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MEL Preamble

The following is applicable for authorized certificate holders operating under Title 14 Code of Federal Regulations (14 CFR) Parts 121, 125, 129, 135: 14 CFR 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 14 CFR 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 14 CFR (see TOPP 50-10-05). 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 14 CFR. 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.

Delta's MEL/CDL Authority and Scope

14 CFR provides for conditional deviations from the airworthiness of various systems and components for a given type of aircraft. These items are listed for each aircraft type in the FAA Approved Master Minimum Equipment List and FAA Approved Airplane Flight Manual. Delta develops and maintains a FAA-approved Minimum Equipment List (MEL) and Configuration Deviation List (CDL) as authorized for use in Delta's Operations Specifications D95 (see TOPP 20-00-05).

The intent of Delta's MEL/CDL is to permit aircraft operation with certain inoperative systems/components for a specified period of time until repairs can be accomplished. The MEL/CDL remains active until the necessary action is taken to correct the discrepancy, or until the MEL expiration has been reached.

Under no circumstances may an inoperative or missing system/component, which will affect the airworthiness of an aircraft, be deferred unless specifically authorized by the MEL, CDL or NEF for the type of aircraft involved. Any item not specifically covered in the MEL/CDL/NEF is a no-go item.

MEL and CDL requirements will specify the installation of an aircraft placard for affected system/components, and can impose restricted flight release and/or require repetitive checks.

Delta's MEL contains applicable items from the Master MEL and certain Administrative Control Items (ACI) which may not be listed in the Master MEL. The CDL also lists items that may be missing from the aircraft as contained in the Approved Airplane Flight Manual (AFM) Configuration Deviation List (CDL).

The provisions and limitations of the MEL/CDL are applicable for the "Dispatch" of an aircraft only. For the Delta MEL/CDL purposes, "Dispatch" is defined as the advancement of throttles for the purpose of taking off (takeoff event).

If a component or function becomes inoperative following the takeoff, the MEL/CDL does not apply. If the takeoff is aborted for any reason, the MEL/CDL provisions and limitations become applicable once again.

Revision Effectivity

The List of Effective Pages (LEPs) will have the stamp, date, and signature of the Principal Operation Inspector (Delta – Certificate Management Office) indicating FAA approval of the revision. The date of each individual page will be listed in the LEP body. The MCC Home Page will contain the official version of the MEL/CDL. All other copies will be updated within 21 days.

During the period that the revision is being processed for publication and distribution, the newly revised MEL/CDL may be used for dispatch provided it is ensured that a copy of the revised MEL/CDL page(s) is available to the affected aircraft (to be seen by the current and subsequent pilots) and other appropriate personnel.

A Temporary Revision (TR) may also be published to the MEL/CDL between normal revisions at the discretion of the MEL Program Manager, and will be permanently incorporated into the MEL/CDL at the next revision opportunity. TRs are printed on yellow paper with the effective date in the upper corner of each page, and are not reflected in the LEPs. A MEL revision or TR becomes effective on the date of approval by the FAA Principal Operations Inspector (Delta - Certificate Management Office). The CDL is derived from the AFM, and does not gain separate FAA approval.

If an MEL/CDL revision has been published that changes either the MEL/CDL item number, (M) procedures, (O) procedures, deactivation procedures, or expiration limit, the MEL/CDL restrictions and procedures that were in place at the time of deferral will remain in effect until the MEL/CDL is cleared or extended.

Change Requests

Personnel may request changes to the MEL/CDL by emailing: MELGroup, ATG088. To ensure proper routing of the request, please indicate aircraft type and attach any pertinent information. The MEL/CDL Program Manager will record all requests for consideration during the next routine revision cycle

Definitions

1. **Accessible Lavatory Items** - Under 14 CFR 382.63, accessible lavatory items include: ability to enter lavatory and maneuver by means of on-board wheelchair. The lavatory shall provide accessible door locks, call buttons, grab bars, faucets, other controls, and dispensers. As an air carrier, you must maintain all aircraft accessibility features in proper working order, per 14 CFR 382.71. The accessible lavatory requirement, in part, applies to aircraft with more than one aisle in which lavatories are provided per 382.63(a). Aircraft operators are not required to retrofit cabin interiors of existing aircraft to comply with the requirements of 382.63.
2. **Administrative Control Item (ACI)** - An item listed by the operator in the MEL for tracking and informational purposes. As an example, ACI may be used to track ETOPS accomplishment of required APU cold-soak, or in-flight verification starts on two engine aircraft. It may be added to an operator's MEL by approval of the Principal Operations Inspector provided no relief is granted, or provided conditions and limitations are contained in an approved document (i.e., Structural Repair Manual, Airworthiness Directive, etc.). If relief other than that granted by an approved document is sought for an administrative control item, a request must be submitted to the Administrator. If the request results in review and approval by the FOEB, the item becomes an MMEL item rather than an administrative control item.
3. **Airplane Flight Manual (AFM)** - The document required for type certification and approved by the responsible FAA Aircraft Certification Office. The FAA approved AFM for the specific aircraft is listed on the applicable Type Certificate Data Sheet. The approved flight manual is the source document for operational limitations and performance parameters for an aircraft.
4. **Autoland** – An autopilot coupled precision instrument approach to landing and rollout on those aircraft that are rollout equipped.
5. **CFR** – The applicable portions of the Code of Federal Regulations.
6. **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 shall 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.
7. **Contact MCC -** under NAME/DESCRIPTION means that the Maintenance Coordinator must be notified prior to takeoff. If the discrepancy is found prior to pushback, the Maintenance Coordinator must be notified before leaving the gate. This designation is for heightened awareness for certain MEL items requiring MCC review, but not requiring Flight Superintendent (Dispatcher) approval. For example, this statement can be used to alert MCC personnel to items that have short time deferral limits, (Category “A”’ “B”, items), repetitive maintenance checks, or items of high customer impact.
8. **Continuing Authorization (Single Extension)** – An aircraft operator who has the authorization to use an FAA – approved MEL may also have the authority to use a continuing authorization to approve a single (one-time) extension to the repair interval for category B or C items in accordance with Operations Specification D095. Continuing Authorization (Single Extension) is not authorized for repair category A and D items.
9. **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.
10. **Day** - means the time between the beginning of morning civil twilight and the end of evening civil twilight, or approximately 30 minutes before official local sunrise and 30 minutes after official local sunset.
11. **Day of Discovery** - The calendar day an equipment / instrument malfunction was recorded in the aircraft maintenance log and/or record. This day is excluded from the calendar days or flight days specified in the MMEL for the repair of an inoperative instrument and/or equipment item. This provision is applicable to all MMEL items, i.e., category's "A, B, C and D" and is based on UTC time (see MEL Instructions).
12. **Deactivated and Secured** - The specified component must be put into an acceptable condition for safe flight. An acceptable method of deactivating and securing will be established by the operator.

13. **DISP. APPR. REQ'D."** - Under NAME/DESCRIPTION, means that the approval of the controlling Flight Superintendent (Dispatcher) is required prior to takeoff. If the discrepancy is found prior to pushback, the approval must be received before leaving the gate. This approval is necessary to ensure that Flight Planning issues which result from this MEL/CDL item have been appropriately considered.
    Any of the following constitute Dispatcher approval:
    - The MEL item number and description are indicated on the Flight Plan.
    - The Captain has received an amended release adding the MEL item number and description.
    - The Dispatcher and the Captain have communicated by telephone or radio and have agreed on the conditions of the dispatch.
14. **Electronic Fault Alerting Systems** - New generation aircraft display system fault indications to the flight crew by use of computerized display systems. Each aircraft manufacturer has incorporated individual design philosophies in determining the data that would be represented. The following are customized definitions (specific to each manufacturer) to help determine the level of messages affecting the aircraft's dispatch status.
    For the B747, B757, B767, B777
    - 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 when required during accomplishment of a Lower Order Check, Job Instruction Card, etc.
    - The EICAS section of the MEL contains an EICAS Message List which includes System Alert (Warning, Caution, Advisory), Status level and Comm level messages and possible corresponding MEL relief.

    For the B717:
    - B717 aircraft are equipped with an alerting function which is a subsystem within the Electronic Instrument System (EIS). The alerting function provides various levels of system condition alerts (WARNING, CAUTION, ADVISORY, MAINTENANCE and STATUS). Alerts that affect aircraft dispatch will include WARNING, CAUTION, STATUS or MAINTENANCE level. MAINTENANCE alerts are displayed on the status page of the EIS display panel under the maintenance heading. A MAINTENANCE alert on the EIS indicates the presence of a system fault which can be identified by the Central Fault Display System (CFDS) interrogation. The systems are designed to be fault tolerant, however, for any MAINTENANCE alert, the MEL must be verified for dispatch purposes.
    - The EIS section of the MEL contains an EIS Message List which includes alert messages and possible corresponding MEL relief.

    For the A319/320/321, A330:
    - Airbus aircraft equipped with Electronic Centralized Aircraft Monitoring (ECAM) provide different levels of system condition messages {WARNING (red), CAUTION (amber)}. On A319/320/321 and A330, the ECAM STATUS page also provides MAINTENANCE STATUS messages.
    - Any message that affects airplane dispatch is displayed at the WARNING or CAUTION level. For A319/320/321, MAINTENANCE STATUS messages may also affect airplane dispatch.
    - System faults that result only in messages on the Central Maintenance System (CMS) (for A330) or on the Centralized Fault Display System (CFDS) (for A319/320/321) do not affect airplane dispatch and do not require action other than as addressed within the aircraft operator's standard maintenance program.

- The ECAM Messages section of the MEL contains an ECAM Message List which includes Class I (WARNING, CAUTION) and Class II (MAINTENANCE) status messages along with corresponding MEL relief.

15. **ER** or **ETOPS** - Refers to extended range operations for turbine–engine–powered passenger–carrying airplanes with two engines, whose flight planned routing contains a point farther than 60 minutes flying time from an adequate airport, computed using a one–engine–inoperative cruise speed under standard conditions in still air.
16. **ETO** deferral codes may be used when conditions occur where it becomes necessary to restrict ETOPS flight operations. In these cases, the MCC will determine the requirement for restricting the aircraft from ETOPS operations. Technicians at the station will be instructed by MCC to create a new log page in the aircraft logbook using the appropriate ETO deferral code. These deferrals will restrict the aircraft to either 60 minutes or 120 minutes. Refer to MEL Chapter 05 ER (ETOPS). This deferral code requires MCC authorization prior to its usage or removal.
17. **Extended Overwater Operation or Flight** - An operation overwater at a horizontal distance of more than 50 nautical miles from the nearest shoreline.
18. **Flight Cycle** - One aircraft takeoff and subsequent landing.
19. **Flight Day** - A 24 hour period (from midnight to midnight) using UTC time, during which at least one flight is initiated for the affected aircraft.
20. **Flight Hours** - The time from the moment an aircraft leaves the surface of the earth until it touches it at the next point of landing (i.e., takeoff to landing time). ”Flight hours” is identical to ”time in service” as defined in 14 CFR.
21. **Heavy Maintenance Visit (HMV)** - As used in this MEL is a scheduled L/H/M, PSV, HMV or C-check.
22. **Icing Conditions** - An atmospheric environment that may cause ice to form on the aircraft (Structural) or in the engine(s) (Induction).
    - **Aircraft (Structural) Icing** is present when the aircraft surface temperature is between 0 degrees C and –40 degrees C and visible moisture in any form is present (such as clouds, fog with visibility of one mile or less, rain, snow, sleet and ice crystals).
    - **Engine (Induction) Icing** is present when the OAT, TAT or RAT is 10 degrees C or below and visible moisture in any form is present (such as clouds, fog with visibility of one mile or less, rain, snow, sleet and ice crystals).
23. **Instrument Meteorological Conditions (IMC) –** Meteorological conditions such as to require the flight to be conducted under Instrument Flight Rules.
24. **Inoperative** - When a system and/or component malfunctions to the extent that it does not accomplish its intended purpose and/or is not consistently functioning normally within its approved operating limit(s) or tolerance(s).
25. **Inoperative components of an inoperative system** - Inoperative instrument and equipment items, which are components of a system which 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).
26. **Is not used** – As stated in the provisos, remarks or exceptions for an MMEL instrument or equipment item may specify that another item relieved in the MMEL “is not used.” In such cases, crewmembers must not activate, actuate, or otherwise utilize that component or system under normal operations. It is not necessary for aircraft operators to accomplish the (M) procedures 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.
27. **Known or Forecast Windshear Conditions:**
    - Occurring at or below 1,000 feet,
      AND
    - Resulting in a loss or gain of greater than 15 knots indicated airspeed.

28. **LLM –** The definition of LLM when used in this manual is as follows:
    A. The FAA approves CAT II/III OpSpec's which allow aircraft to land in reduced weather minimums or Lower Landing Minimums (LLM). The LLM program allows an aircraft to be dispatched to Category II and/or III conditions as outlined in the aircraft Minimum Equipment List. The aircraft Auto Flight System may be utilized for LLM CAT I operations, or in some cases, CAT II and/or CAT III, depending on the item. The CAT II/III restriction will be noted in the MEL/CDL.
    B. The LLM CAT II/III status of an aircraft may be deferred and placarded by using the MEL deferral code. Several examples of where an LLM deferral will be implemented are:
        1) Aircraft was returned to service after unsuccessful autoland, but maintenance procedures were accomplished by non-Auto Flight Qualified (AFQ) authorized personnel which downgraded the aircraft from CATIII.
        2) An Autoflight system has had similar repetitive discrepancies.
        3) The scheduled auto land system check has not been accomplished.
    C. The LLM deferral code requires MCC authorization prior to its usage or removal. The aircraft LLM status is upgraded to CAT III by using maintenance procedures which must be accomplished by AFQ authorized personnel allowing removal of the LLM deferral.
    D. The following definitions should be used when making MEL compliance or aircraft equipage decisions prior to the dispatch event. Equipment failures that occur after that event will be referenced in the appropriate AOM (ILS Airborne Equipment Requirements). The values referenced below are not intended to reduce the minimum values published on any approach chart or reduce any crew qualification restriction.
        1) Basic Turbojet Minimums - A precision or non-precision approach to no less than RVR 4000 (1200m) or ¾ SM (1200m) visibility, and a DH of no less than 200 ft or MDH of no less than 250 ft Category I Non-ILS - A non-precision approach to no less than RVR 2400 (550m) or ½ SM (800m) visibility, and a MDH of no less than 250 ft.
        2) Category I ILS - A precision approach to no less than RVR 1800 (550m) or ½ SM (800m) visibility, and a DH of no less than 200 ft.
        3) Category II - A precision approach to no less than RVR 1000 (300m) and a DH of no less than 100 ft. (Autoland required)
        4) Category III - A precision approach to no less than RVR 300 (75m) and an AH of no less than 50 ft. (Autoland required)
29. **Local calendar day** - Means a 24-hour period (from midnight to midnight local time).
30. **(M) PROCEDURES** - The "(M)" 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. Other personnel may include, but are not limited to Aircraft Maintenance Technicians, Flight Crews and Ramp Personnel. 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 [(M) PROCEDURES], regardless of who performs them, is the responsibility of the operator. Appropriate procedures are published in this MEL.
31. **Non-Combustible Materials** - Materials that will not take fire and burn, ignite, support combustion or give off flammable vapors (e.g., sand).
32. **Nonessential Equipment and Furnishings (NEF)** - Items installed on the aircraft as part of the original type certification, supplemental type certificate, 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. These nonessential items may be installed in areas including, but not limited to, lavatories, and galley areas. 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. See TOPP 40-40-08

33. **Notes** - As found under the "REMARKS or EXCEPTIONS" column provide additional information for flight crew, maintenance, or other personnel. 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 provisos.
34. **(O) PROCEDURES** - The “(O)” 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 flight crew (pilots); 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 operator. Appropriate procedures are published in this MEL/CDL.
35. **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 MEL item specifies that an item of equipment must be operative, it does not mean that its operational status must be verified; it is to be considered operative unless reported or known to be malfunctioning. When an MEL 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 MEL item. When an MEL 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 MEL is “operates normally”, “fully operative”, and “considered operative”.
36. **Proviso –** Conditions or limitations that must be complied with for operation with the listed instrument or equipment item inoperative. Provisos are indicated by a number or a lower case letter in “Remarks or Exceptions”.
37. **RNP-5 Status** (BRNAV) - Deferral code may be used when it is determined that RNP-5 (BRNAV) airspace operations cannot be used and no specific MEL relief applies. This deferral code requires MCC authorization prior to its usage or removal
38. **RNP-10 Status -** Deferral code that may be used when it is determined that RNP-10 airspace operations cannot be used and no specific MEL relief applies. This deferral code requires MCC authorization prior to its usage or removal.
39. **RVSM Status** - Deferral code may be used when it is determined that RVSM operations cannot be used, no specific MEL relief applies and the aircraft must remain at or below FL280. This deferral code requires MCC authorization prior to its usage or removal.
40. **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 for the purpose of taking flight.
41. **Time In Service** - Means the time from the moment an aircraft leaves the surface of the earth until it touches it at the next point of landing (as defined in 14 CFR). “Time In Service” is identical to “Flight Hours” (as defined in 14 CFR).
42. A **vertical bar (change bar)** - Indicates a change, addition or deletion in the adjacent text for the current revision of that page only. The change bar is dropped at the next revision of that page.
43. **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.
44. **Visual Flight Rules (VFR)** - Is as defined in 14 CFR. This precludes a pilot from filing an Instrument Flight Rules (IFR) flight plan.
45. **Visual Meteorological Conditions (VMC)** – When 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.

MEL/CDL Format

The ATA System Page is divided into six (6) columns and contains: Item Number and Name/Description, Flight Crew May Placard, Number Installed, Number Required for Dispatch, Repair Category, and Remarks or Exceptions. The units on the Minimum Equipment List/Configuration Deviation List (MEL/CDL) are presented in accordance with the ATA chapter numbering system, and are coded by a six digit number. Under each ATA chapter code, the units are listed in a column by numerical sequence.

Within the complete MEL/CDL item, each associated sub-item is designated by a letter after each item number (24-00-01A, 24-00-01B, etc.). A sub-item may denote one or more of the following:

- Two or more alternatives available for dispatch ("or" item)
- Sub-system(s) of the Main MEL/CDL item
- Aircraft group applicability
- Types of operation for the MEL/CDL item (icing, no-icing, etc.)

The following provides an explanation of the scope and use of each of the columns as titled:

			(4) NUMBER INSTALLED	NUMBER REQUIRED FOR DISPATCH (5)	
		(3) FLIGHT CREW MAY PLACARD		REPAIR CATEGORY (6)	
(1) ITEM NO.	(2) NAME/DESCRIPTION				REMARKS OR EXCEPTIONS (7)
21-00-XX	Air Conditioning Packs **"DISP.APPR.REQ'D."**	Y	2	0	C (8) **(M)(O)** Both may be inoperative provided flight is conducted in an unpressurized configuration.

1. ITEM NO. - This column lists the MEL/CDL Number in ATA Number format.
2. NAME/DESCRIPTION - Below the manufacturer's name of an item, the commonly used terminology for an item may be included in parenthesis. The term "DISP. APPR. REQ'D." in this column is explained in the section, MEL Definitions. The term “Contact MCC” is explained in the section, MEL Definitions. When aircraft numbers or types (e.g. -700 aircraft) are specified in this column, it signifies the applicability of the relief to these aircraft only. However, if no aircraft numbers or types are specified, the relief applies to all the aircraft in that fleet. When applicability is specified by AA compliance, the MCC should be contacted to determine AA completion status for the affected aircraft.
3. FLIGHT CREW MAY PLACARD - This column serves as additional reference to the pilots for items that qualify for Flight Crew Placarding. These items will be identified by the letter “Y”. Items NOT available for Flight Crew Placarding will be identified by the letter “N”. See Placarding Procedures.

   A “Y” in the Flight Crew May Placard column indicates all (M) or (O) PROCEDURES for that item may be performed or managed by the pilots (see MEL Definitions).
4. NUMBER INSTALLED - This column serves as a reference to the number of units installed on the aircraft. The number in this column will also be equal to or greater than the requirements in column five (Number Required For Dispatch).
5. NUMBER REQUIRED FOR DISPATCH - This column depicts the minimum number (quantity) of instrument and equipment items required for operation provided the conditions specified in the “Remarks or Exceptions” column are met.

NOTE: Reference 4 and 5: When a specific number of units installed / required for dispatch cannot be determined due to the numerous fleet configurations, a dash (-) will be shown in the column and the special limitations will be shown under REMARKS or EXCEPTIONS Column.

6. REPAIR CATEGORY - This column denotes the repair category of the item. The timing for each category item is listed below. Items which are without a category identifier are either Administrative or CDL items and may be inoperative without limit as noted in the REMARKS or EXCEPTIONS column.

   Category "A" - Items in this category shall be repaired within the time interval specified in the REMARKS or EXCEPTIONS column of the operator's approved MEL. For time intervals specified in "calendar days" or "flight days," the day the malfunction was recorded in the aircraft logbook is excluded. For all other time intervals (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.
   NOTE: Category "A" items are marked with background shading to highlight their significance.

   Category "B" - Items in this category shall be repaired within three (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 three day interval would begin at midnight on the 26th and end at midnight the 29th.

   Category "C" - Items in this category shall be repaired within ten (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.

   Category "D" - Items in this category shall be repaired within one hundred twenty (120) consecutive calendar days (2880 hours), excluding the day the malfunction was recorded in the Aircraft Maintenance Record / Logbook.

   NOTE 1: Category "A" and "D" items cannot be extended beyond the maximum repair interval as specified in the Minimum Equipment List (MEL).

   NOTE 2: Category "B" and "C" items can be extended by the Shift Manager – MCC (see MEL Extensions).

7. REMARKS or EXCEPTIONS – This column may include a statement(s) either prohibiting or permitting operation with a specific number of instrument and equipment items inoperative, provisos (conditions and limitations) for such operation, appropriate notes, and repetitive check (see Repetitive Checks, this manual). Specific procedures which must be accomplished with the listed item inoperative are indicated by "(M)" and/or "(O)" symbols. The function of the (M) and (O) symbols is to denote that a procedure exists which must be conducted, and not to necessarily identify who accomplishes the procedure. The (M) and (O) PROCEDURE(s) will be listed in their entirety below the MEL item along with the applicable graphics and performance corrections, if any.

8. **(M) and (O) PROCEDURES** - Manufacturer's Procedures Manuals are used as a baseline to develop the procedures found in Delta's MEL/CDLs. The procedures found in manufacturer's Procedures Manuals are recommended by the manufacturer and are intended to be used as guidance for the operator in development of their own procedures. The MEL Program Group has the responsibility for developing all applicable (M) and (O) Procedures found in Delta MEL/CDLs (see TOPP 30-20-20).

   The (M) and (O) Procedures found in Delta MEL/CDLs may require accomplishment of various routine maintenance and/or pilot actions. In order to keep the size of MEL/CDLs manageable, normal procedures and associated warnings related to activating/deactivating aircraft electrical, pneumatic and hydraulic systems, operating flight controls or engines, etc., are not reproduced in Delta MEL/CDL (M) or (O) Procedures. These normal procedures and precautions are found in applicable TOPP documents, Aircraft Maintenance Manuals, Operations Manuals, Quick Reference Handbook, FOM, etc., and must be followed when accomplishing (M) and/or (O) Procedures.

For MEL items that restrict cargo loading (bin empty or only empty cargo handling equipment, ballast and fly-away kits), only the items listed below are approved for carriage in the affected bin(s).

- Ballast sand bags (bulk loaded or in ULDs)
- Empty ULDs (containers and/or metal pallets)
- CRAF Mission Fly-Away-Kits (contents listed below)

Main Wheel Assy (2 ea)	IDG Service Pot	WXR Trans
Nose Wheel Assy (2 ea)	Starter	MMR
85 Ton Jack (2 ea)	Start Valve	Radio Altimeter
Tire Dolly	ELMs Relay (3ea)	APU Battery
Torque Wrench	Ram Air Door Hinge (2 ea)	Battery Charger
MLG/NLG Socket	Ram Air Door Plate	Contactor
Oil Case (2 ea)	HF Trans	Engine A/I Valve

NOTE 1: Aircraft /APU battery and containers of hydraulic fluid (Skydrol), oil, and servicing equipment that contain fluids, must be removed from the fly-away kit and located within an operative bin.

NOTE 2: Verify Main and Nose Wheels are inflated to minimum shipping pressure of 50 psi.

Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials as listed above.

MEL Videos

Within the (M) PROCEDURES throughout the MEL you may find the following icon and text.

Link to Learning Video – (Example: 36-11-02A)

This icon will link the user to a TechOps Learning Video. It is not a mandatory requirement of the (M) PROCEDURES that the Learning Video be viewed.

The “Intro to the MEL” video below does not supersede the MEL Front Matter. It is not intended to be a substitute for the instructions in the MEL Front Matter or any referenced TOPP documents.

Link to Learning Video

Disclaimer

Learning videos are intended to communicate basic ideas and concepts, and are not a substitute for approved manuals and work documents. Always refer to approved, controlled documentation or other stated reference material for the latest information when performing any maintenance or operations procedures.

Repetitive Check Requirements

The REMARKS or EXCEPTIONS column of some MEL/CDL items is annotated with “Repetitive Check Required (Yellow Placard)”. A yellow placard will be installed as stated in the Placard Types section, and the Captain must ensure that required repetitive checks are accomplished by the appropriate personnel per the instructions for the MEL.

NOTE: At non-maintenance stations where a pilot is not qualified to accomplish the check, contact the Maintenance Coordinator or ACS personnel per TOPP 40-20-15 and the FOM for help in procuring contract maintenance.

The four Repetitive Checks are:

A. PRIOR TO EACH DEPARTURE

It is the Captain’s responsibility to manage these items by either checking the item himself or by advising Maintenance personnel a check is required. Enter the check into the Aircraft Log Book when “Log Book Entry Required” is listed in the MEL/CDL item.

NOTE: If a takeoff is aborted, the captain determines if it is necessary to repeat this type of check.

B. ONCE EACH FLIGHT DAY

The ONCE EACH FLIGHT DAY check is normally accomplished during a layover, but may be accomplished at any station as long as it is accomplished once each flight day. Enter the check into the Aircraft Log Book. The Repetitive Check is accomplished when the item is deferred on the ‘Day of Discovery’ (see Definitions), and fulfills the requirement of the Repetitive Check for that flight day.

C. PRIOR TO THE FIRST FLIGHT OF THE DAY

The check must be entered into the Aircraft Log Book as being accomplished per MEL/CDL requirement.

D. CONDITIONAL REPETITIVE CHECK

The MEL/CDL Remarks or Exceptions column may specify conditional repetitive check requirements, i.e., “BEFORE ENGINE START” or “AFTER FLIGHT CONTROL CHECK.” The Remarks or Exceptions column for these MEL/CDL items will be annotated with “Repetitive Check Required (Yellow Placard)” and may require a logbook entry.

Placard Instruction Table

The following instructions are applicable to the MEL/CDL placard tables. 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 as specified in the TAB LOCATION column. When the Tab Location column states N/A, no tab is required.

❶ MEL/CDL ITEM	❷ TAB LOCATION	❹ PLACARD TEXT
34-00-xx	1. #1 Radio Altimeter Indicator 2. GPWS Switch	1. #1 Radio Altimer Indicator INOP 2. GPWS INOP

MEL/CDL ITEM	TAB LOCATION	PLACARD TEXT
21-00-XX	❸ Associated Pack Switch	❺ ____ Air Conditioning Pack INOP

❶	MEL/CDL ITEM - Lists the specific MEL/CDL item number.
❷	TAB LOCATION - Place the TAB on or adjacent to the listed switch, indicator, lever, etc., that controls the inoperative unit/system. Multiple TAB locations may be listed for one MEL/CDL item and will be listed numerically in this column as indicated in the above example. When multiple TABs are required, use tabs from additional Aircraft Placards and discard the large unused portion of the placard. Record the same Log No. on each TAB. Place a TAB at each listed location.
❸	The term "associated" or "affected" may appear in this column. For example, with a *left* pack inoperative, the "associated" pack switch is the *left* switch; with a *left* boost pump LOW PRESSURE light inoperatie, the "affected" LOW PRESSURE light is the *left* light. Place the TAB(s) on or adjacent to the associated or affected item(s) listed in this column.
❹	PLACARD TEXT - A description of the inoperative unit/system to be recorded on the large portion of the Aircraft Placard that is placed in the Aircraft Log Book. Failures of certain systems may cause other systems to be inoperative or require other systems to be considered inoperative. All affected systems will be listed numerically in this column as indicated in the above example. All listed systems are to be recorded on a single Placard. NOTE: Commonly used terms or abbreviations may be substituted for TEXT listed in this column. Additional information that will enhance Flight Crew and Maintenance awareness of the inoperative system/component may be included at the discretion of the individual installing the Placard.
❺	When there are multiple units or components within a system, a space (_____) will be included in this column indicating a descriptive term or position (i.e., left, right, #1, #2, forward, aft, upper, lower, etc.) must be recorded on the placard in addition to the PLACARD TEXT.

Placard Types

All deferred MEL/CDL items require a Placard to be installed. Placards for the affected item should be located as specified in the TAB LOCATION column.

The following placards are used by both pilots and maintenance personnel:

A. **White Placard** - The MEL Placard, form 0412-40441, serves as a visual indication to Maintenance personnel and flight crews that a unit or system on the aircraft is inoperative, missing, or restricted to limited operation. The white placard is used for all MEL/CDL items and other deferred items which do not require a Repetitive Check.
   - A placard may also be installed to give advisory information to the pilots about a particular item, such as recent maintenance performed on aircraft systems or major components.
   - On all advisory or information placards, use the white placard and write “N/A” in the MEL Reference Block.
   - In some instances, it is necessary to notify Maintenance personnel and flight crews of special installations or engineering modifications that have been accomplished on a particular aircraft. An information placard or Project Operation and Maintenance Information Form (EP-19) placed in the Aircraft Log Book can be used to accomplish this notification.
   - If an EP-19 Form is used, it will be placed inside a clear plastic sleeve located in the Aircraft Log Book.

B. **Yellow Placard** - The MEL Placard, form 0412-40512, also provides a visual indication to advise Maintenance personnel and pilots that a unit or system is inoperative, missing, or restricted to limited operation and that a “Repetitive Check” is required. The MEL/CDL will state, in capital letters, when the checks are required. For those MEL/CDL items that require repetitive checks (i.e., “Prior to Each Departure,” “Prior to the First Flight of the Day,” “Once Each Flight Day”, or “Conditional Repetitive Check”), a yellow placard must be installed to advise downline Maintenance personnel and the captain of the repetitive check requirement. Yellow placards may also be used for items deferred per the Maintenance Manual or other approved manuals which require a repetitive check (e.g., fluid leaks).

C. **Use of Red Tape Placard** - While the tape placard is designed primarily for use in placarding passenger seats as unserviceable, it may be used to placard other unserviceable cabin equipment, such as lavatories. Additionally, the tape placard may be used in conjunction with a “placard” as an attention-getting device. When used in this manner, the “PLACARD” tab shall be affixed to the face of the tape placard.

Performance Instructions

The enroute performance penalties in this MEL/CDL are applied to all flights by the Flight Control Dispatcher when analyzing the flight plan using the FPS flight planning system. The penalty is entered as an Enroute Driftdown Penalty in FPS and applied in FPS by increasing the weight of the aircraft by the penalty amount. The flight planning system will then access the driftdown tables at the penalized, increased weight to determine the driftdown weight limit. One-engine inoperative performance limitations (under FAR 121.191) will be applied where most restrictive. Transoceanic operations are conducted under ETOPS rules and use the same MEL performance penalty method.

A sample Performance Correction for a MEL item is shown below. The contents of the Performance Correction box should be used in conjunction with the other limitations and procedures in the MEL for the applicable dispatch. A quick-reference guide to the Performance Correction is provided below. It is important to note that items appearing above the double line should be considered by all users including the flight crew and dispatcher. Items below the double line are primarily for flight crew or LCC use. Use the appropriate box depending on the type of Weight Data Record (WDR) generated.

NOTE: The Performance Correction shown below is provided for training purposes only and should not be used for MEL 21-25-01A. Additionally, the sample MEL item below may not reflect the most current information.

Example:

1	**21-25-01A**	**Right Recirculation Fan**
2	EFFECTIVITY	**All**
3	FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 0.3%.
4	NOTES	None
5	**AWABS**	Performance corrections have been applied.
6	TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

1. MEL/CDL Number and Title.

2. Effectivity: Aircraft affected by the subject MEL/CDL item.

3. Flight Planning Requirements: Requirements that must be taken into account prior to the flight.
   - These items will be the responsibility of the dispatcher and must be taken into account prior to the flight.
   - Examples of Flight Planning Requirements can be, but are not limited to, Enroute Climb Limit Weight or Block Fuel adjustments.

4. Notes: Other pertinent information applicable to this MEL item.

5. AWABS: Contains information regarding functionality applied by AWABS. One of the two following statements will be published:
   - “Performance corrections have been applied” indicates that the AWABS document contains all applicable MEL adjustments and that no further Flight Crew action is required.

- "Performance weight corrections have been applied" indicates that only the weights listed on the AWABS document contain the applicable MEL/CDL adjustments. This statement is followed by a specific action (or actions) required by the Flight Crew. Example – "Performance weight corrections have been applied. Reduce V1 by 3 KIAS." These statements advise that the performance weight corrections have been applied by AWABS, but the Flight Crew must reduce the V1 noted on the AWABS document by 3 KIAS.

6. Takeoff Performance Worksheet: LCC (Load Control Center) will complete this Worksheet (including performance corrections shown in this section) and a copy will be provided to the flight crew when dispatched with a Manual WDR. This section contains three subsections: Takeoff, Landing, and Other Corrections. The section titled "Other Corrections" will only appear if other corrections are to be performed.

   NOTE: Performance decrements specified in this section of the performance box are simplified and conservative for the manual computation of takeoff and landing limit weights. AWABS produces more precise weights based on runway length and obstacles. Therefore, comparing AWABS documents with and without an MEL item will frequently produce significantly different results than weights specified in the Takeoff Performance Worksheet section of the performance box.

   TAKEOFF

   - Runway Allowable Takeoff Weight adjustment.
   - Takeoff Climb Limit Weight adjustment.

   LANDING

   - Runway Allowable Landing Weight adjustment.
   - Approach/Landing Climb Limit Weight adjustment.
   - Maximum Quick Turnaround Landing Weight adjustment.

   OTHER CORRECTIONS

   - V-speed adjustments.
   - Landing speed adjustments.
   - EPR or N1 adjustments.

MEL/CDL Use (Maintenance)

During Service Checks maintenance personnel will review the aircraft log book for the previous 10 days to ensure any open MEL deferrals are active in LMOS, reference the service check AMDS work card for each fleet. Maintenance personnel will call the MCC in ATL at 404-715-0088 (ext. 5-0088) or 1-800-DELTAMC (1-800-335-8262) immediately if any open MEL/CDL item is not listed on the current MEL/CDL Item List (tran code MEL).

NOTE: If it is determined that a Repair Category 'A' item cannot be cleared prior to flight release from layover, the mechanic assigned to the aircraft must call Aircraft Routing, ATL, ext. 5-0222, to determine if there is sufficient flight time remaining to allow the aircraft to reach the next layover, or to reach a station where the repairs can be accomplished.

To document an MEL/CDL item in the log book and install the appropriate placard, Delta AMTs or contract maintenance vendors, under the guidance of MCC, must adhere to the following procedure:

1. When an irregularity is found, verify that the item is not already deferred (do not duplicate a log book entry). Document the irregularity in the aircraft log book in accordance with TOPP 50-10-05.

2. Determine if the item is in the MEL/CDL. If not, contact the MCC through Dispatch to determine if the item qualifies for deferral as NEF (see TOPP 40-40-08), or some other deferral method.

3. Determine that other deferred items do not require this item to be operational. If so, contact the MCC before continuing.

4. If required by the item, Contact Dispatch or MCC to gain authority to defer the item.

5. Accomplish all (M) procedures and instructions noted under the Remarks and Exceptions column in the MEL/CDL.

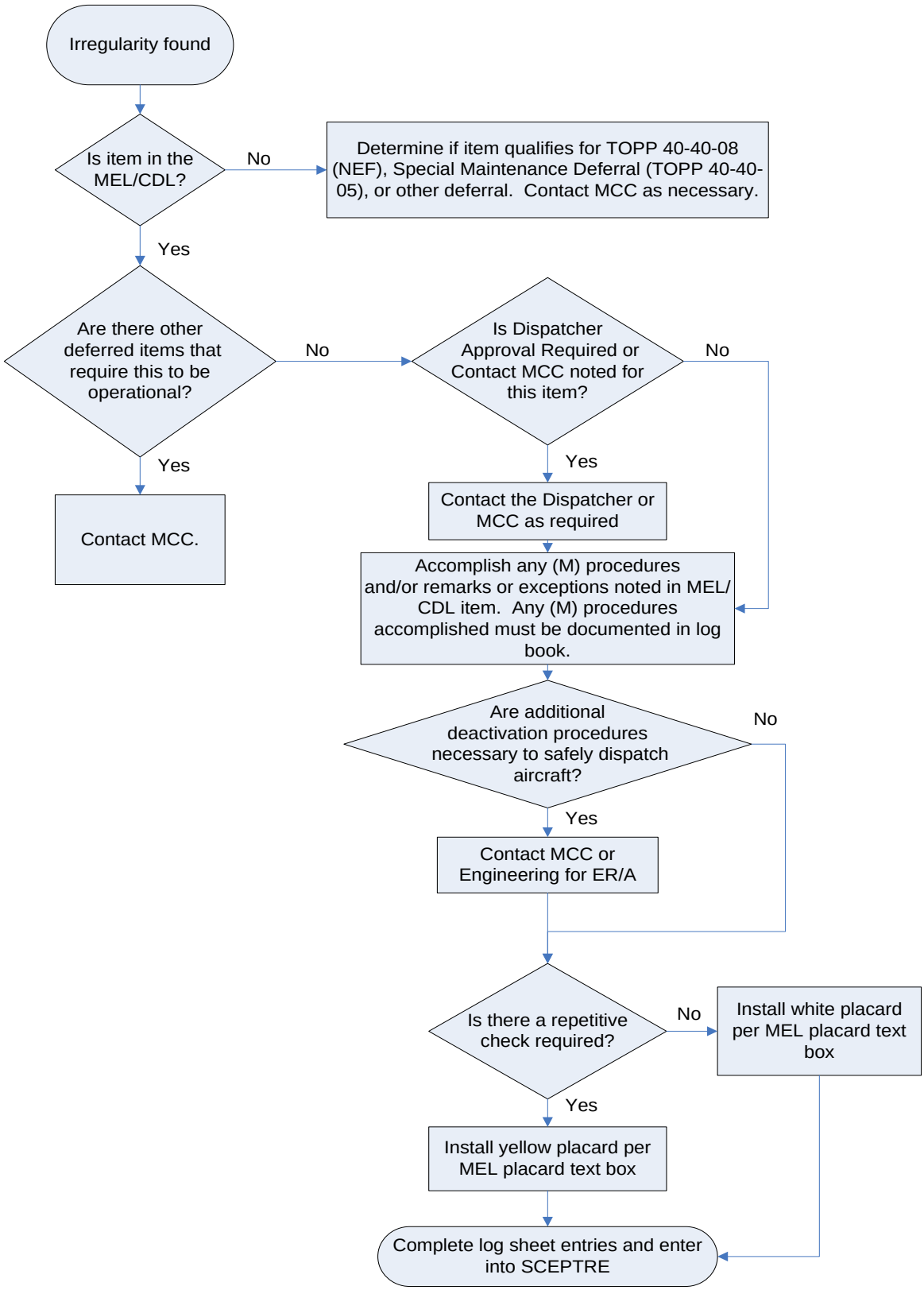
   If a procedure requires a circuit breaker(s) to be pulled and secured, use the orange circuit breaker collar(s). If orange collars are not available, secure the required circuit breaker(s) via alternate means (e.g., Tyrap or other positive securing means) and annotate in the IRO section of the log book, "Missing orange CB collar(s)".

