon tubes:
 - a. Loosen four quarter turn screws on the indicator and carefully slide the indicator into the cockpit assuring tygon tubes remain attached to indicator.
 - 2) Disconnect the tygon tube from the flow indicator ball that appears inoperative (in subsequent steps these components are identified as the "suspect tube" and the "suspect indicator").
 - 3) Disconnect a tygon tube from a flow indicator ball that is operative (in subsequent steps these components are identified as the "operative tube" and the "operative indicator").
 - 4) Connect the suspect tube to the operative indicator.
 - 5) Reinstall the P61 panel airflow indicator.
 - 6) Lift the "Press-to-Test" switch.
 - 7) Confirm the suspect tube flow indicator ball rises normally. If this flow indicator ball does not rise normally the suspect tube may be faulty or airflow is inadequate at the location where the suspect tube monitors the forward E/E cooling system.
 - 8) Gain access to the P61 panel indicator tygon tubes.
 - 9) Connect the operative tube to the suspect indicator.
 - 10) Reinstall the P61 panel airflow indicator.
 - 11) Lift the "Press-to-Test" switch.
 - 12) Confirm the operative tube flow indicator ball rises normally. If this flow indicator ball rises normally the suspect indicator operates normally. The suspect tube may be faulty or airflow is inadequate at the location where the suspect tube monitors the forward E/E cooling system.
 - 13) Gain access to the P61 E/E COOLING MONITOR panel indicator tygon tubes.
 - 14) Reconnect the two affected tygon tubes to the flow indicator balls to which they were originally connected.



- 15) Equipment cooling airflow is adequate for dispatch if all tygon tubes cause a flow indicator ball to rise normally when the "Press-to-Test" switch is lifted .

21-58-12 Instrument Cooling Monitor System**21-58-12B Except ER Operations****ETOPS**

Effectivity: BPT, BMQ, BRA, BWX, BWW

Interval	Installed	Required	Procedure
D	1	0	

Except for ER operations, may be inoperative.


21-58-13 In-flight Entertainment (IFE) Cooling Systems

Interval	Installed	Required	Procedure
D	-	0	(M)

May be inoperative provided associated IFE system is deactivated.

MAINTENANCE (M)

Deactivate the IFE system (AMM 21-00-00/901).

For -200/-300 with 200 cfm forward IFE cooling system:

1. Set the video control center MASTER IFE POWER switch to OFF.
2. Open and collar the following IFE cooling system circuit breakers:
 - A. P11 panel, EQUIP COOL-IFE CONT
 - B. Open and collar one of the following circuit breakers:
 - 1) P87 panel, EQUIP COOL-IFE EXHAUST FAN
 - 2) P101 panel, EQUIP COOL-IFE EXHAUST FAN

For VS131-VS133:

- C. Open and collar the P101 panel EQUIP COOL-IFE SUPPLY FAN circuit breaker.

For -300/-400ER with 600 cfm forward IFE cooling system:

1. Set the video control center MASTER IFE POWER switch to OFF.
2. Open and collar the following IFE cooling system circuit breakers:
 - A. P34 panel, FWD IFE CLG SUP FAN CONTROL
 - B. P34 panel, FWD CLG EXH FAN CONTROL
 - C. P101 panel, FWD IFE CLG SUP FAN
 - D. P101 panel, FWD IFE CLG EXH FAN

OPERATIONS NOTE

For IFE system used for passenger briefing purposes, operators must establish and use alternate procedures.


21-58-14 AVS/IFE Inboard/Overboard Exhaust Valves
21-58-14-02 IFE Inboard/Overboard Exhaust Valves

21-58-14-02A One Inoperative, Secured Open

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative secured open.

MAINTENANCE (M)

Secure the valve open (AMM 21-00-00/901).

1. For inboard/overboard exhaust valve #1 V642:
 - A. Gain access to the valve.
 - B. Open and collar the P34 panel FWD IFE CLG INBRD/OVBRD EXH VALVE 1 circuit breaker.
 - C. Disconnect, cap, and stow electrical connector D23468 from valve.
 - D. Turn the manual override handle (visual position indicator) on the valve to the OPEN position.
2. For inboard/overboard exhaust valve #2 V643:
 - A. Gain access to the valve.
 - B. Open and collar the P34 panel FWD IFE CLG INBRD/OVBRD VALVE 2 circuit breaker.
 - C. Disconnect, cap, and stow electrical connector D23470 from valve.
 - D. Turn the manual override handle (visual position indicator) on the valve to the OPEN position.

21-58-14 AVS/IFE Inboard/Overboard Exhaust Valves
21-58-14-02 IFE Inboard/Overboard Exhaust Valves

21-58-14-02B Both Inoperative, One Secured Closed

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided:

- a. One valve is secured closed.
- b. Both packs operate normally.

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.

Secure one valve closed (AMM 21-00-00/901).

1. For inboard/overboard exhaust valve #1 V642:
 - A. Gain access to the valve.
 - B. Open and collar the P34 panel FWD IFE CLG INBRD/OVBRD EXH VALVE 1 circuit breaker.
 - C. Disconnect, cap, and stow electrical connector D23468 from valve.
 - D. Turn the manual override handle (visual position indicator) on the valve to the CLOSED position.
2. For inboard/overboard exhaust valve #2 V643:
 - A. Gain access to the valve.
 - B. Open and collar the P34 panel FWD IFE CLG INBRD/OVBRD VALVE 2 circuit breaker.
 - C. Disconnect, cap, and stow electrical connector D23470 from valve.
 - D. Turn the manual override handle (visual position indicator) on the valve) to the CLOSED position.

OPERATIONS NOTE

To minimize risk of IFE equipment overheat at high ambient temperatures, avoid extended ground operations with exhaust valve closed.

21-58-17 Flight Deck Panel Cooling Air Shutoff Valve

Interval	Installed	Required	Procedure
D	1	0	(M)

May be inoperative deactivated open.

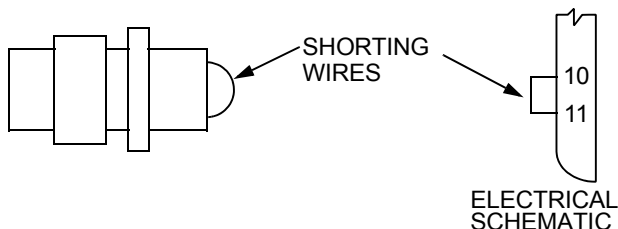
MAINTENANCE (M)

Deactivate the valve open (AMM 21-00-00/901).

1. Remove electrical power.
2. Gain access to the valve.
3. Remove, cap and stow the electrical connector.
4. Optional step. Inhibit the FWD EQPT OVHT advisory message for ground operations with both packs off:
 - A. Attach a shorting connector between pin 10 and pin 11 on the flight deck panel cooling shutoff valve ship side electrical connector.

WIRE NOTES:

1. FABRICATE SHORTING CONNECTOR.
2. 20 GA. WIRE (BMS 13-48 TYPE 1 OR EQUIVALENT)
3. 20 GA. PINS (BACC47CN1, BACC47CN1A, BACC47CN1S OR EQUIVALENT)
4. CUT WIRE 2 TO 4 INCHES.


**SHORTING RECEPTACLE
CONNECTOR P/N BACC45FT14A15P**

5. Manually position the valve open.

OPERATIONS NOTE

Condensation may form on the P5 panel during hot day operations with the packs running.

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

Interval	Installed	Required	Procedure
C	-	0	(M)

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

MAINTENANCE (M)

Close the associated zone trim air modulating valve or trim air regulating/shutoff valve (AMM 21-00-00/901).

1. Set the affected COMPT TEMP control to OFF.
2. Confirm the associated trim air modulating valve is in the closed position.
 - A. On the EICAS ECS/MSG page confirm the associated TRIM VALVE is in the closed (less than 0.05) position.
 - B. For AUX FWD zone or AUX MID zone trim valves, in configurations where the AUX trim valve positions are not shown on the EICAS ECS/MSG page:
 - 1) Gain access to the AUX trim valve.
 - 2) Confirm the valve position indicator shows the valve is closed.
3. 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 TRIM AIR circuit breaker.

OPERATIONS NOTE

For cabin compartment temperature either too hot or too cold, set the trim air switch(es) to OFF.

21-61-02 Flight Deck COMPT TEMP Control System

Interval	Installed	Required	Procedure
C	1	0	(M)

Both auto and manual modes 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 trim air regulating/shutoff valve (AMM 21-00-00/901).

1. Set the FLT DECK compartment temperature control to MAN and then to the full cold (C) position and hold there.
2. On EICAS ECS/MSG page confirm the associated TRIM VALVE is in the closed (less than 0.05) position.
3. 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 OFF.
 - 2) Confirm the TRIM AIR OFF light illuminates.
 - 3) Open and collar the P11 panel TRIM AIR circuit breaker.

OPERATIONS NOTE

1. For flight deck zone trim air modulating valve closed, flight deck trim air is not available. Cabin trim air remains available.

21-61-02 Flight Deck COMPT TEMP Control System
21-61-02-03 AUTO Mode

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided MAN mode operates normally.



21-61-02 Flight Deck COMPT TEMP Control System
21-61-02-04 MAN Mode

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided AUTO mode operates normally.

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

Interval	Installed	Required	Procedure
C	1	0	(M)

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

MAINTENANCE (M)

Secure the trim air PRSOV closed (AMM 21-00-00/901).

1. Set the TRIM AIR switch to OFF.
2. Gain access to the trim air pressure regulating valve.
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	6	0	(M)

May be inoperative provided affected valve is closed.

MAINTENANCE (M)

Close the affected zone trim air modulating valve (AMM 21-00-00/901).

1. Supply electrical power.
2. Set the associated zone temperature selector to OFF or MAN.
3. Open and collar the associated P11 panel circuit breakers:
 - A. F/D ZONE DUCT OVHT/INOP
 - B. F/D ZONE TEMP CONT MAN
 - C. FWD ZONE DUCT OVHT/INOP
 - D. FWD ZONE TEMP CONT VALVE CLOSE
 - E. MID ZONE DUCT OVHT/INOP
 - F. MID ZONE TEMP CONT VALVE CLOSE
 - G. AFT ZONE DUCT OVHT/INOP
 - H. AFT ZONE TEMP CONT VALVE CLOSE
 - I. AUX FWD ZONE DUCT OVHT
 - J. AUX MID ZONE DUCT OVHT
 - K. AUX FWD ZONE TEMP CONT
 - L. AUX MID ZONE TEMP CONT
4. Gain access to the trim air modulating valve.
5. Confirm valve position. For valve not closed, rotate the manual override knob counterclockwise until the position indicator on the valve shows the valve closed.
6. Disconnect, cap and stow the electrical power connector from the valve.

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

Interval	Installed	Required	Procedure
C	6	0	

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



21-61-05 Trim Air OFF Light(s)

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	4	0	(M)

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

MAINTENANCE (M)

Close the associated zone trim air modulating valve (AMM 21-00-00/901).

1. For a cabin zone, set the associated compartment temperature control to OFF.
2. For the flight deck zone, set the FLT DECK compartment temperature control to MAN and then to the full cold (C) position and hold there.
3. Confirm the affected trim air modulating valve is in the closed position.
 - A. On EICAS ECS/MSG page confirm the associated TRIM VALVE is in the closed (less than 0.05) position.
 - B. For AUX FWD zone or AUX MID zone trim valves, in configurations where the AUX trim valve positions are not shown on the EICAS ECS/MSG page:
 - 1) Gain access to the AUX trim valve.
 - 2) Confirm the valve position indicator shows the valve is closed.

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

Interval	Installed	Required	Procedure
C	4	0	(M)

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

MAINTENANCE (M)

Close the associated trim air regulating/shutoff valve (AMM 21-00-00/901).

1. Set the TRIM AIR switch to OFF.
2. Confirm the TRIM AIR OFF light illuminates.
3. Open and collar the P11 panel 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 (AMM 21-00-00/901).

1. Do one of the following:
 - A. Obtain blank-off plate, trim air check valve (A21015-1).
 - 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.
3. Remove pneumatic system pressure.
4. Set both PACK control selectors to OFF.
5. Gain access to the trim air check valve.
6. Loosen the clamp on the downstream side of the trim air check valve and slide the clamp along the duct.
7. Slip the blank-off plate between the duct assembly and the trim air check valve.
8. Reinstall the clamp and torque the clamp nut to 45 inch-pounds.
9. Perform leakage test:
 - A. Pressurize the pneumatic system.
 - 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.



21-64-01 Trim Air Valve Position Indicator

Interval	Installed	Required	Procedure
C	1	0	

**21-64-02 Forward Overboard Valve**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided valve is deactivated closed.

MAINTENANCE (M)

Deactivate the forward overboard valve closed (AMM 21-00-00/901).

1. Open the P11 panel FORWARD OVERBOARD VALVE circuit breaker.
2. Remove the following P87 panel relays:
 - A. K1325
 - B. K1326
3. Gain access to the forward overboard valve.
4. Disconnect, cap, and stow electrical connector D20202 from the valve.
5. Set the manual operating lever/position indicator to the closed position.
6. Lockwire the operating lever to the actuator mounting screws.
7. Close the open circuit breaker.

OPERATIONS NOTE

The forward cabin right side floor level area may become cold.



21-65-01 COMPT TEMP Indications

Interval	Installed	Required	Procedure
C	3	0	



Intentionally
Blank



22-10-01 Autopilot Systems ©

22-10-01A *One Inoperative*

22-10-01B *Two Inoperative*

22-10-01C *All Inoperative*

22-11-01 Control Wheel Disengage Switches

22-11-02 A/P DISC Light

22-11-03 Mode Control Panel Selectors

22-11-03-01 VERT SPD Selector (DN & UP)

22-11-03-02 BANK LIMIT Selector

22-11-03-03 Selector Push Functions

22-11-03-03-01 IAS/MACH

22-11-03-03-02 ALT

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22-11-04 Mode Control Panel Switches

22-11-04-01 A/P Engage Switches/Paddles (L CMD, C CMD, R CMD)

22-11-04-01A *One Inoperative*

22-11-04-01B *Except ER Operations*

22-11-04-02 A/P CWS Engage Switches

22-11-04-03 A/T ARM Switch

22-11-04-04 A/T SPD Mode Engage Switch

22-11-04-05 F/D Switches

22-11-04-06 IAS/MACH SEL Switch

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

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



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Intentionally
Blank


22-10-01 Autopilot Systems ©
22-10-01A One Inoperative

Interval	Installed	Required	Procedure
C	3	2	(M)

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)

[For airplanes with FCC single source option:](#)

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.

[For airplanes with FCC single source option:](#)

Open and collar the associated FCC SERVO circuit breaker, and prior to each departure verify the AFDS is not in a single source configuration (AMM 22-00-00/901).

[For airplanes without FCC single source option:](#)

Open and collar the associated FCC SERVO circuit breaker (AMM 22-00-00/901).

- 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, LEFT
 - FLT CONT CMPTR SERVO, RIGHT
 - FLT CONT CMPTR SERVO, C
 - [For airplanes without FCC single source option:](#)

If a single source configuration exists, autopilot engagement will be inhibited in the air. To confirm the AFDS is not in a single source configuration:

 - Check the autoland status annunciator on the instrument panel:
 - For autoland status NO LAND 3 or blank, AFDS is not in a single source configuration.
 - For autoland status NO AUTOLAND, the AFDS may be in a single source configuration and autopilot engagement may be inhibited in the air.

**For -200/-300 with FCC single source option:**

- C. Verify the AFDS is not in a single source configuration prior to each departure 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 22-10-01.
- 2. For autopilot inoperative due to leaking electrohydraulic servo valves (EHSV) or other causes (i.e. worn hydraulic seals, manifold cracks, etc.), perform the following procedure; it is generic for the three elevator autopilot servos (EAS) and the three directional autopilot servos (DAS):
 - A. Remove applicable hydraulic pressure at the P5 panel:
 - 1) Left EAS/DAS - Left hydraulic system
 - 2) Center EAS/DAS - Center hydraulic system
 - 3) Right EAS/DAS - Right hydraulic system
 - B. Set the following P61 panel switches to OFF:
 - 1) L TAIL FLT CONTROL SHUTOFF
 - 2) R TAIL FLT CONTROL SHUTOFF
 - 3) C TAIL FLT CONTROL SHUTOFF
 - 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) SHUT OFF VALVE, STAB TRIM, L
 - 2) SHUT OFF VALVE, STAB TRIM, C
 - 3) TAIL, L-FLT CONT SHUTOFF
 - 4) TAIL, R-FLT CONT SHUTOFF
 - 5) TAIL, C-FLT CONT SHUTOFF
 - 6) MODE CONT PNL, LEFT
 - 7) MODE CONT PNL, R
 - 8) FLT CONT CMPTR PWR, LEFT
 - 9) FLT CONT CMPTR PWR, R
 - 10) FLT CONT CMPTR PWR, C



- 11) FLT CONT CMPTR SERVO, LEFT
 - 12) FLT CONT CMPTR SERVO, RIGHT
 - 13) FLT CONT CMPTR SERVO, C
- F. Gain access to the leaking EAS/DAS.
- G. Disconnect the pressure and return lines from the leaking EAS/DAS.
- H. Plug the applicable hydraulic ports on the EAS/DAS.
- NOTE: Use suitable caps and plugs, such as MS21913K4 plug and MS21914-4K cap for the pressure lines and MS21913D6 plug and MS 21914-6D cap for the return lines.
- I. Cap the hydraulic lines.
- 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) R TAIL FLT CONTROL SHUTOFF
 - 3) C 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 ©
22-10-01B Two Inoperative

Interval	Installed	Required	Procedure
C	3	1	(M)

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.
- [For airplanes with FCC single source option:](#)
- 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)

[For airplanes with FCC single source option:](#)

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.

**For airplanes with FCC single source option:**

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 (AMM 22-00-00/901).

For airplanes without FCC single source option:

Verify at least two FCC power circuit breakers are in, and open and collar the associated FCC SERVO circuit breakers (AMM 22-00-00/901).

1. For autopilot inoperative and autopilot electrohydraulic servo valves (EHSV) not leaking:
 - A. Confirm at least two FCC power circuit breakers are in. Sensor data availability is maximized if all FCC breakers are in:
 - 1) FLT CONT CMPTR PWR, LEFT
 - 2) FLT CONT CMPTR PWR, R
 - 3) FLT CONT CMPTR PWR, C
 - B. Open and collar the associated P11 panel servo circuit breakers for the failed autopilot channels:
 - 1) FLT CONT CMPTR SERVO, LEFT
 - 2) FLT CONT CMPTR SERVO, RIGHT
 - 3) FLT CONT CMPTR SERVO, C

For airplanes without FCC single source option:

- C. If a single source configuration exists, autopilot engagement will be inhibited in the air. To confirm the AFDS is not in a single source configuration:
 - 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.
 - b. For autoland status NO AUTOLAND, the AFDS may be in a single source configuration and autopilot engagement may be inhibited in the air.

For -200/-300 with FCC single source option:

- D. Verify the AFDS is not in a single source configuration prior to each departure 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 22-10-01.
2. For autopilot inoperative due to leaking electrohydraulic servo valves (EHSV) or other causes (i.e. worn hydraulic seals, manifold cracks, etc.), perform the following procedure; it is generic for the three elevator autopilot servos (EAS) and the three directional autopilot servos (DAS):
 - A. Remove applicable hydraulic pressure at P5 panel:
 - 1) Left EAS/DAS - Left hydraulic system
 - 2) Center EAS/DAS - Center hydraulic system
 - 3) Right EAS/DAS - Right hydraulic system
 - B. Set the following P61 panel switches to OFF:
 - 1) L TAIL FLT CONTROL SHUTOFF
 - 2) R TAIL FLT CONTROL SHUTOFF
 - 3) C TAIL FLT CONTROL SHUTOFF
 - 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) SHUT OFF VALVE, STAB TRIM, L
 - 2) SHUT OFF VALVE, STAB TRIM, C
 - 3) TAIL, L-FLT CONT SHUTOFF
 - 4) TAIL, R-FLT CONT SHUTOFF
 - 5) TAIL, C-FLT CONT SHUTOFF
 - 6) MODE CONT PNL, LEFT
 - 7) MODE CONT PNL, R
 - 8) FLT CONT CMPTR PWR, LEFT
 - 9) FLT CONT CMPTR PWR, R
 - 10) FLT CONT CMPTR PWR, C
 - 11) FLT CONT CMPTR SERVO, LEFT
 - 12) FLT CONT CMPTR SERVO, RIGHT
 - 13) FLT CONT CMPTR SERVO, C
 - F. Gain access to the leaking EAS/DAS.
 - G. Disconnect the pressure and return lines from the leaking EAS/DAS.
 - H. Plug the applicable hydraulic ports on the EAS/DAS.

NOTE: Use suitable caps and plugs, such as MS21913K4 plug and MS21914-4K cap for the pressure lines and MS21913D6 plug and MS 21914-6D cap for the return lines.
 - I. Cap the hydraulic lines.
 - 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) R TAIL FLT CONTROL SHUTOFF
 - 3) C 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 ©
22-10-01C All Inoperative

Interval	Installed	Required	Procedure
B	3	0	(M)

Except for ER operations, all may be inoperative provided:

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

MAINTENANCE (M)

Verify at least one FCC power circuit breaker is in, and open and collar all three FCC SERVO circuit breakers (AMM 22-00-00/901).

1. For autopilot inoperative and autopilot electrohydraulic servo valves (EHSV) not leaking:
 - A. Confirm at least one FCC power circuit breaker is in. Sensor data availability is maximized if all FCC breakers are in:
 - 1) FLT CONT CMPTR PWR, LEFT
 - 2) FLT CONT CMPTR PWR, R
 - 3) FLT CONT CMPTR PWR, C
 - B. Open and collar the following P11 panel circuit breakers:
 - 1) FLT CONT CMPTR SERVO, LEFT
 - 2) FLT CONT CMPTR SERVO, RIGHT
 - 3) FLT CONT CMPTR SERVO, C
2. For autopilot inoperative due to leaking electrohydraulic servo valves (EHSV) or other causes (i.e. worn hydraulic seals, manifold cracks, etc.), perform the following procedure; it is generic for the three elevator autopilot servos (EAS) and the three directional autopilot servos (DAS):
 - A. Remove applicable hydraulic pressure at panel P5:
 - 1) Left EAS/DAS - Left hydraulic system



- 2) Center EAS/DAS - Center hydraulic system
- 3) Right EAS/DAS - Right hydraulic system
- B. Set the following P61 panel switches to OFF:
 - 1) L TAIL FLT CONTROL SHUTOFF
 - 2) R TAIL FLT CONTROL SHUTOFF
 - 3) C TAIL FLT CONTROL SHUTOFF
- 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) SHUT OFF VALVE, STAB TRIM, L
 - 2) SHUT OFF VALVE, STAB TRIM, C
 - 3) TAIL, L-FLT CONT SHUTOFF
 - 4) TAIL, R-FLT CONT SHUTOFF
 - 5) TAIL, C-FLT CONT SHUTOFF
 - 6) MODE CONT PNL, LEFT
 - 7) MODE CONT PNL, R
 - 8) FLT CONT CMPTR PWR, LEFT
 - 9) FLT CONT CMPTR PWR, R
 - 10) FLT CONT CMPTR PWR, C
 - 11) FLT CONT CMPTR SERVO, LEFT
 - 12) FLT CONT CMPTR SERVO, RIGHT
 - 13) FLT CONT CMPTR SERVO, C
- F. Gain access to the leaking EAS/DAS.
- G. Disconnect the pressure and return lines from the leaking EAS/DAS.
- H. Plug the applicable hydraulic ports on the EAS/DAS.

NOTE: Use suitable caps and plugs, such as MS21913K4 plug and MS21914-4K cap for the pressure lines and MS21913D6 plug and MS 21914-6D cap for the return lines.
- I. Cap the hydraulic lines.
- 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) R TAIL FLT CONTROL SHUTOFF
 - 3) C 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	

One may be inoperative provided:

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

NOTE: Two required for CAT II / IIIa / IIIb approach.



22-11-02 A/P DISC Light

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided:

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

NOTE: Required for CAT II / IIIa / IIIb approach.

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

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.

22-11-04 Mode Control Panel Switches
22-11-04-01 A/P Engage Switches/Paddles (L CMD, C CMD, R CMD)
22-11-04-01B Except ER Operations
ETOPS

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
22-11-04-02 A/P CWS Engage Switches
ETOPS

Interval	Installed	Required	Procedure
C	3	0	


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

Interval	Installed	Required	Procedure
C	1	0	

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

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

Interval	Installed	Required	Procedure
C	1	0	(O)

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

NOTE: Required for CAT II / IIIa / IIIb approach.

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
22-11-04-05 F/D Switches
ETOPS

Interval	Installed	Required	Procedure
C	2	0	

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


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

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided IAS is displayed in associated window.

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

Interval	Installed	Required	Procedure
C	1	0	

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

NOTE: Required for CAT II / IIIa / IIIb approach.

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

Interval	Installed	Required	Procedure
C	1	0	(O)

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****22-11-04-09 B/CRS Switch****ETOPS**

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

Interval	Installed	Required	Procedure
C	4	3	(O)

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

NOTE: For RVSM operations ALT HOLD switch must be operative.

OPERATIONS (O)

1. Flight crews must 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
22-11-04-11 L NAV, HDG HOLD Switches
ETOPS

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative provided:

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

OPERATIONS (O)

- Flight crews must consider use of other autopilot modes appropriate for the planned route.
- 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
22-11-04-12 EPR/N1/THR Switch
ETOPS

Interval	Installed	Required	Procedure
C	1	0	

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	

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

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	3	2	

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	

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	

Required for Cat II/IIIa/IIIb approach.

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

NOTE 1: NO AUTOLAND indicates a fault in the Automatic Landing System.

Apply this MEL when the NO AUTOLAND annunciation is not accompanied by other indications or messages regarding specific inoperative equipment. Refer to the Section 0 message list, for associated dispatch deviations.

NOTE 2: When the NO AUTOLAND annunciation is accompanied by other associated indications or messages regarding specific inoperative equipment, do not apply this MEL, apply the MEL for the inoperative equipment.

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

Interval	Installed	Required	Procedure
C	1	0	

Required for Cat IIIb approach.

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

NOTE 1: NO LAND 3 indicates a fault in the Automatic Landing System. Apply this MEL when the NO LAND 3 annunciation is not accompanied by other indications or messages regarding specific inoperative equipment. Refer to the Section 0, EICAS message list, for associated dispatch deviations.

NOTE 2: When the NO LAND 3 annunciation is accompanied by other associated indications or messages regarding specific inoperative equipment, do not apply this MEL, apply the MEL for the inoperative equipment.

NOTE 3: If a NO LAND 3 annunciation is noted prior to departure and if no other indications or messages are present, the aircraft may be dispatched with no maintenance action provided all three autopilots can be independently engaged on the ground and approach minimums do not require triple channel autoland. The ground autopilot engagement should be done while the airplane parking.



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.

[For airplanes without SB 767-22-7 or production equivalent:](#)

NOTE: See AFM Limitations.

MAINTENANCE (M)

Verify the remaining yaw damper operates normally (AMM 22-00-00/901).

1. Supply electrical power.
2. Supply hydraulic pressure.
3. Confirm the IRUs are aligned and in NAV mode.
4. Position the P61 TEST panel YAW DMPR switch to the operational yaw damper.
5. Observe rudder motion on the EICAS status page.
6. Observe the P5 panel YAW DAMPER INOP lights illuminate for approximately 10 seconds then extinguish.

For yaw damper inoperative due to hydraulic leaks:

1. Remove hydraulic pressure at the P5 panel:
 - A. For right yaw damper servo valves (LBL 3), remove left hydraulic pressure.
 - B. For left yaw damper servo valves (RBL 1), remove center hydraulic pressure.
2. Set the following P61 panel switches to OFF:
 - A. L TAIL FLT CONTROL SHUTOFF
 - B. R TAIL FLT CONTROL SHUTOFF
 - C. C TAIL FLT CONTROL SHUTOFF
3. Set the P10 control stand STAB TRIM switches to CUTOUT.
4. Open the following P11 panel circuit breakers. Open the FLT CONT ELEK AC circuit breakers before the FLT CONT ELEK DC circuit breakers for each power supply:
 - A. YAW DAMPER, L
 - B. FLT CONT ELEK 1L AC
 - C. FLT CONT ELEK 1L DC
 - D. FLT CONT ELEK 2L AC
 - E. FLT CONT ELEK 2L DC
 - F. YAW DAMPER, R
 - G. FLT CONT ELEK 1R AC



- H. FLT CONT ELEK 1R DC
 - I. FLT CONT ELEK 2R AC
 - J. FLT CONT ELEK 2R DC
 - K. SHUT OFF VALVE, STAB TRIM, L
 - L. SHUT OFF VALVE, STAB TRIM, C
 - M. TAIL, L-FLT CONT SHUTOFF
 - N. TAIL, R-FLT CONT SHUTOFF
 - O. TAIL, C-FLT CONT SHUTOFF
- 5. Gain access to the leaking yaw damper servo.
 - 6. Disconnect the pressure and return lines from the leaking yaw damper servo.

NOTE: Use suitable caps and plugs, such as MS21913K4 plug and MS21914-4K cap for pressure lines and MS21913D6 plug and MS21914-6D cap for the return lines.
 - 7. Plug the yaw damper servo hydraulic ports.
 - 8. Cap the hydraulic lines.
 - 9. Close the open circuit breakers.
 - 10. Set the STAB TRIM switches to NORM.
 - 11. Set the following P61 panel switches to ON:
 - A. L TAIL FLT CONTROL SHUTOFF
 - B. R TAIL FLT CONTROL SHUTOFF
 - C. C TAIL FLT CONTROL SHUTOFF
 - 12. Perform MEL Item 22-21-01 (M) procedure "Verify the remaining yaw damper operates normally."

[For airplanes without SB 767-22-7 or production equivalent:](#)

OPERATIONS NOTE

If the remaining yaw damper fails do not operate the autopilot at speeds greater than 230 knots or 0.6M.


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

Interval	Installed	Required	Procedure
C	1	0	(M)

Required for CAT II / IIIa / IIIb approach.

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

MAINTENANCE (M)

Deactivate the thrust management computer (AMM 22-00-00/901).

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 N1 will not be available.
3. Assumed temperature will not be available.
4. Thrust reference mode (TO, CLB, etc.) will not be available.

[For airplanes without EFIS speed tape:](#)

5. The SPD flag may remain in view on the EADI.

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

Interval	Installed	Required	Procedure
C	1	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 (AMM 22-00-00/901).

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	

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	

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	

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	

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 by 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	


22-30-02 Go-Around and Takeoff/Go-Around Switches
22-30-02-01 Go-Around Switches
22-30-02-01A One Inoperative

Interval	Installed	Required	Procedure
C	2	1	(M)

Required for CAT II / IIIa / IIIb 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 (AMM 22-00-00/901).

1. Confirm the operative G/A switch commands both autopilot and autothrottle go-around mode:
 - A. Supply electrical power.
 - B. Confirm the following P11 panel circuit breakers are closed:
 - 1) MODE CONT PNL, LEFT
 - 2) FLT CONT CMPTR PWR, LEFT
 - 3) FLT CONT CMPTR SERVO, LEFT
 - 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, RIGHT
 - 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 and Takeoff/Go-Around Switches
22-30-02-01 Go-Around Switches
22-30-02-01B Both Inoperative

Interval	Installed	Required	Procedure
C	2	0	

Required for CAT II / IIIa / IIIb 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.



Section 2

Interval	Installed	Required	Procedure
C	1	0	

- Associated EICAS annunciation operates normally.
- Associated aural alert operates normally.

Interval	Installed	Required	Procedure
C	1	0	

- A/T ARM switch remains OFF.
- Approach minimums do not require its use.



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

Interval	Installed	Required	Procedure
D	1	0	



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

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

23-11-01-01 VHF Comm

23-11-01-01-01 Frequency In Use Light

23-11-01-01-02 Frequency Transfer Switch

23-11-01-01-02A *VHF Active Frequency Can Be Selected*

23-11-01-01-02B *Not Required*

23-11-01-01-03 Frequency Selector Knob

23-11-01-01-04 Frequency Indication

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

23-11-01-02A *Not Required*

23-11-01-02B *Alternate Procedures Required*

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

23-11-02A *Alternate Procedures Required*

23-11-02B *Procedures Do Not Require Use*

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

23-21-01A *Alternate Procedures Required*

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

23-21-01-01 Channels

23-21-01-01A *Alternate Procedures Required*

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

23-22-01 ACARS System ©

23-22-01A *Alternate Procedures Required*

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

23-22-01-01 ACARS Printer

23-22-01-01A *Alternate Procedures Required*

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

23-25-01 SAT Communication Systems ©

23-25-01A *Alternate Procedures Required*

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



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23-25-01-01	SATCOM Voice
23-25-01-01A	<i>Alternate Procedures Required</i>
23-25-01-01B	<i>Procedures Do Not Require Use</i>
23-25-01-02	HF/SAT XFER Switches (P5 Panel)
23-25-01-02A	<i>Alternate Procedures Required</i>
23-25-01-02B	<i>Procedures Do Not Require Use</i>
23-25-01-03	SATCOM Lights
23-25-01-03A	<i>Alternate Procedures Required</i>
23-25-01-03B	<i>Procedures Do Not Require Use</i>
23-31-01	Passenger Address System (PA)
23-31-01A	<i>Flight Attendant Alerting System Operative</i>
23-31-01-B	<i>Not Required</i>
23-31-01-01	Lavatory Speakers
23-31-01-02	Cabin Speakers
23-31-01-02A	<i>Inoperative Speakers Not Adjacent</i>
23-31-01-02B	<i>Seat Not Occupied</i>
23-31-02	Pre-recorded Passenger Announcement System
23-31-02A	<i>Alternate Procedures Required</i>
23-31-02B	<i>Procedures Do Not Require Use</i>
23-40-01	Crewmember Interphone Systems
23-40-01-01	Flight Deck to Cabin, Cabin to Flight Deck Functions
23-40-01-02	Cabin to Cabin Function
23-40-01-03	Flight Deck to Ground Function
23-40-01-03A	<i>Nose Gear Service Interphone Jack Operative</i>
23-40-01-03B	<i>Nose Gear Flight Interphone Jack Operative</i>
23-40-01-03C	<i>Alternate Procedures Required</i>
23-41-01	Alerting System (Audio/Visual)
23-41-01-01	Flight Deck Call Visual Alerting System
23-41-01-02	Flight Attendant Visual Alerting System



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23-41-01-03 Flight Attendant Audio Alerting System

23-42-01 Handset Systems

23-42-01-01 Flight Deck

23-42-01-01A *Flight Deck to Cabin Communication
Operative*

23-42-01-01B *Procedures Do Not Require Use*

23-42-01-02 Cabin

23-43-01 Ground Crew Call System

23-43-01-01 Ground Crew Call Horn

23-51-03 Flight Deck Speakers**23-51-04 Push-To-Talk (PTT) Switches**

23-51-04-01 Control Wheel PTT Switches

23-51-04-02 Flightcrew Audio Selector Panel PTT Switches

23-51-05 Flight Crew Communication Equipment

23-51-05-01 Boom Microphones

23-51-05-02 Hand Microphones

23-51-05-02A *Associated Boom Microphone Operative*

23-51-05-02B *Procedures Do Not Require Use*

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

23-70-01-01 Electronic System

23-70-01-01A *Alternate Procedures Required*

23-70-01-01B *Flight Deck Door Viewing Port Operative*

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

23-70-01-02 Viewing Ports

23-70-01-02A *Alternate Procedures Required*

23-70-01-02B *Electronic System Operative*

23-70-01-02C *Procedures Do Not Require Use*

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

23-71-01-01 Independent Power Source



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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	

Any not powered by a standby bus, may be inoperative.

NOTE: For airplanes having an AFM limitation stating "Do not use center VHF for ATC communications with ACARS operational," deactivation of nonessential control systems, such as ACARS, may be possible to meet minimum radio requirements. For ACARS deactivated, also dispatch the airplane using MEL Item 23-22-01.

MAINTENANCE NOTE

1. If the center VHF radio is required to meet minimum radio requirements for ATC communication, and if ACARS is installed which uses the center VHF radio, ACARS must be deactivated.
 - A. Open and collar the following circuit breakers:
 - 1) P6 panel, ACARS DC
 - 2) P11 panel, ACARS AC
2. For airplanes not equipped with a C-RCP (ACARS integrated display unit controlled C-VHF radio) the C-VHF can not be used to meet the minimum radio criteria due to ACARS deactivation.

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

Interval	Installed	Required	Procedure
C	3	0	

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

Interval	Installed	Required	Procedure
C	3	0	



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

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

Interval	Installed	Required	Procedure
D	3	2	

Any not powered by a standby bus, may be inoperative.

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

Interval	Installed	Required	Procedure
C	6	3	

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

Interval	Installed	Required	Procedure
C	6	3	

NOTE: If both frequency indicators are inoperative on the same VHF Comm, apply the MEL for the VHF System.



- 23-11-01 Communications Systems (VHF, HF, UHF)**
23-11-01-02 High Frequency (HF) Communication System
23-11-01-02A Not Required

ETOPS

Interval	Installed	Required	Procedure
D	2	0	(O)

OPERATIONS (O)

Except ER operations, may be inoperative provided flight routing is restricted to areas of continuous VHF coverage.

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

ETOPS

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 voice 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 communications unless otherwise authorized by appropriate ATS facilities.

OPERATIONS (O)

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.



23-11-02 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 established and 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) ©
23-21-01B 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	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)

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	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.

**23-22-01 ACARS System ©****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)

Alternate procedures must be established and used.

23-22-01 ACARS System ©**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 ©**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)

Alternate procedures must be established and used.



- 23-22-01 ACARS System ©
- 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 ©****23-25-01A Alternate Procedures Required**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Alternate procedures must be established and used.

23-25-01 SAT Communication Systems ©**23-25-01B 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 ©**23-25-01-01 SATCOM Voice****23-25-01-01A Alternate Procedures Required**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Alternate procedures must be established and used.

23-25-01 SAT Communication Systems ©**23-25-01-01 SATCOM Voice****23-25-01-01B 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 ©
23-25-01-02 HF/SAT XFER Switches (P5 Panel)
23-25-01-02A Alternate Procedures Required

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

May be inoperative provided alternate procedures are established and used.

NOTE: Also dispatch the airplane using MEL 23-25-01 for SATCOM voice considered inoperative, or MEL 23-11-01 for HF considered inoperative, as appropriate.

MAINTENANCE (M)

Determine the impact of the inoperative switch and take appropriate action (AMM 23-00-00/901).

1. For switch stuck in the HF position, there is no impact on HF operation.
2. For switch stuck in the SAT position and the associated HF is desired, open and collar the P11 panel HF/SAT AUDIO SW circuit breaker to reset the HF/SAT relay to the default (HF) position.

OPERATIONS (O)

1. Alternate procedures must be established and used.
2. For the HF/SAT XFER switch stuck in the HF position:
 - A. There is no impact on operation of the associated HF.
 - B. SATCOM Voice must be considered inoperative.
3. For the HF/SAT XFER switch stuck in the SAT position do one of the following:
 - A. HF must be considered inoperative.
 - B. If Maintenance has reset the HF/SAT relay to the default position, SATCOM Voice must be considered inoperative.

23-25-01 SAT Communication Systems ©
23-25-01-02 HF/SAT XFER Switches (P5 Panel)
23-25-01-02B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	2	0	(M)

May be inoperative provided procedures do not require its use.



NOTE: Also dispatch the airplane using MEL 23-25-01 for SATCOM voice considered inoperative, or MEL 23-11-01 for HF considered inoperative, as appropriate.

MAINTENANCE (M)

Determine the impact of the inoperative switch and take appropriate action (AMM 23-00-00/901).

1. For switch stuck in the HF position, there is no impact on HF operation.
2. For switch stuck in the SAT position and the associated HF is desired, open and collar the P-11 panel HF/SAT AUDIO SW circuit breaker to reset the HF/SAT relay to the default (HF) position.

OPERATIONS NOTE

1. For the HF/SAT XFER switch stuck in the HF position:
 - A. There is no impact on operation of the associated HF.
 - B. SATCOM voice must be considered inoperative.
2. For the HF/SAT XFER switch stuck in the SAT position do one of the following:
 - A. HF must be considered inoperative.
 - B. If Maintenance has reset the HF/SAT relay to the default position, SATCOM voice must be considered inoperative.

23-25-01 SAT Communication Systems ©**23-25-01-03 SATCOM Lights****23-25-01-03A Alternate Procedures Required**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

1. Alternate procedures must be established and used.
2. If the 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 ©
- 23-25-01-03 SATCOM Lights
- 23-25-01-03B 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)
23-31-01A 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)

Alternate procedures may be based on the use of the cabin/service interphone system. Prior to flight, the pilot in command must brief cabin crewmembers on the emergency procedures that will be used.

23-31-01 Passenger Address System (PA)
23-31-01-B 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)

Alternate procedures may be based on the use of the cabin/service Interphone system. Prior to flight, the pilot in command must brief cabin crewmembers on the emergency procedures that will be used.

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

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Alternate procedures must be established and used. Refer MEL 23-31-1 (O) procedure.

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

Interval	Installed	Required	Procedure
C	-	0	

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

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

Interval	Installed	Required	Procedure
C	-	0	(M)

No passenger seat, cabin attendant seat or crew rest area bunk may be occupied from which passenger address system is not audible and intelligible; seat must be blocked and placarded DO NOT OCCUPY.

MAINTENANCE (M)

For a seat or bunk from which the passenger address system is not audible and intelligible, block and placard the affected seat DO NOT OCCUPY (AMM 23-00-00/901).

**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)

Necessary demonstration equipment must be provided onboard. Prior to flight, the PIC must brief cabin crew on the emergency procedures which will be used. Cabin attendants will carry out a demonstration of cabin equipment and safety procedures with directions by use of the PA.

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 Flight Deck to Cabin, Cabin to Flight Deck Functions

Interval	Installed	Required	Procedure
B	-	0	(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.
- Flight deck to cabin and cabin to flight deck interphone function operates normally at one door for each pair of exit doors.
- Alternate communication procedures between affected flight attendant stations are established and used.

NOTE 1: Any station function(s) that operate normally may be used.

NOTE 2: The Interphone Systems may continue to be used from all operative handsets and microphones.

NOTE 3: Do not use this MEL to defer a complete microphone or handset.

NOTE 4: The flight deck chime must always be operative (MEL 23-41-1).

OPERATIONS (O)

Alternate procedures may be based on the use of the passenger address system. Prior to flight, the pilot in command must brief cabin crewmembers on the emergency procedures that will be used.

23-40-01 Crewmember Interphone Systems
23-40-01-02 Cabin to Cabin Function

Interval	Installed	Required	Procedure
B	-	0	(O)

May be inoperative provided:

- Cabin to cabin interphone functions operate normally on at least fifty percent of cabin handsets.
- Cabin to cabin interphone function operates normally at one door for each pair of exit doors.
- Alternate communication procedures between affected flight attendant stations are established and used.

NOTE 1: Any station function(s) that operate normally may be used.

NOTE 2: The Interphone Systems may continue to be used from all operative handsets and microphones.



NOTE 3: Do not use this MEL to defer a complete microphone or handset.

OPERATIONS (O)

Alternate procedures may be based on the use of the passenger address system. Prior to flight, the pilot in command must brief cabin crewmembers on the emergency procedures that will be used.

23-40-01 Crewmember Interphone Systems

23-40-01-03 Flight Deck to Ground Function

23-40-01-03A Nose Gear Service Interphone Jack Operative

Interval	Installed	Required	Procedure
C	1	0	(O)

Flight interphone flight deck to ground/ground to flight deck function may be inoperative provided:

- Alternate procedures are established and used.
- Nose gear service interphone jack operates normally.

OPERATIONS (O)

Alternate procedures must be established and used.

23-40-01 Crewmember Interphone Systems

23-40-01-03 Flight Deck to Ground Function

23-40-01-03B Nose Gear Flight Interphone Jack Operative

Interval	Installed	Required	Procedure
C	1	0	(O)

Service interphone flight deck to ground/ground to flight deck function may be inoperative provided:

- Alternate procedures are established and used.
- Nose gear flight interphone jack operates normally.

OPERATIONS (O)

Alternate procedures must be established and used.

23-40-01 Crewmember Interphone Systems**23-40-01-03 Flight Deck to Ground Function****23-40-01-03C Alternate Procedures Required**

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

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

NORD WIND PROCEDURE:

NOTE: Use ICAO hand signals.

1. During night operations, the marshaller will use a pair of same color light wands.
2. During taxiing 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	Raise arm and hand, with 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:

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.

NOTE: Use ICAO hand signals.


23-41-01 Alerting System (Audio/Visual)
23-41-01-01 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)
23-41-01-02 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 a Nonessential Equipment and Furnishings (NEF) item.

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

OPERATIONS (O)

Alternate procedures may be based on the use of the remaining operative functions of the alerting system or on use of the passenger address system. Prior to flight, the pilot in command must brief cabin crewmembers on the alternate procedures that will be used.

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

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative provided:

- PA system operates normally.
- 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.
- Alternate procedures for contacting flight attendants are established and used.

NOTE 1: Passenger to attendant call system is considered a Nonessential Equipment and Furnishings (NEF) item.

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

OPERATIONS (O)

Alternate procedures may be based on the use of the remaining operative functions of the alerting system or on use of the passenger address system. Prior to flight, the pilot in command must brief cabin crewmembers on the alternate procedures that will be used.

**23-42-01 Handset Systems****23-42-01-01 Flight Deck****23-42-01-01A 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)

- Alternate procedures may be based on the use of the passenger address system and/or the cabin interphone system. Prior to flight, the pilot in command should brief cabin crewmembers on the alternate emergency procedures to be used.
- 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.

23-42-01 Handset Systems**23-42-01-01 Flight Deck****23-42-01-01B 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**23-42-01-02 Cabin**

Interval	Installed	Required	Procedure
B	-	-	(O)

May be inoperative provided:

- Fifty percent of cabin handsets operate normally.
- One handset must operate normally at each pair of exit doors.
- 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)

Alternate procedures may be based on the use of the passenger address system and/or the cabin interphone system. Prior to flight, the pilot in command should brief cabin crewmembers on the alternate emergency procedures to 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. Alternate procedures must be established and used when any function of the ground crew call system, including the ground crew call horn, is inoperative. These alternate procedures must:
 - A. Provide for communication between flight deck and appropriate ground crewmembers.
 - B. Provide for continuous monitoring of the flight deck (when flight crew is not at duty station during ground operations) to ensure appropriate action in the event a fault develops during operation of 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.

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

OPERATIONS (O)

1. Alternate procedures must be established and used when any function of the ground crew call system, including the ground crew call horn, is inoperative. These alternate procedures must:
 - A. Provide for communication between flight deck and appropriate ground crewmembers.
 - B. Provide for continuous monitoring of the flight deck (when flight crew is not at duty station during ground operations) to ensure appropriate action in the event a fault develops during operation of 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 microphone/interphone PTT switch, confirm it is deactivated and verify the associated pilot's audio selector panel PTT switch operates normally (AMM 23-00-00/901).

- For the captain's control wheel PTT switch, open the following P11 panel circuit breakers:
 - INTERPHONE CAPT FLT AMPL DUAL PWR
 - INTERPHONE CAPT FLT AMPL DUAL PWR
 - For the first officer's control wheel PTT switch, open the following P11 panel circuit breakers:
 - INTERPHONE F/O OBS DUAL PWR
 - INTERPHONE F/O OBS DUAL 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.
- For audio selector panel with BOOM/OXY or BOOM/MASK switch:
- Confirm the switch is deactivated:
 - Supply electrical power.
 - 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 PTT switch (if installed). Confirm the transmission is clearly heard on the other pilot's headset.

For audio selector panel with MIC/INT switch (VP-BDI):

10. Confirm the switch is deactivated:
- A. Supply electrical power.
 - B. Push the FLT transmitter select switch on the captain's and first officer's audio selector panels and ensure the FLT MIC light is illuminated on both panels.
 - C. Ensure the FLT receiver light is illuminated and receiver volume control is properly adjusted on both audio selector panels.
 - D. Speak into the associated pilot's microphone while simultaneously pushing the deactivated control wheel PTT switch. No transmission should be 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 PTT switch (if installed). 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)

Confirm the inoperative audio selector panel PTT switch is inoperative open and verify the associated pilot's control wheel PTT switch operates normally (AMM 23-00-00/901).

For audio selector panel with BOOM/OXY or BOOM/MASK switch:

1. Supply electrical power.
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 PTT switch (if installed). Confirm the transmission is clearly heard on the other pilot's headset.

For audio selector panel with MIC/INT switch (VP-BDI):

1. Supply electrical power.
2. Push the PA transmitter select switch on the associated audio selector panel and ensure the PA MIC light is illuminated.
3. Without pressing MIC on the control wheel, audio selector panel or glareshield, speak into the associated microphone and determine if voice transmission can be heard over the PA system. If no voice transmission is heard, the audio selector panel MIC/INT switch is in the open position.
4. Speak into the associated pilot's microphone while simultaneously pushing the inoperative audio selector panel MIC/INT switch. No transmission should be heard on the other pilot's headset.
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 PTT switch (if installed). Confirm the transmission is clearly heard on the other pilot's headset.

**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 3 flight days.
-

23-51-05 Flight Crew Communication Equipment
23-51-05-02 Hand Microphones
23-51-05-02A Associated 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.

**23-70-01 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 and components may be missing provided:

- Alternate procedures are established and used.
- Repairs are made within 3 flight days.

NOTE: Any portion of system that operates normally may be used.

NOTE: Surveillance systems installations 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 Operative

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative and components may be missing provided:

- Flight deck door viewing port operates normally.
- Alternate procedures are established and used.

NOTE: Any portion of system that operates normally may be used.

NOTE: Surveillance systems installations 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 and components may be missing 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:

- Alternate procedures are established and used.
 - Repairs are made within 3 flight days.
-

OPERATIONS (O)

Alternate procedures must be established and used.

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

23-70-01-02B Electronic System Operative

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- Electronic flight deck door visual surveillance system operates normally.
 - Alternate procedures are established and used.
-

OPERATIONS (O)

Alternate procedures must be established and used.



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

23-70-01-02 Viewing Ports

23-70-01-02C Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.

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

Interval	Installed	Required	Procedure
A	1	0	

May be inoperative provided:

- Flight data recorder (FDR) operates normally.
 - Repairs are made within 3 flight days.
-

23-71-01 Cockpit Voice Recorder (CVR) System**23-71-01-01 Independent Power Source**

Interval	Installed	Required	Procedure
C	1	0	



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

24-00-02 APU Generator

24-00-02A *Except ER Operations*

24-00-02B *Except ER Operations Beyond 120 Minutes*

24-11-01 Generator DRIVE Lights

24-11-01-01A *EICAS Message Operative*

24-11-01-01B *IDG Disconnected*

24-25-01 Hydraulic Motor Generators (HMG)

24-25-01-01 Air Data Computer (ADC) Equipped Airplanes

24-25-01-01A *Except ER Operations*

24-25-01-01B *Except ER Operations, Day VMC Flight*

24-25-01-01C *Except ER Operations Beyond 120 Minutes*

24-25-01-01D *APU Run During ETOPS Segment*

24-25-01-02 Air Data Inertial Reference System (ADIRS) Equipped Airplanes

24-25-01-02A *Except ER Operations*

24-25-01-02B *Except ER Operations Beyond 120 Minutes*

24-25-01-02C *APU Run During ETOPS Segment*

24-25-02 Hydraulic Motor Generator Valves

24-25-02-01 Air Data Computer (ADC) Equipped Airplanes

24-25-02-01A *Except ER Operations*

24-25-02-01B *Except ER Operations, Day VMC Flight*

24-25-02-01C *Except ER Operations Beyond 120 Minutes*

24-25-02-01D *APU Run During ETOPS Segment*

24-25-02-02 Air Data Inertial Reference System (ADIRS) Equipped Airplanes

24-25-02-02A *Except ER Operations*

24-25-02-02B *Except ER Operations Beyond 120 Minutes*

24-25-02-02C *APU Run During ETOPS Segment*

24-25-03 Flight Instrument Bus Power Switch



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Intentionally
Blank


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:

- a. Repairs are made within 3 (three) flight legs.
- b. APU and APU generator operates normally and is used to supply busses of inoperative channel throughout flight.
- c. All generator control units, including APU, operate normally.
- d. For ER operations, at least one hydraulic motor generator (HMG) is verified to operate normally.
- e. 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:

1. Perform APU External Inspection IAW (AMM 49-21-00-206-001).
2. Make sure the APU oil level is FULL on the sight gage, otherwise fill the APU oil to FULL level IAW (AMM 12-13-04-200-801).

Deactivate the IDG by disconnection or removal, and for ER operations verify the HMG operates normally (AMM 24-00-00/901).

1. To deactivate the IDG by disconnection:
 - A. Start the associated engine.
 - B. After stable idle is reached, momentarily press the L(R) GEN DRIVE DISC switch.
 - C. Confirm the following readings for the appropriate power channel on the lower EICAS display:
 - 1) AC-V = 0 ± 5
 - 2) FREQ = 0 ± 5
 - D. Confirm the following advisory messages:
 - 1) L(R) GEN OFF
 - 2) L(R) GEN DRIVE



NOTE 1: If the IDG charge pressure switch has been confirmed to be failed, then 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. To deactivate the IDG by removal:
 - A. Remove the IDG.
 - B. Inspect the QAD ring for damage
 - C. Install the IDG dispatch kit.
3. For ER operations, confirm the HMG operates normally by performing the Operational Test.

OPERATIONS (O)

1. Set the inoperative GEN CONT switch to OFF.
2. Start the APU.
3. After APU start, confirm the amber BUS OFF, APU GEN OFF and UTILITY BUS OFF lights are not illuminated.
4. To determine APU fuel flow, use Boeing performance software (APM, INFLT) or the Flight Planning Performance Manual. Alternatively, a conservative average fuel flow for the climb/cruise/descent is 200 lb (90 kg) per hour.


24-00-02 APU Generator
24-00-02A Except ER Operations
ETOPS

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 (AMM 24-00-00/901).

1. For failure where APU operation could cause additional generator damage, remove the APU generator for dispatch.
 - A. Remove the APU generator.
 - B. Loosen all retention nuts on the APU mounting pad studs until the nuts are at the end of the studs.
 - C. Secure the four power leads which are disconnected from the generator.
 - D. Position generator gearbox cover plate (Garrett P/N 3862212) to mate with the APU mounting pad studs.
 - E. Pass the APU mounting pad studs through the large part of the keyholes on the cover plate.
 - F. Rotate the cover plate counterclockwise to allow the studs to move into the smaller part of the keyholes.
 - G. Confirm the oil ports of the gearbox assembly at the 4 and 6 o'clock positions are aligned with the inlet and outlet of the oil transfer tube of the generator cover pad.

For airplanes with self-locking retention nut NAS1805-6P:

- H. Tighten the self-locking retention nuts to a torque of 175-200 pound-inches.

For airplanes with retention nut 624AG5HD:

- I. Tighten the retention nuts to a torque of 264-324 pound-inches.

For airplanes with retention nut 624AG5HD:

- J. Tighten the jam nuts to 70-80 pound-inches.
- K. Replenish APU oil.

OPERATIONS NOTE

1. Dispatch is not allowed if the APU is required by other procedures. See MEL item 49-11-01 for a listing of MEL items that require APU availability for dispatch.
2. For APU generator removed, account for the effect on airplane weight and balance.



3. Set the APU GEN switch to OFF.
4. 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 Electrical Power Up Supplementary Procedure to the step "Electrical Power Establish".
- B. Set the engine ignition selector to SINGLE/1 or 2.
- C. Set the isolation switches to ON.

NOTE: If the right isolation switch is off, start the left engine first or have the right isolation valve opened by the ground crew.

- 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 DEMAND pump selector to AUTO.
- L. Set the pack control selectors to OFF.

For airplanes not equipped with a hydraulic motor generator:

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

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

NOTE: Engine start valve must be opened by ground crew.

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

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. At least one hydraulic motor generator (HMG) is verified to operate normally.
-

MAINTENANCE (M)

Verify at least one HMG operates normally and, if appropriate, remove the APU generator (AMM 24-00-00/901).

1. Confirm the HMG operates normally by performing the Operational Test.
2. For failure where APU operation could cause additional generator damage, remove the APU generator for dispatch.
 - A. Remove the APU generator.
 - B. Loosen all retention nuts on the APU mounting pad studs until the nuts are at the end of the studs.
 - C. Secure the four power leads which are disconnected from the generator.
 - D. Position generator gearbox cover plate (Garrett P/N 3862212) to mate with the APU mounting pad studs.
 - E. Pass the APU mounting pad studs through the large part of the keyholes on the cover plate.
 - F. Rotate the cover plate counterclockwise to allow the studs to move into the smaller part of the keyholes.
 - G. Confirm the oil ports of the gearbox assembly at the 4 and 6 o'clock positions are aligned with the inlet and outlet of the oil transfer tube of the generator cover pad.

For airplanes with self-locking retention nut NAS1805-6P:

- H. Tighten the self-locking retention nuts to a torque of 175-200 pound-inches.

For airplanes with retention nut 624AG5HD:

- I. Tighten the retention nuts to a torque of 264-324 pound-inches.

For airplanes with retention nut 624AG5HD:

- J. Tighten the jam nuts to 70-80 pound-inches.
- K. Replenish APU oil.

OPERATIONS NOTE

1. Dispatch is not allowed if the APU is required by other procedures. See MEL item 49-11-01 for a listing of MEL items that require APU availability for dispatch.
2. For APU generator removed, account for the effect on airplane weight and balance.
3. Set the APU GEN switch to OFF.
4. 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 Electrical Power Up Supplementary Procedure to the step "Electrical Power Establish".
- B. Set the engine ignition selector to SINGLE/1 or 2.
- C. Set the isolation switches to ON.



NOTE: If the right isolation switch is off, start the left engine first or have the right isolation valve opened by the ground crew.

- 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 DEMAND pump selector to AUTO.
- L. Set the pack control selectors to OFF.

[For airplanes not equipped with a hydraulic motor generator:](#)

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

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

NOTE: Engine start valve must be opened by ground crew.

**24-11-01 Generator DRIVE Lights****24-11-01-01A 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 (AMM 24-00-00/901).

1. Start the associated engine.
2. Disconnect the associated IDG by pushing the disconnect switch on the overhead panel.
3. Confirm the associated L (R) GEN DRIVE message is displayed.
4. Stop the associated engine.
5. Reconnect the associated IDG.

24-11-01 Generator DRIVE Lights**24-11-01-01B 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 Generators (HMG)**
24-25-01-01 Air Data Computer (ADC) Equipped Airplanes
24-25-01-01A Except ER Operations

ETOPS

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

ETOPS

Interval	Installed	Required	Procedure
C	1	0	

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

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

ETOPS

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

Except for ER operations beyond 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 (AMM 24-00-00/901).

1. Open and collar the following circuit breakers:
 - A. P6 panel, HYD GEN CONT
 - B. P11 panel, R AC BUS SENSE
 - C. P11 panel, L AC BUS SENSE
2. Secure the associated hydraulic motor generator shutoff valve in the closed (not running) position:
 - A. Open the left wheel well door and install the door lock.
 - B. Move the manual override arm indicator on the shutoff valve to the closed position (POS 1).
 - C. Lockwire the valve in the closed position.
 - D. Remove the wheel well door lock.

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.

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

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 3 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 (AMM 24-00-00/901).

1. Open and collar the following circuit breakers:
 - A. P6 panel, HYD GEN CONT
 - B. P11 panel, R AC BUS SENSE



- C. P11 panel, L AC BUS SENSE
- 2. Secure the associated hydraulic motor generator shutoff valve in the closed (not running) position:
 - A. Open the left wheel well door and install the door lock.
 - B. Move the manual override arm indicator on the shutoff valve to the closed position (POS 1).
 - C. Lockwire the valve in the closed position.
 - D. Remove the wheel well door lock.

OPERATIONS (O)

- 1. Observe MEL requirements for operation of APU during the ETOPS segment.
- 2. To determine APU fuel flow, use Boeing performance software (APM, INFLT) or the Flight Planning Performance Manual. Alternatively, a conservative average fuel flow for normal cruise altitudes is 165 lb (75 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.

24-25-01 Hydraulic Motor Generators (HMG)**24-25-01-02 Air Data Inertial Reference System (ADIRS) Equipped Airplanes****24-25-01-02A Except ER Operations****ETOPS**

Interval	Installed	Required	Procedure
C	1	0	

Except for ER operations, may be inoperative.



24-25-01 Hydraulic Motor Generators (HMG)
24-25-01-02 Air Data Inertial Reference System (ADIRS) Equipped Airplanes

24-25-01-02B Except ER Operations Beyond 120 Minutes

ETOPS

Interval	Installed	Required	Procedure
C	1	0	(M)

Except for ER operations beyond 120 minutes, may be inoperative provided both engine generators and APU generator operate normally.

MAINTENANCE (M)

Deactivate the inoperative HMG and secure the associated HMG shutoff valve in the closed (not running) position (AMM 24-00-00/901).

1. Open and collar the following circuit breakers:
 - A. P6 panel, HYD GEN CONT
 - B. P11 panel, R AC BUS SENSE
 - C. P11 panel, L AC BUS SENSE
2. Secure the associated hydraulic motor generator shutoff valve in the closed (not running) position:
 - A. Open the left wheel well door and install the door lock.
 - B. Move the manual override arm indicator on the shutoff valve to the closed position (POS 1).
 - C. Lockwire the valve in the closed position.
 - D. Remove the wheel well door lock.

24-25-01 Hydraulic Motor Generators (HMG)
24-25-01-02 Air Data Inertial Reference System (ADIRS) Equipped Airplanes

24-25-01-02C APU Run During ETOPS Segment

ETOPS

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. Operations are limited to not more than 3 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 (AMM 24-00-00/901).

1. Open and collar the following circuit breakers:
 - A. P6 panel, HYD GEN CONT
 - B. P11 panel, R AC BUS SENSE
 - C. P11 panel, L AC BUS SENSE
2. Secure the associated hydraulic motor generator shutoff valve in the closed (not running) position:
 - A. Open the left wheel well door and install the door lock.
 - B. Move the manual override arm indicator on the shutoff valve to the closed position (POS 1).
 - C. Lockwire the valve in the closed position.
 - D. Remove the wheel well door lock.

OPERATIONS (O)

1. Observe MEL requirements for operation of APU during the ETOPS segment.
2. To determine APU fuel flow, use Boeing performance software (APM, INFLT) or the Flight Planning Performance Manual. Alternatively, a conservative average fuel flow for normal cruise altitudes is 165 lb (75 kg) per hour.



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

ETOPS

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 Valves
24-25-02-01 Air Data Computer (ADC) Equipped Airplanes
24-25-02-01B Except ER Operations, Day VMC Flight

ETOPS

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 Valves
24-25-02-01 Air Data Computer (ADC) Equipped Airplanes
24-25-02-01C Except ER Operations Beyond 120 Minutes

ETOPS

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



Except for ER operations beyond 120 minutes, may be inoperative closed 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)

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 Valves

24-25-02-01 Air Data Computer (ADC) Equipped Airplanes

24-25-02-01D APU Run During ETOPS Segment

ETOPS

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

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

- Both engine generators and APU generator operate normally.
 - APU is started before reaching ETOPS segment, then operated continuously until within 60 minutes of a suitable airport.
 - Center IRS operates normally.
 - First officer's IRS instrument source select switch operates normally.
 - Operations are limited to not more than 3 flight days before repair is made.
-

MAINTENANCE (M)

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

OPERATIONS (O)

- Observe MEL requirements for operation of APU during the ETOPS segment.
- To determine APU fuel flow, use Boeing performance software (APM, INFLT) or the Flight Planning Performance Manual. Alternatively, a conservative average fuel flow for normal cruise altitudes is 165 lb (75 kg) per hour.
- 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 Valves
24-25-02-02 Air Data Inertial Reference System (ADIRS) Equipped Airplanes

24-25-02-02A Except ER Operations

ETOPS

Interval	Installed	Required	Procedure
C	1	0	(M)

Except for ER operations, may be inoperative closed.

MAINTENANCE (M)

Secure HMG Valve closed using MEL item 24-25-01 (M) procedure.

24-25-02 Hydraulic Motor Generator Valves
24-25-02-02 Air Data Inertial Reference System (ADIRS) Equipped Airplanes

24-25-02-02B Except ER Operations Beyond 120 Minutes

ETOPS

Interval	Installed	Required	Procedure
C	1	0	(M)

Except for ER operations beyond 120 minutes, may be inoperative closed provided both engine generators and APU generator operate normally.

MAINTENANCE (M)

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

24-25-02 Hydraulic Motor Generator Valves
24-25-02-02 Air Data Inertial Reference System (ADIRS) Equipped Airplanes

24-25-02-02C APU Run During ETOPS Segment

ETOPS

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

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

- Both engine generators and APU generator operate normally.
- APU is started before reaching ETOPS segment, then operated continuously until within 60 minutes of a suitable airport.



- c. Operations are limited to not more than 3 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 MEL requirements for operation of APU during the ETOPS segment.
2. To determine APU fuel flow, use Boeing performance software (APM, INFLT) or the Flight Planning Performance Manual. Alternatively, a conservative average fuel flow for normal cruise altitudes is 165 lb (75 kg) per hour.



24-25-03

Flight Instrument Bus Power Switch

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 operate normally.

OPERATIONS (O)

1. After starting engines, confirm 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****ETOPS**

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 (AMM 24-00-00/901).

1. Start the associated engine.
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****ETOPS**

Interval	Installed	Required	Procedure
B	2	1	

One may be inoperative for an associated inoperative generator.

**24-27-03 APU GEN OFF Light****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 (AMM 24-00-00/901).

1. Start the APU.
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**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.

OPERATIONS NOTE

1. Dispatch is not allowed if the APU is required by other procedures. See MEL item 49-11-01 for a listing of MEL items that require APU availability for dispatch.
2. 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 (AMM 24-00-00/901).

1. Supply electrical power.
2. Confirm the BAT switch is ON.
3. Confirm the STBY POWER selector is in AUTO.
4. Open the P6 panel INV PWR TRU circuit breaker.
5. Confirm the STANDBY BUS OFF advisory message does not annunciate.
6. Close the open circuit breaker.
7. Push the P61 EICAS MAINT panel ELEC HYD switch.
8. Confirm the following values:
 - A. STBY/BAT:
 - 1) AC-V: 115 $\pm$ 5
 - 2) FREQ: 400 $\pm$ 5
 - 3) DC-V: 28 $\pm$ 2
 - B. APU/BAT:
 - 1) DC-V: 28 $\pm$ 2
9. Set the STBY POWER selector to BAT.
10. Confirm the STBY/BAT value DC-V: 25 $\pm$ 2
11. Set the STBY POWER selector to AUTO.
12. Confirm the STBY/BAT values:
 - A. DC-A: 38 $\pm$ 2
 - B. DC-V: 33 $\pm$ 2
13. When the battery charge cycle is complete, confirm the DC-A value below STBY/BAT decreases suddenly (1-2 seconds) from 38($\pm$ 5) to 0($\pm$ 5).
14. Confirm the STBY/BAT value DC-V: 28 ($\pm$ 2).
15. Check for EICAS status messages. Confirm the MAIN BAT CHRG message is not annunciated.

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****24-31-01-01 Without Main/APU Battery Tie System Installed****ETOPS***Effectivity: BOQ, BMU*

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

May be inoperative provided:

- a. APU battery is deactivated or removed.
- b. APU is considered inoperative.

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

MAINTENANCE (M)

Deactivate the battery and, if desired, remove it (AMM 24-00-00/901).

1. Deactivate the battery:
 - A. Open and collar the P33 panel CHARGER, APU BAT circuit breaker.
 - B. Open and collar the P49 panel (or E6 rack) APU BAT CHGR circuit breaker.
 - C. Gain access to the APU battery.
 - D. Remove the battery MAIN POWER connector.
 - E. Remove the thermal sensor connector.
2. Remove the battery, if desired.

OPERATIONS (O)

1. Dispatch is not allowed if the APU is required by other procedures. See MEL item 49-11-01 for a listing of MEL items that require APU availability for dispatch.
2. For APU battery removed, account for the effect on airplane weight and balance. Battery weighs 96 lb (44 kg).

24-31-01 APU Battery**24-31-01-02 With Main/APU Battery Tie System Installed****ETOPS***Effectivity: BPT, BMQ, BWW, BWX, BRA, BDI*

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

May be inoperative provided:

- a. APU battery is deactivated or removed.
- b. APU is considered inoperative.



- c. 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 a CFR requirement. Each operator should review their respective regulatory agency requirements to determine whether this MEL relief is appropriate for their operation.

MAINTENANCE (M)

Deactivate the battery and, if desired, remove it (AMM 24-00-00/901).

1. Deactivate the battery:
 - A. Open and collar the P33 panel CHARGER, APU BAT circuit breaker.
 - B. Open and collar the P6 panel MAIN/APU BAT TIE circuit breaker.
 - C. Open and collar the P11 panel EXTENDED STBY BAT TIE circuit breaker.
 - D. Open and collar the P49 panel (or E6 rack) APU BAT CHGR circuit breaker.
 - E. Gain access to the APU battery (AMM 24-31-04/401).
 - F. Remove the battery MAIN POWER connector.
 - G. Remove the thermal sensor connector.
2. Remove the battery, if desired.

OPERATIONS (O)

1. Dispatch is not allowed if the APU is required by other procedures. See MEL item 49-11-01 for a listing of MEL items that require APU availability for dispatch.
2. For APU battery removed, account for the effect on airplane weight and balance. Battery weighs 96 lb (44 kg).

**24-31-02 APU Battery Charger****24-31-02-01 Without Main/APU Battery Tie System Installed***Effectivity: BOQ, BMU*

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.

NOTE: 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.

MAINTENANCE (M)

Deactivate or remove the battery charger (AMM 24-00-00/901).

1. Remove the APU battery charger:
 - A. Open and collar the P33 panel CHARGER, APU BAT circuit breaker.
 - B. Open the P49 panel (or E6 rack) APU BAT CHGR circuit breaker.
 - C. Remove the connector from the charger.
 - D. Cap and stow connector D298.
 - 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 P49 panel (or E6 rack) APU BAT CHGR circuit breaker.

2. Deactivate the APU battery charger without removal:

NOTE: This deactivation procedure will prevent APU start attempts.

- A. Open and collar the P33 panel CHARGER, APU BAT circuit breaker.
- B. Open and collar the P49 panel (or E6 rack) APU BAT CHGR circuit breaker.

OPERATIONS NOTE

1. Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.
2. For APU battery charger removed, account for the effect on airplane weight and balance.

**24-31-02 APU Battery Charger****24-31-02-02 With Main/APU Battery Tie System Installed***Effectivity: BPT, BMQ, BWW, BWX, BRA, BDI*

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- APU battery charger is deactivated or removed.
 - APU is not required.
 - 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 a CFR requirement. Each operator should review their respective regulatory agency requirements to determine whether this MEL relief is appropriate for their operation.

MAINTENANCE (M)

Deactivate or remove the battery charger (AMM 24-00-00/901).

- Remove the APU battery charger:
 - Open and collar the P33 panel CHARGER, APU BAT circuit breaker.
 - Open the P49 panel (or E6 rack) APU BAT CHGR circuit breaker.
 - Remove the connector from the charger.
 - Cap and stow connector D298.
 - Remove the terminal block cover from the battery charger.
 - Remove terminal block leads from the battery charger and identify for reinstallation.
 - Cap and stow the terminal leads.
 - Remove the APU battery charger.
 - Close the P49 panel (or E6 rack) APU BAT CHGR circuit breaker.
- Deactivate the APU battery charger without removal:

NOTE: This deactivation procedure will prevent APU start attempts.

- Open and collar the P33 panel CHARGER, APU BAT circuit breaker.
- Open and collar the P49 panel (or E6 rack) APU BAT CHGR circuit breaker.



OPERATIONS NOTE

1. Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.
2. For APU battery charger removed, account for the effect on airplane weight and balance.



24-31-03 Standby Power Main/APU Battery Tie System

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided:

- Operations do not require paralleling of main and APU batteries.
- Both engine generators operate normally.
- APU generator operates normally.

NOTE: All NWS airplanes are equipped with the Main/APU battery tie remote control circuit breaker and extended standby power indication relay which provide a means to connect the main battery and APU battery in parallel. This system supplies the AC and DC load requirements for the minimum essential equipment for a period of 90 minutes.

**24-32-01 APU Start Transformer Rectifier Unit****24-32-01A APU Considered Inoperative***Effectivity: BPT, BMQ, BWW, BWX, BOQ*

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

1. Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.
2. 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**24-32-01B APU TRU Deactivated***Effectivity: BPT, BMQ, BWW, BWX, BOQ*

Interval	Installed	Required	Procedure
D	1	0	(M)

May be inoperative provided APU TRU is deactivated.

MAINTENANCE (M)

Deactivate the APU TRU (AMM 24-00-00/901).

1. Open and collar the P32 panel APU START TRU circuit breaker.


24-41-01 External Power System(s)

Interval	Installed	Required	Procedure
C	1	0	

24-41-01 External Power System(s)
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)

NOTE: Alternate procedures must be based on ICAO standard hand signals using, flight deck to ground communication systems or other means to compensate for inoperative lights or system. Refer to MEL Item 23-40-01 (Crewmember Interphone Systems) (O).

24-41-01 External Power System(s)
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)

Refer to MEL Item 23-40-01 (Crewmember Interphone Systems) (O).

24-41-01 External Power System(s)
24-41-01-03 EXTERNAL POWER 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)

Refer to MEL Item 23-40-01 (Crewmember Interphone Systems) (O).

- 24-41-01 External Power System(s)
- 24-41-01-04 EXTERNAL POWER 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)

Refer to MEL Item 23-40-01 (Crewmember Interphone Systems) (O).

**24-51-02 Voltage Harmonic Filters****24-51-02A Associated IVS Zone Deactivated**

Interval	Installed	Required	Procedure
D	1	0	(M)

May be inoperative provided associated individual video system (IVS) zone is deactivated.

MAINTENANCE (M)

Deactivate the associated interactive/individual video system (IVS) zone (AMM 24-00-00/901).

1. Open and collar the appropriate IVS zone circuit breaker.

24-51-02 Voltage Harmonic Filters**24-51-02B Associated Video System Remains Off**

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided associated video system remains off.