6. If any additional deactivation is required to safely dispatch the aircraft, contact MCC or Engineering for authority and documentation. Record all actions in the log book and install a placard.

7. Determine if a Repetitive Check is required. If so, install a yellow placard according to the MEL placard text box. If the repetitive check is an (M) procedure, comply with check in accordance with instructions.

8. If item does not require a Repetitive Check, install white placard according to the MEL placard text box (see Placarding Instructions, this manual).

9. Enter "Deferred per MEL/CDL xx-xx-xx" in the IRO section of the log book. If the MEL/CDL deferral includes a (M) procedure, compliance must be documented in the IRO section (example: (M) procedures complied with)


Irregularity found
Is item in the MEL/CDL?
No
Determine if item qualifies for TOPP 40-40-08 (NEF), Special Maintenance Deferral (TOPP 40-40-05), or other deferral. Contact MCC as necessary.
Yes
Are there other deferred items that require this to be operational?
No
Is Dispatcher Approval Required or Contact MCC noted for this item?
No
Yes
Contact MCC.
Yes
Contact the Dispatcher or MCC as required
Accomplish any (M) procedures and/or remarks or exceptions noted in MEL/CDL item. Any (M) procedures accomplished must be documented in log book.
Are additional deactivation procedures necessary to safely dispatch aircraft?
No
Yes
Contact MCC or Engineering for ER/A
Is there a repetitive check required?
No
Install white placard per MEL placard text box
Yes
Install yellow placard per MEL placard text box
Complete log sheet entries and enter into SCEPTRE

MEL/CDL Use (Pilots)

The MEL/CDL must be reviewed by the flight crew prior to flight to ensure compliance with all limitations and/or procedures associated with each deferred item. Systems/components deferred per the MEL will not be activated, actuated or otherwise utilized under normal operations. Elements, features or functions of deferred systems must not be used if their use will adversely affect the safe operation of the aircraft.

Pilots may document and install the appropriate placard when the MEL/CDL item denotes a 'Y' in the 'Flight Crew may Placard' columns, or when authorized under the NEF Program (see TOPP 40-40-08). In this case, the pilots may perform any required (M) or (O) procedures. To document an MEL/CDL item, the pilot must take the following actions:

1. When an irregularity is found, comply with the QRH Abnormal procedure if required. Verify that the item is not already deferred. Do not duplicate a log book entry.

2. Determine if the item is in the MEL/CDL. If not, contact the MCC through Dispatch to determine if the item qualifies for deferral as NEF (see TOPP 40-40-08), Continue in Service (TOPP 40-40-05), or other deferral method.

3. If the item is in the MEL/CDL, determine if the item contains a 'Y' under the Flight Crew May Placard column. If there is not a 'Y', contact the MCC through Dispatch and return to the gate if already pushed. Maintenance will repair or defer the item. Revalidate or obtain a new Flight Release as necessary.

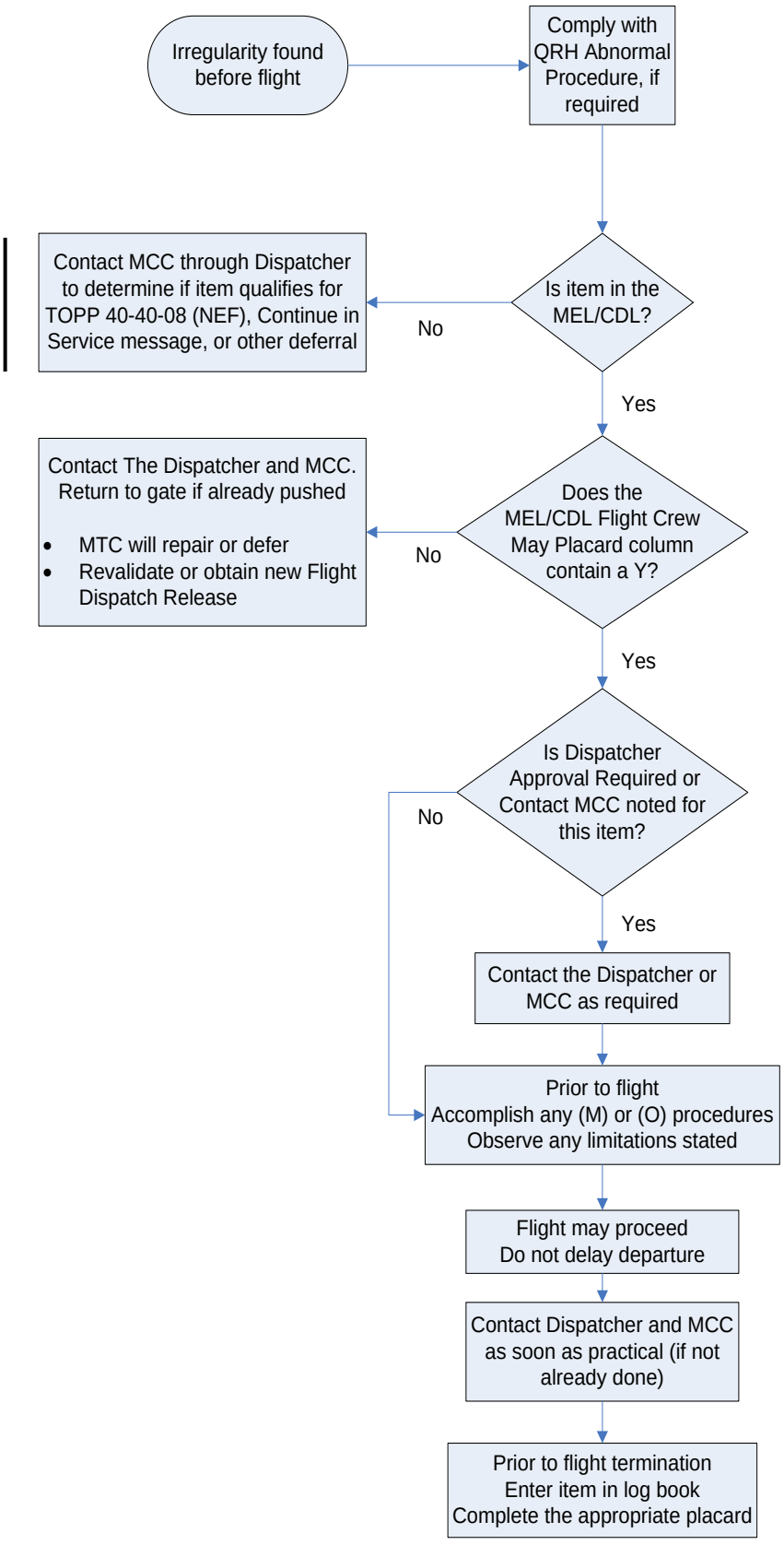
4. If the item contains a 'Y', determine if "Dispatch Approval Required" or "Contact MCC" is indicated. Contact Dispatch and/or MCC as required.

5. Prior to flight, accomplish all (M) and (O) procedures and any instructions noted for the item under the Remarks and Exception column in the MEL/CDL and observe any restrictions or limitations.

   If a procedure requires a circuit breaker(s) to be pulled and secured, use the orange circuit breaker collar(s). If orange collars are not available, secure the required circuit breaker(s) via alternate means (e.g., Tyrap or other positive securing means) and annotate in the IRO section of the log book, "Missing orange CB collar(s)" next to the "Flight crew installed placard at XXX." remark.

6. The flight may proceed without delay. Contact Dispatcher and MCC as soon as practical (if not already done). Logbook entry (see TOPP 50-10-05) and placard (see Placard Instruction Table, this manual) must be completed prior to flight termination as follows:

   The log book must have the discrepancy written in the IRF block. Under the direction of MCC, complete the IRO "Correction/Deferral" portion of the Aircraft Maintenance Log. Flight crews completing the deferral will enter the phrase, "Flight Crew Placard Installed at (station) per MEL (xx-xx-xx) followed by the captain's title, name, six digit employee number, the Maintenance Coordinator's title, name, and six digit employee number in the IRO block. The Mech. Signature or SIGNATURE block will be signed by the AMT.


Irregularity found before flight
Comply with QRH Abnormal Procedure, if required
Is item in the MEL/CDL?
No
Contact MCC through Dispatcher to determine if item qualifies for TOPP 40-40-08 (NEF), Continue in Service message, or other deferral
Yes
Does the MEL/CDL Flight Crew May Placard column contain a Y?
No
Contact The Dispatcher and MCC. Return to gate if already pushed
MTC will repair or defer
Revalidate or obtain new Flight Dispatch Release
Yes
Is Dispatcher Approval Required or Contact MCC noted for this item?
No
Yes
Contact the Dispatcher or MCC as required
Prior to flight
Accomplish any (M) or (O) procedures
Observe any limitations stated
Flight may proceed
Do not delay departure
Contact Dispatcher and MCC as soon as practical (if not already done)
Prior to flight termination
Enter item in log book
Complete the appropriate placard

MEL Expiration

1. Expiration dates/times are based on UTC time. Under normal circumstances the aircraft must arrive at the destination station prior to midnight of the expiration date (UTC time). This applies to all Category A, B, C, and D items. If the aircraft cannot arrive at the destination station prior to midnight, due to an unexpected delay (maintenance, flight exception, weather, ATC flow control, etc.), the MCC Shift Manager may approve the flight departure provided the aircraft departs (departs for this policy means an "OUT" time has been sent or all doors closed) prior to midnight (UTC time) of the expiration date. In the event of any additional unexpected delay (ATB, DIV, RTB, etc.), the aircraft may still depart (depart for this policy means an "OUT" time has been sent or all doors closed) prior to midnight (UTC time) of the expiration date. If the delayed departure time is expected to be after midnight, the item must either be repaired, or reviewed by the MCC Shift Manager for possible extension (Category B, C) prior to further revenue flight.

2. The Captain and the Maintenance Coordinator have joint responsibility to ensure that MEL expiration periods are not exceeded for MEL/CDL Category B, C and D items. The MCC is solely responsible for monitoring the expiration of Category A items and non-MEL items. The MEL serves as the primary reference source for category and expiration period guidance.
   - The expiration period of category “A” items is defined as the time interval specified in the REMARKS or EXCEPTIONS column of the operator's approved MEL/CDL. For time intervals specified in “flight days,” the day the malfunction was recorded in the aircraft logbook is excluded. For all other time intervals (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/CDL.
   - The MEL/CDL should always be consulted regarding limitations and restrictions. The flight plan MEL/CDL expiration information should be used as a cross-check, not a substitute, for reviewing the MEL/CDL. If any MEL/CDL item in the log book is not listed in the flight plan, check the MEL for its category and expiration period based on the “Day of Discovery” (see *MEL Definitions*).
   - The Captain shall contact the MCC in accordance with the FOM with any questions concerning MEL currency

MEL/CDL Category	MEL/CDL Expiration Time	Extendible?	Who is responsible for MEL/CDL currency?
A	Time interval specified in MEL	No	MCC
B	3 Days	Yes	Pilot and MCC
C	10 Days	Yes	Pilot and MCC
D	120 Days	No	Pilot and MCC
N/A[1]	Item specific (Not in MEL)	Item specific (Not in MEL)	MCC

[1]NOTE: A MEL placard may be placed in the logbook which identifies other components / systems not specifically referenced in the MEL. This is done for administrative tracking purposes. These items do not have a MEL Number and the placard MEL/CDL Reference Number block will indicate “N/A” (not applicable). The Captain is not responsible for verification of the expiration period for this type of entry.

3. The MEL/CDL references and expiration dates/times will be listed in the "FLIGHT CONTROL & MAINTENANCE REMARKS" section of the Delta Flight Plan to help verify MEL/CDL information and currency.

   The following examples show how MEL/CDL information will appear on the flight plan:

   Category A items

   M78-34-01 REVERSER UNLOCK INDIC/AMBER U/L/--1INOP
   **CATEGORY A MEL

   Category B, C and D items

   M32-46-01C TIRE PRESSURE INDICATIONS - UP TO 12 INOP
   MEL EXPIRATION DATE - 20MAR95 AT 2400 UTC

Extensions of Expiration Date

When a B or C category item has expired and cannot be cleared prior to the next flight release, the appropriate Maintenance Coordinator - MCC must be contacted for possible extension approval. Refer to TOPP 40-40-05 for instructions on MEL extensions

Removal of a Deferral

When documenting the removal of a MEL/CDL deferral in the IRO section of the log page, indicate the action(s) taken to reactivate previously deactivated systems/components, and a statement that the item is cleared (system reactivated and placard removed).

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RNAV Minimum Requirements

The chart below should be used when making MEL compliance or aircraft equipage decisions prior to the dispatch event (see Introduction, Delta's MEL Policy and Scope, Paragraph B., MEL Effectivity). Equipment failures that occur after that event will be referenced in the OM (Operations Manual Volume 1). The values referenced below are not intended to reduce the minimum values published on any approach chart or reduce any crew qualification restriction.

To use the chart, locate the MEL number for the system deferred. Read the columns to the right of the appropriate MEL number to determine the number of systems required for the type of operation under consideration.

MEL Item Deferred		Number Required				
		ADS-B	**RNP 4**	**RNAV Enroute (Q, Y, BRNAV, RNP 10)**	**RNAV SID, STAR, and PRNAV**	**RNAV APPR**
22-10-01	Autopilot Systems	0	1❶	1❶	1❶	1
22-11-01	Control Wheel Autopilot Disengage Switches	0	1❶	1❶	1❶	1
22-11-04	A/P Engage Switches	0	1❶	1❶	1❶	1
22-11-04	A/T Arm Switch	0	0	0	0	0
22-11-04	Flight Director Switches	0	1❶	1❶	1❶	0
22-11-04	V NAV Switch	0	0	0	1	1
22-11-04	L NAV Switch	0	0	0	1	1
22-31-01	Autothrottle System	0	0	0	0	0
22-31-02	Autothrottle Disconnect Switches	0	0	0	0	0
22-31-03	Autothrottle TO/GA Switches	0	0	0	1	0
23-25-01	Satellite Communication (SATCOM) Systems	0	1	0	0	0
23-27-01	ACARS System	0	1	0	0	0
34-21-01	Inertial Reference Units (IRUs)	2	2	2	2	2
34-22-03	Flight Director Displays	0	1❶	1❶	1❶	2
34-46-01	Forward Looking Terrain Avoidance (FLTA) and Premature Descent Alert (PDA) Functions	0	0	0	0	0
34-46-01	Terrain Display Functions	0	0	0	0	0
34-53-01	ATC Transponders	1	0	0	0	0
34-53-01	Automatic Dependent Surveillance (ADS) ❺	1	0	0	0	0
34-55-01	Distance Measuring Equipment❹	1	0	1	1	1

Continued Next Page

MEL Item Deferred		Number Required				
		ADS-B	**RNP 4**	**RNAV Enroute (Q, Y, BRNAV, RNP 10)**	**RNAV SID, STAR, and PRNAV**	**RNAV APPR**
34-58-01	Global Positioning System (GPS)	1	2	0❷	1	1
34-61-01	Flight Management Computer Systems (FMCS)	1	2	1	1	1
34-61-01	Navigation Databases (Current)	0	1❸	1❸	1❸	1❸

NOTES:

❶ Operations require:

One fully operative Autopilot (Including A/P Engage/Disengage Switches)

OR

One fully operative Flight Director system (including F/D Switch and Display)

❷ If aircraft is not GPS equipped: RNP-10 airspace operations are not authorized after 12.0 hours from IRS alignment without DME updating.

❸ 0 authorized if MEL 34-61-01B Nav Database (O) procedure is successfully accomplished.

❹ All B747-400 aircraft are equipped with two, five channel scanning DME units.

❺ ADS-B squitter transmissions (34-53-01G) are required in ADS-B airspace.

Low Weather Minimum Requirements

APPROACH CATEGORIES

The following definitions should be used when making MEL compliance or aircraft equipage decisions prior to the dispatch event. Equipment failures that occur after that event will be referenced in the appropriate AOM (ILS Airborne Equipment Requirements). The values referenced below are not intended to reduce the minimum values published on any approach chart or reduce any crew qualification restriction.

Basic Turbojet Minimums:

A non-precision or precision approach to no less than RVR 4000 (1200m) or ¾ SM (1200m) visibility, and a DH of no less than 200 ft or MDH of no less than 250 ft.

Category I Non-ILS:

A non-precision approach to no less than RVR 2400 (550m) or ½ SM (800m) visibility, and a MDH of no less than 250 ft.

Category I ILS:

A precision approach to no less than RVR 1800 (550m) or ½ SM (800m) visibility, and a DH of no less than 200 ft.

Category II:

A precision approach to no less than RVR 1200 (350m) and a DH of no less than 100 ft.
A precision approach to no less than RVR 1000 (300m) and a DH of no less than 100 ft. (Autoland required)

Category III:

A precision approach to no less than RVR 300 (75m) and an AH of no less than 50 ft.

Note: See Airway Manual for ground–based equipment requirements

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LOW WEATHER MINIMUM APPROACHES: EQUIPMENT REQUIREMENTS

To use the chart, locate the MEL number for the system deferred. Read the columns to the right of the appropriate MEL number to determine the number of systems required for the type of approach under consideration.

		Number Required for Approach						
MEL Item Deferred		**Basic Turbojet Min.**	**CAT I Non-ILS**	**CAT I ILS**	**CAT II**	**CAT III**	**RVSM**	**PRM**
22-10-01A 22-10-01B 22-10-01C	Autopilot Systems	0	0	0	2	3	1	1
22-11-01	Control Wheel Autopilot Disengage Switches	0	0	0	2	2	0	2
22-11-04B	A/P Engage Switches	0	0	0	3	3	0	0
22-11-04D	A/T Arm Switch	0	0	0	1	1	0	0
22-11-04E	A/T Speed Mode Engage Switch	0	0	0	1	1	0	0
22-11-04F	Flight Director Switches	1	1	1	2	1	1	1
22-11-04G	Flight Director Switches	0	0	0	2	0	0	0
22-11-04I	APP Switch	0	0	0	1	1	0	1
22-13-01A 22-13-01B 22-13-01C	Automatic Landing System	0	0	0	1	1	0	0
22-31-01	Autothrottle System	0	0	0	1	1	0	0
22-31-02B	Autothrottle Disconnect Switches	0	0	0	2	2	0	0
22-31-03A 22-31-03B	Autothrottle TO/GA Switches	0	0	0	2	2	0	2
24-21-01B	Lightning Protectors	9	9	9	9	12	9	9
24-22-01A	Bus Tie Breakers	2	2	2	2	3	2	2
24-32-02A	DC Bus Isolation Relays	2	2	2	2	3	2	2
27-41-01	Stabilizer Trim/Rudder Ratio Changer Modules	1	1	1	2	2	1	1
27-51-01A 27-51-01B	FCU	2	2	2	2	3	2	2
27-62-01	Auto Spoilers System	0	0	0	1	1	0	0
30-42-01A	Windshield Wipers	0	0	0	2	2	0	0
31-61-06	EIU	2	2	2	3	3	2	2
32-42-01A	Antiskid System	0	0	0	0	1	0	0
32-42-01E	Antiskid System Wheelspeed Transducers	14	14	14	14	16	14	14

Continued Next Page

MEL Item Deferred		Number Required for Approach						
		Basic Turbojet Min.	CAT I Non-ILS	CAT I ILS	CAT II	CAT III	RVSM	PRM
32-42-03A 32-42-03B	Autobrake System	0	0	0	0	1	0	0
32-51-01	Rudder Pedal Nose Wheel Steering System	0	0	0	0	1	0	0
34-16-01A	Altitude Alerting System	0	0	0	0	0	1	0
34-21-01A 34-21-01B	IRU	2	2	2	2	3	2	2
34-22-03A 34-22-03B	Flight Director Displays	0	0	0	2	0	0	0
34-31-01A 34-31-01B 34-31-01C 34-31-01D 34-31-01E 34-31-01F	ILS	0	0	1	1	2	0	0
34-31-02A 34-31-02B 34-31-02C 34-31-02D	ILS Antenna Switching	0	0	0	1	2	0	0
34-33-01A 34-33-01B	Radio Altimeters	0	0	0	1	2	0	0
34-53-01B 34-53-01D	ATC Transponders	0	0	0	0	0	1	1
34-61-01A	FMCS	0	0	0	1	2	0	0
34-61-02	CDU	0	0	0	1	2	0	0
73-21-02A	EEC Mode	3	3	3	4	4	3	3
77-11-01	EPR Indicating Systems	3	3	3	4	4	3	3

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EICAS MESSAGES

Cross Reference List

A Cross Reference List of Engine Indicating and Crew Alerting System (EICAS) messages and corresponding MEL items is provided in this section. The Cross Reference List is intended to assist in quickly identifying the proper MEL item to consult for possible dispatch relief. All EICAS messages at Status level or higher are listed by message in alphabetic order. A description of the information provided in each column of the Cross Reference List follows:

Message — This column alphabetically lists each message text as they would appear on EICAS. Messages that are applicable to multiple systems are usually listed only once. The system number that would appear in the message on EICAS is replaced with an underlined blank (_) in the Cross Reference List. Some EICAS Alert (Warning, Caution, or Advisory) messages are prefaced with a caret symbol (>). This symbol is omitted from the following list of EICAS messages.

Level — The appropriate EICAS message level is listed: Warning, Caution, Advisory, Memo 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:

- 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 is the primary means of displaying airplane system information to the flight crew. EICAS consolidates engine and subsystem indications and provides a centrally located crew alerting function. EICAS displays System Alerts (Warning, Caution, and Advisory), Communication Alerts, Memo messages, and Status messages as described below. All EICAS messages are displayed on the primary EICAS display, except Status messages which are displayed on the Status page of the selected multifunction display.

Warning — A non–normal operational or system condition displayed in red text accompanied by annunciation of the master warning lights and an aural tone. 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 aural tone. Immediate crew awareness is required and corrective action may be required.

Advisory — A non–normal operational or system condition displayed in amber text, indented one space to the right and without other visual or aural annunciations. Routine crew awareness is required and corrective action may be required.

Memo — A reminder of a normal condition in white text that indicates the current state of certain manually and automatically configures airplane systems.

Status — A system condition which affects airplane dispatch, displayed in white text on secondary EICAS. Status messages are checked prior to engine start and the condition should be corrected or airplane dispatched in accordance with MEL. There are no inflight crew procedures associated with Status messages.

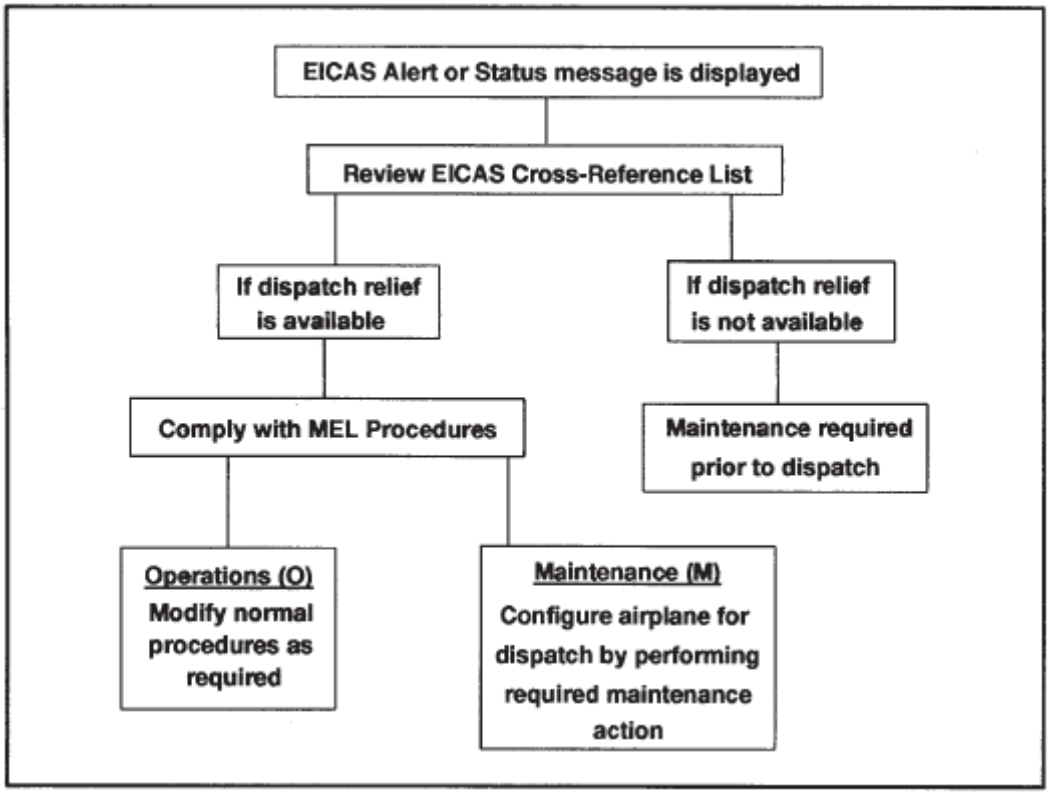
Maintenance Level Messages

Maintenance level messages are not included in the Cross Reference List, since they do not affect the airworthiness release of the airplane. Any system faults that result only in a Maintenance message do not require MEL consideration or maintenance action prior to dispatch. Procedures for management of maintenance level messages are contained in TOPP 40-40-05.

Considerations for Dispatch with Displayed EICAS Messages

Any monitored faults that affect airplane dispatchability will be displayed as an EICAS Status or Alert (Warning, Caution, or Advisory) message, with a corresponding 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 EICAS Alert message requires accomplishment of the appropriate non–normal procedure by the crew. Upon completion of the procedure and prior to takeoff, the MEL should be consulted to determine if relief is available for continued operation with system faults displayed at the Alert level (Warning, Caution, or Advisory message).

Dispatch capability with an invalid EICAS message depends on the message level. Dispatch with invalid Status 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 EICAS Alert (Warning, Caution, or Advisory) messages, since they are required for inflight crew awareness or action as described at the beginning of this section. Thus, if an EICAS 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 EICAS Alert message remaining OFF, dispatch may be acceptable if no inflight alert is needed for the deactivated equipment. In most cases, appropriate placards and/or maintenance log entries provide sufficient crew awareness.



Considerations for Dispatch Using Synoptic Displays

Airplane system faults may result in missing information on synoptic displays. Missing data may include any synoptic display element such as flow bars, pump or valve symbols, and digital indications. Display elements may be absent from one, two, or all three multifunction displays. Missing information on a specific synoptic page caused by a communication fault is not indicative of a fault in the system associated with that synoptic page. Decisions regarding dispatch should be based on EICAS Status or Alert level messages and/or other flight deck effects.

EICAS MESSAGE CROSS REFERENCE LIST

This EICAS message cross reference list is a generic list that is applicable to all types of Boeing 747-400 aircraft. Therefore, some messages are not applicable to Delta aircraft and some MEL references are not found in Delta's MEL. Any associated caret symbol (>) is not included with these messages.

MESSAGE	LEVEL	MEL ITEM
ACARS ALERT	Memo	N/A
ACARS CALL	Memo	N/A
ACARS MESSAGE	Memo	N/A
ACARS MU	Status	23-27-01
ACARS MU L	Status	23-27-01
ACARS MU R	Status	23-27-01
ACARS NO COMM	Memo	N/A
ACARS VOICE	Memo	N/A
ACARS VOICE BUSY	Memo	N/A
ACARS MGT UNIT	Status	23-34-01
ADC CENTER	Advisory	34-12-01
ADC CENTER	Status	34-12-01
ADC LEFT	Advisory	None
ADC LEFT	Status	None
ADC RIGHT	Advisory	34-12-01 34-12-03
ADC RIGHT	Status	34-12-01
ADC SEL CENTER	Advisory	None
ADC SEL CAPT	Advisory	34-00-01
ADC SEL F/O	Advisory	34-00-01
ADF LEFT	Status	34-57-01
ADF RIGHT	Status	34-57-01
AFT CARGO_ LP A	Status	26-16-01
AFT CARGO_ LP B	Status	26-16-01
A/G DISAGREE	Status	None
AFT EE FAN 1	Status	21-58-09
AFT EE FAN 2	Status	21-58-09
AILERON LOCKOUT	Advisory	27-11-02
AILERON LOCKOUT	Status	27-11-02
AIRSPEED LOW	Caution	N/A
ALT ALERT SYS	Advisory	34-16-01
AIR/GND SYSTEM	Advisory	None
ALT ALERT SYS	Status	34-16-01
ALT CALLOUT	Advisory	34-46-01
ALT CALLOUTS	Advisory	34-46-01
ALT DISAGREE	Caution	34-11-02 34-12-01
ALTITUDE ALERT	Caution	N/A
ANTI-ICE	Advisory	N/A
ANTI-ICE NAC	Advisory	N/A
ANTI-ICE NAC _	Status	30-21-01 30-21-02
ANTI-ICE WING L	Status	30-11-01
ANTI-ICE WING R	Status	30-11-01
ANTI-ICE WING	Advisory	N/A
ANTISKID	Advisory	32-42-01 32-42-02
ANTISKID	Status	32-42-01 32-42-02
ANTISKID OFF	Advisory	32-42-01
ANTISKID OFF	Status	32-42-01
AOA LEFT	Advisory	None
AOA LEFT	Status	None
AOA RIGHT	Advisory	None
AOA RIGHT	Status	None
A/P SINGLE SYS	Status	22-10-01
APU	Advisory	49-11-01
APU	Status	49-11-01
APU DOOR	Advisory	49-15-01
APU DOOR	Status	49-15-01
APU DUCT LEAK	Status	26-19-01 49-11-01
APU FIRE LOOP A	Status	26-15-01
APU FIRE LOOP B	Status	26-15-01
APU FUEL	Advisory	28-25-01 28-25-02
APU FUEL PUMP	Status	28-25-01
APU FUEL VALVE	Status	28-25-02
APU GEN 1	Advisory	24-21-02
APU GEN 1	Status	24-21-02
APU GEN BEARING	Status	24-21-02
APU GEN COOLING	Status	24-21-02
APU RUNNING	Memo	N/A
APU STRT INHIBIT	Status	49-11-01
ATC LEFT	Advisory	34-53-01
ATC LEFT	Status	34-53-01
ATC MESSAGE	Memo	N/A
ATC RIGHT	Advisory	34-53-01
ATC RIGHT	Status	34-53-01
ATTITUDE	Caution	None

MESSAGE	LEVEL	MEL ITEM
AURAL SYNTH CARD	Status	31-51-01
AURAL WARN SPKR	Status	31-51-01
AUTOBRAKES	Advisory	32-42-03
AUTOBRAKES	Status	32-42-03
AUTOBRAKES 1	Memo	N/A
AUTOBRAKES 2	Memo	N/A
AUTOBRAKES 3	Memo	N/A
AUTOBRAKES 4	Memo	N/A
AUTOBRAKES MAX	Memo	N/A
AUTOBRAKES RTO	Memo	N/A
AUTO IGNITION _	Status	74-00-03
AUTOPILOT	Caution	22-10-01
AUTOPILOT DISC	Warning	22-10-01
AUTOSTART OFF	Advisory	N/A
AUTOSTART SYS _	Status	80-11-03
AUTOTHROT DISC	Caution	22-31-01
AUX VENT VLV 1	Status	28-14-03
AUX VENT VLV 2	Status	28-14-03
AUX BLOWER VLV 1	Status	28-14-04
AUX BLOWER VLV 2	Status	28-14-04
AUX BLOWER SENS	Status	28-14-08
AUX CABIN VLV 1	Status	28-14-05
AUX CABIN VLV 2	Status	28-14-05
AUX FLOAT SWITCH	Status	28-14-09
AUX FUEL BLOWER	Status	28-14-07
AUX FUEL SWITCH	Status	28-14-01
AUX PRESS SENS 1	Status	28-14-06
AUX PRESS SENS 2	Status	28-14-06
AUX REFUEL VLV 1	Status	28-21-01
AUX REFUEL VLV 2	Status	28-21-01
AUX XFR VLV 1	Status	28-14-02
AUX XFR VLV 2	Status	28-14-02

MESSAGE	LEVEL	MEL ITEM
BARO DISAGREE	Advisory	31-61-02
BAT CHARGER APU	Status	None
BAT CHARGER MAIN	Status	None
BAT DISCH APU	Advisory	None
BAT DISCH MAIN	Advisory	None
BATTERY OFF	Advisory	N/A

MESSAGE	LEVEL	MEL ITEM
BLD _ OVHT/PRV	Advisory	36-11-01 36-11-03 36-11-08 36-12-02
BLD DUCT LEAK C	Caution	26-18-02
BLD DUCT LEAK C	Status	26-18-02
BLD DUCT LEAK L	Caution	None
BLD DUCT LEAK L	Status	None
BLD DUCT LEAK R	Caution	None
BLD DUCT LEAK R	Status	None
BLD FWSOV _ OFF	Advisory	36-11-09
BLEED _	Advisory	36-11-03 36-11-08
BLEED _ OFF	Advisory	36-11-01
BLEED _ CLOSED	Status	None
BLEED _ OVHT	Status	36-11-01 36-11-03 36-11-08 36-12-02
BLEED ASCTU A	Status	None
BLEED ASCTU B	Status	None
BLEED FAMV ENG _	Status	36-12-02
BLEED FWSOV _	Status	36-11-09
BLEED HP ENG _	Advisory	36-11-03
BLEED HP ENG _	Status	36-11-03
BLEED ISLN APU	Advisory	36-11-06
BLEED ISLN APU	Status	36-11-06
BLEED ISLN L	Advisory	36-11-04
BLEED ISLN L	Status	36-11-04
BLEED ISLN R	Advisory	36-11-04
BLEED ISLN R	Status	36-11-04
BLEED LOSS APU	Status	36-11-05 36-11-06
BLEED LOSS L	Advisory	36-11-10
BLEED LOSS L	Status	36-11-10
BLEED LOSS R	Advisory	36-11-10
BLEED LOSS R	Status	36-11-10
BLEED OVPRESS _	Status	36-11-08
BLEED PRV ENG _	Status	36-11-08
BODY GEAR STRG	Advisory	32-53-01 32-53-02
BODY GR STRG SYS	Status	32-53-01 32-53-02
BOTTLE LOW APU	Advisory	26-20-01 26-22-01

MESSAGE	LEVEL	MEL ITEM
BOTTLE LOW APU	Status	26-20-01 26-22-01
BRAKE LIMITER	Advisory	None
BRAKE LIMITER	Status	32-42-04
BRAKE SOURCE	Caution	None
BRAKE TEMP	Advisory	32-46-01
BRAKE TEMP SYS	Status	32-46-01
BTL LO L ENG A	Advisory	26-20-01
BTL LO L ENG B	Advisory	26-20-01
BTL LO R ENG A	Advisory	26-20-01
BTL LO R ENG B	Advisory	26-20-01
BTL LOW APU A	Advisory	26-20-01 26-22-01
BTL LOW APU A	Status	26-20-01 26-22-01
BTL LOW APU B	Advisory	26-20-01 26-22-01
BTL LOW APU B	Status	26-20-01 26-22-01
BTL LOW CGO _	Advisory	26-20-01 26-23-01 26-24-01
BTL LOW CARGO _	Status	26-20-01 26-23-01 26-24-01
BTL LOW ENG _ A	Advisory	26-20-01
BTL LOW ENG _ A	Status	26-20-01
BTL LOW ENG _ B	Advisory	26-20-01
BTL LOW ENG _ B	Status	26-20-01
BTL LOW L ENG A	Status	26-20-01
BTL LOW L ENG B	Status	26-20-01
BTL LOW R ENG A	Status	26-20-01
BTL LOW R ENG B	Status	26-20-01

MESSAGE	LEVEL	MEL ITEM
CAB EXH VLV AFT	Status	21-31-05
CAB EXH VLV FWD	Status	21-31-05
CABIN ALT AUTO	Caution	21-31-02
CABIN ALT AUTO A	Status	21-31-02
CABIN ALT AUTO B	Status	21-31-02
CABIN ALTITUDE	Warning	21-31-02 21-31-03 21-33-01 21-33-05

MESSAGE	LEVEL	MEL ITEM
CABIN INT 1 & CABIN INT 2	Status	23-42-01
CABIN INTERPHONE	Status	23-42-01
CABIN SYSTEM	Status	23-34-01
CACTCS AIR/GND	Status	21-62-01
CAPT XFR BUS	Status	None
CABIN A/C CARD	Status	21-28-01
CARGO A/C SELECT	Status	21-28-07
CARGO DET AFT 1	Status	26-16-01
CARGO DET AFT 2	Status	26-16-01
CARGO DET AFT 3	Status	26-16-01
CARGO DET AFT 4	Status	26-16-01
CARGO DET AIR	Advisory	26-14-03
CARGO DET AIR	Status	26-14-03
CARGO DET FWD 1	Status	26-16-01
CARGO DET FWD 2	Status	26-16-01
CARGO DET FWD 3	Status	26-16-01
CARGO DET FWD 4	Status	26-16-01
CARGO HEAT BULK	Status	21-40-02
CARGO HEAT FWD L	Status	21-43-01
CARGO HEAT FWD R	Status	21-43-01
CARGO ZONE TEMP	Status	21-28-01 21-28-02 21-28-03 21-28-04 21-28-05 21-28-07 21-28-09 21-61-01
CDU CENTER	Status	34-61-02
CDU LEFT	Status	None
CDU MENU	Advisory	N/A
CDU RIGHT	Status	None
CGO A/C CAB SOV	Status	21-28-03
CGO BTL DISCH	Advisory	26-20-01 26-23-01 26-24-01
CGO DET _ M DK	Status	26-14-01
CGO DET AIR LL1	Status	26-14-03
CGO DET AIR LL2	Status	26-14-03
CGO DET AIR LWR	Status	26-14-03
CGO DET AIR MD	Status	26-14-03
CGO DET AIR MD1	Status	26-14-03
CGO DET AIR MD2	Status	26-14-03
CGO EXH V FWD L	Status	21-26-03
CGO EXH V FWD R	Status	21-26-03