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

25-11-01 Flight Crew Seat

25-11-01-01 Power Adjustment System

25-11-01-02 Manual Adjustment System

25-11-01-02-01 Recline

25-11-01-02-02 Vertical

25-11-01-02-03 Armrest

25-11-01-02-04 Lumbar, Thigh Supports and Headrest

25-11-02 Observer Seat(s)

25-11-02-01 Primary Observer Seat (Including Associated Equipment)

25-11-02-01A *Supernumerary/Passenger Seat Available*

25-11-02-01B *Second Observer Seat Available*

25-11-02-01C *Associated Safety Equipment Acceptable*

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

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

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

25-25-01-01 Required Flight Attendant Seats

25-25-01-01A *Passengers Carried*

25-25-01-01B *No Passengers Carried*

25-25-01-02 Excess Flight Attendant Seats

25-25-02 Passenger Seats ©

25-25-02-01 Recline Mechanism

25-25-02-01A *Seat Secured Upright*

25-25-02-01B *Seat Immovable Upright*

25-25-02-02 Underseat Baggage Restraining Bars

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25-63-10-01 Survival Type ELTs

25-63-10-02 Fixed ELTs

25-64-01 Emergency Medical Equipment

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25-64-01-02 Emergency Medical Kit (EMK) and/or Associated Equipment

25-66-03 Overwing Escape Squib Test System



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Intentionally
Blank



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

Interval	Installed	Required	Procedure
D	4	2	

Any in excess of those required for flight deck crewmembers (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 2 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 (AMM 25-00-00/901).

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

Interval	Installed	Required	Procedure
A	2	0	(M)

May be inoperative provided:

- Seat is acceptable to affected crewmember.
- Repairs are made within 2 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 (AMM 25-00-00/901).



25-11-01 Flight Crew Seat
25-11-01-02 Manual Adjustment System
25-11-01-02-03 Armrest

Interval	Installed	Required	Procedure
B	4	0	

- May be inoperative provided:
- a. Affected armrest is in up position or removed.
 - b. Seat is acceptable to affected crewmember.
-

25-11-01 Flight Crew Seat
25-11-01-02 Manual Adjustment System
25-11-01-02-04 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 Supernumerary/Passenger Seat Available

Interval	Installed	Required	Procedure
A	1	0	

May be inoperative provided:

- A supernumerary/passenger seat is made available to an inspector for performance of official duties.
 - Repairs are made within 2 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 inspector for performance of official duties.
 - Repairs are made within 2 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 inspector for performance of official duties.
- Repairs are made within 2 flight days.



NOTE 1: These provisos are intended to provide for occupancy of above seat by an FAA inspector when minimum safety equipment (oxygen and safety belt) is functional and inspector determines conditions to be acceptable.

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 Observer Seat(s)
25-11-02-02 Additional Observer Seat (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
D	-	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 Nord Wind Airline'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
25-25-01-01A Passengers Carried

Interval	Installed	Required	Procedure
B	BMU: 12	10	(M) (O)
B	BOQ, BMU, BRA: 10	8	(M) (O)
B	BPT: 8	6	(M) (O)
B	BWW, BWX: 7	5	(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: 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)

Secure affected seat in stowed position (AMM 25-00-00/901).

OPERATIONS (O)

The flight attendant assigned to the affected seat must occupy a passenger seat as close to, or closer than, the nearest seated passenger to the associated exit. 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)
25-25-01-01 Required Flight Attendant Seats
25-25-01-01B No Passengers Carried

Interval	Installed	Required	Procedure
C	BMU: 12	0	(M) (O)
C	BOQ, BMQ, BRA: 10	0	(M) (O)
C	BPT: 8	0	(M) (O)
C	BWW, BWX: 7	0	(M) (O)

May be inoperative provided:

- No passengers are carried.
- A maximum of 19 persons for non-passenger carrying operations are carried.
- Folding type seat stows automatically or is secured in the retracted position.
- Affected seat position or seat assembly is not occupied.
- Alternate procedures are established and used.

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 automatic stowing inoperative, secure affected seat in stowed position (AMM 25-00-00/901).

OPERATIONS (O)

The flight attendant assigned to the affected seat must occupy a passenger seat as close to, or closer than, the nearest seated passenger to the associated exit. 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)

Secure affected seat in stowed position (AMM 25-00-00/901).


25-25-02 Passenger Seats ©

Interval	Installed	Required	Procedure
D	300	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) are blocked and placarded DO NOT OCCUPY.

NOTE 1: A seat with an inoperative seat belt is considered inoperative.

NOTE 2: Inoperative seats do not affect required number of flight attendants.

NOTE 3: Affected seat(s) may include seat(s) behind and/or adjacent outboard seats.

MAINTENANCE (M)

Block the affected seat.

25-25-02 Passenger Seats ©
25-25-02-01 Recline Mechanism
25-25-02-01A Seat Secured Upright

Interval	Installed	Required	Procedure
D	300	0	(M)

May be inoperative and seat occupied provided seat back is secured in full upright position.

MAINTENANCE (M)

Secure the associated seat in the 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	300	0	

May be inoperative and seat occupied provided seat is immovable in full upright position.


25-25-02 Passenger Seats ©
25-25-02-02 Underseat Baggage Restraining Bars

Interval	Installed	Required	Procedure
C	300	0	(O)

May be inoperative provided:

- Baggage is not stowed under seat with inoperative restraining bar.
- Associated seat is placarded DO NOT STOW BAGGAGE UNDER THIS SEAT.
- Procedures are established to alert cabin crew of inoperative restraining bar.

OPERATIONS (O)

Establish procedures to identify to the cabin crew the seats with inoperative underseat baggage restraining bars.

25-25-02 Passenger Seats ©
25-25-02-03 Armrest
25-25-02-03-01 Armrest with Recline Mechanism

Interval	Installed	Required	Procedure
D	300	0	(M)

May be inoperative or missing and seat occupied provided:

- Armrest does not block an emergency exit.
- Armrest does not restrict any passenger from access to main aircraft aisle.
- If armrest is missing, seat is secured in full upright position.

MAINTENANCE (M)

If required, secure the associated seat in the upright position.

25-25-02 Passenger Seats ©
25-25-02-03 Armrest
25-25-02-03-02 Armrest without Recline Mechanism

Interval	Installed	Required	Procedure
D	300	0	

May be inoperative or missing and seat occupied provided:

- Armrest does not block an emergency exit.



- b. Armrest does not restrict any passenger from access to main aircraft aisle.
-

MAINTENANCE NOTE

If required, secure the associated seat in the upright position.


25-28-01 Storage Bins/Cabin, Galley and Lavatory Storage Compartments/Closets ©
25-28-01A Compartment Secured Closed

Interval	Installed	Required	Procedure
C	80	40	(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 (AMM 25-00-00/901).

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	8	4	(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 for those permanently affixed.
- Affected bin, compartment or closet is prominently placarded DO NOT USE.
- Procedures are established and used to alert crewmembers and supernumeraries/passengers of inoperative bins, compartments or closets.
- Supernumeraries/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 affected door and placard associated bin, compartment or closet (AMM 25-00-00/901).

NOTE: Maintenance personnel must brief cabin crew prior to each flight regarding bin or compartment that cannot be used.

OPERATIONS (O)

Ensure crewmembers 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	220	110	

One latch/lug per compartment may be inoperative provided:

- Remaining latch(es)/lug(s) on affected compartments operate normally.
 - 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 Multiple Exterior Lavatory Door Ashtrays Installed
25-38-01-01A 50 Percent Missing or Inoperative

Interval	Installed	Required	Procedure
A	BRA: 7	4	
A	BMU: 6	3	
A	BOQ, BPT: 5	3	
A	BWW, BWX, BMQ: 4	2	

Up to and including 50 percent may be missing or inoperative for 10 calendar days.

NOTE: Crew lavatories are included in total aircraft exterior lavatory door ashtray count.

25-38-01 Exterior Lavatory Door Ashtrays
25-38-01-01 Airplanes with Multiple Exterior Lavatory Door Ashtrays Installed
25-38-01-01B More Than 50 Percent Missing or Inoperative

Interval	Installed	Required	Procedure
A	BRA: 7	0	
A	BMU: 6	0	
A	BOQ, BPT: 5	0	
A	BWW, BWX, BMQ: 4	0	

More than 50 percent may be missing or inoperative for 3 calendar days.

NOTE: Crew lavatories are included in total aircraft exterior lavatory door ashtray count.

**25-38-02 Galley/Cabin Waste Receptacles Access
Doors/Covers ©**

Interval	Installed	Required	Procedure
C	8	0	(M) (O)

May be inoperative provided:

- Container is empty and access is secured to prevent waste introduction into compartment.
 - 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)

Verify the container is empty and secure the access door (AMM 25-00-00/901).

- Empty the associated waste container.
- Lock the associated access door in the closed position.

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	BRA: 7	0	(M)
C	BMU: 6	0	(M)
C	BOQ, BPT: 5	0	(M)
C	BWW, BWX, BMQ: 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 USE.

NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers.

MAINTENANCE (M)

Verify the container is empty, secure the access door, and lock the lavatory (AMM 25-00-00/901).

- 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 USE.


25-50-01 Lower Cargo Compartment Lining Panels, Floor Panels, and Walkways ©
25-50-01-01 Lining 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)

Prior to flight, PIC (Pilot in Command) must ask Maintenance and Ground Handling personnel to make sure the following items shall be removed from FAK (Fly Away Kits): all self contained fluids, i.e. cans of HYD oils, 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. The spare tires shall be deflated to a minimal pressure that preserves their serviceability

25-50-01 Lower Cargo Compartment Lining Panels, Floor Panels, and Walkways ©
25-50-01-02 Floor Panels and Walkways
25-50-01-02-01 Full Floor Configuration

Interval	Installed	Required	Procedure
C	-	-	(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)

Operators must 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. The operator's MEL must define which items are approved for inclusion in the fly away kits and which materials can be used as ballast.



25-50-01 Lower Cargo Compartment Lining Panels, Floor Panels, and Walkways ©

25-50-01-02 Floor Panels and Walkways

25-50-01-02-02 Partial Floor Configuration

Interval	Installed	Required	Procedure
C	-	-	

May be damaged or missing.



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.



25-62-01 Flotation Equipment (Crew and Passengers) ©

Interval	Installed	Required	Procedure
D	-	-	

Except overwater operations, any may be inoperative or missing provided:

- a. Each occupant is provided with an approved and serviceable flotation means, and
- b. Required distribution is maintained.

NOTE 1: Dispatch must be informed about which seats cannot be occupied.

NOTE 2: For extended overwater flight the flotation equipment must include lifejackets for each occupant of the airplane equipped with an approved survivor locator lights and enough slide/rafts of a rated capacity and buoyancy to accommodate all occupants of them airplane equipped with an survivor locator light and pyrotechnic signaling device.


25-63-01 Megaphones
25-63-01A Passengers Carried

Interval	Installed	Required	Procedure
D	BOQ: 4	2	
D	BRA: 3	2	
D	BWW, BWX, BMQ, BMU, BPT: 2	2	

Any may be inoperative or missing provided:

- Inoperative megaphone is removed from passenger cabin.
- Associated placard is removed or obscured.
- Required distribution is maintained.

25-63-01 Megaphones
25-63-01B No Passengers Carried

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided:

- No passengers are carried.
- A maximum of 19 persons for non-passenger carrying operations are carried.
- Alternate procedures are established and used.

OPERATIONS (O)

- No passengers may be carried.
- A maximum of 19 persons may be carried.
- Establish alternate procedures for use when megaphones are not available.



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)

Alternate procedures must be based on use of the P.A. and/or Cabin/Service Interphone systems. Prior to flight the pilot in command should 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	70	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
(Including Flashlight)****25-63-04A Passengers Carried**

Interval	Installed	Required	Procedure
C	BMU: 12	12	
C	BRA, BMQ, BOQ: 10	10	
C	BWX: 9	9	
C	BPT, BWW: 8	8	

May be inoperative or missing provided crewmember assigned to associated seat has a flashlight of equivalent characteristics readily available.

**25-63-04 Flight Attendant Flashlight Holder Assemblies
(Including Flashlight)****25-63-04B No Passengers Carried**

Interval	Installed	Required	Procedure
C	BMU: 12	0	
C	BRA, BMQ, BOQ: 10	0	
C	BWX: 9	0	
C	BPT, BWW: 8	0	

May be inoperative provided:

- No passengers are carried.
 - A maximum of 19 persons for non-passenger carrying operations are carried.
 - Alternate procedures are established and used.
-

OPERATIONS (O)

Alternate procedures based on use crewmember assigned to associated seat has a flashlight of equivalent characteristics readily available. Prior to flight, the pilot in command should brief cabin crewmembers on the alternate procedures.

**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:

- System is deactivated.
 - Repairs are made within 90 days.
-

MAINTENANCE (M)

Deactivate the inoperative ELT.

- Gain access to the inoperative ELT.
- Disconnect, cap and stow the associated control/indication electrical connector.
- 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	4	2	(O)

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:

- Overwing escape system is verified to operate normally.
- Operations are limited to not more than 50 flight hours before repairs are made.

MAINTENANCE (M)

Verify the overwing escape system operates normally (AMM 25-00-00/901).

For airplanes with a modular, self-contained off wing escape slide and new pressure reservoir is not used

- Fully extend the flaps.
- Deactivate the flaps.
- Depressurize the main (left, center, and right) hydraulic system.
- Open the following P11 panel circuit breakers:
 - FLT CONT ELEC 1L AC
 - FLT CONT ELEC 1L DC
 - FLT CONT ELEC 2L AC
 - FLT CONT ELEC 2L DC
 - FLT CONT ELEC 1R AC
 - FLT CONT ELEC 1R DC
 - FLT CONT ELEC 2R AC
 - FLT CONT ELEC 2R DC
 - AUTO SPEED BRAKE
- Open the EXIT sign panel above the overwing escape hatch.

NOTE: On airplanes having two escape hatches over each wing, either EXIT sign panel may be used.
- Set the disable handle to the SAFE (down) position. Push down firmly on the disable handle. Confirm the AUTO ARM and AUTO FIRE switches are in the ARM (down) position.
- Disconnect the electrical connector from the squib on the spoiler override actuator.
- Open the access door for the latch opening actuator.
- Disconnect the electrical connector from the squib on the latch opening actuator.
- Obtain and use one of the digital squib circuit igniter testers, COM-2001 meters or equivalent.
- Put on a grounded wrist strap.



12. Connect the ohmmeter across pins A and B on the latch opening actuator squib, and across pins 3 and 4 on the spoiler override actuator squib. Confirm the ohmmeter indicates greater than 0.9 ohms but less than 2 ohms for each squib. Disconnect the ohmmeter.
13. Install shorting caps on the squibs.
14. Perform step A or step B.
 - A. Voltmeter procedure.
 - 1) Connect a voltmeter across pins A and B of the latch opening actuator squib electrical connector, and pins 3 and 4 of the spoiler override actuator squib electrical connector.
 - 2) Set the disable handle to the ARM (up) position.
 - 3) Set the AUTO ARM and AUTO FIRE switches to the FIRE (up) position.
 - a. Confirm the voltmeter, connected to the spoiler override actuator squib electrical connector, indicates 6 to 9 volts DC.
 - b. After 3.0 seconds, confirm the voltmeter, connected to the latch opening actuator squib electrical connector, indicates 6 to 9 volts DC.
 - 4) Return the AUTO ARM and AUTO FIRE switches to the ARM (down) position.
 - 5) Confirm the voltmeter indicates 0 volts.
 - 6) Disconnect the voltmeter.
 - B. Test Lamp procedure.
 - 1) Fabricate a squib test lamp with pigtail leads terminating in sockets. Use lamp assembly P/N 116-565-1042-001 (28 volt, 40 milliampere) in suitable holder.

NOTE: Connector D1130 is for the left wing and D1128 is for the right wing.
 - 2) Connect the test lamp between the latch release actuator squib of ship side connector D1130 pin A and squib connector pin A.
 - 3) Install a jumper wire between the ship side connector D1130 pin B and squib connector pin B.
 - 4) Test the squib.
 - a. Set the disable handle to the ARM (up) position.
 - b. Set the AUTO ARM and AUTO FIRE switches to the FIRE (up) position.

NOTE: A three-second time delay applies to the latch squib. There is no time delay on the spoiler squib.
 - c. After 3.0 seconds, confirm the test lamp is illuminated, and the lamp changes to dim.



- d. Set the AUTO ARM and AUTO FIRE switches to the ARM (down) position.
- e. Confirm the lamp extinguishes.
- 5) Disconnect connector D1130 of the latch release actuator and repeat step 4) for right wing connector D1128.
- 6) Connect the test lamp between the spoiler override actuator squib of ship side connector D1124 pin 3 and squib connector pin 3.
- 7) Install a jumper wire between ship side connector D1124 pin 4 and squib connector pin 4.
- 8) Test the squib per step 4) and repeat the entire procedure for the right wing connector D1166.
15. Set the disable handle to the SAFE (down) position.
16. Confirm the AUTO ARM and AUTO FIRE switches are in the ARM (down) position.
17. Remove the shorting cap from the spoiler override actuator squib. Connect the electrical connector to the squib.
18. Remove the shorting cap from the latch opening actuator squib. Connect the electrical connector to the squib.
19. Close the latch opening access door.
20. Set the disable handle to the ARMED (up) position.
21. Close the EXIT sign above overwing escape hatch.
22. Close the open circuit breakers.
23. Restore hydraulic systems.
24. Reactivate and retract the flaps.

For airplanes with a modular, self-contained off wing escape slide and new pressure reservoir is used

1. Fully extend the flaps.
2. Deactivate the flaps.
3. Depressurize the main (left, center, and right) hydraulic system.
4. Open the following P11 panel circuit breakers:
 - A. FLT CONT ELEC 1L AC
 - B. FLT CONT ELEC 1L DC
 - C. FLT CONT ELEC 2L AC
 - D. FLT CONT ELEC 2L DC
 - E. FLT CONT ELEC 1R AC
 - F. FLT CONT ELEC 1R DC
 - G. FLT CONT ELEC 2R AC
 - H. FLT CONT ELEC 2R DC
 - I. AUTO SPEED BRAKE
5. Open the EXIT sign panel above the overwing escape hatch.



NOTE: On airplanes having two escape hatches over each wing, either EXIT sign panel may be used.

6. Set the disable handle to the SAFE (down) position. Push down firmly on the disable handle. Confirm the AUTO ARM and AUTO FIRE switches are in the ARM (down) position.
7. Disconnect the electrical connector from the squib on the spoiler override actuator.
8. Open the access door for the inflation cylinder.
9. Disconnect the electrical connector from the squib on the inflation cylinder regulator.
10. Obtain and use one of the digital squib circuit igniter testers, COM-2001 meters or equivalent.
11. Put on a grounded wrist strap.
12. Connect the ohmmeter across pins 1 and 2 on the inflation cylinder squib, and across pins 3 and 4 on the spoiler override actuator squib. Confirm the ohmmeter indicates greater than 0.9 ohms but less than 2 ohms for each squib. Disconnect the ohmmeter.
13. Install shorting caps on the squibs.
14. Perform step A or step B.

A. Voltmeter procedure.

- 1) Connect a voltmeter across pins 1 and 2 on the inflation cylinder squib connector, and across pins 3 and 4 of the spoiler override actuator squib electrical connector.
- 2) Set the disable handle to the ARM (up) position.
- 3) Set the AUTO ARM and AUTO FIRE switches to the FIRE (up) position.
 - a. Confirm the voltmeter, connected to the spoiler override actuator squib electrical connector, indicates 6 to 9 volts DC.
 - b. After 3.0 seconds confirm the voltmeter, connected to the inflation cylinder electrical connector, indicates 6 to 9 volts DC.
- 4) Return the AUTO ARM and AUTO FIRE switches to the ARM (down) position.
- 5) Confirm the voltmeter indicates 0 volts.
- 6) Disconnect the voltmeter.

B. Test Lamp Procedure.

- 1) Fabricate a squib test lamp with pigtail leads terminating in sockets. Use lamp assembly P/N 116-565-1042-001 (28 volt, 40 milliampere) in suitable holder.

NOTE: Connector D30888 is for the left wing and D30890 is for the right wing.



- 2) Connect the test lamp between the inflation cylinder regulator squib of ship side connector D30888 pin 1 and squib connector pin 1.
- 3) Install a jumper wire between the ship side connector D30888 pin 2 and squib connector pin 2.
- 4) Test the squib:
 - a. Set the disable handle to the ARM (up) position.
 - b. Set the AUTO ARM and AUTO FIRE switches to the FIRE (up) position.

NOTE: A three-second time delay applies to the inflation cylinder squib. There is no time delay on the spoiler squib.
 - c. After 3.0 seconds, confirm the test lamp comes on and the lamp changes to dim.
 - d. Set the AUTO ARM and AUTO FIRE switches to the ARM (down) position.
 - e. Confirm the lamp extinguishes.
- 5) Disconnect connector D30888 of the inflation cylinder regulator squib and repeat the Test Lamp Procedure for right wing connector D30890.
- 6) Connect the test lamp between the spoiler override actuator squib of ship side connector D1124 pin 3 and squib connector pin 3.
- 7) Install a jumper wire between ship side connector D1124 pin 4 and squib connector pin 4.
- 8) Test the squib per step 4) and repeat the entire procedure for the right wing connector D1166.
15. Set the disable handle to the SAFE (down) position.
16. Confirm the AUTO ARM and AUTO FIRE switches are in the ARM (down) position.
17. Remove the shorting cap from the spoiler override actuator squib. Connect the electrical connector to the squib.
18. Remove the shorting cap from the inflation cylinder regulator squib. Connect the electrical connector to the squib.
19. Close the inflation cylinder access door.
20. Set the disable handle to the ARMED (up) position.
21. Close the EXIT sign above overwing escape hatch.
22. Close the open circuit breakers.
23. Restore hydraulic systems.
24. Reactivate and retract the flaps.



26-11-01 Engine Fire Detection Systems

26-11-01-01 Detection Loops

26-11-02 Engine Overheat Detection Systems

26-11-02-01 Detection Loops

26-14-01 CARGO DET AIR Indicating System

26-15-01 APU Fire Detection System

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

26-16-01-02 Detector Fans

26-17-01 Wheel Well Fire Detection System

26-17-01A *BTMS Operative*

26-17-01B *BTMS Inoperative Or Not Installed*

26-18-01 DUCT LEAK Detection Systems

26-18-01-01 L and R Loops

26-18-01-01-01 Dual Loop Configuration

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26-18-01-01-03B ADP Inoperative Penalties, FAMV Intermediate

26-18-01-01-03C APU Air Source for ADP, FAMV Open

26-18-01-01-03D ADP Inoperative Penalties, FAMV Open

26-18-01-02 Body Loop

26-18-01-02A *Dual Loop Configuration*

26-18-01-02B *Single Or Dual Loop Configuration*

26-18-01-03 Test Function

26-20-01 Engine Fire Extinguisher Bottle Pressure Indicating System



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26-11-01 Engine Fire Detection Systems
26-11-01-01 Detection Loops

ETOPS

Interval	Installed	Required	Procedure
C	4	2	

Except for ER operations beyond 120 minutes, one loop per engine may be inoperative.



26-11-02 Engine Overheat Detection Systems
26-11-02-01 Detection Loops

ETOPS

Interval	Installed	Required	Procedure
C	4	2	

Except for ER operations beyond 120 minutes, one loop per engine may be inoperative.

**26-14-01 CARGO DET AIR Indicating System**

Interval	Installed	Required	Procedure
C	1	0	(M)

Indication may be inoperative provided smoke sampling system integrity is verified before each departure.

MAINTENANCE (M)

Before each departure verify integrity of the smoke sampling system (AMM 26-00-00/901).

1. Supply electrical power.
2. Do step 3 or step 4 at each of the following sampling port orifices:
 - A. Aft most port in forward cargo compartment.
 - B. Forward most port in the aft cargo compartment.
3. Using a hot wire anemometer and adapter, confirm at least 80 fpm velocity airflow through the smoke detection air sampling port orifice.
4. Using any suitable non-toxic smoke source, do the following:
 - A. Apply smoke adjacent to the smoke detection air sampling port orifice.
 - B. Confirm the following flight deck effects:
 - 1) Red FWD or AFT cargo fire warning light (P8)
 - 2) Red FIRE light (P1-3)
 - 3) EICAS Warning message FWD(AFT) CARGO FIRE
 - 4) Red master WARNING light (P7)
 - 5) Fire bell sounds


26-15-01 APU Fire Detection System
26-15-01A APU Considered Inoperative
ETOPS

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

Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.

26-15-01 APU Fire Detection System
26-15-01B APU Used On Ground Only
ETOPS

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.

MAINTENANCE (M)

Continuously monitor the APU when it is operating (AMM 26-00-00/901).

- Visually monitor the APU when it is in use on the ground.
- For APU fire observed, manually discharge the APU fire extinguisher using one of the following:
 - APU SHUTDOWN switch on the APU shutdown panel (P40 on nose gear)
 - APU fire switch on the APU/Cargo Fire Control panel (P8 control stand)

OPERATIONS (O)

- Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.



-
2. For APU use during ground operations, position a fire guard near the tail of the airplane to monitor the APU.



3. Do not use the APU inflight or during taxi operations.

26-15-01 APU Fire Detection System

26-15-01-01 Detection Loops

ETOPS

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)
ETOPS

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided procedures are established and used to ensure associated compartment or zone 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: For items are approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 2). Do not use any combustible and flammable materials as ballast if required to be installed.

OPERATIONS (O)

Prior to flight, PIC (Pilot in Command) must ask Maintenance and Ground Handling personnel to make sure the following items shall be removed from FAK (Fly Away Kits): all self contained fluids, i.e. cans of HYD oils, 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. The spare tires shall be deflated to a minimal pressure that preserves their serviceability.

26-16-01 Lower Cargo Compartment Smoke Detection Systems (Fwd and Aft)
26-16-01-01 Detectors
ETOPS

Interval	Installed	Required	Procedure
C	4	2	(O)

One in each compartment or zone may be inoperative provided remaining detector is verified to operate normally before each departure.

OPERATIONS (O)

Before each departure verify the remaining detector in each cargo compartment or zone operates normally:

- Depress and hold the ENG/APU/CARGO switch on the FIRE/OVHT TEST panel (P8) to perform a self test.
- Confirm all detector EICAS maintenance messages are displayed and the following fire indications are illuminated/displayed:
 - Red FWD and AFT CARGO FIRE switchlights (P8)



- B. Red FIRE light (P1-3)
 - C. FWD and AFT CARGO FIRE warning messages
 - D. Red master warning light (P7)
 - E. Fire bell sounds
- 3. Release the ENG/APU/CARGO switch.
 - 4. Confirm the message and light indications extinguish for the remaining detector in each compartment.
 - 5. Confirm the SYS FAIL (FAIL P-RESET) light and FIRE/OVHT SYS advisory message are not illuminated.

26-16-01 Lower Cargo Compartment Smoke Detection Systems (Fwd and Aft)**26-16-01-02 Detector Fans****ETOPS**

Interval	Installed	Required	Procedure
C	4	2	

One in each compartment may be inoperative.


26-17-01 Wheel Well Fire Detection System
26-17-01A BTMS Operative

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided BTMS operates normally.

NOTE: Avoid possibility of retracting an overheated wheel by monitoring brake temperature indications.

MAINTENANCE (M)

1. For wheel well detection sensors failed open, no maintenance action is required.
2. For wheel well detection sensors failed shorted, deactivate the WHEEL WELL FIRE warning message and the WHL WELL FIRE light (AMM 26-00-00/901):
 - A. Open the P11 panel WW FIRE/DUCT LEAK circuit breaker.
 - B. Access P54 card file, duct leak and wheel well fire card module M691, connector D2842, pin 32.
 - C. Disconnect, cap and stow wire bundle W1082, wire number 842R-22 that connects pin 32 to "Y" burndy block TB276, location A20.
 - D. Close the open circuit breaker.
 - E. Open and collar the P11 panel WHEEL WELL FIRE IND 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. For any wheel well fire detector sensor failed shorted, the center panel FIRE light will be available to indicate engine, APU or cargo fire.
2. For one or more wheel well fire detector sensors failed open, the wheel well fire detection test will fail.

26-17-01 Wheel Well Fire Detection System
26-17-01B BTMS Inoperative Or Not Installed

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 10 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 (AMM 26-00-00/901).

1. Confirm brakes are cool (hand can be held on brake housing) prior to engine start.
2. For wheel well detection sensors failed open, no maintenance action is required.
3. For wheel well detection sensors failed shorted, deactivate the WHEEL WELL FIRE warning message and the WHL WELL FIRE light:
 - A. Open the P11 panel WW FIRE/DUCT LEAK circuit breaker.
 - B. Access P54 card file, duct leak and wheel well fire card module M691, connector D2842, pin 32.
 - C. Disconnect, cap and stow wire bundle W1082, wire number 842R-22 that connects pin 32 to "Y" burndy block TB276, location A20.
 - D. Close the open circuit breaker.
 - E. Open and collar the P11 panel WHEEL WELL FIRE IND 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. For any wheel well fire detector sensor failed shorted, the center panel FIRE light will be available to indicate engine, APU or cargo fire.
2. For one or more wheel well fire detector sensors failed open, the wheel well fire detection test will fail.
3. Leaving the landing gear extended for 10 minutes increases fuel burn approximately 2000 lb (970 kg).
4. 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 L and R Loops
26-18-01-01-01 Dual Loop Configuration
ETOPS

Interval	Installed	Required	Procedure
C	4	2	

One loop in each system may be inoperative.

MAINTENANCE NOTE

The system will automatically reconfigure to a parallel system, or can be configured manually by moving the applicable P61 TEST panel DUCT LEAK switch from BOTH to the operative detection loop (1 or 2).

26-18-01 DUCT LEAK Detection Systems
26-18-01-01 L and R Loops
26-18-01-01-03A APU Air Source for ADP, FAMV Intermediate
ETOPS

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

May be inoperative provided:

- Associated ENG bleed air switch remains OFF.
- Associated bleed ISLN valve remains closed except for engine start.
- Airplane is not operated in known or forecast icing conditions.
- Airplane remains at or below FL 270.
- APU is used as air source for ADP for takeoff and landing.
- One body loop operates normally.
- Associated fan air modulation valve is secured in intermediate position.
- Appropriate performance adjustments are applied.
- Operation is limited to 1 flight day before repairs are made.

MAINTENANCE (M)

Secure the associated fan air modulation valve in the intermediate position using MEL item 36-12-02 (M) procedure.

OPERATIONS (O)

- Reduce performance limited weights for takeoff, landing and enroute climb using MEL Item 36-12-02 (O) procedure for FAMV secured in intermediate position.



2. Remain clear of icing conditions.
3. Flight must remain at or below FL270.
4. Set the associated ENG bleed air switch to OFF.
5. Use APU as air source for ADP for takeoff and landing.

26-18-01 DUCT LEAK Detection Systems**26-18-01-01 L and R Loops****26-18-01-01-03B ADP Inoperative Penalties, FAMV Intermediate ETOPS**

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

May be inoperative provided:

- a. Associated ENG bleed air switch remains OFF.
- b. Associated bleed ISLN valve remains closed except for engine start.
- c. Airplane is not operated in known or forecast icing conditions.
- d. Airplane remains at or below FL 270.
- e. ADP inoperative penalties are applied.
- f. Center hydraulic motor generator (HMG) is considered inoperative.
- g. One body loop operates normally.
- h. Associated fan air modulation valve is secured in intermediate position.
- i. Appropriate performance adjustments are applied.
- j. Operation is limited to 1 flight day before repairs are made.

NOTE: Also dispatch the airplane using MEL Item 24-25-01.

MAINTENANCE (M)

Secure the associated fan air modulation valve in the intermediate position using MEL item 36-12-02 (M) procedure.

OPERATIONS (O)

1. Reduce performance limited weights for takeoff, landing and enroute climb using MEL Item 36-12-02 (O) procedure for FAMV secured in intermediate position.
2. Remain clear of icing conditions.
3. Flight must remain at or below FL270.
4. Set the associated ENG bleed air switch to OFF.
5. Apply ADP inoperative penalties using MEL Item 29-11-03 (O) procedure.


26-18-01 DUCT LEAK Detection Systems
26-18-01-01 L and R Loops
26-18-01-01-03C APU Air Source for ADP, FAMV Open
ETOPS

Interval	Installed	Required	Procedure
A	2	1	(O)

May be inoperative provided:

- Associated ENG bleed air switch remains OFF.
- Associated bleed ISLN valve remains closed except for engine start.
- Airplane is not operated in known or forecast icing conditions.
- Airplane remains at or below FL 270.
- APU is used as air source for ADP for takeoff and landing.
- One body loop operates normally.
- Appropriate performance adjustments are applied for an open fan air modulation valve.
- Operation is limited to 1 flight day before repairs are made.

OPERATIONS (O)

- Reduce performance limited weights for takeoff, landing and enroute climb using MEL Item 36-12-02 (O) procedure for FAMV in open position.
- Remain clear of icing conditions.
- Flight must remain at or below FL270.
- Set the associated ENG bleed air switch to OFF.
- Use APU as air source for ADP for takeoff and landing.

26-18-01 DUCT LEAK Detection Systems
26-18-01-01 L and R Loops
26-18-01-01-03D ADP Inoperative Penalties, FAMV Open
ETOPS

Interval	Installed	Required	Procedure
A	2	1	(O)

May be inoperative provided:

- Associated ENG bleed air switch remains OFF.
- Associated bleed ISLN valve remains closed except for engine start.
- Airplane is not operated in known or forecast icing conditions.
- Airplane remains at or below FL 270.
- ADP inoperative penalties are applied.



- f. Center hydraulic motor generator (HMG) is considered inoperative.
- g. One body loop operates normally.
- h. Appropriate performance adjustments are applied for an open fan air modulation valve.
- i. Operation is limited to 1 flight day before repairs are made.

NOTE: Also dispatch the airplane using MEL Item 24-25-01.

OPERATIONS (O)

1. Reduce performance limited weights for takeoff, landing and enroute climb using MEL Item 36-12-02 (O) procedure for FAMV in open position.
2. Remain clear of icing conditions.
3. Flight must remain at or below FL270.
4. Set the associated ENG bleed air switch to OFF.
5. Apply ADP inoperative penalties using MEL Item 29-11-03 (O) procedure.

26-18-01 DUCT LEAK Detection Systems

26-18-01-02 Body Loop

26-18-01-02A Dual Loop Configuration

ETOPS

Interval	Installed	Required	Procedure
C	2	1	

26-18-01 DUCT LEAK Detection Systems

26-18-01-02 Body Loop

26-18-01-02B Single Or Dual Loop Configuration

ETOPS

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. APU is not used as a pneumatic source except as required for engine start.
- b. APU bleed air switch remains off except as required for engine start.
- c. Center bleed ISLN valve remains closed except as required for engine start.
- d. ADP inoperative performance penalties are applied.
- e. Both center system electric pumps operate normally.
- f. Airplane remains at or below FL 270.
- g. Center hydraulic motor generator (HMG) is considered inoperative.



- h. One L and one R loop operate normally.
-

NOTE: Also dispatch the airplane using MEL Item 24-25-01.

OPERATIONS (O)

1. Apply ADP inoperative penalties using MEL Item 29-11-03 (O) procedure.
2. Do not use APU as a pneumatic source except as required for engine start. The APU can be used as an electrical source.
3. Heat is not available to AFT and BULK cargo compartments. Carriage of animals and/or perishables may be impacted.
4. Flight must remain at or below FL270.

26-18-01 DUCT LEAK Detection Systems

26-18-01-03 Test Function

ETOPS

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 (AMM 26-00-00/901).

1. Gain access to detector loops through the ECS bay.
2. Use a heat source of approximately 260°F (127°C) to heat a section of the detector.

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.

3. Confirm the associated DUCT LEAK light and L/R BLD DUCT LEAK or BODY DUCT LEAK message illuminates.

**26-20-01 Engine Fire Extinguisher Bottle Pressure Indicating System****ETOPS**

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)

Verify the associated bottle is properly charged once each flight day (AMM 26-00-00/901).

Perform procedure 1 (electrical check) 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 check 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 bottle.
 - B. Weigh the bottle and compare to the service weight stamped on the fire bottle side (+/- 0.1 pound).
 - C. Replace the serviceable bottle.
 - D. Cap and stow the affected 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 (AMM 26-00-00/901).

NOTE: Test each circuit for which there was no green light when the test button or buttons were pushed.

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 suitable holder.
2. Restrict personnel from the fire bottle area while testing, and limit squib current to 50 milliamperes maximum.
3. Confirm the squib circuit operates normally.
 - A. Remove the squib test control panel
 - B. Close the open circuit breakers (to provide power to the test lamp).
 - C. For APU single fire bottle configuration:
 - 1) Connect the test lamp between sockets 7 and 12 of connector D1928.
 - 2) Confirm the lamp illuminates (indicates intact squib).
 - D. For APU dual fire bottle configuration:
 - 1) For bottle 1, connect the test lamp between sockets 7 and 12 of connector D1928.
 - 2) For bottle 2, connect the test lamp between sockets 13 and 14 of connector D1928.
 - 3) Confirm the lamp illuminates (indicates intact squib).
 - E. For engines:
 - 1) For Bottle 1, L squib: connect the test lamp between sockets 8 and 3 of connector D1930.
 - 2) For bottle 1, R squib: connect the test lamp between sockets 9 and 4 of connector D1930.
 - 3) For bottle 2, L squib: connect the test lamp between sockets 8 and 3 of connector D1928.
 - 4) For bottle 2, R squib: connect the test lamp between sockets 9 and 4 of connector D1928.
 - 5) Confirm the lamp illuminates (indicates intact squib).



F. For lower cargo compartment:

For -200/-300 L/N 290 and on and with two-bottle configuration:

- 1) For bottle 1, forward squib: connect test lamp between sockets 6 and 10 of connector D1930.
- 2) For bottle 1, aft squib: connect test lamp between sockets 6 and 11 of connector D1930.
- 3) For bottle 2A, forward squib: connect test lamp between sockets 6 and 10 of connector D1928.
- 4) For Bottle 2A, aft squib: connect test lamp between sockets 6 and 11 of connector D1928.
- 5) Confirm the lamp illuminates (indicates intact squib).

For -200/-300 with three-bottle configuration:

- 1) For bottle 1, forward squib: connect test lamp between sockets 6 and 10 of connector D1930.
- 2) For bottle 1, aft squib: connect test lamp between sockets 6 and 11 of connector D1930.
- 3) For bottle 2, forward squib: connect test lamp between sockets 6 and 10 of connector D1928.
- 4) For bottle 2, aft squib: connect test lamp between sockets 6 and 11 of connector D1928.
- 5) For bottle 2A, forward squib: connect test lamp between sockets 6 and 1 of connector D1928.
- 6) For bottle 2A, aft squib: connect test lamp between sockets 6 and 2 of connector D1928.
- 7) Confirm the lamp illuminates (indicates intact squib).

G. Remove the test lamp.

H. Open the circuit breakers identified in AMM 26-21-04/401.

I. Install the squib test control panel.

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.

MAINTENANCE NOTE

Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.

**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	3	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	3	0	

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: For items are approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 2). Do not use any combustible and flammable materials as ballast if required to be installed.

**26-22-01 APU Fire Extinguisher System****26-22-01A Except ER Operations****ETOPS**

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.

OPERATIONS NOTE

Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.

26-22-01 APU Fire Extinguisher System**26-22-01B Except ER Operations Beyond 120 Minutes****ETOPS**

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.

OPERATIONS NOTE

Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.

26-22-01 APU Fire Extinguisher System**26-22-01-01 Fire Extinguisher Bottle (Two Bottle System)****ETOPS**

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****ETOPS**

Interval	Installed	Required	Procedure
C	2	1	

26-22-01 APU Fire Extinguisher System**26-22-01-02 Fire Extinguisher Bottle Pressure Indicating System****26-22-01-02B Bottle Charge Verified****ETOPS**

Interval	Installed	Required	Procedure
C	1	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 (AMM 26-00-00/901).

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 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 bottle.



- B. Weigh the bottle and compare to the service weight stamped on the fire bottle side (+/- 0.1 pound).
- C. Replace the serviceable bottle.
- D. Cap and stow the affected bottle's pressure switch connector.


**26-23-01 Lower Cargo Compartment Fire Extinguisher System
(Metered or Non-Metered)**
ETOPS

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: For items are approved for inclusion in the Fly Away Kits, refer to the definition of a Fly Away Kit in this MEL (Section 0). Do not use any combustible and flammable materials as ballast if required to be installed.

**26-23-01 Lower Cargo Compartment Fire Extinguisher System
(Metered or Non-Metered)**
26-23-01-01 Fire Extinguisher Bottles (Two and Three Bottle Systems)
ETOPS

Interval	Installed	Required	Procedure
C	1	0	(O)

Extinguisher bottle No. 2 or 2A may be inoperative with cargo carried in compartments provided:

- Airplane is operated pressurized.
- A chart is provided to determine time airplane must remain in proximity to a suitable airport.

OPERATIONS (O)

Operators can use the following data to generate MEL information for the specific airplanes within your fleet. Delete data that does not apply to your fleet.

NOTE 1: The DESIGNATED NAME column has the assigned nomenclature, which may differ from the actual certified time limits in the FAA APPROVED PROTECTION TIME column. The BOTTLE NUMBER, BOTTLE TYPE, and DISCHARGE METHOD columns indicate how a fully operational system works. The last column indicates the inoperative bottle and maximum number of minutes a flight can be from a suitable airport.



NOTE 2: For ETOPS airplanes, the AFM has an approved range time (AFM Limitation section states that the flight shall remain within *** minutes of a suitable airport). The AFM approved range time considers a 15 minute diversion, thus a 157 minute FAA Approved Protection Time equates to (157-15) 142 minute range time from a suitable airport.

NOTE 3: The tables are written for airplanes without forward cargo air conditioning unless specified otherwise (in DESIGNATED NAME column).



767-300/300ER							
DDG #	Designated Name	FAA Approved Protection Time	System Type	BOTTLE #	Bottle Type	Discharge Method	Inoperative Bottle (#) - Flight Remains Within # Minutes to Suitable Airport
F	60 Minute System PRR B11863-5 not incorporated	90 Minutes	Metered	1	80 lb Knock Down	Single Switch Discharge	(1) - N/A
				2	33 lb Metered	Metered Bottle Discharges 30 Minutes Time Delay after First Bottle	(2) - 30 Minutes
G	60 Minute System PRR B11863-5 incorporated	90 Minutes	Metered	1	80 lb Knock Down	Single Switch Discharge	(1) - N/A
				2A	33 lb Metered	Metered Bottle Discharges 30 Minutes Time Delay after First Bottle	(2A) - 30 Minutes
H	120 Minute System	169 Minutes	Metered	1	80 lb Knock Down	Single Switch Discharge	(1) - N/A
				2	92 lb Metered	Metered Bottle Discharges 30 Minutes Time Delay after First Bottle	(2) - 30 Minutes



767-300/300ER							
DDG #	Designated Name	FAA Approved Protection Time	System Type	BOTTLE #	Bottle Type	Discharge Method	Inoperative Bottle (#) - Flight Remains Within # Minutes to Suitable Airport
I	195 Minute System	195 Minutes	Metered	1	80 lb Knock Down	Single Switch Discharge	(1) - N/A
				2	80 lb Metered	Metered Bottles Discharge 30 Minutes Time Delay after First Bottle	(2) - 70 Minutes
				2A	33 lb Metered		(2A) - 130 Minutes
J	60 Minute System On Airplanes With Forward Cargo Conditioned Air	90 Minutes	Metered	1	80 lb Knock Down	Single Switch Discharge	(1) - N/A
				2	33 lb Metered	Metered Bottle Discharges 30 Minutes Time Delay after First Bottle	(2) - 30 Minutes
K	195 Minute System On Airplanes With Forward Cargo Conditioned Air	195 Minutes	Metered	1	80 lb Knock Down	Single Switch Discharge	(1) - N/A
				2	92 lb Metered	Metered Bottles Discharge 30 Minutes Time Delay after First Bottle	(2) - 60 Minutes
				2A	33 lb Metered		(2A) - 130 Minutes



26-23-01 Lower Cargo Compartment Fire Extinguisher System (Metered or Non-Metered)

26-23-01-03 Fire Extinguisher Bottle Pressure Indicating System

26-23-01-03A Bottle Charge Verified

ETOPS

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 fire bottle is properly charged (AMM 26-00-00/901).

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 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 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 bottle.
 - B. Weigh the bottle and compare to the service weight stamped on the fire bottle side (+/- 0.1 pound).
 - C. Replace the serviceable bottle.
 - D. Cap and stow the affected bottle's pressure switch connector.



- 26-23-01 Lower Cargo Compartment Fire Extinguisher System (Metered or Non-Metered)**
- 26-23-01-03 Fire Extinguisher Bottle Pressure Indicating System**
- 26-23-01-03B Associated Fire Bottle Considered Inoperative**

ETOPS

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	BMQ: 9	4	(M)
D	BOQ: 8	4	(M)
D	BRA: 7	4	(M)
D	BWW, BWX, BMU, BPT: 6	4	(M)

Any in excess of those may be inoperative or missing provided:

- One in the cockpit and at least one in each passenger cabin compartments (Fwd, Mid and Aft) of the required hand fire extinguishers are Halon 1211 or equivalent,
- Inoperative fire extinguisher is tagged inoperative, removed from the installed location, and placed out of sight so it can not be mistaken for a functional unit, and
- Required distribution is maintained: At least three of the required hand fire extinguishers must be conveniently located in Fwd, Mid and Aft passenger cabin compartments and easily accessible for use in the galley.

MAINTENANCE (M)

Stow the inoperative fire extinguisher and confirm required distribution is maintained (AMM 26-00-00/901).

- 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.

26-26-02 Lavatory Fire Extinguisher Systems
26-26-02-01 Passenger Configuration
26-26-02-01A Smoke Detection System Operative

Interval	Installed	Required	Procedure
C	BRA: 7	0	
C	BMU: 6	0	
C	BOQ, BPT: 5	0	
C	BWW, BWX, BMQ: 4	0	

For each lavatory, lavatory fire extinguisher system may be inoperative provided associated lavatory smoke detection system operates normally.

NOTE: The Smoke Detector can be checked by pressing the self-test switch.

26-26-02 Lavatory Fire Extinguisher Systems
26-26-02-01 Passenger Configuration
26-26-02-01B Smoke Detection System Inoperative

Interval	Installed	Required	Procedure
C	BRA: 7	0	(M) (O)
C	BMU: 6	0	(M) (O)
C	BOQ, BPT: 5	0	(M) (O)
C	BWW, BWX, BMQ: 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)

Deactivate the associated lavatory.

- Confirm the lavatory waste receptacle in the waste container is empty.
- Close and lock the lavatory door.



-
3. Placard the door INOPERATIVE - DO NOT ENTER.

OPERATIONS (O)

Lavatory door should remain locked closed, except for use or inspection by crewmembers.

26-26-03 Lavatory Smoke Detection Systems

Interval	Installed	Required	Procedure
C	BRA: 7	0	(M) (O)
C	BMU: 6	0	(M) (O)
C	BOQ, BPT: 5	0	(M) (O)
C	BWW, BWX, BMQ: 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)

Deactivate the associated lavatory (AMM 26-00-00/901).

- Check that the lavatory waste receptacle in the waste container is empty.
- Close and lock the lavatory door.
- Placard the door INOPERATIVE - DO NOT ENTER.
- For airplane equipped with LAV SMOKE DETECTOR REMOTE INDICATION PANELS:
 - Placard the indicator light as appropriate - LAV X DETECTOR INOP.
 - Push the RESET button on the remote indication panel.

NOTE: The system must be reset after a failure has been detected during self test. This ensures proper operation of indication panel for remaining operative detectors.

OPERATIONS (O)

Lavatory door should remain locked closed, except for use or inspection by crewmembers.

26-26-03 Lavatory Smoke Detection Systems
26-26-03-01 Lavatory Call Light Smoke Detected Function

Interval	Installed	Required	Procedure
C	-	0	



NOTE: Attendant call and occupancy indications are considered NEF.



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- 27-03-01 FLT CONTROL SHUTOFF Valves**
- 27-03-02 FLT CONTROL SHUTOFF OFF Lights**
- 27-08-01 Control Surface Position Indicating System**
- 27-08-02 Flap Position Indicator System**
 - 27-08-02-01 Position Needles
- 27-09-01 Yaw Damper Stabilizer Trim Module (YSM)**
- 27-11-01 Aileron Trim System**
- 27-11-02 Outboard Aileron Lockout System**
 - 27-11-02-01 Indication System
- 27-21-01 Rudder Ratio Light**
- 27-21-03 Rudder Trim Indication System**
- 27-32-01 Stall Warning Test Systems**
- 27-41-01 Control Wheel Trim Switch Systems**
- 27-41-02 Horizontal Stabilizer Primary Trim Channels**
- 27-48-01 STAB TRIM Indicators**
- 27-51-01 Automatic Flap Load Relief Retraction System (Trailing Edge)**
 - 27-51-01-01 (Actuator Rod End Down)
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- 27-61-01 Speed Brake Load Alleviation System**
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 - 27-62-01-01 Without Speed Brake Load Alleviation System Installed
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- 27-62-02 Speedbrake Caution Indication System**
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- 27-81-01 Leading Edge Slat Skew/Loss Detection System**



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27-03-01 FLT CONTROL SHUTOFF Valves

Interval	Installed	Required	Procedure
C	6	0	(M)

May be inoperative open.

MAINTENANCE (M)

Confirm the affected valve is open (AMM 27-00-00/901):

1. Supply hydraulic pressure for only the hydraulic system that has the inoperative FLT CONTROL SHUTOFF valve.
2. Displace the control column or control wheel, as appropriate.
3. Confirm flight control deflection on EICAS.

**27-03-02 FLT CONTROL SHUTOFF OFF Lights**

Interval	Installed	Required	Procedure
C	6	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 (AMM 27-00-00/901).

1. Establish communications between the flight deck and ground or an observer (EICAS control surface position may also be used).
2. Supply hydraulic pressure for only the hydraulic system that has the inoperative FLT CONTROL SHUTOFF OFF light.
3. As appropriate, perform the following procedure:
 - A. For L TAIL light inoperative:
 - 1) Move flight deck control column full aft, then full forward.
 - 2) Confirm both elevators up, then down.
 - B. For L WING light inoperative:
 - 1) Move flight deck control column full left.
 - 2) Observe left ailerons up and right outboard aileron down.
 - C. For C TAIL light inoperative:
 - 1) Move flight deck control column full aft, then full forward
 - 2) Confirm both elevators up, then down.
 - D. For C WING light inoperative:
 - 1) Move flight deck control column full left.
 - 2) Confirm left inboard aileron up and right inboard aileron down.
 - E. For R TAIL light inoperative:
 - 1) Move flight deck control column full aft, then full forward
 - 2) Confirm both elevators up, then down.
 - F. For R WING light inoperative:
 - 1) Move flight deck control column full right.
 - 2) Confirm right ailerons up, and left outboard aileron 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 (AMM 27-00-00/901).

1. Establish communications - flight deck to ground or an observer.
2. Supply hydraulic pressure (engines or electrically driven hydraulic pumps running).
3. Perform the following procedures and observations:
 - A. Control wheel full left:
 - 1) Confirm all left wing spoilers extend. The two inboard spoilers will extend approximately 20°. The four outboard spoilers will extend approximately 45°.
 - 2) Confirm left ailerons up, right ailerons down. Inboard aileron deflection will be approximately 21° up or down. Outboard aileron deflection will be approximately 30° up and 15° down.
 - B. Control wheel full right:
 - 1) Confirm all right wing spoilers extend. The two inboard spoilers will extend approximately 20°. The four outboard spoilers will extend approximately 45°.
 - 2) Confirm right ailerons up, left ailerons down. Inboard aileron deflection will be approximately 21° up or down. Outboard aileron deflection will be approximately 30° up and 15° down.
 - C. Control column full aft, then full forward:
 - 1) Confirm both elevators up, then down. Elevator trailing edge deflection will be approximately 28° up and 20° down.
 - D. Push pedals for full left rudder, then full right rudder:
 - 1) Confirm rudder moves left, then right. Rudder deflection will be approximately 26° left or right.



Section 2

27-08-02 Flap Position Indicator System

27-08-02-01 Position Needles

Interval	Installed	Required	Procedure
C	2	1	

**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)

Confirm the remaining yaw damper operates normally (AMM 27-00-00/901).

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 (AMM 27-00-00/901).

1. Confirm aileron positioning on the lower EICAS display.
2. For aileron trim system centered, open and collar the P11 panel AILERON TRIM circuit breaker to prevent system movement.
3. For aileron trim system not centered, install a dummy link to center the system:
 - A. Remove the aileron trim actuator.
 - B. Cap and secure the electrical connector.
 - C. Align rig pin holes A-6 and install the rigging pin.
 - D. Install aileron trim actuator dummy link, part number A27088-18 or equivalent.
 - E. Remove the rigging pin from pin holes A-6.


27-11-02 Outboard Aileron Lockout System

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

May be inoperative unlocked provided maximum airspeed is limited to 270 KIAS or 0.73 Mach, whichever is less.

MAINTENANCE (M)

Deactivate the aileron lockout actuators and verify the outboard ailerons are unlocked (AMM 27-00-00/901).

1. Open and collar the following P11 panel circuit breakers:
 - A. AILERON LOCKOUT, LEFT
 - B. AILERON LOCKOUT, RIGHT
2. Select STATUS on the EICAS DISPLAY panel to display the flight controls position indications.
3. Turn the control wheel to its full clockwise position and do these checks:
 - A. Confirm the control wheel moves smoothly through its full travel range.
 - B. Confirm the two left ailerons move down and the two right ailerons move up.
 - C. Confirm the ailerons move smoothly through their full travel range.
4. Turn the control wheel to its full counterclockwise position and do these checks:
 - A. Confirm the control wheel moves smoothly through its full travel range.
 - B. Confirm the two left ailerons move up and the two right ailerons move down.
 - C. Confirm the ailerons move smoothly through their full travel range.

OPERATIONS (O)

Avoid large or abrupt aileron control inputs above maximum flap extension speed. Exercise caution to prevent excessive roll response.

27-11-02 Outboard Aileron Lockout System
27-11-02-01 Indication System

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



May be inoperative provided aileron lockout system is verified to operate normally before each departure.

MAINTENANCE (M)

Before each departure verify the aileron lockout system operates normally (AMM 27-00-00/901).

1. Supply hydraulic pressure for the left, center, and right hydraulic systems.
2. Select STATUS on the EICAS DISPLAY panel to display the flight controls position indications.
3. Turn the control wheel to full left or right.
4. Confirm the outboard ailerons indicate full movement.
5. Press the P61 TEST panel L(R) AIR DATA COMPTR switch for 2 to 3 seconds.
6. Confirm the outboard aileron indication moves to neutral.
7. After approximately 35 seconds, confirm the outboard aileron indication moves back to full movement position corresponding to the control wheel.

OPERATIONS (O)

Avoid large or abrupt aileron control inputs above maximum flap extension speed. Exercise caution to prevent excessive roll response.

**27-21-01 Rudder Ratio Light**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative off provided:

- a. RUDDER RATIO message on EICAS is verified to operate normally.
- b. Both control channels operate normally.

MAINTENANCE (M)

Verify the RUDDER RATIO advisory message operates normally (AMM 27-00-00/901).

For airplanes with Rudder Ratio Changer Module:

1. Do the Test Rudder Ratio Flight Deck Annunciation check within the System Test - Rudder and Rudder Trim Control task.
2. Ignore steps regarding the RUDDER RATIO light.
3. Confirm steps regarding the RUDDER RATIO advisory message.

For airplanes with Yaw Damper/Stabilizer Trim Module (YSM):

1. Do the Test Rudder System with Single Hydraulic Source check within the Operational Test - Rudder and Rudder Trim Control System task.
2. Ignore steps regarding the RUDDER RATIO light.
3. Confirm steps regarding the RUDDER RATIO advisory message.
4. Confirm both EICAS computers display the RUDDER RATIO advisory message.
 - A. Set the EICAS COMPUTER selector to L.
 - B. Confirm the RUDDER RATIO advisory message is annunciated.
 - C. Set the EICAS COMPUTER selector to R.
 - D. Confirm the RUDDER RATIO advisory message is annunciated.

**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)

Before each departure verify rudder trim is centered (AMM 27-00-00/901).

1. Supply electrical power.
2. Supply hydraulic pressure.
3. Select STATUS on the EICAS DISPLAY panel to display the flight controls position indications.
4. Rotate the rudder trim control to NOSE LEFT.
 - A. On the captain's and first officer's sides, confirm the left rudder pedals move forward and the right rudder pedals move aft.
 - B. Confirm the rudder position status display indicates rudder moving to the left.
5. Rotate the rudder trim control to NOSE RIGHT.
 - A. On the captain's and first officer's sides, confirm the left rudder pedals move aft and the right rudder pedals move forward.
 - B. Confirm the rudder position status display indicates rudder moving to the right.
6. Return rudder trim to the neutral position by rotating the rudder trim control as required until the rudder pedals are aligned and the rudder position indication on EICAS shows the 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 (AMM 27-00-00/901).

[For airplanes with advance stall warning computers \(part number 285T1104-XX\):](#)

1. Check the Warning Electronics Unit (WEU) bite module on the P51 panel for fault indication.
 - A. For fault code displayed, perform maintenance.
 - B. For no board faults or interface anomalies, the airframe configuration code and option code will be displayed.
 - C. For stall warning test still fails, proceed with step 2.
2. Confirm the trailing edge flaps and leading edge slats are fully retracted with flap lever in zero (flaps up) detent.
3. Supply electrical power.
4. Supply center hydraulic system pressure.
5. Set the flap lever in the 25 unit detent and confirm the flaps and slats extend.
6. Confirm the left and right angle-of-attack vanes are parallel to the ground.
7. Provide a pressure source to pressurize the upper left and upper right pitot static probes to 150 knots (0.55 psig regulated air pressure).
8. Confirm the left stall warning system is operates normally:
 - A. Open the following circuit breakers:
 - 1) P6 panel, PROBE HT, L AOA
 - 2) P11 panel, 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.
 - D. Rotate the left AOA vane to the original position, and confirm the left stick shaker stops shaking.
 - E. Close the open circuit breakers.



9. Confirm the right stall warning system operates normally:
 - A. Open the following circuit breakers:
 - 1) P6 panel, PROBE HT, R AOA
 - 2) P11 panel, LDG GR POS AIR/GND SYS 2
 - 3) P11 panel, GR POS AIR/GND SYS 2 ALT (if installed)
 - 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.
 - D. Rotate the right AOA vane to the original position, and confirm the right stick shaker stops shaking.
 - E. Close the open circuit breakers.
10. Set the flap lever in the UP detent and confirm the flaps and slats retract.
11. Confirm the stick nudger system operates normally:
 - A. Open the following circuit breakers:
 - 1) P6 panel, PROBE HT, L AOA
 - 2) P6 panel, PROBE HT, R AOA
 - 3) P11 panel, AIR/GND SYS 1
 - 4) P11 panel, LDG GR POS AIR/GND SYS 2
 - 5) P11 panel, GR POS AIR/GND SYS 2 ALT (if installed)
 - B. Confirm the left and right AOA vanes are cool enough to touch.
 - C. Rotate the left AOA vane counterclockwise and the right AOA vane clockwise (both trailing edges up) approximately 20 degrees:
 - 1) Confirm both control columns move forward and remain forward.
 - 2) Confirm both stick shakers activate.
 - D. Rotate the left (or right) AOA vane to the original position:
 - 1) Confirm both control columns return to the original centered position.
 - 2) Confirm the left (or right) stick shaker stops.
 - 3) Confirm the right (or left) stick shaker continues to shake both columns.
 - E. Rotate the remaining AOA vane to the original position and confirm the stick shaker stops shaking.
 - F. Close the open circuit breakers.

**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 (AMM 27-00-00/901).

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 STCM 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:

- Horizontal stabilizer trim operates normally using stabilizer trim levers (alternate stabilizer trim switches).
 - Approach minimums do not require use of three autopilots.
 - No arm or control valves are failed in energized position.
 - Associated autopilot is not used.
-

MAINTENANCE (M)

Confirm horizontal stabilizer trim operates normally using the stabilizer trim levers (or electric alternate stabilizer trim switches), and confirm no arm or control valve is failed in the energized position (AMM 27-00-00/901).

- Supply electrical power.
- Supply left and center hydraulic system power.
- Confirm the following P11 panel circuit breakers are closed:
 - SHUT OFF VALVE, STAB TRIM, LEFT
 - SHUT OFF VALVE, STAB TRIM, C
- Set the left stabilizer cutout switch on the control stand to NORM and the center stabilizer cutout switch to CUTOUT.
 - Move either the captain's or the first officer's stabilizer trim control switches on the control wheel up and down. If the stabilizer does not move as commanded, the left stabilizer trim control module is inoperative.
 - Move both stabilizer manual trim levers (or electric alternate trim switches) on the control stand full forward and full aft. Confirm the stabilizer leading edge moves up and down.
- Set the left stabilizer cutout switch to CUTOUT and the center stabilizer cutout switch to NORM.
 - Move either the captain's or the first officer's stabilizer trim control switches on the control wheel up and down. If the stabilizer does not move as commanded, the right stabilizer trim control module is inoperative.
 - Move both stabilizer manual trim levers (or electric alternate trim switches) on the control stand full forward and full aft, and confirm the stabilizer leading edge moves up and down.
- Set the left stabilizer cutout switch to NORM.



7. 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.
8. 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.
9. Placard the autopilot channel associated with the inoperative stabilizer trim control module (STCM) - DO NOT USE.

NOTE: It is not necessary to perform the MAINTENANCE steps for the associated 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 is reduced to half the normal rate. The STAB TRIM advisory message will illuminate during trimming.
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)**
27-51-01-01 (Actuator Rod End Down)

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative in normal (actuator extended) position provided flaps 30 are not used.

NOTE: Flaps 25 may be used to AFM limit maximum landing weight.

MAINTENANCE (M)

Confirm the automatic flap load relief actuator position (AMM 27-00-00/901).

1. Gain access to the actuator.
2. Confirm the actuator is in the extended (normal) position.
3. If needed, the actuator can be removed and replaced with a dummy link set per the following:
 - A. Cap and secure the electrical connector.
 - B. Remove the actuator.
 - C. Install dummy link set P/N A27107-1.

**27-51-01 Automatic Flap Load Relief Retraction System
(Trailing Edge)**
27-51-01-02 (Actuator Rod End Up)

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

May be inoperative in normal (actuator retracted) position provided flaps 25 and flaps 30 adjusted maximum landing weights are observed.

MAINTENANCE (M)

Confirm the automatic flap load relief actuator position (AMM 27-00-00/901).

1. Gain access to the actuator.
2. Confirm the actuator is in the retracted (normal) position.
3. If needed, the actuator can be removed and replaced with a dummy link set per the following.
 - A. Cap and secure the electrical connector.
 - B. Remove the actuator.
 - C. Install dummy link set P/N A27107-1.

**OPERATIONS (O)**

1. Adjust maximum landing weights as follows:
 - A. Flaps 30: 236,600 lb (107,320 kg)
 - B. Flaps 25: 257,400 lb (116,760 kg)

**27-61-01 Speed Brake Load Alleviation System***Effectivity: BOQ*

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

May be inoperative provided:

- Speedbrake handle forces are verified normal from full down to full up position.
- Airspeed does not exceed 290 KIAS, or .84 Mach, whichever is lower, when inflight gross weight is in excess of 340,000 pounds (154,545 kg).

MAINTENANCE (M)

Deactivate the speed brake autostow controller and verify speedbrake handle forces are normal (AMM Supplement 27-62-09/901).

- Supply electrical power.
- Confirm airplane is in GROUND mode.
- Open and collar the P6 panel SPDBRK AUTOSTOW circuit breaker.
- Open the P11 panel AUTO SPEED BRAKE circuit breaker.
- Set the speedbrake lever to UP and then back to DOWN. Confirm the speedbrake handle forces are normal throughout the range of motion.
- Gain access to the speedbrake autostow controller (SAC).
- Remove the airplane harness connector from the SAC and remove the cover from the adjacent test connector.
- Install the airplane harness connector on the adjacent test connector and install the test cover on the SAC connector.
- Close the P11 panel AUTO SPEED BRAKE circuit breaker.
- Confirm the AUTO SPDBRK light is extinguished.

OPERATIONS (O)

Do not exceed 290 KIAS, or .84 Mach, whichever is lower, when in-flight gross weight is in excess of 340,000 lb (154,545 kg).


27-62-01 Auto Speed Brake System
27-62-01-01 Without Speed Brake Load Alleviation System Installed

Effectivity: BPT, BRA, BMU, BMQ, BWX, BWW

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

May be inoperative provided:

- a. System is deactivated.
- b. AFM decrements are applied if landing performance requires use of auto speed brakes.

MAINTENANCE (M)

Deactivate the auto speedbrake system (AMM 27-00-00/901).

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 With Speed Brake Load Alleviation System Installed

Effectivity: VP-BOQ

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

May be inoperative provided:

- a. System is deactivated.
- b. Speedbrake handle forces are verified normal from full down to full up position.



- c. AFM decrements are applied if landing performance requires use of auto speed brakes.
 - d. Airspeed does not exceed 290 KIAS, or .84 Mach, whichever is lower, when inflight gross weight is in excess of 340,000 pounds (154,545 kg).
-

MAINTENANCE (M)

Deactivate the speed brake autostow controller and the auto speedbrake system (AMM Supplement 27-62-09/901).

- 1. Supply electrical power.
- 2. Confirm airplane is in GROUND mode.
- 3. Open and collar the following circuit breakers:
 - A. P6 panel SPDBRK AUTOSTOW.
 - B. P11 panel AUTO SPEED BRAKE
- 4. Place tape over the AUTO SPDBRK light or remove the bulb.
- 5. Set the speedbrake lever to UP and then back to DOWN. Confirm the speedbrake handle forces are normal throughout the range of motion.
- 6. Gain access to the speedbrake autostow controller (SAC).
- 7. Remove the airplane harness connector from the SAC and remove the cover from the adjacent test connector.
- 8. Install the airplane harness connector on the adjacent test connector and install the test cover on the SAC connector.

OPERATIONS (O)

- 1. Do not exceed 290 KIAS, or .84 Mach, whichever is lower, when inflight gross weight is in excess of 340,000 lb (154,545 kg).
- 2. For airplanes certified based on landing field length credit for auto speedbrakes, use AFM penalties for manual speedbrake operation.
- 3. 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 (AMM 27-00-00/901).

For AUTO SPDBRK light inoperative:

1. Open the P11 panel AUTO SPEED BRAKE circuit breaker.
2. Confirm the AUTO SPEEDBRAKE advisory message shows on the top EICAS display.
3. Check left and right EICAS sources:
 - A. Set the COMPUTER selector to L and confirm the AUTO SPEEDBRAKE advisory message shows on the top EICAS display.
 - B. Set the P9 panel COMPUTER selector to R and confirm the AUTO SPEEDBRAKE advisory message shows on the top EICAS display.
 - C. Set the COMPUTER selector to AUTO.
4. Close the open circuit breaker.
5. Confirm the AUTO SPEEDBRAKE advisory message is not displayed on the top EICAS display.

For SPOILERS light inoperative:

1. Set the COMPUTER selector to R.
2. Open the following P11 panel circuit breakers:
 - A. FLT CONT ELEC 1L AC
 - B. FLT CONT ELEC 2L AC
3. Confirm the amber SPOILERS advisory message is displayed on the upper EICAS screen.
4. Close the open circuit breakers.
5. Confirm the amber SPOILERS advisory message is not displayed on the upper EICAS screen.
6. Set the COMPUTER selector to L.
7. Open the following P11 panel circuit breakers:
 - A. FLT CONT ELEC 1R AC
 - B. FLT CONT ELEC 2R AC
8. Confirm the amber SPOILERS advisory message is displayed on the upper EICAS screen.
9. Set the COMPUTER selector to AUTO.



10. Confirm the amber SPOILERS advisory message remains displayed on the upper EICAS screen.
11. Close the open circuit breakers.
12. Confirm the amber SPOILERS advisory message is not displayed on the upper EICAS screen.

For STAB TRIM light inoperative:

1. Supply electrical power.
2. Supply hydraulic pressure to the left and center hydraulic systems.
3. Confirm the following P11 panel circuit breakers are closed:
 - A. STAB TRIM, CONT, LEFT
 - B. STAB TRIM CONTROL, RIGHT
 - C. SHUT OFF VALVE, STAB TRIM, LEFT
 - D. SHUT OFF VALVE, STAB TRIM, C
 - E. STAB TRIM POSITION IND, LEFT
 - F. STAB TRIM POSITION IND, RIGHT
 - G. STAB TRIM ALTN (if installed)
4. Set the stabilizer between 4 and 14 units.
5. Set the P61 panel FLT CONTROL SHUTOFF L TAIL switch ON.
6. Set the P61 panel FLT CONTROL SHUTOFF C TAIL switch ON.
7. Set the EICAS COMPUTER selector to L.
8. Set the C STAB TRIM switch to NORM.
9. Set the L STAB TRIM switch to CUTOUT.
10. Trim the stabilizer in the airplane nose down direction with the wheel mounted thumb switches and confirm the STAB TRIM advisory message displays on the upper EICAS screen.
11. Set the L STAB TRIM switch to NORM.
12. Trim the stabilizer in the airplane nose down direction with the wheel mounted thumb switches and confirm the STAB TRIM advisory message does not display on the upper EICAS screen.
13. Set the EICAS COMPUTER selector to AUTO.

**27-81-01 Leading Edge Slat Skew/Loss Detection System**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative deactivated provided leading edge slat system is verified to operate normally.

MAINTENANCE (M)

Verify the leading edge slat system operates normally (AMM 27-00-00/901).

1. Remove the inoperative leading edge slat skew/loss detection cable as necessary.
2. Confirm the leading edge slat system operates normally:
 - A. Confirm TE flaps and LE slats are fully retracted.
 - B. Confirm the flap lever is in the zero (FLAPS UP) detent.
 - C. Supply electrical power.
 - D. Supply center hydraulic system pressure.
 - E. Set the flap lever in the 1 unit detent. Confirm the LE slats extend to the intermediate position, and the TE flaps remain fully retracted.
 - F. Set the flap lever in the 20 unit detent. Confirm the TE flaps extend to the intermediate position.
 - G. Set the flap lever in the 30 unit detent. Confirm the TE flaps and the LE slats move to the fully extended position.
 - H. Set the flap lever to the 20 unit detent. Confirm the TE flaps and the LE slats retract to the intermediate position.
 - I. Set the flap lever in the 5 unit detent. Confirm the TE flaps retract to the 5 unit detent position and the LE slats remain in the intermediate position.
 - J. Set the flap lever in the zero (FLAPS UP) detent. Confirm the TE flaps move to the fully retracted position and then the LE slats move to the fully retracted position.



Intentionally
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28-11-01 Sump Drain Valves

28-21-01 Pressure Fueling System

28-21-01-01 Fuel Shutoff Valves

28-21-01-01A *Inoperative Closed*

28-21-01-01B *Inoperative Open*

28-21-02 Fueling Receptacle Cap

28-22-01 Main Tank Fuel Pumps

28-22-01-01 Automatic Function of Left FWD Pump

28-22-02 Center Tank Fuel Pumps

28-22-02A *One Inoperative, Center Tank Fuel Used*

28-22-02B *Center Tank Remains Empty*

28-22-02-01 Override/Jettison pump (SB 767-28-0062)

28-22-03 Dual Fuel Crossfeed Valves

28-22-03A *Except ER Operations*

28-22-03B *ER Operations Allowed*

28-22-04 Center Tank Float Operated Shutoff Valves

28-22-05 Automatic Shut Off System

28-22-05A *Center Tank Fuel Pump Considered Inoperative*

28-22-05B *Center Tank Remains Empty*

28-22-05-01 Not Subject to Airworthiness Directive 2001-15-08

28-22-05-02 Subject to Airworthiness Directive 2001-15-08

28-25-01 APU (DC) Fuel Pump

28-25-02 APU Fuel Shutoff Valve

28-25-03 APU Fuel Isolation Valve

28-26-01 Defuel Valves

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28-11-01 Sump Drain Valves

Interval	Installed	Required	Procedure
C	8	7	(M)

One may be inoperative closed.

MAINTENANCE (M)

Confirm there is no unacceptable leakage and take precautions to prevent fuel contamination (AMM 28-00-00/901).

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.
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 (AMM 28-00-00/901).

NOTE: The auto overfill system may be overridden with the overfill reset switch.

1. Use individual components of the pressure fuel system that operate to refuel.
2. For the entire system inoperative, use overwing fueling.
3. For the automatic function of fuel shutoff valves inoperative, use manual operation.

28-21-01 Pressure Fueling System
28-21-01-01 Fuel Shutoff Valves
28-21-01-01A Inoperative Closed

Interval	Installed	Required	Procedure
C	6	0	(M)

May be inoperative closed.

MAINTENANCE (M)

Open the fueling shutoff valve and fuel the airplane in accordance with established procedures (AMM 28-00-00/901).

1. Gain access to the inoperative fueling shutoff valve.
2. Remove the lockwire on the override thumbscrews.
3. Open the fueling shutoff valve.
4. Fuel the airplane in accordance with established procedures.
5. Close the fueling shutoff valve.
6. Replace the lockwire on the override thumbscrews.



28-21-01 Pressure Fueling System

28-21-01-01 Fuel Shutoff Valves

28-21-01-01B Inoperative Open

Interval	Installed	Required	Procedure
C	6	0	(M)

May be inoperative open if fuel jettison system is deactivated or not installed.

MAINTENANCE (M)

Secure nozzle valves closed and jettison transfer valves closed using MEL Item 28-31-03 (M) procedure.



28-21-02 Fueling Receptacle Cap

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative or missing provided no leakage can be detected after refueling is complete.


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. Following minimum fuel quantities are retained in affected tank for flight condition shown: Takeoff 10,000 lb (4540 kg), Landing 5000 lb (2270 kg)

MAINTENANCE (M)

Deactivate the inoperative pump (AMM 28-00-00/901).