MESSAGE	LEVEL	MEL ITEM
CGO OVBD VLV FWD	Status	21-26-01
CON IGN ENG _	Status	74-00-02
CON IGNITION ON	Memo	N/A
CONFIG FLAPS	Warning	N/A
CONFIG GEAR	Warning	N/A
CONFIG GEAR CTR	Warning	N/A
CONFIG PARK BRK	Warning	N/A
CONFIG SPOILERS	Warning	N/A
CONFIG STAB	Warning	N/A
CONFIG WARN SY	Advisory	None
CONFIG WARN SYS	Status	None
CPCS AIR/GND	Status	None
CPCS BACKUP SENS	Status	21-33-06
CREW OXY LOW	Advisory	35-11-02
CREW OXY REFILL	Status	35-11-02
CREW RST OXY ON	Advisory	None
CTR REFUEL VLV	Status	28-21-01

MESSAGE	LEVEL	MEL ITEM
DATALINK AVAIL	Advisory	N/A
DATALINK LOST	Advisory	23-25-01 23-27-01
DATALINK SYS	Advisory	23-27-01
DATALINK L	Advisory	23-27-01
DATALINK R	Advisory	23-27-01
DET FIRE APU	Advisory	26-15-01
DET FIRE/OHT _	Advisory	None
DELTA PRESS SW	Status	None
DME LEFT	Status	34-55-01
DME RIGHT	Status	34-55-01
DOOR AFT CARGO	Caution	52-34-01 52-34-02 52-73-01
DOOR AFT CARGO	Status	52-34-01 52-34-02 52-73-01
DOOR BULK CARGO	Advisory	52-73-01
DOOR ELEC CTR	Advisory	52-73-01
DOOR ELEC MAIN	Advisory	52-73-01
DOOR ENTRY L _	Advisory	52-73-01
DOOR ENTRY R _	Advisory	52-73-01
DOOR F/D OVHD	Advisory	52-73-01

MESSAGE	LEVEL	MEL ITEM
DOOR FWD CARGO	Caution	52-34-01 52-34-02 52-73-01
DOOR FWD CARGO	Status	52-34-01 52-34-02 52-73-01
DOOR L UPPER DK	Advisory	52-73-01
DOOR R UPPER DK	Advisory	52-73-01
DOOR NOSE CARGO	Caution	52-31-01 52-31-04
DOOR NOSE CARGO	Status	52-31-01 52-31-04
DOOR SIDE CARGO	Caution	52-32-01 52-32-02 52-73-01
DOOR SIDE CARGO	Status	52-32-01 52-32-02 52-73-01
DOOR U/D FLT LK	Caution	52-23-03 52-23-06
DOOR U/D FLT LK	Status	52-23-03 52-23-06
DOORS AUTO	Memo	N/A
DOORS AUTO/MAN	Memo	N/A
DOORS ELEC	Advisory	52-73-01
DOORS ENTRY L	Advisory	52-73-01
DOORS ENTRY R	Advisory	52-73-01
DOORS MANUAL	Memo	N/A
DOORS UPR DECK	Advisory	52-73-01
DRIVE DISC _	Advisory	24-11-01
DRIVE DISC _	Status	24-11-01
DRIVE _ TEMP SNS	Status	24-11-01
DUCT LEAK C LP A	Status	26-18-02
DUCT LEAK C LP B	Status	26-18-02
DUCT LEAK L LP A	Status	26-18-01
DUCT LEAK L LP B	Status	26-18-01
DUCT LEAK R LP A	Status	26-18-01
DUCT LEAK R LP B	Status	26-18-01

MESSAGE	LEVEL	MEL ITEM
ECS FRTR CARD	Status	21-28-14
ECS MISC CARD	Status	21-26-05
EE CLNG BYPASS V	Status	21-58-03
E/E CLNG CARD	Advisory	None

MESSAGE	LEVEL	MEL ITEM
E/E CLNG CARD	Status	None
EE CLNG E6/E9 V	Status	None
EE CLNG EXH FAN	Status	21-58-04
EE CLNG GND EXH	Status	21-58-07
EE CLNG INBD EXH	Status	21-58-02
EE CLNG OVRD	Status	None
EE CLNG SUP FAN	Status	21-58-06
EE CLNG SUPPLY V	Status	21-58-05
EE LOW FLOW DET	Status	None
EE SMOKE DET	Status	None
EE 3WAY VLV	Status	21-58-10
EEC _ TEST POWER	Advisory	N/A
EFIS CONTROL L	Advisory	31-61-02
EFIS CONTROL L	Status	31-61-02
EFIS CONTROL R	Advisory	31-61-02
EFIS CONTROL R	Status	31-61-02
EFIS/EICAS C/P	Advisory	None
EICAS DSP	Status	31-61-02 31-61-03
EIU CENTER	Status	31-61-06
EIU DISAGREE	Status	31-61-06
EIU LEFT	Advisory	None
EIU LEFT	Status	None
EIU RIGHT	Status	31-61-06
ELEC AC BUS _	Caution	None
ELEC ARINC LINK	Status	None
ELEC BCU 1	Status	None
ELEC BCU 2	Status	None
ELEC BTB _	Status	24-22-01
ELEC BUS ISLN _	Advisory	24-22-01 24-11-01
ELEC DRIVE _	Advisory	24-11-01
ELEC DRIVE _	Status	24-11-01
ELEC FILTER FAIL	Status	24-51-01
ELEC GEN OFF _	Advisory	24-11-01
ELEC GEN OFF _	Caution	24-11-01
ELEC GEN SYS _	Status	24-11-01
ELEC IDG _ VALVE	Status	75-33-01
ELEC SSB OPEN	Advisory	None
ELEC SSB OPEN	Status	None
ELEC STBY POWER	Status	None
ELEC TR UNIT _	Status	24-32-01
ELEC UTIL BUS L	Advisory	24-56-01
ELEC UTIL BUS R	Advisory	24-56-01

MESSAGE	LEVEL	MEL ITEM
ELEVATOR FEEL	Status	None
ELT ON	Advisory	N/A
EMER LIGHTS	Advisory	N/A
ENG IGNITION	Advisory	74-00-02
ENG _ A/O VALVE	Status	79-21-04
ENG _ AUTOSTART	Caution	80-11-03
ENG _ AUTOSTART	Status	80-11-03
ENG _ CH INHIB	Advisory	None
ENG _ CH/A INHIB	Status	None
ENG _ CONTROL	Advisory	None
ENG _ CONTROL	Status	73-21-04
ENG _ EEC C1	Status	73-21-02
ENG _ EEC MODE	Advisory	73-21-02
ENG _ EEC MODE	Status	73-21-02
ENG _ ESCV	Status	75-24-02 31-61-04
ENG _ FAIL	Caution	None
ENG _ FIRE LP A	Status	26-11-01
ENG _ FIRE LP B	Status	26-11-01
ENG _ FUEL FILT	Advisory	73-34-01
ENG _ FUEL FILT	Status	73-34-01
ENG _ FUEL PRESS	Status	73-11-01
ENG _ FUEL VLV	Advisory	73-31-02
ENG _ FUEL VLV	Status	73-31-02
ENG _ IGNITOR 1	Status	74-00-01
ENG _ IGNITOR 2	Status	74-00-01
ENG _ LIM PROT	Caution	N/A
ENG _ LOW IDLE	Advisory	73-21-01
ENG _ LOW IDLE	Status	73-21-01
ENG _ OIL FILT	Advisory	79-21-01
ENG _ OIL FILT	Status	79-21-01
ENG _ OIL PRESS	Advisory	None
ENG _ OIL PRESS	Caution	None
ENG _ OIL PRESS	Status	None
ENG _ OIL TEMP	Advisory	N/A
ENG _ OVHT LP A	Status	26-11-02
ENG _ OVHT LP B	Status	26-11-02
ENG _ OVSP GOV	Status	73-21-04
ENG _ REV LIMTD	Advisory	78-36-01
ENG _ REV LIMTD	Status	78-36-01
ENG _ REV POS	Status	78-36-01
ENG _ REVERSER	Advisory	78-31-01
ENG _ REVERSER	Status	78-31-01

MESSAGE	LEVEL	MEL ITEM
ENG _ RPM LIM	Advisory	N/A
ENG _ SCAV FILT	Status	79-21-03
ENG _ SCAV TEMP1	Status	79-34-01
ENG _ SCAV TEMP2	Status	79-34-01
ENG _ SCU	Status	73-21-05
ENG _ SHUTDOWN	Caution	N/A
ENG _ SPEED CARD	Status	77-12-02
ENG _ START EGT	Status	None
ENG _ START VLV	Advisory	36-11-01 36-11-02 80-11-01
ENG _ START VLV	Status	36-11-01 36-11-02 80-11-01
ENG _ TURB OVSP	Status	73-21-03
ENG CONTROLS	Advisory	None
ENG CONTROLS	Status	None
EQUIP COOLING	Caution	None
EQUIP LOW FLOW	Status	None
EQUIPMENT SMOKE	Status	None
EQUIPMENT TEMP	Status	None

MESSAGE	LEVEL	MEL ITEM
F/D LOW FLOW DET	Status	None
F/O XFR BUS	Status	None
FIRE APU	Warning	None
FIRE CARGO AFT	Warning	None
FIRE CARGO FWD	Warning	None
FIRE ENG _	Warning	None
FIRE MAIN DECK	Warning	None
FIRE MN DK FWD	Warning	None
FIRE MN DK MID	Warning	None
FIRE MN DK AFT	Warning	None
FIRE TEST FAIL	Warning	26-11-01 26-11-02 26-14-01 26-15-01 26-16-01 26-17-01 26-18-01 26-18-02
FIRE TEST PASS	Warning	N/A
FIRE WHEEL WELL	Warning	26-17-01
FIRE/OVHT SYS	Status	None

MESSAGE	LEVEL	MEL ITEM
FLAP CONTROL C	Status	27-51-01
FLAP CONTROL L	Status	27-51-01
FLAP CONTROL R	Status	27-51-01
FLAP LOAD RELIEF	Status	None
FLAP RELIEF	Advisory	N/A
FLAP SYS MONITOR	Status	27-51-01
FLAPS CONTROL	Caution	None
FLAPS DRIVE	Caution	None
FLAPS PRIMARY	Caution	27-81-01
FLIGHT RCDR SYS	Status	31-31-01
FLT CONT VLVS	Advisory	27-23-02
FLT DK LOW FLOW	Status	None
FMC LEFT	Advisory	34-61-01
FMC LEFT	Status	34-61-01
FMC MESSAGE	Advisory	N/A
FMC RIGHT	Advisory	34-61-01
FMC RIGHT	Status	34-61-01
FMC RUNWAY DIS	Caution	N/A
FMC STATUS	Advisory	N/A
FSEIC	Status	None
FSMC A	Status	28-22-02
FSMC B	Status	28-22-02
FUEL AUTO MGMT	Caution	None
FUEL AUX L	Advisory	N/A
FUEL AUX R	Advisory	N/A
FUEL AUX XFR	Advisory	None
FUEL BALANCED	Advisory	N/A
FUEL BALLAST	Caution	28-31-04
FUEL BALLAST QTY	Caution	34-61-01
FUEL BALLAST SYS	Caution	28-41-04
FUEL BALLAST SYS	Status	28-41-04
FUEL CMD CTR L	Status	28-31-04
FUEL CMD CTR R	Status	28-31-04
FUEL CMD OVRD M2	Status	28-22-01
FUEL CMD OVRD M3	Status	28-22-01
FUEL CMD STAB L	Status	28-31-03
FUEL CMD STAB R	Status	28-31-03
FUEL DISAGREE	Advisory	N/A
FUEL IMBALANCE	Advisory	N/A
FUEL IMBAL 1-4	Advisory	N/A
FUEL IMBAL 2-3	Advisory	N/A
FUEL JETT A	Advisory	28-31-01
FUEL JETT A	Status	28-31-01

MESSAGE	LEVEL	MEL ITEM
FUEL JETT B	Advisory	28-31-01
FUEL JETT B	Status	28-31-01
FUEL JETT SYS	Caution	28-31-01
FUEL LOW CTR L	Advisory	N/A
FUEL LOW CTR R	Advisory	N/A
FUEL LO STAB L	Advisory	N/A
FUEL LO STAB R	Advisory	N/A
FUEL OVD CTR L	Advisory	N/A
FUEL OVD CTR R	Advisory	N/A
FUEL OVRD _ AFT	Advisory	28-31-02
FUEL OVRD _ AFT	Status	28-31-02
FUEL OVRD _ FWD	Advisory	28-31-02
FUEL OVRD _ FWD	Status	28-31-02
FUEL OVRD CTR L	Advisory	28-31-04
FUEL OVRD CTR L	Status	28-31-04
FUEL OVRD CTR R	Advisory	28-31-04
FUEL OVRD CTR R	Status	28-31-04
FUEL PMP STAB L	Advisory	28-22-02 28-31-03
FUEL PMP STAB L	Status	28-22-02 28-31-03
FUEL PMP STAB R	Advisory	28-22-02 28-31-03
FUEL PMP STAB R	Status	28-22-02 28-31-03
FUEL PMP STB L	Advisory	N/A
FUEL PMP STB R	Advisory	N/A
FUEL PR SW STB R	Status	28-31-03
FUEL PR SW STB L	Status	28-31-03
FUEL PRES STAB L	Caution	28-22-02 28-31-03
FUEL PRES STAB R	Caution	28-22-02 28-31-03
FUEL PRES STB L	Advisory	28-22-02 28-31-03
FUEL PRES STB R	Advisory	28-22-02 28-31-03
FUEL PRESS CTR L	Caution	28-31-04
FUEL PRESS CTR R	Caution	28-31-04
FUEL PRESS ENG _	Caution	28-22-01
FUEL PUMP _ AFT	Advisory	28-22-01
FUEL PUMP _ AFT	Status	28-22-01
FUEL PUMP _ FWD	Advisory	28-22-01
FUEL PUMP _ FWD	Status	28-22-01
FUEL QTY LOW	Caution	N/A

MESSAGE	LEVEL	MEL ITEM
FUEL QTY SYS	Status	28-41-01 28-41-03 28-41-04 28-41-05 28-41-07
FUEL RES XFR 2	Advisory	28-16-01
FUEL RES XFR 3	Advisory	28-16-01
FUEL SCAV PUMP	Advisory	28-15-01
FUEL SCAV PUMP	Status	28-15-01
FUEL SPAR VLV _	Status	31-61-04
FUEL STAB XFR	Caution	28-17-01 28-21-01 28-22-02 28-31-03
FUEL TANK/ENG	Advisory	N/A
FUEL TEMP	Status	28-43-01
FUEL TEMP LOW	Advisory	28-43-01 75-33-01 79-21-04
FUEL TEMP SYS	Advisory	28-43-01
FUEL WING ISOL	Advisory	28-21-03
FUEL X-FEED _	Advisory	28-22-05
FUEL X-FEED _	Status	28-22-05
FUEL XFER 1+4	Advisory	N/A
FUEL XFR VLV 1	Status	28-31-01
FUEL XFR VLV 4	Status	28-31-01
FWD CAR OVBD VLV	Status	21-26-01
FWD CARGO _ LP A	Status	26-16-01
FWD CARGO _ LP B	Status	26-16-01
FWD OVBD VLV	Status	21-31-04 21-31-05

MESSAGE	LEVEL	MEL ITEM
GEAR DISAGREE	Caution	32-30-01 32-61-01
GEAR DISAGREE	Status	32-30-01 32-61-01
GEAR DOOR	Advisory	None
GEAR DOOR	Status	None
GEAR MONITOR	Status	32-61-01 32-61-02 32-61-03
GEAR TILT	Caution	None
GEAR TILT	Status	None
GND PROX SYS	Advisory	34-46-01

MESSAGE	LEVEL	MEL ITEM
GND PROX SYS	Status	34-46-01
GND TESTS ENABLE	Status	45-45-02
GPS	Advisory	34-58-01
GPS LEFT	Advisory	34-58-01
GPS RIGHT	Advisory	34-58-01
GROUND PROX SYS	Status	34-46-01
G/S ANTENNA C	Status	34-31-02
G/S ANTENNA L	Status	None
G/S ANTENNA R	Status	34-31-02

MESSAGE	LEVEL	MEL ITEM
HEADING	Advisory	None
HEAT L AOA	Advisory	30-31-02
HEAT L AOA	Status	30-31-02
HEAT L TAT	Advisory	30-31-03
HEAT L TAT	Status	30-31-03
HEAT P/S CAPT	Advisory	30-31-01
HEAT P/S CAPT	Status	30-31-01
HEAT P/S F/O	Advisory	30-31-01
HEAT P/S F/O	Status	30-31-01
HEAT P/S L AUX	Advisory	30-31-01
HEAT P/S L AUX	Status	30-31-01
HEAT P/S R AUX	Advisory	30-31-01
HEAT P/S R AUX	Status	30-31-01
HEAT R AOA	Advisory	30-31-02
HEAT R AOA	Status	30-31-02
HEAT R TAT	Advisory	30-31-03
HEAT R TAT	Status	30-31-03
HEAT WINDOW L	Advisory	30-41-02
HEAT WINDOW R	Advisory	30-41-02
HF DATA	Advisory	23-11-01 23-27-01
HF DATA	Status	23-11-01 23-27-01
HF DATA L	Status	23-11-01 23-27-01
HF DATA OFF	Memo	None
HF DATA R	Status	23-11-01 23-27-01
HIGH ALT LDG	Status	None
HIGH ALT LDG	Memo	NA
HUMID DOOR 5	Advisory	21-71-01

MESSAGE	LEVEL	MEL ITEM
HUMID FLT DK	Advisory Status	21-71-01
HUMID MAIN CAB	Advisory	21-71-01
HUMID ZONE F	Advisory	21-71-01
HYD CONTROL 1	Advisory	None
HYD CONTROL 4	Advisory	None
HYD OVHT SYS _	Advisory	29-32-01 29-34-02
HYD OVHT SYS _	Status	29-32-01 29-34-02
HYD PRESS DEM _	Advisory	29-11-02 29-11-03
HYD PRESS DEM _	Status	29-11-02 29-11-03
HYD PRESS ENG _	Advisory	29-11-01
HYD PRESS ENG _	Status	29-11-01
HYD PRESS SYS _	Caution	None
HYD QTY HALF _	Advisory	29-33-01
HYD QTY LOW _	Advisory	29-33-01
HYD RSVR PRESS _	Status	29-31-01
HYDIM _	Status	None

MESSAGE	LEVEL	MEL ITEM
IAS DISAGREE	Caution	34-11-02 34-12-01
IAS/ALT CTR	Status	34-12-01
IAS/ALT DIFF	Advisory	34-11-02 34-12-01
ICE DETECTOR	Status	30-81-01
ICE DETECTOR L	Status	30-81-01
ICE DETECTOR R	Status	30-81-01
ICE DETECTORS	Advisory	30-81-01
ICING	Advisory	N/A
ICING	Caution	N/A
ICING NAC	Caution	N/A
ICING WING	Advisory	N/A
ICING WING	Caution	N/A
IDLE DISAGREE	Advisory	73-21-01
IDLE DISAGREE	Status	73-21-01
IDS DU	Status	31-61-01
IDS ENG DATA MON	Status	None
IDS OPC DISAGREE	Status	None
IDS SOFTWARE	Status	None

MESSAGE	LEVEL	MEL ITEM
IFF MODE 4	Advisory	N/A
IFF SELECTED	Memo	N/A
ILS ANTENNA	Caution	34-31-02
ILS CENTER	Status	34-31-01
ILS LEFT	Status	None
ILS RIGHT	Status	34-31-01
IRS AC CENTER	Advisory	34-21-01
IRS AC CENTER	Status	34-21-01
IRS AC LEFT	Advisory	None
IRS AC LEFT	Status	None
IRS AC RIGHT	Advisory	34-21-01
IRS AC RIGHT	Status	34-21-01
IRS ALIGN MODE C	Memo	N/A
IRS ALIGN MODE L	Memo	N/A
IRS ALIGN MODE R	Memo	N/A
IRS CENTER	Advisory	34-21-01
IRS CENTER	Status	34-21-01
IRS DC CENTER	Advisory	34-21-01
IRS DC CENTER	Status	34-21-01
IRS DC LEFT	Advisory	None
IRS DC LEFT	Status	None
IRS DC RIGHT	Advisory	34-21-01
IRS DC RIGHT	Status	34-21-01
IRS LEFT	Advisory	None
IRS LEFT	Status	None
IRS MOTION	Advisory	N/A
IRS RIGHT	Advisory	34-21-01
IRS RIGHT	Status	34-21-01

MESSAGE	LEVEL	MEL ITEM
JETT NOZ ON	Advisory	28-31-01
JETT NOZ ON L	Advisory	28-31-01
JETT NOZ ON R	Advisory	28-31-01
JETT NOZZLE L	Advisory	28-31-01
JETT NOZZLE L	Status	28-31-01
JETT NOZZLE R	Advisory	28-31-01
JETT NOZZLE R	Status	28-31-01
JETT XFR VALVE	Status	28-31-01

MESSAGE	LEVEL	MEL ITEM
LANDING ALT	Advisory	N/A
LAV-GALLEY FANS	Status	None
LDG LIGHTS ON	Memo	N/A
LE FLAPS DIS	Advisory	27-88-01
LE MULT DRIVE	Status	None
LE SINGLE DRIVE	Status	27-81-01 27-81-02
LL CGO AFT LP A	Status	26-16-01
LL CGO AFT LP B	Status	26-16-01
LL CGO FWD LP A	Status	26-16-01
LL CGO FWD LP B	Status	26-16-01
LOC ANTENNA C	Status	34-31-02
LOC ANTENNA L	Status	None
LOC ANTENNA R	Status	34-31-02
LWR PRESS RELIEF	Status	21-32-01

MESSAGE	LEVEL	MEL ITEM
M2/M3 < 3K SIG	Status	28-41-01 28-41-02
M2/M3 < 6K SIG	Status	28-22-02 28-41-01 28-41-02
MACH/SPEED TRIM	Status	None
MAWEA FIRE INPUT	Status	None
MAWEA ID CARD	Status	31-51-02
MAWEA INPUT	Advisory	None
MAWEA MASTER MON	Status	None
MAWEA PWR SUPPLY	Status	None
MAWEA SCID CARD	Status	None
MD CGO AFT LP A	Status	26-14-01
MD CGO AFT LP B	Status	26-14-01
MD CGO FWD LP A	Status	26-14-01
MD CGO FWD LP B	Status	26-14-01
MD CGO _ LP A	Status	26-14-01
MD CGO _ LP B	Status	26-14-01
MD CGO MID LP A	Status	26-14-01
MD CGO MID LP B	Status	26-14-01
MLS ANTENNA	Caution	34-34-01
MLS CENTER	Status	34-34-01
MLS LEFT	Status	34-34-01
MLS RIGHT	Status	34-34-01
MN DK CGO _ LP A	Status	26-14-01

MESSAGE	LEVEL	MEL ITEM
MN DK CGO _ LP B	Status	26-14-01
MN DK SOV _	Status	21-28-13

MESSAGE	LEVEL	MEL ITEM
NAC TEMP ENG _	Status	26-11-03
NAI DUCT _ LEAK	Status	30-21-01
NAI VALVE _	Advisory	30-21-01 30-21-02
NITROGEN GEN PREF	Status	47-11-01
NITROGEN GEN SYS	Status	47-11-01
NO AUTOLAND	Advisory	22-13-01
NO AUTOLAND	Caution	22-13-01
NO AUTOLAND	Status	22-13-01
NO ICING	Advisory	N/A
NO LAND 3	Advisory	22-13-01
NO LAND 3	Caution	22-13-01
NO LAND 3	Status	22-13-01
NOSE A/G DISAGRE	Status	None
NO SMOKING ON	Memo	N/A

MESSAGE	LEVEL	MEL ITEM
OIL PRESS SNS _	Status	None
OUTFLOW VALVE L	Status	21-31-01
OUTFLOW VALVE R	Status	21-31-01
OUTFLOW VLV L	Advisory	21-31-01
OUTFLOW VLV R	Advisory	21-31-01
OVERSPEED	Warning	N/A
OVHT ENG _ COWL	Caution	30-21-03
OVHT ENG _ NAC	Caution	None
OVHT ENG _ STRUT	Caution	None

MESSAGE	LEVEL	MEL ITEM
PACK 1 OFF	Memo	N/A
PACK 2 OFF	Memo	N/A
PACK 3 OFF	Memo	N/A
PACK CONTROL	Advisory	None
PACK CONTROL A	Status	21-62-01
PACK CONTROL B	Status	21-62-01

MESSAGE	LEVEL	MEL ITEM
PACK DUMP VLV	Status	21-51-10
PACK _	Advisory	21-32-01 21-51-01 21-51-02 21-51-04 21-51-05 21-51-07 21-51-08 21-51-09 21-62-01 21-62-02
PACK _	Status	21-32-01 21-51-01 21-51-02 21-51-04 21-51-05 21-51-07 21-51-08 21-51-09 21-62-01 21-62-02
PACK _ TMP SNS A	Status	21-51-01
PACK _ TMP SNS B	Status	21-51-01
PACKS 1 + 2 OFF	Memo	N/A
PACKS 1 + 3 OFF	Memo	N/A
PACKS 2 + 3 OFF	Memo	N/A
PACKS HIGH FLOW	Memo	N/A
PACKS OFF	Memo	N/A
PARK BRAKE SET	Memo	N/A
PARK BRK VALVE	Status	None
PASS ADDRESS	Status	23-31-01
PASS ADDRESS 1 & PASS ADDRESS 2	Status	23-31-01
PASS OXY LOW	Advisory	35-21-01 35-21-02
PASS OXY REFILL	Status	35-21-01 35-21-02
PASS OXYGEN ON	Advisory	35-21-01
PASS OXYGEN ON	Status	35-21-01
PASS SERVICES	Status	23-34-01 33-21-01 33-24-01
PASS SERVICES 1 & PASS SERVICES 2	Status	33-21-01 33-24-01
PASS SIGNS ON	Memo	N/A
PEDAL STEERING	Status	32-51-01
PILOT RESPONSE	Advisory	N/A
PILOT RESPONSE	Caution	N/A
PILOT RESPONSE	Warning	N/A

MESSAGE	LEVEL	MEL ITEM
PITOT ADM C	Status	34-12-03
PITOT ADM L	Status	34-12-03
PITOT ADM R	Status	34-12-03
PRESS RELIEF	Advisory	21-32-01
PRINTER	Status	23-27-01 45-45-03
PRINTER MESSAGE	Memo	N/A
P/S XFR VLV	Status	34-11-02
PVD BOTH ON	Memo	N/A
PVD CAPT ON	Memo	N/A
PVD F/O ON	Memo	N/A
PVD SYS CAPT	Advisory	34-35-01
PVD SYS F/O	Advisory	34-35-01
PVD SYSTEM CAPT	Status	34-35-01
PVD SYSTEM F/O	Status	34-35-01

MESSAGE	LEVEL	MEL ITEM
RADIO ALT CENTER	Status	34-33-01
RADIO ALT LEFT	Status	34-33-01
RADIO ALT RIGHT	Status	34-33-01
RADIO TRANSMIT	Advisory	23-11-01 23-12-01 23-51-08
RADIO FAN LWR L	Status	21-25-01
RADIO FAN LWR R	Status	21-25-01
RADIO FAN UPR L	Status	21-25-01
RADIO FAN UPR R	Status	21-25-01
RECIRC FAN LWR L	Status	21-25-01
RECIRC FAN LWR R	Status	21-25-01
RECIRC FAN UPR L	Status	21-25-01
RECIRC FAN UPR R	Status	21-25-01
RES 2A XFR VLV	Status	28-16-01
RES 2B XFR VLV	Status	28-16-01
RES 3A XFR VLV	Status	28-16-01
RES 3B XFR VLV	Status	28-16-01
REV _ INTERLOCK	Status	78-34-01
RUD TRIM CTR	Status	27-21-01
RUDDER RATIO	Advisory	None
RUDDER RATIO	Status	None
RUD RATIO DUAL	Advisory	None
RUD RATIO SNGL	Advisory	None

MESSAGE	LEVEL	MEL ITEM
SATCOM	Advisory	23-25-01
SATCOM L	Advisory	23-25-01
SATCOM R	Advisory	23-25-01
SATCOM CALL	Memo	N/A
SATCOM DATA	Advisory	23-25-01
SATCOM DATA	Status	23-25-01 23-27-01
SATCOM DATA L	Advisory	23-25-01
SATCOM DATA L	Status	23-25-01 23-27-01
SATCOM DATA R	Advisory	23-25-01
SATCOM DATA R	Status	23-25-01 23-27-01
SATCOM FAN PRIM	Status	23-25-01
SATCOM FAN SEC	Status	23-25-01
SATCOM HI GAIN L	Status	23-25-01
SATCOM HI GAIN R	Status	23-25-01
SATCOM HIGH GAIN	Status	23-25-01
SATCOM LO GAIN L	Status	23-25-01
SATCOM LO GAIN R	Status	23-25-01
SATCOM LOW FLOW	Status	23-25-01
SATCOM LOW GAIN	Status	23-25-01
SATCOM MESSAGE	Memo	N/A
SATCOM SMOKE	Status	23-25-01
SATCOM SYSTEM	Status	23-25-01
SATCOM SYSTEM L	Status	23-25-01
SATCOM SYSTEM R	Status	23-25-01
SATCOM VOICE	Advisory	23-25-01
SATCOM VOICE L	Advisory	23-25-01
SATCOM VOICE R	Advisory	23-25-01
SATVOICE AVAIL	Advisory	N/A
SATVOICE LOST	Advisory	N/A
SCAV PUMP ON	Advisory	28-15-01
SEATBELTS OFF	Memo	N/A
SEATBELTS ON	Memo	N/A
SMOKE CREW REST	Caution	26-14-02
SMOKE DR 5 REST	Caution	26-14-02
SMOKE LAVATORY	Advisory	26-13-01
SMOKE LAVATORY	Caution	26-13-01
SMOKE LAV/COMP	Advisory	26-13-01
SMOKE LAV/COMPT	Caution	26-13-01
SMOKE VCC	Advisory	None
SMOKE ZN B REST	Caution	26-14-02

MESSAGE	LEVEL	MEL ITEM
SMOKE ZN F REST	Caution	26-14-02
SMOKE/OVRD VLV	Status	None
SNGL SOURCE ILS	Caution	34-31-01
SNGL SOURCE MLS	Caution	34-34-01
SNGL SOURCE RA	Advisory	34-33-01
SOURCE SEL ADC	Advisory	N/A
SOURCE SEL EIU	Advisory	N/A
SOURCE SEL F/D	Advisory	N/A
SOURCE SEL IRS	Advisory	N/A
SOURCE SEL NAV	Advisory	N/A
SPEEDBRAKE ARMED	Memo	N/A
SPEEDBRAKE AUTO	Advisory	27-62-01
SPEEDBRAKE AUTO	Status	27-62-01
SPEEDBRAKES EXT	Caution	N/A
SPLIT BREAKER	Status	None
STAB AUTO CUTOUT	Status	27-41-01
STAB AUTO TRIM	Status	27-41-01
STAB GREENBAND	Advisory	27-48-02
STAB GREENBAND	Status	27-48-02
STAB SPEED TRIM	Status	None
STAB TRIM	Status	27-41-01
STAB TRIM 2	Advisory	27-41-01
STAB TRIM 3	Advisory	27-41-01
STAB TRIM UNSCHD	Caution	None
STAB TRIM UNSCHD	Status	None
STAB XFR SIG	Status	28-22-04 28-41-02 28-41-04
STAB XFR VLV	Status	28-17-01
STALL WARN SYS	Status	27-32-01
STANDBY INVERTER	Status	None
STARTER CUTOUT _	Caution	80-11-02
STATIC ADM C PRI	Status	34-12-03
STATIC ADM C SEC	Status	34-12-03
STATIC ADM L	Status	34-12-03
STATIC ADM R	Status	34-12-03
STBY BUS APU	Advisory	None
STBY BUS APU	Status	None
STBY BUS MAIN	Advisory	None
STBY BUS MAIN	Status	None
STBY IGNITION ON	Memo	N/A
STBY INV APU	Status	None
STBY INV MAIN	Status	None
STBY POWER OFF	Advisory	None

MESSAGE	LEVEL	MEL ITEM
STROBE LIGHT OFF	Memo	N/A
STRUT OVHT _ LPA	Status	26-12-01
STRUT OVHT _ LPB	Status	26-12-01
SUPRNMRY OXY LOW	Advisory	35-21-01
SUPRNMRY OXY ON	Advisory	35-21-01
SUPRNMRY OXY ON	Status	35-21-01

MESSAGE	LEVEL	MEL ITEM
TCAS OFF	Advisory	N/A
TCAS RA CAPT	Advisory	34-45-01
TCAS RA F/O	Advisory	34-45-01
TCAS SYS	Status	34-45-01
TCAS SYSTEM	Advisory	34-45-01
TCAS SYSTEM	Status	34-45-01
TE FLAPS	Status	None
TEMP CARGO A/C	Advisory	21-28-04 21-28-05 21-28-09
TEMP CARGO HEAT	Advisory	21-44-01 21-44-03 21-44-04
TEMP DEV CGO HI	Advisory	21-28-01 21-28-02 21-28-03
TEMP DEV CGO LO	Advisory	21-28-01 21-28-02 21-28-03
TEMP DEVN CARGO	Advisory	21-28-01 21-28-02 21-28-03
TEMP ZONE	Advisory	21-61-01 21-61-03 21-61-04 21-61-07 21-61-08 21-61-09 21-61-10
TERR POS	Advisory	34-58-01 34-46-01
TERR OVRD	Advisory	N/A
TERR SYS	Status	34-46-01
TEST IN PROG	Warning	N/A
TEST PASSED	Warning	N/A
THERAP OXYGEN ON	Memo	N/A
TIRE PRESS SYS	Status	32-48-01

MESSAGE	LEVEL	MEL ITEM
TIRE PRESSURE	Advisory	32-48-01
TIRE PRESSURE	Caution	32-48-01
TIRE PRESSURE	Status	32-48-01
TRACK	Advisory	None
TRANSPONDER L	Advisory	34-53-01
TRANSPONDER R	Advisory	34-53-01
TRIM AIR OFF	Advisory	21-61-01 21-61-03 21-61-04 21-61-07 21-61-08 21-61-09 21-61-10
TURB OVHT _ LP A	Status	77-22-01
TURB OVHT _ LP B	Status	77-22-01
TURB OVSP SYS _	Status	73-21-03

MESSAGE	LEVEL	MEL ITEM
UNABLE RNP	Caution	N/A
UNABLE RNP	Advisory	N/A
UPR PRESS RELIEF	Status	21-32-01

MESSAGE	LEVEL	MEL ITEM
VHF DATA OFF	Memo	N/A
VALVE TEST FAIL	Warning	21-28-13 21-51-10
VALVE TEST PASS	Warning	N/A
VALVE TEST IN PROG	Warning	N/A
VMO GEAR DOWN	Memo	N/A
VMO SPARE ENGINE	Memo	N/A
VOR LEFT	Status	34-51-01
VOR RIGHT	Status	34-51-01

MESSAGE	LEVEL	MEL ITEM
WAI VALVE LEFT	Advisory	30-11-01 30-11-02
WAI VALVE RIGHT	Advisory	30-11-01 30-11-02
WEIGHT/BALANCE	Status	31-41-01
WINDOW HEAT 1L	Status	30-41-02

MESSAGE	LEVEL	MEL ITEM
WINDOW HEAT 1R	Status	30-41-02
WINDOW HEAT 2L	Status	30-41-02
WINDOW HEAT 2R	Status	30-41-02
WINDSHEAR PRED	Status	34-43-01
WINDSHEAR REAC	Status	34-46-01
WINDSHEAR SYS	Advisory	34-43-01 34-46-01
WNSHR ALERT SYS	Advisory	34-46-01
WNSHR ALERT SYS	Status	34-46-01
WXR SYS	Status	34-43-01

MESSAGE	LEVEL	MEL ITEM
X FEED CONFIG	Advisory	N/A

MESSAGE	LEVEL	MEL ITEM
YAW DAMPER LWR	Advisory	22-21-01
YAW DAMPER LWR	Status	22-21-01
YAW DAMPER UPR	Advisory	22-21-01
YAW DAMPER UPR	Status	22-21-01

MESSAGE	LEVEL	MEL ITEM
ZONE TEMP	Status	21-28-03 21-28-04 21-28-05 21-28-12 21-61-01 21-61-03 21-61-04 21-61-07 21-61-08 21-61-09 21-61-10 21-61-11 21-61-12 21-61-13

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ATA 5 Contents

05-00-18 ER (ETOPS) Status.....5-2

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
05-00-18	ER (ETOPS) Status **"DISP.APPR.REQ'D"**	**N** -	-		**(M)(O)** Authorized by MCC when: a) ER (ETOPS) operations beyond 180 minutes are not authorized, and b) No specific MEL item applies. NOTE 1: MCC will determine the requirements for restricting an aircraft from ETOPS operations. NOTE 2: This Item Number is only used for deferring the ER (ETOPS) status of the aircraft to 180 minutes or less and is **not** to be used for deferring the status of any system or component. MCC authorization is required prior to its usage or removal.

MEL ITEM	TAB LOCATION	PLACARD TEXT
05-00-18	Adjacent To Each PFD	ER (ETOPS) OPERATIONS BEYOND 180 MINUTES – NOT AUTHORIZED

NOTE: The reason for deferral (i.e. repetitive writeups on a system or inability to exercise a system, etc.) should also be stated in the discrepancy.

(O) PROCEDURES

ER (ETOPS) operations beyond 180 minutes – Not Authorized.

(M) PROCEDURES

1. Create a new log page in the aircraft logbook using the appropriate MEL Item Number (contact MCC for instructions).
2. The deferral code ETO must also be entered on the log page and the placard when deferring this item.
3. MCC authorization is required prior to its usage or removal.

ATA 11 Contents

11-00-01 Aircraft Placards/Markings Repair Installed 11-2

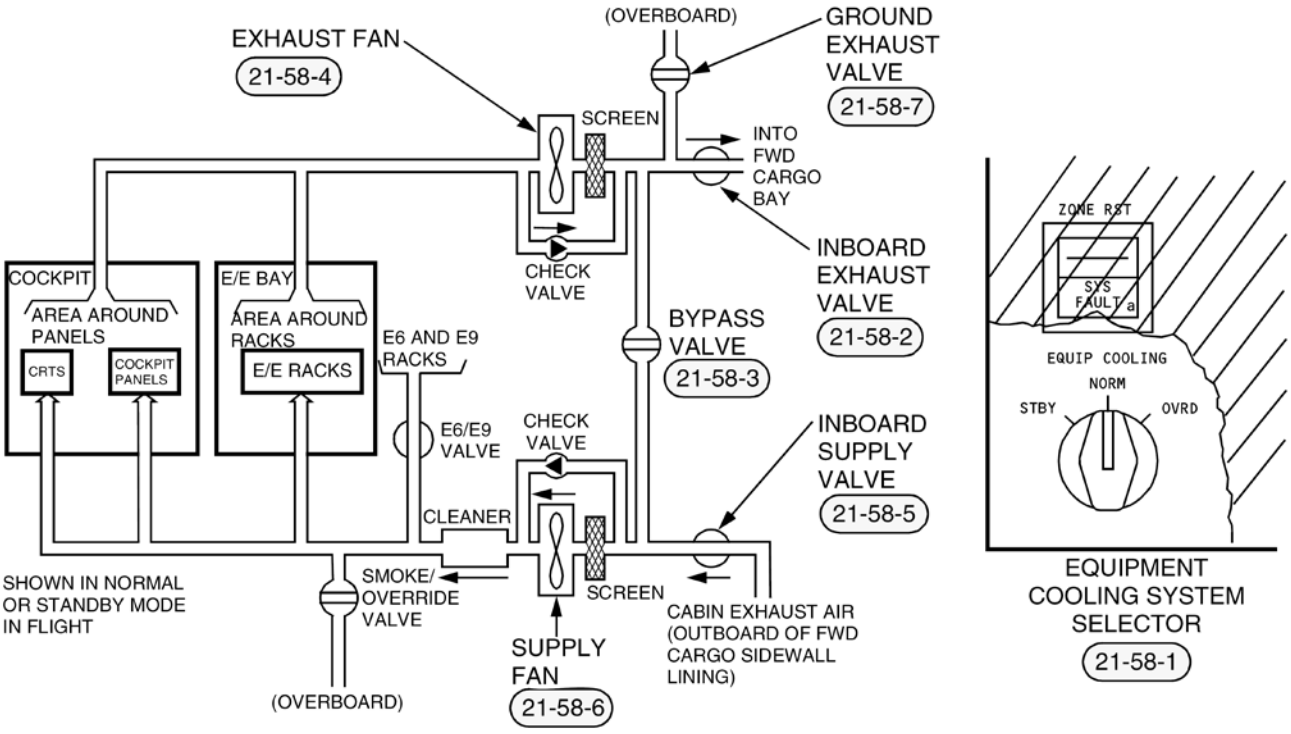
	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD		REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
11-00-01 Aircraft Placards/Markings Repair Installed **"Contact MCC"** Administrative Control Item	**N**	**-**	**-**	**-**	Item may be used to track repair provided: a) MCC determines that placard is FAA required, b) Install repair per TOPP 40-40-05, c) Enter in log book repair is applied per TOPP 40-40-05, and d) Enter in log book that repair is deferred per MEL 11-00-01. NOTE: If MCC determines that placard is not FAA required, use TOPP 40-40-08 (NEF).

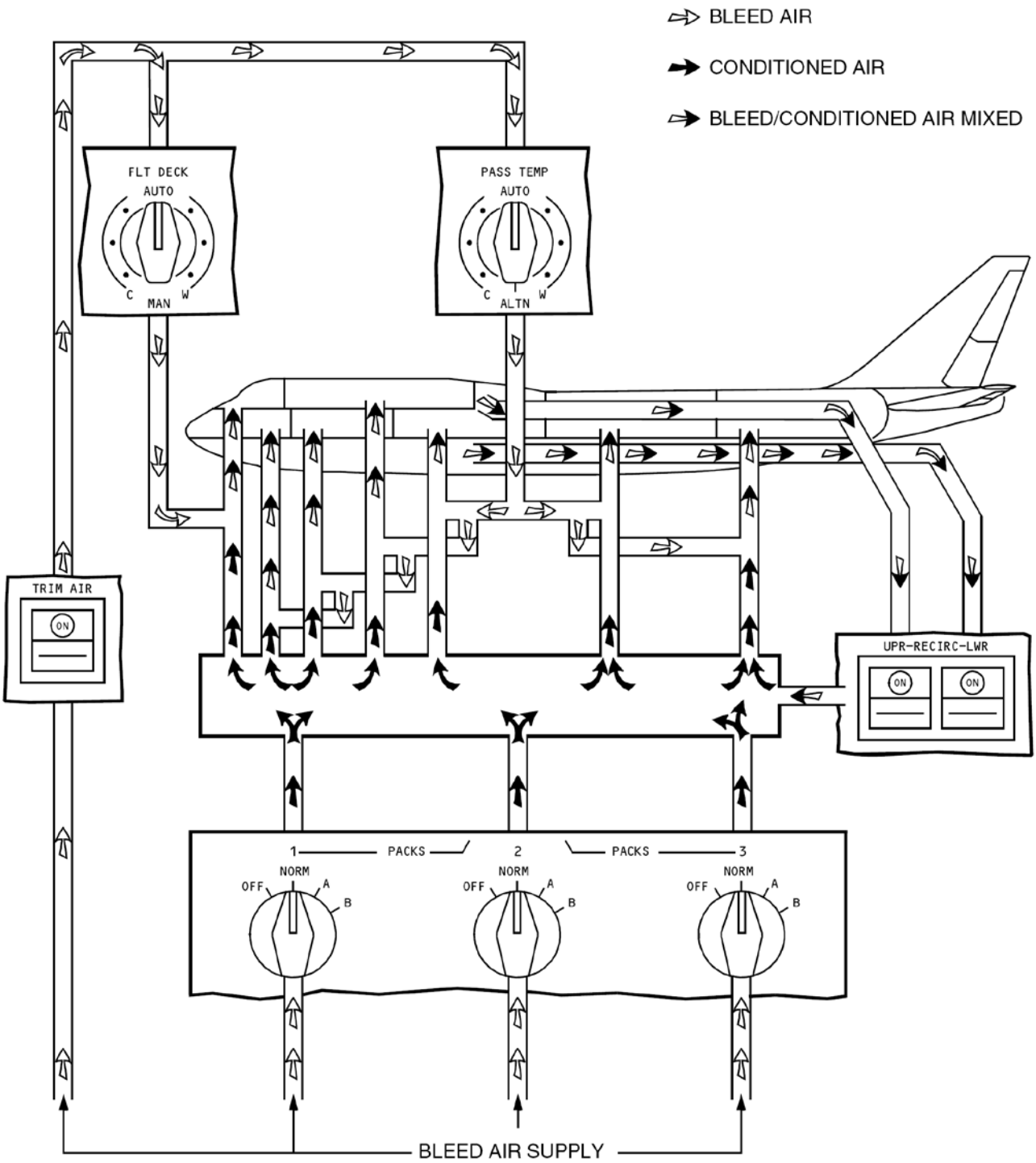
MEL ITEM	TAB LOCATION	PLACARD TEXT
11-00-01	Log book	_____ REPAIRED PER TOPP 40-40-05

ATA 21 Contents

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EXHAUST FAN
21-58-4
(OVERBOARD)
GROUND EXHAUST VALVE
21-58-7
SCREEN
INTO FWD CARGO BAY
INBOARD EXHAUST VALVE
21-58-2
CHECK VALVE
BYPASS VALVE
21-58-3
COCKPIT
AREA AROUND PANELS
CRTS
COCKPIT PANELS
E/E BAY
AREA AROUND RACKS
E/E RACKS
E6 AND E9 RACKS
E6/E9 VALVE
CHECK VALVE
INBOARD SUPPLY VALVE
21-58-5
CLEANER
SHOWN IN NORMAL OR STANDBY MODE IN FLIGHT
SMOKE/ OVERRIDE VALVE
SCREEN
CABIN EXHAUST AIR (OUTBOARD OF FWD CARGO SIDEWALL LINING)
SUPPLY FAN
21-58-6
(OVERBOARD)
ZONE RST
SYS FAULT a
EQUIP COOLING
NORM
STBY
OVRD
EQUIPMENT COOLING SYSTEM SELECTOR
21-58-1


BLEED AIR
CONDITIONED AIR
BLEED/CONDITIONED AIR MIXED
FLT DECK
AUTO
C
MAN
W
PASS TEMP
AUTO
C
ALTN
W
TRIM AIR
ON
UPR-RECIRC-LWR
ON
ON
1
PACKS
2
PACKS
3
NORM
OFF
A
B
NORM
OFF
A
B
NORM
OFF
A
B
BLEED AIR SUPPLY

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-20-01	A/C Ozone Converters **"DISP.APPR.REQ'D"**	**Y**	3	0	**C**	**(O)** Any or all may be inoperative provided: a) An ozone forecast is obtained from Meteorology, and b) The flight path of the airplane avoids altitudes and/or areas where ozone concentrations are forecast.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-20-01	On Air Conditioning Control Panel	___ OZONE CONVERTER INOP

(O) PROCEDURES

Ensure that the flight path of the aircraft avoids the altitudes and/or areas where ozone concentrations are forecast.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-24-01	Gasper Fan	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-24-01	Adjacent To The Inoperative Gasper Fan Switch	GASPER FAN INOP

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-25-01A Recirculation Fans	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided associated fan is deactivated.
21-25-01B Recirculation Fans **"DISP.APPR.REQ'D"**	**N**	4	0	**C**	**(M)(O)** Two or more may be inoperative provided: a) Performance corrections are applied, and b) Associated fans are deactivated.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-25-01A	Adjacent To Affected RECIRC Fan Switch	___ RECIRC FAN IS INOP
21-25-01B	Adjacent To Affected RECIRC Fan Switch	___ RECIRC(S) FAN IS INOP

(O) PROCEDURES

21-25-01A

Position both Temperature Control panel UPR RECIRC and LWR RECIRC switches ON.

NOTE: With one fan failed, one pack will automatically operate in HI FLOW mode.

21-25-01B

1. For both upper fans inoperative, position upper RECIRC fan switch ON.
2. For both lower fans inoperative, position lower RECIRC fan switch OFF.

NOTE: With two or more fans failed, all three packs automatically operate in HI FLOW mode.

21-25-01B	**RECIRCULATION FANS**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 0.9% for more than one fan inoperative
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

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(M) PROCEDURES

21-25-01A, 21-25-01B

Deactivate the inoperative recirculation fans by pulling and securing the following applicable circuit breakers on the P415 panel:

FAN	CIRCUIT BREAKER
UPR Right Fan	OH RECIRC FAN 1 PWR
UPR Left Fan	OH RECIRC FAN 2 PWR
LWR Right Fan	UF RECIRC FAN 2 PWR
LWR Left Fan	UF RECIRC FAN 1 PWR

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-26-05A	ECS Misc Card **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Forward Overboard Valve is deactivated closed, b) Operation is limited to two Air Conditioning Packs, c) One Lavatory/Galley fan is verified to operate normally, d) Aft/Bulk cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section), e) Aft Cargo Heat remains OFF, f) Fwd Cargo Heat (electrical) is deactivated, and g) No perishables are carried in the forward cargo compartment. NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
21-26-05B	ECS Misc Card **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Forward Overboard Valve is deactivated open, b) Extended overwater flight is prohibited, c) Operation is limited to two Air Conditioning Packs, d) One Lavatory/Galley fan is verified to operate normally, e) Aft Cargo Heat remains OFF, f) Fwd Cargo Heat (electrical) is deactivated, g) No live animals or perishables are carried in the aft/bulk cargo compartment, and h) Forward lower lobe cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
21-26-05A	On The Pack Control Panel And Adjacent To Aft Cargo Heat Switch	ECS MISC CARD INOP.
21-26-05B	On The Pack Control Panel And Adjacent To Aft Cargo Heat Switch	ECS MISC CARD INOP.

(O) PROCEDURES

21-26-05A, 21-26-05B

1. Do not use more than two packs.
2. On the remaining packs, position HI FLOW switch ON.
3. Ensure Aft Cargo Heat Switch remains OFF.
4. Status message ECS MISC CARD will remain displayed.
5. Status message(s) CARGO HEAT FWD L and/or CARGO HEAT FWD R will remain displayed.

(M) PROCEDURES

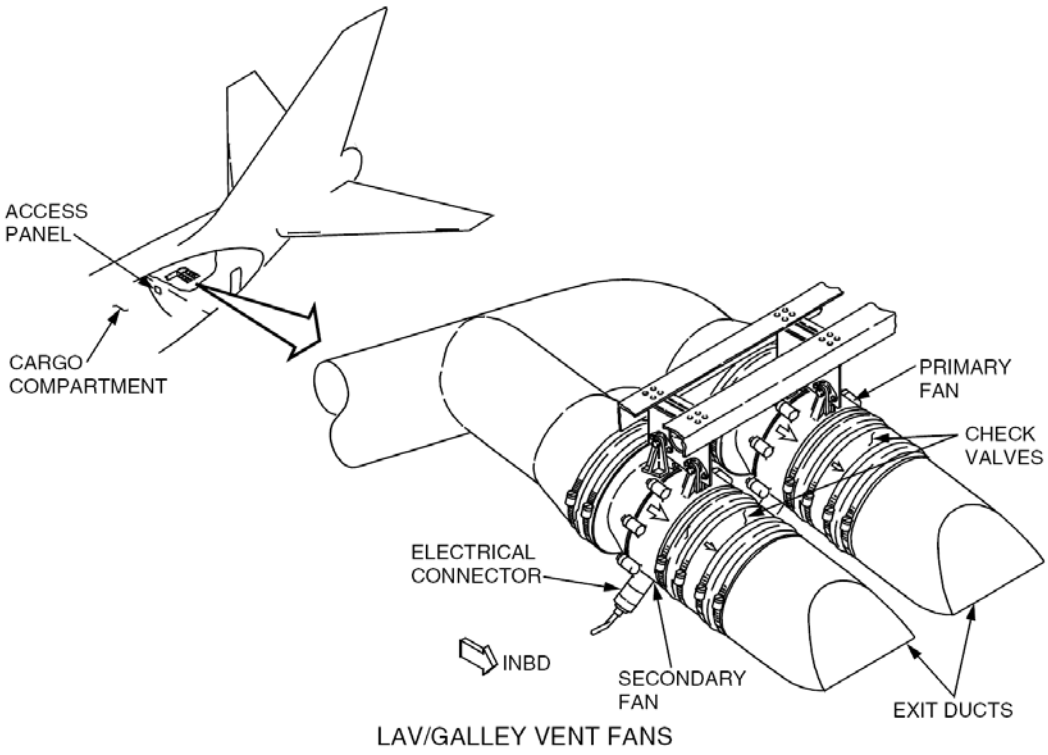
21-26-05A

1. Defer the Forward Overboard Valve closed per MEL Item 21-31-04A.
2. Verify operation of Lavatory/Galley fans.
   a. Access to the Lavatory/Galley fans in section 46 by entering via the bulk cargo compartment aft bulkhead access panel.
   b. Confirm fan operation by feeling for air discharge from either the primary fan or the secondary fan exit ducts.
3. Defer the forward cargo heat (electrical) per MEL Item 21-43-01.

21-26-05B

1. Defer the Forward Overboard Valve open per MEL Item 21-31-04B.
2. Verify operation of Lavatory/Galley fans.
   a. Access the Lavatory/Galley fans in section 46 by entering via the bulk cargo compartment aft bulkhead access panel.
   b. Confirm fan operation by feeling for air discharge from either the primary fan or the secondary fan exit ducts.
3. Defer the forward cargo heat (electrical) per MEL Item 21-43-01.

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LAV/GALLEY VENT FANS

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-31-01A	Outflow Valves	**N**	2	1	**C**	**(M)(O)** One valve may be inoperative provided: a) A maximum of two packs are used throughout flight, b) Valve is deactivated CLOSED, and c) Both automatic and manual controls operate normally on the remaining valve.
21-31-01B	Outflow Valves **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Flight is conducted in an unpressurized configuration, b) No revenue passengers are carried, c) Extended overwater flight is prohibited, d) Flight remains within **60 minutes** of a suitable airport, e) Flight attendant crew rest area is considered inoperative and deferred per MEL 25-29-03B, and f) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-31-01A	Adjacent To Affected Outflow Valve Manual Control Switch And On Pack Control Panel	___ OUTFLOW VALVE INOP
21-31-01B	Adjacent To Affected Outflow Valve Manual Control Switch And On Cabin Pressurization Control Panel	BOTH OUTFLOW VALVES INOP

(O) PROCEDURES

21-31-01A

1. A maximum of two packs may be used throughout flight.
2. Do not use associated Manual Outflow Valve control on the Cabin Pressure Selector panel for any purpose. Maintain associated manual control OFF.
3. Crew must also comply with MEL item 21-51-01 (O) procedures.

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21-31-01B

1. Carriage of revenue passengers – Not Authorized
2. Flight will be unpressurized. With non–revenue passengers on board, enroute altitude must be limited to 10,000 ft.
3. To avoid non–revenue passenger discomfort, after takeoff, when obstacle clearance has been assured, limit climb and descent to 500 fpm. Advise ATC of decreased rate of climb and descent.
4. Equipment cooling may be operated in NORM or STBY.
5. **Flight must remain within 60 minutes of a suitable landing airport.** If operation with Equipment Cooling in OVRD mode becomes necessary, an unpressurized configuration yields insufficient equipment cooling. Flight time must therefore be limited to 60 minutes when in OVRD mode.
6. Three pack operation is required for unpressurized flight to ensure adequate smoke removal capability. Comply with appropriate procedures below.

   THREE AIR CONDITIONING PACKS OPERATION

   a. Select all three air conditioning packs to NORM Mode.

   b. Select UPPER Recirculation Fans – ON.

   c. Select LOWER Recirculation Fans – OFF.

7. Comply with MEL Item 25-29-03B (O) procedure for inoperative flight attendant crew rest area.

(M) PROCEDURES

21-31-01A

1. Deactivate left or right outflow valve closed.
2. For the left outflow valve, pull and secure the following circuit breakers:
   - CABIN PRESS CONT L ICU, position J30 on the P6 panel
   - CABIN PRESS ICU LEFT, position M8 on the P414 panel.
3. For the right outflow valve, pull and secure the following circuit breakers:
   - CABIN PRESS CONT R ICU, position J31 on the P6 panel.
   - CABIN PRESS ICU RIGHT, position B8 on the P414 panel.
4. Determine position of inoperative outflow valve. If not fully closed, manually close by one of the following methods:

   a. If manual control is available:

      1) Select manual control for the affected outflow valve (MAN L or MAN R ON), and drive affected outflow valve fully closed.

      2) Deselect manual control (MAN L or MAN R OFF).

   b. If manual control is not available:

      1) Remove outflow valve AC motor (AMM 21–31–06/401).

         NOTE: Caution should be taken so as not to lose AC motor shim plate.

      2) Close valve by applying torque to actuator output shaft.

      3) Reinstall AC motor.

Continued Next Page

21-31-01B

1. Deactivate both left and right outflow valves open.
   a. For the left outflow valve, pull and secure the following circuit breakers:
      - CABIN PRESS CONT L ICU, position J30 on the P6 panel.
      - CABIN PRESS ICU LEFT, position M8 on the P414 panel.
   b. For the right outflow valve, pull and secure the following circuit breakers:
      - CABIN PRESS CONT R ICU, position J31 on the P6 panel.
      - CABIN PRESS ICU RIGHT, position B8 on the P414 panel.
   c. Determine position of both outflow valves. If not fully open, manually open by one of the following methods.
      1) If manual control is available:
         A. Select outflow valves to manual control (MAN L and MAN R ON), and drive valves fully open.
         B. Deselect manual control (MAN L and MAN R OFF).
      2) If manual control is not available:
         A. Remove AC motor from both outflow valves (AMM 21–31–06/401).

            NOTE: Caution should be taken so as not to lose AC motor shim plates.

         B. Open valves by applying torque to actuator output shaft.
         C. Reinstall AC motors.
2. Defer flight attendant crew rest area per MEL 25-29-03B.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
21-31-02A	Automatic Cabin Pressure Controllers (A and B)	**N**	2	1	**C**	One may be inoperative provided both outflow valves operate normally in manual mode.
21-31-02B	Automatic Cabin Pressure Controllers (A and B)	**N**	2	1	**C**	**(M)(O)** One may be inoperative provided: a) One outflow valves operate normally in manual mode, b) If one outflow valve is inoperative in the manual mode, it must be deactivated closed, with a maximum of two packs used throughout flight, and c) Cabin altitude backup sensor system (CPCS BACKUP SENS) operates normally.
21-31-02C	Automatic Cabin Pressure Controllers (A and B) **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Flight is conducted in an unpressurized configuration, b) No revenue passengers are carried, c) Extended overwater flight is prohibited, d) Flight remains within **60 minutes** of a suitable airport, e) Flight attendant crew rest area is considered inoperative and deferred per MEL 25-29-03B, and f) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-31-02A	Adjacent To Cabin Pressurization Controller Selector	AUTO CABIN PRESSURIZATION CONTROLLER, ____MODE INOP
21-31-02B	Adjacent To Cabin Pressurization Controller Selector	AUTO CABIN PRESSURIZATION CONTROLLER, ____MODE INOP
21-31-02C	Adjacent To Cabin Pressurization Controller Selector On Crew Rest Door and Lead Flight Attendants Control Panel	AUTO CABIN PRESSURIZATION CONTROLLER MODE A and B INOP.

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(O) PROCEDURES

21-31-02B

1. If one outflow valve is inoperative in the manual mode, do not use more than two packs throughout flight.
2. Comply with MEL item 21-51-01 (O) procedures.

21-31-02C

1. Carriage of revenue passengers – Not Authorized.
2. Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section).
3. Comply with MEL Item 21-31-01B (O) procedure for unpressurized flight.
4. Comply with MEL Item 25-29-03B (O) procedure for inoperative flight attendant crew rest area.

(M) PROCEDURES

21-31-02B

1. If one out flow valve is INOP in man mode, defer the affected outflow valve per MEL Item 21-31-01A.
2. Ensure status message CPCS BACKUP SENS is not displayed.

21-31-02C

1. Defer both outflow valves OPEN per MEL Item 21-31-01B.
2. Defer the flight attendant crew rest area per 25-29-03B.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-31-03A	Cabin Pressure Control Systems (Manual L and R)	**N**	2	1	**C**	**(M)(O)** One may be inoperative provided: a) Associated outflow valve is deactivated closed, and b) A maximum of two packs are used throughout flight.
21-31-03B	Cabin Pressure Control Systems (Manual L and R) **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Flight is conducted in an unpressurized configuration, b) No revenue passengers are carried, c) Extended overwater flight is prohibited, d) Flight remains within **60 minutes** of a suitable airport, e) Flight attendant crew rest area is considered inoperative and deferred per MEL 25-29-03B, and f) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-31-03A	Adjacent To Affected Manual Outflow Valve Switch	___ CABIN PR. CONT. SYSTEM MANUAL MODE INOP.
21-31-03B	Adjacent To Both Manual Outflow Valve Switches	BOTH CABIN PR. CONT. SELECTOR MANUAL MODES INOP.

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(O) PROCEDURES

21-31-03A

Use a maximum of two packs throughout flight.

21-31-03B

1. Carriage of revenue passengers – Not Authorized.
2. Comply with MEL Item 21-31-01B (O) procedure for unpressurized flight.
3. Comply with MEL Item 25-29-03B (O) procedure for flight attendant crew rest area.

(M) PROCEDURES

21-31-03A

Defer the affected outflow valve per MEL Item 21-31-01A.

21-31-03B

1. Defer both outflow valves OPEN per MEL Item 21-31-01B.
2. Defer flight attendant crew rest area per MEL 25-29-03B.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-31-04A	Forward Overboard Valve (Lower 41 Section) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Valve is deactivated closed, and b) Aft/Bulk cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
21-31-04B	Forward Overboard Valve (Lower 41 Section) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)** May be inoperative deactivated OPEN provided: a) Valve is deactivated open, b) Extended overwater flight is prohibited, and c) Forward lower lobe cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-31-04A	In An Empty Space On Forward Center Instrument Panel	FORWARD OVERBOARD VALVE INOP. DEACTIVATED CLOSED.
21-31-04B	In An Empty Space On Forward Center Instrument Panel	FORWARD OVERBOARD VALVE INOP. DEACTIVATED OPEN.

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(M) PROCEDURES

21-31-04A

Use the following procedure to deactivate the valve in the closed position:

NOTE: The forward overboard valve is located on the inside of the fuselage to the left of the nose gear wheel well.

1. Pull and secure circuit breakers as follows:
   - FWD OVBD VLV CONT on P6 panel, position J32.
   - FWD OVBD VALVE POWER on P180 panel, position J20.
2. Disconnect, cap and stow electrical connector DV462 from valve.
3. Rotate the manual operating lever/position indicator to the closed position.

   NOTE: The manual operating lever may be lockwired to the actuator mounting screws.

21-31-04B

Use the following procedure to deactivate the valve in the open position:

NOTE: The forward overboard valve is located on the inside of the fuselage to the left of the nose gear wheel well.

1. Pull and secure circuit breakers as follows:
   - FWD OVBD VLV CONT on P6 panel, position J32.
   - FWD OVBD VALVE POWER on P180 panel, position J20.
2. Disconnect, cap and stow electrical connector DV462 from valve.
3. Rotate the manual operating lever/position indicator to the open position.

   NOTE: The manual operating lever may be lockwired to the actuator mounting screws.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-32-01	Positive Pressure Relief Valves **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Flight is conducted in an unpressurized configuration, b) No revenue passengers are carried, c) Extended overwater flight is prohibited, d) Flight remains within **60 minutes** of a suitable airport, e) Flight attendant crew rest area is considered inoperative and deferred per MEL 25-29-03B, and f) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-32-01	On Pressure Control Panel	___ POSITIVE PRESSURE RELIEF VALVE(S) INOP.

(O) PROCEDURES

21-32-01

1. Carriage of revenue passengers – Not Authorized.
2. Comply with MEL Item 21-31-01B (O) procedure for unpressurized flight.
3. Comply with MEL Item 25-29-03B (O) procedure for flight attendant crew rest area.

(M) PROCEDURES

21-32-01

1. Defer both outflow valves OPEN per MEL Item 21-31-01B.
2. Defer flight attendant crew rest area per MEL 25-29-03B.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-32-02	Landing Altitude (LDG ALT) Switch	**Y**	1	0	**C**	**(O)** May be inoperative in automatic mode.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-32-02	On Pressure Control Panel	LANDING ALTITUDE SWITCH INOP.

(O) PROCEDURES

21-32-02

1. Do not accomplish LANDING ALT procedure in the QRH.
2. Set Landing Altitude using manual mode.
3. Touchdown zone indicator (amber crosshatched area) will not be shown on PFD altitude tape.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-33-01A	Cabin RATE Indication	**Y**	1	0	**C**	**(O)** May be inoperative provided all remaining components and functions of the pressurization system operate normally.
21-33-01B	Cabin RATE Indication **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Flight is conducted in an unpressurized configuration, b) No revenue passengers are carried, c) Extended overwater flight is prohibited, d) Flight remains within **60 minutes** of a suitable airport, e) Flight attendant crew rest area is considered inoperative and deferred per MEL 25-29-03B, and f) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-33-01A	Adjacent To Lower EICAS Display	CABIN RATE OF CLIMB INDICATION INOP
21-33-01B	Adjacent To Lower EICAS Display	CABIN RATE OF CLIMB INDICATION INOP

(O) PROCEDURES

21-33-01A

Monitor and operate the pressurization system using the other available indications.

21-33-01B

1. Carriage of revenue passengers – Not Authorized.
2. Comply with MEL Item 21-31-01B (O) procedure for unpressurized flight.
3. Comply with MEL Item 25-29-03B (O) procedure for flight attendant crew rest area.

(M) PROCEDURES

21-33-01B

1. Defer both outflow valves OPEN per MEL Item 21-31-01B.
2. Defer flight attendant crew rest area inoperative per MEL 25-29-03B.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-33-02A	Cabin Differential Pressure Indication	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) CAB ALT indication operates normally, and b) A chart is provided for the flight crew to convert cabin altitude to differential pressure.
21-33-02B	Cabin Differential Pressure Indication **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Flight is conducted in an unpressurized configuration, b) No revenue passengers are carried, c) Extended overwater flight is prohibited, d) Flight remains within **60 minutes** of a suitable airport, e) Flight attendant crew rest area is considered inoperative and deferred per MEL 25-29-03B, and f) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

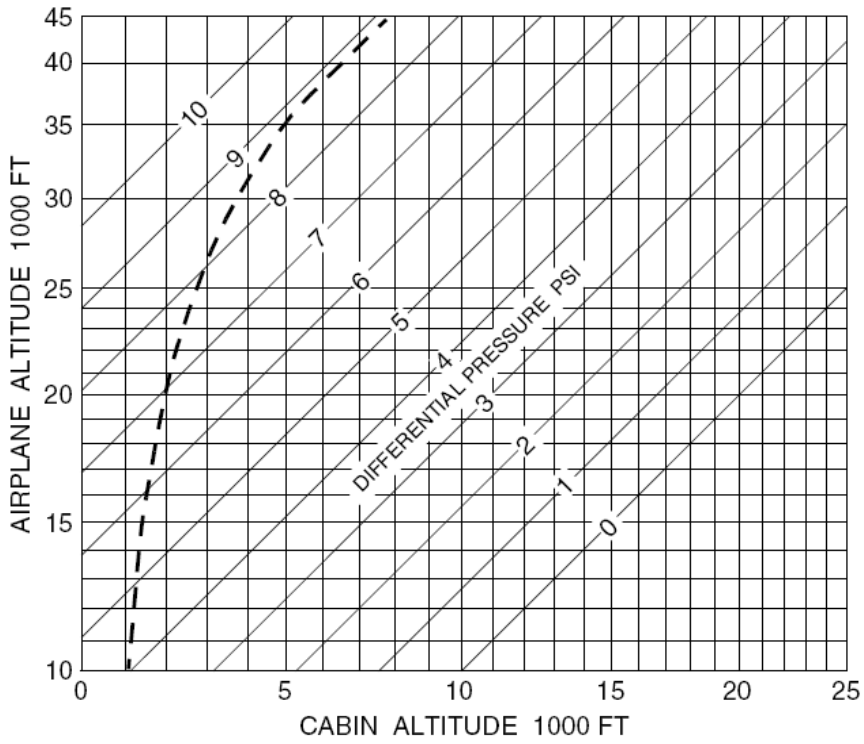
MEL ITEM	TAB LOCATION	PLACARD TEXT
21-33-02A	Adjacent To Lower EICAS Display	CABIN DIFF PRESS INDICATION INOP
21-33-02B	Adjacent To Lower EICAS Display	CABIN DIFF PRESS INDICATION INOP

(O) PROCEDURES

21-33-02A

1. Ensure that CAB ALT indication operates normally.
2. Use the following chart to determine cabin differential pressure from indicated values of airplane and cabin altitude. Heavy dashed line gives differential pressure for Auto Controller schedule.

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21-33-02B

1. Carriage of revenue passengers – Not Authorized.
2. Comply with MEL Item 21-31-01B (O) procedure for unpressurized flight.
3. Comply with MEL Item 25-29-03B (O) procedure for flight attendant crew rest area.

(M) PROCEDURES

21-33-02B

1. Defer both outflow valves OPEN per MEL Item 21-31-01B.
2. Defer the flight attendant crew rest area per MEL 25-20-03B.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
21-33-03A	CAB ALT Indication	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) Cabin differential pressure indication operates normally, and b) A chart is provided for the flight crew to convert cabin differential pressure to cabin altitude.
21-33-03B	CAB ALT Indication **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Flight is conducted in an unpressurized configuration, b) No revenue passengers are carried, c) Extended overwater flight is prohibited, d) Flight remains within **60 minutes** of a suitable airport, e) Flight attendant crew rest area is considered inoperative and deferred per MEL 25-29-03B, and f) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

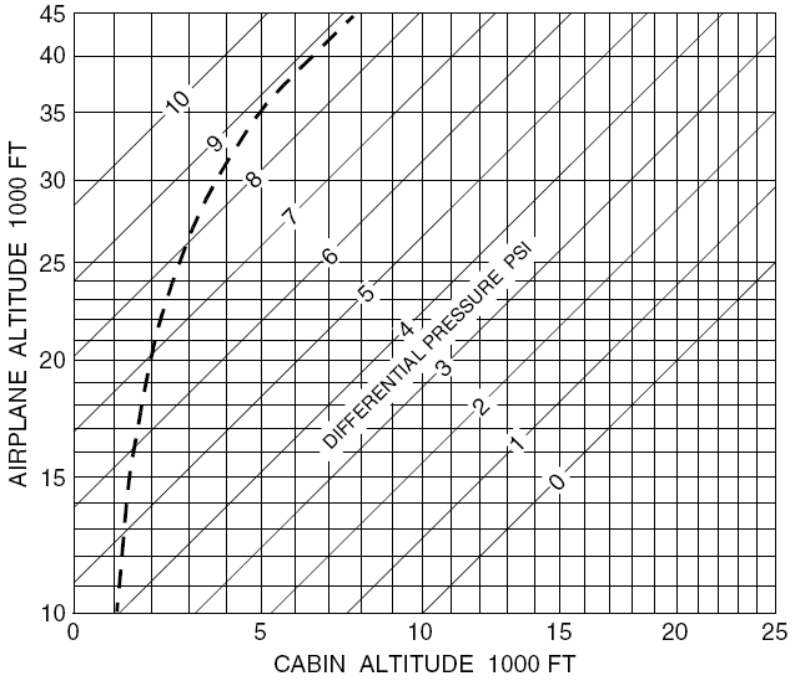
MEL ITEM	TAB LOCATION	PLACARD TEXT
21-33-03A	Adjacent To Lower EICAS Display	CABIN ALTITUDE INDICATION INOP
21-33-03B	Adjacent To Lower EICAS Display	CAB ALT INDICATION INOP

(O) PROCEDURES

21-33-03A

1. Ensure that cabin differential pressure indication operates normally.
2. Use the following chart to determine cabin differential pressure from indicated values of airplane and cabin altitude. Heavy dashed line gives differential pressure for Auto Controller schedule.

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21-33-03B

1. Carriage of revenue passengers – Not Authorized.
2. Comply with MEL Item 21-31-01B (O) procedure for unpressurized flight.
3. Comply with MEL Item 25-29-03B (O) procedure for flight attendant crew rest area.

(M) PROCEDURES

21-33-03B

1. Defer both outflow valves OPEN per MEL Item 21-31-01B.
2. Defer flight attendant crew rest area per MEL 25-29-03B.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
21-33-04A	OUTFLOW VALVES Position Indicators (Overhead Panel)	**Y**	2	0	**C**	May be inoperative provided all remaining components and functions of the pressurization system operate normally.
21-33-04B	OUTFLOW VALVES Position Indicators (Overhead Panel) **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Flight is conducted in an unpressurized configuration, b) No revenue passengers are carried, c) Extended overwater flight is prohibited, d) Flight remains within **60 minutes** of a suitable airport, e) Flight attendant crew rest area is considered inoperative per MEL 25-29-03B, and f) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-33-04A	Adjacent To Applicable Outflow Valve Position Indicator	___ OUTFLOW VALVE POSITION INDICATOR INOP
21-33-04B	Adjacent To Applicable Outflow Valve Position Indicator	___ OUTFLOW VALVE POSITION INDICATOR INOP

(O) PROCEDURES

21-33-04B

1. Carriage of revenue passengers – Not Authorized.
2. Comply with MEL Item 21-31-01B (O) procedure for unpressurized flight.
3. Comply with MEL Item 25-29-03B (O) procedure for flight attendant crew rest.

(M) PROCEDURES

21-33-04B

1. Defer both outflow valves inoperative per MEL item 21–31–01B.
2. Defer flight attendant crew rest area per MEL 25-29-03B.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-33-05A	Cabin Altitude Primary Sensors	**Y**	2	1	**C**	**(O)** One primary sensor may be inoperative provided the Cabin Altitude Backup Sensor (CPCS BACKUP SENS) system operates normally. NOTE: The cabin Altitude Warning system is not considered inoperative with one primary sensor inoperative.
21-33-05B	Cabin Altitude Primary Sensors **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided flight remains at or below 10,000 feet MSL.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-33-05A	Adjacent To Upper EICAS Display	___ CABIN ALTITUDE PRIMARY SENSOR INOP
21-33-05B	Adjacent To Upper EICAS Display	BOTH CABIN ALTITUDE PRIMARY SENSORS INOP. CABIN ALT WARNING INOP.

(O) PROCEDURES

21-33-05A

Ensure status message CPCS BACKUP SENS is not displayed.

21-33-05B

1. Cabin Altitude Warning System will be inoperative.
2. Maintain flight at or below 10,000 feet.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-33-06	Cabin Altitude Backup Sensor (CPCS BACKUP SENS) System	**Y**	1	0	**C**	**(O)** May be inoperative provided both Automatic Cabin Pressure Controllers operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-33-06	Adjacent To Upper EICAS Display	CABIN ALTITUDE BACKUP SENSOR SYSTEM INOP

(O) PROCEDURES

1. Ensure status message CABIN ALT AUTO A or status message CABIN ALT AUTO B is not displayed.
2. Status message CPCS BACKUP SENS will be displayed.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
DOOR 5 OVERHEAD CREW REST ENVIRONMENTAL CONTROL SYSTEM					
21-41-01A Temperature Control **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided heater is deactivated. NOTE: If required, reserve cabin seats for flight attendant use. Refer to In-Flight Service Programs and Policies Handbook Chapter 12, or current policy, for seat locations.
21-41-01B Ventilation **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Heater is deactivated, and b) Supply/boost fan is deactivated. NOTE: If required, reserve cabin seats for flight attendant use. Refer to In-Flight Service Programs and Policies Handbook Chapter 12, or current policy, for seat locations.
21-41-01C Temperature Indicator	**Y**	1	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-41-01A	On Door 5 – Crew Rest Door And On Temp Control Panel	DOOR 5 OVERHEAD CREW REST ENVIRONMENTAL CONTROL SYSTEM TEMP CONTROL INOP – HEATER DEACTIVATED
21-41-01B	On Door 5 – Crew Rest Door And On Temp Control Panel	DOOR 5 OVERHEAD CREW REST ENVIRONMENTAL CONTROL SYSTEM VENTILATION INOP – HEATER AND SUPPLY/BOOST FAN DEACTIVATED
21-41-01C	On Door 5 – Crew Rest Door And On Temp Control Panel Adjacent To Temp Ind.	DOOR 5 OVERHEAD CREW REST ENVIRONMENTAL CONTROL SYSTEM TEMP IND INOP.

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(O) PROCEDURES

21-41-01A, 21-41-01B

NOTE: Due to lack of temperature control or limited ventilation, Door 5 Overhead Crew Rest Area may become undesirable for occupancy on flights of long duration.