1. Set the affected fuel pump switch to OFF.
2. Open and collar the associated P6 panel circuit breaker:
 - A. FUEL BOOST PUMP, L AFT
 - B. FUEL BOOST PUMP, L FWD
 - C. FUEL BOOST PUMP, R AFT
 - D. FUEL BOOST PUMP, R FWD

OPERATIONS (O)

1. Flight must remain within 120 minutes of landing at a suitable airport.
2. Ensure MEL minimum fuel quantities are available for takeoff and landing.
3. 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.
4. The landing minimum fuel quantity must be considered unusable.

**28-22-01 Main Tank Fuel Pumps****28-22-01-01 Automatic Function of Left FWD Pump****ETOPS**

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 ON.


28-22-02 Center Tank Fuel Pumps
28-22-02A One Inoperative, Center Tank Fuel Used
ETOPS

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.
- One crossfeed valve is open prior to takeoff and remains open until center tank pump is selected OFF.
- Affected pump is deactivated.

MAINTENANCE (M)

Deactivate the inoperative pump (AMM 28-00-00/901).

- Set the inoperative fuel pump switch to OFF.
- Open and collar the associated P6 panel circuit breaker:
 - FUEL OVRD PUMP, LEFT
 - FUEL OVRD PUMP, RIGHT

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 XFEED switch off.

28-22-02 Center Tank Fuel Pumps
28-22-02B Center Tank Remains Empty
ETOPS

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.
 - Affected pumps are deactivated.
-

MAINTENANCE (M)

Verify the center tank is empty before each refueling, and deactivate the inoperative pumps (AMM 28-00-00/901).

- Confirm the center tank is empty using the P5 panel fuel quantity indicator or the P28 fueling control panel indicator.
- Set the inoperative fuel pump switch to OFF.
- Open and collar the associated P6 panel circuit breaker:
 - FUEL OVRD PUMP, LEFT
 - FUEL OVRD PUMP, RIGHT

28-22-02 Center Tank Fuel Pumps

28-22-02-01 Override/Jettison pump (SB 767-28-0062)

ETOPS

Effectivity: ALL

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided:

- Center tank remains empty.
 - Center tank scavenge system is installed and operates normally.
 - Center tank fuel pumps are deactivated.
-

MAINTENANCE (M)

Deactivate the center tank fuel pumps (AMM 28-00-00/901).

- Set the center tank fuel pump switches to OFF.
- Open and collar the following P6 panel circuit breakers:
 - FUEL OVRD PUMP, LEFT
 - FUEL OVRD PUMP, RIGHT


28-22-03 Dual Fuel Crossfeed Valves
28-22-03A Except ER Operations
ETOPS

Interval	Installed	Required	Procedure
C	2	1	(M)

Except for ER operations, one may be inoperative provided:

- a. Affected valve is secured closed.
- b. Remaining valve operates normally.

MAINTENANCE (M)

Deactivate and secure the affected valve in the closed position (AMM 28-00-00/901).

1. Open and collar the associated P11 panel circuit breaker:
 - A. FWD FUEL CROSSFEED VALVE
 - B. AFT FUEL CROSSFEED VALVE
2. Gain access to the inoperative fuel crossfeed valve actuator.
3. Rotate the valve manual override lever to the closed position.
4. Lockwire the valve lever in the closed position.
5. Remove, cap, and stow the electrical connector.
6. Position an observer on an elevated platform to observe the operative crossfeed valve.
7. Supply electrical power.
8. Do the following steps several times to confirm valve operation:
 - A. Set the operative 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.

28-22-03 Dual Fuel Crossfeed Valves
28-22-03B ER Operations Allowed
ETOPS

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

One may be inoperative provided:

- a. Affected valve is secured closed.
- b. Remaining valve operates normally.
- c. Remaining valve is exercised during last hour of flight.

**MAINTENANCE (M)**

Deactivate and secure the affected valve in the closed position (AMM 28-00-00/901).

1. Open and collar the associated P11 panel circuit breaker:
 - A. FWD FUEL CROSSFEED VALVE
 - B. AFT FUEL CROSSFEED VALVE
2. Gain access to the inoperative fuel crossfeed valve actuator.
3. Rotate the valve manual override lever to the closed position.
4. Lockwire the valve lever in the closed position.
5. Remove, cap, and stow the electrical connector.
6. Position an observer on an elevated platform to observe the operative crossfeed valve.
7. Supply electrical power.
8. Do the following steps several times to confirm valve operation:
 - A. Set the operative 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.

OPERATIONS (O)

During the last hour of cruise on all ETOPS flights, exercise the operative valve:

NOTE: For VALVE light inoperative, use the associated FWD(AFT) FUEL XFEED advisory message in lieu of the VALVE light.

1. Set the FUEL XFEED switch on. Confirm the VALVE light illuminates and extinguishes.
2. Set the FUEL XFEED switch off. Confirm the VALVE light illuminates and extinguishes.



28-22-04 Center Tank Float Operated Shutoff Valves

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided center tank remains empty.


28-22-05 Automatic Shut Off System
28-22-05A Center Tank Fuel Pump Considered Inoperative

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated center tank fuel pump is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 28-22-02.

28-22-05 Automatic Shut Off System
28-22-05B Center Tank Remains Empty

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided center tank remains empty.

28-22-05 Automatic Shut Off System
28-22-05-01 Not Subject to Airworthiness Directive 2001-15-08

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative.

28-22-05 Automatic Shut Off System
28-22-05-02 Subject to Airworthiness Directive 2001-15-08

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative with center tank fueled provided:

- Center tank fuel pump low PRESS lights operate normally.
- Center tank quantity indication operates normally.
- Center tank pumps are OFF for takeoff if center tank fuel is less than 5000 lb (2300 kg) with airplane readied for initial taxi.
- Center tank fuel pumps are repositioned ON above 10,000 feet or after pitch attitude has been reduced to begin acceleration to climb speed, if more than 1000 lb (500 kg) remain in the center tank.



- e. Both center tank fuel pumps are positioned OFF at first indication of fuel pump low pressure.
 - f. Both center tank pumps are selected OFF when center tank fuel quantity reaches 1000 lb (500 kg) of fuel during climb, cruise or descent.
 - g. In cruise and only when required to extinguish the FUEL CONFIG light and EICAS FUEL CONFIG message, both center tank pumps are selected OFF when center tank fuel quantity reaches 800 lb (400 kg) of fuel.
 - h. For airplanes not equipped with a scavenge system, 1000 lb (500 kg) of center tank fuel is considered unusable.
-

NOTE: The Automatic Shut Off System (Service Bulletin 767-28A0083 or production equivalent installed) is an Alternative Method Of Compliance (AMOC) to the requirements of paragraphs (b) (1), (b) (2), (b) (3), (b) (4), (c) (1), (c) (2), (c) (3), and (c) (4) of AD 2001-15-08. All provisions of AD 2001-15-08 that are not specifically referenced in the above statement remain fully applicable and must be complied with.

OPERATIONS (O)

1. Ensure compliance with AD 2001-15-08.
2. The FUEL CONFIG light will illuminate when there is fuel in the center tank that exceeds 1200 lb (600 kg) and the center tank fuel pump switches are OFF. Do not accomplish the associated non-normal procedure prior to or during takeoff with less than 5000 lb (2300 kg) of center tank fuel, unless there is an imbalance between main tanks or fuel is low in either main tank. After canceling the FUEL CONFIG light, monitor fuel quantity indications and accomplish the appropriate non-normal procedure if a main tank imbalance or main tank low fuel quantity occurs.

**28-25-01 APU (DC) Fuel Pump**

ETOPS

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative deactivated provided both left fuel tank boost pumps operate normally when APU is required for dispatch.

MAINTENANCE (M)

Deactivate the APU (DC) fuel pump (AMM 28-00-00/901).

1. Open and collar the P11 panel FUEL DC PUMP PWR circuit breaker.



28-25-02 APU Fuel Shutoff Valve

ETOPS

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)

NOTE: Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.

Deactivate and secure the valve in the closed position (AMM 28-00-00/901).

- 1. Open and collar the P6 panel APU FUEL VALVE circuit breaker.
- 2. Gain access to the APU fuel shutoff actuator.
- 3. Close the valve using the manual override lever.
- 4. Lockwire the valve lever in the CLOSED position.
- 5. Remove, cap, and stow the electrical connector.

**28-25-03 APU Fuel Isolation Valve****ETOPS***Effectivity: BPT, BMQ, BWW, BWX, BDI*

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided valve is secured closed.

MAINTENANCE (M)

Deactivate and secure the valve in the closed position (AMM 28-00-00/901).

1. Open and collar the P11 panel FUEL DC PUMP CONT circuit breaker.
2. Gain access to the APU fuel isolation valve actuator.
3. Close the valve using the manual override lever.
4. Lockwire the valve lever in the CLOSED position.
5. Remove, cap, and stow the electrical connector.
6. Close the open circuit breaker.

**28-26-01 Defuel Valves**

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative closed.

MAINTENANCE (M)

Deactivate and secure the valve in the closed position (AMM 28-00-00/901).

1. Open and collar the following circuit breakers:
 - A. P34 panel, DEFUEL VALVES
 - B. P6 panel, DEFUEL VALVES
2. Deactivate the flaps and slats:
 - A. Depressurize right and center hydraulic systems .
 - B. Open the P6 panel ALT FLAP PWR circuit breaker.
3. Gain access to the inoperative defueling valve.
4. Rotate the valve manual override lever to the CLOSED position.
5. Remove, cap and stow the electrical connector.
6. Activate the flaps and slats.
 - A. Pressurize right and center hydraulic systems.
 - B. Close the P6 panel ALT FLAP PWR circuit breaker.

**28-31-03 Fuel Jettison System**

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

May be inoperative provided:

- a. Jettison nozzle valves are secured closed.
 - b. Jettison transfer valves are secured closed.
-

MAINTENANCE (M)

Deactivate and secure the jettison nozzle valves and the jettison transfer valves in the closed position (AMM 28-00-00/901).

1. Secure the jettison nozzle valves closed:
 - A. Deactivate the trailing edge flaps.
 - B. Open and collar the following P11 panel circuit breakers:
 - 1) JTSN NOZZLE VALVE-LEFT
 - 2) JTSN NOZZLE VALVE-RIGHT
 - C. Gain access to the nozzle valve actuator.
 - D. Move the manual override handle on the actuator to the CLOSED position.
 - E. Lockwire the valve lever in the CLOSED position.
 - F. Activate the trailing edge flaps.
2. Secure the jettison transfer valves closed:
 - A. Install the landing gear door locks .
 - B. Open and collar the following P11 panel circuit breakers:
 - 1) FUEL JTSN CONT-LEFT
 - 2) FUEL JTSN CONT-RIGHT
 - C. Gain access to the jettison transfer valve.
 - D. Move the manual override handle on the actuator of the transfer valve to the CLOSED position.
 - E. Lockwire the valve lever in the CLOSED position.
 - F. Remove the landing gear door locks.

OPERATIONS (O)

1. Overweight landings may be safely accomplished by using normal landing procedures and techniques.
2. There are no adverse handling characteristics associated with heavier-than-normal landing weights.
3. Boeing does not recommend overweight autoland.
4. Refer to the Boeing Flight Crew Training Manual for further information concerning Overweight Landing and/or Overweight Autoland Policy.

**28-31-03 Fuel Jettison System****28-31-03-01 Center Tank Jettison Pumps**

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

May be inoperative provided both center tank fuel pumps operate normally if center tank is used.

MAINTENANCE (M)

Deactivate the inoperative center tank jettison pump (AMM 28-00-00/901).

1. Open and collar the associated circuit breaker:
 - A. P36 panel, FUEL JTSN PUMP-LEFT
 - B. P37 panel, FUEL JTSN PUMP-RIGHT

OPERATIONS (O)

1. With center tank jettison pumps inoperative and both center tank fuel pumps operative, fuel jettison capability remains available at 50% normal jettison rate.
2. Overweight landings may be safely accomplished by using normal landing procedures and techniques.
3. There are no adverse handling characteristics associated with heavier than normal landing weights.
4. Boeing does not recommend overweight autolands.
5. Refer to the Boeing Flight Crew Training Manual for further information concerning Overweight Landing and/or Overweight Autolands Policy.


28-40-01 Crossfeed VALVE Light(s)
28-40-01-01 Single VALVE Installation
ETOPS

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 (AMM 28-00-00/901).

- Open and deactivate the left main gear doors.
- Gain access to the crossfeed valve actuator.
- Position an observer on an elevated platform to observe valve operation.
- Supply electrical power.
- 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.
- Close the left main gear doors.

28-40-01 Crossfeed VALVE Light(s)
28-40-01-02 Dual VALVE Installation
28-40-01-02-01A One Inoperative
ETOPS

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 (AMM 28-00-00/901).

- Open and deactivate the left main gear doors.
- Gain access to the associated crossfeed valve actuator.
- Position an observer on an elevated platform to observe valve operation.



4. Supply electrical power.
5. Do the following steps several times to confirm valve operation:
 - A. 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.
6. Close the left main gear doors.

28-40-01 Crossfeed VALVE Light(s)**28-40-01-02 Dual VALVE Installation****28-40-01-02-01B Both Inoperative****ETOPS**

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 (AMM 28-00-00/901).

1. Open and deactivate the left main gear doors.
2. Gain access to the crossfeed valve actuators.
3. Position an observer on an elevated platform to observe valve operation.
4. Supply electrical power.
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.
6. Close the left main gear doors.

**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)

Verify the spar valve operates normally once each flight day (AMM 28-00-00/901).

1. Confirm operation of the spar valve without gaining access to the valve:
 - A. Start the associated engine.
 - B. Open the associated P11 panel circuit breaker:
 - 1) L ENG FUEL CONT VLV
 - 2) R ENG FUEL CONT VLV
 - 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.
2. Confirm operation of the spar valve without running the engines:
 - A. Deactivate the flaps and slats:
 - 1) Depressurize the right and center hydraulic systems.
 - 2) Open the P6 panel ALT FLAP PWR circuit breaker.
 - B. Gain access to the associated spar valve.
 - C. Open the associated P11 panel circuit breakers:
 - 1) Left engine:
 - a. L ENG FUEL CONT VLV
 - b. IGNITION 1, LEFT ENG
 - c. IGNITION 2, LEFT ENG
 - d. STANDBY IGNITION 1
 - e. STANDBY IGNITION 2
 - 2) Right engine:
 - a. R ENG FUEL CONT VLV
 - b. IGNITION 1, RIGHT ENG
 - c. IGNITION 2, RIGHT ENG
 - d. STANDBY IGNITION 1
 - e. STANDBY IGNITION 2
 - D. Position a ground observer to view the spar valve and do the following:
 - 1) Set the FUEL CONTROL switch on the control stand to RUN.

-
- 2) Confirm movement of the manual override lever to the OPEN position.
 - 3) Pull the respective fire handle and then push the handle back to the stored position.
 - 4) Confirm the valve actuator manual override lever moves from the OPEN position to the CLOSED position and then back to OPEN.
 - 5) Set the FUEL CONTROL switch on the control stand to CUTOFF.
 - 6) Confirm movement of the manual override lever to the CLOSED position.
- E. Activate flaps and slats.
- 1) Pressurize the right and center hydraulic systems.
 - 2) Close the ALT FLAP PWR circuit breaker.
- F. Close the associated circuit breakers:
- 1) Left engine:
 - a. L ENG FUEL CONT VLV
 - b. IGNITION 1, LEFT ENG
 - c. IGNITION 2, LEFT ENG
 - d. STANDBY IGNITION 1
 - e. STANDBY IGNITION 2
 - 2) Right engine:
 - a. R ENG FUEL CONT VLV
 - b. IGNITION 1, RIGHT ENG
 - c. IGNITION 2, RIGHT ENG
 - d. STANDBY IGNITION 1
 - e. STANDBY IGNITION 2


28-41-01 Fuel Tank Quantity Indication Systems (Flight Deck)
28-41-01-01 Main Tank Indicators
ETOPS

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

Except for ER operations, one may be inoperative provided:

- a. Fuel quantity in associated tank is verified by an alternate procedure.
[For non-PIP and non-Pegasus FMC:](#)
- b. Both EICAS computers operate normally.
- c. Fuel flow indications operate normally.
- d. FMC FUEL is initialized with known total fuel quantity.
- e. Procedures to identify and contain an inflight engine fuel leak are used.
- f. All main tank boost pumps operate normally.
- g. Fuel pump low PRESS lights for associated tank operate normally.
[For Pegasus FMC with operational program software part number 3418-HNP-02C-08 or earlier:](#)
- h. Thrust management system operates normally.
- i. Center tank remains empty.

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 (AMM 28-00-00/901).

1. Do one of the following procedures:
 - A. For associated tank P28 (or P41) 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 document (D345T0XX-X) 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. 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. Flight must remain within 60 minutes of landing at a suitable airport.
2. Total fuel quantity indication will be blank.
3. Manually initialize FMC FUEL with a known total fuel quantity.
4. Operate the flight with fuel crossfeed valves closed (unless directed otherwise below).
5. Compare FMC CALCULATED fuel with the flight plan fuel remaining at each way-point or fix for which predicted fuel use is available.
6. FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
7. Monitor fuel usage for any unusual decrease in fuel quantity and/or a fuel imbalance.
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 2000 lb/hr (900 kg/hr) or more should be considered a fuel leak.

NOTE: FUEL CONFIG advisory message or light may not display for a fuel imbalance condition when left or right FQIS is inoperative.
 - D. Excessive lateral trim - at cruise conditions, an imbalance of 4000 lb (1816 kg) will require approximately one unit of aileron trim 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 and conditions permit, shutdown the affected engine to stop the leak. After engine shutdown, all remaining fuel may be used for the operating engine.


28-41-01 Fuel Tank Quantity Indication Systems (Flight Deck)
28-41-01-02 Center Tank Indicator
ETOPS

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- Center tank remains empty.
- Center tank scavenge system is installed and operates normally.
- Center tank fuel pumps are deactivated.

NOTE: Also dispatch the airplane using MEL item 28-41-07.

MAINTENANCE (M)

Deactivate the center tank fuel pumps (AMM 28-00-00/901).

- Open and collar the following P6 panel circuit breakers:
 - FUEL OVRD PUMP, LEFT
 - FUEL OVRD PUMP, RIGHT
- Total fuel quantity indication will be blank.
- MEL 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
 - FQIS and 28-22-02 Center Tank Fuel Pumps
 - FQIS and 28-22-05 Automatic Shut Off System
 - FQIS and 28-40-01 Crossfeed VALVE Light(s)
 - FQIS and 28-41-02 Fuel Qty Processor Channels
 - FQIS and 73-31-01 Fuel Flow Indications

28-41-01 Fuel Tank Quantity Indication Systems (Flight Deck)
28-41-01-02 Center Tank Indicator
28-41-01-02-01 With Automatic Shut Off System
ETOPS

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

Except for ER operations, may be inoperative provided:

- Fuel quantity in center tank is verified by an alternate procedure.
- Fuel flow indications operate normally.
- FMC FUEL is initialized with known total fuel quantity.
- 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 1: Also dispatch the airplane using MEL item 28-41-07.

NOTE 2: The automatic shut off system (Service Bulletin 767-28A0083 or production equivalent installed) is an Alternative Method Of Compliance (AMOC) to the requirements of paragraphs (b) (1), (b) (2), (b) (3), (b) (4), (c) (1), (c) (2), (c) (3), and (c) (4) of AD 2001-15-08. All provisions of AD 2001-15-08 that are not specifically referenced in the above statement remain fully applicable and must be complied with.

MAINTENANCE (M)

Verify the fuel quantity in the center tank (AMM 28-00-00/901).

1. Do one of the following procedures:
 - A. For associated tank P28 (or P41) 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 document (D345T0XX-X) 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. MEL 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. Flight must remain within 60 minutes of landing at a suitable airport.
2. Total fuel quantity indication will be blank.
3. Manually initialize FMC FUEL with a known total fuel quantity.



4. Operate the flight with fuel crossfeed valves closed (unless directed otherwise below).
5. Compare FMC CALCULATED fuel with the flight plan fuel remaining at each way-point or fix for which predicted fuel use is available.
6. FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
7. Monitor fuel usage for any unusual decrease in fuel quantity and/or a fuel imbalance.
8. For operation with center tank fuel:
 - A. When center tank fuel is depleted, verify 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.
9. 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 2000 lb/hr (900 kg/hr) or more should be considered a fuel leak.
 NOTE: FUEL CONFIG advisory message or light may not display for a fuel imbalance condition when left or right FQIS is inoperative.
 - D. Excessive lateral trim - at cruise conditions, an imbalance of 4000 lb (1816 kg) will require approximately one unit of aileron trim 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.
10. If an engine fuel leak is confirmed and conditions permit, shutdown affected engine to stop the leak. After engine shutdown, all remaining fuel may be used for the operating engine.

28-41-01 Fuel Tank Quantity Indication Systems (Flight Deck)
28-41-01-03 Fuel Quantity Densitometers
28-41-01-03-01 Honeywell
ETOPS

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided affected densitometer(s) is deactivated.



MAINTENANCE (M)

Deactivate the affected densitometer (AMM 28-00-00/901).

- 1. Open the following circuit breakers:
 - A. P6 panel, FUELING QTY
 - B. P34 panel, FUEL QTY REFUEL
 - C. P11 panel, FUEL QTY #1
 - D. P11 panel, FUEL QTY #2
- 2. Open and deactivate the landing gear doors.
- 3. Gain access to the associated densitometer electronics unit (DEU).
- 4. Disconnect, cap and stow the electrical connector from the DEU.
- 5. Close the landing gear doors.
- 6. Close the open circuit breakers.

28-41-01 Fuel Tank Quantity Indication Systems (Flight Deck)

28-41-01-03 Fuel Quantity Densitometers

28-41-01-03-02 B.F. Goodrich (Simmonds)

ETOPS

Interval	Installed	Required	Procedure
C	3	0	


28-41-02 Fuel Quantity Processor Channels
28-41-02-01 Honeywell FQIS
ETOPS

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

Except for ER operations, one channel may be inoperative provided:

- Total fuel quantity is determined by measuring sticks or other acceptable means after each refueling, and agrees with fuel quantity indications.
- Inoperative channel is deactivated by an acceptable procedure.
- All flight deck fuel indications operate normally.

For non-PIP and non-Pegasus FMCS:

- Both EICAS computers operate normally.
- Fuel flow indications operate normally.
- FMC TOTALIZER FUEL quantity agrees with fuel quantity indications.

For Pegasus FMCS with Operational Program Software part number 3418-HNP-02C-08 or earlier:

- Thrust management system operates normally.

MAINTENANCE (M)

Deactivate the inoperative channel and after each refueling determine the total fuel quantity and confirm it agrees with the fuel quantity indications (AMM 28-00-00/901).

- Supply electrical power.
- Close the fueling panel door.
- Confirm all EICAS circuit breakers are closed.
- Press the P61 panel ECS/MSG switch.
- For FUEL QTY BITE message displayed on EICAS, conduct a FQIS fault detection BITE check (AMM 28-41-00/501). Dispatch is permitted for the following code combinations: (A only), (B only), (D only), (A and D), and (B and D):
 - For displayed codes A1 through A9, the fault is in channel 1.
Deactivate channel 1:
 - Open and collar the following circuit breakers:
 - P11 panel, FUEL QTY #1
 - P34 panel, FUEL QTY REFUEL
 - For displayed codes B1 through B9, the fault is in channel 2.
Deactivate channel 2:
 - Open and collar the following circuit breakers:
 - P11 panel, FUEL QTY #2



- b. P6 panel, FUELING QTY
- C. For displayed codes D1 through D9, a densitometer fault exists. Dispatch the airplane using MEL Item 28-41-01.
- 6. For FUEL QTY BITE message not displayed on EICAS, conduct the following test with less than 15,000 lb (7000 kg) total fuel:
 - A. Open the following P11 panel circuit breakers:
 - 1) FUEL QTY #1
 - 2) FUEL QTY #2
 - B. Confirm the fueling door is closed.
 - C. Confirm the FUEL QTY displays are blank.
 - D. Close the FUEL QTY #1 circuit breaker, wait 10 seconds, and record the indicated fuel quantities for each tank; this tests channel 1.
 - E. Open the FUEL QTY #1 circuit breaker and then close the FUEL QTY #2 circuit breaker, wait 10 seconds, and record the indicated fuel quantity in each tank; this tests channel 2.
 - F. Compare recorded quantities. If they differ by more than 400 lb (200 kg) for any tank, determine the actual fuel in each tank using measuring sticks and the fuel measuring stick document (D345T0XX-X) provided with the airplane.
 - G. Deactivate the channel that has the larger difference from the actual fuel quantity.
 - H. For the channel that is not deactivated, close the open circuit breaker.
- 7. Fuel the airplane normally on ground power.
- 8. After each fueling, confirm the accuracy of the operative channel:
 - A. With the fueling door closed, cycle the power on the active channel by opening the associated FUEL QTY #1 or FUEL QTY #2 circuit breaker for 10 seconds, then closing it.
 - B. With measuring sticks and the fuel measuring stick document (D345T0XX-X) provided with the airplane, determine the actual quantity of fuel in each tank.
 - C. Compare the measuring stick quantities with indicator quantity. Confirm they agree within the following tolerances:
 - 1) Main tank: +/- 1110 lb
 - 2) Center tank:
 - a. Zero Bay: +/- 941 lb
 - b. Two Bay: +/- 1640 lb
 - c. Four Bay: +/- 2128 lb

OPERATIONS (O)

- 1. Flight must remain within 60 minutes of landing at a suitable airport.
- 2. Prior to each engine start, confirm the FMC PERF INIT page FUEL is automatically initialized with the known fuel quantity. DO NOT manually enter fuel quantity.



3. 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).

28-41-02 Fuel Quantity Processor Channels**28-41-02-02 B.F. Goodrich (Simmonds) FQIS****ETOPS**

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. Both EICAS computers operate normally.
- c. Fuel flow indications operate normally.
- d. FMC TOTALIZER FUEL quantity agrees with fuel quantity indications.

For Pegasus FMCS with Operational Program Software part number 3418-HNP-02C-08 or earlier:

- e. Thrust management system operates normally.

OPERATIONS (O)

1. Flight must remain within 60 minutes of landing at a suitable airport.
2. Prior to each engine start, confirm the FMC PERF INIT page FUEL is automatically initialized with the known fuel quantity. Do not manually enter fuel quantity.
3. 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)****ETOPS**

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 (AMM 28-00-00/901).

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. D345T0XX-X) 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. To empty the left or right main tank, open the defueling valve of the tank to be defueled. To defuel the center tank, open the left or right main tank defueling valve.
 - 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
ETOPS

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- FMC is initialized with known total fuel quantity.

For non-PIP and non-Pegasus FMCS:

- Both EICAS computers operate normally.
- Fuel flow indications operate normally.
- Both FMCs operate normally.

For Pegasus FMCS with Operational Program Software part number 3418-HNP-02C-08 or earlier:

- 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)

- Manually initialize FMC FUEL with a known total fuel quantity prior to engine start.
- Prior to each engine start, confirm fuel flow system inputs are valid on the FMC SENSOR STATUS Page 1 (non-PIP airplanes - Left and Right FUEL FLO OK) or (PIP/PEGASUS airplanes - Left and Right EICAS OK).
- FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
- 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.
- If it is necessary to jettison fuel enroute, FMC total fuel quantity must be reinitialized with the fuel quantity remaining at the completion of jettison.
- 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.
 - The PROGRESS page 1 display of FUEL quantity and ATA at the last waypoint prior to failure may be used as a starting point.
 - In some failure modes, PROGRESS page 2 FUEL USED data may be available.
- Aileron trim indication on the control wheel may be used to determine if a fuel imbalance condition exists. At cruise conditions, an imbalance of 4000 lb (1816 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

ETOPS

Interval	Installed	Required	Procedure
C	1	0	(O)

- May be inoperative provided:
- a. Main tank fuel quantity indicators operate normally.
 - b. 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

Interval	Installed	Required	Procedure
C	6	3	

May be inoperative for an associated inoperative pump.

28-42-01 Fuel Pump Low PRESS Lights
28-42-01-01 Maintenance Action Are Required

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)

Verify the associated EICAS message operates normally once each flight day.

1. Main tank pumps:
 - A. With the crossfeed valves 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 the operative main tank fuel pumps.
 - 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 valves.
 - G. One at a time, turn off the fuel pump associated with the inoperative light. Confirm the associated advisory message is displayed.
 - H. Turn all fuel pumps off and close the crossfeed valves.
2. Center tank pumps:
 - A. With the crossfeed valves 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 all center and main tank fuel pumps.



- 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.
- I. Turn off all fuel pumps.

**28-43-01 FUEL TEMP Indicating System****ETOPS**

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)

For airplanes with P61 panel M6775 FUEL TEMP SENSOR switch:

NOTE: The FUEL TEMP indicating system is considered to be operating normally when the FUEL TEMP SENSOR switch is moved from its existing position to the other position (A or B) and a valid fuel temperature is shown on the P5 panel fuel quantity indicator.

1. Use total air temperature (TAT) for fuel temperature.
2. Use the table in MEL item 34-13-07 for static air temperature (SAT) conversion.



28-44-01 Measuring Sticks

Interval	Installed	Required	Procedure
C	16	0	

May be inoperative provided fuel quantity is determined by other approved means.

.....



Intentionally
Blank



29-11-01 Engine Driven Hydraulic Pumps

29-11-01-01 Depressurization Function

29-11-02 Center System (Electric) Hydraulic Pumps

29-11-03 Air Driven Pump (ADP)

29-11-04 ADP Controller

29-11-04-01 AUTO Function

29-11-04-02 ON Function

29-11-05 Electric Demand Pump (ACMP)

29-11-05-01 AUTO Function

29-18-01 Remote Quantity Indicator

29-31-01 Hydraulic Low SYS PRESS Lights

29-31-01-02 PTU Equipped Airplanes

29-31-01-02-01 Left Low SYS PRESS Light

29-31-01-02-02 Right Low SYS PRESS Light

29-31-02 Pump Low PRESS Indication Systems

29-31-02-01 Left, Center, Right and Air Driven Pump PRESS Lights

29-31-02-02 Engine Driven Pump Indication Systems

29-31-02-03 Center System No. 2 Electric Pump Indication System

29-31-02-04 Air Driven Pump (ADP) Indication System

29-31-03 HYD PRESS Indications (EICAS)

29-32-01 Pump OVHT Indication Systems

29-32-01-01 Left, Center, Right and Air Driven Pump OVHT Lights

29-32-01-02 Center System No. 2 Electric Pump Indication System

29-32-01-03 Air Driven Pump (ADP) Indication System

29-33-01 Hydraulic System Low QTY or RSVR Lights

29-33-01A *HYD QTY Indications Operative*

29-33-01B *Reservoir Level Verified Normal*

29-33-02 HYD QTY Indications



Table of Contents

Intentionally
Blank



29-11-01 Engine Driven Hydraulic Pumps
29-11-01-01 Depressurization Function

Interval	Installed	Required	Procedure
C	2	0	

**29-11-02 Center System (Electric) Hydraulic Pumps**

Interval	Installed	Required	Procedure
C	2	1	

Pump No. 2 may be inoperative provided air driven pump operates normally.

MAINTENANCE NOTE

If desired, the inoperative center system No. 2 pump may be hydraulically isolated as follows:

1. Install MS plugs in the case drain, pressure and supply hoses after draining hydraulic fluid.
2. Cap the pump supply, case drain and pressure connections.
3. Cap and stow the case drain, pressure and supply hoses.
4. Open and collar the P11 Panel ELEC HYD PUMP C2 circuit breaker.
5. Disconnect, cap and stow the pump electrical connector.
6. Supply 50 PSIG pneumatic pressure to the center hydraulic system reservoir.
7. Inspect the plugged drain case, pressure and supply hoses for external leakage. External leakage should not exceed AMM limits.

**29-11-03 Air Driven Pump (ADP)**

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

May be inoperative provided:

- a. Center hydraulic motor generator (HMG) is not required.
 - b. Both center system electric pumps operate normally.
 - c. Appropriate performance adjustments are applied.
-

MAINTENANCE (M)

1. Confirm the ADP bleed valve is in the closed position with the ADP controller off:
 - A. Set the ADP selector to OFF.
 - B. Open and collar the P11 panel AIR HYD PUMP circuit breaker.
 - C. Pressurize the center pneumatic system.
 - D. Confirm only leakage air is being exhausted from the ADP exhaust louvers (this can be determined by operator experience).
2. If desired, the inoperative ADP may be hydraulically isolated as follows:
 - A. Disconnect, cap and stow the case drain hose.
 - B. Disconnect the supply hose from the pump.
 - C. Cap and stow the supply hose by attaching to the pressure hose to prevent chafing and/or excessive vibration during flight.
 - D. Cap the pump supply and case drain connections.
 - E. Open and collar the P11 panel AIR HYD PUMP circuit breaker.
 - F. Supply 50 PSIG pneumatic pressure to the center hydraulic system reservoir.
 - G. Inspect the plugged drain case, pressure and supply hoses for external leakage. External leakage should not exceed AMM limits.

OPERATIONS (O)

1. Special obstacle clearance takeoff performance:

NOTE: An inoperative ADP causes longer landing gear retraction times which subsequently causes a degraded flight profile. Before applying the appropriate smaller takeoff weight penalty, ensure that no obstacles exist above the obstacle clearance plane defined by the table below.



OBSTACLE CLEARANCE PLANE		
	*Height (in feet) above reference zero	
*Horizontal distance (in feet) from reference zero	JT9D and CF6-80A/A2 Engines	PW4000, RB211, and CF6-80C2 Engines
0	0	0
5000	0	22
6500	0	29
7000	5	32
8000	22	37
10,000	50	50
20,000	185	195
30,000	325	340
40,000	460	484
50,000	595	630
60,000	720	775
66,000	720	854
and on	720	854

*This table assumes reference zero is located at the departure end of the runway (clearway is not used for takeoff analysis). Alternately the Airplane Flight Manual may be used to determine reference zero point.

- A. If an obstacle protrudes above the obstacle clearance plane as defined by the table above, reduce takeoff performance limited weight as follows:

1) 40,000 lb (18,143 kg)

- B. If no obstacle protrudes above the obstacle clearance plane as defined by the table above, reduce takeoff performance limited weight as follows:

1) 700 lb (318 kg)

- During periods of high demand, C HYD SYS PRESS caution message and C HYD SYS MAINT status message may display. If the center hydraulic system pressure remains below 2800 psi for 60 seconds or more, with both engines running, then the C HYD SYS MAINT message will latch.
- The landing gear retraction/extension times will increase to approximately 2 1/2 times normal and the GEAR DISAGREE message may display until the gear retraction/extension is complete.



4. Flap retraction and extension times will increase by approximately 30%.
5. The HMG will not be available.


29-11-04 ADP Controller
29-11-04-01 AUTO Function

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. Control is ON for takeoff and landing.
- b. Center hydraulic motor generator (HMG) is not required, or control is ON continuously when HMG is required.
- c. OFF position operates normally.
- d. Appropriate performance adjustments are applied.

OPERATIONS (O)

1. Reduce takeoff and landing climb performance limited weights 3600 lb (1633 kg).
2. Set the AIR DEMAND selector to ON at the following times:
 - A. On the ground prior to takeoff.
 - B. Inflight prior to flap extension.
 - C. At all times if hydraulic motor generator (HMG) is required for dispatch.

29-11-04 ADP Controller
29-11-04-02 ON Function

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided:

- a. AUTO and OFF functions of ADP operate normally.
- b. Center HMG is not required.



29-11-05 Electric Demand Pump (ACMP)
29-11-05-01 AUTO Function

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided:

- a. Pump operates normally.
- b. Associated pump is selected ON and remains on.



29-18-01 Remote Quantity Indicator

Interval	Installed	Required	Procedure
C	1	0	


29-31-01 Hydraulic Low SYS PRESS Lights
29-31-01-02 PTU Equipped Airplanes
29-31-01-02-01 Left Low SYS PRESS Light

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Associated pump low PRESS lights operate normally.
- b. Associated HYD SYS PRESS EICAS indication is verified to operate normally.
- c. Left low pressure signal wire of PTU system is capped and stowed.

MAINTENANCE (M)

Verify the associated HYD SYS PRESS EICAS indication operates normally and cap and stow the left low pressure signal wire of the PTU system (AMM 29-00-00/901).

1. Set all hydraulic pump switches to OFF.
2. Confirm the L HYD SYS PRESS caution message is displayed.
3. Set the hydraulic panel left ELEC DEMAND selector to ON.
4. Confirm the L HYD SYS PRESS caution message is not displayed.
5. Disconnect the left low pressure signal wire of the PTU (PES) system as follows:
 - A. Gain access to the main equipment center.
 - B. On the miscellaneous equipment panel P37, disconnect the wire from Terminal Block 192, Terminal Z17 (identified as 17 on TB192) and wire 20C-20.
 - C. Cap and stow the wire from TB192.

29-31-01 Hydraulic Low SYS PRESS Lights
29-31-01-02 PTU Equipped Airplanes
29-31-01-02-02 Right Low SYS PRESS Light

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Associated pump low PRESS lights operate normally.
- b. Associated HYD SYS PRESS EICAS indication is verified to operate normally.

**MAINTENANCE (M)**

Verify the associated HYD SYS PRESS EICAS indication operates normally (AMM 29-00-00/901).

1. Set all hydraulic pump switches to OFF.
2. Confirm the R HYD SYS PRESS caution message is displayed.
3. Set the hydraulic panel right ELEC DEMAND selector to ON.
4. Confirm the R HYD SYS PRESS caution message is not displayed.

**29-31-02 Pump Low PRESS Indication Systems**
29-31-02-01 Left, Center, Right and Air Driven Pump PRESS Lights

Interval	Installed	Required	Procedure
C	7	4	(O)

One in each hydraulic system may be inoperative provided:

- Associated low SYS PRESS light operates normally.
- Associated pump is verified to operate normally before each departure.

OPERATIONS (O)

Before each departure verify the associated pump operates normally.

NOTE: The pump being tested must be the only pump operating within the related hydraulic system at the time of the test.

- Air driven pump (ADP):
 - Confirm the associated SYS PRESS light is illuminated.
 - Confirm personnel are clear of flight controls.
 - With electrical power on the airplane and pneumatic system pressurized, set the AIR DEMAND selector to AUTO or ON.
 - Confirm the C HYD PRESS reading on EICAS is 2800 to 3200 psig.
 - Confirm the associated SYS PRESS light extinguishes.
- Engine driven pump (EDP):

NOTE: An active brake source is required when operating an engine.

 - Confirm the associated SYS PRESS light is illuminated.
 - Confirm personnel are clear of flight controls.
 - With the associated engine running, set the associated ENG pump switch to ON.
 - Confirm the associated HYD PRESS reading on EICAS is 2800 to 3200 psig.
 - Confirm the associated SYS PRESS light extinguishes.
- Alternating current motor pump (ACMP):
 - Confirm the associated SYS PRESS light is illuminated.
 - Confirm personnel are clear of flight controls.
 - With electrical power on the airplane, set the associated ELEC pump switch to ON.
 - Confirm the associated HYD PRESS reading on EICAS is 2800 to 3200 psig.
 - Confirm the associated SYS PRESS light extinguishes.

29-31-02 Pump Low PRESS Indication Systems
29-31-02-02 Engine Driven Pump Indication Systems

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative provided:

- Associated demand pump AUTO function is considered inoperative.
- Associated low SYS PRESS light operates normally.
- Associated pump is verified to operate normally before each departure.

NOTE: Also dispatch the airplane using MEL Item 29-11-05.

OPERATIONS (O)

Before each departure verify the associated pump operates normally.

NOTE 1: The pump being tested must be the only pump operating within the related hydraulic system at the time of the test.

NOTE 2: An active brake source is required when operating an engine.

- Confirm the associated SYS PRESS light is illuminated.
- Confirm personnel are clear of flight controls.
- With the associated engine running, set the associated ENG pump switch to ON.
- Confirm the associated HYD PRESS reading on EICAS is 2800 to 3200 psig.
- Confirm the associated SYS PRESS light extinguishes.

29-31-02 Pump Low PRESS Indication Systems
29-31-02-03 Center System No. 2 Electric Pump Indication System

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided:

- Air driven pump operates normally.
- Associated pump is selected OFF.

OPERATIONS NOTE

The center system No. 2 electric pump has been selected OFF as a precautionary measure to preclude unannounced low pump pressure; in case of emergency, it is available.

**29-31-02 Pump Low PRESS Indication Systems****29-31-02-04 Air Driven Pump (ADP) Indication System**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- Both center system electric pumps operate normally.
- ADP is selected OFF.
- Center hydraulic motor generator (HMG) is not required.
- Appropriate performance adjustments are applied.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

OPERATIONS (O)

- Use MEL Item 29-11-03 (O) procedure for ADP OFF (inoperative) performance penalties, landing gear extension/retraction effects, and flap extension/retraction effects.
- The air driven pump has been selected OFF as a precautionary measure to preclude unannounced low pump pressure; in case of emergency, it is available.
- The HMG is powered by the center hydraulic system. If a complete electrical failure occurs the HMG will operate if the ADP is selected ON.



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, Right and Air Driven Pump OVHT Lights**

Interval	Installed	Required	Procedure
C	7	4	(O)

One in each hydraulic system may be inoperative provided:

- Associated low SYS PRESS light or pump low PRESS light operates normally.
- Associated pump is verified to operate normally before each departure.

OPERATIONS (O)

Before each departure verify the associated pump operates normally.

NOTE: The pump being tested must be the only pump operating within the related hydraulic system at the time of the test.

- Air driven pump (ADP):
 - Confirm personnel are clear of flight controls.
 - With electrical power on the airplane and pneumatic system pressurized, set the AIR DEMAND selector to AUTO or ON.
 - Confirm the C HYD PRESS reading on EICAS is 2800 to 3200 psig.
 - Confirm the C HYD TEMP reading on EICAS is below 80°C after stabilization.

- Engine driven pump (EDP):

NOTE 1: An active brake source is required when operating an engine.

NOTE 2: When running the right engine EDP the PTU will come on pressurizing the STAB TRIM circuits. The PTU can be deactivated by pulling the P11 panel HYDR PTU CONT circuit breaker before engine start.

- Confirm personnel are clear of flight controls.
 - With the associated engine running, set the associated ENG pump switch ON.
 - Confirm the associated HYD PRESS reading on EICAS is 2800 to 3200 psig.
 - Confirm the associated HYD TEMP reading on EICAS is below 80°C after stabilization.
- Alternating current motor pump (ACMP):
 - Confirm personnel are clear of flight controls.
 - With electrical power on the airplane, set the associated ELEC pump switch ON.
 - Confirm the associated HYD PRESS reading on EICAS is 2800 to 3200 psig.



- D. Confirm the HYD TEMP reading on EICAS is below 80°C after stabilization.

29-32-01 Pump OVHT Indication Systems
29-32-01-02 Center System No. 2 Electric Pump Indication System

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided:

- a. Air driven pump operates normally.
- b. Associated pump is selected OFF.

OPERATIONS NOTE

The center system No. 2 electric pump has been selected OFF as a precautionary measure to preclude unannounced pump overheat; in case of emergency, it is available.

29-32-01 Pump OVHT Indication Systems
29-32-01-03 Air Driven Pump (ADP) Indication System

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. Both center system electric pumps operate normally.
- b. ADP is selected OFF.
- c. Center hydraulic motor generator (HMG) is not required.
- d. Appropriate performance adjustments are applied.

OPERATIONS (O)

1. Use MEL Item 29-11-03 (O) procedure for ADP OFF (inoperative) performance penalties, landing gear extension/retraction effects, and flap extension/retraction effects.
2. The air driven pump has been selected OFF as a precautionary measure to preclude unannounced pump overheat; in case of emergency, it is available.
3. The HMG is powered by the center hydraulic system. If a complete electrical failure occurs the HMG will operate if the ADP is selected ON.


29-33-01 Hydraulic System Low QTY or RSVR Lights
29-33-01A HYD QTY Indications Operative

Interval	Installed	Required	Procedure
C	3	0	(M)

May be inoperative provided associated HYD QTY indication(s) operates normally.

MAINTENANCE (M)

Confirm the associated HYD QTY indication operates normally and confirm proper hydraulic quantity (AMM 29-00-00/901).

1. Compare the affected system EICAS HYD QTY status indication and the reservoir level using the fill indicator at the fill station.
2. Service the reservoir as required.

[For airplanes with automatic switching system for reserve brakes and steering:](#)

3. For inoperative center hydraulic system Low QTY or RSVR light, set the P61 panel RESERVE BRAKES & STRG switch to the RESET/DISABLE position prior to dispatch.

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:

- a. Associated reservoir level(s) is verified normal before each departure.
- b. Associated SYS PRESS lights operate normally.
- c. On PTU equipped airplanes, with left hydraulic system low QTY or RSVR lights inoperative, left low quantity signal wire of PTU system is capped and stowed.

MAINTENANCE (M)

Before each departure verify the reservoir level is normal, and with the left hydraulic system low QTY or RSVR light inoperative, cap and stow the left low quantity signal wire of the PTU system (AMM 29-00-00/901).

1. Reservoir level verification:

- A. Confirm the reservoir has the proper 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.



- B. Service the reservoir as required.
 - 2. Capping PTU signal wire:
 - A. Gain access to the main equipment center.
 - B. On the miscellaneous equipment panel P37, disconnect the wire from diode R397 terminal C (TB274).
 - C. Cap and stow the wire.
- [For airplanes with automatic switching system for reserve brakes and steering:](#)
- 3. For inoperative center hydraulic system Low QTY or RSVR light, set the P61 panel RESERVE BRAKES & STRG switch to the RESET/DISABLE position prior to dispatch.


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.
- c. With left hydraulic system low QTY or RSVR light inoperative, left low quantity signal wire of PTU system is capped and stowed.

MAINTENANCE (M)

Before each departure verify the reservoir level is normal, and with the left hydraulic system low QTY or RSVR light inoperative, cap and stow the left low quantity signal wire of the PTU system (AMM 29-00-00/901).

1. Reservoir level verification:
 - A. Confirm the reservoir has the proper 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.
 - B. Service the reservoir as required.
2. Capping PTU signal wire:
 - A. Gain access to the main equipment center.
 - B. On the miscellaneous equipment panel P37, disconnect the wire from diode R397 terminal C (TB274).
 - C. Cap and stow the wire.

[For airplanes with automatic switching system for reserve brakes and steering:](#)

3. For inoperative center hydraulic system Low QTY or RSVR light, set the Reserve Brakes and Steering switch to the RESET/DISABLE position prior to dispatch.



Intentionally
Blank



30-11-01 Wing Anti-Ice Valves

30-11-02 Wing Anti-Ice VALVE Lights

30-11-02A *Wing Anti-Ice Valve Operative*

30-11-02B *Wing Anti-Ice Valve Inoperative*

30-11-02C *Associated EICAS Message Operative*

30-11-03 Wing Anti-Ice Ground Test

30-21-01 Engine Anti-Ice Valves

30-21-01-01 Cowl Valves

30-21-01-04 Cowl Valves

30-21-01-04-02 CF6-80C2

30-21-02 Engine Anti-Ice VALVE Lights

30-21-02-01A *Valve Verified Operative For Icing Conditions*

30-21-02-01B *Valve Inoperative*

30-21-02-01-04CF6-80C2

30-31-01 Pitot-Static Probe Heater Systems

30-31-02 Probe Heat Lights (Except CAPT and F/O PITOT)

30-31-02-01 Pitot Probe Heat Lights

30-31-02-02 Angle of Attack (AOA) and Temperature (TAT) Probe Heat Lights

30-31-05 CAPT PITOT and F/O PITOT Heat Indicating Systems (Heater OFF Monitor)

30-32-01 Angle of Attack Sensor Heater Systems

30-33-01 Temperature (TAT) Probe Heater Systems

30-41-01 Flight Deck Window Heat Systems

30-41-01-01 No. 1 (fwd) Windows

30-41-01-02 No. 2 (side) Windows

30-41-01-03 No. 3 (side) Windows

30-41-02 Window Heat INOP Lights

30-41-02A *Window Heat Verified Operative*



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30-41-02B *Window Heat Inoperative*

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30-43-01 Rain Repellent System**30-71-01 Drain Mast Heaters****30-72-01 Waste System Heaters**

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30-80-01-01 Advisory

30-80-01-02 Primary



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 (AMM 30-00-00/901).

1. Confirm the WING ANTI-ICE switch is OFF.
2. Gain access to the wing anti-ice valve.
3. For valve not closed, position the valve closed using the manual drive.
4. Lock the valve closed using the valve lock.

**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**30-21-01-01 Cowl 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 (AMM 30-00-00/901).

1. Gain access to the affected cowl valve.
2. Disconnect, cap and stow the electrical connector.
3. Position the cowl valve closed using the manual drive.
4. Lock the cowl valve in the closed position using the valve lock.
5. Set the associated ENGINE ANTI-ICE switch off and confirm the VALVE light is extinguished.

30-21-01 Engine Anti-Ice Valves**30-21-01-04 Cowl Valves****30-21-01-04-02 CF6-80C2****ETOPS**

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

One may be inoperative open provided:

- a. High pressure shutoff valve is secured closed.
- b. Bleed air switch for associated engine remains OFF except when TAT is 10 degrees C or below.
- c. For operations with associated bleed air switch OFF:
 - 1) APU is used as air source for ADP for takeoff or ADP inoperative penalties are applied.
 - 2) Associated bleed isolation valve is opened after takeoff and closed before approach and landing.
 - 3) Airplane is not operated in known or forecast icing conditions.
 - 4) Airplane remains at or below FL 350.
- d. For operations with associated bleed air switch ON, a minimum of 70% (55% below 10,000 feet MSL) N1 is maintained on associated engine in icing conditions.



- e. Remaining (opposite) engine bleed system operates normally.
- f. Associated PRV operates normally.
- g. Center hydraulic motor generator (HMG) is considered inoperative.
- h. Associated thrust reverser is secured in forward thrust position.
- i. Appropriate performance adjustments are applied.

NOTE: Bleed air switch for associated engine may be selected ON when TAT is 10 degrees C or below.

NOTE: Also dispatch the airplane using MEL Item 24-25-01.

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 cowl valve open, lock the HPSOV closed, and deactivate and secure the thrust reverser in the forward thrust position (AMM 30-00-00/901).

- 1. Gain access to the affected cowl valve.
- 2. Position the cowl valve open using the manual drive.
- 3. Lock the cowl valve in the open position using the valve lock.
- 4. Set the associated ENGINE ANTI-ICE switch off and confirm the VALVE light is illuminated.

MEL

- 5. Deactivate the thrust reverser using MEL Item 78-31-01 (M) procedure.

OPERATIONS (O)

- 1. Set the engine anti-ice switch to OFF.
NOTE: The anti-ice capability is addressed by use of bleed air switch position and engine N1 speed.
- 2. Apply the following performance limit weight reductions.
 - A. Takeoff and Landing: 3300 lb (1497 kg)
 - B. Enroute Climb: 4100 lb (1860 kg)
 - C. The enroute climb weight penalty is 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 on page 3.00-01-00.2 in the ENROUTE DIVERSION SPEED EFFECTS paragraph.
- 3. The associated thrust reverser is locked out.
 - A. For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.
 - B. The IDLE DISAGREE advisory message may annunciate during application of reverse thrust.



4. Plan for fuel burn increase of 1.0%.
5. For TAT greater than 10 degrees C:
 - A. Set the bleed air switch to OFF.
 - B. Set the PACK control selector to OFF for the affected side. The remaining (opposite) AC pack will pressurize and condition the airplane.
 - C. APU bleed air can be used to avoid ADP performance penalties. Average fuel consumption for APU operation is 200 lb (90 kg) per hour.
 - D. For APU bleed air not available, apply ADP performance penalties using MEL Item 29-11-03 (O) procedure.
 - E. For takeoff and landing using APU as air source for ADP:
 - 1) Close the center isolation valve.
 - 2) Open the center isolation valve when the APU is shut down.
 - F. Remain clear of icing conditions.
 - G. Flight must remain at or below FL 350.
 - H. Open the associated bleed isolation valve for enroute operations. Open after takeoff and close prior to approach.
 - I. After flap retraction and after TAT is 10 degrees C or below, set the bleed air switch to ON.
6. For TAT 10 degrees C or below:
 - A. Set the bleed air switch to ON.
 - B. Close the associated bleed isolation valve, if applicable.
 - C. Set the associated pack on, if applicable and if desired. The pack must be on for flight above FL350.
7. If icing conditions are encountered, maintain 70% (55% below 10,000 feet, except as required for landing) N1 on the affected engine to ensure adequate bleed air is available for anti-ice systems.
8. The engine bleed air OFF light and PACK OFF light may illuminate with engine at idle under certain conditions. To extinguish the engine bleed air OFF and PACK OFF lights:
 - A. Confirm the manifold pressure on the affected side is less than 10 psi.
 - B. Confirm the isolation valve on the affected side is closed.
 - C. Confirm the air conditioning pack on the affected side is not selected OFF. Set the PACK control selector to AUTO or STBY.
 - D. Advance the throttle to approximately 80% N2 to open the PRSOV and pack flow control valve.

30-21-02 Engine Anti-Ice VALVE Lights**30-21-02-01A 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 (AMM 30-00-00/901).

1. Supply electrical power.
2. Pressurize the pneumatic system with a ground air source or the APU.
3. Gain access to the engine anti-ice valve.
4. Confirm engine anti-ice valve operation using one of the following:
 - A. Listen for the solenoid:
 - 1) Station an observer near the associated valve.
 - 2) Set the associated engine anti-ice switch to ON and then to OFF.
 - 3) Confirm the ground observer hears the solenoid operate. If necessary, open the access door or cowlings to aid in hearing the solenoid or use a mechanic's stethoscope.
 - B. Observe the valve position:
 - 1) Locate the valve position indicator hex nut adjacent to the valve manual override selector. The manual override selector must remain at NORMAL.
 - 2) Set the associated engine anti-ice switch to ON.
 - 3) Visually confirm the valve position indicator hex nut rotates to indicate OPEN.
 - 4) Set the associated engine anti-ice switch to OFF.
 - 5) Visually confirm the valve position indicator hex nut rotates to indicate CLOSED.
5. Depressurize the pneumatic system.
6. Confirm stator vane valve operation by listening for the solenoid:
 - A. Station an observer near associated valve.
 - B. Set the associated engine anti-ice switch to ON and then to OFF.
 - C. Confirm the ground observer hears the solenoid operate. If necessary, open the access door or cowlings to aid in hearing the solenoid or use a mechanic's stethoscope.

**30-21-02 Engine Anti-Ice VALVE Lights****30-21-02-01B 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**30-21-02-01-04 CF6-80C2**

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative provided associated EICAS advisory message L/R ENG ANTI-ICE operates normally.

OPERATIONS (O)

Substitute the L (R) ENG ANTI-ICE advisory message for the inoperative engine anti-ice VALVE light in the ENGINE ANTI-ICE Non-Normal Checklist.



30-31-01 Pitot-Static 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	5	0	(M)

May be inoperative provided:

- Associated EICAS advisory message is verified to operate normally.
- Probe heater systems operate normally.

MAINTENANCE (M)

Verify the associated advisory message operates normally (AMM 30-00-00/901).

- Supply electrical power.
- Close all probe heat (pitot, AOA and TAT) and probe heat indication circuit breakers.
- Confirm the PROBE HEAT message is displayed.
- On the P61 TEST panel, hold the WING ANTI ICE - WINDOW/PROBE HEAT switch in the WINDOW/PROBE HEAT position.
- Confirm no probe heat advisory messages are displayed.
- Release the test switch.
- Open the associated probe heat circuit breaker.
- Hold the test switch in the WINDOW/PROBE HEAT position.
- Confirm the associated probe heat advisory message annunciates:
 - AUX PITOT
 - L/R AOA PROBE
 - L/R AUX PITOT
 - L/R TAT PROBE
 - STBY INST PITOT
 - TAT PROBE
- Close the open circuit breaker.
- If desired, probe heater functions may be confirmed as follows:
 - On the P61 TEST panel, hold the test switch in the WINDOW/PROBE HEAT position.
 - 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	2	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:

- Pitot heater systems operate normally.
- Remaining probe heater indicating systems for operative probe heaters operate normally.
- 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)

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 confirm it is not bent or missing and it moves freely (AMM 30-00-00/901).

**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:

- Remaining probe heater indicating systems for operative probe heaters operate normally.
 - Airplane is not operated in known or forecast icing conditions
-

OPERATIONS (O)**For ADC equipped airplanes:**

- With the TAT probe heater system inoperative, the TMC considers temperature from the TAT to be invalid and disconnects the autothrottle (MEL Item 22-30-01).

For airplanes with Pegasus FMCs:

- Both ADC sources are declared invalid when TAT probe heat is inoperative. LNAV and VNAV will be unavailable, waypoints in the FMC flight plan will not be sequenced, and performance predictions will be unavailable. Navigation calculations will be unaffected.

For ADIRS equipped airplanes:

For both TAT probe heater systems inoperative, the autothrottle system is inoperative (MEL Item 22-30-01).


30-41-01 Flight Deck Window Heat Systems
30-41-01-01 No. 1 (fwd) Windows
ETOPS

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 P36 panel WINDOW HT NO. 1, LEFT (RIGHT) circuit breaker (AMM 30-00-00/901).

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
30-41-01-02 No. 2 (side) Windows
ETOPS

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 (AMM 30-00-00/901).

- Open and collar the associated P36 panel WINDOW HT NO. 2, LEFT (RIGHT) circuit breaker.
- Set the associated SIDE window heat switch to ON.
- Confirm the associated No. 2 window heat is deactivated by touching the window.



4. Confirm the associated No. 3 window heat 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**30-41-01-03 No. 3 (side) Windows****ETOPS**

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 (AMM 30-00-00/901).

1. Open and collar the associated P36 panel WINDOW HT NO. 3, LEFT (RIGHT) 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 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 (AMM 30-00-00/901).

1. Supply electrical power to the left and right main AC buses.
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.

May be inoperative provided airplane is not operated in precipitation within 5 statute miles of airport of takeoff or intended landing.

NOTE: When dispatching from base airport LH windshield wiper must be operated, excluding the departure to the destination where repair or replacement can be accomplished.

30-42-01 Windshield Wipers**30-42-01-01 High Speed**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated low speed operates normally.

30-42-01 Windshield Wipers**30-42-01-02 Low Speed**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated high speed operates normally.

30-42-01 Windshield Wipers**30-42-01-03 Intermittent**

Interval	Installed	Required	Procedure
C	2	0	



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 the associated galley, lavatory sink and drinking fountain (AMM 30-00-00/901).

1. Close the associated water supply shutoff valves:
 - A. Galley shutoff valve.
 - B. Lavatory sink shutoff valve.
 - C. Drinking fountain shutoff valve.
2. For both drain mast heaters inoperative, open and collar the following P33 panel circuit breakers:
 - A. DRAIN MAST HEATING, GND
 - B. DRAIN MAST HEATING, FLIGHT
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 P33 Panel circuit breakers:
 - 1) DRAIN MAST HEATING, GND
 - 2) DRAIN MAST HEATING, FLIGHT
 - B. Gain access to the right miscellaneous electrical equipment P37 panel.
 - C. Locate terminal board TB192 (TB320), Block G20 (YA20).
 - D. Disconnect, cap and stow one of the following wires:
 - 1) Forward Mast - W1118-155-20.
 - 2) Aft Mast - W192-823-18 (W192-823-20).
 - E. Close the open circuit breakers.

**30-72-01 Waste System Heaters****30-72-01-01 Drain Cap Gasket Heater**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative deactivated.

MAINTENANCE (M)

Deactivate the heater (AMM 30-00-00/901).

1. Open the P33 panel circuit breaker associated with the waste system heater.
2. Disconnect, cap and stow the wire to the associated inoperative heater at panel P33.
3. Close the open circuit breaker.

30-72-01 Waste System Heaters**30-72-01-02 Rinse Hose Heater Boot**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative deactivated.

MAINTENANCE (M)

Deactivate the heater (AMM 30-00-00/901).

1. Open the P33 panel circuit breaker associated with the waste system heater.
2. Disconnect, cap and stow the wire to the associated inoperative heater at panel P33.
3. Close the open circuit breaker.

**30-80-01 Ice Detection System****30-80-01-01 Advisory***Effectivity: BMU, BRA*

Interval	Installed	Required	Procedure
D	1	0	

30-80-01 Ice Detection System**30-80-01-02 Primary***Effectivity: ALL*

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Pilot must manually operate anti-ice system when in icing conditions.

NOTE: The ICE DETECTORS message may display during takeoff if the primary ice detection system is operated in the manual mode.



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*

31-31-01-01 FDR Recording Required Parameters

31-31-01-02 FDR Recording Not Required Parameters

31-31-01-03 Quick Access Recorder (QAR)

31-35-02 Airplane Integrated Data System (AIDS)

31-35-03 Aircraft Condition Monitoring System (ACMS) ©

31-41-01 Engine Indication and Crew Alerting Systems (EICAS)

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 System Verified Operative*

31-61-04B *Associated Equipment Considered Inoperative*

31-61-05 EICAS Signal Consolidation Card (SCC)



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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	

Required for Cat IIIa/IIIb approach.

May be inoperative provided:

- Cockpit Voice Recorder (CVR) operates normally,
- Airplane is not dispatched from the "designated airport" where repairs or replacements can be made, and
- Repairs are made within three flight days.

OPERATIONS NOTE

NOTE 1: Continued operations from any airport are permitted when FDR failure occurs after the aircraft has been pushed back, or taxied away, or towed from the blocks for the purpose of flight (prior to takeoff). The inoperative FDR will be repaired or deferred per standard company procedures upon arrival at a "designated airport".

NOTE 2: International Airport (Nord Wind principal base station) is designated as a location for mandatory FDR repairs (replacement), as applicable to the type of operation being flown. A reference to "designated airport" in this MEL refers to the applicable airport.

NOTE 3: This MEL Item cannot be applied at the "designated airport". FDR repair (replacement) must be attempted. If the attempted repair is unsuccessful the inoperative FDR may then be deferred by applying MEL Item 31-31-1

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:

- Cockpit voice recorder (CVR) operates normally.
- Airplane is not dispatched from a designated airport as listed in operator's MEL unless:
 - FDR failure occurs after pushback but prior to takeoff, or
 - 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 3 flight days.
-

OPERATIONS NOTE

NOTE 1: International Airport (Nord Wind principal base station) is designated as a location for mandatory FDR repairs (replacement), as applicable to the type of operation being flown. A reference to "designated airport" in this MEL refers to the applicable airport.

NOTE 2: Provided the initial 3 flight day repair interval is not exceeded, this MEL Item permits a one-time departure from the "designated airport", followed by a flight or series of flights until the aircraft's next arrival at the "designated airport". At that time further flight with an inoperative FDR is prohibited.

31-31-01 Flight Data Recorder (FDR) System (Includes Digital Flight Data Acquisition Unit (DFDAU)) ©**31-31-01-01 FDR Recording Required Parameters**

Interval	Installed	Required	Procedure
A	1	0	

Up to three (3) recording parameters may be inoperative provided:

- a. Cockpit voice recorder (CVR) operates normally.
 - b. Repairs are made within 20 calendar days.
-

OPERATIONS NOTE

NOTE: According to the appropriate regulations. The following information must be able to be determined within the specified ranges, accuracies, and recording intervals: (1) Time; (2) Altitude; (3) Airspeed; (4) Vertical acceleration; (5) Heading; (6) Time of each radio transmission either to or from air traffic control; (7) Pitch attitude; (8) Roll attitude; (9) Longitudinal acceleration; (10) Pitch trim position; (11) Control column or pitch control surface position; (12) Control wheel or lateral control surface position; (13) Rudder pedal or yaw control surface position; (14) Thrust of each engine; (15) Position of each thrust reverser; (16) Trailing edge flap or cockpit flap control position; and (17) Leading edge flap or cockpit flap control position.

**31-31-01 Flight Data Recorder (FDR) System (Includes Digital Flight Data Acquisition Unit (DFDAU)) ©****31-31-01-02 FDR Recording Not Required Parameters**

Interval	Installed	Required	Procedure
A	1	0	

May be inoperative provided repairs are made prior to completion of next heavy maintenance visit.

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	



31-35-02 Airplane Integrated Data System (AIDS)

Interval	Installed	Required	Procedure
D	1	0	



31-35-03 Aircraft Condition Monitoring System (ACMS) ©

Interval	Installed	Required	Procedure
D	1	0	

NOTE: There are various configurations of ACMS. The ACMS may consist of, but is not limited to, a Quick Access Recorder (QAR), Digital Flight Data Acquisition Unit (DFDAU), Data Management Unit (DMU), and printer. Refer to the AMM 31-35-00.


31-41-01 Engine Indication and Crew Alerting Systems (EICAS)
31-41-01-01 Display Unit (DU)
ETOPS

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 1 flight day.

MAINTENANCE (M)

Deactivate the inoperative DU (AMM 31-00-00/901).

- 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.
- If remaining EICAS DU fails inflight:
 - Use 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)
31-41-01-02 Computer
ETOPS

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.
- 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 1 flight day.
-

MAINTENANCE (M)

Test the remaining operative computer and deactivate the inoperative computer (AMM 31-00-00/901).

- 1. Test the remaining (operative) computer as follows:
 - 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 the TEST OK or SELF TEST COMPLETE message is displayed.
- 2. Open and collar the P11 panel circuit breaker for the associated inoperative EICAS computer:
 - A. For the left computer, L EICAS COMPUTER
 - B. For the right computer, R EICAS COMPUTER

OPERATIONS (O)

- 1. Before takeoff, with engines running, compare the engine display on EICAS with the standby engine instrument. Confirm the EICAS/SEI engine display differences are within the following tolerances:

Engine Display	EICAS/SEI Engine Display Cross-Compare Tolerance
EGT	12.0°C
N1	.2%
N2	1.0%

- 2. If the remaining EICAS computer fails:
 - 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.
- 3. For airplanes with the Non-PIP FMC installation (version number not indicated on the FMC IDENT page), FMC CALCULATED is not available. FMC uses SENSED FUEL (FQIS fuel).
- 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 System Verified Operative**

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

May be inoperative provided associated equipment is verified to operate normally before each departure.

MAINTENANCE (M)

Before each departure verify the associated equipment operates normally (AMM 31-00-00/901).

1. Service letter 767-SL-31-032 dated March 8, 1994 gives procedures to verify normal operation of equipment known to experience nuisance EICAS messages. For status messages included in the service letter, accomplish the procedures given in the service letter. The service letter covers the following messages:
 - A. CABIN ALT AUTO 1
 - B. CABIN ALT AUTO 2
 - C. COMPARATOR BITE
 - D. EICAS DISAGREE
 - E. EICAS SCC
 - F. FUEL QTY BITE
 - G. FUEL QTY CHANNEL
 - H. GND PROX BITE
 - I. L(R) ENG EEC C1
 - J. L(R) ENG FIRE LP 1,2
 - K. L(R) ENG O/S GOV
 - L. L(R) IDG TEMP SENS
2. For messages not covered in 767-SL-31-032, operators must establish their own procedures to verify the associated equipment operates normally. FIM and/or AMM procedures may be relevant.

OPERATIONS (O)

1. For status messages covered in 767-SL-31-032, there are no Operations (O) procedures.
2. For status messages not covered in 767-SL-31-032, 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	1	0	(M) (O)

May be inoperative provided dispatch deviations for associated equipment are observed.

MAINTENANCE (M)

Verify maintenance dispatch deviations are observed for the associated equipment (AMM 31-00-00/901).

OPERATIONS (O)

Verify operations dispatch deviations are observed for associated equipment.


31-61-05 EICAS Signal Consolidation Card (SCC)

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- Fuel quantity indication is verified to operate normally before each flight.
- Dispatch deviations for associated equipment are observed.

MAINTENANCE (M)

Verify fuel quantity indication operates normally before each flight (AMM 31-00-00/901).

- Perform the Operational Test, Check of the Flight Deck Indicators.
- Systems and messages associated with the EICAS SCC vary depending on the hardware options on the airplane. Listed below are the alert and status messages that could be affected (if installed). Most airplanes have only a subset of the following messages. For each applicable message, do one of the following:
 - Confirm the message operates normally.
 - Confirm the component or system associated with the message operates normally.
 - Defer the associated component or system associated with the message under the appropriate MEL item.
- Alert, Status and Maintenance messages:
 - A - Warning Level (system alert)**
 - B - Caution Level (system alert)**
 - C - Advisory Level (system alert)**
 - S - Status Level**
 - M - Maintenance Level**
 - FUEL QTY CHANNEL /S/ See step 1. above.
 - FUEL QTY IND /S/ See step 1. above.
 - TIRE PRESSURE /C,S/ See MEL item 32-45-01.
 - TIRE PRESS SYS /M/ Information only, does not affect dispatch.
 - FLIGHT DECK HUMID /C/ No MEL Item.
 - F/O PVD /C,S,M/ No MEL Item.
 - CAPT PVD /C,S,M/ No MEL Item.
 - PRIMARY BLD SYS /S,M/ on -800 series, -1001 series EICAS. No MEL Item.
 - BLEED SYSTEM /M/ on -800 series, -900 (RR), -1001 series EICAS. Information only, does not affect dispatch.
 - SLAT ISLN VAL /M/ Information only, does not affect dispatch.



- K. AFT CAB REST SYS /M/ Information only, does not affect dispatch.
- L. MID CAB REST SYS /M/ Information only, does not affect dispatch.
- M. FWD CAB REST SYS /M/ Information only, does not affect dispatch.
- N. L(R) OIL PRESS MON /S,M/ on -800 series, -901 (RR), -1001 series EICAS. See MEL item 79-32-01.
- O. L(R) OIL PRESS SNS /S,M/ on -800 series, -1001 series EICAS. See MEL item 79-32-1.
- P. TCAS SYSTEM /S,M/ message not used.
- Q. AFT WASTE SNSR /M/ Information only, does not affect dispatch.
- R. FWD WASTE SNSR /M/ Information only, does not affect dispatch.
- S. AUX TEMP BITE /M/ Information only, does not affect dispatch.
- T. L(R) SPOILER MDL 1 /M/ Information only, does not affect dispatch.
- U. L(R) SPOILER MDL 2 /M/ Information only, does not affect dispatch.
- V. L(R) SPOILER MDL 3 /M/ Information only, does not affect dispatch.
- W. FLT REST SYS /M/ Information only, does not affect dispatch.
- X. FLT REST SOV /S,M/ No MEL Item.
- Y. FLT REST SMK VAL /S,M/ No MEL Item.
- Z. L(R) ENG SCAV FILT /S,M/ on -800 series, -901 (RR), -1001 series EICAS. See MEL item 79-35-3.
- AA. CARGO A/C CTRLR /S,M/ on -602, -702, -703 EICAS. See MEL item 21-28-01.
- AB. CARGO A/C CONT /C/ on -400, -600, -700, -800, -900, -1001 series EICAS. See MEL item 21-28-1.
- AC. CARGO A/C CONT /S,M/ on -600, -700 -800, -900, -1001 series EICAS. See MEL item 21-28-1.
- AD. MN CARGO LOOP 1 /S,M/ on -901, -1001 series EICAS. See MEL item 26-16-02.
- AE. MN CARGO LOOP 2 /S,M/ on -901, -1001 series EICAS. See MEL item 26-16-02.
- AF. CAPT STBY INV /S,M/ on -901, -1001 series EICAS. No MEL item.



32-30-01	Landing Gear Retracting System
32-31-01	Landing Gear Lever Lock Solenoid
32-32-01	Main Gear Door Uplock Springs
32-41-01	Wheel Brakes
32-41-01A	<i>Deactivation Tool Used</i>
32-41-01B	<i>Brake Line Capped</i>
32-41-02	BRAKE SOURCE Indication System
32-41-02A	<i>EICAS Message Operation Verified</i>
32-41-02B	<i>Brake System Operation Verified</i>
32-41-03	Gear Retraction Braking System
32-42-01	Antiskid System
32-42-01-01	Channels
32-42-02	Alternate Antiskid Valves
32-42-02A	<i>Normal Antiskid System Operative</i>
32-42-02B	<i>Antiskid Inoperative Penalties</i>
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32-42-03A	<i>Antiskid System Operative</i>
32-42-03B	<i>Antiskid Inoperative Penalties</i>
32-42-04	Autobrake System
32-42-04-01A	<i>AUTO BRAKES Light Not Illuminated</i>
32-42-04-01B	<i>Autobrake Solenoid Valve Verified Closed</i>
32-42-04-01C	<i>Autobrake Module Deactivated</i>
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32-44-03-01A	<i>Antiskid Light Verified Operative</i>
32-44-03-01B	<i>Antiskid Inoperative Decrements</i>
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 - 32-71-02B *Extend/Retract Function Verified*
 - 32-71-02C *Tail Skid Secured Extended*
- 32-71-02-01 TAIL SKID Light
- 32-71-02-02 Proximity Switch System

**32-30-01 Landing Gear Retracting System**

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

May be inoperative provided:

- a. Inoperative components are properly secured by an accepted procedure.
- b. Airplane is dispatched in accordance with appropriate AFM Landing Gear Extended Appendix.

MAINTENANCE (M)

Secure the inoperative components (AMM 32-00-00/901).

1. Install landing gear downlock components in the main and nose gear as follows.
 - A. Set the landing gear control lever to DN.
 - B. Install down lock components in the main gear drag brace downlock hole. Use BACB30LM10D120 bolt, BACN10JC10CD lock nut, two NAS1149F1032P washers and ITW Medalist Leitzke No. 25-05 safety pins for each drag brace.
 - C. Install down lock components in the main gear side brace downlock hole. Use BACB30LM10D90 bolt, BACN10JC10CD lock nut, two NAS1149F1032P washers and ITW Medalist Leitzke No. 25-05 safety pins for each side brace.
 - 1) If unable to install downlock components, adjust the main-gear side-brace lock-link-overcenter dimension.
 - D. Install down lock components in the nose gear lock link downlock hole. Use BACB30LM8D41 bolt, BACN10JC8CD lock nut, two NAS1149F0832P washers and ITW Medalist Leitzke No. 25-05 safety pins.
 - 1) If unable to install downlock components in lock link, adjust the nose-gear lock-link-overcenter dimension.
2. Open and collar the P11 panel LANDING GEAR LEVER LOCK circuit breaker.
3. Set the ALTERNATE Vmo/Mmo select switch to ALTN.

OPERATIONS (O)

1. Operate airplane in accordance with AFM Landing Gear Extended Appendix.
2. Base flight plan on landing gear extended.



3. 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.
4. The following flight deck effects will occur while the gear is extended:
 - A. Gear down lights (NOSE, LEFT, RIGHT) will remain illuminated.
 - B. Altitude alerting will be available.
 - C. 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.

Effectivity: BRA (Collins TCAS)

- D. TCAS lower antenna will not switch to omnidirectional.

Effectivity: BMU (Honeywell TCAS)

- E. TCAS lower antenna will 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 (AMM 32-00-00/901).

1. Confirm the following P11 panel circuit breakers are closed:
 - A. LANDING GEAR LEVER LOCK
 - B. LDG GR POS AIR/GND SYS 1
 - C. LDG GR POS AIR/GND SYS 2
2. Confirm the LOCK OVRD button operates normally:
 - A. Install landing gear downlocks.
 - B. Supply electrical power.
 - C. Depressurize the center hydraulic system.
 - D. Open the P11 panel LANDING GEAR LEVER LOCK circuit breaker.
 - E. Confirm the landing gear lever cannot be moved to UP without the lever lock override button pushed in.
 - F. Push the lever lock override button and confirm the control lever will move to UP.
 - G. Set the landing gear lever to DN. Confirm the green NOSE, LEFT, and RIGHT landing gear down lights are on.
 - H. Close the open circuit breaker.
 - I. Remove landing gear downlocks (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 Gear Door Uplock Springs**

Interval	Installed	Required	Procedure
B	4	3	(M) (O)

One spring on one door uplock mechanism may be missing provided speed does not exceed 270 KIAS/0.82 Mach.

MAINTENANCE (M)

Remove any pieces of the broken spring (AMM 32-00-00/901).

OPERATIONS (O)

Observe the gear extended placard speed limit.


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 (AMM 32-00-00/901).

1. Install the brake deactivation tool:

NOTE 1: Boeing P/N A32001-1 bag of parts includes Dowty deactivation tool P/N 2-7461-1 which is usable on S274T120-4, -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.
- B. Install landing gear downlocks.
- C. Ensure wheels are adequately chocked.
- D. Depressurize the right and center hydraulic systems.
- E. Open the P6 panel ALT FLAP PWR circuit breaker.
- F. Supply electrical power.
- G. Release the parking brakes by depressing both brake pedals fully and releasing. Confirm the PARK BRAKE light extinguishes.
- H. 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 no longer moves down.
- I. Gain access to the antiskid shuttle valve module.
- J. Remove the appropriate antiskid shuttle valve slide plug (just the slide plug, not the shuttle valve) from the module. The following table identifies which shuttle valve slide plug should be removed to deactivate a particular brake.

LEFT GEAR WHEEL BRAKE	LEFT ANTISKID SHUTTLE VALVE MODULE	RIGHT GEAR WHEEL BRAKE	RIGHT ANTISKID SHUTTLE VALVE MODULE
No. 1 (FWD OUTBD)	* VALVE "BRK A"	No. 3 (FWD INBD)	* VALVE "BRK C"
No. 2 (FWD INBD)	* VALVE "BRK B"	No. 4 (FWD OUTBD)	* VALVE "BRK D"
No. 5 (AFT OUTBD)	* VALVE "BRK C"	No. 7 (AFT INBD)	* VALVE "BRK A"
No. 6 (AFT INBD)	* VALVE "BRK D"	No. 8 (AFT OUTBD)	* VALVE "BRK B"
* IDENTIFICATION IS MARKED ON MODULE			

- K. Install the special brake dispatch disconnect tool in place of the removed shuttle valve end cap. Tighten the disconnect tool to 50 pound-inches, and lockwire.
 - L. Gain access to the antiskid/autobrake control unit.
 - M. Set the BRAKE TEST/DISABLE selector to the brake position that was deactivated.
2. Test proper deactivation of the wheel brake:
 - A. Supply right hydraulic system pressure.
 - 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.
 3. Close the open circuit breaker.

OPERATIONS (O)

Stopping distances will be increased with a brake deactivated. Adjust takeoff and landing performance in compliance with AFM data for 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:

- a. Takeoff performance is based on landing gear extended.
- b. Takeoff and landing performance complies with AFM for one brake inoperative.
- c. After takeoff, gear remains extended for two minutes prior to retraction.



- d. Antiskid operates normally on remaining wheels.
-

MAINTENANCE (M)

Deactivate the brake by capping the brake line (AMM 32-00-00/901).

1. Disconnect the brake line at the brake disconnect fitting:
 - A. Install landing gear door locks.
 - B. Install landing gear downlocks.
 - C. Ensure wheels are adequately chocked.
 - D. Depressurize the right and center hydraulic systems.
 - E. Supply electrical power.
 - F. Release the parking brakes by depressing both brake pedals fully and releasing. Confirm the PARK BRAKE light extinguishes.
 - G. 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 cockpit brake pressure gauge no longer moves down.
 - H. Uncouple the brake disconnect (hose half) and attach the hose to the landing gear truck using P/N BACS38K3D.
 - I. Gain access to the antiskid/autobrake control unit.
 - J. Set the BRAKE TEST/DISABLE selector to the brake position that was deactivated.
 - K. Supply right hydraulic system pressure.
 - L. 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 following flight deck effects will occur while the gear is extended:
 - A. Gear down lights (NOSE, LEFT, RIGHT) will remain illuminated.
 - B. Altitude alerting will not be available.
 - C. 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.

Effectivity: BRA

- D. TCAS lower antenna will not switch to omnidirectional.

Effectivity: BMU (Honeywell TCAS)

- E. TCAS lower antenna will switch to omnidirectional.
3. 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 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 by the obstacle limit 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
-300/-80C2	5	53,000 lb (24,041 kg)	54,000 lb (24,495 kg)
	15	44,000 lb (19,959 kg)	50,000 lb (22,680 kg)
	20	38,000 lb (17,237 kg)	45,000 lb (20,412 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 (AMM 32-00-00/901).

1. Supply electrical power.
2. Supply hydraulic power.
3. Set the R ELEC DEMAND pump selector to OFF.
4. Set the C 1/2 ELEC PRIMARY pump switches to OFF.
5. Confirm the BRAKE SOURCE advisory message illuminates.
6. Set the R ELEC DEMAND pump selector to AUTO.
7. Set the C 1/2 ELEC PRIMARY pump switches to ON.
8. 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. C 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 (AMM 32-00-00/901).

1. Install landing gear downlocks.
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. Supply center hydraulic system pressure with one electric pump (AMM 29-11-00/201). Confirm the C SYS PRESS light is not illuminated.
5. Depress and release both of the captain's or first officer's brake pedals ten times minimum. The brake pressure gauge should dip momentarily (2000 to 2500 psi) at 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.
6. Confirm the BRAKE PRESS pressure gage on the first officer's instrument panel indicates 2850 to 3500 psig.
7. Depressurize the right hydraulic system without applying brakes. Confirm the R SYS PRESS light illuminates.
8. Depress and release both of the captain's or first officer's brake pedals. Confirm the brake pressure gage does not dip with brake application, and the center system pressure on the EICAS ELEC/HYD page momentarily dips (2000 to 2500 psig) at each brake application.
9. Confirm the BRAKE PRESS pressure gage on the first officers's instrument panel indicates 2850 to 3500 psig.
10. Depressurize the center hydraulic system without applying brakes.
11. Depress and release both of the captain's or first officer's brake pedals seven times minimum.
12. Confirm the BRAKE PRESS pressure gage on the first officers's instrument panel indicates a lower value each time the brakes are applied. Final pressure should be about 850 - 1200 psig.

**32-41-03 Gear Retraction Braking System**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- After takeoff, gear remains down for two minutes before retraction.
- Takeoff performance is based on landing gear extended.

OPERATIONS (O)

- After takeoff, leave the landing gear extended for two minutes to allow the wheels to spin down prior to gear retraction.
- Base takeoff climb and obstacle clearance performance on landing gear extended from AFM Landing Gear Extended Appendix or equivalent FCOM/Flight Planning and Performance Manual data. In lieu of these adjustments, 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	(M) (O)

Required for Cat II/IIIa/IIIb approach.

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 covers 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 (M)

Deactivate two or more inoperative antiskid channels or deactivate the entire system (AMM 32-00-00/901).

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:
 - With electrical power on the airplane, open the following P11 panel circuit breakers. The ANTISKID OFF advisory message should appear.
 - LDG GR ANTISKID 1-5
 - LDG GR ANTISKID 2-6
 - LDG GR ANTISKID 3-7
 - LDG GR ANTISKID 4-8
 - One at a time, close each circuit breaker and perform the following:
 - If the ANTISKID OFF advisory message remains with the circuit breaker closed, this pair of channels is faulty. Open and collar the circuit breaker.
 - If the ANTISKID OFF advisory message 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 the antiskid/autobrake control unit.
 - 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 LDG GR 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 LDG GR 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 LDG GR 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 LDG GR 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) LDG GR ANTISKID 1-5
 - 2) LDG GR ANTISKID 2-6
 - 3) LDG GR ANTISKID 3-7
 - 4) LDG GR 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 (AMM 32-00-00/901).

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 alternate brake system is available on the affected wheels (AMM 32-00-00/901).

- Supply electrical power.
- Ensure wheels are adequately chocked.
- Release the parking brake.
- Depressurize the right hydraulic system.
- Supply center hydraulic system pressure.
- 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 anti-skid valve(s) for affected brakes:
 - Disconnect and stow the connector for the associated alternate antiskid valve.
 - Wheels 1 and 2: valve number V37
 - Wheels 3 and 4: valve number V39
 - Wheels 5 and 6: valve number V38
 - Wheels 7 and 8: valve number V40
 - 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. Loss of the right hydraulic system enroute 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

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 alternate brake system is available on the affected wheels (AMM 32-00-00/901).

- Supply electrical power.
- Ensure wheels are adequately chocked.
- Release the parking brake.
- Depressurize the right hydraulic system.
- Supply center hydraulic system pressure.
- 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 anti-skid system:
 - For brakes that do not apply and release on the left gear, open and collar the associated P11 panel circuit breakers:
 - LDG GR ANTISKID 1-5
 - LDG GR ANTISKID 2-6
 - For brakes that do not apply and release on the right gear, open and collar the associated P11 panel circuit breakers:
 - LDG GR ANTISKID 3-7
 - LDG GR 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 the 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)

May be inoperative provided antiskid system is verified to operate normally.

MAINTENANCE (M)

Verify the antiskid system operates normally (AMM 32-00-00/901).

1. Supply electrical power.
2. Ensure wheels are adequately chocked.
3. Release the parking brake.
4. Gain access to the antiskid/autobrake control unit.
5. Press the BIT switch to recall all faults until the unit display reads TEST END. Confirm no PARK BRAKE message is indicated in test.
6. Press the RESET switch to clear memory.
7. Note recurrent faults by pressing BIT until TEST END is displayed.

32-42-03 ANTISKID Light**32-42-03B Antiskid Inoperative Penalties**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided AFM decrements are applied for antiskid inoperative operations.

OPERATIONS (O)

1. Takeoff and landing performance must be in compliance with the AFM for antiskid inoperative.
2. Antiskid system is assumed to be inoperative. Do not use autobrakes. Set 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
32-42-04-01A AUTO BRAKES Light Not Illuminated

Interval	Installed	Required	Procedure
C	1	0	

Required for Cat II/IIIa/IIIb approach.

May be inoperative provided:

- a. AUTO BRAKES light is not illuminated with autobrake switch OFF.
 - b. Approach minimums do not require its use.
-

32-42-04 Autobrake System
32-42-04-01B Autobrake Solenoid Valve Verified Closed

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. Autobrake solenoid valve is verified closed.
 - b. Approach minimums do not require its use.
-

MAINTENANCE (M)

Verify the autobrake solenoid valve is closed (AMM 32-00-00/901).

1. Supply electrical power.
2. Ensure wheels are adequately chocked.
3. Release the parking brake.
4. Retard both thrust levers.
5. Set the AUTO BRAKES selector to OFF.
6. Supply right hydraulic system pressure.
7. For AUTO BRAKES light not illuminated, the autobrake solenoid valve is confirmed closed.
8. For AUTO BRAKES light illuminated:
 - A. Depressurize the right and center hydraulic systems.
 - B. Pump the brake pedals until the brake accumulator pressure gage on the first officer's panel will reduce no further (approximately 1000 psi).
 - C. For AUTO BRAKES light illuminated, the autobrake solenoid valve is confirmed closed.

32-42-04 Autobrake System**32-42-04-01C 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.
 - b. Approach minimums do not require its use.
-

MAINTENANCE (M)

Deactivate the autobrake module (AMM 32-00-00/901).

1. Depressurize the right and center hydraulic systems.
2. Depressurize the right hydraulic system reservoir.
3. Pump the brake pedals until the brake accumulator pressure gauge on the first officer's panel will reduce no further (approximately 1000 psi).
4. Open the following P11 panel circuit breakers:
 - A. AUTOBRK ANTISKID TEST/IND 1
 - B. AUTOBRK 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. D2196
 - B. D2198
 - C. D2200
 - D. D2202
7. Perform step A or step B below:
 - A. Disable the autobrake module in place:
 - 1) Disconnect and plug the system pressure hydraulic line at the module with BACP20AU8J, K or S.
 - 2) Cap the valve pressure port with BACC14AD8J or equivalent.
 - B. Remove the autobrake module (AMM 32-42-09/401):
 - 1) Disconnect and plug the system pressure hydraulic line at the module with BACP20AU8J, K or S.
 - 2) Interconnect the brake and return lines with a suitable section of tubing or flexible hose.
8. Close the open circuit breakers.
9. Supply right hydraulic system pressure 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 performance decrements are applied for antiskid inoperative operations.

MAINTENANCE (M)

Confirm the parking brake valve is fully closed (AMM 32-00-00/901).

1. Supply electrical power.
2. Ensure wheels are adequately chocked.
3. Release the parking brake
4. Open and collar the P6 panel PARKING BRAKE VALVE circuit breaker.
5. Gain access to the parking brake valve.
6. Set the override lever on the parking brake valve to POS 2.

[For airplanes with ANTISKID switch:](#)

7. With the parking brake released and ANTISKID switch ON, confirm the antiskid light and the ANTISKID OFF advisory message are annunciated. Leave antiskid switch ON.

[For airplanes without ANTISKID switch:](#)

8. With the parking brake released, confirm the antiskid light and the ANTISKID OFF advisory message are annunciated.

OPERATIONS (O)

1. Takeoff and landing performance must be in compliance with AFM for antiskid inoperative.
2. Antiskid system is inoperative. Do not use autobrakes. Set 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)

May be inoperative provided:

- a. Parking brake valve operates normally.
- b. Antiskid light is verified to operate normally once each flight day.

MAINTENANCE (M)

Verify the antiskid light operates normally once each flight day (AMM 32-00-00/901).

For airplanes with ANTISKID switch:

1. Set the ANTISKID switch to ON.
2. Supply electrical power.
3. Supply right hydraulic system power.
4. Confirm the P6 panel PARKING BRAKE circuit breaker is closed.
5. Set the parking brakes by pulling the PARK BRAKE handle and depressing both captain's brake pedals to the stops and releasing.
6. Confirm the P5 panel ANTISKID light is not illuminated.
7. Open the P6 panel PARKING BRAKE circuit breaker.
8. After approximately 3 seconds confirm the ANTISKID light illuminates.
9. Release the parking brake by depressing the brake pedals.
10. Close the open circuit breaker and confirm ANTISKID light extinguishes.
11. Set the parking brake by pulling the PARK BRAKE handle and depressing both captain's brake pedals to the stops and releasing.
12. Position and hold the P61 TEST panel CONFIG switch in the T/O position.
13. Confirm the PARKING BRAKE takeoff warning message is displayed.
14. Release the parking brake.
15. Confirm the PARKING BRAKE takeoff warning message is not displayed.
16. Confirm the ANTISKID light is extinguished.
17. Release the configuration test switch.
18. Open the P6 panel PARKING BRAKE circuit breaker.
19. Confirm the ANTISKID light is extinguished (wait at least three seconds).
20. Close the open circuit breaker.

**32-44-03 Parking Brake Lights****32-44-03-01 PARK BRAKE Light****32-44-03-01B Antiskid Inoperative Decrements**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided AFM performance decrements are applied for antiskid inoperative operations.

OPERATIONS (O)

1. Takeoff and landing performance must be in compliance with AFM for antiskid inoperative.
2. Anti-skid system is assumed to be inoperative. Do not use autobrakes. Set AUTO BRAKES selector to OFF.

[For airplanes with ANTISKID switch:](#)

3. Set the ANTISKID switch to ON.
4. 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)

May be inoperative provided EICAS advisory message PARKING BRAKE is verified to operate normally.

OPERATIONS (O)

1. Verify the PARKING BRAKE advisory message is displayed with the parking brake set.
2. Release the parking brake.
3. Verify the ANTISKID light is extinguished.



- 32-44-03 Parking Brake Lights**
- 32-44-03-02 Nose Gear Parking Brake Status Indicator Lights (PARKING BRAKE SET, BRAKE ON, BRAKE OFF)**
- 32-44-03-02A Alternate Procedures Required**

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

May be inoperative provided alternate procedures are established and used.

MAINTENANCE (M)

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)

1. Establish communications between ground and flight deck.
2. Notify ground crew when the parking brake is set.

- 32-44-03 Parking Brake Lights**
- 32-44-03-02 Nose Gear Parking Brake Status Indicator Lights (PARKING BRAKE SET, BRAKE ON, BRAKE OFF)**
- 32-44-03-02B Procedures Do Not Require Use**

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.



32-44-04 Brake Accumulator Pressure Gauge (Wheel Well)

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)

Verify the brake accumulator air charge is normal once each flight day (AMM 32-00-00/901).

1. Install landing gear downlocks.
2. Ensure wheels are adequately chocked.
3. Depressurize the right and center hydraulic systems.
4. Confirm the R SYS PRESS indicator light is illuminated.
5. Supply electrical power to the hydraulic brake system.
6. Supply right hydraulic system pressure.
7. Confirm the R SYS PRESS indicator light is extinguished.
8. Gain access to the brake accumulator pressure gauge.
9. Confirm the pressure gauge indicates 3000 to 3500 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 850 to 1200 psig depending on ambient temperature, as indicated on a placard near the accumulator.



32-45-01 Integral Tire Pressure Indicators

Effectivity: BPT, BMQ, BWX, BWW

Interval	Installed	Required	Procedure
D	10	0	

**32-45-02 Nose Wheel Spin Brakes (Snubbers)**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be damaged or missing.

MAINTENANCE (M)

Examine each nose wheel spin brake (AMM 32-00-00/901).

1. Confirm there are no exposed bolts or metal pieces which 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.



32-45-03 Tire Pressure Indicating System (TPIS)

Effectivity: BPT, BMQ, BWX, BWW

Interval	Installed	Required	Procedure
D	1	0	

NOTE: This item covers the tire pressure indications on the lower EICAS display, the TIRE PRESSURE light on the overhead panel and the EICAS message TIRE PRESSURE.

MAINTENANCE NOTE

Use an alternate means to measure tire pressure (AMM 12-15-03/301).

**32-46-01 Brake Temperature Monitoring System (BTMS)**

Interval	Installed	Required	Procedure
D	1	0	

NOTE: Brake cooling fans will be inoperative when all eight brake temperature readings are inoperative.

NOTE: This item covers the brake temperature indications on the lower EICAS display and the BRAKE TEMP light above the landing gear handle.

**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 taxi, 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 (AMM 32-00-00/901).

- Verify the rudder pedal interconnect mechanism failure will not jam other system controls by visually inspecting the mechanism below the flight compartment floor.
- Test the tiller steering system:
 - Install the landing gear downlocks.
 - Set the towing lever on the steering metering valve module to the TOW position and install the towing lever lockpin.
 - Using the Captain's tiller, operate steering through full left and right envelope and verify no system binding occurs.
 - Remove the landing gear downlocks.

OPERATIONS (O)

The flight crewmember with access to the tiller will be flying, and the following procedures shall be used:

TAKEOFF

The pilot flying should steer the airplane, manipulating the nose wheel steering tiller, until the rudder becomes effective (approximately 40 to 60 knots). 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 (AMM 32-00-00/901).

1. Install the landing gear door locks.
2. Confirm the GEAR DOORS advisory message illuminates after a 35 second time delay.
3. Remove the landing gear door locks.

**32-61-02 Landing Gear Door Latch Proximity Sensor**
32-61-02-01 System One

Interval	Installed	Required	Procedure
C	4	3	(M) (O)

One may be inoperative provided:

- a. Appropriate performance adjustments are applied.
- b. Remaining system one and all system two sensors are verified to operate normally before each departure.

MAINTENANCE (M)

Before each departure verify the remaining system one and all system two sensors operate normally (AMM 32-00-00/901).

1. Gain access to the proximity switch electronics unit (PSEU).
2. Perform the PSEU BITE test.
 - A. Confirm the remaining system one sensors operate normally.
 - B. Confirm all system two sensors operate normally.

OPERATIONS (O)

1. Reduce takeoff, enroute climb and landing performance limited weights 3600 lb (1633 kg).
2. The enroute climb weight adjustment is 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 adjustment listed above by the appropriate factor listed on page 3.00-01-00.2 in the ENROUTE DIVERSION SPEED EFFECTS paragraph.
3. The ADP will operate continuously with the AIR DEMAND pump selector in AUTO.
4. The LDG GEAR MONITOR status message will display.
5. Nose gear door sensors are inhibited with the landing gear extended.

**32-71-01 Tail Skid**

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

May be inoperative provided:

- Tail skid is secured in extended position.
- Water supplies associated with aft drain mast are secured OFF.
- Appropriate performance adjustments are applied.

MAINTENANCE (M)

Secure the tail skid in the extended position and secure water supplies associated with the aft drain mast (AMM 32-00-00/901).

- Shut off water supplies associated with aft drain mast.
- Secure the tail skid in the fully extended position.
 - Open and collar the P11 panel TAIL SKID circuit breaker.
 - Confirm the landing gear lever is in the DN detent.
 - Supply center system hydraulic pressure.
 - Gain access to the tail skid control module.
 - For tail skid not fully extended, clear the tail skid area and fully extend the tail skid:
 - Move the manual override lever on the tail skid control module to POSITION 2 (extend) and confirm the tail skid extends fully.
 - Confirm the TAILSKID advisory message and TAIL SKID light are extinguished.
 - From outside the airplane, confirm there is no evidence of hydraulic fluid leakage from the tail skid shock strut/actuator.

OPERATIONS (O)

- Reduce takeoff and landing performance limited weights 1400 lb (635 kg).
- Reduce enroute climb performance limited weight 2600 lb (1179 kg).
- The enroute climb weight adjustment is 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 adjustment listed above by the appropriate factor listed on page 3.00-01-00.2 in the ENROUTE DIVERSION SPEED EFFECTS paragraph.
- Enroute fuel consumption will increase by 1.4%.


32-71-02 Tail Skid Indication System
32-71-02A Retraction Mechanism Inoperative

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided tail skid retraction mechanism is inoperative.

32-71-02 Tail Skid Indication System
32-71-02B Extend/Retract Function Verified

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided tail skid extend/retract function is verified to operate normally once each flight day.

MAINTENANCE (M)

Once each flight day verify the tail skid extend/retract function operates normally (AMM 32-00-00/901).

Perform step 1 or step 2.

1. Tailskid control module method:
 - A. Supply electrical power.
 - B. Supply center hydraulic system and hydraulic reservoir pressure.
 - C. Gain access to the tail skid control module.
 - D. Set the manual override lever on the control module to the retract position.
 - E. Confirm the tail skid retracts.
 - F. Set the manual override lever on the control module to the extended position.
 - G. Confirm the tail skid extends.
2. Flight deck landing gear control lever method:
 - A. Supply electrical power.
 - B. Supply center hydraulic system and hydraulic reservoir pressure.
 - C. Install the landing gear downlocks.
 - D. Set the flight deck landing gear control lever UP.
 - E. Confirm the tail skid retracts.
 - F. Set the flight deck landing gear control lever DN.
 - G. Confirm the tail skid extends.
 - H. Remove the landing gear downlocks.

32-71-02 Tail Skid Indication System
32-71-02C Tail Skid Secured Extended

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

May be inoperative provided:

- Tail skid is secured in extended position.
- Water supplies associated with aft drain mast are secured OFF.
- Appropriate performance adjustments are applied.

MAINTENANCE (M)

Secure the tailskid in the extended position and secure the water supplies associated with the aft drain mast using MEL Item 32-71-01 (M) procedure (AMM 32-00-00/901).

OPERATIONS (O)

Reduce performance limited gross weights using MEL Item 32-71-01 (O) procedure.

Enroute fuel consumption will increase by approximately 1.4% with the tailskid secured in the extended position.

32-71-02 Tail Skid Indication System
32-71-02-01 TAIL SKID Light

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided alternate indication operates normally.

32-71-02 Tail Skid Indication System
32-71-02-02 Proximity Switch System

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided tail skid extend/retract function is verified to operate normally once each flight day.

MAINTENANCE (M)

Once each flight day verify the tail skid extend/retract function operates normally (AMM 32-00-00/901).



Perform step 1 or step 2.

1. Tailskid control module method:
 - A. Supply electrical power.
 - B. Supply center hydraulic system and hydraulic reservoir pressure.
 - C. Gain access to the tail skid control module.
 - D. Set the manual override lever on the control module to the retract position.
 - E. Confirm the tail skid retracts.
 - F. Set the manual override lever on the control module to the extended position.
 - G. Confirm the tail skid extends.
2. Flight deck landing gear control lever method:
 - A. Supply electrical power.
 - B. Supply center hydraulic system and hydraulic reservoir pressure.
 - C. Install the landing gear downlocks.
 - D. Set the flight deck landing gear control lever UP.
 - E. Confirm the tail skid retracts.
 - F. Set the flight deck landing gear control lever DN.
 - G. Confirm the tail skid extends.
 - H. Remove the landing gear downlocks.



Intentionally
Blank



33-11-01 Flight Compartment and Instrument Lighting System

33-14-01 Supernumerary Reading Lights

33-16-01 Master Dim and Test System

33-16-01-01 Test Function

33-16-01-02 Dim Function

33-21-01 Cabin Interior Illumination System

33-21-01-01 Passenger Configurations with Incandescent Emergency
Escape Path Marking System

33-21-01-02 Passenger Configurations with Photo-Luminescent
Emergency Escape Path Marking System

33-21-01-02-01 Installation of Non-Electrical Floor Path Marking

**33-24-01 Passenger Lighted Information Signs System (NO
SMOKING/FASTEN SEAT BELT/RETURN TO SEAT)**

33-24-01A *PA System Inoperative*

33-24-01B *PA System Operative*

33-24-01C *No Passengers Carried*

33-24-01-02 Aural Tone System

33-24-01-03 Flight Deck Automatic Function

33-31-01 Wheel Well Lights

33-31-03 Service Lights

33-31-04 Electrical Equipment Center Lights

33-37-01 Cargo Compartment Lights

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33-37-01-05 Lower Cargo Compartments

33-37-01-06 Light Lens

33-41-01 Wing Illumination Lights

33-42-01 Landing Lights

33-42-01A *All Operations*

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33-42-02 Taxi Lights



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33-43-01-01 -300

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33-43-01-02 -300 With Blended Winglets (LED Lights)

33-43-01-02-01 Forward Position Lights Module

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33-44-01 Anti-Collision Lights (Red Strobes/White Strobes)33-44-01A *Day Operations*33-44-01B *Red Inoperative*33-44-01C *White Inoperative***33-45-01 Logo Lights****33-51-01 Interior Emergency Lighting System (Battery Powered)**33-51-01A *Aisle Lights Inoperative*33-51-01B *Door Lights/Signs Inoperative*33-51-01C *No Passengers Carried***33-51-02 Exterior Emergency Lighting System (Battery Powered)****33-51-03 Emergency Escape Path Marking System**33-51-03A *Passengers Carried*33-51-03B *No Passengers Carried*

33-51-03-01 Incandescent Lighting System

33-51-03-02 Photo-luminescent Lighting System



33-11-01 Flight Compartment and Instrument Lighting System

Interval	Installed	Required	Procedure
C	-	-	

Individual lights may be inoperative provided:

- a. Remaining lighting system lights are sufficient to clearly illuminate all required instruments, controls, and other devices for which they are provided.
- b. Remaining system lights are positioned so that direct rays are shielded from flight crewmembers' eyes.
- c. Lighting configuration and intensity is acceptable to flight crew.

NOTE: Individual button/switch lights and/or annunciations/indications are excluded from this relief.



33-14-01 Supernumerary Reading Lights

Interval	Installed	Required	Procedure
D	-	0	



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 (AMM 33-00-00/901).

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
**33-21-01-01 Passenger Configurations with Incandescent
Emergency Escape Path Marking System**

Interval	Installed	Required	Procedure
C	40	30	

Individual lights may be inoperative provided:

- Remaining lighting is sufficient for cabin attendants to perform their duties.
- For night ER operations, at least 75% of night lights must operate.

33-21-01 Cabin Interior Illumination System
**33-21-01-02 Passenger Configurations with Photo-Luminescent
Emergency Escape Path Marking System**

Interval	Installed	Required	Procedure
C	27	21	

Individual lights may be inoperative provided:

- Remaining lighting is sufficient for cabin attendants to perform their duties.
- Every two adjacent general lighting ceiling fluorescent tubes may be inoperative provided:
 - at least two tubes are operative in between,
 - the tubes at the same body station and adjacent in other ceiling lights

strip are operative.

the tubes at the same body station and adjacent in other sidewall lights strip are operative.

- Every two adjacent general lighting sidewall fluorescent tubes may be inoperative provided:
 - at least two tubes are operative in between,

the tubes at the same body station in all other sidewall lights strip are operative.

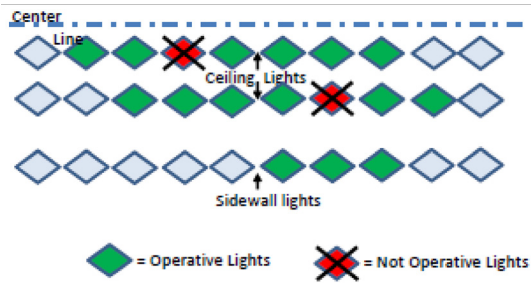
- General lighting window fluorescent tubes may be inoperative,
- All lamps in the region of the life raft storage are as must be operative,
- Entry way lighting must operate in «BRIGHT» setting,
- For night ER operations, at least 75% of the Night Lights must operate.

33-21-01 Cabin Interior Illumination System
33-21-01-02 Passenger Configurations with Photo-Luminescent Emergency Escape Path Marking System
33-21-01-02-01 Installation of Non-Electrical Floor Path Marking System Guideline

Effectivity: VP-BWX, VP-BWW, VQ-BOG, VQ-BPT, VP-BDI

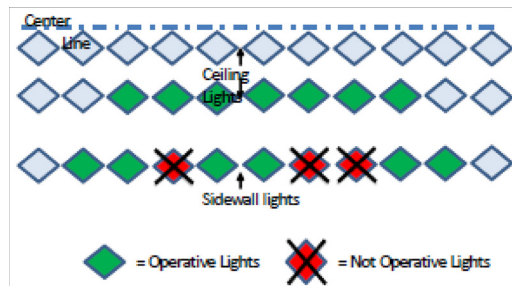
Interval	Installed	Required	Procedure
C	-	-	(O)

- a. 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:



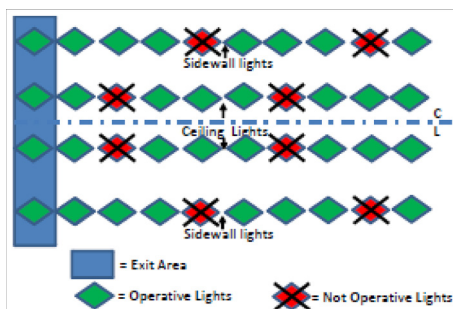
- 1) at least two tubes adjacent to inoperative tubes in longitudinal direction are operative in between,
- 2) all adjacent ceiling and sidewall tubes around (incl. diagonal located tubes) are operative.

Two adjacent general lighting sidewall fluorescent tubes may be inoperative provided:



- 1) at least two tubes in longitudinal direction are operative in between,
- 2) all adjacent sidewall and ceiling tubes around (incl. diagonal located tubes) are operative

- b. Cabin configuration with one row ceiling light per aisle.



- 1) Fluorescent ceiling (Cabin, Entry, Galley) and sidewall tubes must be operative at all exits (incl. overwing) and FWD and AFT of an exit.
- 2) Two ceiling or two sidewall tubes at same bodystation may be inoperative, provided adjacent ceiling and sidewall tubes in longitudinal direction are operative

OPERATIONS (O)

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.

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. 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.


33-24-01 Passenger Lighted Information Signs System (NO SMOKING/FASTEN SEAT BELT/RETURN TO SEAT)
33-24-01A PA System Inoperative

Interval	Installed	Required	Procedure
C	27	21	(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 the associated passenger seat or lavatory (AMM 33-00-00/901).

- 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 which are not to be occupied by passengers, cabin attendants, or additional flight crewmembers.

33-24-01 Passenger Lighted Information Signs System (NO SMOKING/FASTEN SEAT BELT/RETURN TO SEAT)
33-24-01B PA System Operative

Interval	Installed	Required	Procedure
C	-	-	(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)

Each operator shall establish procedures for notifying passengers when seat belts should be fastened, when smoking is prohibited, and when passengers should return to their seats.



NOTE: No Smoking signs normally extinguish on takeoff when the landing gear is retracted and illuminate during landing as the landing gear is extended. The Fasten Seat Belt signs normally extinguish on takeoff when the flaps and landing gear are up and illuminate when the flaps or landing gear are extended.

33-24-01 Passenger Lighted Information Signs System (NO SMOKING/FASTEN SEAT BELT/RETURN TO SEAT)**33-24-01C No Passengers Carried**

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided:

- No passengers are carried.
 - A maximum of 19 persons for non-passenger carrying operations are carried.
 - Alternate procedures are established and used.
-

OPERATIONS (O)

- No passengers may be carried.
- A maximum of 19 persons may be carried.
- Flight crew members and authorized persons must be briefed prior to takeoff and landing regarding alternate procedures for notification when seat belts must be used.

NOTE: No Smoking signs normally extinguish on takeoff when the landing gear is retracted and illuminate during landing as the landing gear is extended. The Fasten Seat Belt signs normally extinguish on takeoff when the flaps and landing gear are up and illuminate when the flaps or landing gear are extended.

33-24-01 Passenger Lighted Information Signs System (NO SMOKING/FASTEN SEAT BELT/RETURN TO SEAT)**33-24-01-02 Aural Tone System**

Interval	Installed	Required	Procedure
C	1	0	



**33-24-01 Passenger Lighted Information Signs System (NO
SMOKING/FASTEN SEAT BELT/RETURN TO SEAT)**

33-24-01-03 Flight Deck Automatic Function

Interval	Installed	Required	Procedure
C	-	0	(O)

- May be inoperative provided:
- a. Manual control function operates normally.
 - b. Alternate procedures are established and used.

OPERATIONS (O)

Each operator shall establish procedures for notifying passengers when seat belts should be fastened, when smoking is prohibited, and when passengers should return to their seats.



33-31-01 Wheel Well Lights

Interval	Installed	Required	Procedure
C	6	0	



33-31-03 Service Lights

Interval	Installed	Required	Procedure
C	8	0	

NOTE: Relief for the ECS bay, APU & tailcone area, and electrical equipment center service lights is moved to MEL Item 25-20-1.

33-31-04

Electrical Equipment Center Lights

Interval	Installed	Required	Procedure
C	9	0	

NOTE: Relief for the ECS bay, APU & tailcone area, and electrical equipment center service lights is moved to MEL Item 25-20-1.


33-37-01 Cargo Compartment Lights
33-37-01-04 Sill Lights

Interval	Installed	Required	Procedure
C	-	0	

33-37-01 Cargo Compartment Lights
33-37-01-05 Lower Cargo Compartments

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided procedures do not require their use.

OPERATIONS (O)

Ensure hazardous materials are carried in accordance with appropriate regulations.

33-37-01 Cargo Compartment Lights
33-37-01-06 Light Lens

Interval	Installed	Required	Procedure
C	-	0	(M)

May be broken/missing provided associated light is deactivated.

MAINTENANCE (M)

Deactivate the associated light (AMM 33-00-00/901).

1. Ceiling lamps and wall mounted lamps have a microswitch to remove power. For sill lights, remove power at the associated circuit breaker on P35, P39, P87 or P33. Refer to System Schematics Manual.
2. Remove the light bulb.
3. Tape over the fixture with fiberglass tape.

**33-41-01 Wing Illumination Lights**

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided ground de-icing procedures do not require their use.

OPERATIONS (O)

Lighting requirements for wing illumination during ground de-icing must be determined by each operator.

Ground de-icing procedures conducted during the day do not require the Wing Illumination Lights to be operative.



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	1	0	



33-42-03 Runway Turnoff Lights

Interval	Installed	Required	Procedure
C	2	0	


33-43-01 Position Lights (Bulbs)
33-43-01-01 -300
33-43-01-01A 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)
33-43-01-01 -300
33-43-01-01B Day Operations

Interval	Installed	Required	Procedure
C	8	0	

May be inoperative for day operations.

33-43-01 Position Lights (Bulbs)
33-43-01-02 -300 With Blended Winglets (LED Lights)
33-43-01-02-01 Forward Position Lights Module
33-43-01-02-01A All Operations
Effectivity: BOQ

Interval	Installed	Required	Procedure
C	4	2	

One stationary forward position light LED module on leading edge of each winglet may be inoperative.



- 33-43-01 Position Lights (Bulbs)
- 33-43-01-02 -300 With Blended Winglets (LED Lights)
- 33-43-01-02-01 Forward Position Lights Module
- 33-43-01-02-01B Day Operations

Effectivity: BOQ

Interval	Installed	Required	Procedure
C	4	0	

May be inoperative for day operations.

- 33-43-01 Position Lights (Bulbs)
- 33-43-01-02 -300 With Blended Winglets (LED Lights)
- 33-43-01-02-02 Aft Position Lights Module

Effectivity: BOQ

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative for day operations.



33-44-01 Anti-Collision Lights (Red Strobes/White Strobes)
33-44-01A Day Operations

Interval	Installed	Required	Procedure
C	4	0	

May be inoperative for day operations.

33-44-01 Anti-Collision Lights (Red Strobes/White Strobes)
33-44-01B Red 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)
33-44-01C White 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.



33-45-01 Logo Lights

Interval	Installed	Required	Procedure
D	-	0	


33-51-01 Interior Emergency Lighting System (Battery Powered)
33-51-01A Aisle Lights Inoperative

Interval	Installed	Required	Procedure
C	-	-	

Light assemblies installed in ceiling above each main aisle may be inoperative provided no two adjacent (same aisle) light assemblies are inoperative.

33-51-01 Interior Emergency Lighting System (Battery Powered)
33-51-01B Door Lights/Signs Inoperative

Interval	Installed	Required	Procedure
A	-	-	

Lights/signs exclusively associated with one door, slide or emergency exit may be inoperative provided:

- Associated door, slide or emergency exit is considered inoperative.
- Repairs are made within 1 flight day.

NOTE: Also dispatch the airplane using MEL Item 52-11-04.

33-51-01 Interior Emergency Lighting System (Battery Powered)
33-51-01C No Passengers Carried

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative provided:

- No passengers are carried.
- A maximum of 19 persons for non-passenger carrying operations are carried.
- Alternate procedures are established and used.

OPERATIONS (O)

- No passengers may be carried.
- A maximum of 19 persons may be carried.



3. Flight crew members and authorized persons must be briefed prior to takeoff and landing regarding alternate procedures for emergency evacuation.

NOTE: No Smoking signs normally extinguish on takeoff when the landing gear is retracted and illuminate during landing as the landing gear is extended. The Fasten Seat Belt signs normally extinguish on takeoff when the flaps and landing gear are up and illuminate when the flaps or landing gear are extended.

**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
33-51-03A Passengers Carried

Interval	Installed	Required	Procedure
A	1	0	

Lights/signs exclusively associated with one door, slide or emergency exit may be inoperative provided:

- a. Associated door, slide or emergency exit is considered inoperative.
- b. Repairs are made within 1 flight day.

NOTE: Also dispatch the airplane using MEL Item 52-11-04.

33-51-03 Emergency Escape Path Marking System
33-51-03B No Passengers Carried

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided:

- a. No passengers are carried.
- b. A maximum of 19 persons for non-passenger carrying operations are carried.
- c. Alternate procedures are established and used.

OPERATIONS (O)

1. No passengers may be carried.
2. A maximum of 19 persons may be carried.
3. Flight crew members and authorized persons must be briefed prior to takeoff and landing regarding alternate procedures for emergency evacuation.

33-51-03 Emergency Escape Path Marking System
33-51-03-01 Incandescent Lighting System

Interval	Installed	Required	Procedure
C	1	0	

Individual lights may be inoperative provided minimum acceptable lighting levels specified in one of the following documents are maintained:

- a. Two adjacent lights may be inoperative,
- b. Cross aisles lights must be operative,



- c. Only 25 percent of lights may be inoperative. At least one light must be operative every 40 inches between the farthest forward and farthest aft path lights.
-

OPERATIONS NOTE

- A. Floor marker lights, main aisle:
- 1) All lights with red or arrow lenses must be operative.
 - 2) All lights adjacent to arrow lights must be operative.
 - 3) Lights adjacent to inoperative lights must operate normally.
- B. Floor marker lights, cross aisle (incandescent or electroluminescent):
- 1) For cross aisles with two lights installed, both must be operative.
 - 2) For cross aisles with three lights installed, both outer lights must be operative.
- NOTE: A single segment of an electro-luminescent light strip is equivalent to a single incandescent light for the purposes of this relief.
- C. Sidewall exit indicators must have two of the five lamps operating.
- D. To satisfy FAA regulations, at least one light must be operative every 80 inches (2 meters) between the farthest forward and farthest aft path lights.
- E. At least one light must be operative every meter (39.4 inches) between the farthest forward and farthest aft path lights.

33-51-03 Emergency Escape Path Marking System**33-51-03-02 Photo-luminescent Lighting System**

Interval	Installed	Required	Procedure
C	-	-	

Each of the photoluminescent strips of an aisle may be inoperative or missing up to a length of 0,25m (10 inches) provided the inoperative or missing parts are not directly opposite each other and are not closer together than 2,0m (78.74 inches). No more than 4 such inoperative or missing parts are allowed.



34-00-01 Instrument Source Select Switches

34-00-01A *Except ER Operations*

34-00-01B *ER Operations Allowed*

34-13-01 MACH/Airspeed Indicators

34-13-01-01 Mach Indicators

34-13-01-01A *One Inoperative*

34-13-01-01B *Both Inoperative, EFIS Mach Indications
Operative*

34-13-01-01C *Both Inoperative, Flight Remains At Or
Below FL300*

34-13-01-02 Command Airspeed Cursors

34-13-01-03 Airspeed Indicators

34-13-01-04 External Airspeed Markers (Bugs)

34-13-02 Mach/Airspeed Warning Systems (Visual and Aural)

34-13-06 Standby Altimeter Vibrator

34-13-08 Static Air Temperature (SAT) Indicator (Center Panel)

34-13-09 True Airspeed (TAS) Indicator (Center Panel)

34-13-10 Speed Command (Fast-Slow) Indicators

34-16-01 Altitude Alerting System

34-16-01-01 Aural Alert

34-16-01-02 Visual Alert

34-21-01 Inertial Reference Systems (IRS)

34-21-01-01 IRU

34-21-01-01-02A *Left or Right Inoperative, Except ER
Operations*

34-21-01-01-02B *Right Inoperative, ER Operations Allowed*

34-21-01-01-02C *Center Inoperative, Day VMC*

34-21-01-03 IRS Mode Selector Panel - Display and Keyboard
Functions

34-21-01-03A *ER Operations Allowed*

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34-21-01-03B	<i>Except ER Operations</i>
34-22-03	Radio Distance Magnetic Indicators (RDMI)
34-22-03A	<i>Right Inoperative</i>
34-22-03B	<i>Left Inoperative, Day VMC</i>
34-22-03C	<i>Right and Left Inoperative</i>
34-22-03-01	Independent ADF Radio Magnetic Indicators (RMI)
34-22-03-01A	<i>EHSI ADF Bearing Pointer Operative</i>
34-22-03-01B	<i>ADF System Considered Inoperative</i>
34-22-04	Flight Director Systems
34-22-04-01	Displays
34-22-05	Electronic Flight Instrument (EFIS) Symbol Generators
34-22-05A	<i>Except ER Operations</i>
34-22-05B	<i>ER Operations Allowed</i>
34-22-06	EFIS Controls
34-22-06-01	Switches (NAV AID/ARPT/RTE DATA/WPT/WXR/TERR)
34-22-06-04	Decision Height Indication (DH REF)
34-22-06-04-01	Without Radio Altitude Indicators (Tape) Installed
34-22-06-04-02	With Radio Altitude Indicators (Tape) Installed
34-22-06-05	HSI Selector
34-22-06-05-01	MAP Position
34-22-06-05-02	PLAN Position
34-22-06-06	HSI Range Selector
34-22-07	EFIS Speed Tape
34-22-07-01	Mach Indications
34-22-07-01A	<i>One Inoperative</i>
34-22-07-01B	<i>Mach Indicators Operative</i>
34-22-07-01C	<i>Flight Remains At Or Below FL300</i>
34-22-07-02	Airspeed Indications
34-22-08	Pitch Limit Indicators



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34-22-30-01 TRUE Function

34-23-01 Magnetic Compass (Standby)34-23-01A *Three Gyro or INS (IRU) Compass Systems
Operative*34-23-01B *Two Gyro or INS (IRU) Compass Systems
Operative*34-23-01C *Two Stabilized Directional Gyro Systems
Operative***34-24-01 Standby Attitude/ILS Indicator**

34-24-01-01 Attitude Display

34-24-01-02 Approach Mode

34-24-02 Integrated Standby Flight Display (ISFD) System

34-24-02-01 Attitude Display

34-24-02-02 Approach Mode

34-24-02-03 Heading Display

34-24-02-04 Metric Altimeter Display

34-24-02-04A *Alternate Procedures Required*34-24-02-04B *Procedures Do Not Require Use*

34-24-02-05 Dedicated Battery/Charger System

34-25-01 Instrument Comparator Unit**34-31-01 ILS Systems**

34-31-1A Except ER Operations

34-32-01 Marker Beacon System**34-33-01 Radio Altimeter (RA) Systems (EADI)**

34-33-01-01 Single Source Datalink to GPWS

34-33-01-01-01 Left RA

34-33-01-01-02 Center/Right RA

34-33-01-02 Multi-source Datalink to GPWS

34-33-01-02A *GPWS Supplied With Altitude Data*34-33-01-02B *Approach Minimums Do Not Require Use*



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34-43-01-01 With Windshear Alert Mode (Predictive) Installed

34-43-01-01A *Reactive Windshear Inoperative*34-43-01-01B *Reactive Windshear Operative*

34-43-01-02 Without Windshear Alert Mode (Predictive) Installed

34-43-01-03 Indicators

34-43-01-04 Autotilt/Multiscan Function

34-43-01-05 WXR ON Light

34-43-01-06 GAIN UCAL Light / BELOW CAL Lamp

34-43-01-07 Windshear Alert Mode (Predictive)

34-43-01-07A *Reactive Windshear Inoperative*34-43-01-07B *Reactive Windshear Operative***34-45-01 Traffic Collision and Avoidance System (TCAS)**34-45-01-01 Combined Traffic Alert (TA) and Resolution Advisory (RA)
Dual Display System(s)

34-45-01-02A One Inoperative

34-45-01-03 Traffic Alert (TA) Display System(s)

34-45-01-04 Audio Functions

34-46-01 Ground Proximity Warning System (GPWS)

34-46-01-01 Modes 1 - 4

34-46-01-02 Test Mode

34-46-01-03 Glideslope Deviation (Mode 5)

34-46-01-04 Advisory Callouts (Mode 6)

34-46-01-05 Windshear Alert Mode (Reactive) (Mode 7)

34-46-01-05A *Alternate Procedures Required*34-46-01-05B *Predictive Windshear Operative*

34-46-01-06 Terrain Awareness Function

34-46-01-07 Terrain Displays

34-46-01-07A *More Than One Installed, One Operative*



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34-60-03	Global Positioning System (GPS)	
	<i>34-60-03A</i>	<i>Alternate Procedures Required</i>
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34-61-01	Flight Management Computer Systems (FMCS)	
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Intentionally
Blank


34-00-01 Instrument Source Select Switches
34-00-01A Except ER Operations
ETOPS

Interval	Installed	Required	Procedure
C	10	0	(O)

Except for ER operations, may be inoperative provided:

- a. Associated instruments operate from isolated sources.
- b. Inoperative switches are not moved in flight.

OPERATIONS (O)

Ensure instruments are operating from isolated sources as follows:

1. FLT DIR Source Selector:
 - A. Set the captain's or first officer's unaffected source selector so both pilot's instruments are operating from different sources.
 - B. Set the captain's and first officer's F/D switches ON.
 - C. For the affected source selector, remove power from the associated FCC by opening the associated circuit breaker:
 - 1) FLT CONT CMPTR PWR, L
 - 2) FLT CONT CMPTR PWR, C
 - 3) FLT CONT CMPTR PWR, R
 - D. Confirm the flight director command bars disappear on the associated ADI and remain in view on the opposite side ADI.
 - E. Close the open circuit breaker.
 - F. For the unaffected source selector, remove power from the associated FCC by opening the associated circuit breaker:
 - 1) FLT CONT CMPTR PWR, L
 - 2) FLT CONT CMPTR PWR, C
 - 3) FLT CONT CMPTR PWR, R
 - G. Confirm the flight director command bars disappear on the associated ADI and remain in view on the opposite side ADI.
 - H. Close the open circuit breaker.
 - I. Do not move the inoperative source selector in flight.
2. FMC Switch or NAV Source Selector:

For 200K, 700K, 1Meg Non-PIP FMC:

 - A. Set different map ranges for each pilot's HSI.
 - B. Confirm the MAP RANGE DISAGREE message does not appear on the opposite HSI.
 - C. Do not move the inoperative source selector in flight.


For PIP and Pegasus FMC without EGPWS:

- A. Open the P11 panel FMC R circuit breaker.
- B. Confirm the map display fails on right HSI only.
- C. Close the open circuit breaker.
- D. Do not move the inoperative source selector in flight.

For Pegasus FMC with EGPWS:

- A. Set an operative NAV source selector to the offside FMC.
 - B. Confirm a green FMC L or FMC R annunciation is displayed in the lower center portion of the HSI/ND.
 - C. Set the operative NAV source selector to the original selection.
 - D. Confirm a green FMC L or FMC R annunciation is not displayed in the lower center portion of the HSI/ND.
 - E. Do not move the inoperative 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 in ALIGN position.
 - B. Confirm at least one ADI has 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 and confirm test data (airspeed, altitude, etc.) are displayed on only one pilot's instruments.
 - B. Do not move the inoperative AIR DATA switch in flight.

34-00-01 Instrument Source Select Switches
34-00-01B ER Operations Allowed
ETOPS

Interval	Installed	Required	Procedure
C	10	0	(O)

May be inoperative provided:

- a. Associated instruments operate from isolated sources.
- b. Inoperative switches are not moved in flight.
- c. At least one FMC, EFI, and IRS switch must operate normally.

OPERATIONS (O)

Ensure instruments are operating from isolated sources as follows:

1. FLT DIR Source Selector:
 - A. Set the captain's or first officer's unaffected source selector so both pilot's instruments are operating from different sources.
 - B. Set the captain's and first officer's F/D switches ON.
 - C. For the affected source selector, remove power from the associated FCC by opening the associated circuit breaker:
 - 1) FLT CONT CMPTR PWR, L
 - 2) FLT CONT CMPTR PWR, C
 - 3) FLT CONT CMPTR PWR, R
 - D. Confirm the flight director command bars disappear on the associated ADI and remain in view on the opposite side ADI.
 - E. Close the open circuit breaker.
 - F. For the unaffected source selector, remove power from the associated FCC by opening the associated circuit breaker:
 - 1) FLT CONT CMPTR PWR, L
 - 2) FLT CONT CMPTR PWR, C
 - 3) FLT CONT CMPTR PWR, R
 - G. Confirm the flight director command bars disappear on the associated ADI and remain in view on the opposite side ADI.
 - H. Close the open circuit breaker.
 - I. Do not move the inoperative source selector in flight.
2. FMC Switch or NAV Source Selector:

For 200K, 700K, 1Meg Non-PIP FMC:

 - A. Set different map ranges for each pilot's HSI.
 - B. Confirm the MAP RANGE DISAGREE message does not appear on the opposite HSI.
 - C. Do not move the inoperative source selector in flight.

For PIP and Pegasus FMC without EGPWS:

 - A. Open the P11 panel FMC R circuit breaker.
 - B. Confirm the map display fails on right HSI only.
 - C. Close the open circuit breaker.
 - D. Do not move the inoperative source selector in flight.

For Pegasus FMC with EGPWS:

 - A. Set an operative NAV source selector to the offside FMC.
 - B. Confirm a green FMC L or FMC R annunciation is displayed in the lower center portion of the HSI/ND.
 - C. Set the operative NAV source selector to the original selection.
 - D. Confirm a green FMC L or FMC R annunciation is not displayed in the lower center portion of the HSI/ND.
 - E. Do not move the inoperative 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 in ALIGN position.
 - B. Confirm at least one ADI has 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 and confirm test data (airspeed, altitude, etc.) are displayed on only one pilot's instruments.
 - B. 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 associated 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 associated 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
34-13-01-04 External Airspeed Markers (Bugs)

Interval	Installed	Required	Procedure
C	-	0	(O)

May be inoperative or missing provided alternate procedures are established and used.

OPERATIONS (O)

Use 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.



34-13-08

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:

- Autopilot with altitude hold and altitude capture operates normally.
- Enroute operations do not require its use.
- Airplane does not depart from a designated airport (as listed in operator's MEL) where repair or replacement can be made.
- Repairs are made within 3 flight days.

OPERATIONS (O)

- Enroute operations that require altitude alerting (such as RVSM) may not be conducted.
- Use the autopilot and altitude hold for all operations for which it is appropriate.
- Cross-check the altitude displays between the captain's and first officer's PFDs upon reaching and departing an assigned altitude. Periodically cross-check altitude indications when maintaining an assigned altitude.
- Pilot monitoring should call out approaching and departing assigned altitudes.
- Flight crew must be aware that the usual alerts for altitude deviations will not occur.

34-16-01 Altitude Alerting System
34-16-01-01 Aural Alert

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided:

- Visual alert operates normally.
- Autopilot with altitude hold and altitude capture operates normally.

34-16-01 Altitude Alerting System
34-16-01-02 Visual Alert

Interval	Installed	Required	Procedure
C	1	0	

- a. Aural alert operates normally.
- b. Autopilot with altitude hold and altitude capture operates normally.

.....

34-21-01 Inertial Reference Systems (IRS)**34-21-01-01 IRU****34-21-01-01-02A Left or Right Inoperative, Except ER Operations**

Interval	Installed	Required	Procedure
C	3	2	(M) (O)

Three required for Cat IIIb.

Two required for Cat II / IIIa.

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: For non-EGPWS configurations, if the left IRU is inoperative, windshear guidance and alerting system will be inoperative. Also dispatch the airplane using MEL Item 34-46-01.

MAINTENANCE (M)

NOTE: IRUs are interchangeable.

Select the center IRU and verify IRU data source isolation once each flight day (AMM 34-00-00/901).

- Set the associated INSTR SOURCE SEL IRS switch to ALTN.
- Set the IRS mode selector to ALIGN for one of the operating IRU.
- 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 the C FLT DIR selected, set the FLT DIR source selector back to the usual position.
- For left IRU inoperative, the integrated standby flight display (ISFD) heading information will not be available.



- 3. 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 INSTR SOURCE SEL IRS switch to ALTN.

34-21-01 Inertial Reference Systems (IRS)

34-21-01-01 IRU

34-21-01-01-02B Right Inoperative, ER Operations Allowed

ETOPS

Interval	Installed	Required	Procedure
C	3	2	(M) (O)

Three required for Cat IIIb.

Two required for Cat II / IIIa.

Right may be inoperative provided:

- a. Approach minimums do not require its use.
- b. Center is selected and isolation is verified once each flight day.
- c. First officer's IRS instrument source select switch operates normally.
- d. Left and center operate normally.

MAINTENANCE (M)

NOTE: IRUs are interchangeable.

Select the center IRU and verify IRU data source isolation once each flight day (AMM 34-00-00/901).

- 1. Set the associated INSTR SOURCE SEL IRS switch to ALTN.
- 2. Set the IRS mode selector to ALIGN for one of the operating IRU.
- 3. Confirm one (not both) pilot's EADI and EHSI lose attitude and heading information.
- 4. Set the IRS mode selector to NAV.

OPERATIONS (O)

- 1. To ensure display of the flight director bars:
 - A. Set the right FLT DIR source selector to C prior to takeoff.
 - B. Inflight, set the center A/P ENGAGE switch to engage the autopilot.
 - For airplanes without the full time flight director option:
 - C. Set the right FLT DIR source selector back to the usual position.
- 2. 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 INSTR SOURCE SEL IRS switch to ALTN.


34-21-01 Inertial Reference Systems (IRS)
34-21-01-01 IRU
34-21-01-01-02C Center Inoperative, Day VMC
ETOPS

Interval	Installed	Required	Procedure
C	3	2	

Three required for Cat IIIb.

Two required for Cat II / IIIa.

Center may be inoperative for day VMC flight.

MAINTENANCE NOTE

NOTE: IRUs are interchangeable.

34-21-01 Inertial Reference Systems (IRS)
34-21-01-03 IRS Mode Selector Panel - Display and Keyboard Functions

34-21-01-03A ER Operations Allowed
ETOPS

Interval	Installed	Required	Procedure
C	-	0	

May be inoperative provided both FMCS CDUs operate normally.

34-21-01 Inertial Reference Systems (IRS)
34-21-01-03 IRS Mode Selector Panel - Display and Keyboard Functions

34-21-01-03B Except ER Operations

Interval	Installed	Required	Procedure
C	-	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, Day VMC**

Interval	Installed	Required	Procedure
C	2	1	

Left may be inoperative provided flight is restricted to day VMC.

34-22-03 Radio Distance Magnetic Indicators (RDMI)**34-22-03C Right and Left Inoperative**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided standby power system powers captain's instrument bus.

34-22-03 Radio Distance Magnetic Indicators (RDMI)**34-22-03-01 Independent ADF Radio Magnetic Indicators (RMI)****34-22-03-01A EHSI ADF Bearing Pointer Operative**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated EHSI ADF bearing pointer operates normally.

**34-22-03 Radio Distance Magnetic Indicators (RDMI)****34-22-03-01 Independent ADF Radio Magnetic Indicators (RMI)****34-22-03-01B ADF System Considered Inoperative**

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated radio compass ADF system is considered inoperative.

NOTE: Also dispatch the airplane using MEL Item 34-57-01.



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.
NOTE: For P-RNAV , RNP require min one.

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
34-22-05A Except ER Operations
ETOPS

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)

NOTE: Symbol generators are interchangeable.

Verify symbol generator isolation once each flight day (AMM 34-00-00/901).

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**34-22-05B ER Operations Allowed****ETOPS**

Interval	Installed	Required	Procedure
C	3	2	(M)

Left or right may be inoperative provided symbol generator isolation is verified once each flight day.

MAINTENANCE (M)

NOTE: Symbol generators are interchangeable.

Verify symbol generator isolation once each flight day (AMM 34-00-00/901).

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 first officer's HSI.
3. 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	-	-	

One switch for each function may be inoperative provided procedures do not require its use.

34-22-06 EFIS Controls
34-22-06-04 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
34-22-06-04 Decision Height Indication (DH REF)
34-22-06-04-01 Without Radio Altitude Indicators (Tape) Installed

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative.

NOTE: Flight crew use EADI DH indication.

34-22-06 EFIS Controls
34-22-06-04 Decision Height Indication (DH REF)
34-22-06-04-02 With Radio Altitude Indicators (Tape) Installed

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
34-22-06-05 HSI Selector
34-22-06-05-01 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
34-22-06-05 HSI Selector
34-22-06-05-02 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 desired flight information.

34-22-06 EFIS Controls
34-22-06-06 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 associated 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 associated 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)

Operators must establish and use procedures to 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	

May be inoperative provided any combination of three gyro or INS (IRS) stabilized compass systems operate normally.

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)

Flight crews must ensure planned routes comply with limitations.

34-23-01 Magnetic Compass (Standby)
34-23-01C Two Stabilized Directional Gyro Systems Operative

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)

Flight crews must ensure 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:

- Operations are conducted in day VMC only.
- Operations are not conducted into known or forecast over-the-top conditions.

NOTE: "Over-the-top" means above the layer of clouds or other obscuring phenomena forming the ceiling. This would cover both IFR and VFR type operations. "VFR on top" is not a standard FAA term and has been replaced with "over-the-top". (MMEL Policy Letter No. 111R1)

34-24-01 Standby Attitude/ILS Indicator**34-24-01-02 Approach Mode**

Interval	Installed	Required	Procedure
C	1	0	


34-24-02 Integrated Standby Flight Display (ISFD) System
34-24-02-01 Attitude Display

ETOPS

Interval	Installed	Required	Procedure
B	1	0	

May be inoperative provided:

- Operations are conducted in day VMC only.
- Operations are not conducted into known or forecast over-the-top conditions.

34-24-02 Integrated Standby Flight Display (ISFD) System
34-24-02-02 Approach Mode

ETOPS

Interval	Installed	Required	Procedure
C	1	0	

34-24-02 Integrated Standby Flight Display (ISFD) System
34-24-02-03 Heading Display

ETOPS

Interval	Installed	Required	Procedure
C	1	0	

34-24-02 Integrated Standby Flight Display (ISFD) System
34-24-02-04 Metric Altimeter Display
34-24-02-04A Alternate Procedures Required

ETOPS

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Flight crews should be provided with convenient conversion tables for correcting altimeter reading in feet to meters.



34-24-02 Integrated Standby Flight Display (ISFD) System**34-24-02-04 Metric Altimeter Display****34-24-02-04B Procedures Do Not Require Use**

ETOPS

Interval	Installed	Required	Procedure
D	1	0	

May be inoperative provided procedures do not require its use.

34-24-02 Integrated Standby Flight Display (ISFD) System**34-24-02-05 Dedicated Battery/Charger System**

ETOPS

Interval	Installed	Required	Procedure
C	1	0	

Except for ER operations beyond 120 minutes, may be inoperative .



34-25-01 Instrument Comparator Unit

Interval	Installed	Required	Procedure
D	1	0	


34-31-01 ILS Systems
ETOPS

Interval	Installed	Required	Procedure
C	3	2	

Three required for Cat IIIb approach.

Two required for Cat II / IIIa approach.

NOTE: The center system is powered by the Standby Bus and must remain operative.

PLACARD

PLACARD as appropriate.

OPERATIONS NOTE

1. For one inoperative ILS, the NO LAND 3 advisory message will be displayed.
2. For more than one inoperative ILS, the NO AUTOLAND advisory message will be displayed.
3. For left ILS inoperative, the ground proximity warning system mode 5 (glideslope deviation) will be inoperative and the airplane must also be dispatched using MEL 34-46-01-03.

34-31-01 ILS Systems
34-31-1A Except ER Operations
ETOPS

Interval	Installed	Required	Procedure
C	2	1	

Except for ER operations, left and right may be inoperative provided approach minimums do not require its use.

NOTE: The center system is powered by the Standby Bus and must remain operative.

PLACARD

PLACARD as appropriate.

OPERATIONS NOTE

1. For one inoperative ILS, the NO LAND 3 advisory message will be displayed.
2. For more than one inoperative ILS, the NO AUTOLAND advisory message will be displayed.



3. For left ILS inoperative, the ground proximity warning system mode 5 (glideslope deviation) will be inoperative and the airplane must also be dispatched using MEL 34-46-1-3.

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.

**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)

Three required for Cat IIIb approach.

Two required for Cat II / IIIa approach.

May be inoperative provided:

- Approach minimums or operating procedures do not require its use.
- Repairs are made within 2 flight days.

MAINTENANCE NOTE

Operation of the test switch for the landing configuration warning will show the function to be faulty. Flap-based monitoring modes of the landing configuration remain operational and, if desired, can be verified as follows:

- Open the P11 panel LANDING GEAR POSITION AIR/GND SYS 1 circuit breaker.
- Open the P11 panel LANDING GEAR POSITION AIR/GND SYS 2 circuit breaker.
- With landing flaps, 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:

- 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.



4. The autoland status annunciation will indicate NO LAND 3.
5. For more than one RA inoperative, the autoland status annunciation will indicate NO AUTOLAND.

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)

Three required for Cat IIIb approach.

Two required for Cat II / IIIa approach.

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

OPERATIONS (O)

1. For one RA inoperative, the autoland status annunciation will indicate NO LAND 3.
2. For more than one RA inoperative, the autoland status annunciation will indicate NO AUTOLAND.
3. For more than one RA inoperative, TCAS may be inoperative (depending on RA inputs to TCAS).

34-33-01 Radio Altimeter (RA) Systems (EADI)
34-33-01-02 Multi-source Datalink to GPWS
34-33-01-02A GPWS Supplied With Altitude Data

Interval	Installed	Required	Procedure
C	3	1	(O)

Three required for Cat IIIb approach.

Two required for Cat II / IIIa approach.

May be inoperative provided:

- a. GPWS is supplied with altitude data.
 - b. Approach minimums or operating procedures do not require its use.
-

MAINTENANCE NOTE

For left RA inoperative, operation of the test switch for the landing configuration warning will show the function to be faulty. Flap-based monitoring modes of the landing configuration remain operational and, if desired, can be verified as follows:

1. Open the P11 panel LANDING GEAR POSITION AIR/GND SYS 1 circuit breaker.
2. Open the P11 panel LANDING GEAR POSITION AIR/GND SYS 2 circuit breaker.
3. With landing flaps, all warning indications will be activated.
4. With flaps up, the configuration warning light and associated warning message will illuminate with at least one throttle at idle.
5. Close the open circuit breakers.

OPERATIONS (O)

1. If the left radio altimeter is failed, the flight crew should expect to see the following flight deck effects:
 - A. 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.
 - B. 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.
 - C. 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 annunciation will indicate NO LAND 3.
3. For more than one RA inoperative, the autoland status annunciation will indicate NO AUTOLAND.
4. For left and right RA inoperative, TCAS is inoperative.

34-33-01 Radio Altimeter (RA) Systems (EADI)**34-33-01-02 Multi-source Datalink to GPWS****34-33-01-02B Approach Minimums Do Not Require Use**

Interval	Installed	Required	Procedure
A	3	0	(O)



May be inoperative provided:

- a. Approach minimums or operating procedures do not require its use.
- b. Repairs are made within 2 flight days.

MAINTENANCE NOTE

Operation of the test switch for the landing configuration warning will show the function to be faulty. Flap-based monitoring modes of the landing configuration remain operational and, if desired, can be verified as follows:

1. Open the P11 panel LANDING GEAR POSITION AIR/GND SYS 1 circuit breaker.
2. Open the P11 panel LANDING GEAR POSITION AIR/GND SYS 2 circuit breaker.
3. With landing flaps, all warning indications will be activated.
4. With flaps up, the configuration warning light and associated warning message will illuminate with at least one throttle at idle.
5. Close the open circuit breakers.

OPERATIONS (O)

1. If the left radio altimeter is failed, the flight crew should expect to see the following flight deck effects:
 - A. 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.
 - B. 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.
 - C. 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 annunciation will indicate NO LAND 3.
3. For more than one RA inoperative, the autoland status annunciation will indicate NO AUTOLAND.
4. For left and right RA inoperative, TCAS is inoperative.



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)

Operators must develop and use procedures to increase flight crew awareness of airplane altitude. This may include flight crew use of all airplane systems available and/or flight crew altitude callouts.



34-40-01 Metric Altimeter

Interval	Installed	Required	Procedure
D	2	0	

May be inoperative provided operations do not require its use.


34-43-01 Weather Radar Systems

ETOPS

Interval	Installed	Required	Procedure
C	2	1	

Except for ER operations beyond 120 minutes, may be inoperative provided enroute weather conditions (thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar) do not require their use.

34-43-01 Weather Radar Systems
34-43-01-01 With Windshear Alert Mode (Predictive) Installed
34-43-01-01A Reactive Windshear Inoperative

ETOPS

Interval	Installed	Required	Procedure
B	2	0	(O)

May be inoperative provided:

- Weather radar is not required.
- Alternate procedures are established and used.

OPERATIONS (O)

- Alternate procedures must be established and used.
- If normal procedures are based on using predictive windshear, the alternate procedures to increase flight crew awareness of airplane configuration, altitude and flight path must be used. This may include flight crew use of all airplane systems available (reactive windshear (item 34-46-1-5), autopilot, autoland, ILS, FMCS) and flight crew review of minimum enroute altitudes and altitude callouts (refer to Supplementary Procedures for Windshear).

34-43-01 Weather Radar Systems
34-43-01-01 With Windshear Alert Mode (Predictive) Installed
34-43-01-01B Reactive Windshear Operative

ETOPS

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided:

- Weather radar is not required.
- Alternate procedures are established and used.
- Windshear warning and guidance system (reactive) operates normally.

OPERATIONS (O)

- Alternate procedures must be established and used.
- If normal procedures are based on using predictive windshear, the alternate procedures to increase flight crew awareness of airplane configuration, altitude and flight path must be used. This may include flight crew use of all airplane systems available (reactive windshear (item 34-46-1-5), autopilot, autoland, ILS, FMCS) and flight crew review of minimum enroute altitudes and altitude callouts (refer to Supplementary Procedures for Windshear).

34-43-01 Weather Radar Systems

34-43-01-02 Without Windshear Alert Mode (Predictive) Installed

ETOPS

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided weather radar is not required.

34-43-01 Weather Radar Systems

34-43-01-03 Indicators

ETOPS

Interval	Installed	Required	Procedure
D	-	-	

Any in excess of those may be inoperative.

34-43-01 Weather Radar Systems

34-43-01-04 Autotilt/Multiscan Function

ETOPS

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided manual tilt function operates normally.


34-43-01 Weather Radar Systems
34-43-01-05 WXR ON Light
ETOPS

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
34-43-01-06 GAIN UCAL Light / BELOW CAL Lamp
ETOPS

Interval	Installed	Required	Procedure
D	-	-	

34-43-01 Weather Radar Systems
34-43-01-07 Windshear Alert Mode (Predictive)
34-43-01-07A Reactive Windshear Inoperative
ETOPS

Interval	Installed	Required	Procedure
B	2	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)

1. Alternate procedures must be established and used.



2. If normal procedures are based on using predictive windshear, the operator must develop and use 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 Procedures for Windshear).

34-43-01 Weather Radar Systems**34-43-01-07 Windshear Alert Mode (Predictive)****34-43-01-07B Reactive Windshear Operative****ETOPS**

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided:

- a. Alternate procedures are established and used.
- b. Windshear warning and guidance system (reactive) operates normally.

OPERATIONS (O)

1. Alternate procedures must be established and used.
2. If normal procedures are based on using predictive windshear, the operator must develop and use 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 Procedures for Windshear).

**34-45-01 Traffic Collision and Avoidance System (TCAS)**

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

May be inoperative provided:

- Flight can be done to the destination where elimination of faults in the system can be performed.
 - 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 (AMM 34-00-00/901).

OPERATIONS (O)

FCC must request permission for a flight by the Russian aviation authorities.

34-45-01 Traffic Collision and Avoidance System (TCAS)**34-45-01-01 Combined Traffic Alert (TA) and Resolution Advisory (RA) Dual Display System(s)**

Interval	Installed	Required	Procedure
C	2	1	

May be inoperative on non-flying pilot side provided:

- Flight can be done to the destination where elimination of faults in the system can be performed.
 - TA and RA visual display operates normally on flying pilot side.
 - TA and RA audio function operates normally on flying pilot side.
-

OPERATIONS (O)

FCC must request permission for a flight by the Russian aviation authorities.

34-45-01 Traffic Collision and Avoidance System (TCAS)
34-45-01-02 Resolution Advisory (RA) Display System(s)
34-45-01-02A One Inoperative

Interval	Installed	Required	Procedure
C	2	1	(O)

- Flight can be done to the destination where elimination of faults in the system can be performed.
- May be inoperative on non-flying pilot side.

OPERATIONS (O)

FCC must request permission for a flight by the Russian aviation authorities.

34-45-01 Traffic Collision and Avoidance System (TCAS)
34-45-01-03 Traffic Alert (TA) Display System(s)

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided:

- Flight can be done to the destination where elimination of faults in the system can be performed.
- RA visual display and audio functions operate normally.
- Enroute or approach procedures do not require its use.

OPERATIONS (O)

Observe operative indications and advisories. Respond as appropriate.

FCC must request permission for a flight by the Russian aviation authorities.

34-45-01 Traffic Collision and Avoidance System (TCAS)
34-45-01-04 Audio Functions

Interval	Installed	Required	Procedure
B	1	0	(O)

- Flight can be done to the destination where elimination of faults in the system can be performed.
- May be inoperative provided enroute or approach procedures do not require use of TCAS.

**OPERATIONS (O)**

FCC must request permission for a flight by the Russian aviation authorities.


34-46-01 Ground Proximity Warning System (GPWS)

Interval	Installed	Required	Procedure
A	1	0	(O)

May be inoperative provided:

- Alternate procedures are established and used.
- Repairs are made within 2 flight days.

OPERATIONS (O)

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 2 flight days.

OPERATIONS (O)

Alternate procedures must be established and 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 item 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 2 flight days.

NOTE: Also dispatch the airplane using MEL Item 34-46-01.

34-46-01 Ground Proximity Warning System (GPWS)**34-46-01-03 Glideslope Deviation (Mode 5)**

Interval	Installed	Required	Procedure
B	1	0	

NOTE: Also dispatch the airplane using MEL Item 34-46-1.

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 established and used.

OPERATIONS (O)

Alternate procedures must be established and 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 established and used.

NOTE: Operator's alternate procedures should include reviewing windshear avoidance and windshear recovery procedures.

OPERATIONS (O)

Alternate procedures must be established and used.