(M) PROCEDURES

21-41-01A

1. Deactivate the Door 5 Overhead Crew Rest Area heater.
2. Pull and secure the following circuit breakers:
   - OVDR 5 CREW REST HTR PWR on P85 panel in aft equipment center
   - CREW REST HTR CONT, position F20, on P180 DC power distribution panel

21-41-01B

1. Deactivate the Door 5 Overhead Crew Rest Area heater and SUPPLY/BOOST FAN as follows:
2. Pull and secure the following circuit breakers:
   - OVDR 5 CREW REST HTR PWR on P85 panel in aft equipment center.
   - CREW REST FAN PWR on P85 panel in aft equipment center.
   - CREW REST HTR CONT, position F20, on P180 DC power distribution panel.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-42-01	Flight Crew Auxiliary Heat System (Foot and Shoulder)	**Y**	1	0	**C**	May be inoperative OFF.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-42-01	Adjacent To Applicable Foot/Shoulder Warmer Control	___ FOOT/SHOULDER WARMER INOP. KEEP IN OFF POSITION.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD	NUMBER REQUIRED FOR DISPATCH		REPAIR CATEGORY	REMARKS OR EXCEPTIONS
21-42-02A	Flight Deck Crew Rest Area Heat Control System (Class 1 Facility) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided the crew rest compartment is considered inoperative and deferred per the appropriate MEL 25-29-03A item.
21-42-02B	Flight Deck Crew Rest Area Heat Control System (Class 1 Facility) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) The heater is deactivated, b) The compartment temperature is acceptable to crew members, c) The flight crew rest compartment is downgraded to a Class 2 Facility for flight planning purposes, and d) If required, appropriate adjustments to flight crew member duty period limits are made. NOTE: Class 1 rest facility not available. Contact the Fleet Sector Manager through Dispatcher for alternate flight crew rest accommodations.
21-42-02C	Flight Deck Crew Rest Area Heat Control System Temperature Control Functions (LOW/MED/HIGH) (Class 1 Facility) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided the crew rest compartment is considered inoperative and deferred per the appropriate MEL 25-29-03A item.
21-42-02D	Flight Deck Crew Rest Area Heat Control System Temperature Control Functions (LOW/MED/HIGH) (Class 1 Facility) **"DISP.APPR.REQ'D"**	**Y**	-	0	**C**	**(O)** May be inoperative provided: a) The compartment temperature is acceptable to crew members, b) The flight crew rest compartment is downgraded to a Class 2 Facility for flight planning purposes, and c) If required, appropriate adjustments to flight crew member duty period limits are made. NOTE: Class 1 rest facility not available. Contact the Fleet Sector Manager through Dispatcher for alternate flight crew rest accommodations. .

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MEL ITEM	TAB LOCATION	PLACARD TEXT
21-42-02A	Adjacent To Flight Deck Crew Rest Area Heat Controller	FLIGHT DECK CREW REST AREA HEAT CONTROL SYSTEM INOP
21-42-02B	Adjacent To Flight Deck Crew Rest Area Heat Controller	FLIGHT DECK CREW REST AREA HEAT CONTROL SYSTEM INOP
21-42-02C	Adjacent To Flight Deck Crew Rest Area Heat Controller	___ HEAT SELECTION OF THE FLIGHT DECK CREW REST AREA HEAT CONTROL SYSTEM INOP.
21-42-02D	Adjacent To Flight Deck Crew Rest Area Heat Controller	___ HEAT SELECTION OF THE FLIGHT DECK CREW REST AREA HEAT CONTROL SYSTEM INOP.

(O) PROCEDURES

21-42-02A, 21-42-02C

Ensure (O) procedures for 25-29-03A are complied with.

21-42-02B, 21-42-02D

Ensure appropriate limitations to flight crew duty periods for a Class 2 facility are followed.

NOTE: Class 1 rest facility not available. Contact the Fleet Sector Manager through Dispatcher for alternate flight crew rest accommodations.

(M) PROCEDURES

21-42-02A, 21-42-02C

Defer the crew rest compartment per MEL 25-29-03A.

21-42-02B

Pull and secure the P415 panel FT DK CREW REST HTR circuit breaker.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-43-01	Forward Cargo Compartment Heating System (Electric)	**N**	1	0	**C**	**(M)(O)** May be inoperative OFF.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-43-01	On The Air–Conditioning /Pressurization Control Panel	LEFT and/or RIGHT FWD CARGO HEAT INOP AND DEACTIVATED

(O) PROCEDURES

NOTE: Status message(s) CARGO HEAT FWD L and /or CARGO HEAT FWD R will remain displayed.

(M) PROCEDURES

Pull and secure the circuit breaker for the inoperative heater(s):

- For the Left heater, pull and secure the P414 panel CARGO HTR PWR LEFT FWD circuit breaker.
- For the Right heater, pull and secure the P415 panel CARGO HTR PWR RIGHT FWD circuit breaker.

NOTE: Status message(s) “CARGO HEAT FWD L” and /or “CARGO HEAT FWD R” will remain displayed.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
21-44-01	Aft Cargo Heating System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) One valve (control or shutoff) is secured closed, and b) No live animals or perishables are carried in the aft/bulk cargo compartment.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-44-01	Adjacent To Aft Cargo Heat Switch	AFT CARGO HEAT SYSTEM INOP.

(M) PROCEDURES

1. Position the Temperature Control panel (P5) AFT CARGO HT switch to OFF position.
2. Pull and secure AFT CARGO HEAT PWR circuit breaker, position L29 on panel P415.
3. Pull CARGO HEAT AFT circuit breaker, position H9 on panel P7.

CAUTION: ENSURE THAT LANDING GEAR GROUND LOCKS AND MAIN GEAR DOOR LOCKS ARE INSTALLED BEFORE ENTERING WHEEL WELL AREA.

4. Deactivate control valve or override valve in the closed position.
5. Access for both valves is right wing gear wheel well area, forward bulkhead. Override valve is directly above control valve on pneumatic ducting.
6. Disconnect, cap, and stow the electrical connector from the aft cargo heat control or override valve.
7. Manually position control or override valve closed using manual operating handle.
8. Close the open CARGO HEAT AFT circuit breaker, position H9 on panel P7.
9. Check that either the control or override valve is closed. If necessary, close one of the valves using the manual operating handle on the valve position indicator.

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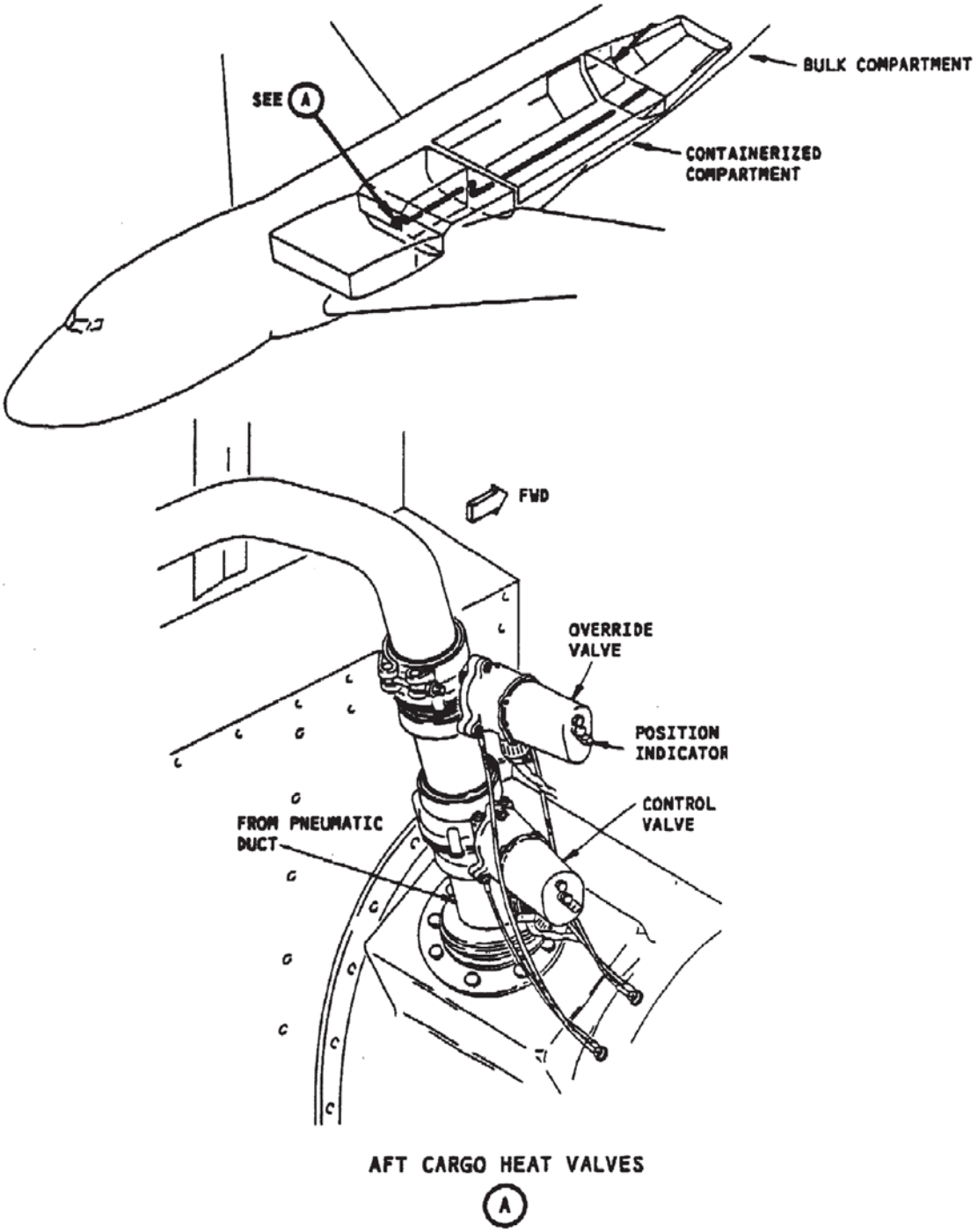


FIGURE 21–44–1 AFT CARGO HEAT VALVES LOCATION

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
21-44-02	Aft Cargo TEMP LIGHT	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-44-02	Adjacent To Aft Cargo TEMP Light	AFT CARGO TEMP LIGHT INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	**NAME / DESCRIPTION**					**REMARKS OR EXCEPTIONS**
21-44-03	Aft Cargo Heat 90 Degree F Overheat Switch **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	May be inoperative provided: a) AFT CARGO HT remains OFF, and b) No live animals or perishables are carried in the aft/bulk cargo compartment.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-44-03	Adjacent To Aft Cargo Heat Switch	AFT CARGO HEAT 90 DEGREE F OVERHEAT SWITCH INOP. KEEP CARGO HEAT OFF

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-44-04A	Aft Cargo Compartment Heat Temperature Control (Sidewall Switches)	**N**	2	1	**C**	**(M)** One may be inoperative provided operative switch is selected.
21-44-04B	Aft Cargo Compartment Heat Temperature Control (Sidewall Switches **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	Both switches may be inoperative provided: a) AFT CARGO HT remains OFF, and b) No live animals or perishables are carried in the aft/bulk cargo compartment.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-44-04A	Adjacent To Aft Cargo Heat Switch	___ AFT CARGO COMP HEAT TEMP CONTROL SIDEWALL SWITCH INOP
21-44-04B	Adjacent To Inoperative Aft Cargo Heat Switch (P5 panel)	BOTH AFT CARGO COMP HEAT TEMP CONTROL SIDEWALL SWITCHES INOP

(M) PROCEDURES

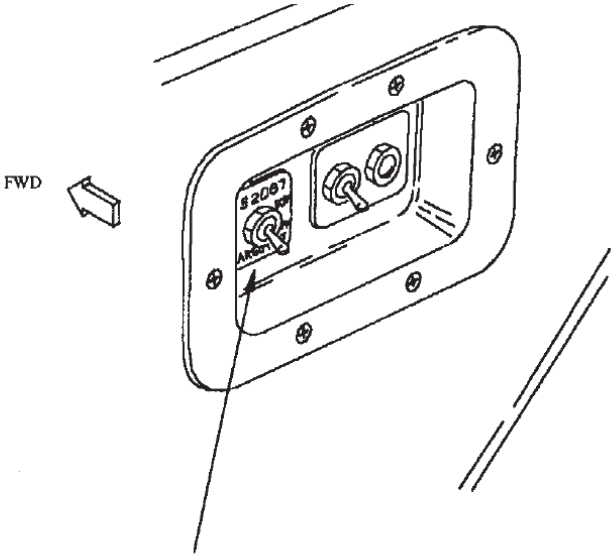
21-44-04A

Locate the Aft Cargo Compartment temperature select switch just forward of the bulk cargo door.

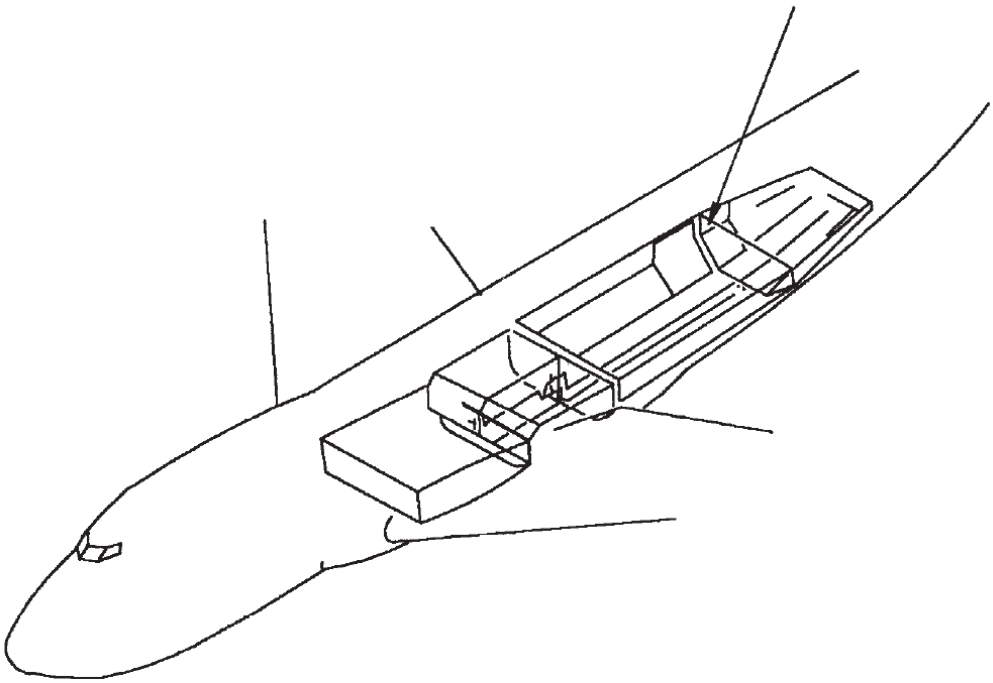
- If low temperature sidewall switch is inoperative, select high temperature position on the selector.
- If high temperature sidewall switch is inoperative, select low temperature position on the selector.

NOTE: The low temperature position on the selector will be labeled 40° F. Depending on the modification status, the high temperature position will be labeled either 50° F or 65° F.

Continued Next Page



BULK COMPARTMENT
SIDEWALL SWITCH SELECTOR



NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-51-01 Packs	**N**	3	2	**C**	**(M)(O)** One may be inoperative provided: a) Associated pack is selected OFF, and b) Associated Pack Flow Control and Shutoff Valve is secured closed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-51-01	Adjacent To The Affected Pack Control Selector	___ AIR CONDITIONING PACK INOP

(O) PROCEDURES

1. Ensure that the associated pack is selected OFF.
2. Select HI FLOW on the remaining packs to ensure they will operate in High Flow Mode.

   NOTE: Associated PACK advisory message may be displayed.

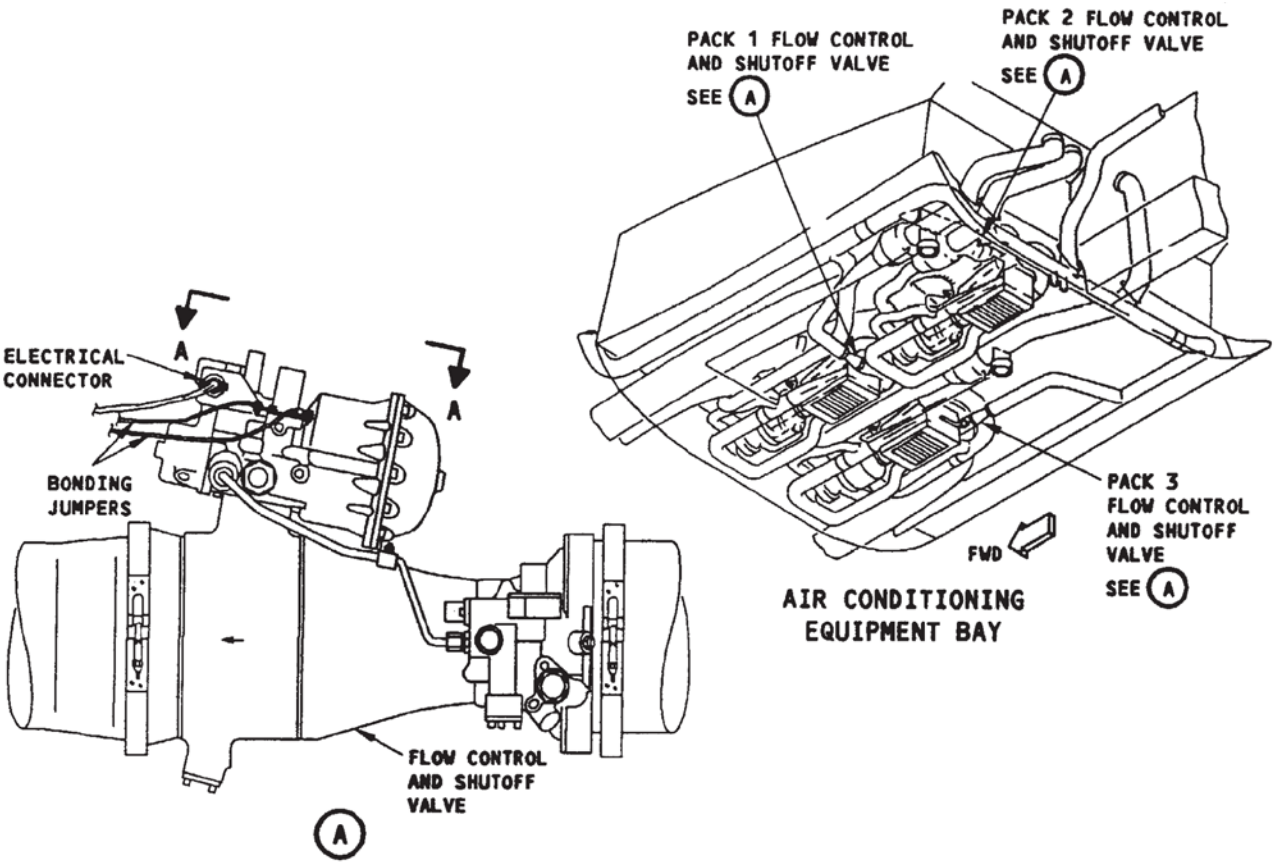
(M) PROCEDURES

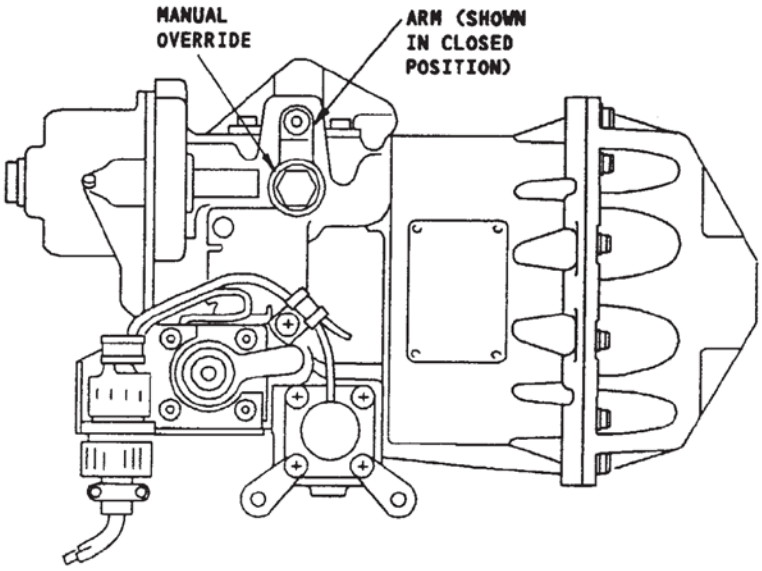
Deactivate the associated Pack Flow Control and Shutoff Valve closed as follows:

1. Position the associated Bleed Air Control panel (P5) PACK selector to the OFF position.
2. Access valve through the air conditioning equipment bay access doors.
3. Manually rotate crank arm on the end of butterfly shaft until the valve is closed.
4. Run screw on the end of the crank arm into the hole in casting.
5. Position the overhead panel (P5) HI FLOW switch to ON.

   NOTE: The associated PACK_ advisory message may be displayed.

Continued Next Page


PACK 1 FLOW CONTROL AND SHUTOFF VALVE
SEE (A)
PACK 2 FLOW CONTROL AND SHUTOFF VALVE
SEE (A)
ELECTRICAL CONNECTOR
A
A
BONDING JUMPERS
FLOW CONTROL AND SHUTOFF VALVE
(A)
PACK 3 FLOW CONTROL AND SHUTOFF VALVE
SEE (A)
FWD
AIR CONDITIONING EQUIPMENT BAY


MANUAL OVERRIDE
ARM (SHOWN IN CLOSED POSITION)

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-51-02A	Pack Flow Control and Shutoff Valves	**N**	3	2	**C**	**(M)(O)** One may be inoperative closed provided: a) Associated pack is selected OFF, and b) Associated Pack Flow Control and Shutoff Valve is secured closed.
21-51-02B	Normal Flow Mode **"DISP.APPR.REQ'D"**	**Y**	3	2	**C**	**(M)(O)** May be inoperative provided: a) Valve is verified to close when the associated pack is selected OFF, and b) Performance corrections are applied.
21-51-02C	Normal Flow Mode **"DISP.APPR.REQ'D"**	**Y**	3	1	**C**	**(M)(O)** May be inoperative provided: a) Valve(s) is verified to close when the associated pack is selected OFF, and b) Performance corrections are applied.
21-51-02D	Normal Flow Mode **"DISP.APPR.REQ'D"**	**Y**	3	0	**C**	**(M)(O)** May be inoperative provided: a) Valve(s) is verified to close when the associated pack is selected OFF, and b) Performance corrections are applied.
21-51-02E	High Flow Mode	**Y**	3	2	**C**	May be inoperative provided two packs are operating.
21-51-02F	High Flow Mode **"DISP.APPR.REQ'D"**	**Y**	3	0	**C**	May be inoperative provided: a) Three packs are operating, and b) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-51-02A	Adjacent To The Affected Pack Control Selector	___ PACK FLOW CONTROL AND SHUTOFF VALVE INOP AND SECURED CLOSED – LEAVE PACK OFF.
21-51-02B	Adjacent To The Affected Pack Control Selector	___ PACK FLOW CONTROL AND SHUTOFF VALVE NORMAL FLOW MODE INOP.
21-51-02C	Adjacent To The Affected Pack Control Selector	___ PACK FLOW CONTROL AND SHUTOFF VALVES NORMAL FLOW MODE INOP.
21-51-02D	Adjacent To The Pack Control Selectors	ALL PACK FLOW CONTROL AND SHUTOFF VALVES NORMAL FLOW MODE INOP.
21-51-02E	Adjacent To The Hi Flow Switch On The Temperature Control Panel	___ PACK FLOW CONTROL AND SHUTOFF VALVE HIGH FLOW MODE INOP
21-51-02F	Adjacent To The Hi Flow Switch On The Temperature Control Panel	___ PACK FLOW CONTROL AND SHUTOFF VALVE HIGH FLOW MODE INOP.

Continued Next Page

(O) PROCEDURES

21-51-02A

1. Ensure that the associated pack is selected OFF.
2. Select HI FLOW on the remaining packs to ensure they will operate in High Flow Mode.

NOTE: Associated PACK advisory message may be displayed.

21-51-02B

21-51-02B	PACK FLOW CONTROL AND SHUTOFF VALVES – NORMAL FLOW MODE
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 0.3%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

21-51-02C

21-51-02C	PACK FLOW CONTROL AND SHUTOFF VALVES – NORMAL FLOW MODE
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 0.6%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

Continued Next Page

21-51-02D

21-51-02D	PACK FLOW CONTROL AND SHUTOFF VALVES – NORMAL FLOW MODE
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 0.9%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

(M) PROCEDURES

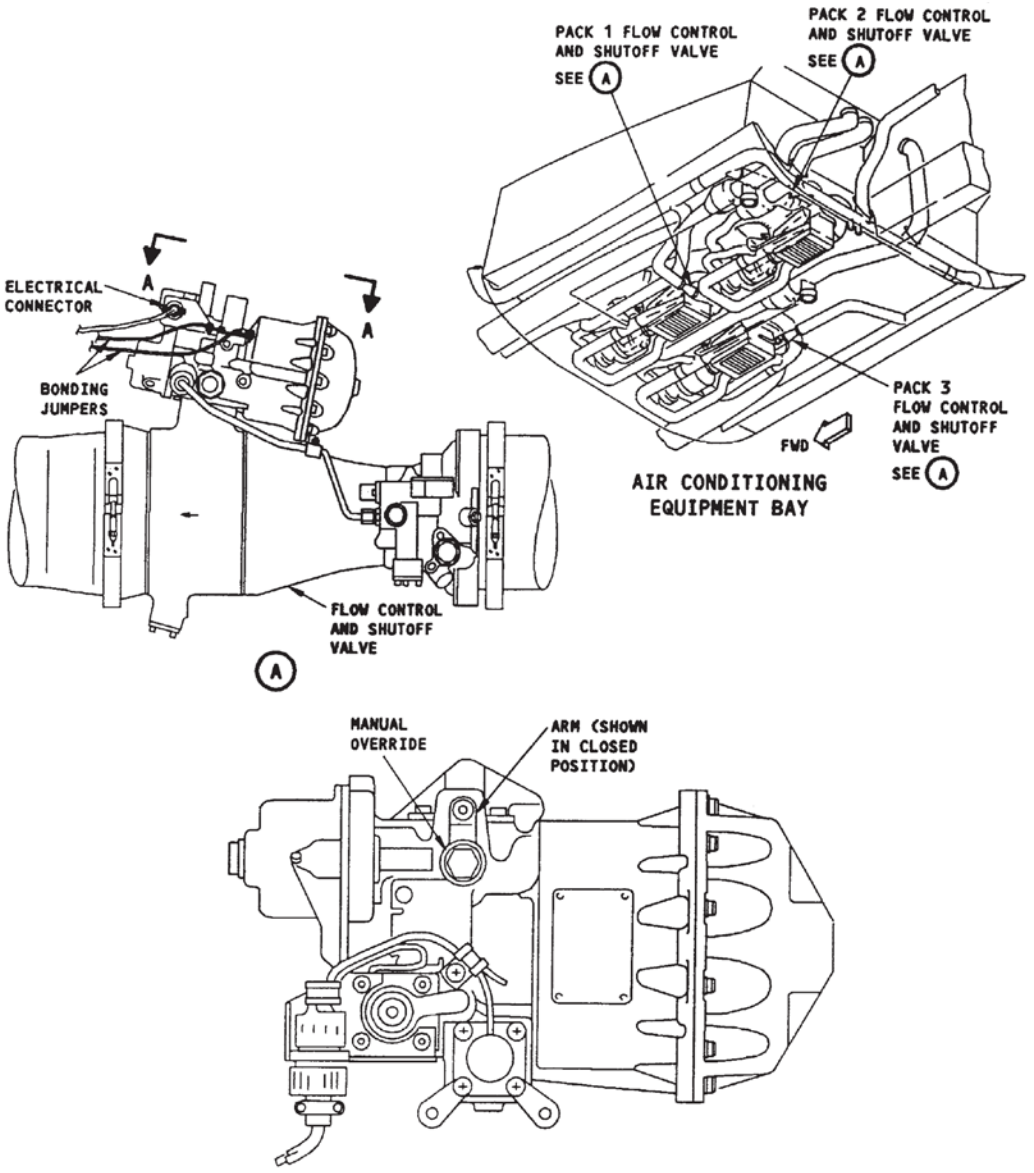
21-51-02A

Deactivate the affected Pack Flow Control and Shutoff Valve closed as follows:

1. Position the associated Bleed Air Control panel (P5) PACK selector OFF position.
2. Access valve through the air conditioning equipment bay access doors.
3. Manually rotate crank arm on end of butterfly shaft until valve is closed.
4. Run screw on end of the crank into hole in the casting.
5. Position the overhead panel (P5) HI FLOW switch ON.

   NOTE: The associated PACK_ advisory message may be displayed.

Continued Next Page



21-51-02B, 21-51-02C, 21-51-02D

Verify Pack Flow Control and Shutoff Valve(s) will close when the associated pack is selected OFF:

1. Pressurize the pneumatic manifold.
2. Select ECS synoptic display.
3. Position the associated Bleed Air Control panel (P5) PACK selector to NORM and confirm that air flow to the pack is indicated on the synoptic display.
4. Position the associated Bleed Air Control panel (P5) PACK selector OFF and verify OFF is displayed for the associated pack on the synoptic display.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
21-51-03	Pack HI FLOW Switch	**Y**	1	0	**C**	**(O)** May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-51-03	Adjacent To Pack Selectors	PACK HI–FLOW SWITCH INOP

(O) PROCEDURES

Hi Flow Mode is available by selecting LWR RECIRC fans OFF.

NOTE: All three packs will automatically switch to HI FLOW mode with LWR RECIRC fans selected OFF.

ITEM NO. NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
21-51-04A Air Cycle Machines (ACM)	**N**	3	2	**C**	**(M)(O)** One may be inoperative provided: a) Associated turbine bypass valve is secured open (full heat), b) Associated pack overheat protective system operates normally, and c) PACK RST Switch operates normally.
21-51-04B Air Cycle Machines (ACM)	**N**	3	2	**C**	**(M)(O)** One may be inoperative provided: a) Associated pack is selected OFF, and b) Associated Pack Flow Control and Shutoff Valve is secured closed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-51-04A	Adjacent To Affected Pack Controller Selector	___ ACM IS INOP. BYPASS VALVE SECURED FULL OPEN
21-51-04B	Adjacent To Affected Pack Controller Selector	___ ACM IS INOP

(O) PROCEDURES

21-51-04A

1. A pack operating with an inoperative ACM will, under some flight conditions, have degraded temperature control. However, cabin pressurization will operate normally.
2. PACK ___ status message remains displayed when a turbine bypass valve is secured open.
3. Do not operate affected pack until airborne and TAT is + 10° C or cooler. Select affected Pack Control Selector to NORM, to A, or to B.
4. During Descent, when TAT rises above +10° C, select affected Pack Control Selector OFF.

   NOTE: Pack may trip if an attempt is made to operate it on the ground or in warm temperatures inflight. Selecting pack ON at a TAT of +10° C will result in a pack outlet temperature of approximately 70° F.

21-51-04B

1. Ensure that the associated pack is selected OFF.
2. Select HI FLOW on the remaining packs to ensure they will operate in High Flow Mode.

   NOTE: Associated PACK advisory message may be displayed.

Continued Next Page

(M) PROCEDURES

21-51-04A

1. Secure the turbine bypass valve open as follows:
   a. Pull the following circuit breakers on the P6 panel:

CIRCUIT BREAKER	GRID LOCATION
PACK TEMP CONT–A	F35
PACK TEMP CONT–B	F36

   b. Access valve through the appropriate air conditioning equipment bay access door. The valve is on the right side of the related ACM in the turbine bypass line.
   c. Remove the electrical connector from the turbine bypass valve (TBV).
   d. Loosen the strain relief clamp supporting the connector's wire bundle.
   e. Remove wire from pin 5 of the TBV connector,
   f. Remove wire from pin 7 of the TBV connector.
   g. Sleeve pin 5 and pin 7 individually per the Boeing Standard Wiring Practice Manual 20–10–15 using sleeve material RT–876. Sleeve must extend a minimum of one half inch beyond end of pin.
   h. Stow wires to bundle per Boeing Standard Wiring Practice Manual 20–10–11.
   i. Tighten the strain relief clamp supporting the connector's wire bundle.
   j. Install Allen wrench in the manual positioning shaft and rotate wrench to drive valve to open position as indicated on valve's position indicator.
   k. Reconnect electrical connector to TBV.
   l. Close the following circuit breakers on the P6 panel:

CIRCUIT BREAKER	GRID LOCATION
PACK TEMP CONT–A	F35
PACK TEMP CONT–B	F36

2. Ensure that the Pack Discharge Temperature Sensor for the associated pack operates normally by verifying the following messages **are not** present on the CMC.

   Pack 1 –21112, 21172 Pack 2 – 21123, 21173 Pack 3 – 21134, 21174

   NOTE: Status Message "PACK ____" will remain displayed.

21-51-04B

Defer the associated Pack Flow Control and Shutoff Valve closed per MEL 21-51-01.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-51-05A	ACM Turbine Bypass Valves	**N**	3	2	**C**	**(M)(O)** One may be inoperative provided: a) Inoperative valve is secured open, b) Associated pack overheat protective system operates normally, c) PACK RST Switch operates normally, and d) CMC is reviewed for other faults related to PACK __ status message PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**
21-51-05B	ACM Turbine Bypass Valves	**N**	3	2	**C**	**(M)(O)** May be inoperative provided: a) Associated pack is selected OFF, and b) Associated Pack Flow Control and Shutoff valve is secured closed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-51-05A	Adjacent To Affected Pack Controller Selector	___ ACM BYPASS VALVE INOP and SECURED OPEN
21-51-05B	Adjacent To Affected Pack Controller Selector	___ ACM BYPASS VALVE INOP

(O) PROCEDURES

21-51-05A

1. A pack operating with an inoperative ACM will, under some flight conditions, have degraded temperature control. However, cabin pressurization will operate normally.
2. PACK ___ status message remains displayed when a turbine bypass valve is secured open.
3. Do not operate affected pack until airborne and TAT is + 10° C or cooler. Select affected Pack Control Selector to NORM, to A, or to B.
4. During Descent, when TAT rises above +10° C, select affected Pack Control Selector OFF.

   NOTE: Pack may trip if an attempt is made to operate it on the ground or in warm temperatures inflight. Selecting pack ON at a TAT of +10° C will result in a pack outlet temperature of approximately 70° F.

21-51-05B

1. Ensure that the associated pack is selected OFF.
2. Select HI FLOW on the remaining packs to ensure they will operate in High Flow Mode.

   NOTE: Associated PACK advisory message may be displayed.

Continued Next Page

(M) PROCEDURES

21-51-05A

1. Secure the turbine bypass valve open as follows:
   a. Pull the following circuit breakers on the P6 panel:

CIRCUIT BREAKER	GRID LOCATION
PACK TEMP CONT–A	F35
PACK TEMP CONT–B	F36

   b. Access valve through the appropriate air conditioning equipment bay access door. The valve is on the right side of the related ACM in the turbine bypass line.
   c. Remove the electrical connector from the turbine bypass valve (TBV).
   d. Loosen the strain relief clamp supporting the connector's wire bundle.
   e. Remove wire from pin 5 of the TBV connector,
   f. Remove wire from pin 7 of the TBV connector.
   g. Sleeve pin 5 and pin 7 individually per the Boeing Standard Wiring Practice Manual 20–10–15 using sleeve material RT–876. Sleeve must extend a minimum of one half inch beyond end of pin.
   h. Stow wires to bundle per Boeing Standard Wiring Practice Manual 20–10–11.
   i. Tighten the strain relief clamp supporting the connector's wire bundle.
   j. Install Allen wrench in the manual positioning shaft and rotate wrench to drive valve to open position as indicated on valve's position indicator.
   k. Reconnect electrical connector to TBV.
   l. Close the following circuit breakers on the P6 panel:

CIRCUIT BREAKER	GRID LOCATION
PACK TEMP CONT–A	F35
PACK TEMP CONT–B	F36

2. Ensure that the Pack Discharge Temperature Sensor for the associated pack operates normally by verifying the following messages **are not** present on the CMC.

   Pack 1 –21112, 21172 Pack 2 – 21123, 21173 Pack 3 – 21134, 21174

   NOTE: Status Message "PACK ___" will remain displayed.

3. **PRIOR TO EACH DEPARTURE:**
   a. Review CMC for other faults related to PACK_ status message and dispatch per associated MEL:
      1) Pack 1: 21113, 21114, 21115, 21117
      2) Pack 2: 21124, 21125, 21126, 21128
      3) Pack 3: 21135, 21136, 21137, 21139

21-51-05B

Defer the associated Pack Flow Control and Shutoff Valve closed per MEL 21-51-01.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-51-06	Water Separators	**N**	3	0	**C**	**(M)** May be operated with coalescer bag removed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-51-06	Adjacent To Affected Pack Controller Selector	___ WATER SEPARATOR COALESCER BAG REMOVED

(M) PROCEDURES

Procedures for removal and installation of the water separator coalescer are included in the Water Separator – Cleaning procedure in the Maintenance Manual (21–51–05/201).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-51-07A	Pack Overheat Switches	**N**	3	0	**C**	**(M)** May be inoperative provided: a) Both pack Temperature Sensors for associated pack operate normally, and b) Both pack Temperature Control channels for associated Pack operate normally. NOTE: Not required for an inoperative pack.
21-51-07B	Pack Overheat Switches	**N**	3	2	**C**	**(M)(O)** One may be inoperative provided: a) Associated pack is selected OFF, and b) Associated Pack Flow Control and Shutoff Valve is secured closed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-51-07A	Adjacent To Affected Pack Controller Selector	___ PACK OVERHEAT SWITCH INOP
21-51-07B	Adjacent To Affected Pack Controller Selector	___ PACK OVERHEAT SWITCH INOP

(O) PROCEDURES

21-51-07B

1. Ensure that the associated pack is selected OFF.
2. Select HI FLOW on the remaining packs to ensure they will operate in High Flow Mode.

   NOTE: Associated PACK advisory message may be displayed.