NOTE: The WINDSHEAR SYS advisory message will be displayed.

NWS 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, B767, 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 established and used.
- b. Windshear detection and avoidance system (predictive) operates normally.

OPERATIONS (O)

Alternate procedures must be established and used.

NOTE 1: The WINDSHEAR SYS advisory message will be displayed.

NOTE 2: Refer to MEL item 34-46-5A (O) procedure.


34-46-01 Ground Proximity Warning System (GPWS)
34-46-01-06 Terrain Awareness Function

Interval	Installed	Required	Procedure
B	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Alternate procedures must be established and used.

NOTE 1: The GND PROX SYS advisory message will be displayed.

NOTE 2: Refer to MEL item 34-46-1 (O) procedure.

34-46-01 Ground Proximity Warning System (GPWS)
34-46-01-07 Terrain Displays
34-46-01-07A More Than One Installed, One Operative

Interval	Installed	Required	Procedure
C	2	1	

34-46-01 Ground Proximity Warning System (GPWS)
34-46-01-07 Terrain Displays
34-46-01-07B All Inoperative

Interval	Installed	Required	Procedure
B	2	0	

**34-51-01 VOR Navigation Systems**

Interval	Installed	Required	Procedure
C	2	1	

VOR not powered by a Standby Bus may be inoperative provided:

- a. Both ADF systems are operative.
- b. ADF coverage is assured for the whole flight.

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 34-32-01 for an inoperative marker beacon system.

**34-53-01 ATC Transponders and Automatic Altitude Reporting Systems****34-53-01A Operations Do Not Require Use****ETOPS**

Interval	Installed	Required	Procedure
B	2	0	

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

- Operations do not require its use.
- Prior to flight, approval is obtained from ATC facilities having jurisdiction over planned route of flight.

OPERATIONS NOTE

NOTE 1: For RVSM operations one ATC Transponder must be operative.

NOTE 2: ATC approval is required for each flight segment.

34-53-01 ATC Transponders and Automatic Altitude Reporting Systems**34-53-01B Not Required****ETOPS**

Interval	Installed	Required	Procedure
D	2	1	

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

OPERATIONS NOTE

NOTE: For RVSM operations one ATC Transponder must be operative.

**34-55-01 Distance Measuring Equipment Systems**

Interval	Installed	Required	Procedure
D	2	1	

One may be inoperative. In event that remaining system fails enroute, pilot shall notify ATC of that failure as soon as it occurs.

OPERATIONS 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	0	

May be inoperative provided enroute navigation or instrument approach is not predicated on Low Frequency (ADF) Navigation.

OPERATIONS NOTE

NOTE: Refer to MEL 34-51-1

**34-60-03 Global Positioning System (GPS)****34-60-03A Alternate Procedures Required**

Interval	Installed	Required	Procedure
C	3	1	(O)

May be inoperative provided alternate procedures are established and used.

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 (O)

Review Operations Specification requirements for route position accuracy and system availability. Consider remaining navigation and approach capability in the event of enroute failure of additional integrated navigation radio functions.

NOTE: One active system required for RNP, P-RNAV operation.

34-60-03 Global Positioning System (GPS)**34-60-03B Procedures Do Not Require Use**

Interval	Installed	Required	Procedure
D	3	0	

May be inoperative provided procedures do not require its use.

**34-61-01 Flight Management Computer Systems (FMCS)****34-61-01-01 FMC (Including CDU/HMCDU/MCDU)****34-61-01-01A Except ER Operations, One Inoperative****ETOPS**

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

Except for ER operations, one may be inoperative provided enroute operations do not require its use.

MAINTENANCE (M)

Verify the airplane can be dispatched with the WARN ELEX status message annunciated (AMM 34-00-00/901).

For WARN ELEX status message annunciated:

For airplanes without both advanced stall warning computer P/N 285T1104 and speed tape display:

1. Dispatch is not allowed.

For airplanes with advanced stall warning computer P/N 285T1104 and speed tape display:

2. 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. 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 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:

For airplanes without HMCDU/MCDU:

- A. On the side with the inoperative FMC, set the FMC switch to ALTN.



- B. LEFT FMC INOPERATIVE - When operating in flight director mode with both F/D switches ON, LNAV and VNAV will engage if the right auto pilot 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 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 left or center autopilot is engaged, LNAV and VNAV will remain engaged.

Procedure: After liftoff (with F/D in TO mode), use HDG SEL and FL CH modes as desired until left or center autopilot is engaged. Then use LNAV and VNAV as desired.

For airplanes with HMCDCU/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 autopilot 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 RDML, RMI, or HSI in the VOR mode no later than the final approach fix.

**34-61-01 Flight Management Computer Systems (FMCS)****34-61-01-01 FMC (Including CDU/HMCDU/MCDU)****34-61-01-01B Except ER Operations, Both Inoperative****ETOPS**

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

Except for ER 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 verify the airplane can be dispatched with the WARN ELEX status message annunciated (AMM 34-00-00/901).

- 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 lb (7000 kg) total fuel.

- Apply electrical power.
 - Close the fueling panel door.
 - Open the P11 panel FUEL QTY 1 and FUEL QTY 2 circuit breakers.
 - Confirm the FUEL QTY displays have gone blank.
 - To test the FQIS processor channels:
 - Close the FUEL QTY 1 circuit breaker, wait ten seconds, and record the indicated fuel quantity for each tank (processor channel 1 test).
 - Open the FUEL QTY 1 circuit breaker and then close the FUEL QTY 2 circuit breaker, wait 10 seconds and record the indicated fuel quantity for each tank (processor channel 2 test).
 - Close the open circuit breaker.
 - Compare the recorded quantities. If quantities differ by 400 lb (200 kg) or less per tank, the fuel quantity indicating processor unit is acceptable.
- For WARN ELEX status message annunciated:
[For airplanes without both advanced stall warning computer P/N 285T1104 and speed tape display:](#)
 - Dispatch is not allowed.



For airplanes with advanced stall warning computer P/N 285T1104 and speed tape display:

- B. 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. 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 IRS mode selector panel.
2. For all operations with one FMC inoperative:
 - A. IRS alignment must be completed before airplane moves.

NOTE: Some aircraft are configured with IRS 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:

For airplanes without HMCDU/MCDU:

- 1) On the side with the inoperative FMC, set the FMC switch to ALTN.
- 2) LEFT FMC INOPERATIVE - When operating in flight director mode with both F/D switches ON, LNAV and VNAV will engage if the right auto pilot 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 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 left or center autopilot is engaged, LNAV and VNAV will remain engaged.

Procedure: After liftoff (with F/D in TO mode), use HDG SEL and FL CH modes as desired until left or center autopilot is engaged. Then use LNAV and VNAV as desired.



For 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 autopilot 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 the VOR mode no later than the final approach fix.

34-61-01 Flight Management Computer Systems (FMCS)
34-61-01-01 FMC (Including CDU/HMCDU/MCDU)
34-61-01-01C Long-range Navigation, One Inoperative
ETOPS

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: An associated HMCDU or MCDU, if operative, may be used to meet navigation requirements.

MAINTENANCE (M)

Verify the airplane can be dispatched with the WARN ELEX status message annunciated (AMM 34-00-00/901).



For WARN ELEX status message annunciated:

For airplanes without both advanced stall warning computer P/N 285T1104 and speed tape display:

1. Dispatch is not allowed.

For airplanes with advanced stall warning computer P/N 285T1104 and speed tape display:

2. 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. 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 airplane moves.

NOTE: Some aircraft are configured with IRS 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) 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 autopilot 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 the 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 HMCDU or MCDU will meet the requirements for dispatch (Airplane Flight Manual, Section 3, FMCS).

Prior to takeoff accomplish the following as appropriate:

- A. For an inoperative left FMC:

- 1) 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.

- 2) After a minimum of one minute, set the captain's NAV source selector to CDU-L.
- 3) Confirm the captain's HSI Map display changes to a simplified route display without normal navigation database symbology. "CDU-L" should be displayed on the HSI/ND. This confirms availability of the Alternate Navigation system.
- 4) Prior to takeoff, set the captain's NAV source selector to FMC-R.

- B. For an inoperative right FMC:

- 1) 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.

- 2) After a minimum of one minute, set the first officer's NAV source selector to CDU-R.
- 3) Observe that first officer's HSI Map display changes to a simplified route display without normal navigation database symbology. "CDU-R" should be displayed on the HSI/ND. This confirms availability of the Alternate Navigation system.

- 4) Prior to takeoff, set the first officer's NAV source selector to FMC-L.

34-61-01 Flight Management Computer Systems (FMCS)**34-61-01-04 Navigation Databases****ETOPS**

Interval	Installed	Required	Procedure
C	2	0	(O)

May be out of currency provided:

- Current aeronautical charts are used to verify navigation fixes prior to dispatch.
 - Procedures are established and used to verify status and suitability of navigation facilities used to define route of flight.
 - Approach navigation radios are manually tuned and identified.
-

OPERATIONS (O)

- Verify navigation fixes prior to dispatch with current aeronautical charts.
- Verify status and suitability of navigation facilities used to define route of flight using established procedures.
- Verify approach navigation radios to be properly tuned and identified.

34-61-01 Flight Management Computer Systems (FMCS)**34-61-01-05 FMC Annunciator Light****ETOPS**

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 (AMM 34-00-00/901).

- Confirm the MSG annunciator on the CDU operates normally:
 - Push or push and hold the P5 panel IND LTS TEST switch.
 - Confirm the CDU annunciator light MSG illuminates.
 - Release the IND LTS TEST switch.
 - Confirm the MSG light extinguishes.
- Confirm the FMC MESSAGE advisory message operates normally:



NOTE: This test requires two people, one in the flight compartment and one in the main equipment center.

- A. Open the P11 panel FMCS CMPTR RIGHT circuit breaker.
- B. Push the CLR key on the left CDU to clear all messages on the left CDU.
- C. Push the TEST button on the front of the left FMC.
- D. Confirm the FMC MESSAGE advisory message is shown.
- E. Close the open circuit breaker.
- F. Open the P11 panel FMCS CMPTR LEFT circuit breaker.
- G. Push the CLR key on the right CDU to clear all messages on the right CDU.
- H. Push the TEST button on the front of the right FMC.
- I. Confirm the FMC MESSAGE advisory message is shown.
- J. Close the open circuit breaker.



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35-11-02 Crew Oxygen System

35-11-02-01 Pressure Indication (EICAS)

35-11-02-02 Cylinder Gages

35-11-02-02-01 One Cylinder System

35-11-02-03 Supernumerary Oxygen Masks

35-11-02-03A *Associated Seat Not Occupied*

35-11-02-03B *Flight Conducted At or Below 10,000 Feet
MSL*

35-11-02-04 Pressure Regulators

35-11-02-04-01 Two Cylinder System (Is Not Used)

35-11-02-05 Overboard Discharge Indicator Discs

35-20-01 PBE Smoke Hoods

35-21-01 Passenger Oxygen System

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 (Cylinder and Mask)



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35-11-02 Crew Oxygen System
35-11-02-01 Pressure Indication (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 (AMM 35-00-00/901).

For one cylinder installation:

1. Confirm the cylinder is open by breathing four or five deep breaths from the flight deck mask.
2. Confirm and note the system pressure at the cylinder gage.
3. Determine the oxygen cylinder temperature.
4. Contact dispatch to determine the required oxygen cylinder pressure.

For two cylinder installation:

1. For inoperative EICAS pressure indication caused by an inoperative transducer, open and collar the P11 panel OXYGEN PRESSURE circuit breaker.

NOTE: An inoperative transducer will cause the EICAS pressure indication to be one-half of the gage pressure from the cylinder with the operative transducer.

2. Confirm the cylinders are open by breathing four or five deep breaths from the flight deck mask.
3. Confirm and note system pressure at the cylinder gages. Note either the lower pressure of the two cylinders or compute the average pressure of the two cylinders.
4. Determine the oxygen cylinder temperature.
5. Contact dispatch to determine the required oxygen cylinder pressure.

35-11-02 Crew Oxygen System
35-11-02-02 Cylinder Gages
35-11-02-02-01 One Cylinder 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	2	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 Conducted At or Below 10,000 Feet MSL

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided flight is not conducted above 10,000 feet MSL.

- 35-11-02 Crew Oxygen System**
35-11-02-04 Pressure Regulators
35-11-02-04-01 Two Cylinder System (Is Not Used)

Interval	Installed	Required	Procedure
C	2	1	(M)

May be inoperative provided:

- Line to inoperative pressure regulator is disconnected and plugged.
 - Cylinder gage on remaining cylinder operates normally.
 - Oxygen supply is verified to be above minimum required before each departure.
-

MAINTENANCE (M)

Disconnect and plug the line to the inoperative pressure regulator, and before each departure verify the oxygen supply is above the minimum required (AMM 35-00-00/901).

- Close all cylinder valves.
- Bleed line pressure as necessary by pressing the test selector at the pilot's oxygen mask.
- Disconnect the tube at the regulator or at the tee between cylinders.



4. Plug both open ends in accordance with standard maintenance manual practices.
5. Secure the lines with bundle ties as necessary.
6. Re-clock the wires at the voltage averaging unit as follows:
 - A. Open the P11 panel OXYGEN PRESSURE circuit breaker.
 - B. Disconnect electrical connector D20374 from the voltage averaging unit.
 - C. Cut, seal with a cap, and keep the jumper wire (P/N W600-018-24) on the electrical connector which connects pins 11 and 12.
 NOTE: When the system is placed back into the installed cylinder configuration, the jumper wire will have to be spliced back into the connector between pins 11 and 12.
 - D. Connect the electrical connector to the voltage averaging unit and install a safety wire.
 - E. Close the open circuit breaker.
7. Open the valves on cylinders with operative regulators.
8. Determine the operative oxygen cylinder temperature.
9. Contact dispatch to determine the required oxygen cylinder pressure.

OPERATIONS NOTE

Use the following tables to determine oxygen requirements. Numbers in parentheses in the DILUTED OXYGEN table are beyond the pressure capability of the cylinder. Additional oxygen requirements for 100% oxygen and temperature corrections could also result in total requirements beyond the capability of the bottle.

Flight Crew Oxygen

Freighter Airplanes Only

Minimum Dispatch Pressure for Normal Oxygen Flow

One 114 Cubic Ft. Cylinder

NUMBER OF CREW USING	CYLINDER PRESSURE (PSI)					
	TOTAL TIME ON DILUTED OXYGEN (MINUTES)					
	30	60	90	120	150	180
2	430	620	810	1000	1200	1390
3	590	880	1170	1450	1740	(2030)
4	750	1140	1520	(1900)	(2290)	(2670)
5	910	1390	(1870)	(2350)	(2830)	(3310)
6	1080	1650	(2230)	(2800)	(3380)	(3950)


Additional Pressure Required for 100% Oxygen

NUMBER OF CREW USING	CYLINDER PRESSURE (PSI)					
	TOTAL TIME ON 100% OXYGEN (MINUTES)					
	30	60	90	120	150	180
2	260	290	320	350	380	410
3	330	380	430	470	520	570
4	410	470	530	590	660	720
5	480	560	640	720	790	870
6	560	650	750	840	930	1030

Temperature Corrections

CYLINDER PRESSURE REQUIRED AT AMBIENT TEMPERATURE OF 70 DEG. F (PSI)	PRESSURE CORRECTION PER 10 DEG. F ABOVE/BELOW 70 DEG. F (PSI)
200	+4/-4
400	+7/-7
600	+11/-11
800	+14/-14
1000	+17/-17
1200	+21/-21
1400	+24/-24
1600	+28/-28
1800	+31/-31
2000	+34/-34

Max cylinder pressure 1850 psi

For planned flight above 41,000 ft, the additional quantity of oxygen required is 2.94 liters/person/minute, which is equivalent to 1.7 psi/person/minute for the one cylinder configuration.

35-11-02 Crew Oxygen System
35-11-02-05 Overboard Discharge Indicator Discs

Interval	Installed	Required	Procedure
C	1	0	(O)



May be damaged or missing.

OPERATIONS (O)

Verify 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 SLIDE lever.
4. Observe the yellow cross appears momentarily in the FLOW indicator.
5. Push and hold the EMERGENCY/TEST selector.
 - A. While holding RESET/TEST SLIDE lever down, push the EMERGENCY TEST selector and observe the yellow cross appears in the FLOW indicator.
 - B. Observe the oxygen pressure does not decrease during the test.

**35-20-01 PBE Smoke Hoods**

Interval	Installed	Required	Procedure
D	BOQ, BRA: 11	5	
D	BWW, BWX: 10	5	
D	BMQ, BPT: 9	5	
D	BMU: 8	5	

Any in excess of those units may be inoperative or missing provided:

One (1) for the cockpit crew and four (4) PBE Smoke Hoods for cabin attendants must be operative and each item of the operative PBE is checked before each flight.

-
1. Inoperative PBE Smoke Hood is tagged inoperative, removed from the installed location, and placed out of sight so it can not be mistaken for a functional unit.
 2. Required distribution is maintained:
 - A. At least one PBE smoke hood at normal flight attendant station in each passenger cabin compartments (Fwd, Mid and Aft) is installed and operative.
 - B. Provided in each passenger compartment, one PBE Smoke Hood for each portable fire extinguisher required by MEL Item 26-26-1, is located within 3 feet (0.9 meter) of each required portable fire extinguisher.


35-21-01 Passenger Oxygen System
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 altitude enroute 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.

OPERATIONS (O)

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.

- Plan flight over route with minimum altitude enroute equal to or lower than 14,000 feet MSL.
- Flight must remain at or below FL250.
- Prior to flight, the pilot in command shall brief the cabin crew on the alternate emergency procedures that will be used.

35-21-01 Passenger Oxygen System
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
35-21-01-01 Passenger Service Units (PSUs)

Interval	Installed	Required	Procedure
B	1	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 (AMM 35-00-00/901).

1. Close the inoperative PSU door and secure using adhesive tape.
2. Rope, tie, tape or otherwise block passenger seats and flight attendant seat serviced by the inoperative PSU.
3. Placard the affected seats.

35-21-01 Passenger Oxygen System**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 (AMM 35-00-00/901).

1. Perform the "Manual Deployment Test of Passenger Oxygen Masks" procedure in the Operational Test.

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 (Cylinder and Mask)

Interval	Installed	Required	Procedure
D	BOQ: 20	5	(M)
D	BRA: 19	5	(M)
D	BWW, BWX: 17	5	(M)
D	BPT: 15	5	(M)
D	BMU: 13	5	(M)
D	BMQ:12	5	(M)

Any in excess of those units may be unserviceable or missing provided:

- a. Required distribution of serviceable cylinders is maintained throughout aircraft.
- b. Cylinders 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 (AMM 35-00-00/901).

1. 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.
2. Maintain the required distribution of serviceable cylinders.



Intentionally
Blank



36-11-01	ENG BLEED Pressure Regulating and Shutoff Valves (PRSOV)	
	36-11-01-02A	<i>APU Air Source for ADP</i>
	36-11-01-02B	<i>ADP Inoperative Penalties</i>
36-11-02	High Pressure Shutoff Valve (HPSOV) Systems	
36-11-03	Intermediate Pressure Check Valves (IPCV)	
36-11-04	APU BLEED Valve	
36-11-05	APU BLEED Check Valve	
36-11-06	L and R Bleed ISLN Valves	
36-11-07	Center Bleed Isolation Valve	
	36-11-07A	<i>APU Air Source for ADP</i>
	36-11-07B	<i>ADP Inoperative Penalties</i>
36-11-08	Engine Pressure Regulating Valve (PRV) Systems	
	36-11-08A	<i>Locked Closed, APU Air Source for ADP</i>
	36-11-08B	<i>Locked Closed, ADP Inoperative Penalties</i>
	36-11-08C	<i>Inoperative Open, APU Air Source for ADP</i>
	36-11-08D	<i>Inoperative Open, ADP Inoperative Penalties</i>
36-12-01	Precoolers	
	36-12-01A	<i>APU Air Source for ADP</i>
	36-12-01B	<i>ADP Inoperative Penalties</i>
36-12-02	Fan Air (Precooler) Control Systems	
	36-12-02-01	<i>FAMV in intermediate position</i>
	36-12-02-02	<i>FAMV full open</i>
36-21-01	Bleed Air DUCT PRESS Indicating System	
	36-21-01-01	<i>DUCT PRESS Indicators (P5 Panel)</i>
36-21-02	Engine Bleed Air OFF Lights	
36-22-01-02	BLEED Lights	
36-22-03	OVHT Lights	

**Table of Contents****36-22-04 L and R Bleed ISLN VALVE Lights****36-22-05 C Bleed ISLN VALVE Light****36-22-06 APU Bleed VALVE Light**


36-11-01 ENG BLEED Pressure Regulating and Shutoff Valves (PRSOV)
36-11-01-02A APU Air Source for ADP
ETOPS

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

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

- PRSOV is secured closed.
- Associated ENG bleed air switch remains OFF.
- Associated bleed isolation valve is opened after takeoff and closed before approach and landing.
- Airplane is not operated in known or forecast icing conditions.
- APU is used as air source for ADP for takeoff.
- Remaining (opposite) engine bleed system operates normally.
- Airplane remains at or below FL 350.
- Center hydraulic motor generator (HMG) is not required.
- Appropriate performance adjustments are applied for either of following conditions:
 - Associated fan air modulation valve secured in intermediate position, or

Associated fan air modulation valve open.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

MAINTENANCE (M)

NOTE: For an engine bleed system to be operating normally, the following items associated with that system must be operative:

MEL Item	Item Name
36-11-01	ENG BLEED Pressure Regulating and Shutoff Valves (PRSOV)
36-11-02	High Pressure Shutoff Valve (HPSOV) Systems
36-11-03	Intermediate Pressure Check Valves (IPCV)
36-11-07	Center Bleed Isolation Valve
36-11-08	Engine Pressure Regulating Valve (PRV) Systems
36-12-01	Precoolers
36-12-02	Fan Air (Precooler) Control Systems



36-22-01	BLEED Lights
36-22-03	OVHT Lights

Lock the PRSOV in the closed position, and lock the fan air modulation valve in the intermediate position or allow it to remain open (AMM 36-00-00/901).

1. Set the associated ENG bleed air switch to OFF. Confirm the OFF light illuminates and the bar light extinguishes.
2. Gain access to the inoperative PRSOV.
3. Confirm the visual position indicator on the PRSOV shows the valve is closed. For PRSOV not closed, use a wrench to turn the override hex nut until the valve is closed.
4. Unscrew the deactivation bolt from the stowed position. Confirm the deactivation arm aligns with the threaded hole in the valve body. Install the deactivation bolt through the deactivation arm and screw into the valve body.
5. Lock the fan air modulation valve in the intermediate position using MEL Item 36-12-02-01 (M) procedure, or allow to remain full open.

OPERATIONS (O)

1. Use MEL Item 36-12-02 Operations (O) procedure to reduce performance limited weights and account for increase in fuel burn.
 2. Remain clear of icing conditions.
 3. Flight must remain at or below FL350.
 4. Flight must remain within 120 minutes of landing at a suitable airport.
 5. Set associated ENG bleed air switch to OFF.
 6. Set associated PACK control selector to OFF.
 7. For takeoff and landing using APU as air source for ADP:
 - A. Close center isolation valve.
 - B. Open center isolation valve when APU is shut down.
 8. Open associated bleed isolation valve for enroute operations. Open after takeoff and close prior to approach.
 9. For in-flight failure of the operating A/C pack, the open isolation valve will permit operation of the opposite side A/C pack.
- For airplanes with FCAC (BWW, BWX):
10. Forward cargo air conditioning is not available.


36-11-01 ENG BLEED Pressure Regulating and Shutoff Valves (PRSOV)
36-11-01-02B ADP Inoperative Penalties
ETOPS

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

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

- PRSOV is secured closed.
- Associated ENG bleed air switch remains OFF.
- Associated bleed isolation valve is opened after takeoff and closed before approach and landing.
- Airplane is not operated in known or forecast icing conditions.
- ADP inoperative penalties are applied.
- Remaining (opposite) engine bleed system operates normally.
- Airplane remains at or below FL 350.
- Center hydraulic motor generator (HMG) is not required.
- Appropriate performance adjustments are applied for either of following conditions:
 - Associated fan air modulation valve secured in intermediate position, or
 - Associated fan air modulation valve open.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

MAINTENANCE (M)

NOTE: For an engine bleed system to be operating normally, the following items associated with that system must be operative:

MEL Item	Item Name
36-11-01	ENG BLEED Pressure Regulating and Shutoff Valves (PRSOV)
36-11-02	High Pressure Shutoff Valve (HPSOV) Systems
36-11-03	Intermediate Pressure Check Valves (IPCV)
36-11-07	Center Bleed Isolation Valve
36-11-08	Engine Pressure Regulating Valve (PRV) Systems
36-12-01	Precoolers
36-12-02	Fan Air (Precooler) Control Systems

36-22-01	BLEED Lights
36-22-03	OVHT Lights

Lock the PRSOV in the closed position, and lock the fan air modulation valve in the intermediate position or allow it to remain open (AMM 36-00-00/901).

1. Set the associated ENG bleed air switch to OFF. Confirm the OFF light illuminates and the bar light extinguishes.
2. Gain access to the inoperative PRSOV.
3. Confirm the visual position indicator on the PRSOV shows the valve is closed. For PRSOV not closed, use a wrench to turn the override hex nut until the valve is closed.
4. Unscrew the deactivation bolt from the stowed position. Confirm the deactivation arm aligns with the threaded hole in the valve body. Install the deactivation bolt through the deactivation arm and screw into the valve body.
5. Lock the fan air modulation valve in the intermediate position using MEL Item 36-12-02-01 (M) procedure, or allow to remain full open.

OPERATIONS (O)

1. Use MEL Item 36-12-02 Operations (O) procedure to reduce performance limited weights and account for increase in fuel burn.
2. Apply ADP performance adjustments using MEL Item 29-11-03 (O) procedure.
3. HMG is not available.
4. Remain clear of icing conditions.
5. Flight must remain at or below FL350.
6. Flight must remain within 120 minutes of landing at a suitable airport.
7. Set associated ENG bleed air switch to OFF.
8. Set associated PACK control selector to OFF.
9. Open associated bleed isolation valve for enroute operations. Open after takeoff and close prior to approach.
10. For in-flight failure of the operating A/C pack, the open isolation valve will permit operation of the opposite side A/C pack.

For airplanes with FCAC (BWW, BWX):

11. Forward cargo air conditioning is not available.


36-11-02 High Pressure Shutoff Valve (HPSOV) Systems
ETOPS

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

One may be inoperative provided:

- Valve is secured closed.
- A minimum of 70% (55% below 10,000 feet MSL) N1 is maintained on associated engine in icing conditions.
- Remaining (opposite) engine bleed system operates normally.
- Center hydraulic motor generator (HMG) is not required.
- Associated thrust reverser is secured in forward thrust position.
- Appropriate performance adjustments are applied.

MAINTENANCE (M)

NOTE 1: 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.

NOTE 2: The HPSOV is interchangeable with the PRV.

Lock the HPSOV in the closed position, and deactivate and secure the associated thrust reverser in the forward thrust position (AMM 36-00-00/901).

- Gain access to the HPSOV.
- Remove the locking pin from the cap on the end of the HPSOV actuator.
- Turn the manual override hex nut until the position indicator is in the closed position.
- Insert and screw tight the locking pin in the locking hole in the bellcrank arm.
- Deactivate the thrust reverser using MEL Item 78-31-01 (M) procedure.
- For a fault in the closed position switch, fabricate and install a shorting connector to prevent illumination, at high thrust settings, of the associated engine BLEED light and L(R) ENG HPSOV advisory message.

NOTE: This procedure will not preclude similar indications caused by wiring faults.

- Fabricate a shorting connector using BACC63BV18B14PN.
- 16 gauge wire type 6A, 5 to 10 cm long, or equivalent.
- 16 gauge pins, BACC47CN2, two each, install on jumper wire.
- Install jumper wire across pins 5 and 6.
- Disconnect connector D10984 from high pressure controller M7191.
- Install shorting connector onto D10984.
- Cap and stow connector D10984.

**OPERATIONS (O)**

1. The associated thrust reverser is locked out.
 - A. For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.
 - B. The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.
2. For icing conditions maintain 70% (55% below 10,000 feet MSL - except as required for landing) N1 on affected engine.
3. The engine bleed air OFF light and PACK OFF light may illuminate with engine at idle under certain conditions. To extinguish engine bleed air OFF and PACK OFF lights:
 - A. Confirm manifold pressure on affected side is less than 10 psi.
 - B. Confirm isolation valve on affected side is closed.
 - C. Confirm air conditioning pack on affected side is set to AUTO or STBY.
 - D. Advance throttle to approximately 80% N2 to open PRSOV and pack flow control valve.
4. For a fault in the indication system the engine BLEED light may illuminate and L/R ENG HPSOV message may annunciate at high thrust settings

**36-11-03 Intermediate Pressure Check Valves (IPCValve)****ETOPS**

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

One may be inoperative open provided:

- Associated HPSOV is secured closed.
- A minimum of 70% (55% below 10,000 feet MSL) N1 is maintained on associated engine in icing conditions.
- Remaining (opposite) engine bleed system operates normally.
- Center hydraulic motor generator (HMG) is not required.
- Associated thrust reverser is secured in forward thrust position.
- Appropriate performance adjustments are applied.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

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 deactivate and secure the associated thrust reverser in the forward thrust position (AMM 36-00-00/901).

- Gain access to the HPSOV.
- Remove the locking pin from the cap on the end of the HPSOV actuator.
- Turn the manual override hex nut until the position indicator is in the closed position.
- Insert and screw tight the locking pin in the locking hole in the bellcrank arm.
- Deactivate the thrust reverser using MEL Item 78-31-01 (M) procedure.

OPERATIONS (O)

- The associated thrust reverser is locked out.
 - For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.
 - The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.
- For icing conditions maintain 70% (55% below 10,000 feet MSL - except as required for landing) N1 on affected engine.



3. The engine bleed air OFF light and PACK OFF light may illuminate with the engine at idle under certain conditions. To extinguish the engine bleed air OFF and PACK OFF lights:
 - A. Confirm the manifold pressure on the affected side is less than 10 psi.
 - B. Confirm the isolation valve on the affected side is closed.
 - C. Confirm the air conditioning pack on the affected side is set to AUTO or STBY.
 - D. Advance the throttle to approximately 80% N2 to open the PRSOV and pack flow control valve.

**36-11-04 APU BLEED Valve**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- Valve is closed.
- Bleed switch remains OFF.

NOTE: APU may be used for electrical power.

MAINTENANCE (M)

NOTE: Dispatch is not allowed if the APU is required by other procedures. See MEL Item 49-11-01 for a listing of MEL items that require APU availability for dispatch.

Close the APU air supply shutoff valve (AMM 36-00-00/901).

- Set the P5 panel APU bleed air switch to OFF.
- Open and collar the P11 panel AIR SUPPLY APU BLEED POWER circuit breaker.
- Gain access to APU air supply shutoff valve.
- Set the position indicator on the APU air supply shutoff valve to CLOSE.

36-11-05

APU BLEED Check Valve

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided APU bleed valve remains closed, except for engine start.



36-11-06 L and R Bleed ISLN Valves

ETOPS

Interval	Installed	Required	Procedure
C	2	1	(M)

Except for ER operations beyond 120 minutes, one 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 bleed valves operate normally.

MAINTENANCE (M)

Lock the isolation valve in the closed position after engine start (AMM 36-00-00/901).

- 1. Open and collar the associated P11 panel circuit breaker.
 - A. L ISLN VLV PWR
 - B. R ISLN VLV PWR
- 2. Gain access to the isolation valve.
- 3. Set the override lever to OPEN for the associated engine start.
- 4. Following start of the associated engine, set the manual override lever to CLOSE.


36-11-07 Center Bleed Isolation Valve
36-11-07A APU Air Source for ADP

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

May be inoperative provided:

- Valve remains closed except for engine start.
- APU is used as air source for ADP for takeoff and landing.
- Both center electrical hydraulic pumps operate normally.
- Airplane remains at or below FL 270.
- Center hydraulic motor generator (HMG) is not required.

MAINTENANCE (M)

Lock the isolation valve in the closed position after engine start (AMM 36-00-00/901).

- For APU air used for starting an engine, the center isolation valve must be manually opened prior to engine start and manually closed after engine is started.
- Open and collar the P11 panel AIR SUPPLY ISOLATION VALVE POWER, CTR circuit breaker.

OPERATIONS (O)

- Use APU as air source for ADP for takeoff and landing.
- Flight must remain at or below FL 270.
- Heat is not available to AFT and BULK cargo compartments. Carriage of animals and/or perishables may be impacted.

36-11-07 Center Bleed Isolation Valve
36-11-07B ADP Inoperative Penalties

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

May be inoperative provided:

- Valve remains closed except for engine start.
- ADP inoperative penalties are applied.
- Both center electrical hydraulic pumps operate normally.
- Airplane remains at or below FL 270.
- Center hydraulic motor generator (HMG) is not required.

**MAINTENANCE (M)**

Lock the isolation valve in the closed position after engine start (AMM 36-00-00/901).

1. For APU air used for starting an engine, the center isolation valve must be manually opened prior to engine start and manually closed after engine is started.
2. Open and collar the P11 panel AIR SUPPLY ISOLATION VALVE POWER, CTR circuit breaker.

OPERATIONS (O)

1. Apply ADP performance adjustments using MEL Item 29-11-03 (O) procedure.
2. HMG is not available.
3. Flight must remain at or below FL 270.
4. Heat is not available to AFT and BULK cargo compartments. Carriage of animals and/or perishables may be impacted.


36-11-08 Engine Pressure Regulating Valve (PRV) Systems
36-11-08A Locked Closed, APU Air Source for ADP
ETOPS

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

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

- Associated ENG bleed air switch remains OFF.
- Associated bleed isolation valve is opened after takeoff and closed before approach and landing.
- Airplane is not operated in known or forecast icing conditions.
- APU is used as air source for ADP for takeoff.
- Remaining (opposite) engine bleed system operates normally.
- Airplane remains at or below FL 350.
- Center hydraulic motor generator (HMG) is not required.
- Associated thrust reverser is secured in forward thrust position.
- Appropriate performance adjustments are applied for either of the following conditions:
 - Associated fan air modulation valve secured in intermediate position, or
 - Associated fan air modulation valve open.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

MAINTENANCE (M)

NOTE 1: The HPSOV is interchangeable with the PRV.

NOTE 2: 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 PRV in the closed position and secure the thrust reverser in the forward thrust position (AMM 36-00-00/901).

- Gain access to the PRV.
- Lock the PRV in the closed position:
 - Remove the locking pin from the cap on the end of the PRV actuator.
 - Turn the manual override hex nut on the PRV until the position indicator is in the closed position.
 - Install the locking pin in the locking hole of the bellcrank arm. Tighten the pin.
- Set the associated ENG bleed air switch to OFF. Confirm the OFF light illuminates and the flow bar is not displayed.



4. If desired, for a smaller performance adjustment secure the fan air modulation valve in the intermediate position using MEL Item 36-12-02 (M) procedure.
5. Deactivate the thrust reverser on the associated engine using MEL Item 78-31-01 (M) procedure.

OPERATIONS (O)

1. Apply performance adjustments:
 - A. Use MEL Item 36-12-02 (O) procedure to reduce performance limited weights and account for increase in fuel burn.
 - B. The associated thrust reverser is locked out.
 - 1) For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for inoperative thrust reverser.
 - 2) The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.
2. Remain clear of icing conditions.
3. Flight must remain at or below FL350.
4. Flight must remain within 120 minutes of landing at a suitable airport.
5. Set associated ENG bleed air switch to OFF.
6. Set associated PACK control selector to OFF.
7. For takeoff and landing using APU as air source for ADP:
 - A. Close center isolation valve.
 - B. Open center isolation valve when APU is shut down.
8. Open associated bleed isolation valve for enroute operations. Open after takeoff and close prior to approach.

36-11-08 Engine Pressure Regulating Valve (PRV) Systems

36-11-08B Locked Closed, ADP Inoperative Penalties

ETOPS

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

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

- a. Associated ENG bleed air switch remains OFF.
- b. Associated bleed isolation valve is opened after takeoff and closed before approach and landing.
- c. Airplane is not operated in known or forecast icing conditions.
- d. ADP inoperative penalties are applied.
- e. Remaining (opposite) engine bleed system operates normally.
- f. Airplane remains at or below FL 350.



- g. Center hydraulic motor generator (HMG) is not required.
- h. Associated thrust reverser is secured in forward thrust position.
- i. Appropriate performance adjustments are applied for either of the following conditions:
 - 1) Associated fan air modulation valve secured in intermediate position, or
 - 2) Associated fan air modulation valve open.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

MAINTENANCE (M)

NOTE 1: The HPSOV is interchangeable with the PRV.

NOTE 2: 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 PRV in the closed position and secure the thrust reverser in the forward thrust position (AMM 36-00-00/901).

- 1. Gain access to the PRV.
- 2. Lock the PRV in the closed position:
 - A. Remove the locking pin from the cap on the end of the PRV actuator.
 - B. Turn the manual override hex nut on the PRV until the position indicator is in the closed position.
 - C. Install the locking pin in the locking hole of the bellcrank arm. Tighten the pin.
- 3. Set the associated ENG bleed air switch to OFF. Confirm the OFF light illuminates and the flow bar is not displayed.
- 4. If desired, for a smaller performance adjustment secure the fan air modulation valve in the intermediate position using MEL Item 36-12-02 (M) procedure.
- 5. Deactivate the thrust reverser on the associated engine using MEL Item 78-31-01 (M) procedure.

OPERATIONS (O)

- 1. Apply performance adjustments:
 - A. Use MEL Item 36-12-02 (O) procedure to reduce performance limited weights and account for increase in fuel burn.
 - B. The associated thrust reverser is locked out.
 - 1) For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for inoperative thrust reverser.
 - 2) The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.



- C. Apply ADP performance adjustments using MEL Item 29-11-03 (O) procedure.
- D. HMG is not available.
- 2. Remain clear of icing conditions.
- 3. Flight must remain at or below FL350.
- 4. Flight must remain within 120 minutes of landing at a suitable airport.
- 5. Set associated ENG bleed air switch to OFF.
- 6. Set associated PACK control selector to OFF.
- 7. Open associated bleed isolation valve for enroute operations. Open after takeoff and close prior to approach.

36-11-08 Engine Pressure Regulating Valve (PRV) Systems
36-11-08C Inoperative Open, APU Air Source for ADP
ETOPS

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

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

- a. Associated HPSOV is secured closed.
- b. Associated bleed isolation valve is opened after takeoff and closed before approach and landing.
- c. Associated pressure regulating valve will open fully pneumatically.
- d. APU is used as air source for ADP for takeoff.
- e. Associated ENG bleed air switch remains OFF, except when alternate procedures require its use.
- f. Airplane remains at or below FL 350.
- g. A minimum of 70% (55% below 10,000 feet MSL) N1 is maintained on associated engine in icing conditions.
- h. Center hydraulic motor generator (HMG) is not required.
- i. Associated thrust reverser is secured in forward thrust position.
- j. Remaining (opposite) engine bleed system operates normally.
- k. Appropriate performance adjustments are applied for either of the following conditions:
 - 1) Associated fan air modulation valve secured in intermediate position, or
 - 2) Associated fan air modulation valve open.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

NOTE: Also dispatch the airplane using MEL Item 78-31-01.

**MAINTENANCE (M)**

NOTE 1: The HPSOV is interchangeable with the PRV.

NOTE 2: 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 HPSOV in the closed position and verify the PRV will open fully pneumatically (AMM 36-00-00/901).

1. Gain access to the PRV.
2. Lock the HPSOV closed using MEL Item 36-11-02 (M) procedure.

[For airplanes without a ground service switch:](#)

3. Confirm the PRV will open fully pneumatically:
 - A. Set the associated ENG bleed air switch ON.
 - B. Gain access to the PRSOV.
 - C. Pressurize the pneumatic manifold using a ground air cart or APU.
 - D. Manually open the PRSOV.
 - E. Release the PRSOV. The valve should remain open.
 - F. Manually wrench the PRV partially open.
 - G. Confirm the valve pneumatically opens to full open by observing the position indicator on valve.
 - H. Remove manifold pressure.

[For airplanes with a ground service switch:](#)

4. Confirm the PRV will open fully pneumatically:
 - A. Set the associated ENG bleed air switch ON.
 - B. Gain access to the PRSOV.
 - C. Pressurize the pneumatic manifold using a ground air cart or APU.
 - D. Set the ground service switch UP to open the PRSOV.
 - E. Release the ground service switch when the bleed OFF light extinguishes. The valve should remain open.
 - F. Manually wrench the PRV partially open.
 - G. Confirm the valve pneumatically opens to full open by observing the position indicator on valve.
 - H. Remove manifold pressure.
5. Set the associated ENG bleed air switch to OFF. Confirm the OFF light illuminates and the flow bar is not displayed.
6. If desired, for a smaller performance adjustment secure the fan air modulation valve in the intermediate position using MEL Item 36-12-02 (M) procedure.
7. Deactivate the thrust reverser on the associated engine using MEL Item 78-31-01 (M) procedure.
8. Disconnect, cap and stow the electrical connector from the air supply overpressure switch.


OPERATIONS (O)

1. Apply performance adjustments:
 - A. Use MEL Item 36-12-02 (O) procedure to reduce performance limited weights and account for increase in fuel burn.
 - B. The associated thrust reverser is locked out.
 - 1) For airplane performance calculations that include effect of reverse thrust, adjust performance to account for inoperative thrust reverser.
 - 2) The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.
2. Flight must remain at or below FL350.
3. Flight must remain within 120 minutes of landing at a suitable airport.
4. Set associated ENG bleed air switch to OFF.
5. Set associated PACK control selector to OFF.
6. For takeoff and landing using APU as air source for ADP:
 - A. Close center isolation valve.
 - B. Open center isolation valve when APU is shut down.
7. Open associated bleed isolation valve for enroute operations. Open after takeoff and close prior to approach.
8. For icing conditions maintain 70% (55% below 10,000 feet except as required for landing) N1 on affected engine.
9. For opposite side bleed system failure, after accomplishing associated non-normal checklists, accomplish the following steps:
 - A. For continued pressurization:
 - 1) For PRV failed open side set ENG bleed air switch to ON.
 - 2) For PRV failed open side set PACK control selector to AUTO
 - B. If the non-normal checklist does not preclude opening the isolation valve, wing anti-ice capability is available:
 - 1) Set opposite side ISOLATION switch to ON

36-11-08 Engine Pressure Regulating Valve (PRV) Systems
36-11-08D Inoperative Open, ADP Inoperative Penalties
ETOPS

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

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

- a. Associated HPSOV is secured closed.
- b. Associated bleed isolation valve is opened after takeoff and closed before approach and landing.



- c. Associated pressure regulating valve will open fully pneumatically.
- d. ADP inoperative penalties are applied.
- e. Associated ENG bleed air switch remains OFF, except when alternate procedures require its use.
- f. Airplane remains at or below FL 350.
- g. A minimum of 70% (55% below 10,000 feet MSL) N1 is maintained on associated engine in icing conditions.
- h. Center hydraulic motor generator (HMG) is not required.
- i. Associated thrust reverser is secured in forward thrust position.
- j. Remaining (opposite) engine bleed system operates normally.
- k. Appropriate performance adjustments are applied for either of the following conditions:
 - 1) Associated fan air modulation valve secured in intermediate position, or
 - 2) Associated fan air modulation valve open.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

NOTE: Also dispatch the airplane using MEL Item 78-31-01.

MAINTENANCE (M)

NOTE 1: The HPSOV is interchangeable with the PRV.

NOTE 2: 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 HPSOV in the closed position and verify the PRV will open fully pneumatically (AMM 36-00-00/901).

- 1. Gain access to the PRV.
- 2. Lock the HPSOV closed using MEL Item 36-11-02 (M) procedure.
[For airplanes without a ground service switch:](#)
- 3. Confirm the PRV will open fully pneumatically:
 - A. Set the associated ENG bleed air switch ON.
 - B. Gain access to the PRSOV.
 - C. Pressurize the pneumatic manifold using a ground air cart or APU.
 - D. Manually open the PRSOV.
 - E. Release the PRSOV. The valve should remain open.
 - F. Manually wrench the PRV partially open.
 - G. Confirm the valve pneumatically opens to full open by observing the position indicator on valve.
 - H. Remove manifold pressure.
[For airplanes with a ground service switch:](#)
- 4. Confirm the PRV will open fully pneumatically:
 - A. Set the associated ENG bleed air switch ON.



- B. Gain access to the PRSOV.
- C. Pressurize the pneumatic manifold using a ground air cart or APU.
- D. Set the ground service switch UP to open the PRSOV.
- E. Release the ground service switch when the bleed OFF light extinguishes. The valve should remain open.
- F. Manually wrench the PRV partially open.
- G. Confirm the valve pneumatically opens to full open by observing the position indicator on valve.
- H. Remove manifold pressure.
- 5. Set the associated ENG bleed air switch to OFF. Confirm the OFF light illuminates and the flow bar is not displayed.
- 6. If desired, for a smaller performance adjustment secure the fan air modulation valve in the intermediate position using MEL Item 36-12-02 (M) procedure.
- 7. Deactivate the thrust reverser on the associated engine using MEL Item 78-31-01 (M) procedure.
- 8. Disconnect, cap and stow the electrical connector from the air supply overpressure switch.

OPERATIONS (O)

- 1. Apply performance adjustments:
 - A. Use MEL Item 36-12-02 (O) procedure to reduce performance limited weights and account for increase in fuel burn.
 - B. The associated thrust reverser is locked out.
 - 1) For airplane performance calculations that include effect of reverse thrust, adjust performance to account for inoperative thrust reverser.
 - 2) The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.
 - C. Apply ADP performance adjustments using MEL Item 29-11-03 (O) procedure.
 - D. HMG is not available.
- 2. Flight must remain at or below FL350.
- 3. Flight must remain within 120 minutes of landing at a suitable airport.
- 4. Set associated ENG bleed air switch to OFF.
- 5. Set associated PACK control selector to OFF.
- 6. Open associated bleed isolation valve for enroute operations. Open after takeoff and close prior to approach.
- 7. For icing conditions maintain 70% (55% below 10,000 feet except as required for landing) N1 on affected engine.



8. For opposite side bleed system failure, after accomplishing associated non-normal checklists, accomplish the following steps:
 - A. For continued pressurization:
 - 1) For PRV failed open side set ENG bleed air switch to ON.
 - 2) For PRV failed open side set PACK control selector to AUTO
 - B. If the non-normal checklist does not preclude opening the isolation valve, wing anti-ice capability is available:
 - 1) Set opposite side ISOLATION switch to ON

**36-12-01 Precoolers****36-12-01A APU Air Source for ADP****ETOPS**

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

Except for ER operations beyond 120 minutes, airplane may be dispatched with damage to one precooler and associated ducting between PRV and PRSOV provided:

- Associated PRV is secured closed.
- Associated PRSOV is secured closed.
- Airplane is not operated in known or forecast icing conditions.
- Associated bleed isolation valve is opened after takeoff and closed before approach and landing.
- Remaining (opposite) engine bleed system operates normally.
- Airplane remains at or below FL 350.
- APU is used as air source for ADP for takeoff.
- Center hydraulic motor generator (HMG) is not required.
- Associated thrust reverser is secured in forward thrust position.
- Appropriate performance adjustments are applied for either of following conditions:
 - Associated fan air modulation valve secured in intermediate position, or
 - Associated fan air modulation valve open.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

For airplanes with FCAC (VP-BWW, VP-BWX):

NOTE: Securing the PRSOV closed disables the forward cargo air conditioning.

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 PRV and the PRSOV in the closed position, and deactivate and secure the associated thrust reverser in the forward thrust position (AMM 36-00-00/901).

- Lock the PRV closed using MEL Item 36-11-08 (M) procedure.
- Lock the PRSOV closed using MEL Item 36-11-01 (M) procedure
- Deactivate the thrust reverser on associated engine using MEL Item 78-31-01 (M) procedure.



4. Lock the fan air valve in the intermediate position using MEL Item 36-12-02 (M) procedure, or allow to remain full open.

OPERATIONS (O)

1. Use MEL Item 36-12-02 (O) procedure to reduce performance limited weights and account for increase in fuel burn.
2. The associated thrust reverser is locked out:
 - A. For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.
 - B. The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.
3. Remain clear of icing conditions.
4. Flight must remain at or below FL350.
5. Flight must remain within 120 minutes of landing at a suitable airport.
6. Set associated PACK control selector to OFF.
7. For takeoff and landing using APU as air source for ADP:
 - A. Close center isolation valve.
 - B. Open center isolation valve when APU is shut down.
8. Open associated bleed isolation valve for enroute operations. Open after takeoff and close prior to approach.

36-12-01 Precoolers**36-12-01B ADP Inoperative Penalties****ETOPS**

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

Except for ER operations beyond 120 minutes, airplane may be dispatched with damage to one precooler and associated ducting between PRV and PRSOV provided:

- a. Associated PRV is secured closed.
- b. Associated PRSOV is secured closed.
- c. Airplane is not operated in known or forecast icing conditions.
- d. Associated bleed isolation valve is opened after takeoff and closed before approach and landing.
- e. Remaining (opposite) engine bleed system operates normally.
- f. Airplane remains at or below FL 350.
- g. ADP inoperative penalties are applied.
- h. Center hydraulic motor generator (HMG) is not required.
- i. Associated thrust reverser is secured in forward thrust position.



- j. Appropriate performance adjustments are applied for either of following conditions:
- 1) Associated fan air modulation valve secured in intermediate position, or
 - 2) Associated fan air modulation valve open.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

[For airplanes with FCAC \(VP-BWW, VP-BWX\):](#)

NOTE: Securing the PRSOV closed disables the forward cargo air conditioning.

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 PRV and the PRSOV in the closed position, and deactivate and secure the associated thrust reverser in the forward thrust position (AMM 36-00-00/901).

1. Lock the PRV closed using MEL Item 36-11-08 (M) procedure.
2. Lock the PRSOV closed using MEL Item 36-11-01 (M) procedure
3. Deactivate the thrust reverser on associated engine using MEL Item 78-31-01 (M) procedure.
4. Lock the fan air valve in the intermediate position using MEL Item 36-12-02 (M) procedure, or allow to remain full open.

OPERATIONS (O)

1. Use MEL Item 36-12-02 (O) procedure to reduce performance limited weights and account for increase in fuel burn.
2. Apply ADP performance adjustments using MEL Item 29-11-03 (O) procedure.
3. HMG is not available.
4. The associated thrust reverser is locked out:
 - A. For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.
 - B. The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.
5. Remain clear of icing conditions.
6. Flight must remain at or below FL350.
7. Flight must remain within 120 minutes of landing at a suitable airport.
8. Set associated PACK control selector to OFF.
9. Open associated bleed isolation valve for enroute operations. Open after takeoff and close prior to approach.


36-12-02 Fan Air (Precooler) Control Systems
36-12-02-01 FAMV in intermediate position
ETOPS

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

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

- Associated fan air modulation valve is secured in an intermediate position.
- Appropriate performance adjustments are applied.

MAINTENANCE (M)

Lock the FAMV in an intermediate position (AMM 36-00-00/901).

- Gain access to the FAMV.
- Remove the lockpin from the fan air valve actuator body.
- Lock the valve in the intermediate position.
- Install the lockpin through the locking crank into the locking pin slot.

OPERATIONS (O)

- Reduce performance limited takeoff, landing and enroute climb weights 5000 lb (2268 kg).
- The enroute climb weight penalty is 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 by the appropriate factor listed on page 3.00-01-00.2 in the ENROUTE DIVERSION SPEED EFFECTS paragraph.
- Fuel burn will increase approximately 0.6% per inoperative FAMV in the intermediate position.

36-12-02 Fan Air (Precooler) Control Systems
36-12-02-02 FAMV full open
ETOPS

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

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

- Associated fan air modulation valve is secured full open.
- Appropriate performance adjustments are applied.
- Airplane is not operated in known or forecast icing conditions.

MAINTENANCE (M)

Lock the FAMV full open (AMM 36-00-00/901).

1. Gain access to the FAMV.
2. Disconnect the temperature control pressure line from the fan air valve. Cap the control pressure line and secure it to the valve.
3. For valve not in full open position, turn the locking crank to the full open position.

OPERATIONS (O)

1. Reduce performance limited takeoff, landing and enroute climb weights 7000 lb (3176 kg).
2. The enroute climb weight penalty is 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 by the appropriate factor listed on page 3.00-01-00.2 in the ENROUTE DIVERSION SPEED EFFECTS paragraph.
3. Fuel burn will increase approximately 1.2% per inoperative FAMV in the full open position.
4. Remain clear of icing conditions.



36-21-01 Bleed Air DUCT PRESS Indicating System
36-21-01-01 DUCT PRESS Indicators (P5 Panel)

Interval	Installed	Required	Procedure
C	2	1	



36-21-02 Engine Bleed Air OFF Lights

Interval	Installed	Required	Procedure
C	2	0	


36-22-01-02 BLEED Lights

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

One may be inoperative provided:

- Associated HP SOV is secured closed.
- A minimum of 70% (55% below 10,000 feet MSL) N1 is maintained on associated engine in icing conditions.
- Remaining (opposite) engine bleed system operates normally.
- Center hydraulic motor generator (HMG) is not required.
- Associated thrust reverser is secured in forward thrust position.
- Appropriate performance adjustments are applied.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

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 HP SOV in the closed position, and deactivate and secure the associated thrust reverser in the forward thrust position (AMM 36-00-00/901).

- Lock the HP SOV closed using MEL Item 36-11-02 (M) procedure.
- Deactivate the associated thrust reverser using MEL Item 78-31-01 (M) procedure.

OPERATIONS (O)

- The associated thrust reverser is locked out.
 - For airplane performance calculations that include effect of reverse thrust, adjust performance to account for inoperative thrust reverser.
 - The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.
- Maintain a minimum of 70% (55% below 10,000 feet MSL except as required for landing) N1 on the affected engine in icing conditions.
- The engine bleed air OFF light and pack OFF light may illuminate with engine at idle under certain conditions. To extinguish the engine bleed air OFF and pack OFF lights:
 - Confirm manifold pressure on affected side is less than 10 psi.
 - Confirm isolation valve on affected side is closed.
 - Confirm air conditioning pack on affected side is not selected OFF.
 - Advance throttle to approximately 80% N2.


36-22-03 OVHT Lights

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

One may be inoperative provided:

- Associated HPSOV is secured closed.
- A minimum of 70% (55% below 10,000 feet MSL) N1 is maintained on associated engine in icing conditions.
- Remaining (opposite) engine bleed system operates normally.
- Center hydraulic motor generator (HMG) is not required.
- Associated thrust reverser is secured in forward thrust position.
- Appropriate performance adjustments are applied.

NOTE: The HMG is required for ETOPS routes if an IDG or APU generator is inoperative. The HMG is not required for non-ETOPS.

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 HPSOV in the closed position, and deactivate and secure the associated thrust reverser in the forward thrust position (AMM 36-00-00/901).

- Lock HPSOV closed using MEL Item 36-11-02 (M) procedure.
- Deactivate the associated thrust reverser using MEL Item 78-31-01 (M) procedure.

OPERATIONS (O)

- The associated thrust reverser is locked out.
 - For airplane performance calculations that include effect of reverse thrust, adjust performance to account for inoperative thrust reverser.
 - The IDLE DISAGREE advisory message may annunciate during application of thrust reverse.
- Maintain a minimum of 70% (55% below 10,000 feet MSL except as required for landing) N1 on affected engine when in icing conditions.
- The engine bleed air OFF light and PACK OFF light may illuminate with engine at idle under certain conditions. To extinguish the engine bleed air OFF and PACK OFF lights:
 - Confirm manifold pressure on affected side is less than 10 psi.
 - Confirm isolation valve on affected side is closed.
 - Confirm air conditioning pack on affected side is not selected OFF.
 - Advance throttle to approximately 80% N2.

**36-22-04 L and R Bleed ISLN VALVE Lights**

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative provided associated duct pressure indicator operates normally.

OPERATIONS (O)

Confirm proper operation of the isolation valve using ECS/MSG maintenance display page or duct pressure indications.



36-22-05 C Bleed ISLN VALVE Light

Interval	Installed	Required	Procedure
C	1	0	



36-22-06 APU Bleed VALVE Light

Interval	Installed	Required	Procedure
C	1	0	



38-10-01 Potable Water Systems

38-10-01A *Components Deactivated or Isolated*

38-10-01B *System Drained*

38-30-01 Lavatory/Galley Waste Systems (Including Wheelchair Accessible Lavatories)

38-30-01A *Components Deactivated or Isolated*

38-30-01B *Lavatory Not Used*

38-32-01 Tank Precharge Control Systems



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**38-10-01 Potable Water Systems****38-10-01A Components Deactivated or Isolated**

Interval	Installed	Required	Procedure
C	-	-	(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 the associated system components do not have leaks (AMM 38-00-00/901).

38-10-01 Potable Water Systems**38-10-01B System Drained**

Interval	Installed	Required	Procedure
C	-	-	(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 38-00-00/901) and establish procedures to ensure the system is not serviced.


38-30-01 Lavatory/Galley Waste Systems (Including Wheelchair Accessible Lavatories)
38-30-01A Components Deactivated or Isolated

Interval	Installed	Required	Procedure
C	BRA: 7	0	(M)
C	BMU: 6	0	(M)
C	BOQ, BPT: 5	0	(M)
C	BWW, BWX, BMQ: 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 the inoperative components and verify the associated system components do not have leaks (AMM 38-00-00/901).

38-30-01 Lavatory/Galley Waste Systems (Including Wheelchair Accessible Lavatories)
38-30-01B Lavatory Not Used

Interval	Installed	Required	Procedure
C	BRA: 7	0	(M)
C	BMU: 6	0	(M)
C	BOQ, BPT: 5	0	(M)
C	BWW, BWX, BMQ: 4	0	(M)

Associated lavatory may be inoperative provided:

- Associated components are deactivated or isolated to prevent leaks.
- Associated lavatory door is locked closed and placarded INOPERATIVE - DO NOT ENTER.

NOTE: These provisions are not intended to prohibit inspections by crewmembers.

MAINTENANCE (M)

Deactivate or isolate the inoperative components to prevent leaks, and secure closed the associated lavatory door (AMM 38-00-00/901).

1. Deactivate or isolate the inoperative components.
2. Drain the associated waste tank. Do not add precharge chemical to the associated waste tank.
3. Close, lock and placard the associated lavatory door.

**38-32-01 Tank Precharge Control Systems**

Interval	Installed	Required	Procedure
D	2	0	(M)

May be inoperative provided applicable precharge control valve is secured in open position.

MAINTENANCE (M)

Secure the applicable precharge control valve in the open position (AMM 38-00-00/901).

1. Gain access to the precharge control valve.
2. Remove, cap and stow the wires to the precharge control valve.
3. Perform step A or step B:
 - A. Manually secure the precharge control valve in the open position.
 - B. Remove the precharge control valve:
 - 1) Disconnect the rinse line from the inlet and outlet of the precharge control valve.
 - 2) Remove bolts and valve as necessary.
 - 3) Connect the rinse lines with suitable short tube.
4. Service waste tank with 6 gallons of chemical precharge.



46-20-01 Electronic Flight Bag (EFB) Systems

46-20-01-02 Data Connectivity (Class 2)

46-20-01-02A Alternate Procedures Required

46-20-01-02B Procedures Do Not Require Use

46-20-01-03 Power Connection (Class 1& 2)

46-20-01-03A Alternate Procedures Required

46-20-01-03B Procedures Do Not Require Use

46-20-01-04 Mounting Device (Class 2)

46-20-01-04A Alternate Procedures Required

46-20-01-04B Procedures Do Not Require Use



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Intentionally
Blank


46-20-01 Electronic Flight Bag (EFB) Systems
46-20-01-02 Data Connectivity (Class 2)
46-20-01-02A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	-	-	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Operators must develop appropriate procedures to use when the EFB system is inoperative.

46-20-01 Electronic Flight Bag (EFB) Systems
46-20-01-02 Data Connectivity (Class 2)
46-20-01-02B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	-	0	

May be inoperative provided procedures do not require its use.

46-20-01 Electronic Flight Bag (EFB) Systems
46-20-01-03 Power Connection (Class 1& 2)
46-20-01-03A Alternate Procedures Required

Interval	Installed	Required	Procedure
C	-	-	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Operators must develop appropriate procedures to use when the EFB system is inoperative.


46-20-01 Electronic Flight Bag (EFB) Systems
46-20-01-03 Power Connection (Class 1 & 2)
46-20-01-03B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	-	0	

May be inoperative provided procedures do not require its use.

46-20-01 Electronic Flight Bag (EFB) Systems
46-20-01-04 Mounting Device (Class 2)
46-20-01-04A Alternate Procedures Required

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

May be inoperative provided:

- Associated EFB and hardware is secured by an alternate means or removed from aircraft.
- Alternate procedures are established and used.

MAINTENANCE (M)

Secure or remove associated EFB and hardware.

OPERATIONS (O)

Operators must develop appropriate procedures to use when the EFB system is inoperative.

46-20-01 Electronic Flight Bag (EFB) Systems
46-20-01-04 Mounting Device (Class 2)
46-20-01-04B Procedures Do Not Require Use

Interval	Installed	Required	Procedure
D	-	0	(M)

May be inoperative provided:

- Associated EFB and hardware is secured by an alternate means or removed from aircraft.
- Procedures do not require its use.



MAINTENANCE (M)

Secure or remove associated EFB and hardware.



Intentionally
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49-11-01 Auxiliary Power Unit (APU)

49-11-01A *ER Operations Not Allowed*

49-11-01B *Except ER Operations Beyond 120 Minutes*

49-11-01-01 Pneumatic Function

49-15-01 APU Air Intake Door Actuation System

49-15-01-01 Door Closed

49-15-01-02 Door Fully Open

49-15-01-03 Door Partially 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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Intentionally
Blank


49-11-01 Auxiliary Power Unit (APU)
49-11-01A ER Operations Not Allowed
ETOPS

Interval	Installed	Required	Procedure
C	1	0	(O)

Except for ER operations, may be inoperative provided:

- Both engine generators operate normally.
- Procedures do not require its use.

MAINTENANCE NOTE

- The APU may be removed (AMM 49-11-02/201).

OPERATIONS (O)

- Dispatch is not allowed if the APU is required by other procedures. MEL dispatch procedures for the following inoperative equipment require APU availability:

MEL Item	Item Name
24-11-01	Engine Generator Systems (IDG, GCB)
24-25-01	Hydraulic Motor Generators (HMG)
24-25-02	Hydraulic Motor Generator Valves
24-31-03	Standby Power Main/APU Battery Tie System
26-18-01	DUCT LEAK Detection Systems
30-21-01	Engine Anti-Ice Valves
36-11-01	ENG BLEED Pressure Regulating and Shutoff Valves (PRSOV)
36-11-07	Center Bleed Isolation Valve
36-11-08	Engine Pressure Regulating Valve (PRV) Systems
36-12-01	Precoolers

- Use MEL Item 24-00-02 (O) procedure for a battery start if external power is not available.
- 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)
49-11-01B Except ER Operations Beyond 120 Minutes
ETOPS

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

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

- Both engine generators operate normally.
- Hydraulic motor generator (HMG) is verified to operate normally

MAINTENANCE (M)

- Verify the hydraulic motor generator (HMG) operates normally by performing the Operational Test (AMM 24-25-00/501).
- The APU may be removed (AMM 49-11-02/201).

OPERATIONS (O)

- Dispatch is not allowed if the APU is required by other procedures. MMEL dispatch procedures for the following inoperative equipment require APU availability:

MEL Item	Item Name
24-11-01	Engine Generator Systems (IDG, GCB)
24-25-01	Hydraulic Motor Generators (HMG)
24-25-02	Hydraulic Motor Generator Valves
24-31-03	Standby Power Main/APU Battery Tie System
26-18-01	DUCT LEAK Detection Systems
30-21-01	Engine Anti-Ice Valves
36-11-01	ENG BLEED Pressure Regulating and Shutoff Valves (PRSOV)
36-11-07	Center Bleed Isolation Valve
36-11-08	Engine Pressure Regulating Valve (PRV) Systems
36-12-01	Precoolers

- Use MEL Item 24-00-02 (O) procedure for a battery start if external power is not available.
- 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

49-11-01-01 Pneumatic Function

ETOPS

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided procedures do not require its use.

MAINTENANCE (M)

1. Use MEL Item 36-11-04 (M) procedure to close the APU bleed 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
49-15-01-01 Door Closed
ETOPS

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 (AMM 49-00-00/901).

1. Remove hydraulic power to the left, right and center systems.
2. Set the APU selector to OFF.
3. Set the L, C and R FLT CONTROL SHUTOFF TAIL switches to OFF.
4. Set the L and C STAB TRIM shutoff switches to CUTOFF.
5. Open the following circuit breakers:
 - A. P11 panel, L-FLT CONT SHUTOFF TAIL
 - B. P11 panel, CTR-FLT CONT SHUTOFF TAIL
 - C. P11 panel, R-FLT CONT SHUTOFF TAIL
 - D. P11 panel, STAB TRIM SHUTOFF L
 - E. P11 panel, STAB TRIM SHUTOFF C (or CTR)
 - F. P11 panel, APU ALTN CONT
 - G. P49 panel on E6 rack, APU PRIME CONT
 - H. P49 panel on E6 rack, APU INLET DOOR ACT (or ACTR)
6. Gain access to the inlet door actuator from inside the airplane.
7. Disconnect, cap, and stow the inlet door actuator electrical connector D502.
8. Hand crank the door actuator to position the door, if required.
9. Close the open circuit breakers.
10. Set the L, C and R FLT CONTROL SHUTOFF TAIL switches to ON.
11. Set the L and C STAB TRIM shutoff switches to NORM.

49-15-01 APU Air Intake Door Actuation System
49-15-01-02 Door Fully Open
ETOPS

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



May be inoperative fully open provided AFM performance decrements are applied.

MAINTENANCE (M)

Secure the APU air intake door fully open (AMM 49-00-00/901).

1. Remove hydraulic power to the left, right and center systems.
2. Set the APU selector to OFF.
3. Set the L, C and R FLT CONTROL SHUTOFF TAIL switches to OFF.
4. Set the L and C STAB TRIM shutoff switches to CUTOUT.
5. Open the following circuit breakers:
 - A. P11 panel, L-FLT CONT SHUTOFF TAIL
 - B. P11 panel, CTR-FLT CONT SHUTOFF TAIL
 - C. P11 panel, R-FLT CONT SHUTOFF TAIL
 - D. P11 panel, STAB TRIM SHUTOFF L
 - E. P11 panel, STAB TRIM SHUTOFF C (or CTR)
 - F. P11 panel, APU ALTN CONT
 - G. P49 panel on E6 rack, APU PRIME CONT
 - H. P49 panel on E6 rack, APU INLET DOOR ACT (or ACTR)
6. Gain access to the actuator from inside the airplane.
7. Disconnect, cap, and stow the inlet door actuator electrical connector D502.
8. Hand crank the door actuator to position the door, if required (AMM 49-15-05/401).
9. Close the open circuit breakers.
10. Set the L, C and R FLT CONTROL SHUTOFF TAIL switches to ON.
11. Set the L and C STAB TRIM shutoff switches to NORM.

OPERATIONS (O)

1. APU may be used on the ground and in flight.
2. Increase planned fuel burn by 0.7%.
3. There are no performance decrements (takeoff, enroute climb, approach climb and landing climb) for this engine type.
4. Buffeting may occur when door is in the open position.

**49-15-01 APU Air Intake Door Actuation System****49-15-01-03 Door Partially Open****ETOPS**

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative partially open provided:

- a. AFM performance decrements are applied.
- b. APU is considered inoperative.

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

NOTE 2: A door partially open may cause reverse rotation of the APU with less than normal bearing lubrication. Therefore, it may be desirable to limit the time in this configuration. Reverse rotation is not present with the door in the fully open or closed position.

OPERATIONS (O)

1. Do not use APU.
2. Increase planned fuel burn by 0.7%.
3. There are no performance decrements (takeoff, enroute climb, approach climb and landing climb) for this engine type.
4. Buffeting may occur when door is in the partially open position.


49-61-01 APU External Control System
49-61-01A Qualified Operator On Flight Deck
ETOPS

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
ETOPS

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 (AMM 26-00-00/901).

1. Push and hold 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. Push and hold the P61 panel TEST1 switch. Confirm the APU SQUIB TEST light illuminates green.
3. Release the P61 panel TEST1 switch. Confirm the APU SQUIB TEST 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 APU when RPM is 95% or greater.

APU Shutdown:

1. Set APU VALVE switch to OFF. Confirm APU VALVE light does not illuminate.
2. Wait 120 seconds for APU to cool down.
3. Set APU selector to OFF.
4. Wait 20 seconds and confirm APU FAULT light momentarily illuminates to indicate APU fuel valve is in transit to closed.



49-71-01 APU EGT Indication

ETOPS

Interval	Installed	Required	Procedure
C	1	0	

**49-72-01 APU Hourmeter System****49-72-01A Alternate Procedures Required***Effectivity: BPT, BMQ, BWW, BWX, BMU, BDI*

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***Effectivity: BPT, BMQ, BWW, BWX, BMU, BDI*

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 utilizing 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 oil quantity (AMM 49-00-00/901).

1. Inspect the APU oil level sight glass.
2. Confirm the oil is at FULL level.



52-11-01 Main Entry/Service Door Armed Indicators

52-11-02 Main Entry/Service Door Arming Lever Hinged Covers

52-11-03 Entry Door Power Opening Assist

52-11-04 Main Entry Doors/Slides/Emergency Exits

52-11-04-01 Passenger Configuration

52-11-04-01A *Passengers Carried*

52-11-04-01B *No Passengers Carried*

52-30-01 Lower Cargo Doors

52-30-01-01 Cargo Door Lift/Latch Mechanisms (Std. Door)

52-30-01-01A *Manual Or Electric Inoperative*

52-30-01-01B *Manual And Electric Inoperative*

52-30-01-02 Cargo Door Hinge Power Units And Manual Hinge Drive Systems (Std. Door)

52-30-01-02A *Manual Or Electric Inoperative*

52-30-01-02B *Manual And Electric Inoperative*

52-30-01-03 Cargo Door Hook/Latch System Electrical Function (Large Door)

52-30-01-04 Cargo Door Lift System (Large Door)

52-30-01-04A *Manual Or Electric Inoperative*

52-30-01-04B *Manual And Electric Inoperative*

52-30-03 Cargo Door Control Panel Indicating Systems

52-30-03-01 DOOR OPEN Light (Std. Door)

52-30-03-02 DOOR CLOSE Light (Std. Door)

52-30-03-03 DOOR OPEN and DOOR CLOSE Lights (Large Door)

52-34-01 Cargo Door Stop Fitting Bearing Plates (Std. Doors Only)

52-35-01 Bulk Cargo Door Balance Mechanism

52-51-03 Boeing 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



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- 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
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- 52-51-04 Boeing Enhanced Flight Deck Security Door Dead Bolt**
- 52-51-05 JAMCO Flight Deck Security Door Automatic Locking System**
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 - 52-51-05-02-02 LED (Green Indicator Lights)
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 - 52-51-05-03 Door Control Panel
 - 52-51-05-03-01 Door LOCK FAIL Light
 - 52-51-05-03-02 Door AUTO UNLK Light
 - 52-51-05-03-03 Door HARD LOCK Light
 - 52-51-05-03-04 Door UNLKD Switch/UNLK Switch Position
 - 52-51-05-03-05 Door UNLKD Light
 - 52-51-05-03-06 Door EMRG ENTRY ACTIVE Light
 - 52-51-05-03-07 Door OPEN Light
 - 52-51-05-04 FLIGHT DECK DOOR Warning/Caution Light
 - 52-51-05-05 Cabin Pushbutton Entry Pad/Keypad
 - 52-51-05-05-01 Keypad Indicator Lights
- 52-51-06 JAMCO Flight Deck Security Door Mechanical Catch (Latch) Pin Lock**
- 52-71-01 Door Indication Systems**
 - 52-71-01-01 All Doors Except Main Deck Cargo Door
- 52-73-01 Entry/Service Door Slide Armed Indicating Light System**



52-11-01

Main Entry/Service Door Armed Indicators

Interval	Installed	Required	Procedure
C	6	0	(M)

May be inoperative provided a procedure is used to verify that mode select mechanism is in "slide armed" mode before each departure and in "slide disarm" mode before a non-emergency opening.

MAINTENANCE (M)

Verify the mode select mechanism is in "slide armed" mode before each departure (AMM 52-00-00/901).

1. Inform the flight crew Door No. ____ requires a visual check of the slide arm/disarmed condition.
2. Confirm the remainder of the door operates normally.

OPERATIONS NOTE

Slide arming/disarming can be verified by checking both the position of the slide arming lever and visual indication of girt bar lockdown. The door must be armed prior to each departure from the blocks and not disarmed until block arrival.



52-11-02 Main Entry/Service Door Arming Lever Hinged Covers

Interval	Installed	Required	Procedure
D	-	0	

May be damaged or missing.



52-11-03 Entry Door Power Opening Assist

Interval	Installed	Required	Procedure
C	-	0	


52-11-04 Main Entry Doors/Slides/Emergency Exits
52-11-04-01 Passenger Configuration
52-11-04-01A Passengers Carried

Interval	Installed	Required	Procedure
A	8	7	(M) (O)

One may be inoperative or slide missing provided:

- a. All other main entry doors/exits are fully operational.
- b. Affected door is not used for passenger loading.
- c. A conspicuous barrier strap or rope and a placard stating that door is inoperative shall be placed across inoperative door.
- d. Emergency exit sign and floor proximity lights associated with inoperative exit must be covered to obscure signs and lights.
- e. Passengers must be briefed not to use affected door.
- f. All passenger seats halfway to next exit in each direction from inoperative door, across entire width of airplane, shall be blocked off with conspicuous tapes or ropes that contrast with interior prior to loading passengers. Only seats in these areas shall be blocked: main passenger aisles, cross aisles, and exits areas must not be blocked. (For an inoperative forward door/slide, blocked seating area shall extend from forward cabin end, rearward to a line halfway between inoperative forward door and next set of doors aft of inoperative one. For an inoperative rear door/slide, blocked seating area shall extend forward from aft cabin end to a line halfway between inoperative door and next set of doors forward of inoperative one).
- g. Conspicuous signs and placards shall be placed in appropriate locations indicating these seats are not to be occupied by passengers.
 - 1) For inoperative FWD door/slide/exit (TYPE A)* seats on rows 1 thru 8 should be blocked.
 - 2) For inoperative FWD emergency exit door (TYPE III)** seats on rows 8 thru 20 should be blocked.
 - 3) For inoperative AFT emergency exit door (TYPE III)** seats on rows 21 thru 30 should be blocked.
 - 4) For inoperative AFT door/ slide/ exit (TYPE A)* seats on rows 30 thru 44 should be blocked..
 - 5) For inoperative Slide L or R overwing emergency exit (TYPE III)** seats on 8 thru 30 should be blocked.

* EXIT TYPE A - (one door & one slide)
 ** EXIT TYPE III - (two hatches & one slide)
- h. Seated capacity must not exceed rated capacity of remaining pairs of exits.



- i. For extended range/overwater operations, occupancy shall not exceed normal rated capacity of slide/rafts, or remaining slide/rafts or rated overload capacity of slide/rafts remaining after loss of one additional slide/raft of greatest capacity, whichever is least.
- j. Blocked seating layouts and evacuation procedures must be developed and approved by FAA certificate holding office for inclusion in operator's manual.
- k. Repairs are made within 1 flight day.

NOTE 1: Weight and balance manifest must be revised as necessary to ensure proper loading limits are observed.

NOTE 2: Cabin attendants may be stationed in vicinity of each door within blocked area.

MAINTENANCE (M)

Configure the door, exit signs and seats as appropriate (AMM 52-00-00/901).

1. Cover the emergency exit sign of the affected door so it is not visible.
2. Cover or otherwise obscure the floor proximity escape path marking system lights unique to the inoperative door.
3. Block the inoperative door with a conspicuous barrier strap or rope and placard INOPERATIVE.
4. Block unusable passenger seats with conspicuous barrier tape or ropes and placard DO NOT OCCUPY.
5. Confirm the exterior door handle is flush with the fuselage and the exterior (red) disarm lever is flush with the latched closed exterior door handle on the affected door.

OPERATIONS (O)

Flight crewmembers and passengers must be briefed prior to takeoff and landing regarding exit that cannot be used for emergency evacuation.

52-11-04 Main Entry Doors/Slides/Emergency Exits

52-11-04-01 Passenger Configuration

52-11-04-01B No Passengers Carried

Interval	Installed	Required	Procedure
C	8	1	(M) (O)

May be inoperative or slide missing provided:

- a. No passengers are carried.
- b. A maximum of 19 persons for non-passenger carrying operations are carried.
- c. A conspicuous barrier strap or rope and a placard stating that the door is inoperative shall be placed across the inoperative door.
- d. Emergency exit sign and floor proximity lights associated with the inoperative exit must be covered to obscure the sign and lights.



- e. Inoperative doors are not used for loading.
 - f. Each person carried has unobstructed access from their seat to an operative door.
 - g. Safety briefing includes location of inoperative doors and instructions not to use them.
 - h. Alternate procedures are established and used.
-

MAINTENANCE (M)

Block the inoperative doors with conspicuous barrier strap or rope and placard as inoperative, configure the associated emergency exit signs and floor proximity escape path markings as appropriate (AMM MEL 52-11-01).

- 1. Block the inoperative doors with conspicuous barrier strap or rope and placard as inoperative.
- 2. Cover the emergency exit signs unique to the inoperative doors.
- 3. Cover the floor proximity escape path marking system lights unique to the inoperative doors.

OPERATIONS (O)

- 1. No passengers may be carried.
- 2. A maximum of 19 persons may be carried.
- 3. Inoperative doors are not to be used for loading.
- 4. Flight crew members and authorized persons must be briefed prior to takeoff and landing regarding the inoperative doors that cannot be used for emergency evacuation.
- 5. Arming of the passenger entry doors using the mode select handles in the automatic position (red band) prior to taxi, takeoff and landing includes the inoperative doors with or without the escape slide removed.


52-30-01 Lower Cargo Doors
**52-30-01-01 Cargo Door Lift/Latch Mechanisms
(Std. Door)**
52-30-01-01A Manual Or Electric Inoperative

Interval	Installed	Required	Procedure
C	2	1	

Either manual or electric mode on each door may be inoperative.

MAINTENANCE NOTE

For only the electric mode of the lift/latch mechanism inoperative, the manual mode can be used (AMM 52-00-00/901).

52-30-01 Lower Cargo Doors
**52-30-01-01 Cargo Door Lift/Latch Mechanisms
(Std. Door)**
52-30-01-01B Manual And Electric Inoperative

Interval	Installed	Required	Procedure
C	2	0	(M)

Manual and electric modes may be inoperative provided associated door is verified closed and locked before each departure.

MAINTENANCE (M)

Verify the associated door is closed and locked before each departure (AMM 52-00-00/901).

1. Confirm no message pertaining to cargo doors is displayed.
2. Confirm the amber CARGO DOORS light on the flight deck overhead panel is extinguished.
3. Confirm the door is faired with the fuselage.
4. Confirm the vent doors are fully closed.
5. Confirm each vent door springs back to the fully closed position after being pushed open (inward at the top) approximately 3 inches and suddenly released.



- 52-30-01 Lower Cargo Doors**
- 52-30-01-02 Cargo Door Hinge Power Units And Manual Hinge Drive Systems (Std. Door)**
- 52-30-01-02A Manual Or Electric Inoperative**

Interval	Installed	Required	Procedure
C	2	1	

Either manual or electric mode on each door may be inoperative.

MAINTENANCE NOTE

For only the electric mode of the hinge power unit inoperative, the manual mode can be used (AMM 52-00-00/901).

- 52-30-01 Lower Cargo Doors**
- 52-30-01-02 Cargo Door Hinge Power Units And Manual Hinge Drive Systems (Std. Door)**
- 52-30-01-02B Manual And Electric Inoperative**

Interval	Installed	Required	Procedure
C	2	0	(M)

Manual and electric modes may be inoperative provided associated door is verified closed and locked before each departure.

MAINTENANCE (M)

Verify the associated door is closed and locked before each departure (AMM 52-00-00/901).

1. Confirm no message pertaining to cargo doors is displayed.
2. Confirm the amber CARGO DOORS light on the flight deck overhead panel is extinguished.
3. Confirm the door is faired with the fuselage.
4. Confirm the vent doors are fully closed.
5. Confirm each vent door springs back to fully closed position after being pushed open (inward at the top) approximately 3 inches and suddenly released.


52-30-01 Lower Cargo Doors
52-30-01-03 Cargo Door Hook/Latch System Electrical Function (Large Door)

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided:

- a. Manual function operates normally.
- b. There is no damage to hook/latch mechanism.
- c. There is no damage to latch lock mechanism.
- d. Door is closed and locked using an accepted maintenance manual procedure.
- e. All latch cams are visually confirmed to be in closed position before each departure.

MAINTENANCE (M)

Confirm the associated door is closed and locked before each departure (AMM 52-00-00/901).

1. Visually confirm no damage exists to the hook-latch and latch-lock systems.
2. Open and close the door manually.

52-30-01 Lower Cargo Doors
52-30-01-04 Cargo Door Lift System (Large Door)
52-30-01-04A Manual Or Electric Inoperative

Interval	Installed	Required	Procedure
C	2	1	

Either manual or electric mode on each door may be inoperative.

MAINTENANCE NOTE

For only the electric mode of the hinge power unit inoperative, the manual mode can be used (AMM 52-00-00/901).



52-30-01 Lower Cargo Doors
52-30-01-04 Cargo Door Lift System (Large Door)
52-30-01-04B Manual And Electric Inoperative

Interval	Installed	Required	Procedure
C	-	0	(M)

Manual and electric modes may be inoperative provided associated door is verified closed and locked before each departure.

MAINTENANCE (M)

Verify the associated door is closed and locked before each departure (AMM 52-00-00/901).

1. Confirm no message pertaining to cargo doors is displayed.
2. Confirm the amber CARGO DOORS light on the flight deck overhead panel is extinguished.
3. Confirm the door is faired with the fuselage.
4. Confirm the vent doors moved from open to fully closed during locking.
5. Confirm each vent door springs back to fully closed position after being pushed open (inward at the top) approximately 3 inches and suddenly released.


52-30-03 Cargo Door Control Panel Indicating Systems
52-30-03-01 DOOR OPEN Light (Std. Door)

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided DOOR CLOSE light operates normally.

52-30-03 Cargo Door Control Panel Indicating Systems
52-30-03-02 DOOR CLOSE Light (Std. Door)

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided:

- a. Door indication system for associated door is verified to operate normally.
- b. Door is visually verified closed, latched, and locked before each departure.

MAINTENANCE (M)

Verify the indication system for the associated door operates normally, and before each departure verify the associated door is closed, latched, and locked (AMM 52-00-00/901).

1. Confirm the indication system for the associated door operates normally:
 - A. Close, latch and lock all cargo doors.
 - B. Confirm no message pertaining to cargo doors is displayed.
 - C. Confirm the amber CARGO DOORS light on the flight deck overhead panel is extinguished.
 - D. Open (unlatch) the associated cargo door.
 - E. Confirm the vent doors are fully open.
 - F. Confirm the associated FWD CARGO DOOR or AFT CARGO DOOR message is displayed.
 - G. Confirm the amber CARGO DOORS light on the flight deck overhead panel is illuminated.
2. Before each departure confirm the associated door is closed, latched and locked:
 - A. Close the associated door.
 - B. Confirm the door is faired with the fuselage.
 - C. Confirm the vent doors are fully closed.
 - D. Confirm no message pertaining to cargo doors is displayed.



- E. Confirm the amber CARGO DOORS light on the flight deck overhead panel is extinguished.

52-30-03 Cargo Door Control Panel Indicating Systems
52-30-03-03 DOOR OPEN and DOOR CLOSE Lights (Large Door)

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided door is visually verified closed, latched, and locked before each departure.

MAINTENANCE (M)

Verify the associated door is closed, latched, and locked before each departure (AMM 52-00-00/901).

1. Confirm no message pertaining to cargo doors is displayed.
2. Confirm the amber CARGO DOORS light on the flight deck overhead panel is extinguished.
3. Confirm the door is faired with the fuselage.
4. Confirm the door is fully latched by viewing, through the door's viewport, the stripe on each latch cam is in the limits of the larger alignment mark on the adjacent latch pin fitting.
5. Confirm the vent doors moved from open to fully closed during locking.
6. Confirm the latch lock handle and associated release button are faired with the fuselage.



52-34-01 Cargo Door Stop Fitting Bearing Plates (Std. Doors Only)

Interval	Installed	Required	Procedure
C	-	-	

One on forward and aft side of each cargo door frame may be missing.

**52-35-01 Bulk Cargo Door Balance Mechanism**

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided a safety hold open device is used when door is in open position.

MAINTENANCE (M)

1. Open the bulk cargo door to the full open position (AMM 52-00-00/901).
2. Secure the door in the open position with the uplock strap installed on the bulk compartment ceiling.


**52-51-03 Boeing Enhanced Flight Deck Security Door
Automatic Locking System**

Effectivity: BMQ, BOG, BPT, BRA

Interval	Installed	Required	Procedure
A	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.
- Repairs are made within 2 flight days.

MAINTENANCE (M)

Deactivate the automatic locking system by setting the FLIGHT DECK ACCESS SYSTEM switch to OFF (guard extended) (AMM 52-00-00/901).

NOTE: The LOCK FAIL light may remain illuminated when the flight deck access system switch is OFF.

OPERATIONS (O)

Operators must establish and use alternate procedures based on their security requirements for allowing and denying access to the flight deck.

**52-51-03 Boeing Enhanced Flight Deck Security Door
Automatic Locking System**
**52-51-03-01 Flight Deck Access Panel System (Keypad, Door
Chime)**

Effectivity: BMQ, BOG, BPT, BRA

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

May be inoperative provided:

- Keypad is deactivated.
- Alternate procedures are established and used.

MAINTENANCE (M)

Deactivate the keypad (AMM 52-00-00/901).

- Open the P11 panel DOORS FLT DK LOCK circuit breaker.
- Access the chime module.
- Disconnect the electrical connector for the keypad at the chime module.



4. Close the open circuit breaker.
5. 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)

Operators must establish and use alternate procedures based on their 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 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

Effectivity: BMQ, BOG, BPT, BRA

Interval	Installed	Required	Procedure
C	3	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Operators must establish and use alternate procedures based on their security requirements for allowing and denying access to the flight deck.

52-51-03 Boeing 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

Effectivity: BMQ, BOG, BPT, BRA

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

OPERATIONS (O)

Operators must establish and use alternate procedures based on their security requirements for allowing and denying access to the flight deck.


52-51-03 Boeing 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

Effectivity: BMQ, BOG, BPT, BRA

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 Enhanced Flight Deck Security Door Automatic Locking System
52-51-03-02 Flight Deck Door LOCK FAIL Light

Effectivity: BMQ, BOG, BPT, BRA

Interval	Installed	Required	Procedure
B	1	0	(M)

May be inoperative provided automatic lock controls are verified to operate normally.

MAINTENANCE (M)

Verify the automatic lock controls operate normally (AMM 52-00-00/901).

1. Confirm the flight deck door is open.
2. Supply electrical power.
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 the 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 Enhanced Flight Deck Security Door
Automatic Locking System****52-51-03-03 Flight Deck Door AUTO UNLK Light**

Effectivity: BMQ, BOG, BPT, BRA

Interval	Installed	Required	Procedure
B	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 (AMM 52-00-00/901).

1. Confirm the flight deck door is open.
2. Supply electrical power.
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 locked position (the solenoid pin in the electric strike will be extended up so the 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 Enhanced Flight Deck Security Door Automatic Locking System****52-51-03-04 Flight Deck Door Lock Control Selector***Effectivity: BMQ, BOG, BPT, BRA*

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

May be inoperative provided:

- a. Keypad is deactivated.
- b. Automatic lock is verified to operate normally.
- c. Alternate procedures are established and used.

MAINTENANCE (M)

Deactivate the keypad and verify the automatic lock operates normally (AMM 52-00-00/901).

1. For deactivating the keypad:
 - A. Open the P11 panel DOORS FLT DK LOCK circuit breaker.
 - B. Access the chime module.
 - C. Disconnect the electrical connector for the keypad at the chime module.
 - D. Close the open circuit breaker.
 - E. For the flight deck door closed with the flight deck not occupied, confirm the FLIGHT DECK ACCESS SYSTEM switch is in the OFF position (guard extended).
2. For verifying the automatic lock is operating normally:
 - A. Confirm the flight deck door is open.
 - B. Supply electrical power.
 - C. Set the FLIGHT DECK ACCESS SYSTEM switch to NORM (guard closed).
 - D. 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).
 - E. Set the FLIGHT DECK ACCESS SYSTEM switch to OFF (guard extended).
 - F. 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).
 - G. Set the FLIGHT DECK ACCESS SYSTEM switch to NORM (guard closed).
 - H. 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)**

Operators must establish and use alternate procedures based on their security requirements for allowing and denying access to the flight deck.

NOTE: Confirm the FLIGHT DECK ACCESS SYSTEM switch is in the OFF position (guard extended) when the flight deck door is to be closed and the flight deck not occupied.

**52-51-03 Boeing Enhanced Flight Deck Security Door
Automatic Locking System****52-51-03-05 Pressure Rate-Of-Change Sensing Module**

Effectivity: BMQ, BOG, BPT, BRA

Interval	Installed	Required	Procedure
A	1	0	(M)

May be inoperative provided:

- a. Pressure sensing module is deactivated.
- b. Repairs are made within 2 flight days.

MAINTENANCE (M)

Deactivate the pressure sensing module (pressure sensor) (AMM 52-00-00/901).

1. Open the P11 panel DOORS FLT DK LOCK circuit breaker.
2. Remove the pressure sensor.
3. Disconnect the electrical connector from the pressure sensor.
4. A closed circuit from pressure sensor is required to keep the automatic locking system operating.
 - A. Fabricate a shorting plug using a connector part number equivalent to Government Designation M83513/4-A01N (detail specification MIL-DTL-83513).
 - B. Trim excess wire to a 2 to 3 inch length.
 - C. Splice wires 4 and 6 together.
 - D. Insulate splice and wire pigtails.
 - E. Connect the shorting plug to the electrical connector and stow.
5. Install the pressure sensor.
6. Close the open circuit breaker.



52-51-04 Boeing Enhanced Flight Deck Security Door Dead Bolt

Effectivity: BMQ, BOG, BPT, BRA

Interval	Installed	Required	Procedure
C	1	0	

May be inoperative provided automatic lock controls operate normally.


52-51-05 JAMCO Flight Deck Security Door Automatic Locking System
Effectivity: BMU

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

May be inoperative provided:

- Automatic locking system is deactivated.
- Mechanical catch (latch) pin lock operates normally, and is used to lock door.
- Alternate procedures are established and used for locking and unlocking flight deck door using mechanical catch (latch) pin lock.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System
52-51-05-01 Door Automatic Locking Solenoids
Effectivity: BMU

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided remaining locking solenoid is verified to operate normally.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System
52-51-05-02 Door Warning System
52-51-05-02-01 Speakers
Effectivity: BMU

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



One may be inoperative provided remaining speaker is verified to operate normally once each flight day.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System

52-51-05-02 Door Warning System

52-51-05-02-02 LED (Green Indicator Lights)

Effectivity: BMU

Interval	Installed	Required	Procedure
C	2	0	

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System

52-51-05-02 Door Warning System

52-51-05-02-03 Aural Warning System

Effectivity: BMU

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

May be inoperative provided:

- Door AUTO UNLK light is verified to operate normally.
 - Alternate procedures are established and used.
-

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.


52-51-05 JAMCO Flight Deck Security Door Automatic Locking System
52-51-05-03 Door Control Panel
52-51-05-03-01 Door LOCK FAIL Light
Effectivity: BMU

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative OFF provided automatic lock controls are verified to operate normally.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System
52-51-05-03 Door Control Panel
52-51-05-03-02 Door AUTO UNLK Light
Effectivity: BMU

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

May be inoperative OFF provided:

- Automatic lock controls are verified to operate normally.
- Aural warning system operates normally.
- Alternate procedures are established and used.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

**52-51-05 JAMCO Flight Deck Security Door Automatic Locking System****52-51-05-03 Door Control Panel****52-51-05-03-03 Door HARD LOCK Light***Effectivity: BMU*

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

May be inoperative provided:

- Automatic lock controls are verified to operate normally.
- Alternate procedures are established and used.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System**52-51-05-03 Door Control Panel****52-51-05-03-04 Door UNLKD Switch/UNLK Switch Position***Effectivity: BMU*

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

May be inoperative provided:

- Door can be opened manually from flight deck.
- Remaining automatic lock controls are verified to operate normally.
- Alternate procedures are established and used.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

**52-51-05 JAMCO Flight Deck Security Door Automatic Locking System****52-51-05-03 Door Control Panel****52-51-05-03-05 Door UNLKD Light***Effectivity: BMU*

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

May be inoperative provided:

- Automatic lock controls are verified to operate normally.
- Aural warning system operates normally.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System**52-51-05-03 Door Control Panel****52-51-05-03-06 Door EMRG ENTRY ACTIVE Light***Effectivity: BMU*

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided door aural warning system is verified to operate normally.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System**52-51-05-03 Door Control Panel****52-51-05-03-07 Door OPEN Light***Effectivity: BMU*

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

May be inoperative provided automatic lock controls are verified to operate normally.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System**52-51-05-04 FLIGHT DECK DOOR Warning/Caution Light***Effectivity: BMU*

Interval	Installed	Required	Procedure
C	1	0	

52-51-05 JAMCO Flight Deck Security Door Automatic Locking System**52-51-05-05 Cabin Pushbutton Entry Pad/Keypad***Effectivity: BMU*

Interval	Installed	Required	Procedure
C	1	0	(O)

May be inoperative provided alternate procedures are established and used.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

**52-51-05 JAMCO Flight Deck Security Door Automatic Locking System****52-51-05-05 Cabin Pushbutton Entry Pad/Keypad****52-51-05-05-01 Keypad Indicator Lights***Effectivity: BMU*

Interval	Installed	Required	Procedure
C	3	0	(M) (O)

May be inoperative provided:

- Keypad is verified to operate normally.
- Alternate procedures are established and used.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.



**52-51-06 JAMCO Flight Deck Security Door Mechanical Catch
(Latch) Pin Lock**

Effectivity: BMU

Interval	Installed	Required	Procedure
C	1	0	(M)

May be inoperative provided automatic lock system is verified to operate normally.

NOTE: The flight deck security door installation manufactured by JAMCO America Inc. is not a Boeing system. Information applicable to the JAMCO installation is not provided.

**52-71-01 Door Indication Systems****52-71-01-01 All Doors Except Main Deck Cargo Door**

Interval	Installed	Required	Procedure
C	12	0	(M)

May be inoperative provided associated door(s) is verified closed, latched, and locked before each departure.

MAINTENANCE (M)

Verify the affected door is closed, latched and locked before each departure (AMM 52-00-00/901).

1. Entry/Service Doors:
 - A. Disarm the slide using the interior arm/disarm lever.
 - B. Open the door.
 - C. Push the red exterior disarm lever to full the inboard position (disarm).
 - D. Move the interior door handle to the closed position. The exterior door handle should then be flush with the skin, and the exterior red disarm lever should stay inboard.
 - E. Cycle the interior arm/disarm lever from DISARM to ARM and then return to DISARM.
 - F. Confirm the exterior door handle and red disarm lever are flush with the exterior skin.
 - G. Move the interior door handle to the open position, then close the door and latch using the interior door handle.
 - H. Arm the door slide using the interior arm/disarm lever.
 - I. For door light illuminated or inoperative (extinguished):
 - 1) Confirm the primary latch (viewed through interior viewing port in upper door liner) is in its normally locked position, that is, the latch pin has crossed the guide fitting clevis.
 - 2) Confirm the yellow flags completely fill (from top to bottom) the floor lever girt bar lock down windows.
 - 3) For door light remains on:
 - a. Fully close and latch the respective entry/service door providing nuisance indication.
 - b. Perform a sensor target test for the door closed sensor on the respective entry/service door.

- c. For the applicable door closed sensor, check that the "Target Near" indicator illuminates on the PSEU BITE panel display.

Door	Sensor	Effectivity
Door L Fwd	Sensor # 194	All airplanes.
Door R Fwd	Sensor # 196	All airplanes.
Door L Mid	Sensor # 221	Airplanes with mid entry/service doors.
Door R Mid	Sensor # 222	Airplanes with mid entry/service doors.
Door L Mid	Sensor # 192	Airplanes with one escape hatch over each wing.
Door R Mid	Sensor # 193	Airplanes with one escape hatch over each wing.
Door L Mid Fwd	Sensor # 192	Airplanes with two escape hatches over each wing.
Door R Mid Fwd	Sensor # 193	Airplanes with two escape hatches over each wing.
Door L Mid Aft	Sensor # 216	Airplanes with two escape hatches over each wing.
Door R Mid Aft	Sensor # 217	Airplanes with two escape hatches over each wing.
Door L Aft	Sensor # 204	All airplanes.
Door R Aft	Sensor # 206	All airplanes.

- d. If the "Target Far" indicator illuminates with the door fully closed and locked, the emergency lights will be activated when the door is armed. The airplane may be dispatched in this condition provided it is also dispatched using MMEL Item 33-51-02.
2. Emergency Exit Doors:
- A. Inside cabin:
- 1) Confirm the operating handle is in the closed position.
- B. Outside cabin:
- 1) Confirm the door is flush with the fuselage.
 - 2) Confirm the door exterior handle and vent door are flush with the fuselage.
 - 3) Confirm the gap between bottom of the door skin and the body skin is 0.25 inches or less.
3. Off-wing Compartment Doors:
- A. Disarm the inflation cylinder.



- B. For airplanes having integrators with unlatch and latch levers:
- 1) Open the integrator access door.
 - 2) For integrators with secondary lock mechanism, remove pin A and rotate the secondary lock mechanism lever down out of the latch shaft slot.
 - 3) Rotate the unlatch lever aft to unlatch the slide compartment door.
 - 4) Manually push in the side compartment door (along the middle top edge) and rotate the unlatch lever forward to the stop pin. While manually holding in the door, rotate the latch lever forward to latch the door. The door should be pulled inboard to fair-to-skin by the latches. Rotate the latch lever aft to the former position.
 - 5) For integrators with secondary lock mechanism, rotate the secondary lock mechanism lever up into the latch shaft slot and insert pin A. Confirm the shear pin is installed and intact.
 - 6) Confirm the cross pin is fully forward in the housing slot.
 - 7) Confirm the lifter has vertical free play (can be moved up from its rest position without raising locking pin B).
 - 8) Confirm the latch lever is rotated aft against the aft stop.
 - 9) Confirm locking pin B is fully down against the integrator piston, in the piston detent and blocking aft movement of the latch shaft.
 - 10) Close the integrator access door.
- C. For airplanes having integrators with lock handle:
- 1) Open the integrator access door.
 - 2) Pull the integrator lock handle outboard (approximately 0.4 inches) to the unlock position. Insert a 1/4 drive wrench in the latch/unlatch cam and rotate the cam aft, driving the cross pin full aft in the slot to open the compartment door latch.
NOTE: A detent may be felt at the midpoint of the 0.4 inch travel of the lock handle between the locked and unlocked positions. Move the lock handle past the mid-travel detent, ensuring full 0.4 inch travel between the locked and unlocked positions.
 - 3) Pull the lock handle further outboard to the safety position. Open the slide compartment door.
 - 4) Push the lock handle inboard to the unlock position. Push in the slide compartment door manually and rotate the latch/unlatch cam driving the cross pin full forward in the slot. The slide compartment door should be pulled to skin by the latches.
 - 5) Push the lock handle inboard (approximately 0.4 inches) to the locked position.



NOTE: A detent may be felt at the midpoint of the 0.4 inch travel of the lock handle between the locked and unlocked positions. Move the lock handle past the mid-travel detent, ensuring full 0.4 inch travel between the locked and unlocked positions.

- 6) Confirm the cross pin is fully forward in the slot.
 - 7) Confirm the lock handle is pushed fully inboard to the locked position.
 - 8) Close the integrator access door.
- D. Arm the inflation cylinder.
4. Standard (Small) Forward and Aft Cargo Doors:
 - A. Confirm the door is faired with the fuselage.
 - B. Confirm the vent doors are fully closed.
 - C. Confirm the DOOR CLOSE light is illuminated on the exterior door control panel.
5. Large Forward and Aft Cargo Doors:
 - A. Confirm the door faired with the fuselage.
 - B. Confirm the vent doors moved from open to fully closed or open no more than 0.28 inch at the lower edge during locking.
 - C. Look through 12 latch viewing windows on the external side of the cargo door and confirm the green alignment mark on the main latch cam is fully in limits of the larger green alignment mark on the main latch pin fitting.
 - D. Confirm the latch lock handle and associated release button are faired with the fuselage.
6. Bulk Cargo Door:
 - A. Confirm the door is faired with the fuselage.
 - B. Confirm the latch handle is faired with the fuselage.
 - C. Push on the door to confirm it is latched.
7. Over-wing Escape Hatch:
 - A. Confirm the emergency pull handle is in the normal hatch closed position.
 - B. For airplanes with maintenance handle, confirm the maintenance handle is in the normal hatch closed position.
 - C. Confirm the hatch lining is flush with the cabin lining top to bottom.
 - D. Push out at the top of the hatch. Confirm there is no looseness.
8. Forward Access Door or E/E Access Door:
 - A. Confirm the door is faired with the fuselage.
 - B. Confirm the door latch handle is faired with the door.
 - C. Confirm the door does not open inward/upward when pushed upon by hand (confirm latch pin engagement).



52-73-01 Entry/Service Door Slide Armed Indicating Light System

Interval	Installed	Required	Procedure
D	1	0	



56-31-01 Entry/Service Door Viewport Heated Pane(s)



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56-31-01 Entry/Service Door Viewport Heated Pane(s)

Interval	Installed	Required	Procedure
B	6	0	(M)

May be inoperative provided heated panes are deactivated.

MAINTENANCE (M)

Deactivate the entry/service door viewport heated panes by opening and collaring the P11 panel DOOR WINDOW HEATER circuit breaker.



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73-21-01 Electronic Engine Control (EEC) Systems

73-21-01-01 EEC NORM Mode

73-21-01-02 EEC C1 Faults

73-21-02 Electronic Engine Control (EEC) INOP/NORM/ALTN Lights

73-21-02-01 EEC NORM/ALTN Lights

73-21-03 Fuel Control ENG VALVE Indication System

73-21-03-01 Fuel Control ENG VALVE Lights

73-21-03-02 Fuel Control ENG FUEL VAL Indication System

73-21-07 Hydromechanical N2 Speed Governors

73-21-08 Approach Idle/Minimum Idle Systems

73-21-08-01 Minimum Ground Idle

73-21-08-02 Continuous Ignition Actuated Approach Idle

73-31-01 Fuel Flow Indications



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73-21-01 Electronic Engine Control (EEC) Systems
73-21-01-01 EEC NORM Mode

ETOPS

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided both engines are operated in alternate (ALTN) mode.

OPERATIONS (O)

- 1. Set both ELEC ENG CONT switches to ALTN.
- 2. Autothrottle may be used.
- 3. Use of assumed temperature reduced thrust may not be allowed. Refer to the AFM Appendix Applicability page.

73-21-01 Electronic Engine Control (EEC) Systems
73-21-01-02 EEC C1 Faults

ETOPS

Interval	Installed	Required	Procedure
C	2	0	

May be dispatched with C1 faults provided repairs are made in accordance with times established by CF6-80C2 Engine Manual GEK 92451, Task 05-51-73-200-801.



73-21-02 Electronic Engine Control (EEC) INOP/NORM/ALTN Lights

73-21-02-01 EEC NORM/ALTN Lights

Interval	Installed	Required	Procedure
C	2	0	(O)

May be inoperative provided both EECs are operated in alternate (ALTN) mode.

OPERATIONS (O)

Use MEL Item 73-21-01-01 (O) procedure.

73-21-03 Fuel Control ENG VALVE Indication System
73-21-03-01 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 (AMM 73-00-00/901).

1. With the affected engine running, open the P6 panel SPAR FUEL VALVE circuit breaker.
2. Set the FUEL CONTROL switch to CUTOFF.
3. Confirm the engine stops running.
4. Close the open circuit breaker.

73-21-03 Fuel Control ENG VALVE Indication System
73-21-03-02 Fuel Control ENG FUEL VAL Indication System
ETOPS

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

One may be inoperative provided:

- a. Associated engine fuel valve is verified to operate normally.
- b. Associated EICAS message is deactivated.

MAINTENANCE (M)

Verify the associated engine fuel valve operates normally, and deactivate the associated advisory message (AMM 73-00-00/901).

1. With the affected engine running, open the P6 panel SPAR FUEL VALVE circuit breaker.
2. Set the FUEL CONTROL switch to CUTOFF.
3. Confirm the engine stops running.
4. Close the open circuit breaker.
5. Deactivate the associated ENG FUEL VAL message.
 - A. Gain access to the associated hydro-mechanical control unit.



- B. Perform one of the following:
 - 1) Disconnect, cap and stow the D13304 connector from the associated hydro-mechanical control unit (HMU).
 - 2) Disconnect ground wire W5324-010-20 from grounding stud GD5955DC. Reinstall unaffected wires on the grounding stud and secure with a new locknut.
- C. Install a protective closure on the disconnected wire/ground lug using heat-resistant tape or shrink sleeve. Secure the protected wire as appropriate.

OPERATIONS (O)

- 1. At each shutdown of the affected engine, with the affected engine running open the P6 panel SPAR FUEL VALVE circuit breaker.
- 2. Set the FUEL CONTROL switch to CUTOFF.
- 3. Confirm the engine stops running.
- 4. Close the open circuit breaker.
- 5. In the airplane logbook record the time elapsed from the selection of fuel CUTOFF to the initiation of engine shutdown as indicated by a rapid decrease in N1, N2, and EGT.



73-21-07 Hydromechanical N2 Speed Governors

Interval	Installed	Required	Procedure
C	2	1	

**73-21-08 Approach Idle/Minimum Idle Systems****73-21-08-01 Minimum Ground Idle****ETOPS**

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

May be inoperative provided:

- Flap actuated approach idle is verified to operate normally.
 - Appropriate performance adjustments are applied.
-

MAINTENANCE (M)

Verify flap actuated approach idle operates normally (AMM 73-00-00/901).

- Confirm the flaps are stowed.
- Set both ENGINE ANTI-ICE switches to OFF.
- Set both ENGINE START selectors to OFF.
- Start the engines normally.
- Record the following minimum idle data from the EICAS secondary performance page after the engines have stabilized:
 - Engine 1 N2
 - Engine 1 PS3
 - Engine 2 N2
 - Engine 2 PS3
- Compare the recorded minimum idle data for each engine to the minimum idle N2 target values in the Trim Check Table.
 - For minimum idle data N2 that matches the targeted value (+/- tolerance), minimum idle operates normally.
 - For minimum idle data N2 that does not match the targeted value (+/- tolerance), compare the above minimum idle data PS3 (PSIA) to the compressor discharge static pressure target values in the Trim Check Table.
 - For minimum idle data PS3 (PSIA) that matches the targeted value (+/- tolerance), minimum idle operates normally.
- Open the following P11 panel circuit breakers:
 - GR POS AIR/GND SYS 2 ALT
 - LDG GR POS AIR/GND SYS 2
 - AIR/GRD SYS 1
- Set the flaps to the 30 degree position.
- Record the following approach idle data from the EICAS secondary performance page after the engines have stabilized.
 - Engine 1 N2



- B. Engine 2 N2
10. Compare the recorded approach idle data for each engine to the approach idle N2 target values in the Trim Check Table.
 - A. For approach idle data N2 that matches the targeted value (+/- tolerance), flap actuated approach idle operates normally.
11. Set the flaps to the stowed position.
12. Close the open circuit breakers.

OPERATIONS (O)

Reduce takeoff and landing field length performance limited weights 3100 lb (1406 kg).

73-21-08 Approach Idle/Minimum Idle Systems

73-21-08-02 Continuous Ignition Actuated Approach Idle

ETOPS

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

May be inoperative provided flap actuated approach idle is verified to operate normally.

MAINTENANCE (M)

Verify flap actuated approach idle operates normally (AMM 73-00-00/901).

1. Confirm the flaps are stowed.
2. Set both ENGINE ANTI-ICE switches to OFF.
3. Set both ENGINE START selectors to OFF.
4. Start the engines normally.
5. Open the following P11 panel circuit breakers:
 - A. GR POS AIR/GND SYS 2 ALT
 - B. LDG GR POS AIR/GND SYS 2
 - C. AIR/GRD SYS 1
6. Set the flaps to the 30 degree position.
7. Record the following approach Idle data from the EICAS secondary performance page after the engines have stabilized.
 - A. Engine 1 N2
 - B. Engine 2 N2
8. Compare the recorded approach idle data for each engine to the approach idle N2 target values in the Trim Check Table.
 - A. For approach idle data N2 that matches the targeted value (+/- tolerance), flap actuated approach idle operates normally.
9. Set the flaps to the stowed position.



10. Set both ENGINE START selectors to CONT.
11. Record the following continuous ignition actuated approach idle data from the EICAS secondary performance page after the engines have stabilized.
 - A. Engine 1 N2
 - B. Engine 2 N2
12. Compare the recorded approach idle data for each engine to the approach idle N2 target values in the Trim Check Table.
 - A. For approach idle data N2 that matches the targeted value (+/- tolerance), continuous ignition actuated approach idle operates normally.
 - B. For approach idle data N2 that does not match the targeted value (+/- tolerance), continuous ignition actuated approach idle is inoperative.
13. Set both ENGINE START selectors to AUTO.
14. Close the open circuit breakers.

OPERATIONS (O)

Flights should be conducted to avoid thunderstorm activity by overflight or circumnavigation. To the maximum extent possible, heavy rain or hail should also be avoided. Weather radar, pilot reports, and flight crew observations may be used by the flight crew to determine when heavy rain or hail is anticipated. Should flight in heavy rain or hail be encountered or anticipated, accomplish the following procedure.

1. Set the ENGINE START selectors to CONT.
2. For TAT 10 degrees C or below, set the ENGINE ANTI-ICE switches to ON.
3. For TAT above 10 degrees C, disengage the autothrottles.

NOTE: This prevents autothrottle reduction below the desired setting during descent. The autothrottles may remain engaged during takeoff, climb and cruise.

4. Set the thrust levers:
 - A. Minimum of 50% N1 at or above 10,000 feet.
 - B. Minimum of 45% N1 below 10,000 feet except for landing.

NOTE: In heavy precipitation engine parameter fluctuations may occur, particularly, a noticeable drop in EGT. Engine parameters will return to normal immediately upon leaving the area of heavy precipitation.

73-31-01 Fuel Flow Indications
ETOPS

Interval	Installed	Required	Procedure
C	2	1	(M)

One may be inoperative provided:

- a. Associated N1 and N2 indications operate normally.
- b. Main tank fuel quantity indicators operate normally.

[For Simmonds FQIS P/N S345N001-032:](#)

- c. Right and left main tank densitometers are disconnected for ER operations.

MAINTENANCE (M)

[For Honeywell FQIS P/N S345N011-7/8 densitometers:](#)

For Honeywell densitometers, there are no (M) Maintenance procedures.

[For Simmonds FQIS densitometers after P/N S345N001-032:](#)

For Simmonds densitometers, there are no (M) Maintenance procedures.

[For Simmonds FQIS P/N S345N001-032 densitometers:](#)

Deactivate the right and left main tank densitometers for ER operations (AMM 73-00-00/901).

1. Open the following circuit breakers:
 - A. P6 panel, FUELING QTY.
 - B. P11 panel, FUEL QTY 1.
 - C. P11 panel, FUEL QTY 2.
 - D. P34 panel, FUEL QTY REFUEL.
2. Gain access to the left and right main tank densitometers.
3. Disconnect, cap and stow the densitometer connector.
4. Close the open circuit breakers.

OPERATIONS NOTE

1. FMC CALCULATED, associated engine FUEL USED and FUEL USED TOT indications are inoperative.
2. 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 4000 lb (1815 kg) will require approximately one unit of aileron displacement to hold wings level.
4. In case of enroute failure of FQIS, the flight crew must 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	-	-	109,000
1300 UT	5000	10,000	99,000
1400 UT	4900	9800	89,200

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 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

<i>74-00-01A</i>	<i>ER Operations Allowed</i>
<i>74-00-01B</i>	<i>Except ER Operations</i>



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**74-00-01 Ignition Systems****74-00-01A ER Operations Allowed****ETOPS**

Interval	Installed	Required	Procedure
A	4	3	(O)

One may be inoperative provided:

- Ignition selector remains in BOTH position.
 - Engine anti-ice system operates normally on associated engine.
 - Repair is made within 1 flight day.
-

OPERATIONS (O)

- Set the ignition selector to the operative system (1 or 2) or set to BOTH to start the engine.
- After engine start set the ignition selector to BOTH.

74-00-01 Ignition Systems**74-00-01B Except ER Operations****ETOPS**

Interval	Installed	Required	Procedure
C	4	2	(O)

Except for ER operations, one per engine may be inoperative provided:

- Ignition selector remains in BOTH position.
 - Engine anti-ice systems operate normally on associated engine(s).
-

OPERATIONS (O)

- Set the ignition selector to the operative system (1 or 2) or set to BOTH to start the engine.
- After engine start set the ignition selector to BOTH.



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75-21-01 IDG Air/Oil Cooler Valves

75-23-01 Core Compartment Cooling Valves

75-24-01 Turbine Case Cooling Systems

75-24-02 Turbine Cooling Air Systems

75-24-02-02 Eleventh Stage Cooling Valve (ESCV) Systems



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**75-21-01 IDG Air/Oil Cooler Valves****ETOPS**

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

May be inoperative provided:

- a. Valve(s) is deactivated open.
- b. Appropriate performance adjustments are applied.

MAINTENANCE (M)

Deactivate the inoperative valve in the open position (AMM 75-00-00/901).

1. Open the associated P11 panel circuit breaker:
 - A. IDG VALVE, LEFT ENG
 - B. IDG VALVE, RIGHT ENG
2. Gain access to the valve.
3. Confirm the valve is open by observing the position lever on the top of the valve is set to the OPEN position.
4. Disconnect, cap, and stow electrical connectors D11046 and D11780 from the valve.
5. Secure the valve in the open position by removing the stowed lock screw and inserting the lock screw down through the hole in the position lever and into the threaded hole in the valve plate.
6. Close the open circuit breaker.

OPERATIONS (O)

1. For each inoperative valve, reduce takeoff, enroute climb and landing performance limit weights 2000 lb (905 kg).
2. The enroute climb weight adjustment is 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 adjustment listed above by the appropriate factor listed on page 3.00-01-00.2 in the ENROUTE DIVERSION SPEED EFFECTS paragraph.

**75-23-01 Core Compartment Cooling Valves**

ETOPS

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided affected valve remains open.

MAINTENANCE (M)

Secure the inoperative valve in the open position (AMM 75-00-00/901).

1. Gain access to the valve.
2. Remove the lock screw from the core compartment cooling valve housing.
3. Turn the manual override handle to the OPEN position.
4. Install the lock screw in the manual override handle and into the core compartment cooling valve housing.

**75-24-01 Turbine Case Cooling Systems****ETOPS**

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

May be inoperative provided:

- Associated turbine case cooling valve remains closed.
- Appropriate performance adjustments are applied.

MAINTENANCE (M)

Determine the inoperative valve is in the closed position (AMM 75-00-00/901).

- Select the EPCS maintenance page.
- Confirm the HPT TCC valve and LPT TCC valve (if installed) are in the closed position, 0 to 10% as indicated on the EPCS page.
- Open the following P11 panel circuit breakers for the associated engine:
 - Left engine:
 - EEC PWR L ENG CH A
 - EEC PWR L ENG CH B
 - Right engine:
 - EEC PWR R ENG CH A
 - EEC PWR R ENG CH B
- Gain access to the valve.
- Disconnect, cap and stow the two electrical connectors from the HPT TCC valve and LPT TCC valve (if installed) on the affected engine.
- Close the open circuit breakers.

OPERATIONS (O)

Inoperative TCC systems will result in the following airplane fuel burn penalties:

- One TCC inoperative: 1.0%
- Two TCC inoperative: 2.0%

**75-24-02 Turbine Cooling Air Systems****75-24-02-02 Eleventh Stage Cooling Valve (ESCV) Systems****ETOPS**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative provided associated turbine cooling valves are deactivated open.

MAINTENANCE (M)

Deactivate the inoperative ESCV in the open position (AMM 75-00-00/901).

Perform the following for both the left and right ESCV on the affected engine:

1. Gain access to the valve.
2. Disconnect the eleventh stage signal air tube from the union in the ESCV ports.
3. Remove the unions from the signal air ports and retain for use during reinstallation, when the ESCV are reactivated.
4. Install plug AN-806-6 or equivalent in the signal air tube. Tighten the tube nut to 270-300 pound-inches (30.5-33.9 Newton-meters). Stow the tube securely.
5. Leave the ESCV port open.



77-00-01 Target Parameter Indications

77-12-02 N2 Tachometer Systems (EICAS)

77-21-01 EGT Indications (Standby Engine Indicator)

77-31-01 Vibration Indicating Systems

77-31-01-01 Compressor Rear Frame (CRF) Accelerometers



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**77-00-01 Target Parameter Indications****ETOPS**

Interval	Installed	Required	Procedure
C	1	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).

Autothrottles may still operate, but are set at maximum thrust on takeoff and climb.

NOTE: For N1 reference readout, see MEL 22-30-01 for possible relief.

1. Command N1 sector
2. Command thrust level
3. Limit N1
4. N1 bug
5. Inflight start windmilling reference bug (PMC engines)
6. TAI indication
1. Command EPR sector
2. Command thrust level
3. Maximum EPR
4. EPR bug
5. Inflight start windmilling reference bug
6. TAI indication

**77-12-02 N2 Tachometer Systems (EICAS)****ETOPS**

Interval	Installed	Required	Procedure
B	2	1	(O)

One N2 indication may be inoperative provided only indication function is inoperative.

OPERATIONS (O)

Use the SEI N2 RPM indication for engine operation.

1. Set the standby engine indicator (SEI) selector to ON.
2. Start the engine normally using the SEI N2 RPM indication.

NOTE: If N2 RPM and start valve operation and indications are normal, satisfactory operation of the N2 tachometer is confirmed.

3. The SEI N2 RPM indication may be used for any procedure requiring N2 RPM.



77-21-01 EGT Indications (Standby Engine Indicator)

ETOPS

Interval	Installed	Required	Procedure
C	2	1	

One may be inoperative provided:

- a. EGT EICAS indication operates normally.
- b. N2 EICAS indications for both engines operate normally.

**77-31-01 Vibration Indicating Systems**

Interval	Installed	Required	Procedure
C	2	1	

77-31-01 Vibration Indicating Systems**77-31-01-01 Compressor Rear Frame (CRF) Accelerometers**

Interval	Installed	Required	Procedure
C	2	0	(M)

May be inoperative deactivated.

MAINTENANCE (M)

Deactivate the inoperative accelerometer (AMM 77-00-00/901).

1. Open the P11 panel VIB MONITOR circuit breaker.
2. Gain access to the accelerometer by opening the left fan cowl panel (AMM 71-11-04/201) and left thrust reverser.
3. Disconnect, cap and stow the electrical connector from the external accelerometer.
4. Close the open circuit breaker.



- 78-31-01 Thrust Reversers**
- 78-34-01 REVISLN Valve Light**
- 78-34-02 Engine Reverse Lever Interlocks**
- 78-34-03 Thrust Reverser Air System**
 - 78-34-03-01 Thrust Reverser PRSOV**
- 78-36-01 REV Unlock Indications**
- 78-36-02 Full REV Position Indications**
- 78-36-03 Reverser Position Sensing Systems**



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78-31-01 Thrust Reversers

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

One may be inoperative provided:

- a. Inoperative reverser is secured in forward thrust position.
- b. 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 thrust reverser in the forward thrust position (AMM 78-00-00/901).

1. For left thrust reverser inoperative:
 - A. Open and collar the P11 panel T/R CONT, L ENG circuit breaker.
 - B. Open the P11 panel T/R IND, LEFT ENG circuit breaker.
 - C. Open and collar the P11 panel T/R CONT ALT, L ENG circuit breaker.
2. For right thrust reverser inoperative:
 - A. Open and collar the P11 panel T/R CONT, R ENG circuit breaker.
 - B. Open the P11 panel T/R IND, RIGHT ENG circuit breaker.
 - C. Open and collar the following circuit breakers:
 - 1) P11 panel, T/R CONT ALT, R ENG
 - 2) P11 panel, T/R IND ALT, R ENG
3. Open the fan cowl panels.
4. Remove the two bolts securing the lockout plate over the lower CDU manual drive pad and remove the plate (two places).
5. Do the Thrust Reverser Electro-Mechanical Brake and Flexshaft - Adjustment/Test procedure. Leave the fan cowls open upon completion of the test.
6. Stow the thrust reverser halves.
7. Optional procedure: Remove one, two, or three red deactivation plates from the lower torque box of each reverser half. Install the plates on the lock points on each reverser half with bolts (two bolts per deactivation plate). It may be necessary to drive the CDU or the angle gearboxes at the manual drive pads to align the holes in the translating cowls with the lock points. The CDU brakes and the electro-mechanical brakes (if installed) must be manually released to drive the CDU or angle gearboxes.



NOTE: The red deactivation plates are designed as lock out indicators; they are not lock out retention devices. Installation of at least one plate is recommended, but not required.

8. At both CDUs, install the lockout plate with the square drive inserted into the manual drive pad. Tighten bolts to 33-37 pound-inches.
9. Confirm the thrust reverser position feedback sensors (RVDT) on both CDUs are properly installed and rigged as follows:
 - A. Apply ground test power to the EEC.
 - B. Confirm the thrust reverser position (T/RR, T/RL, Channels A and B) reads between -2% and +2%. Use the EICAS EPCS page.
 - C. If required, re-rig the RVDT.
10. Return the CDU brake release handles and, if installed, the electro-mechanical brake release handles to the normal, brake engaged position.
11. Close the fan cowl panels.
12. For left thrust reverser inoperative:
 - A. Close the P11 panel T/R IND, LEFT ENG circuit breaker.
 - B. Open and collar the P11 panel T/R SSL CONT, L ENG circuit breaker.
13. For right thrust reverser inoperative:
 - A. Close the P11 panel T/R IND, RIGHT ENG circuit breaker.
 - B. Open and collar the P11 panel T/R SSL CONT, R ENG circuit breaker.
 - C. Close the P11 panel T/R IND ALT, R ENG circuit breaker.
14. Remove damaged or broken drag links. Tape blocker doors shut.

OPERATIONS (O)

1. For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.
2. Flight deck effects:
 - A. REV ISLN light illuminated on ground (inhibited in air).
 - B. L(R) REV ISLN VAL advisory message (inhibited in air).
 - C. L(R) REV ISLN VAL status message illuminated.
 - D. IDLE DISAGREE advisory message annunciation during application of thrust reverse.

**78-34-01 REVISLN Valve Light**

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

May be inoperative provided reverser isolation valve and reverser unlock indications operate normally.

MAINTENANCE (M)

Verify the reverser isolation valve and reverser unlock indications operate normally (AMM 78-00-00/901).

1. For intermittent flashing light, dispatch the airplane using MEL Item 78-31-01.
2. For REV ISLN light failed to illuminate:
 - A. Open one of the following P11 panel circuit breakers:
 - 1) L ENG T/R IND
 - 2) R ENG 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.
3. For REV ISLN light on:
 - A. For REV ISLN VAL (L or R REV ISLN VAL) advisory message displayed, dispatch the airplane using MEL 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. L ENG T/R IND
 - b. R ENG 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 78-31-01 to defer the thrust reverser for which the message did not appear.
- 5) Close the open circuit breakers.
4. Confirm the thrust reverser system operates normally.
 - A. With electrical power on the airplane and the L and R hydraulic systems powered, cycle each reverser independently.

NOTE: The engines do not require hydraulic systems powered. However, a pneumatic source is required to operate the reverser.
 - B. Monitor for normal operation of reverser and unlock indications.

OPERATIONS (O)

1. In flight, assume reversers may be armed.
2. A subsequent system failure could render a reverser inoperative.

**78-34-02 Engine Reverse Lever Interlocks**

Interval	Installed	Required	Procedure
C	2	1	(O)

One may be inoperative extended or retracted provided appropriate performance adjustments are applied.

NOTE: Associated reverser thrust is limited to reverse idle when inoperative retracted.

OPERATIONS (O)

For reverse lever interlock extended:

1. When selecting reverse thrust, pull both reverse levers up to the normal interlock position and apply reverse thrust as required when the operative interlock releases.

NOTE: There will be no physical stop for that reverse thrust lever when it is pulled up to the interlock position. The electronic engine control (EEC) will still protect the engine by not allowing reverse thrust to increase above idle until the thrust reverser sleeves are sufficiently deployed.

For reverse lever interlock retracted:

1. When selecting reverse thrust, pull both reverse levers up to the normal interlock position. Use normal thrust reversing technique on the operative system and if it appears the rudder authority is becoming limited during deceleration, return the lever to the reverse idle detent.

NOTE: It will not be physically possible to move the associated reverse thrust lever beyond reverse idle, even when the reverser sleeves are fully deployed.

2. For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.

**78-34-03 Thrust Reverser Air System****78-34-03-01 Thrust Reverser PRSOV**

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

One may be inoperative provided:

- Associated thrust reverser is secured in forward thrust position.
 - Appropriate performance adjustments are applied.
-

MAINTENANCE (M)

Deactivate and secure the thrust reverser in the forward thrust position (AMM 78-00-00/901).

- 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.
- PMC and FADEC engines may experience an IDLE DISAGREE advisory message annunciation during application of thrust reverse.

**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 thrust reverser damage exists, and deactivate and secure the thrust reverser in the forward position (AMM 78-00-00/901).

- 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.
- PMC and FADEC engines may experience an IDLE DISAGREE advisory message annunciation during application of thrust reverse.



78-36-02 Full REV Position Indications

Interval	Installed	Required	Procedure
C	2	0	

May be inoperative provided associated reverser unlock indication operates normally.



78-36-03 Reverser Position Sensing Systems

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

One may be inoperative provided:

- a. Associated thrust reverser is secured in forward thrust position.
- b. Appropriate performance adjustments are applied.

MAINTENANCE (M)

Deactivate and secure the thrust reverser in the forward thrust position (AMM 78-00-00/901).

- 1. Secure the thrust reverser in the forward thrust position using MEL item 78-31-01 (M) procedure.

OPERATIONS (O)

- 1. For airplane performance calculations that include the effect of reverse thrust, adjust performance to account for the inoperative thrust reverser.
- 2. PMC and FADEC engines may experience an IDLE DISAGREE advisory message annunciation during application of thrust reverse.
- 3. During landing rollout, differential braking may be required.



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79-31-01 OIL QTY Indications

79-33-01 Low ENG OIL PRESS Indication System

79-34-02 ENG OIL TEMP Sensing Elements (CF6-80C2 (PMC))

79-35-01 Engine Oil Filter Bypass Warning Systems



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**79-31-01 OIL QTY Indications**

Interval	Installed	Required	Procedure
B	2	1	(M)

One may be inoperative provided:

- Oil tank is filled to recommended capacity before each departure.
- There is no evidence of above normal oil consumption or leakage.
- Associated ENG OIL PRESS and OIL TEMP indications operate normally.
- 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 (AMM 79-00-00/901).

- Before each departure confirm the associated engine oil tank is filled to the recommended level.
- Examine the engine exterior, including the fan stream area, for evidence of oil leakage.
- Confirm the associated engine oil consumption is within limits.

**79-33-01 Low ENG OIL PRESS Indication System**

Interval	Installed	Required	Procedure
C	2	1	

May be inoperative provided associated OIL PRESS, TEMP and QTY indications operate normally.

NOTE: The low ENG OIL PRESS indication system includes the L/R ENG OIL PRESS light, L/R ENG OIL PRESS EICAS message, and engine low oil pressure switch.



79-34-02 ENG OIL TEMP Sensing Elements (CF6-80C2 (PMC))

Interval	Installed	Required	Procedure
C	2	1	(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.

**79-35-01 Engine Oil Filter Bypass Warning Systems**

Interval	Installed	Required	Procedure
B	2	0	(M)

May be inoperative provided:

- a. It is verified that malfunction is in alerting system.
- b. Main oil screen is checked for contaminants before each departure.

NOTE: The pressure differential switch that activates the L(R) OIL FILTER advisory message is associated with the scavenge oil filter.

MAINTENANCE (M)

Verify the malfunction is in the engine oil filter bypass warning system, and before each departure check the main oil screen for presence of contaminants (AMM 79-00-00/901).

1. Determine if the malfunction is in the alerting (bypass warning) system.
 - A. For L(R) OIL FILTER advisory message displayed longer than one minute after engine shutdown, the bypass warning system is faulty.
 - B. For L(R) OIL FILTER advisory message that disappears within one minute of engine shutdown, perform the oil filter bypass warning system test to determine if the differential pressure switch is faulty.
2. Disable the associated faulty oil filter bypass warning system as follows:
 - A. Open the P11 panel EICAS CMPTR LEFT circuit breaker.
 - B. Open the P11 panel EICAS CMPTR RIGHT circuit breaker.
 - C. Disconnect, cap and stow the electrical connector at the engine oil filter differential pressure switch.
 - D. Close the open circuit breakers.
 - E. Confirm the L(R) OIL FILTER advisory message is not displayed.
3. Before each departure perform the following:
 - A. Remove and examine the associated oil filter element for contamination.
 - B. Check the master magnetic chip detector for contamination.
 - C. Install a new filter element or clean strainer.



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)

1. Start the associated engine first, using the 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 50% 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 value (also indicated by a L(R) STARTER CUTOUT message):
 - A. Do the STARTER CUTOUT Non-Normal Checklist. Assume the VALVE light remains illuminated.
 - B. 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 air valve (AMM 80-00-00/901).

- Establish communication with the flight crew.
- Install the starter control valve drive extension through the access port for the starter valve.
- Upon command from the flight crew, turn the drive extension to open the starter control valve and hold in the OPEN position.
- Upon command from the flight crew, close the starter control valve.
- Remove the drive from the access port.

OPERATIONS (O)

Use normal engine start procedures except:

- Announce "OPEN START VALVE." Set the engine start selector to GND.
- At 50% N2 announce "CLOSE START VALVE." Confirm the engine start selector returns to AUTO, and the start VALVE light momentarily illuminates, then extinguishes.

NOTE: 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 alternate procedures are established and used.

OPERATIONS (O)

Start the associated engine using normal engine start procedures with the flight crew manually holding and/or releasing the ENG START selector.

1. Set the ENG START selector to GND and hold if required.
2. Set the ENG START selector to AUTO at 50% N2.
3. Confirm the start VALVE light momentarily illuminates, then extinguishes.



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Introduction

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ATA 23 - Communications

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General Notes

This section contains locations, illustrations and performance information for all of the CDL items from the 767 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 crewmembers.

Operation with those missing parts requiring a reduction of VMO/MMO is permitted only when the airplane has the airspeed limit speed hand (or the airspeed tape on the PFD) 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(s) by listing the missing or damaged part(s) in the flight or dispatch release.

The operator will list in the aircraft logbook an appropriate notation covering the missing or damaged part(s) 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 the limitation of this appendix. This, of course, 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 in this appendix may be missing unless specifically designated combinations are indicated herein. Unless otherwise specified herein, 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 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 cumulative 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	1.6
290 KIAS	2.3
310 KIAS	3.0
330 KIAS	3.8
350 KIAS	4.5

Enroute Fuel Mileage Effects

The drag effects of many 767 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 0.45% per 1000 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 Doors**
- 21-53-01 Ram Air Inlet Doors**
- 21-53-02 Ram Air Exhaust Doors**
- 21-53-03 Ram Air Inlet and Exhaust Doors**



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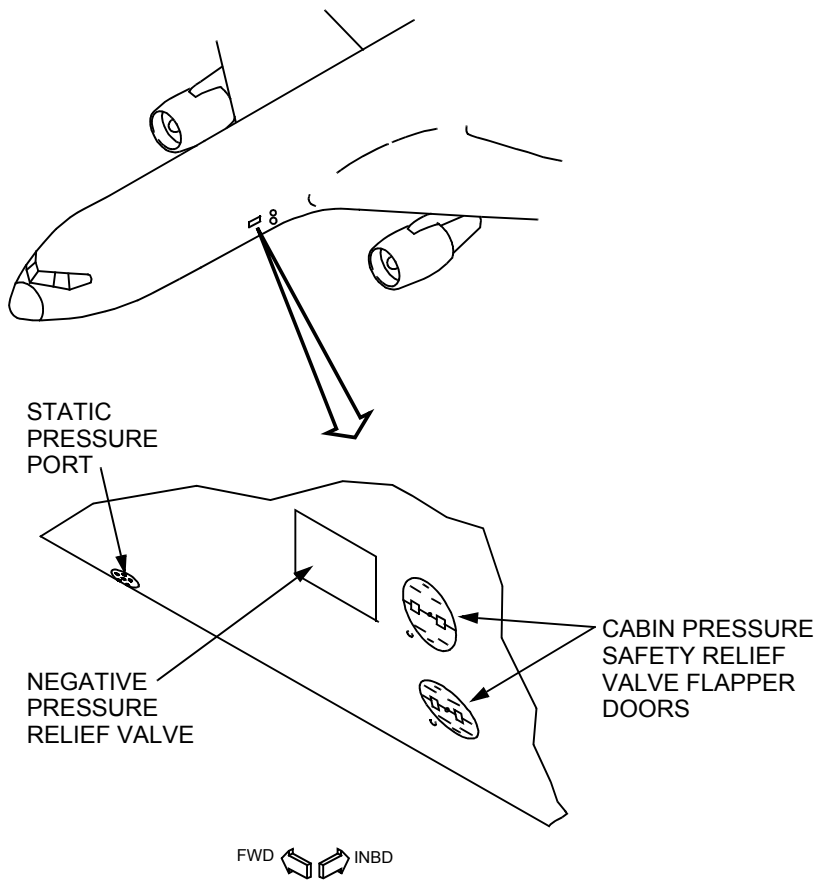


21-32-01 Cabin Pressure Safety Relief Valve Flapper Doors

Any number may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
4	Negligible penalty	Negligible penalty



21-53-01 Ram Air Inlet Doors

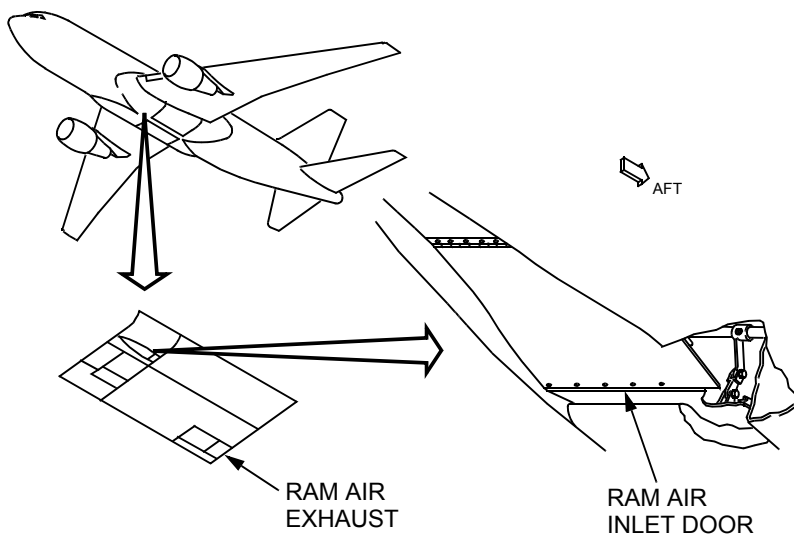
One may be missing.

NOTE: When missing in combination with ram air exhaust doors, use penalties in CDL Item 21-53-03.

NOTE: Ram air exhaust door on the same side must be locked open. Refer to MEL Item 21-53-01.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	700 lb (318 kg)	700 lb (318 kg)



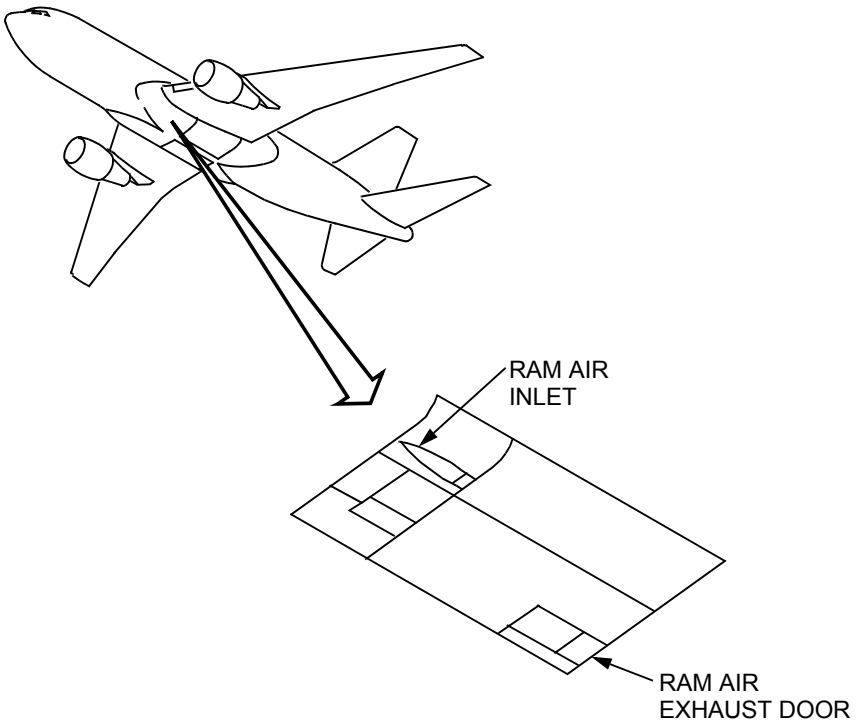
21-53-02 Ram Air Exhaust Doors

One or both may be missing.

NOTE: When missing in combination with ram air inlet doors, use penalties in CDL Item 21-53-03.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	900 lb (409 kg)	800 lb (363 kg)



21-53-03 Ram Air Inlet and Exhaust Doors

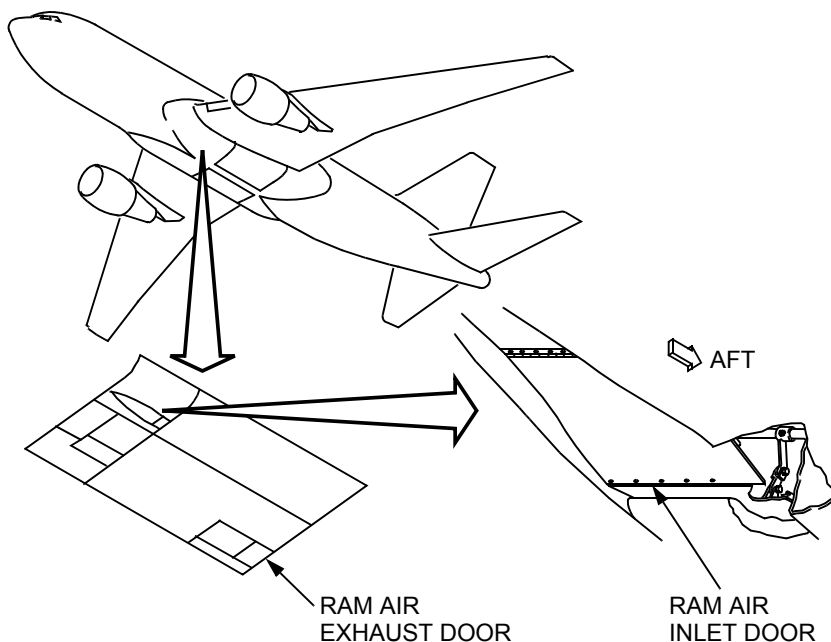
One ram air inlet door and two ram air exhaust doors may be missing in any combination.

NOTE 1: Use these penalties when ram air inlet and exhaust doors are missing in any combination.

NOTE 2: For missing ram air inlet door, ram air exhaust door on the same side (if not missing) must be locked open. Refer to MEL Item 21-53-01.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
4	1300 lb (590 kg)	1400 lb (635 kg)





23-61-01 Static Dischargers (Trailing and Tip Type)



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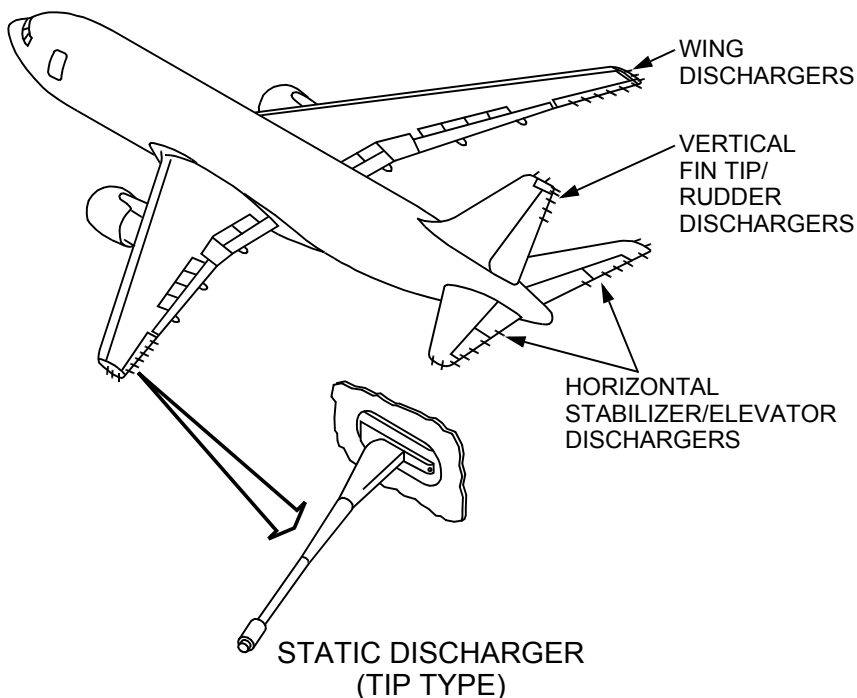
23-61-01 Static Dischargers (Trailing and Tip Type)

A minimum of fifteen static dischargers is required when operations are dependent upon the use of ADF, HF, VOR, or marker beacon capability. Trailing edge or tip type static dischargers must be installed in three of the five most outboard positions on each wing, horizontal stabilizer/elevator assembly, and vertical stabilizer/rudder assembly.

Static dischargers are not required when operations are not dependent upon use of ADF, HF, VOR, or marker beacon capability.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
39	No penalty	No penalty





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- 27-51-01 Inboard Trailing Edge Flap-To-Fuselage Seals**
- 27-51-02 Inboard Flap Torque Tube Slot Doors (Three Segment Door)**
- 27-81-01 Slat End Pan Seal**
- 27-81-02 Krueger Seal Bullnose Assembly**
- 27-82-01 Krueger Seal End Seals**



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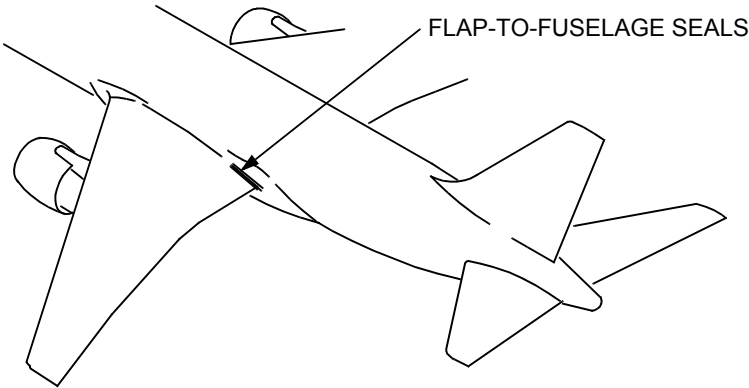


27-51-01 Inboard Trailing Edge Flap-To-Fuselage Seals

One or both may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	3400 lb (1543 kg)	500 lb (227 kg)



27-51-02 Inboard Flap Torque Tube Slot Doors (Three Segment Door)

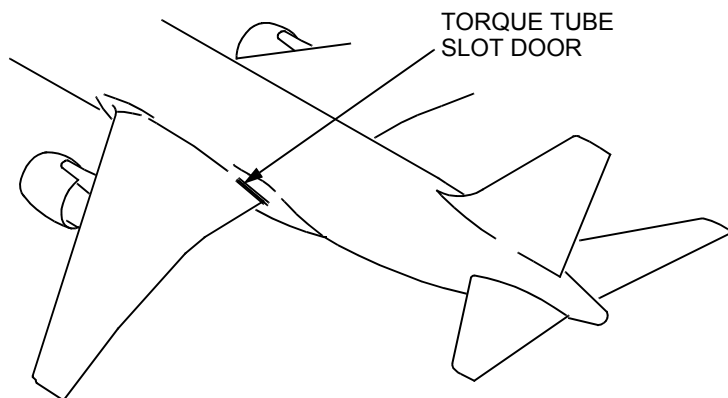
Any number or combination may be missing.

Increase the landing approach speed VREF by 2 knots.

NOTE: When missing in combination with trailing edge flap vortex generators (CDL Item 57-00-01) use penalties for trailing edge flap vortex generators only.