(M) PROCEDURES

21-51-07A

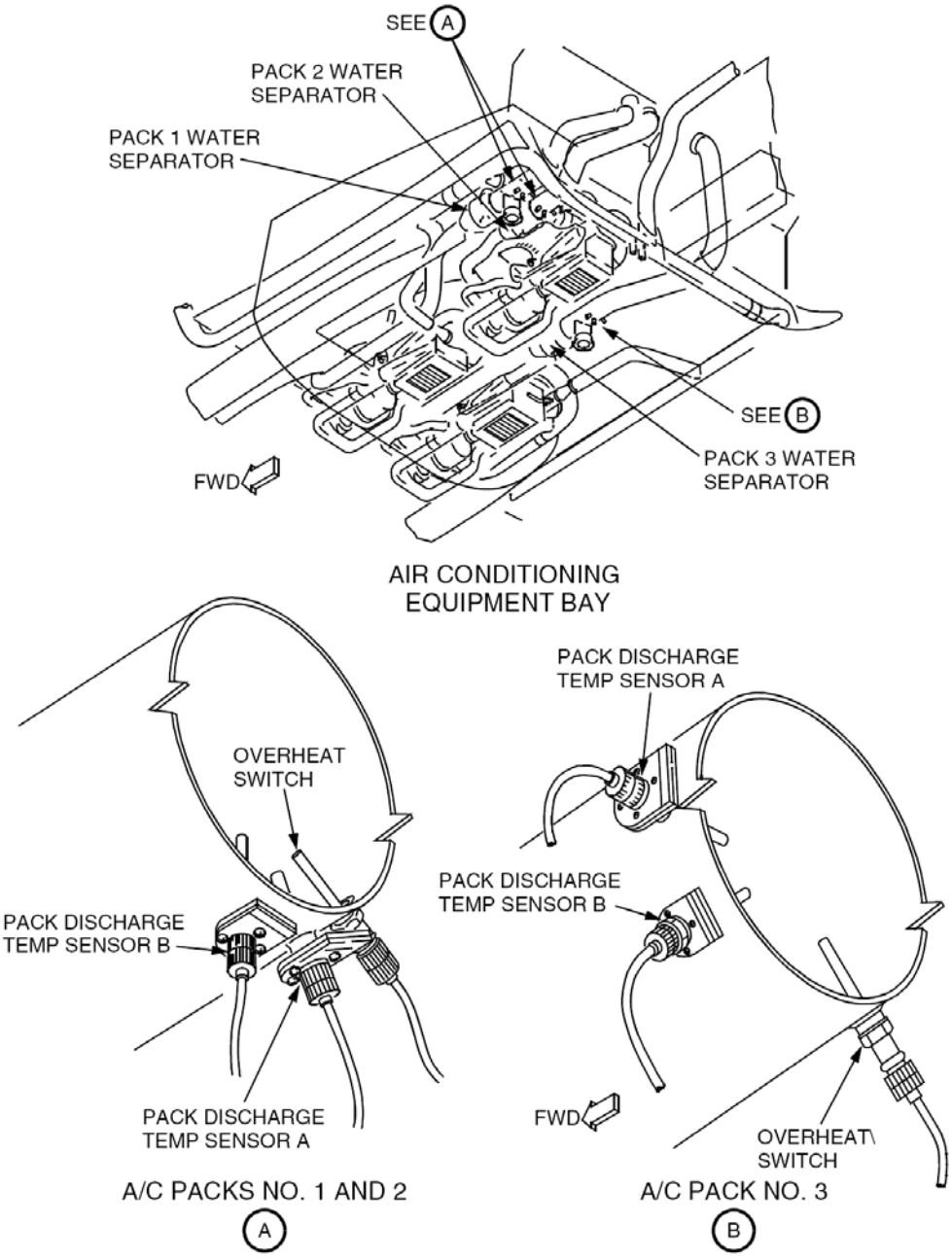
To dispatch with the associated pack(s) operating, deactivate the affected Overheat Switch as follows:

1. Position the associated Bleed Air Control panel (P5) PACK selector OFF.
2. Gain access to the affected pack through the appropriate Air Conditioning Pack Access Door located on the underside of the aircraft.
3. Disconnect, cap and stow the affected electrical connector from Pack Overheat Switch installed in the Compressor Discharge Duct.

   Connector numbers are:

   - Pack 1: DS519
   - Pack 2: DS518
   - Pack 3: DS521
4. Cap and stow electrical connector.

Continued Next Page



21-51-07B

Defer the associated Pack Flow Control and Shutoff Valve closed per MEL 21-51-01.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-51-08A	Compressor Overheat Switches	**N**	3	2	**C**	**(M)(O)** One may be inoperative provided Associated pack remains OFF.
21-51-08B	Compressor Overheat Switches	**N**	3	0	**C**	**(M)** May be inoperative provided: a) Compressor Temperature Bulb for associated pack operates normally, b) Pack Coolant (Inlet/Exit doors) system operates normally, and c) Compressor Overheat Switch(es) is deactivated.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-51-08A	Adjacent To Affected Pack Controller Selector	___ COMPRESSOR OVERHEAT SWITCH INOP
21-51-08B	Adjacent To Affected Pack Controller Selector	___ COMPRESSOR OVERHEAT SWITCH INOP AND DEACTIVATED.

(O) PROCEDURES

21-51-08A

1. Ensure that the associated pack is selected OFF.
2. Select HI FLOW on the remaining packs to ensure they will operate in High Flow Mode.

   NOTE: Associated PACK advisory message may be displayed.

(M) PROCEDURES

21-51-08A

Defer the associated Pack Flow Control and Shutoff Valve closed per MEL 21-51-01.

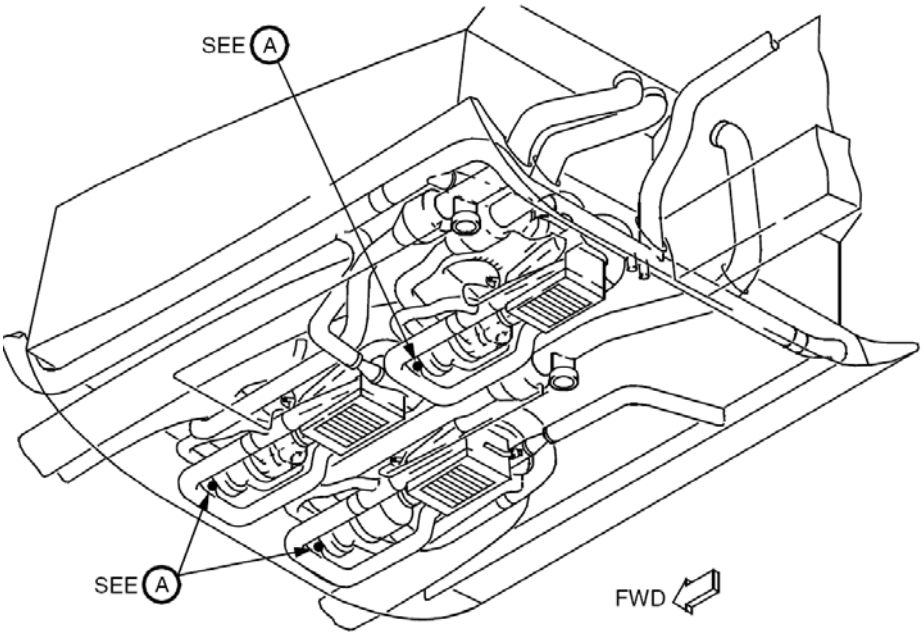
21-51-08B

1. Deactivate the affected Compressor Discharge Overheat Switch as follows:
2. Position the associated Bleed Air Control Panel (P5) PACK selector OFF.
3. Gain access to the affected pack through the appropriate Air Conditioning Pack Access Door located on the underside of the aircraft.
4. Disconnect, cap and stow the associated electrical connector from the inoperative Compressor Discharge Overheat Switch installed in the Compressor Discharge Duct.

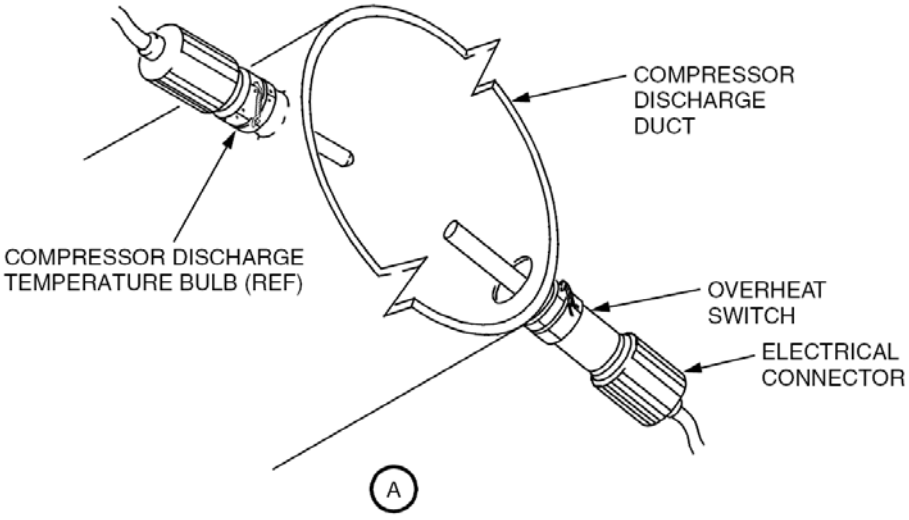
   The Connector part numbers are:

   - Pack 1: DS520
   - Pack 2: DS517
   - Pack 3 DS522

Continued Next Page



AIR CONDITIONING PACKS



		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-51-09A	Compressor Temperature Bulbs	**N**	3	0	**C**	**(M)** May be inoperative provided the compressor overheat discharge switches operate normally.
21-51-09B	Compressor Temperature Bulbs	**N**	3	2	**C**	**(M)(O)** One may be inoperative provided: a) Associated pack is selected OFF, and b) Associated Pack Flow Control and Shutoff Valve is secured closed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-51-09A	Adjacent To Lower Lower EICAS Display	___ COMPRESSOR TEMPERATURE BULB INOP
21-51-09B	Adjacent To Lower Lower EICAS Display	___ COMPRESSOR TEMPERATURE BULB INOP

(O) PROCEDURES

21-51-09B

1. Ensure that the associated pack is selected OFF.
2. Select HI FLOW on the remaining packs to ensure they will operate in High Flow Mode.

   NOTE: Associated PACK advisory message may be displayed.

(M) PROCEDURES

21-51-09A

To dispatch with the compressor temperature bulbs inoperative, ensure that the compressor discharge overheat switches operate normally by accomplishing compressor discharge overheat switch test (AMM 21–51–09/501)

21-51-09B

Defer the associated Pack Flow Control and Shutoff Valve closed per MEL 21-51-01.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-52-01	Pack SYS FAULT Light	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-52-01	Adjacent To Pack System Fault Light On ECS Panel	PACK SYSTEM FAULT LIGHT INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-58-01	Equipment Cooling Control System (NORM mode) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) STBY mode is used, and b) For ground operation above 105 degrees F OAT (41 degrees C) at least one pack is operating.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-58-01	Adjacent To Equipment Cooling Control Switch On ECS Panel	EQUIPMENT COOLING CONTROL SYSTEM NORM MODE INOP

(O) PROCEDURES

1. On the overhead panel, Position the Temperature Control Panel EQUIP COOLING selector to STBY.
2. Use at least one pack for all ground operations above 105° F OAT (41° C).

   NOTE: For a no pack takeoff, packs can be selected OFF at start of takeoff.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
21-58-02A	Equipment Cooling Inboard Exhaust Valve **"DISP.APPR.REQ'D"**	**N** 1	0	**C**	**(M)(O)** May be inoperative deactivated closed provided: a) Equipment cooling system is operated with one fan deactivated, b) Remaining fan operates normally, c) For operation on the ground above 85 degrees F OAT (29 degrees C) at least one pack is operating, and d) No perishables are carried in the forward cargo compartment. NOTE: Forward cargo heating will not be available.
21-58-02B	Equipment Cooling Inboard Exhaust Valve **"DISP.APPR.REQ'D"**	**N** 1	0	**C**	**(M)(O)** May be inoperative deactivated open provided: a) Equipment cooling system is operated in the NORMAL or STBY mode, b) Both equipment cooling fans operate normally, and c) Forward cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-58-02A	Adjacent To The Equipment Cooling Mode Selector Switch On P5 Panel	EQUIPMENT COOLING INBOARD EXHAUST VALVE INOP DEACTIVATED CLOSED.
21-58-02B	Adjacent To The Equipment Cooling Mode Selector Switch On P5 Panel	EQUIPMENT COOLING INBOARD EXHAUST VALVE INOP DEACTIVATED OPEN

(O) PROCEDURES

21-58-02A

Use at least one pack for all ground operations above 85° F OAT (29° C).

NOTE 1: For a no pack takeoff, packs can be selected OFF at start of takeoff.

NOTE 2: With Exhaust Fan deactivated, status message EE CLNG EXH FAN will remain annunciated,

OR

NOTE 3: With Supply Fan deactivated, status messages EE CLNG SUP FAN and EE CLNG INBD EXH will remain annunciated.

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21-58-02B

Operate equipment cooling only in the NORMAL or STBY mode.

NOTE: With Inboard Exhaust Valve deactivated open, status message EE CLNG INBD EXH will remain annunciated.

(M) PROCEDURES

21-58-02A

Deactivate one fan and inboard exhaust valve CLOSED using either the exhaust fan deactivation procedure (Method 1) or supply fan deactivation procedure (Method 2).

1. Method 1 (for exhaust fan deactivation and inboard exhaust valve closed):
   a. Open P414 Panel EQUIP COOL CONT VLV INBD circuit breaker.
   b. Obtain a P/N BACC45FN14-15P (or equivalent) connector and two P/N BACC47CN1A or P/N BACC47CN1S pin contacts (or equivalent).
   c. Using 3 to 4 inches of BMS 13-60 Type 1 / BMS13-48 Type 10 wire (or equivalent), short pin numbers 5 & 6 on the shorting plug.
   d. Disconnect electrical connector from Inboard Exhaust Valve, located in the forward cargo floor area at Sta. 560.
   e. Install shorting plug, P/N BACC45FN14–15P with shorting wire attached, on the electrical connector and stow.
      NOTE: The shorting wire is installed so EQUIP COOLING cautionary message and EE CLNG INBD EXH status message will not display due to the disabled Inboard Exhaust Valve
   f. Manually position inboard exhaust valve closed.
   g. Close P414 Panel EQUIP COOL CONT VLV INBD circuit breaker.
   h. Pull and secure P415 Panel EQPT COOLING EXHAUST FAN circuit breaker.
      NOTE: Status message “EE CLNG EXH FAN” will remain annunciated.
   i. Defer the Exhaust Fan inoperative per MEL item 21–58–04.
2. Method 2 (for supply fan deactivation and inboard exhaust valve closed):
   a. Open P414 Panel EQUIP COOL CONT VLV INBD circuit breaker.
   b. Disconnect, cap and stow electrical connector from Inboard Exhaust Valve located in the forward cargo floor area at Sta. 560.
   c. Manually position inboard exhaust valve closed.
   d. Close P414 Panel EQUIP COOL CONT VLV INBD circuit breaker.
   e. Pull and secure P414 Panel EQPT COOLING SUPPLY FAN circuit breaker.
      NOTE 1: EE Cooling System will not provide adequate equipment cooling until Inboard Exhaust Valve is closed. The EICAS caution message EQUIP COOLING will be displayed and the ground crew call horn will sound if the following step is not accomplished within 30 seconds after opening the circuit breaker in step (d) above.
      NOTE 2: The status message EE CLNG INBD EXH will remain displayed until the inoperative valve is repaired.
      NOTE 3: Status messages “EE CLNG SUP FAN” and “EE CLNG INBD EXH” will remain annunciated.
   f. Defer the Supply Fan inoperative per MEL item 21–58–06.

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21-58-02B

To deactivate the inboard exhaust valve OPEN:

1. Position the Temperature Control panel (P5) EQUIP COOLING selector to STBY.
2. Open the P414 panel EQUIP COOL CONT VLV INBD circuit breaker.

   NOTE: The status message EE CLNG INBD EXH will remain displayed until the inoperative valve is repaired.
3. Disconnect, cap and stow electrical connector from Inboard Exhaust Valve, located in the forward cargo floor area at Sta. 560.
4. Manually position inboard exhaust valve open.
5. Close the P414 panel EQUIP COOL CONT VLV INBD circuit breaker.

   NOTE: Status message “EE CLNG INBD EXH” will remain annunciated.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-58-03	Equipment Cooling Bypass Valve	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated closed. NOTE: Closed loop mode will not be available.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-58-03	Adjacent To Equipment Cooling Control Switch On ECS Panel	EQUIPMENT COOLING BYPASS VALVE INOP DEACTIVATED CLOSED.

(O) PROCEDURES

NOTE: Status message “EE CLG BYPASS V” will remain annunciated.

(M) PROCEDURES

1. Pull the P414 panel EQUIP COOL CONT VLV INBD circuit breaker.
2. Access Bypass Valve by removing LH forward cargo sidewall lining at Sta. 570.
3. Disconnect, cap and stow electrical connector from Bypass Valve.
4. Close the P414 panel EQUIP COOL CONT VLV INBD circuit breaker.
5. Determine Bypass Valve position. If not already closed, manually position valve in the closed position.

   NOTE: Status message “EE CLNG BYPASS V” will remain annunciated.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
21-58-04	Equipment Cooling Exhaust Fan **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated provided: a) Supply fan operates normally, b) For operation on the ground above 85 degrees F OAT (29 degrees C) at least one pack is operating, and c) No perishables are carried in the forward cargo compartment. NOTE: Forward cargo heating will not be available.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-58-04	Adjacent To Equipment Cooling Control Switch On ECS Panel	EQUIPMENT COOLING EXHAUST FAN INOP AND DEACTIVATED.

(O) PROCEDURES

Use at least one pack for all ground operations above 85° F OAT (29° C).

NOTE: For a no pack takeoff, packs can be selected OFF at start of takeoff.

(M) PROCEDURES

21-58-04

Pull and secure the P415 panel EQPT COOLING EXHAUST FAN circuit breaker.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-58-05	Equipment Cooling Inboard Supply Valve **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated closed provided: a) Equipment cooling system is operated with one fan deactivated, b) Remaining fan operates normally, c) For operation on the ground above 85 degrees F OAT (29 degrees C) at least one pack is operating, and d) No perishables are carried in the forward cargo compartment. NOTE: Forward cargo heating will not be available.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-58-05	Adjacent To Equipment Cooling Selector	EQUIPMENT COOLING INBOARD SUPPLY VALVE INOP DEACTIVATED CLOSED.

(O) PROCEDURES

Use at least one pack for all ground operations above 85° F OAT (29° C).

NOTE 1: For a no pack takeoff, packs can be selected OFF at start of takeoff.

NOTE 2: With Exhaust Fan deactivated, status message EE CLNG SUPPLY V and EE CLNG EXH FAN will remain annunciated.

OR

NOTE 3: With Supply Fan deactivated, status message EE CLNG SUPPLY V and EE CLNG SUP FAN will remain annunciated.

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(M) PROCEDURES

TO DEACTIVATE THE INBOARD SUPPLY VALVE CLOSED USE EITHER PROCEDURE (1) (Deactivate EXHAUST FAN) OR (2) (Deactivate SUPPLY FAN) BELOW:

1. Deactivate EXHAUST FAN:
   a. Pull P414 Panel EQUIP COOL CONT VLV INBD circuit breaker.
   b. Disconnect, cap and stow electrical connector from Inboard Supply Valve located behind the forward cargo lining at STA. 580.
   c. Close P414 Panel EQUIP COOL CONT VLV INBD circuit breaker.
   d. Pull and secure P415 panel EQPT COOLING EXHAUST FAN circuit breaker.

      NOTE: EE Cooling System will not provide adequate equipment cooling until Inboard Supply Valve is closed. EICAS caution message EQUIP COOLING will be displayed and the ground crew call horn will sound if the following step is not accomplished within 30 seconds after opening the circuit breaker in step (d) above.

   e. Determine Inboard Supply Valve position. If not already closed, manually position valve to the closed position.

      NOTE: The status message EE CLNG SUPPLY V will remain displayed until the inoperative valve is repaired.

   f. Defer the Exhaust Fan inoperative per MEL item 21–58–04.
2. Deactivate SUPPLY FAN:
   a. Pull P414 Panel EQUIP COOL CONT VLV INBD circuit breaker.

      NOTE: This Pulled circuit breaker removes power from the Inboard Supply, Inboard Exhaust and Bypass Valves. Closed loop mode operation is not available until circuit breaker is again closed.

   b. Disconnect, cap and stow electrical connector from Inboard Supply Valve located behind the forward cargo lining at Sta. 580.
   c. Close P414 Panel EQUIP COOL CONT VLV INBD circuit breaker.
   d. Pull and secure P414 panel EQPT COOLING SUPPLY FAN circuit breaker.

      NOTE: EE Cooling System will not provide adequate equipment cooling until Inboard Supply Valve is closed. EICAS caution message EQUIP COOLING will be displayed and the ground crew call horn will sound if the following step is not accomplished within 30 seconds after opening the circuit breaker in step (d) above.

   e. Placard Supply Fan inoperative per MEL item 21–58–06.
3. Determine Inboard Supply Valve position. If not already closed, manually position valve in the closed position.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
21-58-06	Equipment Cooling Supply Fan **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated provided: a) Exhaust fan operates normally, b) For operation on the ground above 85 degrees F OAT (29 degrees C) at least one pack is operating, and c) No perishables are carried in the forward cargo compartment. NOTE: Forward cargo heating will not be available.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-58-06	Adjacent To The Equipment Cooling Mode Selector Switch On P5 Panel	EQUIPMENT COOLING SUPPLY FAN IS INOP AND DEACTIVATED

(O) PROCEDURES

Use at least one pack for all ground operations above 85° F OAT (29° C).

NOTE 1: For a no pack takeoff, packs can be selected OFF at start of takeoff.

NOTE 2: Status message EE CLNG SUP FAN will remain displayed.

(M) PROCEDURES

Open and secure the P414 panel EQPT COOLING SUPPLY FAN PWR circuit breaker.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. / NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-58-07A Equipment Cooling Ground Exhaust Valve **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated closed provided: a) Equipment cooling is operated in the STBY mode, b) Both fans operate normally, and c) For operation on the ground above 105 degrees F OAT (41 degrees C) at least one pack is operating.
21-58-07B Equipment Cooling Ground Exhaust Valve **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated closed provided: a) Equipment cooling system is operated with one fan deactivated, b) Remaining fan operates normally, c) For operation on the ground above 85 degrees F OAT (29 degrees C) at least one pack is operating, and d) No perishables are carried in the forward cargo compartment. NOTE: Forward cargo heating will not be available with one fan deactivate.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-58-07A	Adjacent To The Equipment Cooling Mode Selector Switch On P5 Panel	EQUIPMENT COOLING GROUND EXHAUST VALVE IS INOP DEACTIVATED CLOSED. NORMAL MODE INOP
21-58-07B	Adjacent To The Equipment Cooling Mode Selector Switch On P5 Panel	EQUIPMENT COOLING GROUND EXHAUST VALVE IS INOP DEACTIVATED CLOSED.

(O) PROCEDURES

21-58-07A

1. Operate equipment cooling in the STBY mode.
2. Use at least one pack for all ground operations above 105° F OAT (41° C).

   NOTE: For a no pack takeoff, packs can be selected OFF at start of takeoff.

21-58-07B

Use at least one pack for all ground operations above 85° F OAT (29° C).

NOTE 1: For a no pack takeoff, packs can be selected OFF at start of takeoff.

NOTE 2: Status message EE CLNG EXH FAN will remain annunciated.

OR

NOTE 3: Status message EE CLNG SUP FAN will remain annunciated.

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(M) PROCEDURES

21-58-07A

DEACTIVATE GROUND EXHAUST VALVE CLOSED WITH EQUIPMENT COOLING OPERATED IN STBY MODE:

1. Position the Temperature Control panel (P5) EQUIP COOLING selector to STBY.
2. Open P414 panel EQUIP COOL CONT VLV GND circuit breaker.
3. Obtain a P/N BACC45FN12-12P (or equivalent) connector and two P/N BACC47CN1 or P/N BACC47CN1S pin contacts (or equivalent).
4. Using 3 to 4 inches of BMS 13-60 Type 1 / BMS13-48 Type 10 wire (or equivalent), short pin numbers 1 & 2 on the shorting plug.
5. Disconnect electrical connector from Ground Exhaust Valve located in the forward cargo floor area at Station 550.
6. Install shorting plug, P/N BACC45FN12–12P, with shorting wire attached, on the electrical connector and stow.

   NOTE: The shorting wire is installed so EQUIP COOLING caution message and EE CLNG GND EXH status message will not display due to the disabled Ground Exhaust Valve
7. Manually position the valve in the closed position:
   a. Insert 3/8 inch drive 0-150 inch-pound wrench into the ground exhaust valve manual drive collar located on airplane skin adjacent to valve flapper door.
   b. Push manual drive collar in approximately 3/8 inch and rotate counter–clockwise to close valve. Torque should be at least 28 inch-pounds, but not exceed 100 inch-pounds to lock door in place.

      NOTE: If required torque exceeds 100 inch-pounds, check door and mating seat for obstructions.
   c. Confirm valve closed by visual check of flapper position.
8. Close P414 panel EQUIP COOL CONT VLV GND circuit breaker.

21-58-07B

DEACTIVATE GROUND EXHAUST VALVE CLOSED WITH SUPPLY FAN OR EXHAUST FAN DEACTIVATED:

1. Position the Temperature Control panel (P5) EQUIP COOLING selector to STBY.
2. Open P414 panel EQUIP COOL CONT VLV GND circuit breaker.
3. Obtain a P/N BACC45FN12-12P (or equivalent) connector and two P/N BACC47CN1 or P/N BACC47CN1S pin contacts (or equivalent).
4. Using 3 to 4 inches of BMS 13-60 Type 1 / BMS13-48 Type 10 wire (or equivalent), short pin numbers 1 & 2 on the shorting plug.
5. Disconnect electrical connector from Ground Exhaust Valve, located in the forward cargo floor area at Station 550.
6. Install shorting plug, P/N BACC45FN12–12P with shorting wire attached, on the electrical connector and stow.

   NOTE: The shorting wire is installed so EQUIP COOLING cautionary message and EE CLNG GND EXH status message will not display due to the disabled Ground Exhaust Valve.

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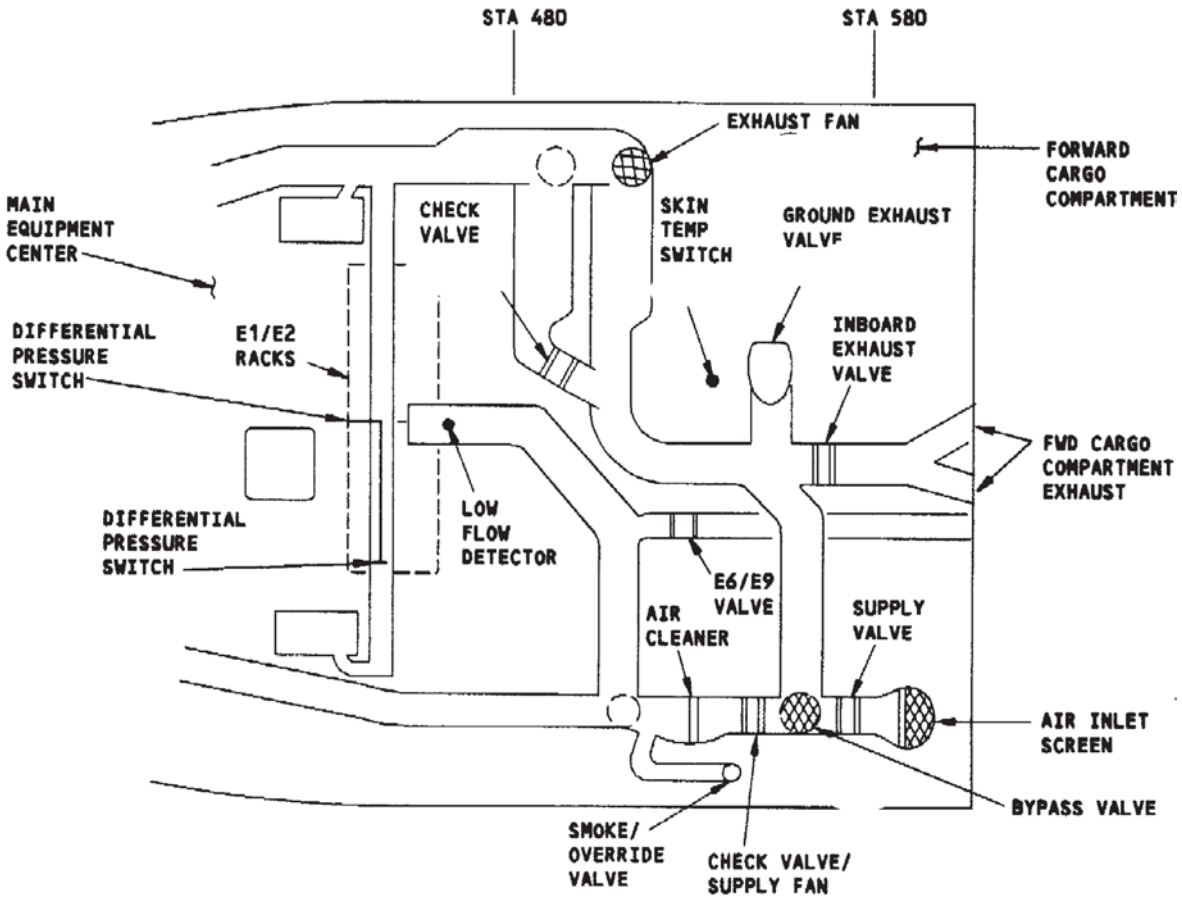
7. Manually position the valve in the closed position:
   a. Insert 3/8 inch drive 0-150 inch-pound wrench into the ground exhaust valve manual drive collar located on airplane skin adjacent to valve flapper door.
   b. Push manual drive collar in approximately 3/8 inch and rotate counter–clockwise to close valve. Torque should be at least 28 inch-pounds, but not exceed 100 inch-pounds to lock door in place.

      NOTE: If required torque exceeds 100 inch-pounds, check door and mating seat for obstructions.
   c. Confirm valve closed by visual check of flapper position.
8. Close P414 panel EQUIP COOL CONT VLV GND circuit breaker.
9. Open and secure the appropriate circuit breaker:
   - EQPT COOLING SUPPLY FAN (P414 panel).

     OR
   - EQPT COOLING EXHAUST FAN (P415 panel).

     NOTE: EE cooling System reconfigures to closed–loop mode within 30 seconds.
10. Defer the Exhaust Fan inoperative per MEL item 21–58–04, or defer the Supply Fan inoperative per MEL item 21–58–06 as applicable.
11. Ensure EQUIP COOLING caution message or EE CLNG GND EXH status message is not displayed.

    NOTE: Status message “EE CLNG EXH FAN” or “EE CLNG SUP FAN” will remain annunciated.



		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-58-08	Galley/Lavatory Fans	**Y**	2	1	**C**	One may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-58-08	Adjacent To Applicable EICAS Display	___ LAVATORY or GALLEY FAN INOP

ITEM NO.	NAME / DESCRIPTION	FLIGHT CREW MAY PLACARD	NUMBER INSTALLED	NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
21-61-01A	Zone Temperature Control System	**N**	1	0	**C**	**(M)(O)** Control to individual zone(s) may be inoperative provided: a) Associated passenger cabin zone trim air modulation valve(s) is secured in appropriate position, b) If affected, Flt Deck Zone Trim Air Modulation Valve is secured in the appropriate position unless it can be verified that operation in MAN mode is normal, and c) CMC is reviewed for other faults related to ZONE TEMP status message PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**
21-61-01B	Zone Temperature Control System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Master Trim Air Valve remains closed, b) Flight time does not exceed four hours in duration, and c) CMC is reviewed for other faults related to ZONE TEMP status message PRIOR TO EACH DEPARTURE. NOTE: Dispatch with Master Trim Air Valve closed may cause unsatisfactory temperature variations in cabin. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-61-01A	Passenger Cabin Zones Affected: Temperature Control Module In The Flight Deck And The Cabin Temperature Selector In The Passenger Cabin Flight Deck Zone Affected: Place Tab On The Temperature Control Module In The Flight Deck	Passenger Cabin Zones affected: ZONE ___ TEMP CONTROL INOP. ___ TRIM AIR VALVE(s) SECURED IN ___ POSITION. Flight Deck Zone affected: If MAN mode is inoperative, FLT DECK ZONE TEMP CONTROL INOP – TRIM AIR VALVE SECURED IN ___ OR If MAN mode operates normally, FLIGHT DECK TEMP SELECTOR AUTO INOP – USE MANUAL.
21-61-01B	On The Temperature Control Module In The Flight Deck	ZONE TEMP CONTROLLER INOP. MASTER TRIM AIR SWITCH MUST REMAIN OFF

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(O) PROCEDURES

21-61-01A

1. Advisory message TEMP ZONE may remain displayed and status message ZONE TEMP will remain displayed.
2. PASS TEMP selector will be placarded ZONES__TEMP CONTROL INOP. However, the PASS TEMP selector may be operated in AUTO mode.
3. For taxi, takeoff, climb, approach, and landing, select TRIM AIR switch OFF.
4. For cruise and descent, select TRIM AIR switch ON.

   NOTE: During descent, to avoid high temperature in affected zone(s), select TRIM AIR switch OFF before passing through FL150.
5. Cabin Temperature Selector (in the passenger cabin) will be inoperative for zones with trim modulation valves secured. It will be placarded accordingly.

21-61-01B

1. Advisory message TEMP ZONE and status message ZONE TEMP will remain displayed.
2. Close Master Trim Air Valve.
3. Average cabin temperature is controllable (between 65° F and 85° F) by appropriate use of the PASS TEMP selector in AUTO mode.

   NOTE: After several hours of operation with the Master Trim Air Valve closed, one or more zones may become warmer or cooler than passengers find comfortable. Permitting passengers to move from the warm zone(s) to the cooler zone(s) will help to moderate temperatures.

(M) PROCEDURES

21-61-01A

1. To confirm individual zone's operative control status, access the CMC OTHER FUNCTIONS page, and select SHOP FAULTS, 21 AIR CONDITIONING, and ZONE TEMP CONTROL. An inoperative Zone Temperature Controller (ZTC) will be reporting one or more of the following shop faults.

00 I/O BOARD A FAIL	00 I/O BOARD B FAIL
or	or
00 MOTOR DRIVER BOARD A FAIL	00 MOTOR DRIVER BOARD B FAIL

   a. If one or both **Board A** faults are reported, the ZTC has lost control to one or more of zones A, B, D, and E.

   b. If one or both **Board B** faults are reported, the ZTC has lost control to one or more of zones C, F/D and /or U/D.
2. To verify normal MAN mode operation for F/D zone, alternately select "MAN W" and "MAN C" on the F/D Zone Temperature Selector and observe on the ECS Maintenance Page that the trim modulating valve responds as commanded:

   a. If MAN mode operates normally for the F/D (Board B fault) the aircraft may be dispatched. Placard as required per MEL item 21–61–01A.

   b. If the MAN mode is inoperative for the F/D zone, go to step 3 and secure the associated trim air modulating valve in the appropriate position.

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3. To secure associated trim air modulating valve(s) in the appropriate position:
   a. Pull the following circuit breakers on the P6 Panel:
      - ZONE TEMP CONT AC, position F28
      - ZONE TEMP CONT DC, position F29

CAUTION: INSTALL WING GEAR DOOR LOCKS BEFORE ENTERING WHEEL WELL.

   b. Locate modulation valve(s) on forward bulkhead of wing gear wells.
      - LH wheel well – zones A, C, E and F/D
      - RH wheel well – zones B, D, and U/D

      NOTE: Zone A and B valve locations are interchanged if airplane has an enlarged Zone A.
   c. Disconnect, cap and stow electrical connector from affected valves.
   d. Install allen wrench in the affected valve's manual positioning shaft. Rotate the shaft until valves are in the appropriate position as determined below and shown by the valve's position indicator. Note that, except for full open and full closed, there are no position markings on the indicators. Degree of rotation must therefore be by approximation between full open and full closed – note that for each 1/4th turn of the allen wrench, the valve will move 10%.

Trim Air Mod Valve	**Range of Appropriate Valve Positions**
ZONE A	15% - 30% Open
ZONE B	20% - 35% Open
ZONE C	15% - 30% Open
ZONE D	5% - 20% Open
ZONE E	0% - 10% Open
ZONE F/D	5% - 20% Open
ZONE U/D	20% - 35% Open

NOTE: The above Range of Appropriate Valve Positions are based on the number of passengers loaded in the associated zone. If a zone has a large number of empty seats, the valve's position should be adjusted toward the higher percentage position. Conversely, adjust the valve's position toward the lower percentage if most of the seats in the zone are full. For an average number of passengers in the zone, the appropriate valve position should be secured at a position in the middle of the Range of Appropriate Valve Positions.

   e. Close the following circuit breakers on the P6 Panel:
      - ZONE TEMP CONT AC, position F28
      - ZONE TEMP CONT DC, position F29

      NOTE: Advisory message "TEMP ZONE" and Status message "ZONE TEMP" will remain displayed.

4. **PRIOR TO EACH DEPARTURE:**
   a. Review CMC for other faults related to ZONE TEMP status message and dispatch per associated MEL: 21015, 21016, 21017, 21018, 21019, 21020, 21021, 21167.

21-61-01B

1. Position the Temperature Control panel (P5) TRIM AIR switch OFF.

   NOTE: Advisory message “TEMP ZONE” may remain displayed and Status message “ZONE TEMP” will remain displayed.

2. **PRIOR TO EACH DEPARTURE:**

   a. Review CMC for other faults related to ZONE TEMP status message and dispatch per associated MEL: 21015, 21016, 21017, 21018, 21019, 21020, 21021, 21167.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-61-02	Cabin Temperature Selection System (In Passenger Cabin)	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-61-02	Adjacent To Passenger Temperature Selector In Passenger Cabin	PASSENGER CABIN TEMPERATURE SELECTION SYSTEM INOP

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-61-03A Master Trim Air Valve **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative closed provided: a) Flight time does not exceed four hours in duration, and b) CMC is reviewed for other faults related to ZONE TEMP status message PRIOR TO EACH DEPARTURE. NOTE: Dispatch with Master Trim Air Valve closed may cause unsatisfactory temperature variations in the cabin. **Repetitive Check Required (Yellow Placard)**
21-61-03B Master Trim Air Valve (Pressure Regulating Function)	**N**	1	0	**C**	**(M)** May be inoperative or deactivated provided: a) Shutoff feature operates normally, and b) CMC is reviewed for other faults related to ZONE TEMP status message PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-61-03A	On The Temperature Control Module In The Flight Deck	MASTER TRIM AIR VALVE INOP CLOSED. FLT DECK SELECTOR INOP
21-61-03B	Adjacent To Trim Air Switch	MASTER TRIM AIR VALVE REGULATING FUNCTION INOP

(O) PROCEDURES

1. EICAS status message ZONE TEMP will remain displayed.
2. Average cabin temperature is controllable (between 65° F and 85° F) by appropriate use of the PASS TEMP selector in AUTO mode.

   NOTE: After several hours of operation with the Master Trim Air Valve closed, one or more zones may become warmer or cooler than passengers find comfortable. Permitting passengers to move from the warm zone(s) to the cooler zone(s) will help to moderate temperatures.