Performance limited weights are reduced by the following:

Number Installed	Landing Climb	Landing Field Length	Quick Turnaround
6	4700 lb (2132 kg)	7600 lb (3448 kg)	4100 lb (1860 kg)



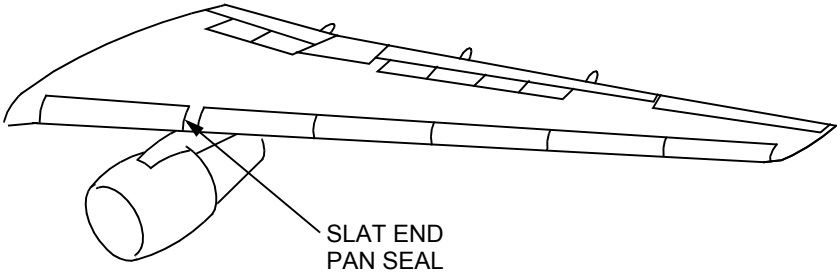


27-81-01 Slat End Pan Seal

One or both may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	200 lb (91 kg)	350 lb (159 kg)

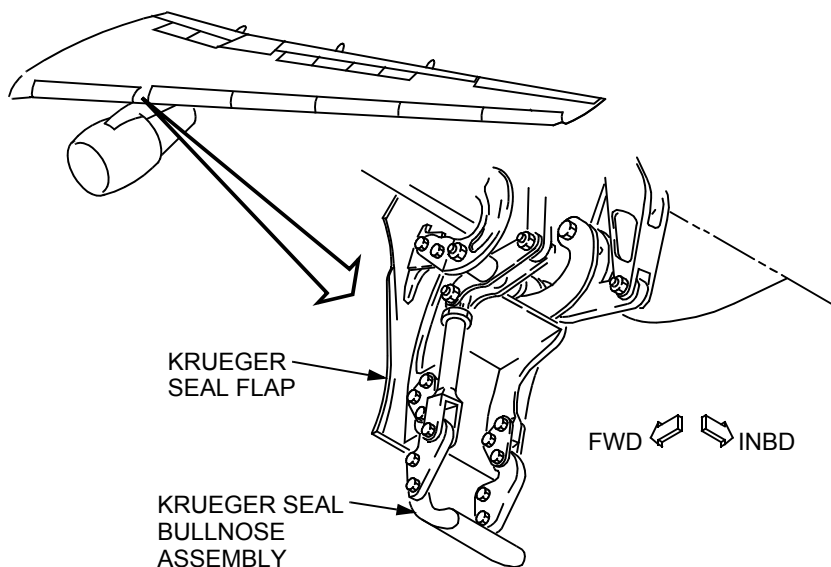


27-81-02 Krueger Seal Bullnose Assembly

One or both may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	2200 lb (998 kg)	No penalty



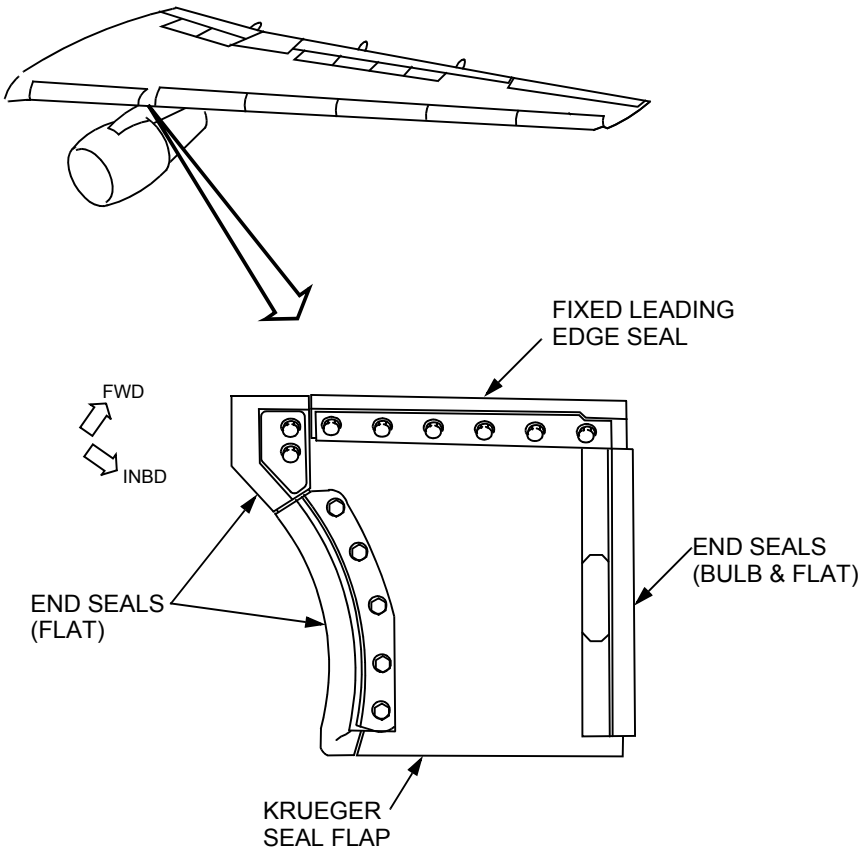


27-82-01 Krueger Seal End Seals

Two flat seals or bulb seals may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
8	150 lb (69 kg)	No penalty





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28-22-01 Override Boost Pump Access Panels

28-44-01 Fuel Quantity Measuring Sticks



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28-22-01 Override Boost Pump Access Panels

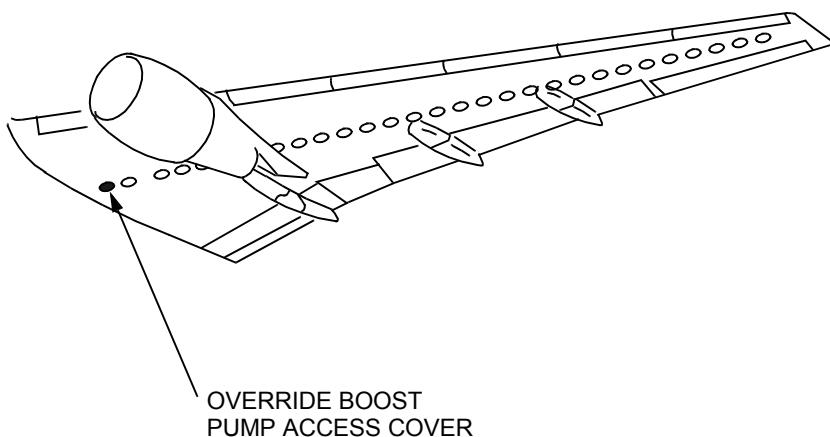
One may be missing.

NOTE 1: Wires in the cavity must be protected. Inspect wires before reinstalling door. Pull and collar pump circuit breaker. (Open and collar circuit breaker for associated fuel pump). Reference MEL Item 28-22-02 for dispatch requirements.

NOTE 2: Placing speed tape over the cavity is a method for protecting the wires.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty



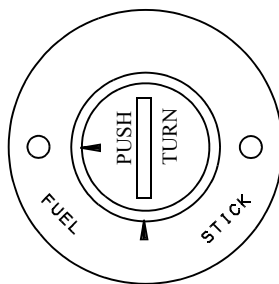
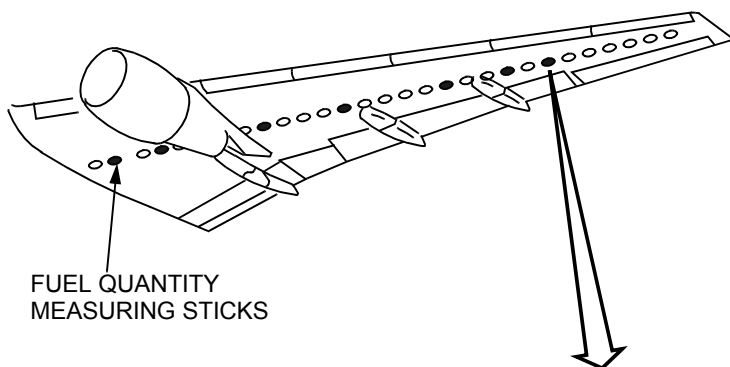
28-44-01 Fuel Quantity Measuring Sticks

Any number or combination may be missing.

NOTE: Missing fuel quantity measuring sticks may impact, in some manner, the following MEL items: 28-41-01, 28-41-02, 28-41-06 and 28-44-01. Refer to the MEL for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
16	Negligible penalty	Negligible penalty





- 32-10-01 Bogie Beam Shield**
- 32-12-01 Main Landing Gear Wing Doors (2 Shock Strut Doors, 2 Trunnion Doors, 2 Drag Strut Doors)**
- 32-12-02 Main Landing Gear Wing Doors - Shock Strut Doors**
- 32-12-03 Main Landing Gear Wing Doors - Trunnion Doors**
- 32-71-01 Tail Skid Fairing**
- 32-71-02 Tail Skid Lever Door**



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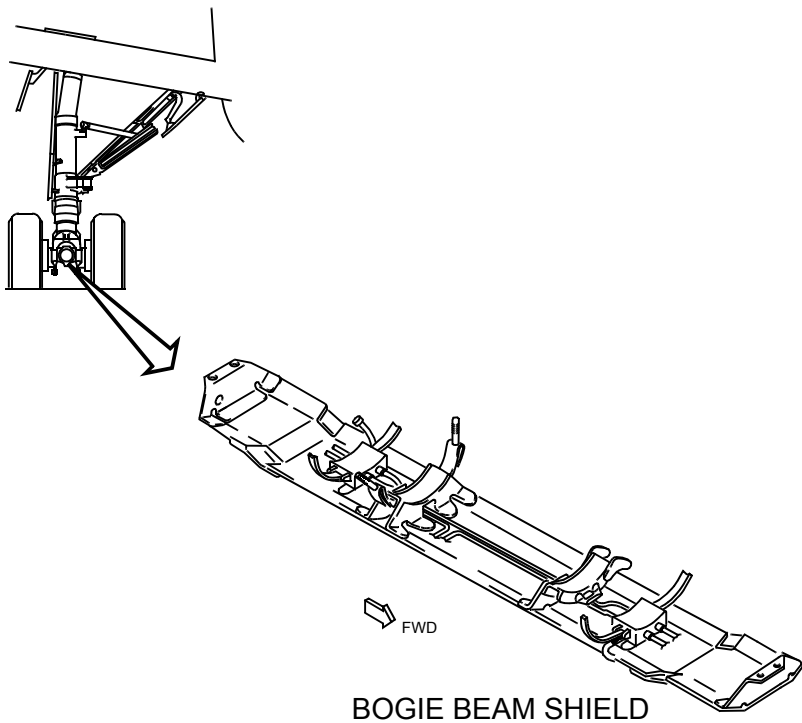
32-10-01 **Bogie Beam Shield**

One or both may be missing.

The bogie beam shield should be replaced as soon as possible and the electrical conduits beneath the main landing gear truck should be inspected prior to reinstallation.

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 Wing Doors (2 Shock Strut Doors, 2 Trunnion Doors, 2 Drag Strut Doors)

Any one of six doors may be missing.

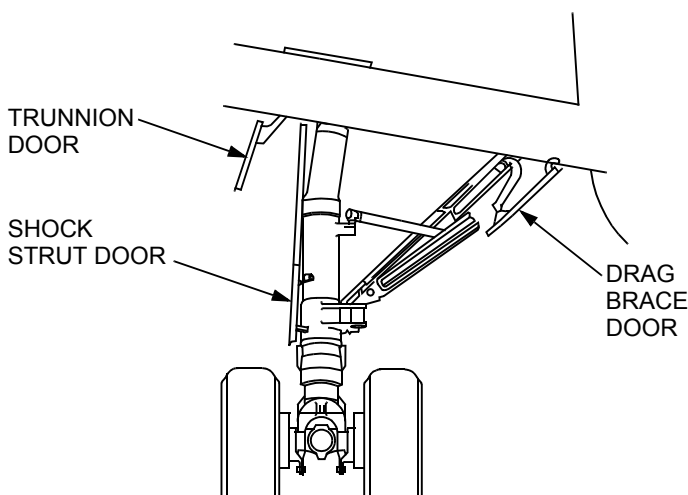
Limit speed to 270 KIAS/0.73 Mach.

NOTE 1: Set the ALTERNATE Vmo/Mmo switch (if installed) to ALTN.

NOTE 2: For ALTERNATE Vmo/Mmo switch not installed, refer to the Limitations on page 3.00-01-00.1 for operational limitations.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
6	900 lb (409 kg)	1000 lb (454 kg)





32-12-02 Main Landing Gear Wing Doors - Shock Strut Doors

One may be missing.

Limit speed to 270 KIAS/0.73 Mach.

For ALTERNATE Vmo/Mmo switch installed:

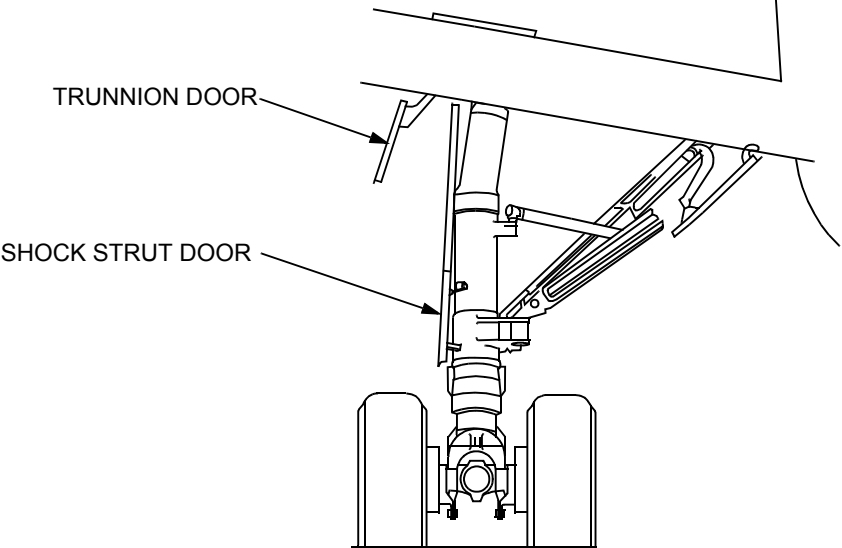
NOTE 1: Set the ALTERNATE Vmo/Mmo switch to ALTN.

For ALTERNATE Vmo/Mmo switch not installed:

NOTE 2: Refer to the Limitations on page 3.00-01-00.1 for operational limitations.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb



32-12-03 Main Landing Gear Wing Doors - Trunnion Doors

One may be missing.

Limit speed to 270 KIAS/0.73 Mach.

[For ALTERNATE Vmo/Mmo switch installed:](#)

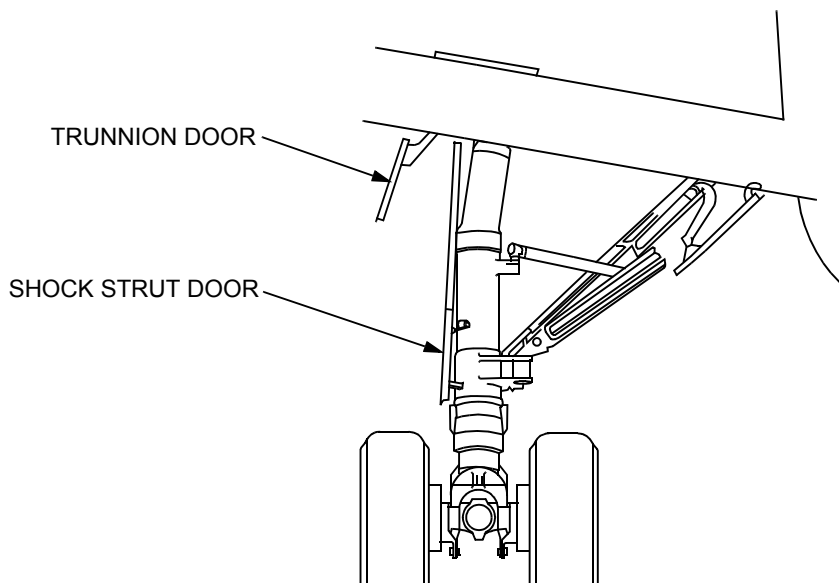
NOTE 1: Set the ALTERNATE Vmo/Mmo switch to ALTN.

[For ALTERNATE Vmo/Mmo switch not installed:](#)

NOTE 2: Refer to the Limitations on page 3.00-01-00.1 for operational limitations.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb





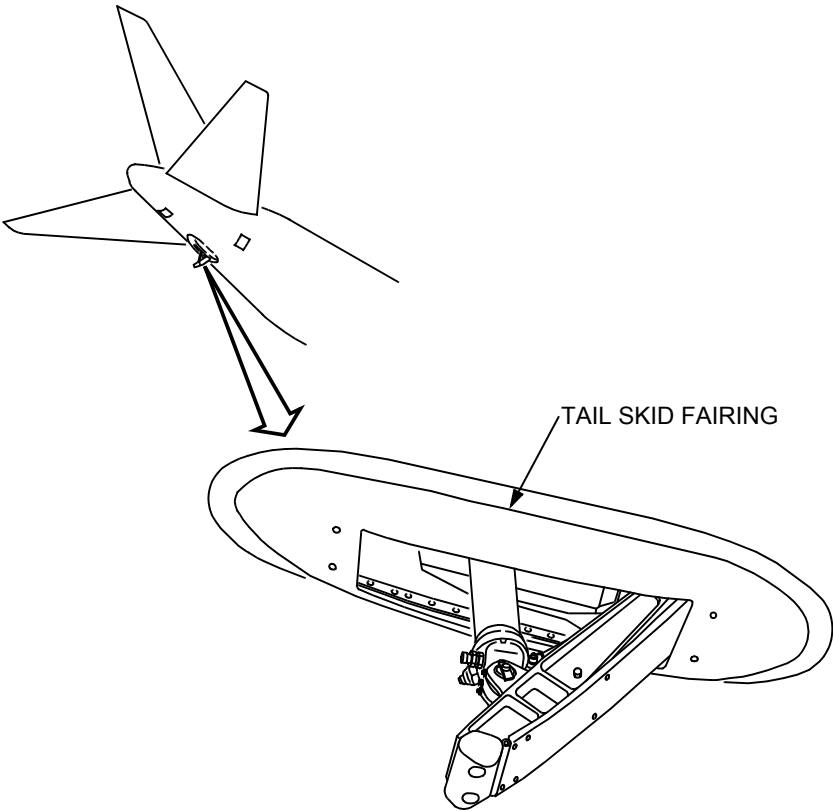
32-71-01 Tail Skid Fairing

May be missing.

NOTE: May be missing in combination with CDL Item 32-71-02.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	200 lb (91 kg)	300 lb (136 kg)



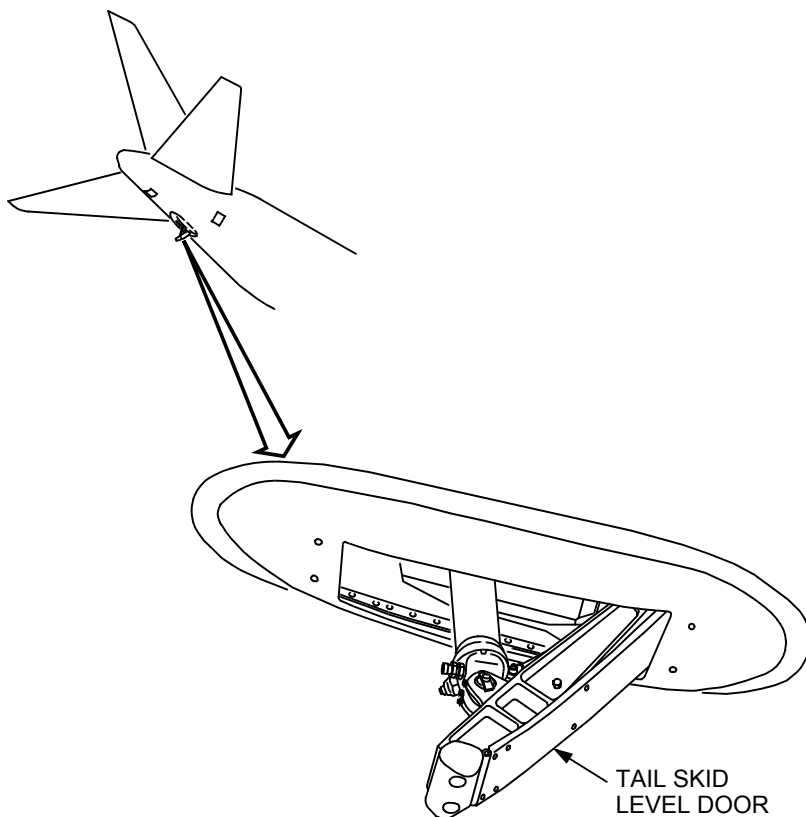
32-71-02 Tail Skid Lever Door

May be missing.

NOTE: May be missing in combination with CDL Item 32-71-01.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty





33-31-01	Main and Bulk Cargo Door Light Covers
33-41-01	Wing Illumination Light Covers
33-42-01	Nose Gear Taxi Light
33-44-01	Wing Tip Aft Navigation Light Lens
33-44-02	Wing Tip Strobe Light Lens
33-44-03	Upper and Lower Body Anti-Collision Light Lens
33-45-01	Logo Illumination Light Covers
33-51-01	External Emergency Escape Light Covers (Overwing and Ground Illumination)



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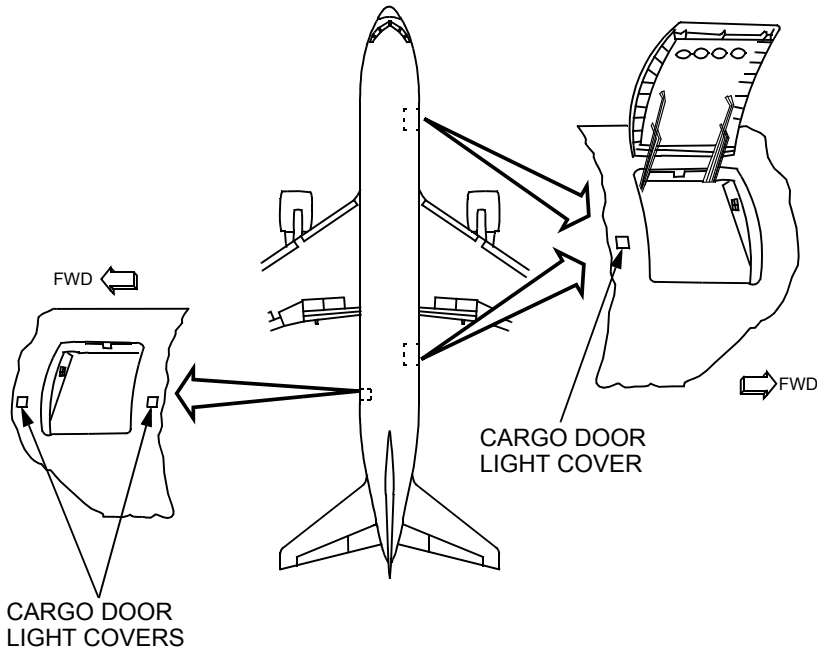
33-31-01 Main and Bulk Cargo Door Light Covers

Any number or combination may be missing.

NOTE: Refer to MEL Item 33-31-02, Exterior Cargo Loading Area Lights, for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
4	No penalty	100 lb (45 kg)



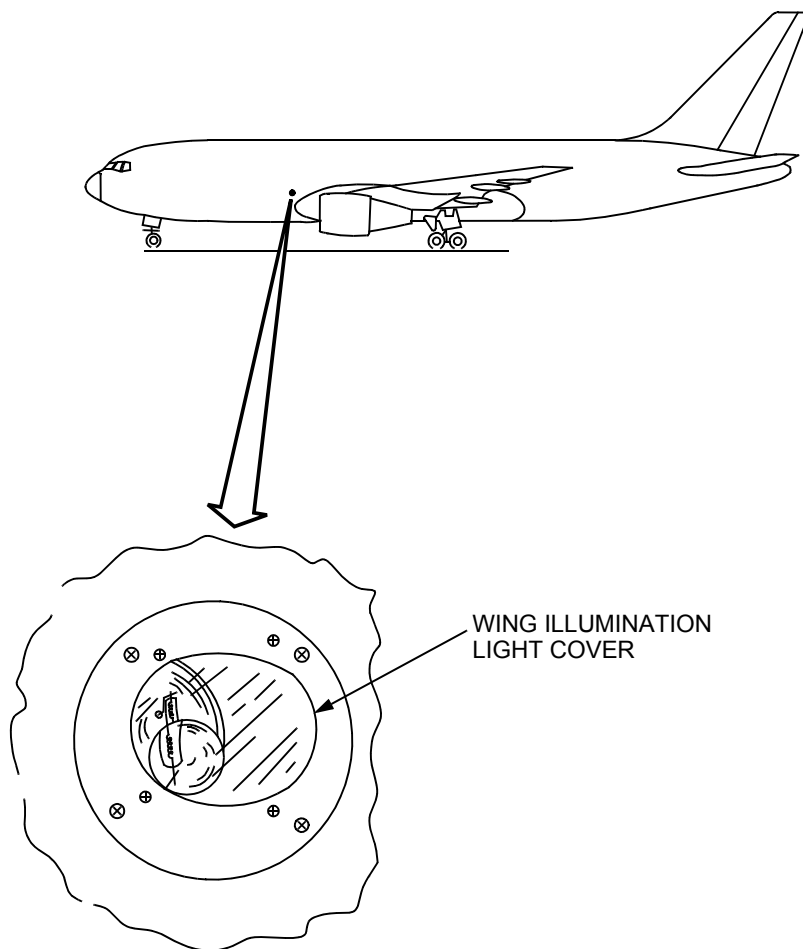
**33-41-01 Wing Illumination Light Covers**

One or both may be missing.

NOTE: Refer to MEL Item 33-41-01, Wing Illumination Lights, for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty

**HISTORY****General**

The operator should refer to the MEL only if the light is inoperative and/or does not perform its intended function. The operator must determine if the light performs its intended function with the light cover missing. For the 767, the light cover is a prismatic lens and is used to focus the light beam on the engine and wing. It is possible the light may not perform its intended function with this lens missing and the MEL may need to be applied.

[MESSAGE NUMBER:1-313144907-2] 16-Apr-2007

33-42-01 Nose Gear Taxi Light

Any number or combination may be missing.

NOTE: Refer to MEL Item 33-42-02, Taxi Lights, for dispatch requirements.

Performance limited weights are reduced by the following:

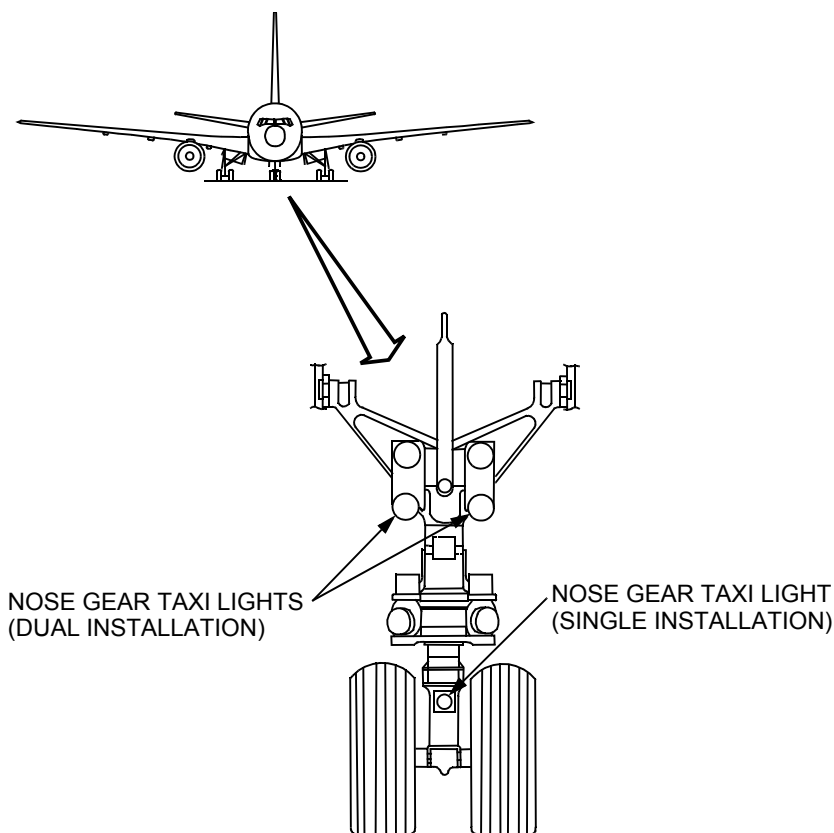
Number Installed	Takeoff & Landing	Enroute Climb

For Single Configuration:

1	No penalty	No penalty

For Double Configuration:

2	No penalty	No penalty



33-44-01 Wing Tip Aft Navigation Light Lens

One or both may be missing.

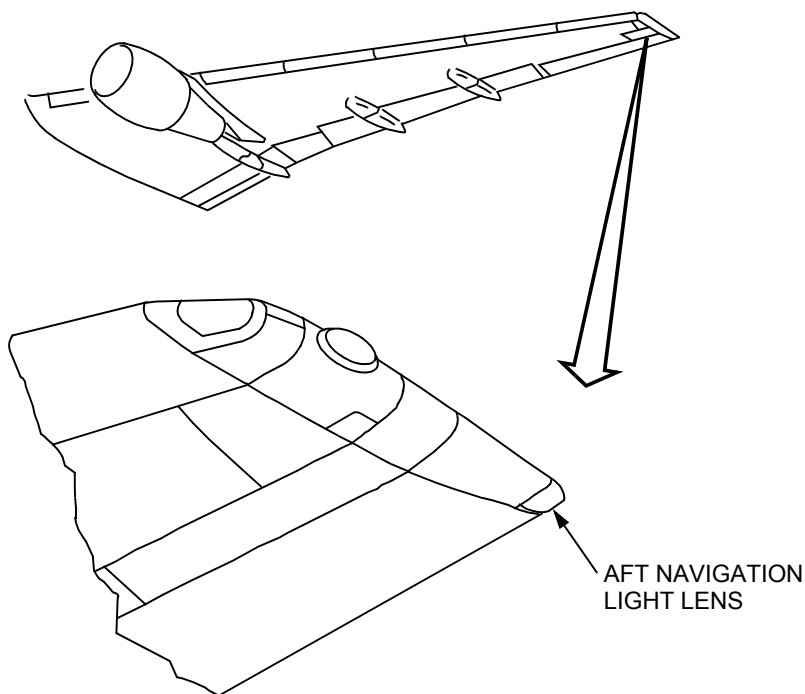
NOTE 1: The minimum number of strobe/anticollision lights required by the operating rules must be operative.

NOTE 2: Any combination of CDL Items 33-44-01, 33-44-02 and 33-44-03 may be missing.

NOTE 3: Refer to MEL Item 33-43-01, Position Lights, for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	No penalty	No penalty



33-44-02 Wing Tip Strobe Light Lens

One or both may be missing.

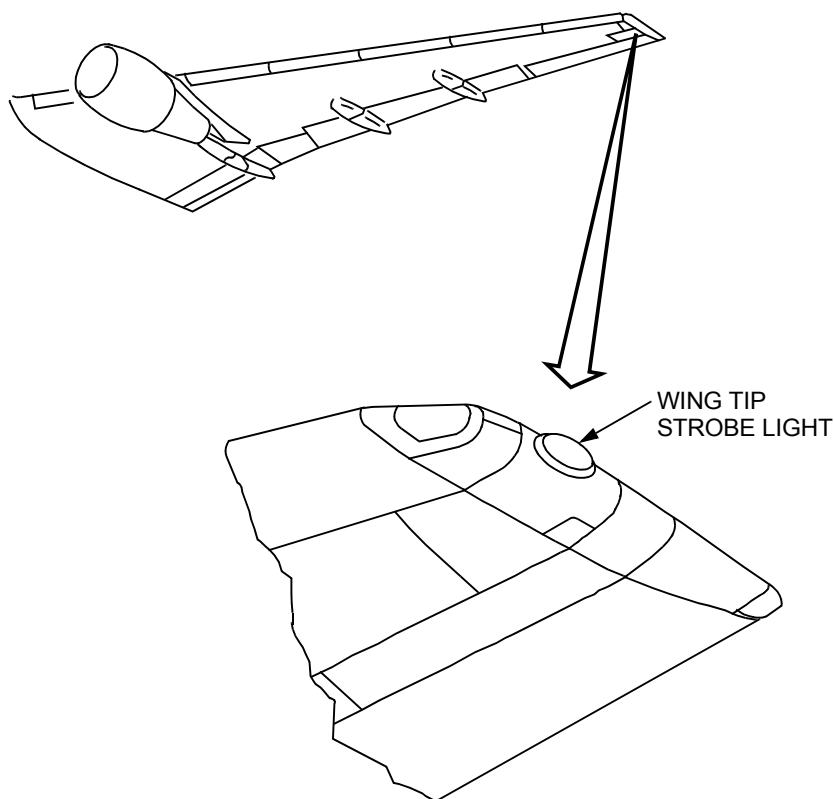
NOTE 1: The minimum number of strobe/anticollision lights required by the operating rules must be operative.

NOTE 2: Any combination of CDL Items 33-44-01, 33-44-02 and 33-44-03 may be missing.

NOTE 3: 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



33-44-03 Upper and Lower Body Anti-Collision Light Lens

One or both may be missing. When the lens is missing, disconnect electrical power and remove the light bulb, reflector, lens cover, and lens cover support. With the rest of the light assembly intact, cover the opening with appropriate materials (speed tape, for example) to prevent moisture or debris from entering the light assembly.

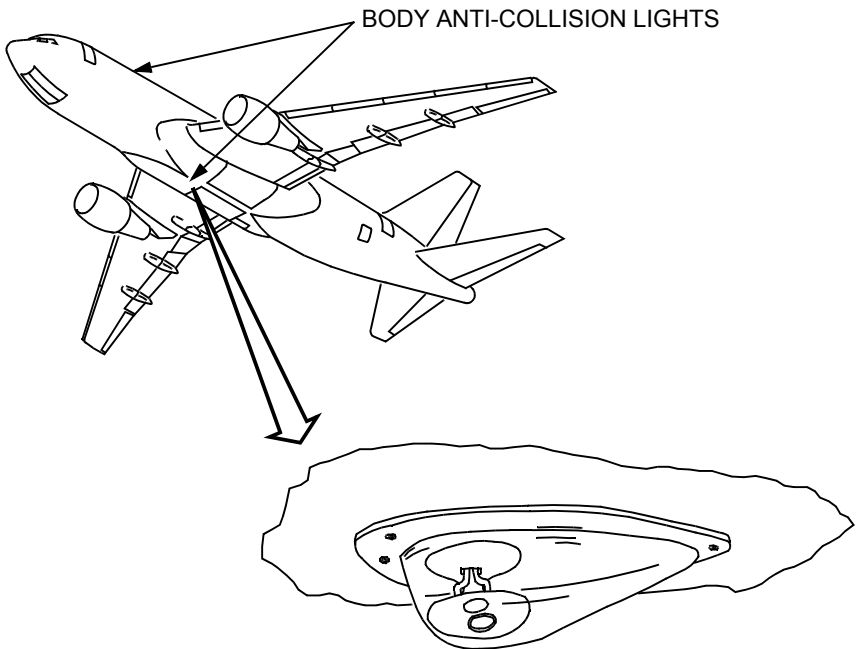
NOTE 1: The minimum number of strobe/anticollision lights required by the operating rules must be operative.

NOTE 2: Any combination of CDL Items 33-44-01, 33-44-02 and 33-44-03 may be missing.

NOTE 3: 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	Negligible penalty	Negligible penalty



33-45-01 Logo Illumination Light Covers

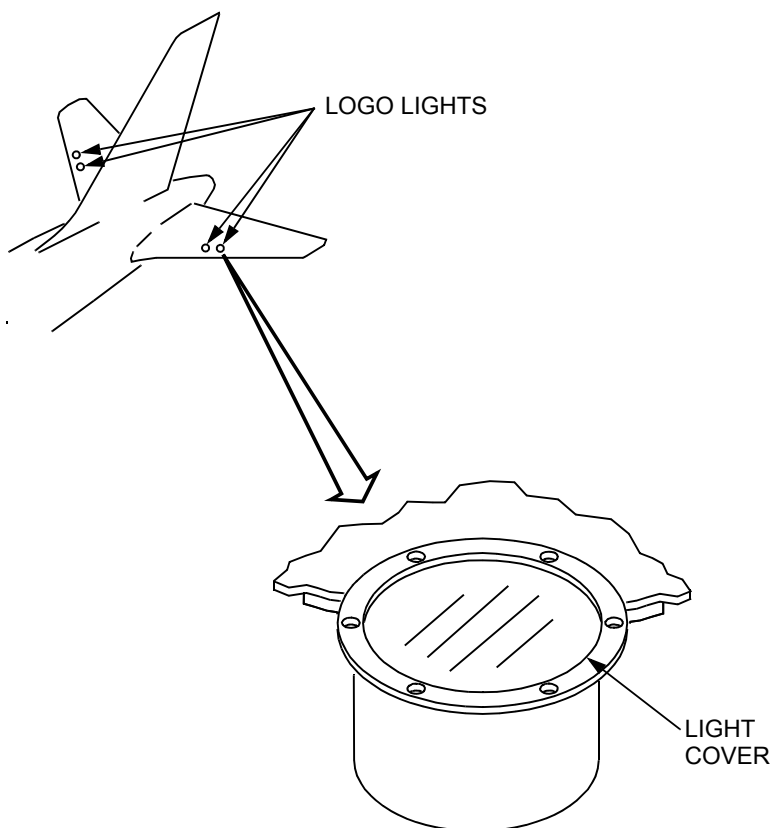
Any number or combination may be missing.

NOTE 1: Openings created by missing light covers must be covered with "speed tape" (Permacel II or 3M425). Pull and collar logo light CB. Inspect condition of "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	No penalty	No penalty



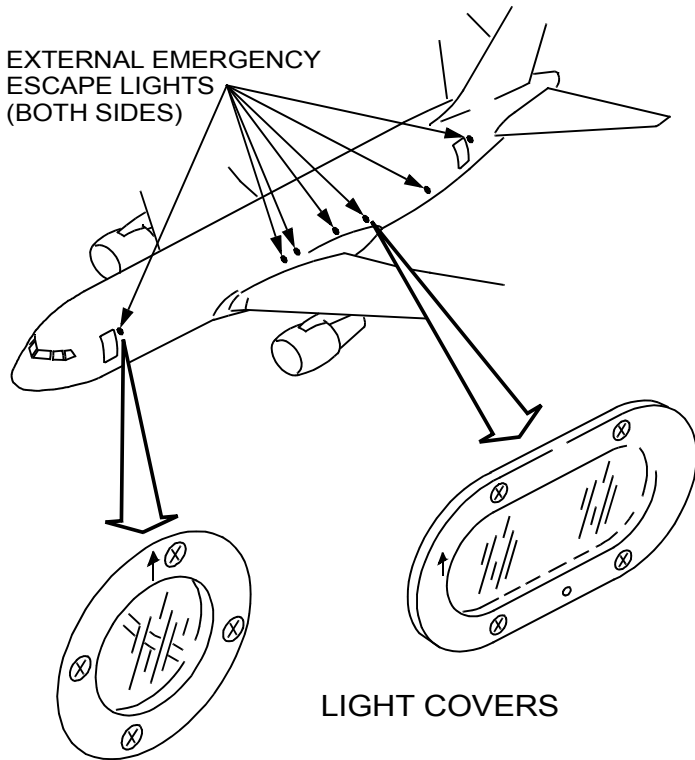
33-51-01 External Emergency Escape Light Covers (Overwing and Ground Illumination)

Any number or combination may be missing.

NOTE: Refer to MEL Item 33-51-02, Exterior Emergency Lighting System, for dispatch requirements.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
8 or 14	Negligible penalty	Negligible penalty





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- 52-36-01 Bulk Cargo Door Handle**
- 52-49-01 Electrical/Electronics External Power Door**
- 52-49-02 Potable Water Service Doors - Standard Configuration**
- 52-49-03 Potable Water Service Doors - Alternate Configuration**
- 52-49-04 Outboard Wing Leading Edge Pressure Fueling Door**
- 52-49-05 Main Cargo Loading Control Doors**
- 52-49-06 Aft Toilet Service Door**



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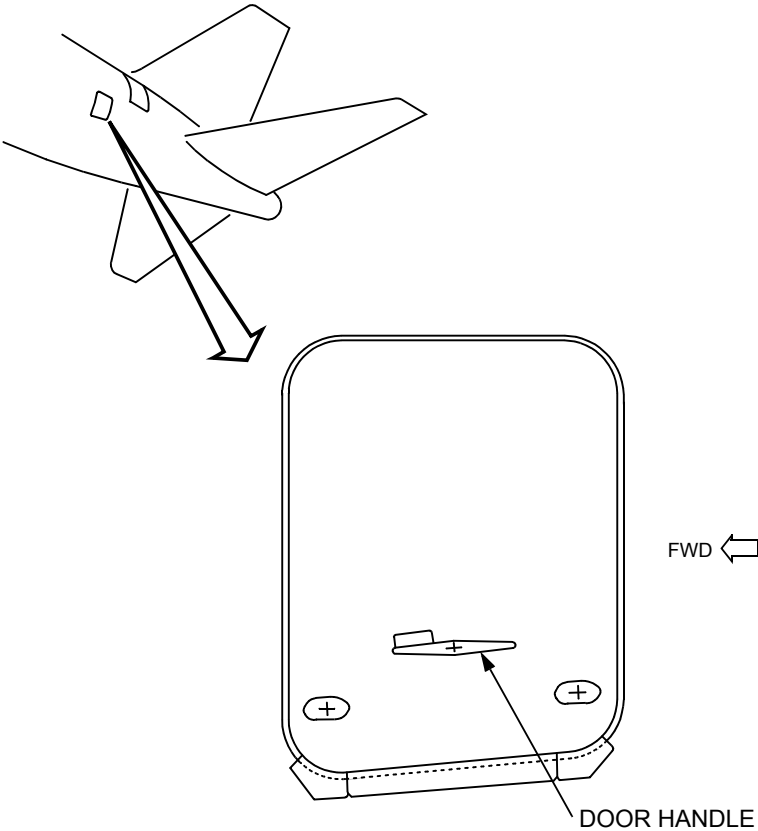


52-36-01 Bulk Cargo Door Handle

May be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty



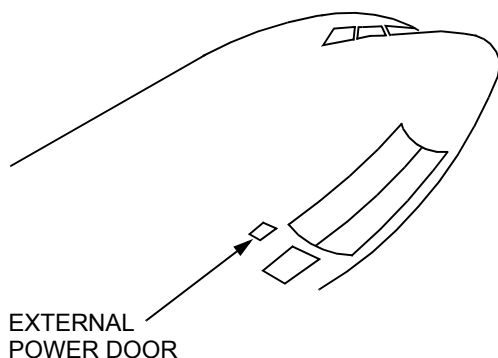
52-49-01 Electrical/Electronics External Power Door

May be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-49-01, 52-49-02, 52-49-03, 52-49-04 and 52-49-05 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty



52-49-02 Potable Water Service Doors - Standard Configuration

One or both may be missing.

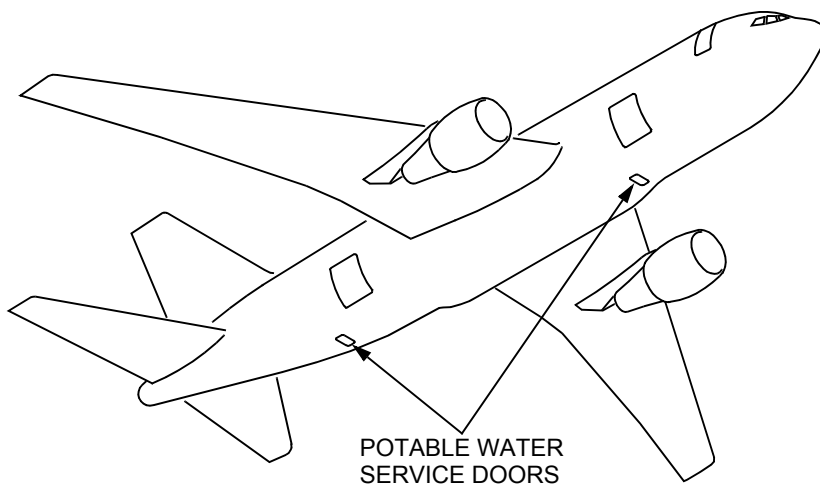
NOTE 1: Any combination of the authorized numbers of CDL Items 52-49-01, 52-49-02, 52-49-03, 52-49-04 and 52-49-05 may be missing.

[For -200/-300 L/N 901 and on:](#)

NOTE 2: The potable water system will be inoperative if the aft potable water service panel door is missing. Refer to MEL Item 38-10-01B.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	No penalty	100 lb (45 kg)



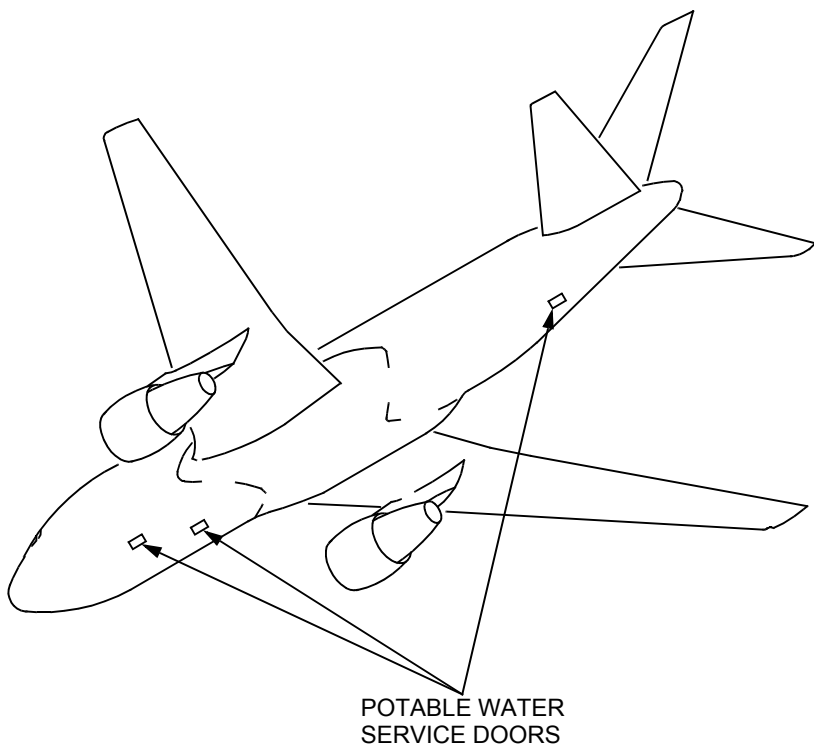
52-49-03 Potable Water Service Doors - Alternate Configuration

Any number may be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-49-01, 52-49-02, 52-49-03, 52-49-04 and 52-49-05 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
3	No penalty	100 lb (45 kg)



**52-49-04 Outboard Wing Leading Edge Pressure Fueling Door**

(One installed/Standard configuration) May be missing with the penalty in the table.

(Two installed/Optional configuration) Both may be missing with the penalty in the table. If only one is missing use the performance decrement for Standard configuration.

NOTE 1: Any combination of the authorized numbers of CDL Items 52-49-01, 52-49-02, 52-49-03, 52-49-04 and 52-49-05 may be missing.

NOTE 2: For both the one and two doors installed, the power control limit (or battery power) switch must be locked in the "NORM" position, the fueling valve switches in the "OFF" position, and the defueling valve switches in the "CLOSE" position. Required placard information must be reproduced within the fueling bay.

Performance limited weights are reduced by the following:

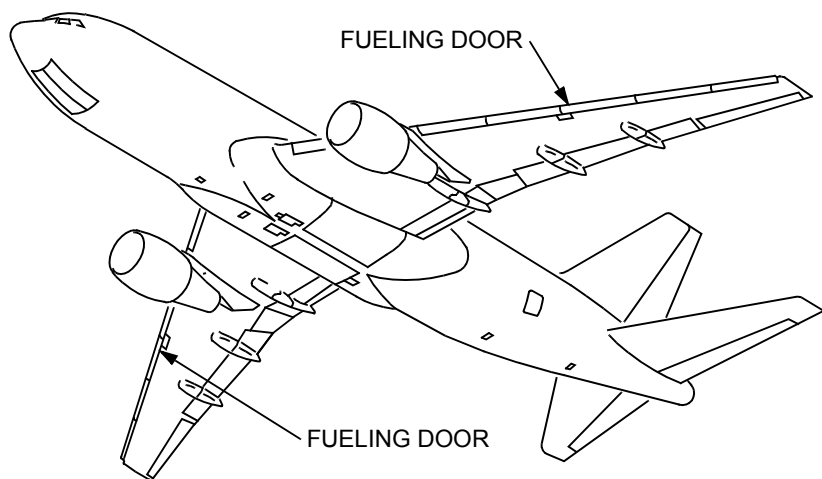
Number Installed	Takeoff & Landing	Enroute Climb

For Standard configuration and -200 & -300/GE & JT9D or Standard configuration and -300/RR:

1	Negligible penalty	100 lb (45 kg)

For Optional configuration and -200 & -300/GE & PW:

2	200 lb (91 kg)	300 lb (136 kg)



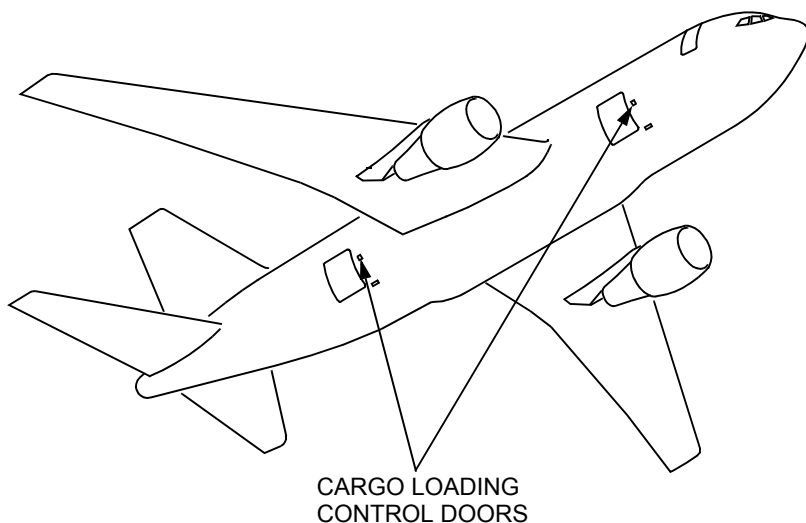
52-49-05 Main Cargo Loading Control Doors

One or both may be missing.

NOTE: Any combination of the authorized numbers of CDL Items 52-49-01, 52-49-02, 52-49-03, 52-49-04 and 52-49-05 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty

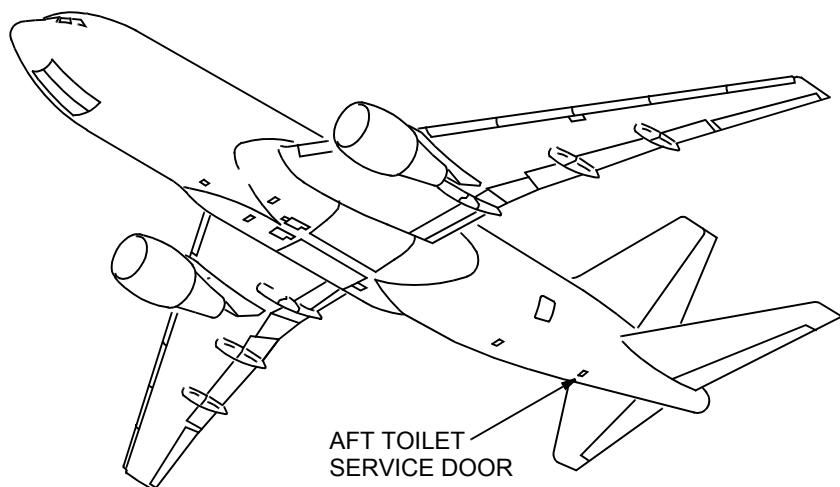


52-49-06 Aft Toilet Service Door

May be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty





- 53-16-01 Nose Landing Gear Hinge Cover Doors**
- 53-30-01 Wing Root Jacking Point Access Panels**
- 53-65-01 Main Cargo Doors Control Switch Panels**
- 53-85-01 APU Louvered Pressure Relief Door**



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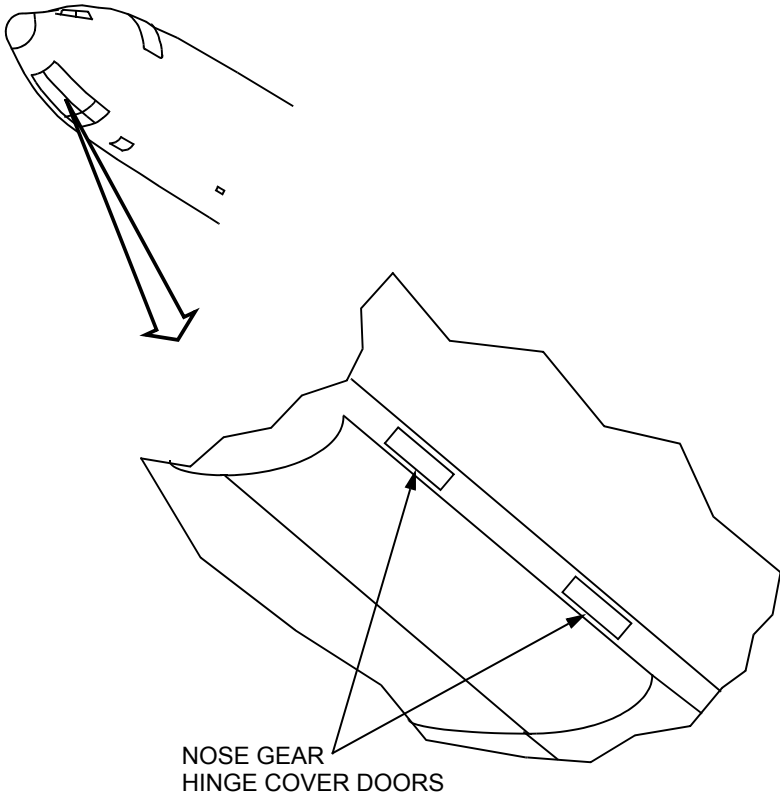


53-16-01 **Nose Landing Gear Hinge Cover Doors**

Any number or combination may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
8	Negligible penalty	Negligible penalty

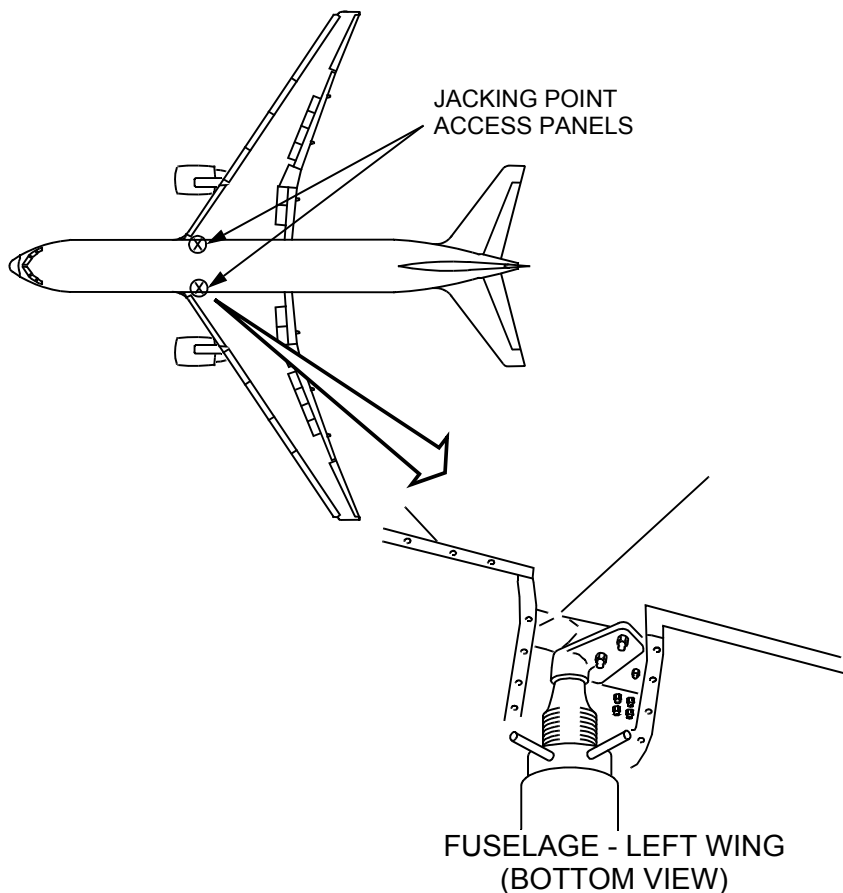


53-30-01 Wing Root Jacking Point Access Panels

One or both may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	100 lb (45 kg)



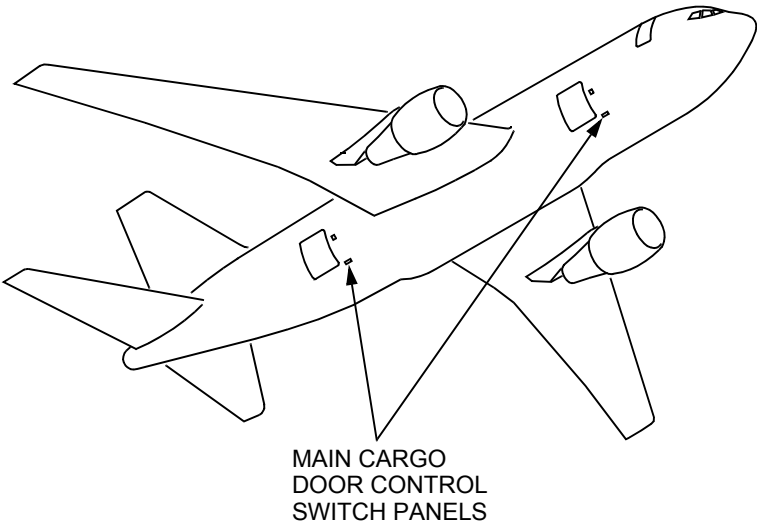


53-65-01 Main Cargo Doors Control Switch Panels

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

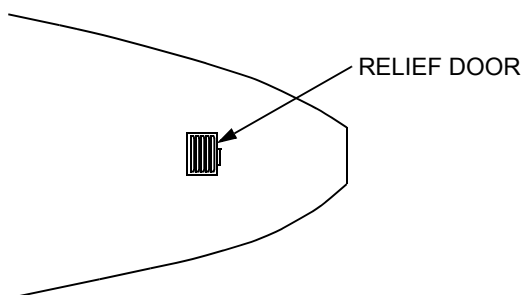
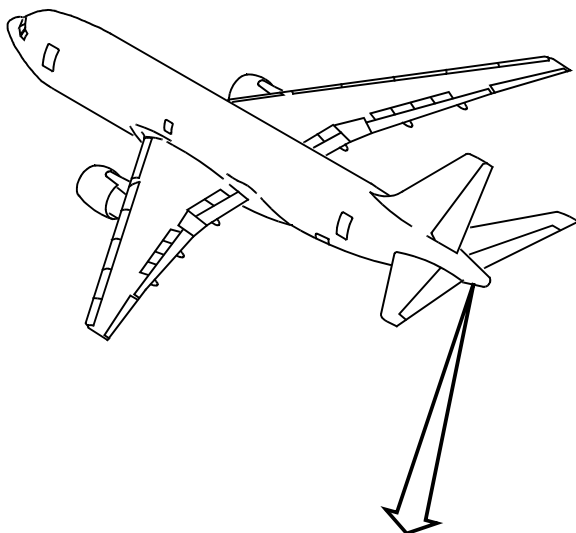


53-85-01 APU Louvered Pressure Relief Door

May be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1	Negligible penalty	Negligible penalty





54-52-01 Aft Fairing Primary Nozzle-To-Strut Seals

54-53-01 Nacelle Strut Pressure Relief Doors

54-53-02 Nacelle Strut Access Doors



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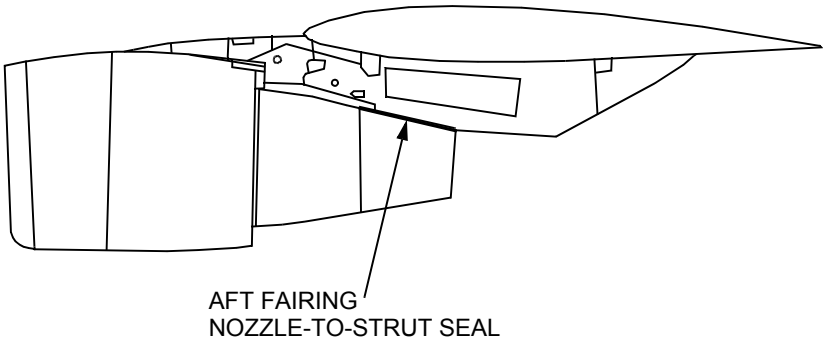


54-52-01 Aft Fairing Primary Nozzle-To-Strut Seals

Any number or combination may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
4 (2 per strut)	600 lb (272 kg)	1400 lb (635 kg)



54-53-01 Nacelle Strut Pressure Relief Doors

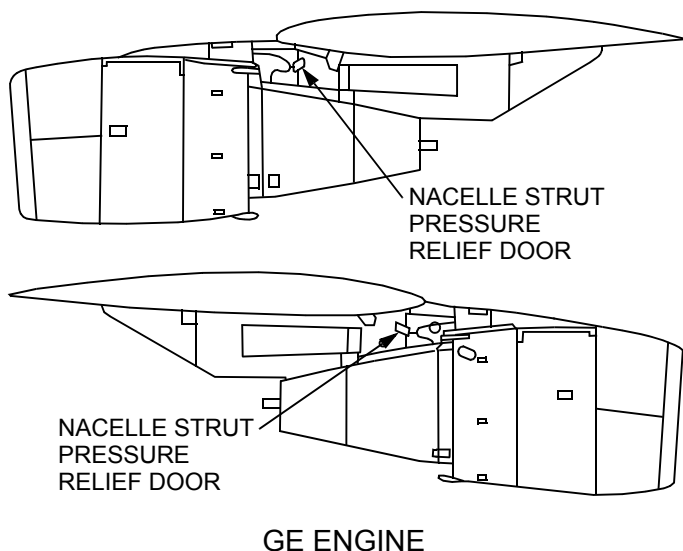
A maximum of two may be missing (one per strut).

NOTE 1: May be missing in combination with CDL Item 54-53-02. When Items 54-53-01 and 54-53-02 are missing in combination, use only one penalty.

NOTE 2: For all engine types, any combination of the authorized numbers of CDL items 54-53-01 and 54-53-02 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
4 (2 per strut)	Negligible penalty	Negligible penalty



54-53-02 Nacelle Strut Access Doors

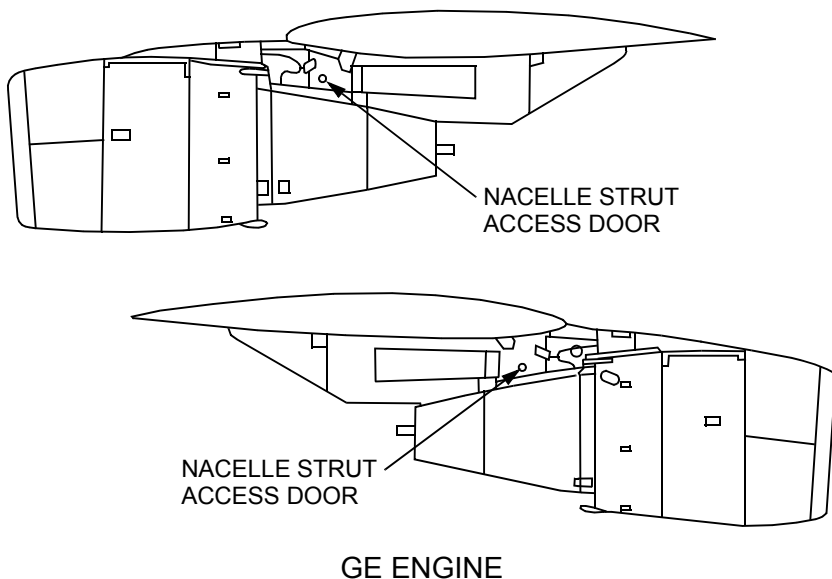
Any number may be missing.

NOTE 1: May be missing in combination with CDL Item 54-53-01. When Items 54-53-01 and 54-53-02 are missing in combination, use only one penalty.

NOTE 2: For all engine types, any combination of the authorized numbers of CDL items 54-53-01 and 54-53-02 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
4 (2 per strut)	700 lb (318 kg)	700 lb (318 kg)





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55-10-01	Horizontal Stabilizer - Auxiliary Box
55-10-02	Horizontal Stabilizer - Fixed Trailing Edge
55-16-01	Horizontal Stabilizer-To-Elevator Seals
55-20-01	Inboard Elevators
55-20-02	Outboard Elevators
55-30-01	Vertical Stabilizer - Auxiliary Box
55-30-02	Vertical Stabilizer - Fixed Trailing Edge
55-31-01	Vertical Stabilizer-To-Fuselage Seals
55-40-01	Rudder



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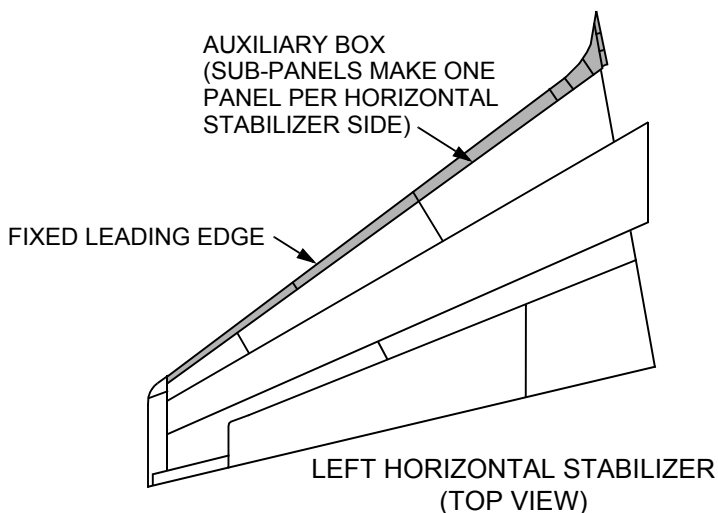
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55-10-01 Horizontal Stabilizer - Auxiliary Box

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
2	670 lb (304 kg)	750 lb (341 kg)

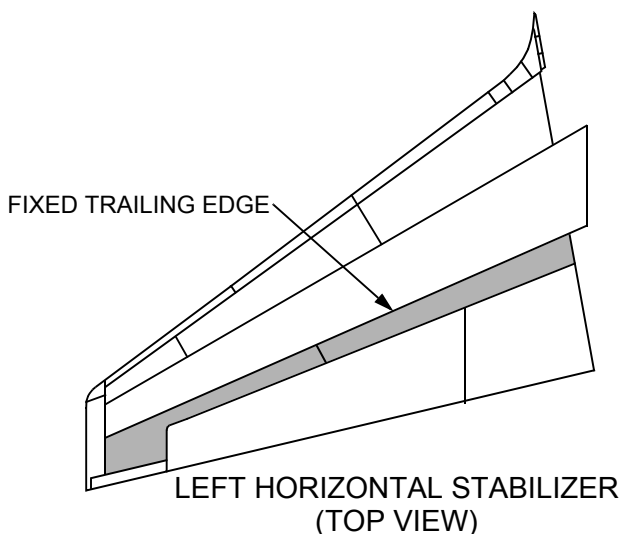


55-10-02 Horizontal Stabilizer - Fixed Trailing Edge

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 trailing edge the performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	750 lb (341 kg)	850 lb (386 kg)

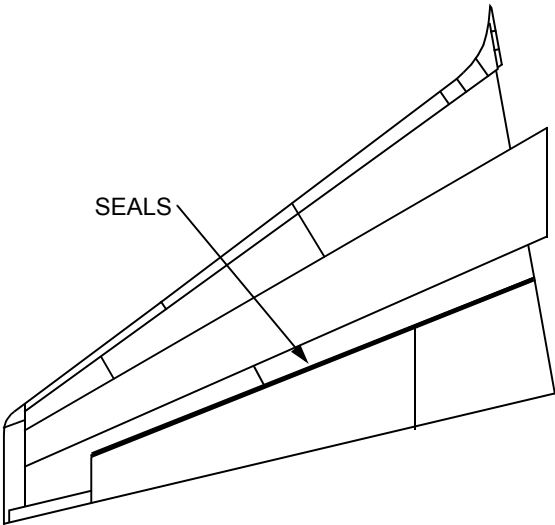




55-16-01 Horizontal Stabilizer-To-Elevator Seals

A maximum of 320 inches (80 inches per surface) may be missing.
Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
34	900 lb (409 kg)	800 lb (363 kg)



LEFT HORIZONTAL STABILIZER
(TOP VIEW)

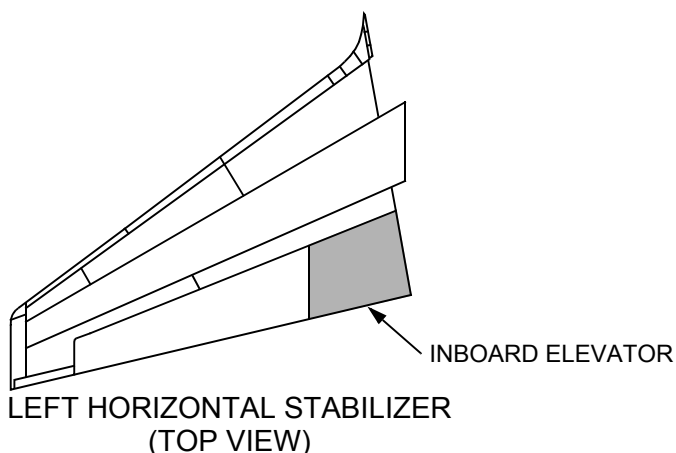
55-20-01 Inboard Elevators

None may be missing. May have damage due to on-ground hail.

NOTE: If either of the inboard elevators are damaged, the forward center of gravity (CG) Limit must be shifted aft by 3.0% MAC (except for dispatch with alternate forward CG).

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 elevator the performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	650 lb (295 kg)	740 lb (336 kg)





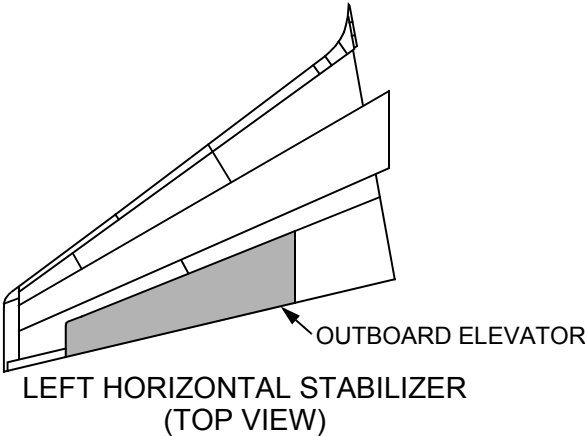
55-20-02 Outboard Elevators

None may be missing. May have damage due to on-ground hail.

NOTE: If either of the outboard elevators are damaged, the forward center of gravity (CG) Limit must be shifted aft by 3.0% MAC (except for dispatch with alternate forward CG).