(M) PROCEDURES

21-61-03A

To dispatch with the Master Trim Air Valve closed:

1. Position the Temperature Control panel (P5) TRIM AIR switch to OFF.
2. Disconnect, cap and stow electrical connector from the Master Trim Air Valve and stow.
3. Pressurize pneumatic system using APU or ground air supply.
4. Select EICAS–ECS–Maintenance page via the CMC.
5. Position the Bleed Air Control panel (P5) PACK 1 switch to NORM.

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6. Check that the TRIM AIR PRESS is approximately zero. If not, the valve must be manually secured shut by closing the Manual Solenoid Override. Again, ensure the TRIM AIR PRESS is approximately zero.
7. Remove pneumatic supply if no longer required and position the Bleed Air Control panel (P5) PACK 1 switch to OFF if no longer required.

   NOTE: Status message “ZONE TEMP” will remain displayed.

8. PRIOR TO EACH DEPARTURE:

   a. Review CMC for other faults related to ZONE TEMP status message and dispatch per associated MEL: 21015, 21016, 21017, 21018, 21019, 21020, 21021, 21041, 21060, 21184, 21185.

21-61-03B

TO DEACTIVATE PRESSURE REGULATING FUNCTION:

1. Lower air conditioning access panel.
2. Remove downstream (duct) sense line tube from tee fitting.

   NOTE: There are two exterior pressure sensing ports in the master trim air valve. The aft port is the downstream (duct) pressure sensing port. The forward port is the cabin pressure sensing port.
3. Plug and secure downstream (duct) sense line tube.
4. Allow tee fitting to remain open to ambient. Do not cap or plug opening.
5. Test trim air supply valve operation as follows:
   a. Provide electrical power.
   b. Position the Temperature Control panel (P5) TRIM AIR switch to OFF.
   c. Pressurize pneumatic system using auxiliary power unit or an external supply of pneumatic air.
   d. Select EICAS–ECS–maintenance page via the CMC.
   e. Position the Bleed Air Control panel (P5) PACK 1 switch to NORM.
   f. Check that TRIM AIR PRESS is approximately zero.
   g. Position the Temperature Control panel (P5) TRIM AIR switch to ON.
   h. Check that TRIM AIR PRESS increases.
   i. Position the Temperature Control panel (P5) TRIM AIR switch to OFF.
   j. Check that TRIM AIR PRESS returns to approximately zero.
   k. Position the Temperature Control panel (P5) TRIM AIR switch to ON.
6. Remove pneumatic supply if no longer required and position the Bleed Air Control panel (P5) PACK 1 switch to OFF if no longer required.
7. Remove electrical power if no longer required.
8. Secure air conditioning access panel.

9. PRIOR TO EACH DEPARTURE:

   a. Review CMC for other faults related to ZONE TEMP status message and dispatch per associated MEL: 21015, 21016, 21017, 21018, 21019, 21020, 21021, 21041, 21060, 21184, 21185.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-61-04A	Zone Trim Air Modulation Valves	**N**	7	0	**C**	**(M)(O)** May be inoperative provided: a) Associated valve(s) is secured in the appropriate position, b) If affected, FLT DECK Zone Trim Air Modulation Valve is secured in the appropriate position unless it can be verified that operation in MAN mode is normal, and c) CMC is reviewed for other faults related to ZONE TEMP status message PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**
21-61-04B	Zone Trim Air Modulation Valves **"DISP.APPR.REQ'D"**	**N**	7	0	**C**	**(M)(O)** May be inoperative provided: a) Master Trim Air Valve remains closed, and b) Flight time does not exceed four hour duration. c) CMC is reviewed for other faults related to ZONE TEMP status message PRIOR TO EACH DEPARTURE. NOTE: Boeing advises that this procedure will result in unsatisfactory temperature variations in cabin. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-61-04A	Passenger Cabin Zones affected: On The Temperature Control Module In The Flight Deck And On The Cabin Temperature Selector In The Passenger Cabin. Flight Deck Zone affected: Place Tab On The Temperature Control Module In The Flight Deck.	Passenger Cabin Zones affected: ___ ZONE TRIM AIR MODULATION VALVE(s) INOP AND SECURED IN ___ POSITION. ___ ZONE(S) TEMP CONTROL INOP. Flight Deck Zone affected: If MAN mode is inoperative – F/D ZONE TRIM AIR MODULATION VALVE SECURED IN___ POSITION. FLT DECK TEMP SEL MAN MODE INOP. OR If MAN Mode operates normally – FLIGHT DECK TEMP SEL AUTO INOP – USE MAN
21-61-04B	On The Temperature Control Module In The Flight Deck	___ ZONE TRIM AIR MODULATING VALVE INOP. MASTER TRIM AIR SWITCH MUST REMAIN OFF

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(O) PROCEDURES

21-61-04A

1. PASS TEMP selector will be placarded ZONES___TEMP CONTROL INOP. However, the PASS TEMP selector may be operated in AUTO mode.
2. For taxi, takeoff, climb, approach, and landing, select TRIM AIR switch OFF.
3. For cruise and descent, select TRIM AIR switch ON.

   NOTE: During descent, to avoid temperature build–up in affected zone(s), select TRIM AIR switch OFF before passing through FL150.
4. Cabin Temperature Selector (in the passenger cabin) will be inoperative for zones with trim modulation valves secured. It will be placarded accordingly.

21-61-04B

1. EICAS status message ZONE TEMP will remain displayed.
2. Close Master Trim Air Valve.
3. Average cabin temperature is controllable (between 65° F and 85° F) by appropriate use of the PASS TEMP selector in AUTO mode.

   NOTE: After several hours of operation with the Master Trim Air Valve closed, one or more zones may become warmer or cooler than passengers find comfortable. Permitting passengers to move from the warm zone(s) to the cooler zone(s) will help to moderate temperatures.

(M) PROCEDURES

21-61-04A

1. Ensure that the Zone Temperature Controller (ZTC) is operating normally by performing the Chapter 21 TRIM SYSTEM Ground Test using the CMC:
   a. If the test fails, perform the procedures below to secure affected valve(s) in the appropriate position.
   b. If the test passes, check the ZTC for reported Shop Faults. If shop faults are present, defer per MEL item 21-61-01A.
2. To verify FLT DECK (F/D) MAN Mode operates normally:
   a. While monitoring ECS Maintenance Page, alternately position the Temperature Control panel (P5) FLT DECK TEMP selector MAN W and MAN C . Verify on the ECS Maintenance Page that the valve responds correctly.
   b. If the valve responds correctly in step 2. a above, position the FLT DECK TEMP selector to MAN and placard as required per MEL Item 21–61–04A for MAN mode operates normally.
   c. If the valve does not respond correctly in step 2. a above, it must be secured in the appropriate position per step 3. below.
3. To secure inoperative modulation valve(s) in the appropriate position:
   a. Pull the following circuit breakers on the P6 Panel:
      - ZONE TEMP CONT AC, position F28
      - ZONE TEMP CONT DC, position F29

CAUTION: INSTALL WING GEAR DOOR LOCKS BEFORE ENTERING WHEEL WELL.

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b. Locate modulation valve(s) on forward bulkhead of wing gear wells.

- LH wheel well – zones A, C, E and F/D
- RH wheel well – zones B, D, and U/D

NOTE: Airplanes with enlarged Zone A have Zone A and B valve locations interchanged.

c. Disconnect, cap and stow electrical connector from affected valve(s).

d. For each affected valve, install allen wrench in the valve's manual positioning shaft. Rotate the shaft until valves are in the appropriate position as determined below and as shown by the valve's position indicator. Note that, except for full open and full closed, there are no position markings on the position indicators. Degree of rotation must therefore be by approximation between full open and full closed – note that for each 1/4th turn of the allen wrench, the valve will move 10%.

Trim Air Mod Valve	Range of Appropriate Valve Positions
ZONE A *	15% - 30% Open
ZONE B	20% - 35% Open
ZONE C	15% - 30% Open
ZONE D	5% - 20% Open
ZONE E *	0% - 10% Open
ZONE F/D *	5% - 20% Open
ZONE U/D	20% - 35% Open

* Typically, passenger Zone E requires a low quantity of trim air. Temperature control for another zone may be normalized by interchanging the failed valve with an operable valve from zone E with minimal Zone E comfort level degradation.

NOTE: The above Range of Appropriate Valve Positions are based on the number of passengers loaded in the associated zone. If a zone has a large number of empty seats, the valve's position should be adjusted toward the higher percentage position. Conversely, adjust the valve's position toward the lower percentage if most of the seats in the zone are full. For an average number of passengers in the zone, the appropriate valve position should be secured at a position in the middle of the Range of Appropriate Valve Positions.

e. Close the following circuit breakers on the P6 Panel:

- ZONE TEMP CONT AC, position F28
- ZONE TEMP CONT DC, position F29

NOTE: Advisory message "TEMP ZONE" and Status message "ZONE TEMP" will remain displayed.

4. **PRIOR TO EACH DEPARTURE:**

a. Review CMC for other faults related to ZONE TEMP status message and dispatch per associated MEL: 21015, 21016, 21017, 21018, 21019, 21020, 21021, 21167.

21-61-04B

1. Position the Temperature Control panel (P5) TRIM AIR switch OFF.

NOTE: Status message "ZONE TEMP" will remain displayed.

2. PRIOR TO EACH DEPARTURE:

a. Review CMC for other faults related to ZONE TEMP status message and dispatch per associated MEL: 21015, 21016, 21017, 21018, 21019, 21020, 21021, 21041, 21060, 21167, 21184, 21185.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-61-05	ALTN Control Mode (Zone A/Upper Deck)	**Y**	1	0	**C**	May be inoperative provided ALTN is not selected.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-61-05	Adjacent To Passenger Temperature Selector	ZONE A/UPPER DECK ALTN CONTROL MODE INOP.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-61-06	ZONE RST Switch	**Y**	1	0	**C**	May be inoperative provided passenger temperature control system operates normally in AUTO.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-61-06	Adjacent To Zone RST Switch On P5 Panel	ZONE RST SWITCH INOP

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
21-61-07A	Duct Overheat Protective Systems (Passenger and Crew System)	**N**	7	0	**C**	**(M)(O)** May be inoperative provided: a) Associated zone duct overheat switch(es) is deactivated, and b) Associated zone trim air modulation valve is secured closed. c) CMC is reviewed for other faults related to ZONE TEMP status message PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**
21-61-07B	Duct Overheat Protective Systems (Passenger and Crew System) **"DISP.APPR.REQ'D"**	**Y**	7	0	**C**	**(M)(O)** May be inoperative provided: a) Master trim air valve remains closed, b) PASS TEMP is selected to ALTN position, and c) Flight time does not exceed four hours duration. NOTE: Boeing advises that this procedure will result in unsatisfactory temperature variations in cabin.
21-61-07C	Duct Overheat Protective Systems (Passenger and Crew System)	**N**	7	0	**C**	**(M)** May be inoperative provided: a) Associated zone trim air modulation valve operates normally, b) Associated zone duct temperature sensor operates normally, and c) Associated zone duct overheat switch(es) are deactivated.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-61-07A	Passenger Cabin Zones Affected: On Temperature Control Panel In Flight Deck. Flight Deck Zone Affected: Place A Tab On Temperature Control Panel In Flight Deck	Passenger Cabin Zones affected: ___ DUCT OVERHEAT PROTECTIVE SYSTEM INOP – ASSOCIATED OVERHEAT SWITCHES DEACTIVATED. ___ ZONE TRIM AIR MODULATION VALVE SECURED CLOSED. ___ ZONES TEMP CONTROL INOP. Flight Deck Zone affected: FLT DECK DUCT OVERHEAT PROTECTIVE SYSTEM INOP – OVERHEAT SWITCH DEACTIVATED. FLT DECK ZONE TRIM AIR MODULATION VALVE SECURED CLOSED. FLT DECK ZONE TEMP CONTROL INOP
21-61-07B	On Temperature Control Panel In Flight Deck	___ DUCT OVERHEAT PROTECTIVE SYSTEM INOP. MASTER TRIM AIR VALVE SWITCH MUST REMAIN OFF
21-61-07C	On Temperature Control Panel In Flight Deck	___ DUCT OVERHEAT PROTECTIVE SYSTEM INOP – ASSOCIATED OVERHEAT SWITCHES DEACTIVATED

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(O) PROCEDURES

21-61-07A

The PASS TEMP control may be operated in AUTO mode for dispatch with zone trim air modulation valve(s) secured closed.

NOTE: Status message ZONE TEMP will remain displayed.

21-61-07B

1. EICAS status message ZONE TEMP will remain displayed.
2. Close Master Trim Air Valve.
3. Set and maintain PASS TEMP selector in ALTN position.

   NOTE: After several hours of operation with the Master Trim Air Valve closed, one or more zones may become warmer or cooler than passengers find comfortable. Permitting passengers to move from the warm zone(s) to the cooler zone(s) will help to moderate temperatures.

(M) PROCEDURES

21-61-07A

1. For dispatch with the associated zone trim air modulation valve(s) secured closed.

   NOTE: Typically, passenger Zone E requires a low quantity of trim air. If the F/D, A , B, C, or Zone D duct overheat switch is affected, interchange the inoperative duct overheat switch with an operative switch (if available) from zone E

   a. Pull the following circuit breakers on the P–6 panel:
      - ZONE TEMP CONT AC, position F28
      - ZONE TEMP CONT DC, position F29

CAUTION: INSTALL WING GEAR DOOR LOCKS BEFORE ENTERING WHEEL WELL.

   b. Locate associated trim air modulation valve(s) on forward bulkhead of wing gear wheel wells.
      - LH wheel well – Zones A, C, E, and F/D
      - RH wheel well – Zones B, C, and U/D

      NOTE: Airplanes with enlarged Zone A have Zone A and Zone B valve location interchanged.

   c. Disconnect, cap and stow electrical connector from associated valve(s).

   d. For each affected trim air mod valve, install an allen wrench in the valve's manual positioning shaft. Rotate the shaft to the CLOSED position as shown on the valve's position indicator.

   e. Close the following circuit breakers on the P–6 panel:
      - ZONE TEMP CONT AC, position F28
      - ZONE TEMP CONT DC, position F29

   f. To prevent a failed zone duct overheat switch from commanding the Master Trim Air Valve closed, deactivate the associated zone's overheat switch(es) per step 2.

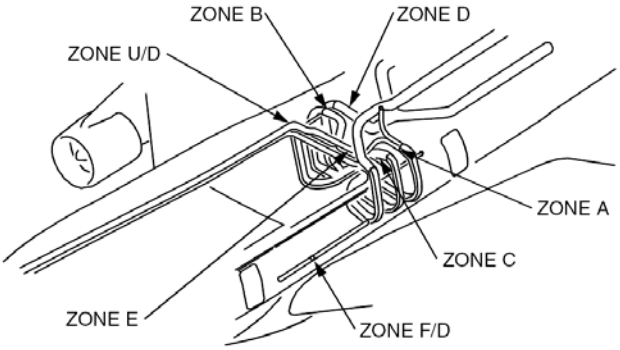
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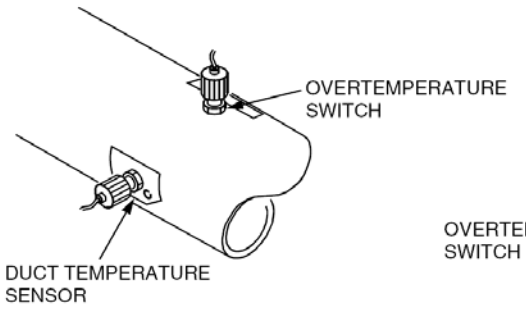
2. To deactivate associated zone duct overheat switch(es)

   a. Position the Temperature Control panel (P5) TRIM AIR switch OFF.

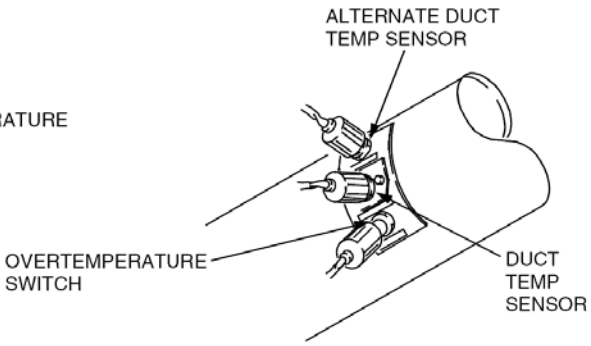
   b. Access the associated zone duct overheat switch(es) located behind the ceiling panel in the air conditioning duct risers. Actual location of each switch is listed below (note that F/D zone overheat switch is located beneath the cabin floor).

ZONES	STATION	WL	BL
F/D	970	185	L107
U/D	1114	328	R77
A	1153	343	R43
B	1182	340	L41
C	1144	341	L44
D	1196	341	R42
E	1125	338	L23





ZONE F/D



ZONES A THRU E (TYPICAL)

   c. Disconnect, cap and stow electrical connector(s) from affected switch(es).

   d. Position the Temperature Control panel (P5) TRIM AIR switch ON.

      NOTE: Status message “ZONE TEMP” will remain displayed.

3. PRIOR TO EACH DEPARTURE:

   a. Review CMC for other faults related to ZONE TEMP status message and dispatch per associated MEL: 21015, 21016, 21017, 21018, 21019, 21020, 21021, 21041, 21060, 21167, 21184, 21185.

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21-61-07B

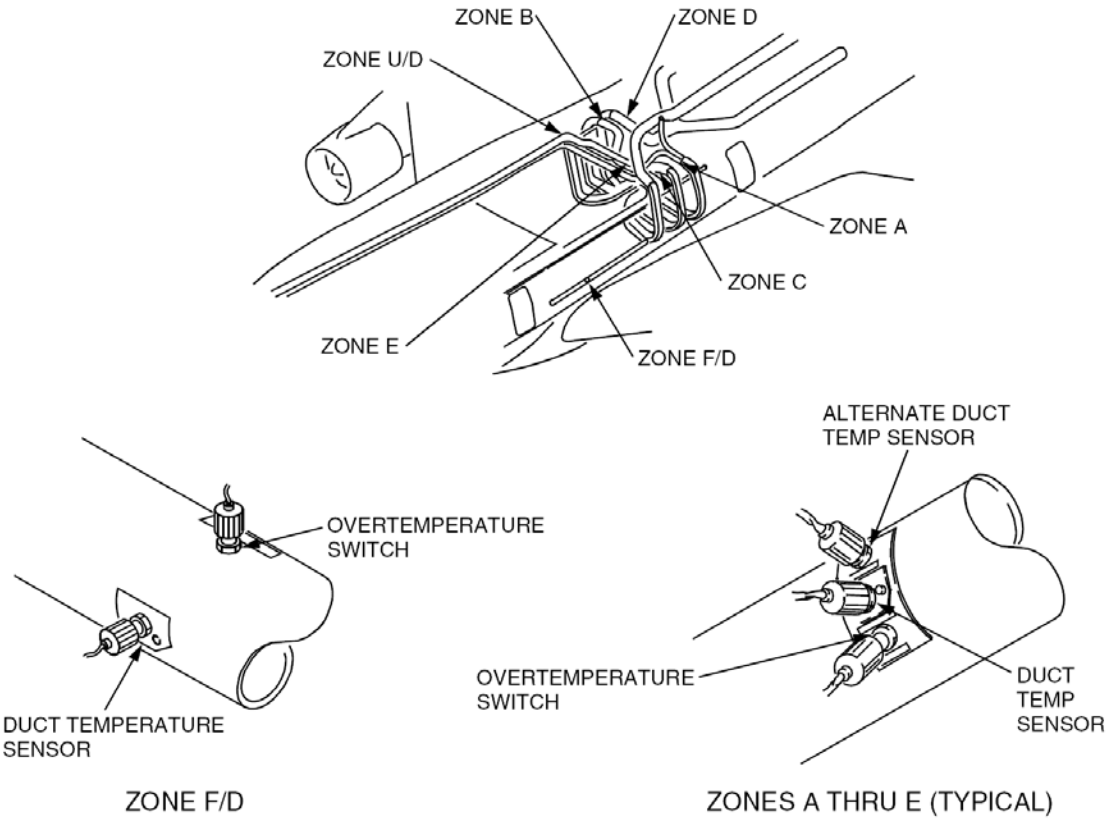
1. Position the Temperature Control panel (P5) TRIM AIR switch OFF.
2. Position PASS TEMP selector to ALTN position.

21-61-07C

Deactivate the associated zone duct overheat switches as follows:

1. Position the Temperature Control panel (P5) TRIM AIR switch OFF.
2. Access the associated zone duct overheat switch(es) located behind the ceiling panel in the air conditioning duct risers. Actual location of each switch is listed below (note that F/D zone overheat switch is located beneath the cabin floor).

ZONES	STATION	WL	BL
F/D	970	185	L107
U/D	1114	328	R77
A	1153	343	R43
B	1182	340	L41
C	1144	341	L44
D	1196	341	R42
E	1125	338	L23



ZONE F/D

ZONES A THRU E (TYPICAL)

3. Disconnect, cap and stow electrical connector(s) from affected switch(es).
4. Position the Temperature Control panel (P5) TRIM AIR switch OFF.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-61-11	Zone Duct Temperature Sensors	**Y**	7	6	**C**	One may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-61-11	Adjacent To Lower EICAS display	___ ZONE DUCT TEMPERATURE SENSOR(S) INOP

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-61-12 Zone Temperature Sensors	**Y**	10	9	**C**	One may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-61-12	Adjacent To Lower EICAS display	___ ZONE TEMPERATURE SENSOR(S) INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-62-01	Pack Temperature Control Systems	**Y**	2	1	**C**	**(O)** One pack temperature controller (A or B) may be inoperative for each operating pack.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-62-01	Adjacent To The Affected Pack Controller Switch	___ PACK TEMP CONTROLLER INOP ON ___ PACK

(O) PROCEDURES

Select operative channel A or B on the Affected Pack(s)

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD		REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-62-02A	Pack Coolant (Inlet/Exit Doors) Systems (Pack Inoperative)	**N**	3	2	**C**	**(M)(O)** One may be inoperative for an inoperative pack provided associated exit door has greater open area than inlet door.
21-62-02B	Pack Coolant (Inlet/Exit Doors) Systems (Pack Inoperative)	**N**	3	2	**C**	**(M)(O)** One may be inoperative for an inoperative pack provided associated inlet and exit doors are secured closed.
21-62-02C	Inlet Doors (Pack Operative) **"DISP.APPR.REQ'D"**	**N**	3	2	**C**	**(M)(O)** One inlet door may be inoperative provided: a) Associated inlet door is secured 60% open to full open, b) Associated pack is verified to be absent of other equipment faults PRIOR TO EACH DEPARTURE, c) Remaining two packs operate normally, d) Associated turbine bypass valve operates normally, and e) Associated exit door is secured at least 50% open. **Repetitive Check Required (Yellow Placard)**
21-62-02D	Exit Doors (Pack Operative) **"DISP.APPR.REQ'D"**	**N**	3	0	**C**	**(M)(O)** Any exit doors may be inoperative provided: a) Associated exit door is secured at least 50% open, and b) Associated pack is verified to be absent of other equipment faults PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-62-02A	Adjacent To Affected AC Pack Controller Switch	___ INLET OR EXIT DOOR INOP
21-62-02B	Adjacent To Affected AC Pack Controller Switch	___ INLET OR EXIT DOOR INOP. ASSOCIATED INLET/EXIT DOORS SECURED CLOSED.
21-62-02C	Adjacent To Affected AC Pack Controller Switch	___ INLET DOOR SECURED ___. ASSOCIATED EXIT DOOR SECURED ___
21-62-02D	Adjacent To Affected AC Pack Controller Switch	___ PACK COOLANT EXIT DOOR(S) INOP SECURED ___ POSITION

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(O) PROCEDURES

21-62-02A, 21-62-02B

1. Ensure that the affected pack is selected OFF.
2. Select HI FLOW on the remaining packs to ensure they will operate in High Flow Mode.

   NOTE: Status message PACK___ will remain displayed.

21-62-02C

1. Operate packs in NORM mode.
2. If exit door is not full open, pack output temperature may be high at low altitude (or on ground). If a pack overheat condition develops, the EICAS advisory message PACKS__ will be displayed.
3. If inlet door is inoperative open, pack output temperature may be low in a cold environment.

   NOTE: Status message PACK___ will remain displayed.

21-62-02D

1. Operate packs in NORM mode.
2. If exit door is not full open, pack output temperature may be high at low altitude (or on ground). If a pack overheat condition develops, the EICAS advisory message PACKS__ will be displayed.

   NOTE: Status message PACK___ will remain displayed.

(M) PROCEDURES

21-62-02A, 21-62-02B

NOTE: Refer to CDL item 21–62–01 for missing inlet door.

If an inoperative inlet/exit cooling door(s) cannot be positioned as necessary; or, if a pack is inoperative and it's associated inlet/exit door(s) is also inoperative, perform the following :

1. Secure Pack Flow Control and Shutoff Valve (FCV) in closed position.
   a. Position the associated Temperature Control panel (P5) Pack selector OFF.
   b. Access associated FCV(s) through the air conditioning equipment bay access doors under wing root center section.
   c. Check that FCV position indicator (crank arm on valve) indicates closed, run locking screw (end of crank arm) into hole in casting.
2. Pull and tag the following circuit breakers on the P6 Panel:
   - PACK TEMP CONT A, position F35
   - PACK TEMP CONT B, position F36

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3. Disconnect, cap and stow electrical connectors for inlet and exit doors.
4. Check position of the inlet/exit doors. They must be secured in one of the following configurations for dispatch:
   a. Exit door open more than inlet door.

      OR

   b. Both are fully closed **(Preferred)**

      NOTE: The preferred configuration is to position the affected inlet/exit doors to the fully closed position. This is to maximize fuel savings when the pack is inoperative. If there is not adequate time to position the affected inlet/exit doors to the fully closed position, use one of the other configurations below to avoid any possible dispatch delay.
5. If inlet/exit doors are not in one of the above configurations, reposition the inlet/exit door(s) as necessary using the Allen wrench if the actuator(s) can be moved manually.
6. Install allen wrench into adapter on end of gearbox opposite linear screw.

CAUTION: TURN WRENCH BY HAND ONLY. A TORQUE GREATER THAN 15 INCH POUNDS MAY DAMAGE ACTUATOR GEARS.

7. Move door to desired position.

CAUTION: IF DOORS ARE NOT IN POSITION DESCRIBED, DAMAGE TO DUCTING COULD OCCUR, OR, CABIN TEMPERATURE COULD BECOME EXCESSIVELY WARM.

8. Close the following circuit breakers on the P6 Panel and remove tags:
   - PACK TEMP CONT A, position F35
   - PACK TEMP CONT B, position F36
9. Status message PACK _ will remain displayed.
10. Defer item per MEL item 21-51-01 for dispatch with an inoperative pack.

21-62-02C, 21-62-02D

NOTE 1: Refer to CDL item 21–62–01 for missing inlet door.

NOTE 2: For PRIOR TO EACH DEPARTURE check, see next page.

1. Secure inoperative inlet/exit doors as required to meet MEL position requirements:
   a. Pull and secure the following circuit breakers on the P6 Panel:
      - PACK TEMP CONT A, position F35
      - PACK TEMP CONT B, position F36
   b. Disconnect electrical connector from door actuator.
   c. Install allen wrench into adapter on end of gearbox opposite linear screw.

CAUTION: TURN WRENCH BY HAND ONLY. A TORQUE GREATER THAN 15 INCH POUNDS MAY DAMAGE ACTUATOR GEARS.

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d. Move door to desired position.

1) If pack is to be used with an inoperative inlet door, position inlet door at least 60% open. This corresponds to 9.45 inches between centerline of actuator support bolt and centerline of ram bolt (see figure below).

2) Position exit door at least 50% open. If pack is to be used with an inoperative exit door, position it full open if possible (louver doors are approximately vertical) otherwise pack may trip off when operated in warm ambient conditions.

e. Loosen strain relief clamp supporting the removed electrical connector's wiring bundle.

f. Disconnect the wire from pin 6, pin 7 and pin 8. Individually sleeve the disconnected wires per Boeing Standard Wiring Practices Manual section 20–10–15 using sleeve material RT–876. Sleeve should extend one half inch beyond end of pin. Identify the disconnected wires for later restoration.

g. Fabricate a 4 inch shorting wire from type UA (BMS 13–48 TY VIII CL 1) 20 gauge wire and two 20 gauge sockets P/N BACC 47CP1A.

h. Insert fabricated shorting wire to connector pins 6 and 8. Note that pin 7, on the connector's backside, will remain unconnected.

i. Stow the following wires to the connector's wiring bundle per Boeing Standard Wiring Practices Manual section 20–10–11:

1) Wires disconnected and sleeved per step (f) above.

2) Excess wire from shorting wire connected per step (g) above.

j. Tighten the strain relief clamp supporting the wire bundle.

k. Reconnect the electrical connector, with shorting wire installed, to the inlet/exit door actuator(s).

l. Close the following circuit breakers on the P6 Panel and remove tags:

- PACK TEMP CONT A, position F35
- PACK TEMP CONT B, position F36

m. Status message PACK _ will remain displayed.

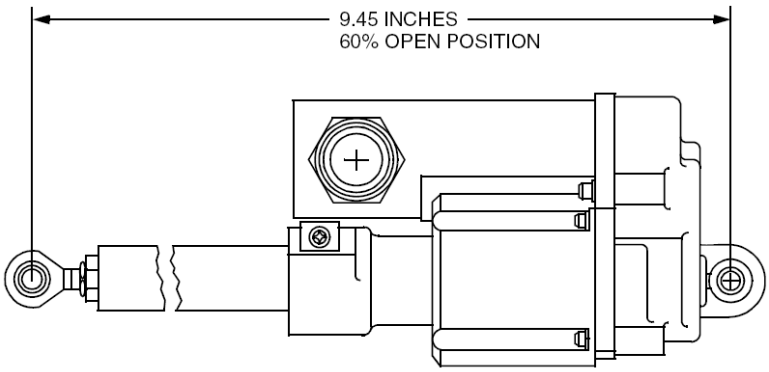
2. **PRIOR TO EACH DEPARTURE**:

a. Ensure that other equipment faults have not occurred.

1) Review CMC for other faults related to PACK _ status message and dispatch per associated MEL:

Continued Next Page

CONFIGURATION	Pack 1	Pack 2	Pack 3
Exit Door Secured Open	21113, 21114, 21117, 21118	21124, 21125, 21128, 21129	21135, 21136, 21139, 21140
Inlet Door Secured Open	21113, 21117, 21118	21124, 21128, 21129	21135, 21139, 21140



RAM AIR INLET DOOR ACTUATOR

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-65-01	Compartment Temperature Indications (EICAS)	**Y**	9	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-65-01	Adjacent To Applicable EICAS Display	___ COMPARTMENT TEMPERATURE INDICATIONS INOP

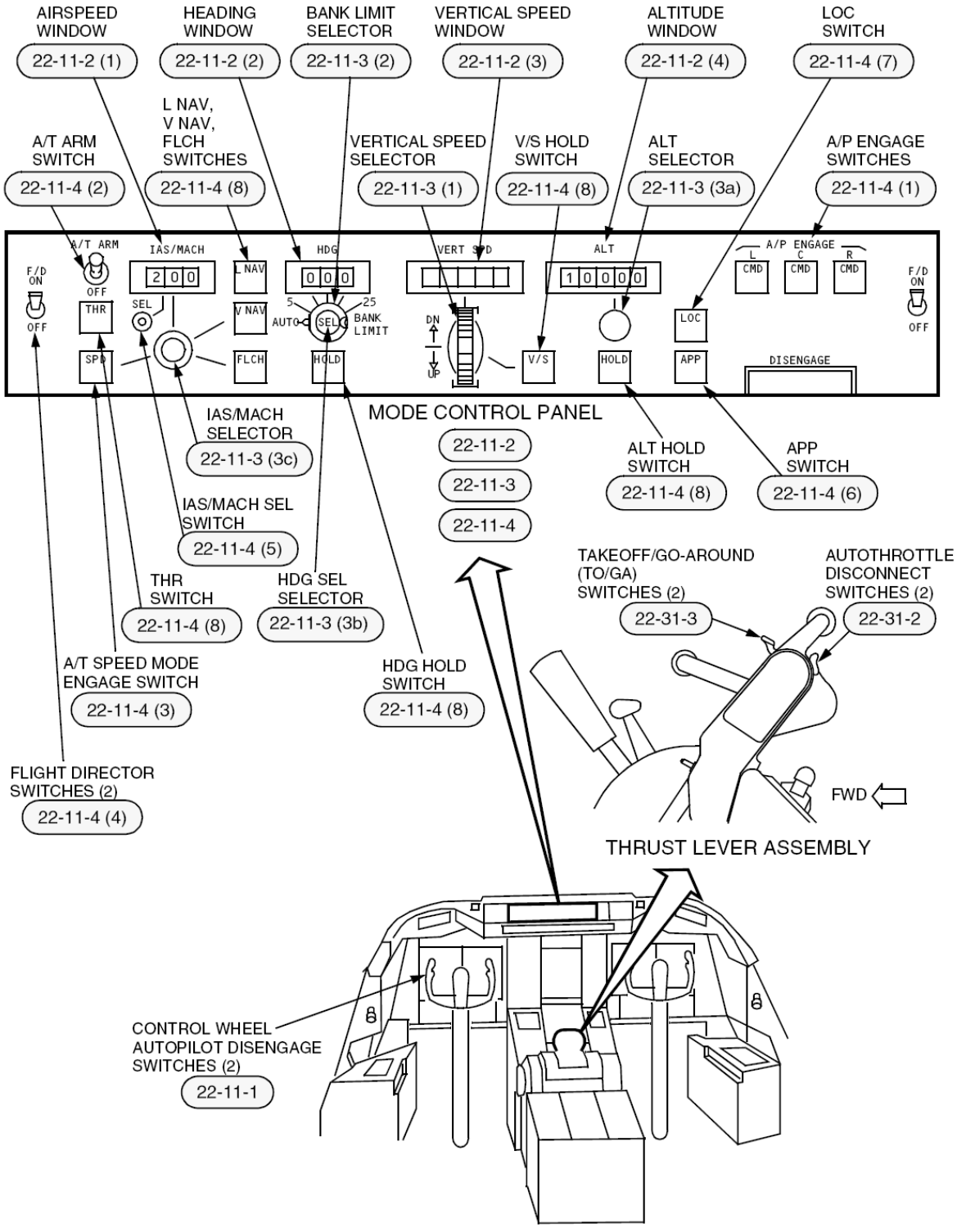
		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
21-65-02	Zone SYS FAULT Light	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-65-02	Adjacent To Zone Sys Fault Light On ECS Control Panel	ZONE SYS FAULT LIGHT INOP

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AUTOFLIGHT SYSTEM COMPONENTS - FLIGHT DECK

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
22-00-00L	LLM Autoland Status (Lower Landing Minimums) **"DISP.APPR.REQ'D"** Administrative Control Item	**N**	-	-	**(M)** Aircraft restricted from autopilot coupled Autoland due to chronic problem, or no Autoland in 30 days. a) This item number is only used for deferring the Autoland status of the aircraft and MCC authorization is required prior to its usage or removal. b) Practice Autolands are permitted if authorized by MCC.

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-00-00L	Adjacent To Each PFD	AUTOLAND IS NOT AUTHORIZED

(M) PROCEDURES

1. Create a new log page in the aircraft logbook using the appropriate MEL Item Number (contact MCC for instructions).
2. The deferral code LLM must also be entered on the log page and the placard when deferring this item.
3. MCC authorization is required prior to its usage or removal.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
22-10-01A	Autopilot Systems **"DISP.APPR.REQ'D"**	**Y**	3	2	**C**	**(M)(O)** One may be inoperative provided: a) Associated FCC SERVO circuit breaker is pulled and secured, and b) Autopilot Flight Director System is verified not in a single source configuration PRIOR TO EACH DEPARTURE. CAT III Not Authorized **Repetitive Check Required (Yellow Placard)**
22-10-01B	Autopilot Systems **"DISP.APPR.REQ'D"**	**Y**	3	1	**C**	**(M)(O)** Two may be inoperative provided: a) At least two FCC PWR circuit breakers remain closed, b) Associated FCC SERVO circuit breakers are pulled and secured, and c) Autopilot Flight Director System is verified not in a single source configuration PRIOR TO EACH DEPARTURE. CAT II/III Not Authorized **Repetitive Check Required (Yellow Placard)**
22-10-01C	Autopilot Systems **"DISP.APPR.REQ'D"**	**Y**	3	0	**B**	**(M)(O)** All may be inoperative provided: a) Flight is not conducted on polar routes, b) At least one FCC PWR circuit breaker remains closed, c) All three FCC SERVO circuit breakers are pulled and secured, d) Enroute operations do not require their use; refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. e) Flight crewmembers are limited to 5 flight hours per scheduled flight day, f) Destination weather is above 4000 RVR, 3/4 mi, g) Aircraft is not dispatched to an airport where the only approach available is a non–precision approach unless destination weather is 1000 feet/3 miles or greater, h) The airplane is limited to FL280 or below, and i) At least one Flight director must be operative for: • RNAV Departure Procedures, • RNAV Arrival Procedures, • PRNAV Procedures, and • Q–Routes. CAT II/III - RVSM - PRM - Polar Operations Not Authorized Theater Restrictions May Apply

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MEL ITEM	TAB LOCATION	PLACARD TEXT
22-10-01A	On The MCP Adjacent To The Autopilot Engage Switches	___ AUTOPILOT SYSTEM INOP
22-10-01B	On The MCP Adjacent To The Autopilot Engage Switches	___ AUTOPILOT SYSTEMS INOP
22-10-01C	On The MCP Adjacent To The Autopilot Engage Switches	ALL AUTOPILOT SYSTEMS INOP

(O) PROCEDURES

22-10-01A, 22-10-01B

Prior to engine start, verify EICAS status message A/P SINGLE SYS is not displayed.

22-10-01C

1. RVSM operations – Not Authorized. Limit altitude to FL280 or below.
2. Precision Runway Monitor (PRM) approaches – Not Authorized.
3. Do not operate on polar routes.
4. Flight crewmembers are limited to 5 flight hours per scheduled flight day.
5. At least one Flight Director must be operative for RNAV Departure Procedures, RNAV Arrival Procedures, PRNAV Procedures, and Q–Routes.