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 elevator the performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	970 lb (440 kg)	1090 lb (495 kg)

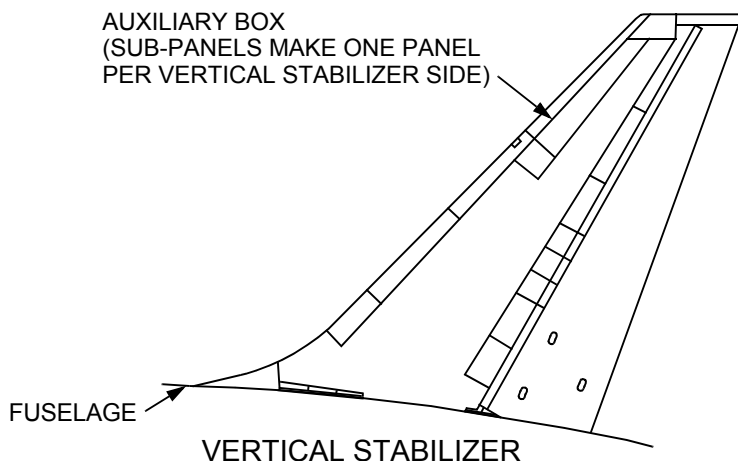


55-30-01 Vertical Stabilizer - Auxiliary Box

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
2	710 lb (323 kg)	800 lb (363 kg)

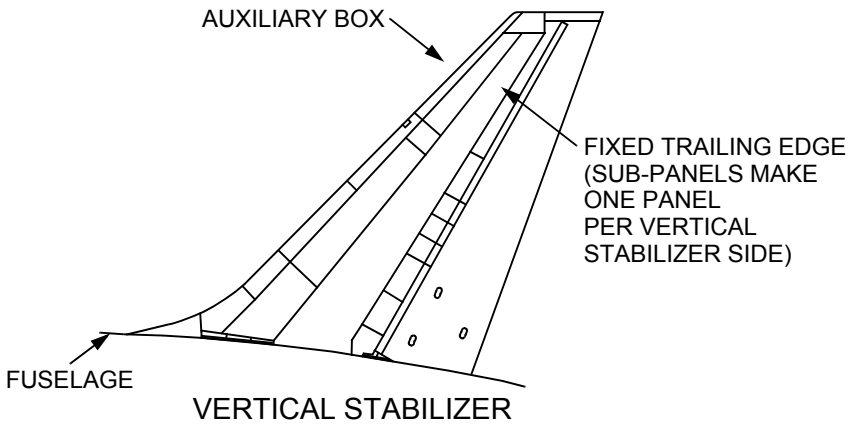


55-30-02 Vertical Stabilizer - Fixed Trailing Edge

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 trailing edge the performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	1160 lb (527 kg)	1310 lb (595 kg)

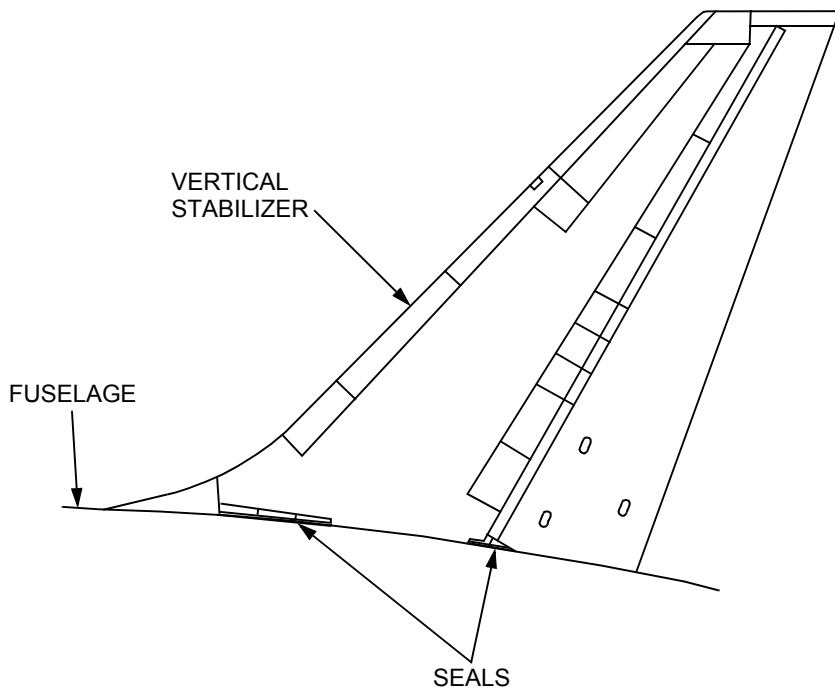


55-31-01 Vertical Stabilizer-To-Fuselage Seals

Any number or combination may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
8	Negligible penalty	Negligible penalty

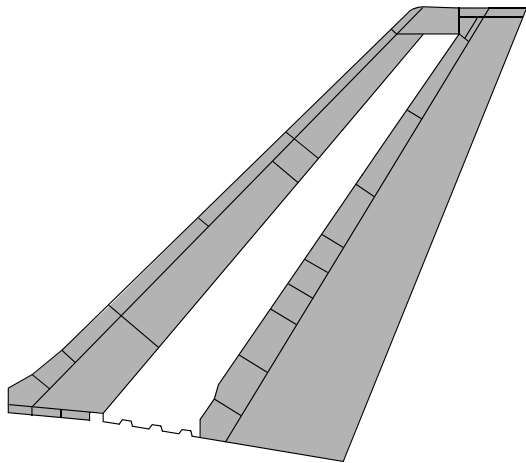




55-40-01 Rudder

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	100 lb (46 kg)	120 lb (55 kg)



VERTICAL STABILIZER - RUDDER



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56-11-01 Windshield Aerodynamic Sealant (#1 and #3 Windows)



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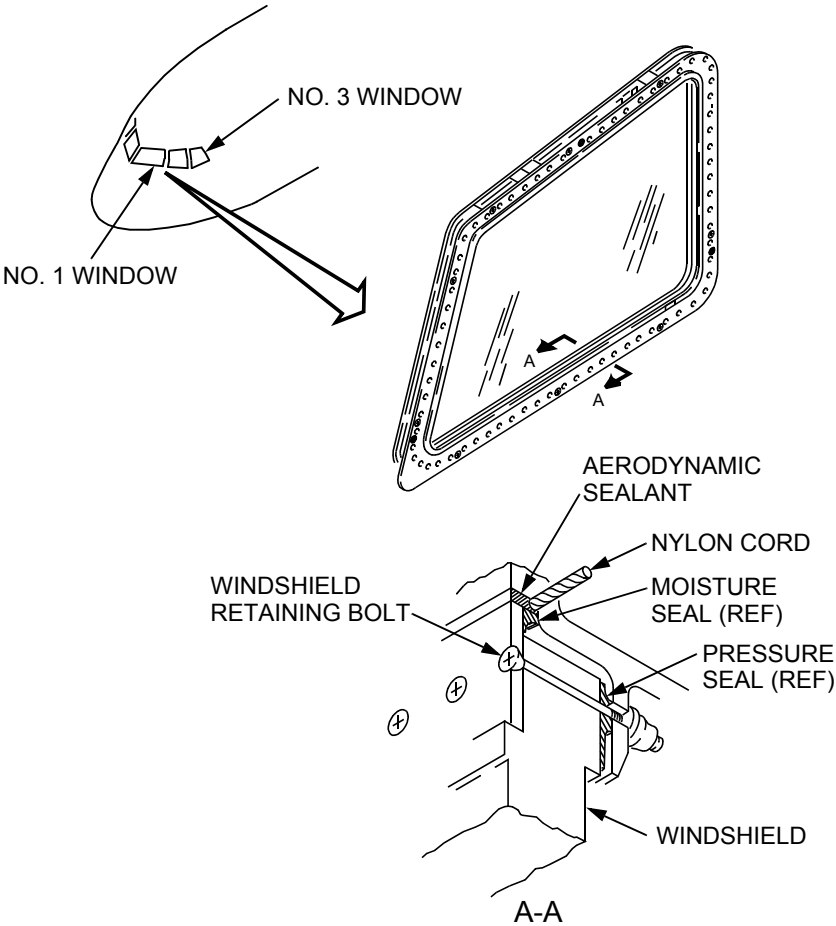


56-11-01 Windshield Aerodynamic Sealant (#1 and #3 Windows)

May be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
1 per window	Negligible penalty	Negligible penalty





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57-00-01	Vortex Generators
57-20-01	Inspar Upper Wing Panel
57-41-01	Wing Leading Edge Slat Linkage Fairing Panels
57-41-02	Wing Thermal Anti-Icing Duct Seal - Door Assembly
57-41-03	Fixed Leading Edge Seals
57-41-04	Leading Edge Slat Mechanism Lubrication Access Doors
57-41-05	Inboard Wing Fixed Leading Edge
57-41-06	Outboard Wing Fixed Leading Edge
57-43-01	Wing Leading Edge Slat Wedge
57-51-01	Main Landing Gear Trunnion Support Fairings
57-51-02	Trailing Edge Flap Hinge Fairings
57-51-03	Inboard Trailing Edge Fixed Panel
57-51-04	Outboard Trailing Edge Fixed Panel
57-51-07	Main Landing Gear Side Brace Trunnion Aft Fairings
57-53-01	Inboard Trailing Edge Flaps
57-53-02	Outboard Trailing Edge Flaps
57-60-01	Inboard Ailerons
57-60-02	Outboard Ailerons
57-70-01	Spoiler Panels



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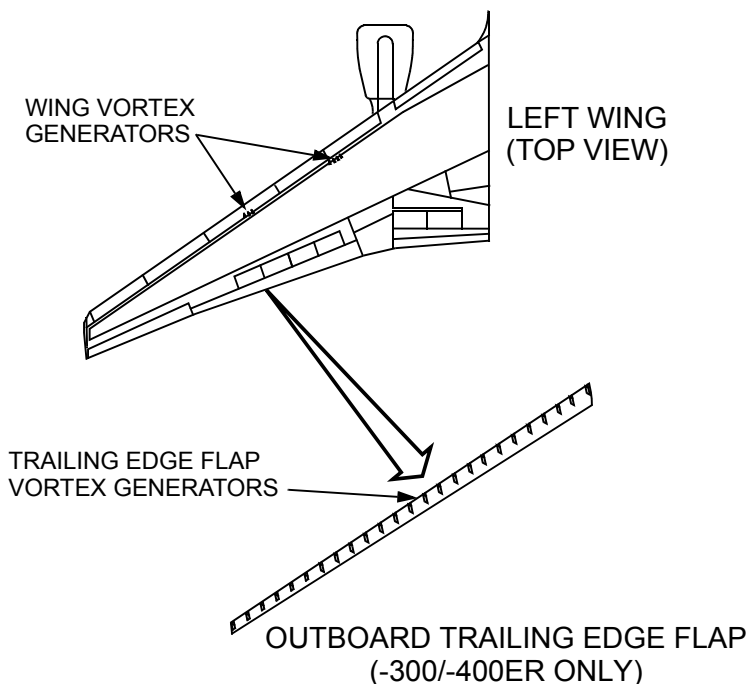
57-00-01 Vortex Generators

Wing vortex generators: A total of two may be missing, but not more than one per group. Operations must be limited to a maximum altitude of 18,000 feet. The performance decrement is negligible.

Trailing edge flap vortex generators: A total of four (two from each flap) may be missing. Increase landing approach speed VREF by 2 knots.

Performance limited weights are reduced by the following:

Number Installed	Landing Climb	Landing Field Length	Quick Turnaround
50 TE Flap	4700 lb (2132 kg)	7600 lb (3448 kg)	4100 lb (1860 kg)

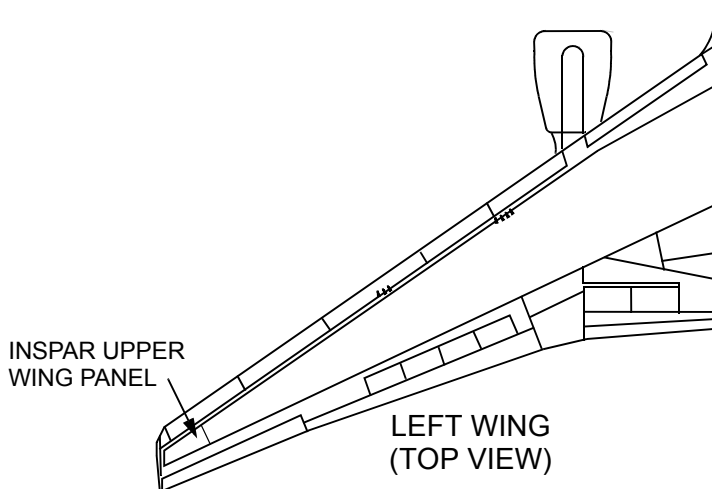


57-20-01 Inspar Upper Wing Panel

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
2	440 lb (200 kg)	500 lb (227 kg)



57-41-01 Wing Leading Edge Slat Linkage Fairing Panels

A maximum of six (three per side) in any combination may be missing provided none of the leading edge slat mechanism lubrication access doors (CDL Item 57-41-04) are missing.

NOTE 1: Avoid icing conditions if any inboard slat linkage fairings are missing from either inboard slat.

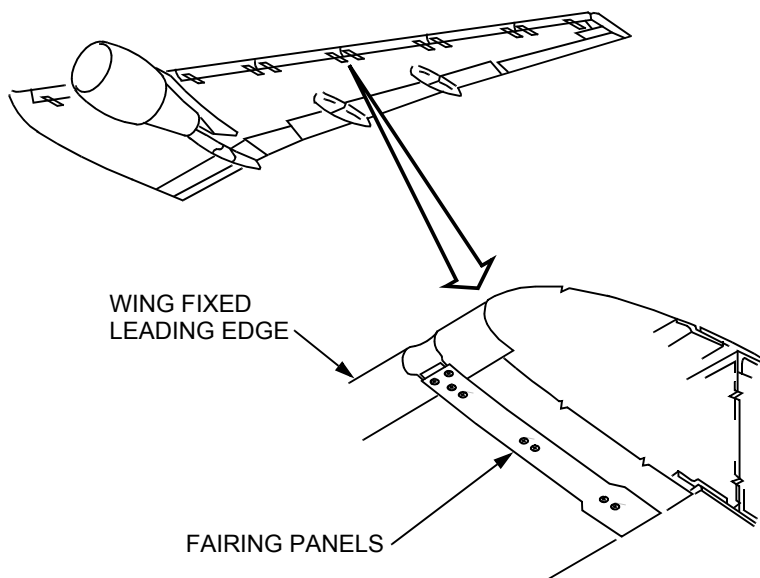
NOTE 2: Any combination of CDL Items 57-41-01, 57-41-02 and 57-41-03 may be missing.

NOTE 3: For removal of outboard leading edge slat actuator seal door see AMM 57-41-56/401.

NOTE 4: For removal of inboard leading edge slat actuator seal door see AMM 57-41-59/401.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
24	No penalty	2800 lb (1270 kg)



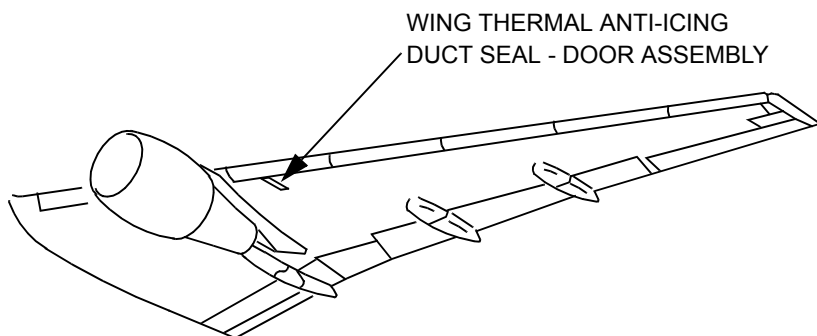
57-41-02 Wing Thermal Anti-Icing Duct Seal - Door Assembly

One or both may be missing.

NOTE: Any combination of CDL Items 57-41-01, 57-41-02 and 57-41-03 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty



57-41-03 Fixed Leading Edge Seals

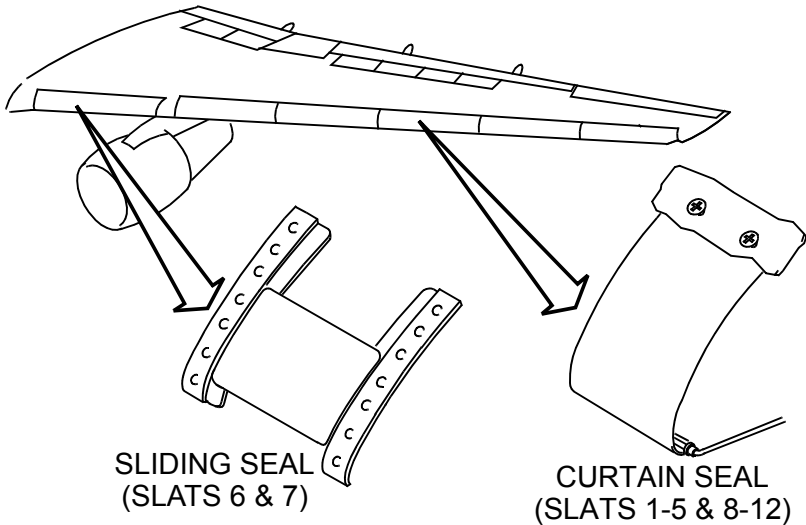
All inboard slat sliding seals (four per side) and one curtain seal per outboard slat (five per side), may be missing.

NOTE 1: Curtain seal configuration must be symmetrical. Sliding seal configuration may be asymmetrical.

NOTE 2: Any combination of CDL Items 57-41-01, 57-41-02 and 57-41-03 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff	Enroute Climb	Landing Climb
50	No penalty	No penalty	2700 lb (1225 kg)

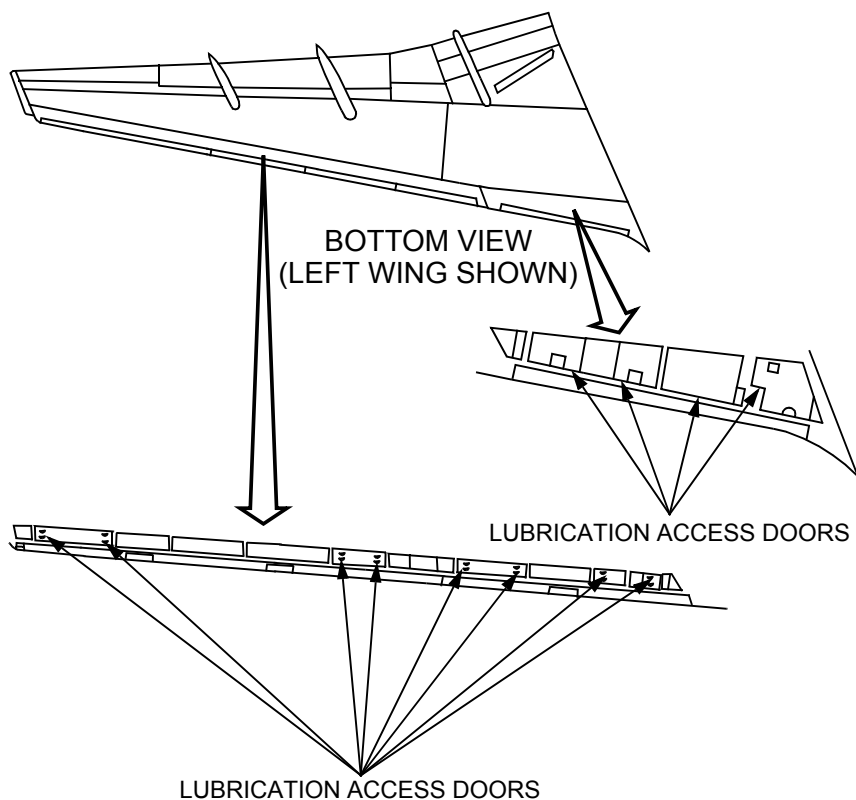


57-41-04 Leading Edge Slat Mechanism Lubrication Access Doors

A maximum of four per airplane in any combination may be missing provided none of the wing leading edge slat linkage fairing panels (CDL Item 57-41-01) are missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
40 (20 per side)	No penalty	950 lb (431 kg)

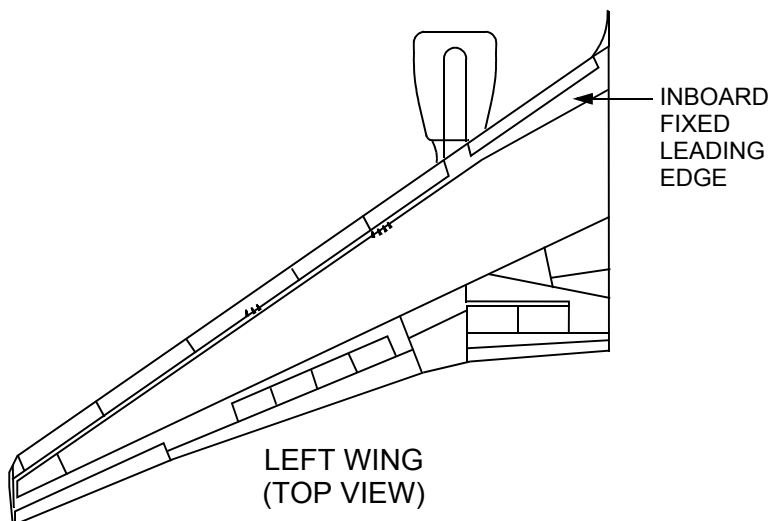


57-41-05 Inboard Wing Fixed Leading Edge

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 panel the performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	1110 lb (504 kg)	1250 lb (567 kg)

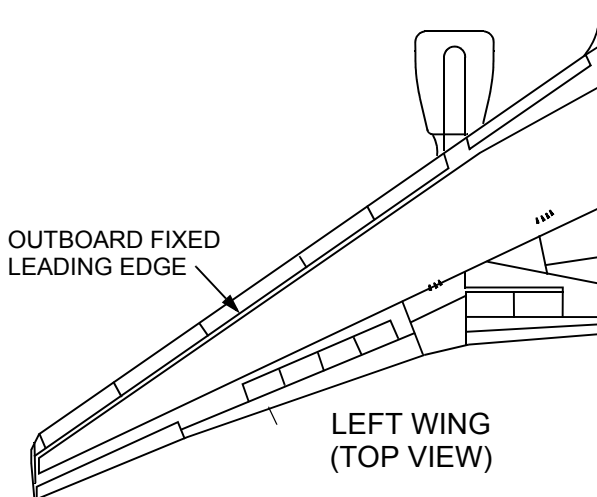


57-41-06 Outboard Wing Fixed Leading Edge

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 panel the performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	580 lb (264 kg)	650 lb (295 kg)

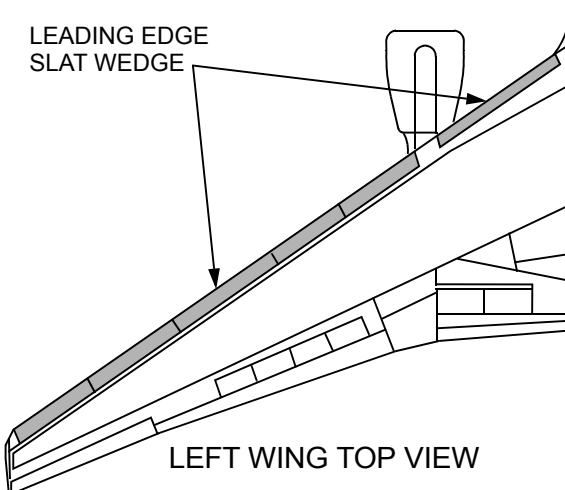


57-43-01 Wing Leading Edge Slat Wedge

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 slat wedge the performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
12	290 lb (132 kg)	330 lb (150 kg)



57-51-01 Main Landing Gear Trunnion Support Fairings

One may be missing.

Limit speed to 270 KIAS/0.73 Mach

[For ALTERNATE Vmo/Mmo switch installed:](#)

NOTE 1: Set the ALTERNATE Vmo/Mmo switch to ALTN.

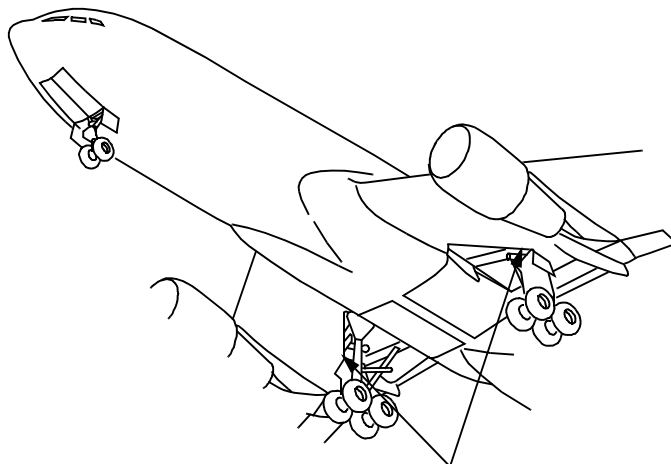
[For ALTERNATE Vmo/Mmo switch not installed:](#)

NOTE 2: Refer to the Limitations on page 3.00-01-00.1 for operational limitations.

NOTE 3: Any combination of the authorized numbers of CDL Items 57-51-01 and 57-51-02 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	500 lb (227 kg)	500 lb (227 kg)



TRUNNION SUPPORT FAIRINGS

57-51-02 Trailing Edge Flap Hinge Fairings

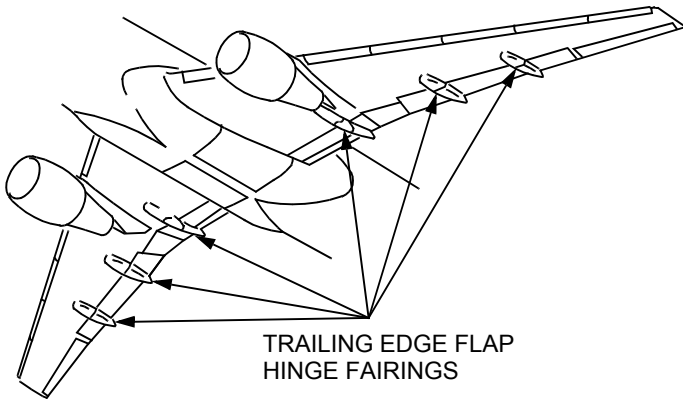
Each fairing is comprised of three sections. All or part of one fairing may be missing.

1. If the forward section is removed, the mid and aft sections must be removed also.
2. If the mid section is removed, the aft section must be removed. The forward section may remain installed.
3. The aft section may be removed without removing the forward or mid sections.

NOTE: Any combination of the authorized numbers of CDL Items 57-51-01 and 57-51-02 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
6	2600 lb (1180 kg)	2900 lb (1315 kg)

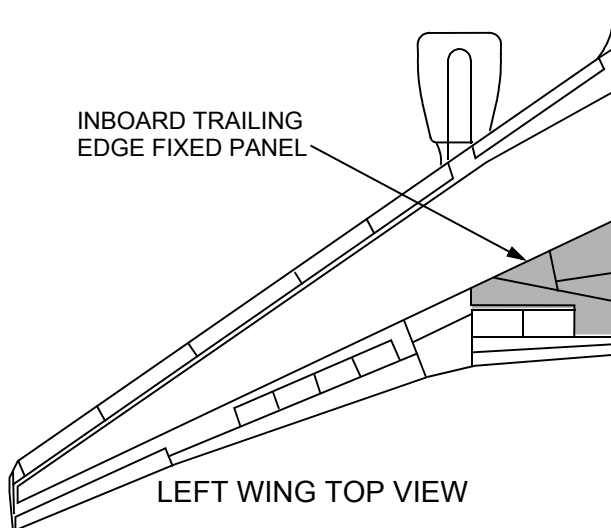


57-51-03 Inboard Trailing Edge Fixed Panel

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
2	3620 lb (1642 kg)	4080 lb (1851 kg)

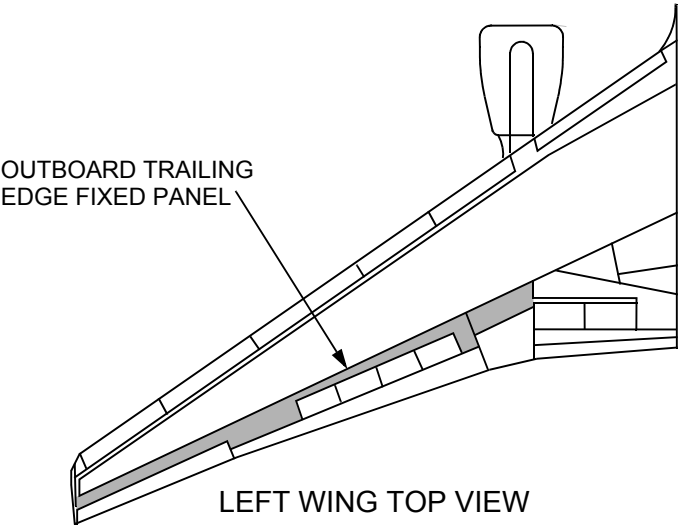




57-51-04 Outboard Trailing Edge Fixed Panel

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
2	3460 lb (1570 kg)	3890 lb (1765 kg)



57-51-05 Main Landing Gear Forward Trunnion Fairings (On Wing Fixed Trailing Edge)

One may be missing provided the corresponding aft trunnion fairing is also removed.

Limit speed to 270 KIAS/0.73 Mach.

[For ALTERNATE Vmo/Mmo switch installed:](#)

NOTE 1: Set the ALTERNATE Vmo/Mmo switch to ALTN.

[For ALTERNATE Vmo/Mmo switch not installed:](#)

NOTE 2: Refer to the Limitations on page 3.00-01-00.1 for operational limitations.

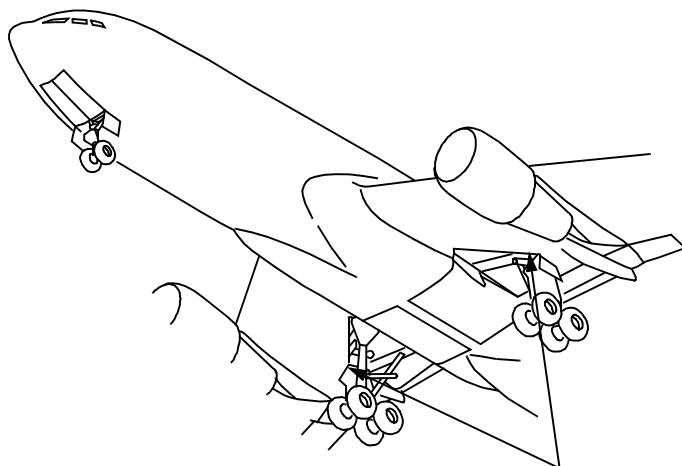
NOTE 3: The below performance decrements are for one set of forward and aft trunnion fairings removed.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

[For -400ER/-80C2:](#)

2	2300 lb (1044 kg)	4500 lb (2042 kg)



TRUNNION SUPPORT FAIRINGS

57-51-06 Main Landing Gear Aft Trunnion Fairings (On Wing Fixed Trailing Edge)

One may be missing.

Limit speed to 270 KIAS/0.73 Mach.

[For ALTERNATE Vmo/Mmo switch installed:](#)

NOTE 1: Set the ALTERNATE Vmo/Mmo switch to ALTN.

[For ALTERNATE Vmo/Mmo switch not installed:](#)

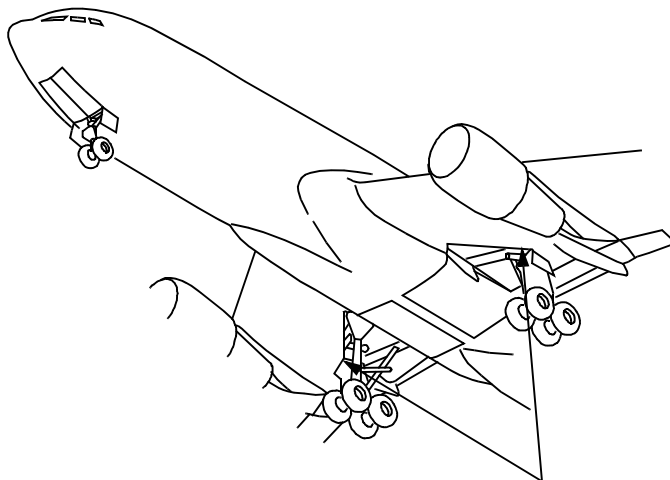
NOTE 2: Refer to the Limitations on page 3.00-01-00.1 for operational limitations.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb

[For -400ER/-80C2:](#)

2	400 lb (182 kg)	750 lb (342 kg)



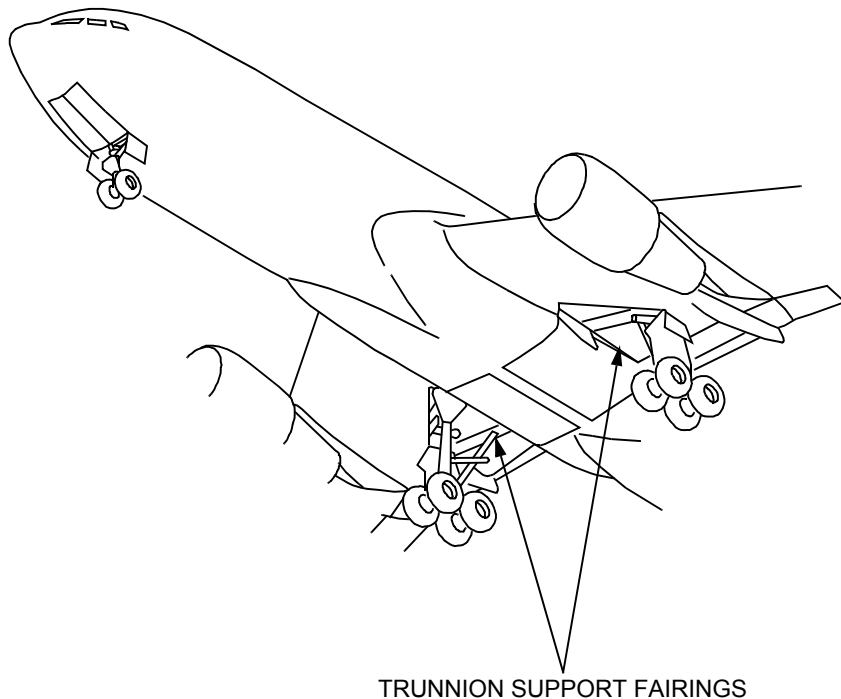
TRUNNION SUPPORT FAIRINGS

57-51-07 Main Landing Gear Side Brace Trunnion Aft Fairings

Both may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2	Negligible penalty	Negligible penalty



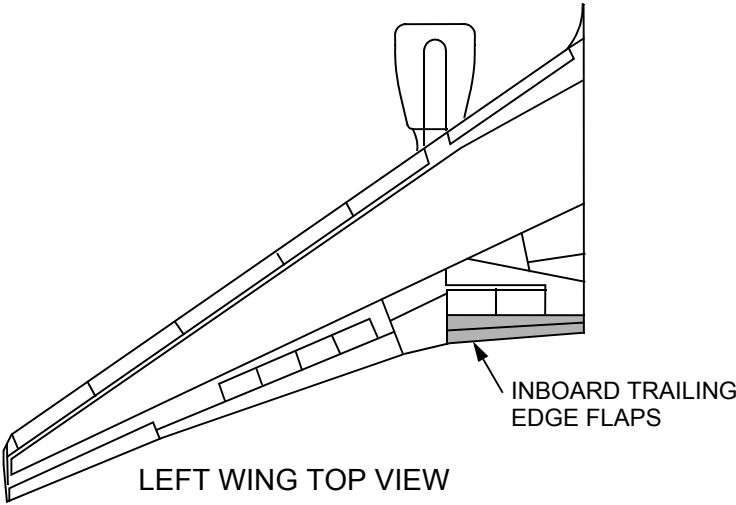


57-53-01 Inboard Trailing Edge Flaps

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
2	900 lb (409 kg)	1010 lb (459 kg)

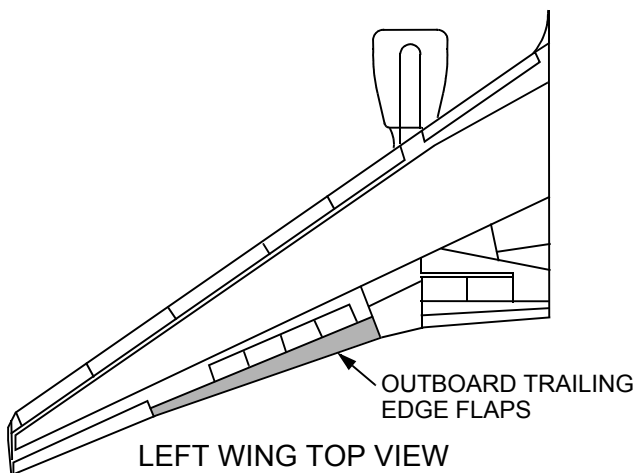


57-53-02 Outboard Trailing Edge Flaps

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
2	1800 lb (817 kg)	2030 lb (921 kg)

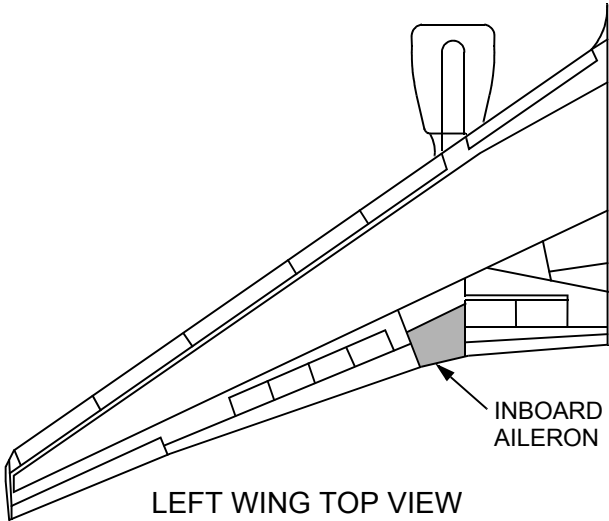




57-60-01 Inboard Ailerons

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
2	610 lb (227 kg)	680 lb (309 kg)

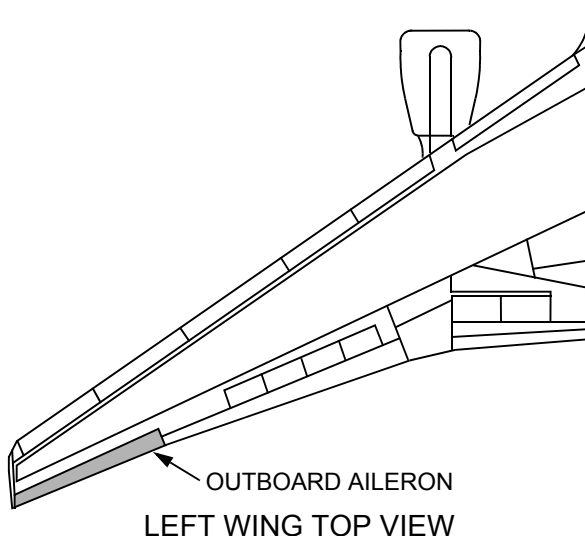


57-60-02 Outboard Ailerons

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
2	810 lb (368 kg)	910 lb (413 kg)

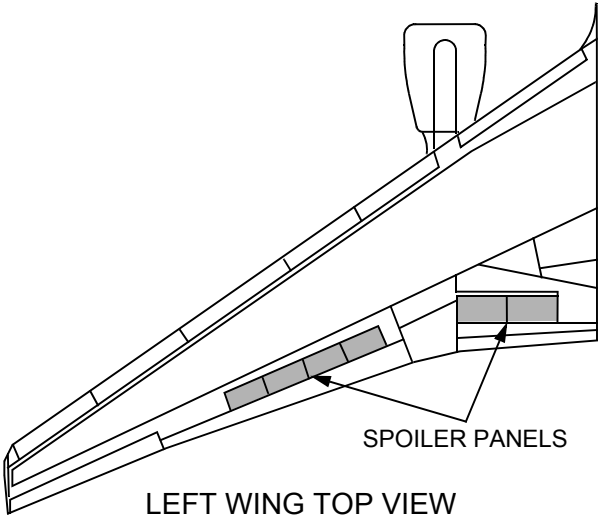




57-70-01 Spoiler Panels

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 spoiler panel the performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
12	370 lb (168 kg)	410 lb (186 kg)





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71-11-01 Fan Cowl Pressure Relief Access Doors

71-11-02 Fan Cowl Oil Tank Access Doors



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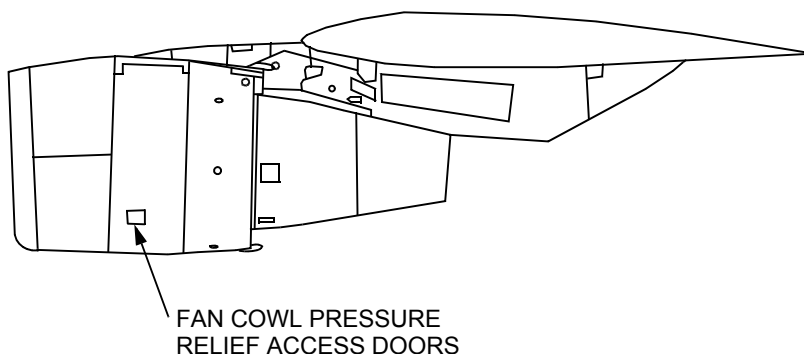
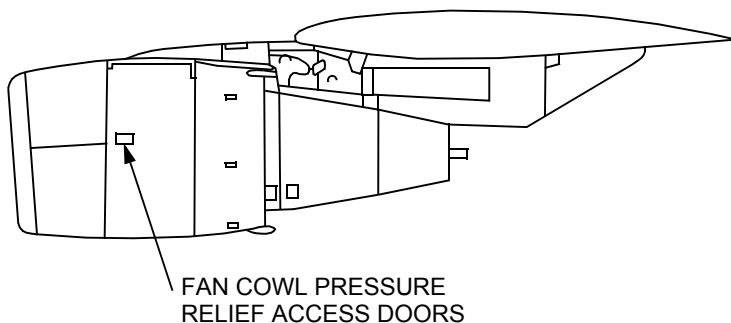
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71-11-01 Fan Cowl Pressure Relief Access Doors

One or both may be missing provided the fan cowl oil tank access door (CDL item 71-11-02) on the same nacelle is not missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2 (1 per nacelle)	Negligible penalty	Negligible penalty

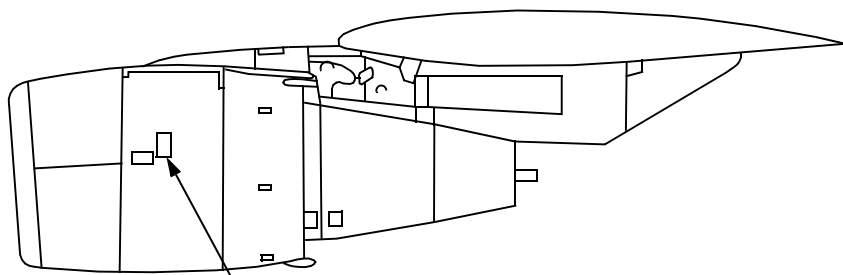
**PW ENGINE****GE ENGINE**

71-11-02 Fan Cowl Oil Tank Access Doors

One or both may be missing provided the fan cowl pressure relief access door (CDL item 71-11-01) on the same nacelle is not missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
2 (1 per nacelle)	No penalty	200 lb (91 kg)



FAN COWL OIL TANK
ACCESS DOORS

GE CF6-80C2 ENGINE



78-31-01 Thrust Reverser Sleeve Actuator Access Panels

78-31-02 Thrust Reverser Track Fairings

78-31-03 Fan Thrust Reverser Blocker Doors



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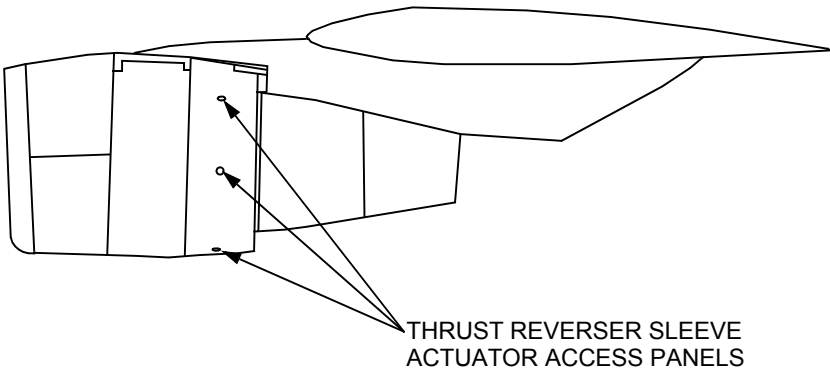
78-31-01 Thrust Reverser Sleeve Actuator Access Panels

A maximum of eight (four per nacelle) in any combination may be missing.

NOTE: Any combination of the authorized numbers of CDL items 78-31-01, 78-31-02, 78-31-03, and 78-31-04 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
12 (6 per nacelle)	Negligible penalty	Negligible penalty



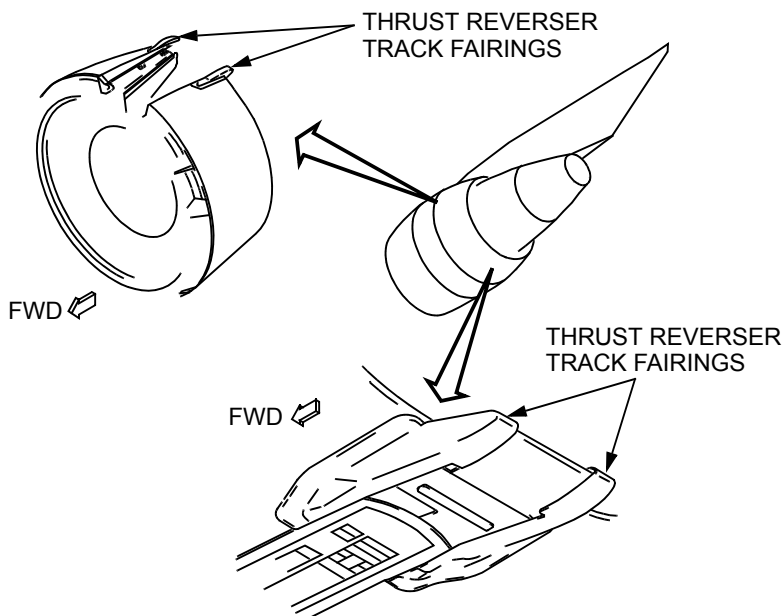
78-31-02 Thrust Reverser Track Fairings

Any number or combination may be missing.

NOTE: Any combination of the authorized numbers of CDL items 78-31-01, 78-31-02, 78-31-03, and 78-31-04 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
8 (4 per engine)	400 lb (181 kg)	600 lb (272 kg)





78-31-03 Fan Thrust Reverser Blocker Doors

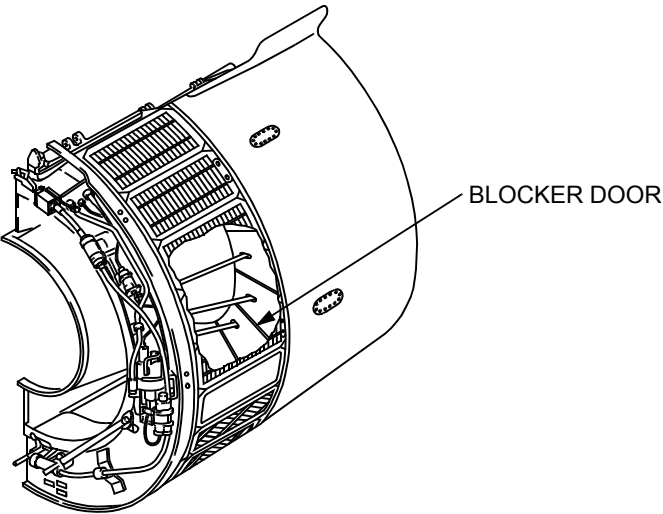
One may be missing from each reverser half of one engine provided the thrust reverser is deactivated. Deactivate associated thrust reverser per reference MEL Item 78-31-01.

NOTE 1: Drag links (for missing door) must be removed for all engine types.

NOTE 2: Any combination of the authorized numbers of CDL items 78-31-01, 78-31-02, 78-31-03, and 78-31-04 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
24 (6 per cowl half)	800 lb (363 kg)	1600 lb (726 kg)



78-31-04 Thrust Reverser Cascade Vane Segments

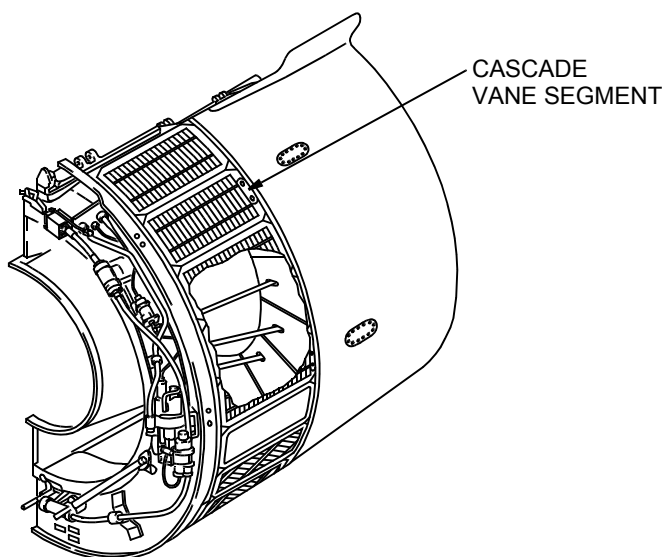
1. Segments are missing from one engine only and thrust reverser is deactivated.
2. No two adjacent segments are missing.
3. Top and bottom segments remain in place.

NOTE 1: Deactivate associated thrust reverser per MEL Item 78-31-01.

NOTE 2: Any combination of the authorized numbers of CDL items 78-31-01, 78-31-02, 78-31-03, and 78-31-04 may be missing.

Performance limited weights are reduced by the following:

Number Installed	Takeoff & Landing	Enroute Climb
36 (18 per engine)	No penalty	No penalty





NORD WIND AIRLINES 767 MINIMUM EQUIPMENT LIST

Section 4

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Landing Gear Down Dispatch

APU

Dispatch with APU Removed

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Section 4

General

Miscellaneous

MEL Numbering Examples

The following examples for FAA 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 C 2 1
(A/T ARM L, R)

(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 (14 CFR 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.

Airplane Model Information

Where applicable, airplane model information (annotation) is included above affected text to identify configuration-specific information. The annotation applies only to text aligned immediately below it and any associated indented text. The following example illustrates the model 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 the above example procedure, the applicable steps are 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.

When airplane model information (annotation) is left justified, aligned with the bolded heading or title and not aligned with an individual paragraph, step, or note, it indicates all the information following that annotation is applicable to the end of the listed steps, or until another airplane model is noted. For this format, all the steps that follow multiple annotations are re-numbered beginning from step 1 for each annotation.



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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 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.

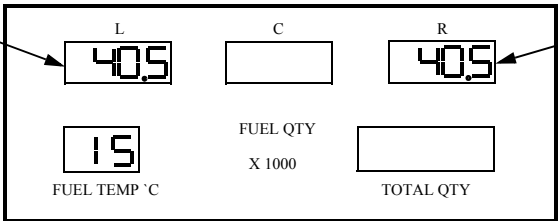
Note: Left main tank now supplies fuel to left engine and right main tank supplies fuel to right engine

	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.

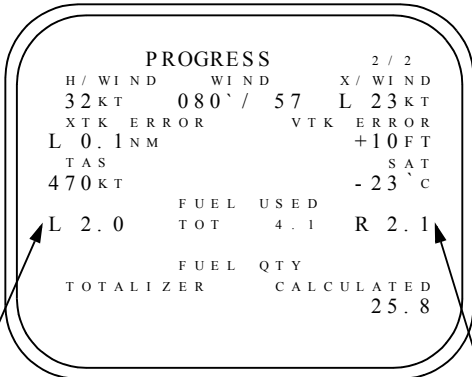


L FUEL QTY → **L** **40.5** **C** **R** **40.5** → R FUEL QTY

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

H / WIND 32 KT WIND 080' / 57 X / WIND L 23 KT

XTK ERROR 0.1 NM VTK ERROR +10 FT

TAS 470 KT SAT -23 °C

FUEL USED

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, select 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 and conditions permit, shutdown affected engine to stop the leak using the Engine Failure or Shutdown Non-Normal Checklist. After engine shutdown, all remaining fuel may be used for the operating engine.
 - 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

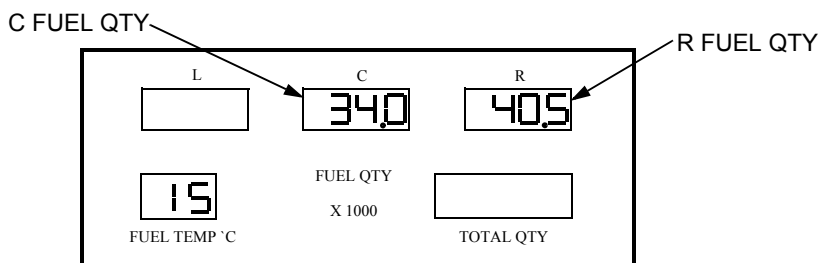
C & R FUEL QUANTITY INDICATOR			FMC FUEL USED			
A	B	C	D	E	F	G
Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Used	End Check Fuel Used	Engine Fuel Used (E minus D)	Detected Leak Rate (C-F)x10
C Tank/ L Eng						
R Tank/ R Eng						

ENGINE FUEL LEAK DETECTION FORM

(Center Tank Supplies Left Engine & Right Tank Supplies Right Engine)

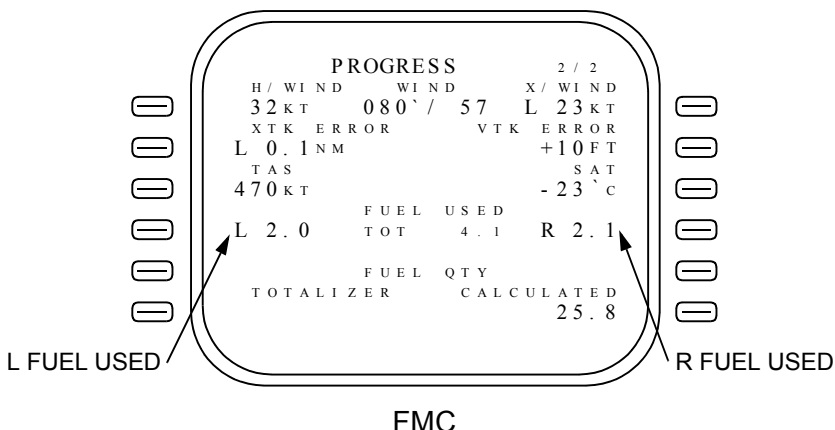
2) At start of check:

- 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.

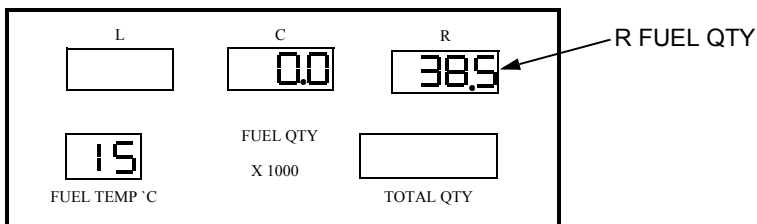


- 3) At 6 min time:
 - a. From FQIS, record C FUEL QTY and R FUEL QTY in Column B.
 - b. From FMC, record L FUEL USED and R FUEL USED in Column E.
 - c. Select center right fuel pump ON.
 - 4) Subtract Column B from A and record in Column C.
 - 5) Subtract Column D from E and record in Column F.
 - 6) 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 and conditions permit, shutdown affected engine to stop the leak using the Engine Failure or Shutdown Non-Normal Checklist. After engine shutdown, all remaining fuel may be used for the operating engine.
 - 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 Tank/ R Eng	R FUEL QUANTITY INDICATOR			FMC RIGHT ENGINE FUEL USED			G
	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

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.



The FQIS display shows three fuel tank indicators: L (Left), C (Center), and R (Right). The R tank indicator shows a value of 38.5. An arrow points from the text "R FUEL QTY" to the R tank display. Below the tank indicators, there are three labels: "FUEL TEMP °C" with a value of 15, "FUEL QTY X 1000" with a value of 0.0, and "TOTAL QTY" with a value of 0.0.

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	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		

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 and conditions permit, shutdown affected engine to stop the leak using the Engine Failure or Shutdown Non-Normal Checklist. After engine shutdown, all remaining fuel may be used for the operating engine.
- 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. Select fuel crossfeed valve(s) ON.
 - b. Select left main tank pumps OFF.

Note: Right Main Tank now supplies fuel to both engines.

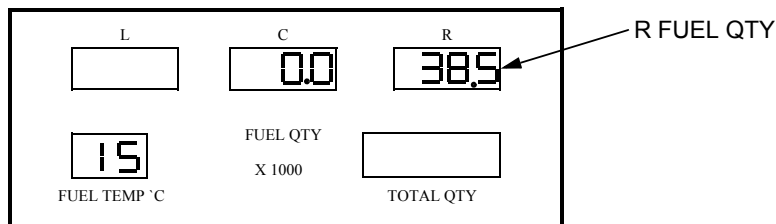
R FUEL QUANTITY INDICATOR			FMC CALCULATED FUEL			
A	B	C	D	E	F	G
Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Qty	End Check Fuel Qty	Engine Fuel Used (D minus E)	Detected Leak Rate (C-F)x10

LEFT ENGINE LEAK DETECTION FORM

(Right Tank Supplies Both Engines)

2) At start of check:

- a. From FQIS, record R FUEL QTY in Column A.



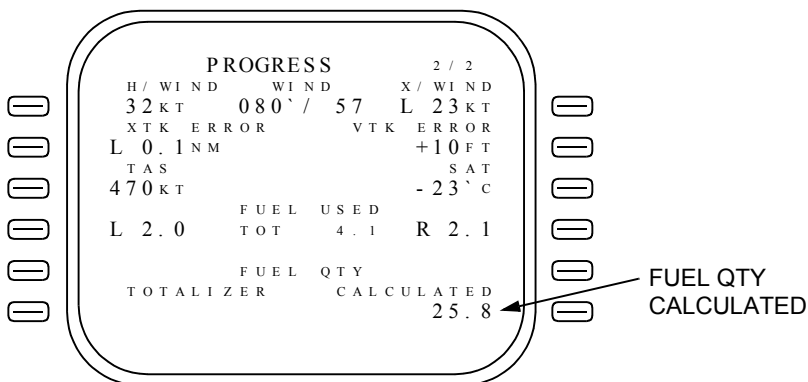
L: [] C: 0.0 R: 38.5

FUEL TEMP °C: 15 FUEL QTY X 1000: [] TOTAL QTY: []

R FUEL QTY

FQIS

- b. From FMC, record FUEL QTY CALCULATED in Column D.



PROGRESS 2 / 2

H / WIND 32 KT WIND 080° / 57 X / WIND L 23 KT

XTK ERROR L 0.1 NM VTK ERROR +10 FT

TAS 470 KT SAT -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. Select left main tank pumps ON.
 - d. Select 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 and conditions permit, shutdown affected engine to stop the leak using the Engine Failure or Shutdown Non-Normal Checklist. After engine shutdown, all remaining fuel may be used for the operating engine.
- 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 selected ON.
 - b. Ensure fuel crossfeed valve(s) is selected OFF.
 - c. Select 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

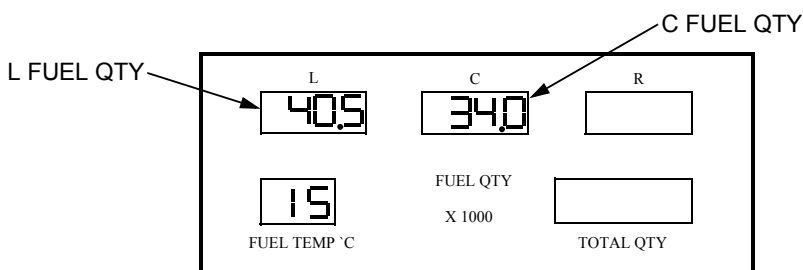
L & C FUEL QUANTITY INDICATOR			FMC ENGINE FUEL USED			
A	B	C	D	E	F	G
Start Check Fuel Qty	End Check Fuel Qty	Tank Fuel Used (A minus B)	Start Check Fuel Used	End Check Fuel Used	Engine Fuel Used (E minus D)	Detected Leak Rate (C-F)x10
L Tank/ L Eng						
C Tank/ R Eng						

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.



L FUEL QTY → 40.5

C FUEL QTY → 34.0

R

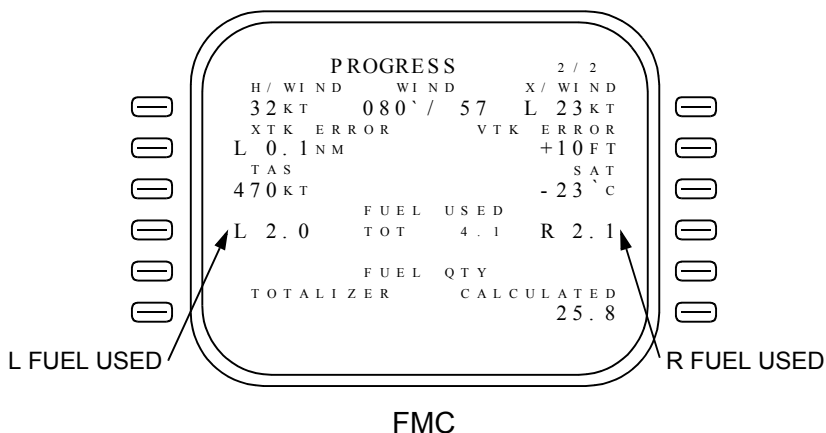
15 FUEL TEMP °C

FUEL QTY X 1000

TOTAL QTY

FQIS

- b. From FMC, record L FUEL USED and R FUEL USED in Column D.



- 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. Select 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 and conditions permit, shutdown affected engine to stop the leak using the Engine Failure or Shutdown Non-Normal Checklist. After engine shutdown, all remaining fuel may be used for the operating engine.
- 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)	Detected Leak Rate (C-F)x10
L Tank/ L Eng							

LEFT ENGINE FUEL LEAK DETECTION FORM

(Left Tank Supplies Left Engine)

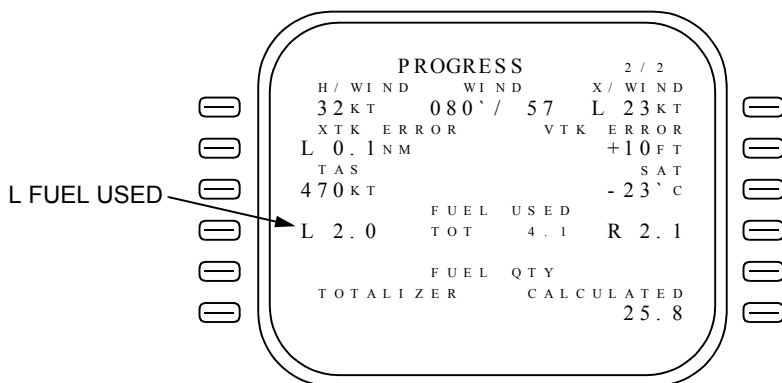
- 1) At start of check:
 - a. From FQIS, record L FUEL QTY in Column A.

L FUEL QTY →

L	C	R
38.5	0.0	
15	FUEL QTY X 1000	TOTAL QTY
FUEL TEMP °C		

FQIS

- b. From FMC, record L FUEL USED in Column D.



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 and conditions permit, shutdown affected engine to stop the leak using the Engine Failure or Shutdown Non-Normal Checklist. After engine shutdown, all remaining fuel may be used for the operating engine.
- 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. Select fuel crossfeed valve(s) ON.
 - b. Select right main tank pumps OFF.

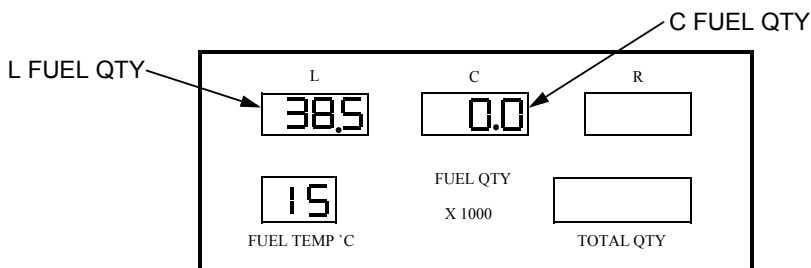
Note: Left Main Tank now supplies fuel to both engines.

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. Select right main tank pumps ON.
 - d. Select 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 and conditions permit, shutdown affected engine to stop the leak using the Engine Failure or Shutdown Non-Normal Checklist. After engine shutdown, all remaining fuel may be used for the operating engine.
- 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.



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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. This is particularly true in the fully compliant FMC, which has significantly more performance predictive capability than the LNAV/VNAV version. 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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Dispatch with APU Removed

Due to the unavailability of a spare APU, it may be desirable to operate with the APU removed while repairs are being made.

Instructions for removal of the APU are included in Boeing Aircraft Maintenance Manual 49-11-01/401 Auxiliary Power Unit - Removal/Installation.

Be sure to account for the change in operating Empty Weight (including center of gravity effect) due to APU removal.



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NORDWIND AIRLINES

Boeing 767

**Non-Essential Equipment &
Furnishings
Procedures Manual**

NWS-767-NEF

NORDWIND AIRLINES

BOEING 767 NEF PROGRAM & PROCEDURES MANUAL



APPROVED BY

General Director of
NordWind Airlines


"11" 06 2014


I. Shvetsov

ACCEPTED BY

Flight Director of
NordWind Airlines


"11" 06 2014
A. Perepelitsyn

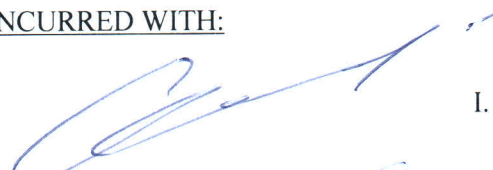
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"11" 06 2014
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Quality Assurance Manager



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Deputy Technical Director,
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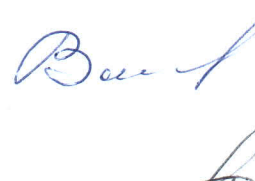
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Continuation Airworthiness Department Manager



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S. Poda

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

NORDWIND AIRLINES

BOEING 767 NEF PROGRAM & PROCEDURES MANUAL



LIST OF EFFECTIVE PAGES

(*): I = Initial A = Added R = Revised

DESCRIPTION	PAGE	(*)	REV	DATE
Cover Page	1	I	00	01-Nov-2013
Approval Page	2	R	03	13-Dec-2013
Distribution List	3	R	03	01-Nov-2013
List of Effective Pages	4	R	03	13-Dec-2013
Table of Contents	5	R	03	01-Nov-2013
Introduction	6	R	03	01-Nov-2013
NEF Program	7	R	03	13-Dec-2013
	8	R	03	01-Nov-2013
	9	R	03	10-Jun-2014
	10	R	03	10-Jun-2014
NEF Item Process	11	R	03	20-Jan-2014
NEF Item Process Flowchart	12	R	03	01-Nov-2013
	13	R	03	01-Nov-2013
	14	R	03	01-Nov-2013
	15	R	03	01-Nov-2013
NEF List	16	R	03	01-Nov-2013
	17	R	03	01-Nov-2013
	18	R	03	01-Nov-2013
	19	R	03	01-Nov-2013
	20	R	03	01-Nov-2013
	21	R	03	13-Dec-2013
	22	R	03	20-Jan-2014
	23	R	03	10-Jun-2014
	24	R	03	10-Jun-2014
	25	R	03	01-Nov-2013
	26	R	03	20-Jan-2014
	27	R	03	01-Nov-2013
	28	R	03	01-Nov-2013
	29	R	03	10-Jun-2014
	30	R	03	20-Jan-2014
	31	R	03	01-Nov-2013
	32	R	03	01-Nov-2013
	33	R	03	01-Nov-2013
	34	R	03	20-Jan-2014
	35	R	03	20-Jan-2014
	36	R	03	10-Jun-2014

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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 NordWind Airlines NEF Program is approved by the NordWind Airlines General Director via an entry in the NordWind Airlines MEL in Chapter 25 Item "Nonessential Equipment and Furnishings".

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 ITEM 25-20-1.
- 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
Each Galleys Area	4
Passenger Cabin	10
In-Flight Entertainment	15
Passenger Seats	30
Lavatories	5
Closets and Vestibule	4
Service Bay Areas	3
Cargo/Luggage Compartment Areas	4

TOTAL NUMBER OF DEFERRED DEFECTS MAY NOT BE MORE THAN 48

- ALL NEF DEFERRED DEFECTS MUST BE INSERTED IN COMPUTERIZED SYSTEM "WINGS" UNDER TASK CODE "NF".

NORDWIND AIRLINES

BOEING 767 NEF PROGRAM & PROCEDURES MANUAL



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 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 as soon as possible have to:
- 1) Perform TBS of new deferred defects and create RQ.
 - 2) Issue request to the Continuing Airworthiness Department via ERR. ERR should contain next information:
 1. All DT references, description, actions taken, RQ numbers related with current NEF exceeding item;
 2. TBS result, photos and RQ numbers for new opened deferred defects;
 3. If TBS not performed or RQ are not created, then responsible engineer from Maintenance or Maintrol staff should provide the reasons or inform about planned actions;
 4. Maintenance or Maintrol staff should request supply department to update information about estimated delivery of ordered parts under each RQ,

related with these defects. Also request them to expedite lead time process and include these detailed information into ERR;

5. All information that can be helpful for developing solution.

Continuing Airworthiness Department within 10 working days makes an analysis, determines repair Interval and develops appropriate solutions approved by the Head of Technical Department or its Deputy. During weekends and official holidays the request similar to mentioned above should be sent to and approved by Maintrol Manager or its Deputy instead of issuing the ERR.

- 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 can be issued by using the following procedure.

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 instead of issuing the ERR.

- L. 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.
- M. 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.

- N. 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; Small plastic or decorative elements.
- O. 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 10 working days.

- P. 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.

- Q. 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.

- R. 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.

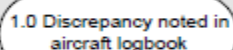
After completed of NEF Item Process you should inform about it Engineering Department using Engineering Recommendation Request (ERR) within 24 hours.

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.

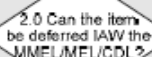
The inoperative, damaged or missing item must be identified and documented in the aircraft technical logbook (or other approved location) by:



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?

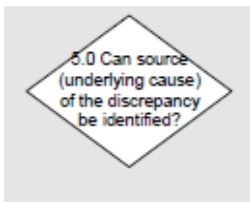
1. Is it obvious from a maintenance or operational perspective that the item, in and of itself, could have an adverse effect on the safe conduct of flight? If there is an obvious safety-of-flight issue, then the inoperative, damaged, or missing item may not be deferred and step 4.1 shall be followed.

4.1 Repair item prior to flight.

4.1 Repair item prior to flight.

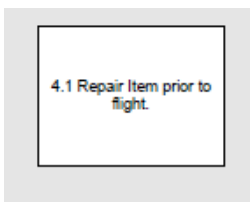
1. The item may not be deferred and must be repaired prior to flight.

5.0 Can source (underlying cause) of the discrepancy be identified? (If applicable)



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?

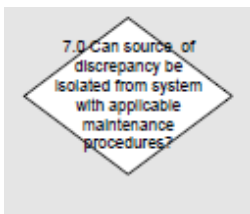


1. If the source (underlying cause) of the discrepancy affect equivalent levels of safety, then it must be determined if it can be isolated from all other systems so as to alleviate any safety concern.

Note: In making this determination, very close coordination between the Flight Crew, maintenance and operations personnel may be required.

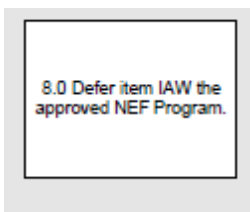
2. If, after review, the source of the discrepancy could be considered a safety-of-flight concern, the item must be repaired prior to flight (step 4.1). If the source of the discrepancy is not a safety-of-flight concern then defer the item in accordance with the approved NEF procedures in step 8.0. If 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.



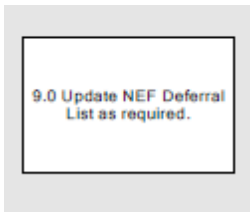
1. Defer the item if, after completing the previous 8 steps, the item can be deferred IAW the NEF program.

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 power plant certificate but rather the item is deferred under the NEF program.

The evaluation process should determine items such as:

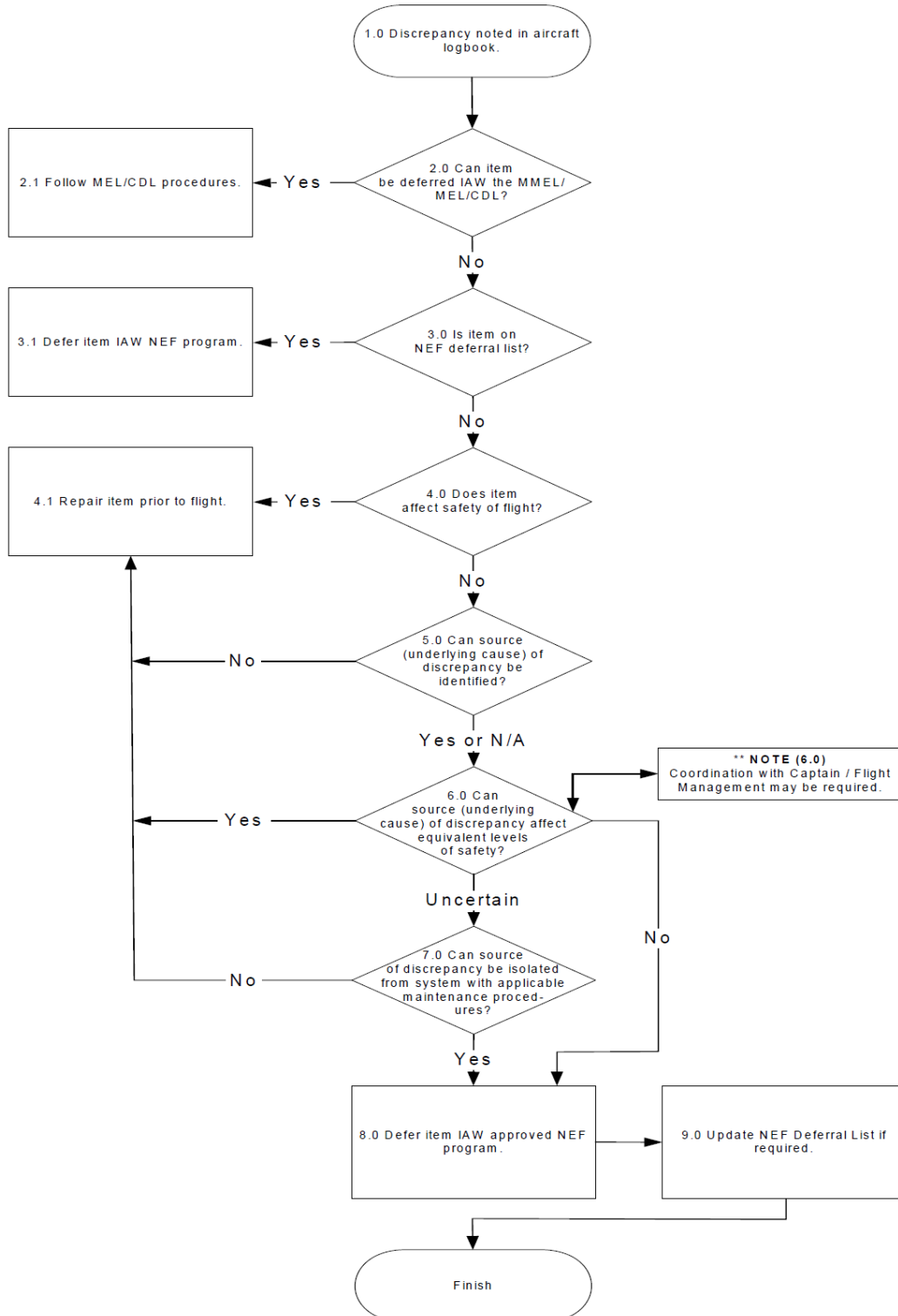
- a. Is the item required for the operational rules in which the aircraft is operated?
- b. Does it create the potential for fire/smoke or other hazardous conditions?
- c. Could it have an adverse effect on other required systems or components?
- d. Does its condition potentially affect the safety of 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)			
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.

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3.PASSENGER CABIN (Max number of defects - 10)			
##	NEF ITEM	REPAIR INTERVAL	REMARKS,EXCEPTIONS & PROCEDURES
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.
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.	Work Station Lights	D	May be inoperative or missing provided repair or replacement must be made within 120 days.
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	D	(O) May be inoperative provided flight attendant is notified and a physical demonstration of safety procedures is performed.
3.5	Safety Demo Equipment: Safety Belt, Life Vest, and O2 Mask	C	May be inoperative, damaged or missing provided safety video is available.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
3.6	Spare Life Vests (Adult/Child/Infant/ Infant life raft)	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	Only items not covered by MEL 25-38-1 Exterior Lavatory Door Ashtrays 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.
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.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
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.
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 Spare (Extension/Infant/ Spare)	D	May be inoperative and missing.
3.26	Seat Number Placards	D	May be damaged or missing.

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4. IN-FLIGHT ENTERTAINMENT(Max number of defects - 15)			
##	NEF ITEM	REPAIR INTERVAL	REMARKS,EXCEPTIONS & PROCEDURES
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.
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 – 30)			
##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
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	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
5.7	Passenger Seat Foot Rest(s)	D	May be inoperative or missing provided it does 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.

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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.
5.14	Various forms of small interior parts (bumpers, stoppers, moldings, linings, decorative items, caps, etc.)	D	May be inoperative, damaged or missing provided: a. It does not effect on performance of other equipment, b. It does not present hazard to pax/crew or impede emergency egress, c. It does not prevent the implementation of the necessary procedures.
6. LAVATORIES (Max number of defects – 5)			
##	NEF ITEM	REPAIR INTERVAL	REMARKS,EXCEPTIONS & PROCEDURES
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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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.
##	NEF ITEM	REPAIR INTERVAL	REMARKS,EXCEPTIONS & PROCEDURES
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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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	Faucet handle	D	May be damaged, inoperative or missing. (M) – no leakage observed. An Inoperative Placard will be placed in prominent position on or near the affected faucet to be seen by the Flight Crew and noted on the Aircraft Maintenance Log Report.
##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
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 – 4)			

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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.
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.

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
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.
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.
7.14	Door entry lights	D	May be inoperative or missing

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8. SERVICE BAYS (Max number of defects - 3)			
##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
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	N/A	<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	N/A	<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/LUGGAGE COMPARTMENT (Max number of defects - 4)			
9.1	Air Outlet(s):		

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##	NEF ITEM	REPAIR INTERVAL	REMARKS, EXCEPTIONS & PROCEDURES
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	Placards/Decals that not covered by MEL Chapter 11 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
b.	Placards/Decals, Exterior, Non-Required	A	Placards/decals that not covered by NEF Section 10.1 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	Placards/Decals that not covered by MEL Chapter 11 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	Placards/decals that not covered by NEF Section 10.1 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.
10.4	Small plastic or decorative elements	D	May be lightly damaged, cracked or missing provided: a. It does not present hazard to pax/crew or impede emergency egress, b. It does not prevent the implementation of the necessary procedures.