(M) PROCEDURES

22-10-01A

1. Pull and secure the FCC servo circuit breaker (P7 panel) for the inoperative FCC.
   - Left L FLT CONT CMPTR SERVO (D7)
   - Center C FLT CONT CMPTR SERVO (D12)
   - Right R FLT CONT CMPTR SERVO (D14)
2. Verify that all three Flight Control Computer (FCC) AC power breakers are in (closed).
   - Left L FLT CONT CMPTR PWR (D8)
   - Center C FLT CONT CMPTR PWR (D13)
   - Right R FLT CONT CMPTR PWR (D15)

Continued Next Page

22-10-01B

1. Pull and secure the FCC servo circuit breaker (P7 panel) for the inoperative FCC's.
   - Left L FLT CONT CMPTR SERVO (D7)
   - Center C FLT CONT CMPTR SERVO (D12)
   - Right R FLT CONT CMPTR SERVO (D14)
2. Verify that two of the three Flight Control Computer (FCC) AC power breakers are in (closed).
   - Left L FLT CONT CMPTR PWR (D8)
   - Center C FLT CONT CMPTR PWR (D13)
   - Right R FLT CONT CMPTR PWR (D15)

22-10-01C

1. Pull and secure All FCC servo circuit breakers (P7 panel).
   - Left L FLT CONT CMPTR SERVO (D7)
   - Center C FLT CONT CMPTR SERVO (D12)
   - Right R FLT CONT CMPTR SERVO (D14)
2. Verify that one of the three Flight Control Computer (FCC) AC power breakers are in (closed).
   - Left L FLT CONT CMPTR PWR (D8)
   - Center C FLT CONT CMPTR PWR (D13)
   - Right R FLT CONT CMPTR PWR (D15)

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
22-11-01	Control Wheel Autopilot Disengage Switches **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** One may be inoperative provided: a) No autopilot is used below 1,500 feet AGL, b) Destination weather is above 4000 RVR, 3/4 mi, and c) Aircraft is not dispatched to an airport where the only approach available is a non–precision approach unless destination weather is 1000 feet/3 miles or greater. CAT II/III - PRM Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-11-01	On The MCP Adjacent To The Autopilot Engage Switches	___ AUTOPILOT DISENGAGE SWITCH INOP

(O) PROCEDURES

1. Precision Runway Monitor (PRM) approaches – Not Authorized.
2. Do not use any autopilot below 1,500 ft AGL.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
MODE CONTROL PANEL WINDOWS					
22-11-02A Airspeed (IAS/MACH)	**Y**	1	0	**C**	May be inoperative provided selected airspeed indications on both PFDs operate normally.
22-11-02B Heading (HDG)	**Y**	1	0	**C**	May be inoperative provided selected heading indications on both PFDs operate normally.
22-11-02C Vertical Speed (VERT SPD)	**Y**	1	0	**C**	May be inoperative provided selected vertical speed indications on both PFDs operate normally.
22-11-02D Altitude (ALT)	**Y**	1	0	**C**	May be inoperative provided selected altitude indications on both PFDs operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-11-02A	On MCP Adjacent To The IAS/MACH Window	MCP IAS/MACH WINDOW INOP.
22-11-02B	On MCP Adjacent To The HDG Window	MCP HDG WINDOW INOP
22-11-02C	On MCP Adjacent To The VERT SPD Window	MCP VERT SPD WINDOW INOP
22-11-02D	On MCP Adjacent To The ALT Window	MCP ALT WINDOW INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	MODE CONTROL PANEL SELECTORS					
22-11-03A	VERT SPD Selector (DN & UP)	**Y**	1	0	**C**	May be inoperative.
22-11-03B	BANK LIMIT Selector (AUTO, 5, 10, 15, 20, 25)	**Y**	1	0	**C**	May be inoperative.
22-11-03C	Selector Push Function (ALT)	**Y**	1	0	**C**	May be inoperative.
22-11-03D	Selector Push Function HDG SEL	**Y**	1	0	**C**	May be inoperative.
22-11-03E	Selector Push Function IAS/MACH	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-11-03A	On MCP Adjacent To The VERT SPD DN & UP Selector	MCP VERT SPD DN & UP SELECTOR INOP
22-11-03B	On MCP Adjacent To The BANK LIMIT Selector	MCP BANK LIMIT SELECTOR INOP
22-11-03C	On MCP Adjacent To The ALT Selector	MCP ALT SELECTOR PUSH FUNCTION INOP
22-11-03D	On MCP Adjacent To The HDG SEL Selector	MCP HDG SEL PUSH FUNCTION INOP
22-11-03E	On MCP Adjacent To The IAS/MACH Selector	MCP IAS/MACH SELECTOR PUSH FUNCTION INOP

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED	FLIGHT CREW MAY PLACARD	NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
	MODE CONTROL PANEL SWITCHES					
22-11-04A	A/P Engage Switches (L CMD, C CMD, R CMD) **"DISP.APPR.REQ'D"**	**Y**	3	1	**C**	**(M)(O)** May be inoperative provided associated autopilot system is considered inoperative. Ensure the provisos in the Remarks & Exceptions column of MEL item 22–10–01A or –01B are applied, as applicable.
22-11-04B	A/P Engage Switches **"DISP.APPR.REQ'D"**	**Y**	3	0	**B**	**(M)(O)** May be inoperative provided all three autopilot systems are considered inoperative. Ensure the provisos in the Remarks & Exceptions column of MEL item 22–10–01C are applied. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. CAT II/III Not Authorized Theater Restrictions May Apply
22-11-04C	A/T Arm Switch (A/T ARM)	**Y**	1	0	**C**	**(O)** May be inoperative ON provided autothrottle disconnect switches operate normally.
22-11-04D	A/T Arm Switch (A/T ARM) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative OFF provided: a) Autothrottle systems are considered inoperative, b) Flight is not conducted on polar routes, and c) Performance corrections are applied. CAT II/III - Polar Operations Not Authorized
22-11-04E	A/T Speed Mode Engage Switch (SPD) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative. CAT II/III Not Authorized
22-11-04F	Flight Director Switches (F/D) **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** May be inoperative OFF provided the associated flight director display is considered inoperative. Ensure the provisos in the Remarks & Exceptions column of MEL item 34–22–03A are applied. CAT II Not Authorized

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
	MODE CONTROL PANEL SWITCHES (CONTINUED)					
22-11-04G	Flight Director Switches (F/D) **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative OFF provided the flight director displays are considered inoperative. Ensure the provisos in the Remarks & Exceptions column of MEL item 34–22–03B are applied. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. CAT II Not Authorized
22-11-04H	IAS/MACH SEL (Reference) Switch	**N**	1	0	**C**	**(M)** May be inoperative provided IAS is displayed in associated window.
22-11-04I	APP Switch **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) Approach minimums do not require use of autopilot or flight director, b) Destination weather is above 4000 RVR, 3/4 mi, and c) Aircraft is not dispatched to an airport where the only approach available is a non–precision approach unless destination weather is 1000 feet/3 miles or greater. CAT II/III - PRM Approaches Not Authorized
22-11-04J	LOC Engage Switch **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided localizer only approach is not used.
22-11-04K	ALT HOLD Switch **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided V NAV mode operates normally for RVSM operations.
22-11-04L	V NAV Switch **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) Aircraft is not dispatched to an airport where the only approach available is a non–precision approach unless destination weather is 1000 feet/3 miles or greater, and b) ALT HOLD mode operates normally for RVSM operations. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. VNAV Approaches Not Authorized

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ITEM NO. NAME / DESCRIPTION	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	REMARKS OR EXCEPTIONS
MODE CONTROL PANEL SWITCHES (CONTINUED)					
22-11-04M FL CH Switch	**Y**	1	0	**C**	May be inoperative provided V/S mode operates normally.
22-11-04N V/S Switch	**Y**	1	0	**C**	May be inoperative provided FL CH mode operates normally.
22-11-04O THR and HDG HOLD Switches	**Y**	2	0	**C**	May be inoperative.
22-11-04P L NAV Switch	**Y**	1	0	**C**	May be inoperative provided HDG SEL, HDG HOLD, APP and LOC modes operate normally. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements.

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-11-04A	On MCP Adjacent To The affected A/P ENGAGE Switch	___ A/P ENGAGE SWITCH INOP
22-11-04B	On MCP Adjacent To The A/P ENGAGE Switches	ALL A/P ENGAGE SWITCHES INOP
22-11-04C	On MCP Adjacent To The A/T ARM Switch	MCP A/T ARM SWITCH INOP IN THE ON POSITION
22-11-04D	On MCP Adjacent To The A/T ARM Switch	MCP A/T ARM SWITCH INOP IN THE OFF POSITION. DO NOT USE AUTO– THROTTLE
22-11-04E	On MCP Adjacent To The SPD mode Switch	MCP A/T SPD MODE ENGAGE SWITCH INOP
22-11-04F	On MCP Adjacent To The F/D Switch	___ MCP FLIGHT DIRECTOR SWITCH INOP Placard the associated Flight Director Display inoperative per MEL item 34–22–03A.
22-11-04G	On MCP Adjacent To The F/D Switch	BOTH MCP FLIGHT DIRECTOR SWITCHES INOP Placard both Flight Director Displays inoperative per MEL item 34–22–03B
22-11-04H	On MCP Adjacent To The IAS/MACH SEL Switch	MCP IAS/MACH SELECTOR SWITCH INOP.
22-11-04I	On MCP Adjacent To The APP Switch	MCP APP SWITCH INOP
22-11-04J	On MCP Adjacent To The LOC Engage Switch	MCP LOC ENGAGE SWITCH INOP
22-11-04K	On MCP Adjacent To The ALT HOLD Switch	MCP ALT HOLD SWITCH INOP
22-11-04L	On MCP Adjacent To The V NAV Switch	MCP V NAV SWITCH INOP

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MEL ITEM	TAB LOCATION	PLACARD TEXT
22-11-04M	On MCP Adjacent To The Affected Switch	MCP FL CH SWITCH INOP
22-11-04N	On MCP Adjacent To The Affected Switch	MCP V/S SWITCH INOP
22-11-04O	On MCP Adjacent To The Affected Switch	MCP ___ SWITCH INOP
22-11-04P	On MCP Adjacent To The L NAV Switch	MCP L NAV SWITCH INOP

(O) PROCEDURES

22-11-04A

Comply with MEL item 22–10–01A or –01B, (O) procedure as applicable.

22-11-04B

Comply with MEL Item 22–10–01C (O) procedure.

22-11-04C

Ensure the A/T Arm Switch is in the A/T ARM position.

22-11-04D

1. Do not operate on polar routes.
2. Do not use the autothrottles.
3. After takeoff thrust is set, push the TO/GA switches to update the FMC position.

   NOTE: If the A/T ARM Switch is in the OFF position, the EEC engine trim function will not operate. Small thrust asymmetry may occur even if the throttles appear aligned.

22-11-04D	**A/T ARM SWITCH**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 0.1%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

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22-11-04E

CAT II – Not Authorized.

CAT III – Not Authorized.

22-11-04F

Comply with MEL item 34–22–03A (O) procedure.

CAT III – **None Required**.

22-11-04G

Comply with MEL item 34–22–03B (O) procedure.

CAT III – **None Required**.

22-11-04I

CAT II – Not Authorized.

CAT III – Not Authorized.

Precision Runway Monitor (PRM) approaches – Not Authorized.

22-11-04J

Localizer only approach – Not Authorized.

22-11-04K

V NAV must operate normally for RVSM operations.

22-11-04L

VNAV approaches – Not Authorized.

(M) PROCEDURES

22-11-04A

Defer per MEL item 22–10–01A OR 22–10–01B, as applicable.

22-11-04B

Defer per MEL item 22–10–01C.

22-11-04H

For dispatch with an inoperative IAS/MACH SEL Switch, IAS must be displayed in the associated MCP window. If MACH is displayed, simultaneously cycling P7 panel MCP L and MCP R circuit breakers will cause IAS to be displayed.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	MODE CONTROL PANEL SWITCH LIGHTS					
22-11-05A	Autopilot Engage Switch Lights (CMD)	**Y**	3	2	**C**	One may be inoperative.
22-11-05B	Mode Selector Switch Lights (THR, SPD, LNAV, VNAV, FLCH, HDG HOLD, V/S, ALT HOLD, LOC, APP)	**Y**	-	0	**C**	May be inoperative. NOTE: Mode Selector Switch Lights include autopilot system mode switch lights and thrust management system mode switch lights.

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-11-05A	On MCP Adjacent To The Affected Switch	___ AUTOPILOT ENGAGE SWITCH LIGHT INOP
22-11-05B	On MCP Adjacent To The Affected Switch	___ MODE SELECTOR SWITCH LIGHT(S) INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
22-13-01A	Automatic Landing System (Autoland) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	(O) May be inoperative. CAT II/III Not Authorized
22-13-01B	Automatic Landing System (Autoland) Triple Channel Autoland (LAND 3) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	(O) May be inoperative. CAT III Not Authorized
22-13-01C	Automatic Landing System (Autoland) Automatic Rollout Control **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	(O) May be inoperative. CAT III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-13-01A	On MCP Adjacent To The APP Switch	AUTOLAND INOP
22-13-01B	On MCP Adjacent To The APP Switch	TRIPLE CHANNEL AUTOLAND (LAND 3) INOP
22-13-01C	On MCP Adjacent To The APP Switch	AUTOLAND AUTOMATIC ROLLOUT CONTROL INOP

(O) PROCEDURES

22-13-01A

CAT II – Not Authorized.

CAT III – Not Authorized.

22-13-01B, 22-13-01C

CAT III – Not Authorized.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
22-21-01 Yaw Dampers	**N**	2	1	**C**	**(M)(O)** One may be inoperative provided: a) Operation of remaining yaw damper is verified to operate normally, and b) Associated yaw damper switch remains OFF.

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-21-01	Adjacent To Yaw Dampers INOP Switch/Indicator Lights On The P5 Overhead Panel	___ YAW DAMPER INOP.

(O) PROCEDURES

Place inoperative Yaw Damper switch to the OFF position.

(M) PROCEDURES

1. Establish electrical power (AMM 24-22-02/201) and hydraulic power (AMM 29-11-00/201).
2. Verify that the IRUs are aligned and in NAV mode.
3. Perform CMC YDM ACT ground test for the operational yaw damper (AMM 22-21-00).
4. Restore aircraft to required configuration.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
22-21-02	Yaw Damper INOP Lights	**Y**	2	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-21-02	On Inoperative Yaw Damper Lights	___ YAW DAMPER LIGHTS INOP

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
22-31-01	Autothrottle System **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) Flight is not conducted on polar routes, and b) Performance corrections are applied. CAT II/III – Polar Operations Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-31-01	On MCP Adjacent To The A/T ARM Switch	AUTOTHROTTLE SYSTEM INOP

(O) PROCEDURES

1. Do not operate on polar routes.
2. Do not use the autothrottles.
3. After takeoff thrust is set, push the TO/GA switches to update the FMC position.

   NOTE: If A/T ARM Switch is in the OFF position, the EEC engine trim function will not operate. Small thrust asymmetry may occur even if the throttles appear aligned.

22-31-01	**AUTOTHROTTLE SYSTEM**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 0.1%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
22-31-02A	Autothrottle Disconnect Switches	**Y**	2	1	**C**	One may be inoperative provided AUTOTHROTTLE ARM switch operates normally.
22-31-02B	Autothrottle Disconnect Switches **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided: a) Autothrottles are not armed, b) Flight is not conducted on polar routes, and c) Performance corrections are applied. CAT II/III – Polar Operations Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-31-02A	On MCP Adjacent To The A/T ARM Switch	___ AUTOTHROTTLE DISCONNECT SWITCH INOP
22-31-02B	On MCP Adjacent To The A/T ARM Switch	BOTH AUTOTHROTTLE DISCONNECT SWITCHES INOP. DO NOT ARM AUTOTHROTTLES

(O) PROCEDURES

22-31-02B

1. Do not operate on polar routes.
2. Do not use the autothrottles.
3. After takeoff thrust is set, push the TO/GA switches to update the FMC position.

   NOTE: With the autothrottles not armed (A/T ARM switch in OFF position), the EEC engine trim function will not operate. Small thrust asymmetry may occur even if the throttles appear aligned.

22-31-02B	**AUTOTHROTTLE DISCONNECT SWITCHES**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 0.1%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
22-31-03A	Autothrottle TO/GA (Takeoff/ Go–Around) Switches **"DISP.APPR.REQ'D"**	**Y** 2	1	**C**	**(O)** One may be inoperative provided: a) No autopilot is used below 1,500 feet AGL, and b) Destination weather is above 4000 RVR, 3/4 mi, and c) Aircraft is not dispatched to an airport where the only approach available is a non–precision approach unless destination weather is 1000 ft/3 miles or greater. <u>CAT II/III - PRM Approaches</u> Not Authorized
22-31-03B	Autothrottle TO/GA (Takeoff/ Go–Around) Switches **"DISP.APPR.REQ'D"**	**Y** 2	0	**B**	**(O)** Both may be inoperative provided: a) Thrust levers are operated manually for takeoff and go–around, b) Autopilot and Flight Director are not used below 500 ft AGL or MDA whichever is higher, c) Destination weather is above 4000 RVR, 3/4 mi, d) Aircraft is not dispatched to an airport where the only approach available is a non–precision approach unless destination weather is 1,000 ft/3 miles or greater, and e) RNAV operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. NOTE: Flight Director go–around and windshear guidance are not available with both TO/GA switches inoperative. <u>CAT II/III – PRM Approaches - RNAV departures</u> Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
22-31-03A	On MCP Adjacent To The A/T ARM Switch	___ A/T TO/GA SWITCH INOP
22-31-03B	On MCP Adjacent To The A/T ARM Switch	BOTH A/T TO/GA SWITCHES INOP Placard GPWS Windshear Alert Mode (Reactive) (Mode 7) inoperative per MEL item 34–46–01D.

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(O) PROCEDURES

22-31-03A

1. Precision Runway Monitor (PRM) approaches – Not Authorized.
2. Do not use any autopilot below 1,500 ft AGL.

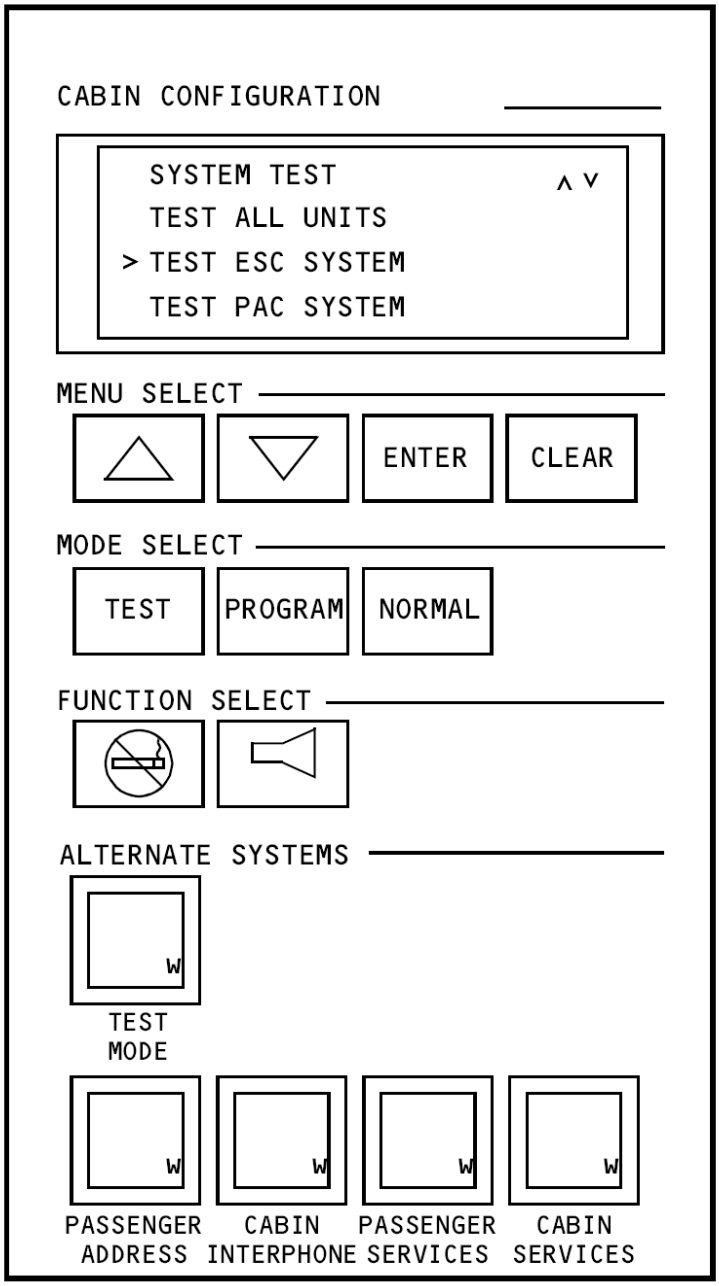
22-31-03B

1. Precision Runway Monitor (PRM) approaches – Not Authorized.
2. RNAV departure procedures – Not Authorized.
3. Do not use Autopilot and Flight Director for approach below 500 ft AGL.
4. Comply with MEL item 34–46–01D (O) procedure.

ATA 23 Contents

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CABIN CONFIGURATION TEST MODULE (CCTM)

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
23-11-01A	High Frequency (HF) Communication System **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** May be inoperative while conducting operations that require two long range communication systems provided: a) Aircraft SATVOICE system operates normally, b) SATVOICE services are available as a long range communication system over the intended route of flight, c) The ICAO Flight Plan is updated (as required) to notified ATC of the communications equipment status of the aircraft, and d) Alternate procedure are established and used. NOTE 1: SATCOM Communications Telephone Numbers refer to the Manuals, Operations & Performance folder in the Content Locker or JEPP, Communications section in the Jeppesen FD Pro application. NOTE 2: Refer to Delta Airway Manual, page OPS-5CM.1.3, Communication Equipment Requirements Chart.
23-11-01B	High Frequency (HF) Communication Systems **"DISP.APPR.REQ'D"**	**Y**	2	0	**D**	Both may be inoperative provided that ATC and Company communication requirements are met. NOTE: Refer to Delta Airway Manual, page OPS-5CM.1.3, Communication Equipment Requirements Chart. Theater Restrictions May Apply
23-11-01C	High Frequency (HF) Communication System (HF Datalink)	**Y**	2	1	**C**	One may be inoperative.
23-11-01D	High Frequency (HF) Communication System (HF Datalink) **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	Both may be inoperative provided flight is not conducted on polar routes. Polar Operations Not Authorized

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MEL ITEM	TAB LOCATION	PLACARD TEXT
23-11-01A	On HF Control Panel	___ HF SYSTEM INOP
23-11-01B	On HF Control Panel	___ HF SYSTEM(S) INOP
23-11-01C	On HF Control Panel	___ HF DATALINK SYSTEM INOP
23-11-01D	On HF Control Panel	BOTH HF DATALINK SYSTEMS INOP

(O) PROCEDURES

23-11-01A

1. ER (ETOPS) operations beyond 180 minutes – Not Authorized.
2. For all operations, confirm route to be flown complies with limitations listed in the Airway Manual, page OPS-5CM.1.3, Communication Equipment Requirements Chart.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-12-01A	VHF Communications Systems (SATCOM Datalink or HF Datalink Operative)	**Y**	3	2	**C**	Center VHF only may be inoperative provided SATCOM Datalink or HF Datalink is operative. NOTE : VHF Datalink ACARS will be inoperative.
23-12-01B	VHF Communications Systems (SATCOM Datalink Inoperative and HF Datalink Inoperative/ Deactivated) **"DISP.APPR.REQ'D"**	**Y**	3	2	**C**	**(M)(O)** Center VHF only may be inoperative provided: a) Alternate procedures are used, b) Flight is not conducted on polar routes, and c) ACARS is deferred per MEL 23-27-01A. NOTE: Refer to Delta Airway Manual, page OPS-5CM.1.3, Communication Equipment Requirements Chart.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-12-01A	On Center VHF COMM Control Panel	CENTER VHF COMM SYSTEM AND VHF DATALINK ACARS INOP
23-12-01B	On Center VHF COMM Control Panel	CENTER VHF COMM SYSTEM AND VHF DATALINK ACARS INOP.

(O) PROCEDURES

23-12-01B

Comply with MEL Item 23–27–01A (O) procedure.

(M) PROCEDURES

23-12-01B

Apply MEL 23-27-01A

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-24-01	Radio Communication Panels	**Y**	3	2	**C**	Center or right panel may be inoperative provided associated switch remains OFF.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-24-01	On Applicable Control Panel	___ RADIO COMMUNICATION PANEL INOP

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
23-25-01A	Satellite Communication (SATCOM) Systems **"DISP.APPR.REQ'D"**	**Y** 1	0	**C**	**(O)** Except for ER operations beyond 180 minutes, may be inoperative provided: a) Alternate procedures are used, and b) RNAV operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. NOTE: Refer to Delta Airway Manual, page OPS-5CM.1.3, Communication Equipment Requirements Chart.
23-25-01B	Satellite Communication (SATCOM) Systems (Voice Systems) **"DISP.APPR.REQ'D"**	**Y** 1	0	**C**	**(O)** Except for ER operations beyond 180 minutes, may be inoperative provided: a) Alternate procedures are used, and b) RNAV operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. NOTE: Refer to Delta Airway Manual, page OPS-5CM.1.3, Communication Equipment Requirements Chart.
23-25-01C	Satellite Communication (SATCOM) Systems (Data Systems) **"DISP.APPR.REQ'D"**	**Y** 1	0	**C**	**(O)** Except for ER operations beyond 180 minutes, may be inoperative provided: a) Alternate procedures are used, and b) RNAV operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. NOTE: Refer to Delta Airway Manual, page OPS-5CM.1.3, Communication Equipment Requirements Chart.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-25-01A	On Applicable MCDU Control Panel	___ SATELLITE COMMUNICATION SYSTEMS INOP
23-25-01B	On Applicable MCDU Control Panel	___ SATELLITE COMMUNICATION VOICE SYSTEMS INOP
23-25-01C	On Applicable MCDU Control Panel	SATELLITE COMMUNICATION DATA SYSTEMS INOP

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(O) PROCEDURES

23-25-01A

1. ER (ETOPS) operations beyond 180 minutes – Not Authorized.
2. Utilize ACARS or HF/VHF voice for communications.

23-25-01B

1. ER (ETOPS) operations beyond 180 minutes – Not Authorized.
2. Utilize ACARS, HF/VHF voice or satellite data for communications.

23-25-01C

1. ER (ETOPS) operations beyond 180 minutes – Not Authorized.
2. Satellite Voice will still be available for use.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-27-01A	ACARS System **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Alternate procedures are used, b) Flight is not conducted on polar routes, and c) RNP operations do not require its use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. Polar Operations Not Authorized NOTE 1: Any mode which functions normally may be used. NOTE 2: Refer to Delta Airway Manual, page OPS-5CM.1.3, Communication Equipment Requirements Chart.
23-27-01B	ACARS System (Chime) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative.
23-27-01C	ACARS System Message (Message Storage) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative.
23-27-01D	ACARS System (UTC Time Reset) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative.
23-27-01E	ACARS System (Out, Off, On, In, Times Function) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative.
23-27-01F	ACARS System (Weight Data Page) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative.
23-27-01G	Automatic Dependant Surveillance – Contract (ADS-C) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided alternate procedures are used.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
23-27-01A	On Left Control Display Unit (CDU) Located On P9 Panel And On Cabin Data Terminal Located By Door 2 Galley	ACARS SYSTEM INOP
23-27-01B	On Left Control Display Unit (CDU) Located On P9 Panel	ACARS SYSTEM CHIME INOP
23-27-01C	On Left Control Display Unit (CDU) Located On P9 Panel	ACARS SYSTEM MESSAGE STORAGE INOP
23-27-01D	On Left Control Display Unit (CDU) Located On P9 Panel	ACARS SYSTEM UTC TIME RESET INOP
23-27-01E	On Left Control Display Unit (CDU) Located On P9 Panel	ACARS SYSTEM OUT, OFF, ON, IN TIMES FUNCTION INOP
23-27-01F	On Left Control Display Unit (CDU) Located On P9 Panel	ACARS SYSTEM WEIGHT DATA PAGE INOP
23-27-01G	On Left Control Display Unit (CDU) Located On P9 Panel	ADS-C INOP

(O) PROCEDURES

23-27-01A

1. Advise departing station that ACARS is inoperative.
2. Operational information is to be communicated by voice radio.
3. Report Out, Off, On, and In times to station by radio communication.
4. Obtain Load Advice:
   a. Domestic locations via radio or via printed copy.
   b. International locations via printed copy.
5. **Domestic**–Make en route company reports every hour. Utilize SELCAL by tuning VHF 2(3) to the appropriate Delta radio network frequency. If SELCAL is not available, continuously monitor appropriate company voice radio frequencies.

   NOTE 1: If SELCAL is required, perform a SELCAL check before departure.

   NOTE 2: Company frequency must be monitored rather than 121.5.

   NOTE 3: Monitoring company frequency is not required when on a PRM approach.
6. Flight is not conducted on polar routes.
7. **International–**Make en route company reports at Compulsory waypoints. (Reference Airway Manual, Section 6, Communications). Utilize SELCAL HF 1(2) if available to the appropriate oceanic frequency.

   NOTE 1: If SELCAL is required, perform a SELCAL check before departure.

   NOTE 2: ADS and CPDLC are not available via SATCOM. Position reporting may need to be accomplished via voice radio.

   Captain to brief Lead Flight Attendant/Purser that the ACARS Message Feature of the AVOD system is not available for use.

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8. Refer to Airway Manual, page OPS-5CM.1.3, Communication Equipment Requirements Chart.for ACARS inoperative requirements.
9. Engine performance data must be manually entered onto Engine Trend Data Sheets. Refer to Operations Manual, Volume 1, Supplementary Procedures, Engines, APU, Manual Engine Performance Report.

23-27-01B

Monitor message status.

23-27-01C

Record any messages/data that may be required later in flight.

23-27-01D, 23-27-01E

Report Out, Off, On, In, times using free text downlinks to station or by radio communication.

23-27-01F

Obtain final weight data prior to departure, or via company radio.

23-27-01G

Do not operate aircraft in airspace where ADS-C is required.

(M) PROCEDURES

23-27-01A

Ensure inflight engine monitoring logbook is installed in aircraft logbook.

NOTE: If an inflight engine monitoring page is not available at the time of deferral, contact maintenance control for a faxed copy. Use the faxed copy until new page can be installed.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-28-01A	Selective Call (SELCAL) System **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided alternate procedures are established and used.
23-28-01B	Selective Call (SELCAL) System HF Channel 1 or 2 **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** One may be inoperative provided alternate procedures are used.
23-28-01C	Selective Call (SELCAL) System HF Channel 1 and 2 **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided alternate procedures are established and used.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-28-01A	Adjacent To Captain's And First Officer's Audio Control Panel (ACP) Located On P8 Panel	SELCAL SYSTEM IS INOP
23-28-01B	Adjacent To Captain's And First Officer's Audio Control Panel (ACP) Located On P8 Panel	___ HF CHANNEL IS INOP
23-28-01C	Adjacent To Captain's And First Officer's Audio Control Panel (ACP) Located On P8 Panel	HF CHANNEL 1 AND 2 INOP

(O) PROCEDURES

23-28-01A, 23-28-01C

Monitor appropriate radio frequencies continuously for the route segment being flown when SELCAL procedures are required.

23-28-01B

Utilize the operative HF Channel for SELCAL.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	PASSENGER ADDRESS SYSTEM					
23-31-01A	Passenger Address System **"DISP.APPR.REQ'D"**	**Y**	1	0	**B**	**(O)** May be inoperative provided: a) Alternate, normal and emergency procedures and/or operating restrictions are used, b) Flight attendant alerting system (audio and visual) operates normally, and c) Cabin Interphone Controller circuits operate normally. NOTE: Any station function(s) that operates normally may be used.
23-31-01B	Passenger Address Controller Circuits	**Y**	2	1	**C**	**(M)(O)** One circuit may be inoperative provided the operative controller circuit is selected.
23-31-01C	Lavatory Speakers	**Y**	-	-	**C**	**(O)** May be inoperative and lavatory used provided alternate procedures are used.
23-31-01D	Cabin Speakers **"DISP.APPR.REQ'D"**	**N**	-	-	**C**	**(M)(O)** No passenger seat, flight attendant seat or crew rest area bunk may be occupied from which the Passenger Address system is not audible and intelligible or that seat must be blocked and placarded "UNSERVICEABLE – DO NOT USE." NOTE: If required, reserve cabin seats for flight attendant use. Refer to In-Flight Service Programs and Policies Handbook Chapter 12, or current policy, for seat locations.
23-31-01E	Upper Deck Crew Rest Speakers (Class 1 Facility)	**Y**	1	0	**C**	**(O)** May be inoperative provided all crew related information is directly shared with flight crew rest occupants. NOTE: The upper deck crew rest compartment remains a Class 1 facility as long as alternate procedures are used.
23-31-01F	Direct Access Function (Stations 1L and 4L)	**Y**	2	1	**C**	**(O)** One may be inoperative provided: a) Alternate, normal and emergency procedures and/or operating restrictions are used, and b) Handset 4P function at affected station operates normally.

Continued Next Page

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-31-01A	Adjacent To PA MIC Selector On Captain's Audio Control Panel (ACP) And Adjacent To Left Fwd Flight Attendants Handset	PASSENGER ADDRESS SYSTEM INOP
23-31-01B	Place Tab Adjacent To Captain's And First Officer's ACP Located On P8 Panel	ONE PASSENGER ADDRESS SYSTEM CONTROLLER CIRCUIT INOP
23-31-01C	On Affected Lavatory Speaker Grill	___ LAVATORY SPEAKER INOP
23-31-01D	On Affected Cabin Speaker Grill	___ CABIN SPEAKER(S) INOP and if applicable ___ SEAT(S) or CREW REST BUNK(S) BLOCKED
23-31-01E	Adjacent to the Crew Rest Interphone Handset	FLIGHT CREW REST SPEAKER INOP
23-31-01F	Adjacent To Affected Direct Access Function	___ DIRECT ACCESS FUNCTION INOP

(O) PROCEDURES

23-31-01A

1. Advise the flight attendants to make all passenger briefings, and the Lead Flight Attendant/ Purser to advise the captain, prior to departure, when the briefings are complete.
2. To accommodate ditching or evacuation, the captain must instruct the Lead Flight Attendant/ Purser on the interphone to make the necessary calls using the aircraft megaphones or other methods.
3. Reference FOM, Chapter 7, Passenger Announcements, for PA Inoperative.

23-31-01B

Captain will brief Lead Flight Attendant/Purser to ensure the alternate controller circuit is selected by pressing the PASSENGER ADDRESS switch on the Cabin Configuration Test Module (CCTM) located at door 2R. The switch will illuminate when the alternate circuit is selected.

23-31-01C

Captain will brief Lead Flight Attendant/Purser to notify occupant(s) of affected lavatory(s) of any emergency or safety of flight announcements.

23-31-01D

Captain will brief Lead Flight Attendant/Purser which cabin speaker(s) is inoperative.

23-31-01E

Captain will brief Lead Flight Attendant/Purser to notify occupants of the upper deck flight crew rest compartment of any emergency or safety of flight announcements

23-31-01F

Captain will brief Lead Flight Attendant/Purser to use operative PA Direct Access Function or PA two digit code for PA announcements.

Continued Next Page

(M) PROCEDURES

23-31-01B

EICAS MESSAGES	**COMMENTS**
PASS ADDRESS	Pass address system failed

1. To select the Alternate Controller Circuit, depress the PASSENGER ADDRESS switch on the Cabin Configuration Test Module (CCTM) located at Door 2R (see Figure beginning of this chapter). The switch will illuminate when the Alternate Controller is selected.
2. Placard PA Controller inoperative per MEL item 23–31–01B.

23-31-01D

Refer to the following for inoperative cabin speakers for affected area:

1. For passenger seats apply and placard to MEL 25–25–02A
2. For flight attendant seats apply and placard to MEL 25–25–01A or 01B, as applicable.
3. For crew rest area placard the associated bed bunk or rest seat with OM2, UNSERVICEABLE – DO NOT USE tape or equivalent*.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-31-02	Prerecorded Passenger Announcement System	**Y**	1	0	**C**	**(O)** May be inoperative provided alternate procedures are used.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-31-02	On Auto Announce Control Panel Located At Door 2 Left	AUTO ANNOUNCE SYSTEM INOP

(O) PROCEDURES

1. Captain will brief Lead Flight Attendant/Purser on the emergency procedures which will be used.
2. Cabin Crew must use PA system for announcements.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	IN-FLIGHT ENTERTAINMENT SYSTEM					
23-32-01A	In-Flight Entertainment (IFE) System (system deactivated) **"DISP.APPR.REQ'D"**	**Y**	1	0	**D**	**(M)(O)** May be inoperative provided system is deactivated. NOTE: Approval for flight must be obtained by MCC Shift Manager.
23-32-01B	In-Flight Entertainment (IFE) System (partially operative) **"DISP.APPR.REQ'D"**	**Y**	1	0	**D**	**(O)** May be inoperative provided alternate procedures are used. NOTE1: This item is for use when the IFE system is partially inoperative (i.e., zone inop, software load corrupt). For individual IFE components see the Nonessential Equipment and Furnishings List (NEF) for deferral. NOTE 2: Any part of the system that is operational may be used.
23-32-01C	In-Flight Entertainment (IFE) Equipment Cooling Smoke Detector **"DISP.APPR.REQ'D"**	**N**	-	0	**D**	**(M)(O)** May be inoperative provided IFE system is deactivated.
23-32-01D	In-Flight Entertainment (IFE) Equipment Cooling Flow Detector **"DISP.APPR.REQ'D"**	**N**	-	0	**D**	**(M)(O)** May be inoperative provided IFE system is deactivated.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-32-01A	On IFE Control Panel	IFE System Deactivated
23-32-01B	On IFE Control Panel	IFE _____ Functions INOP
23-32-01C	On IFE Control Panel	IFE System Deactivated
23-32-01D	On IFE Control Panel	IFE System Deactivated

Continued Next Page

(O) PROCEDURES

23-32-01A, 23-32-01C, 23-32-01D

Captain to brief Lead Flight Attendant/Purser on the following:

1. It will be necessary to do the pre–takeoff briefings and emergency equipment demonstrations verbally.
2. PA announcements will not be heard over passenger headphones in business elite class.
3. On the Video Control Center (VCC) Main Power Switch Assembly Panel, the IFE switch is to remain in the OFF position.

23-32-01B

Captain to brief Lead Flight Attendant that it may be necessary to do passenger briefings and emergency equipment demonstrations verbally.

(M) PROCEDURES

23-32-01A, 23-32-01C, 23-32-01D

NOTE: This relief should only be applied if it is necessary to deactivate the IFE system for situations such as overheating or safety of flight. If the system is partially operative then use the partially operative MEL relief; for example, if the wrong media software was loaded or the file server was corrupted the system would not operate normally but would not require deactivation. For individual IFE components see the Nonessential Equipment and Furnishings List (NEF) for deferral.

1. Deactivate the IFE System as follows:

a. Turn the IFE Power Switch to the OFF position.
b. Pull and secure the IFE Control circuit breakers VCC-A, VCC-B, VCC-C on the P415 Power Panel and Video Control CTR-DC on the P180 Power Panel.
c. Install a placard on the IFE control panel (figure 23-32-01.2, box labeled C on figure 23-32-01.1) stating, “IFE Inoperative – Do not use”.

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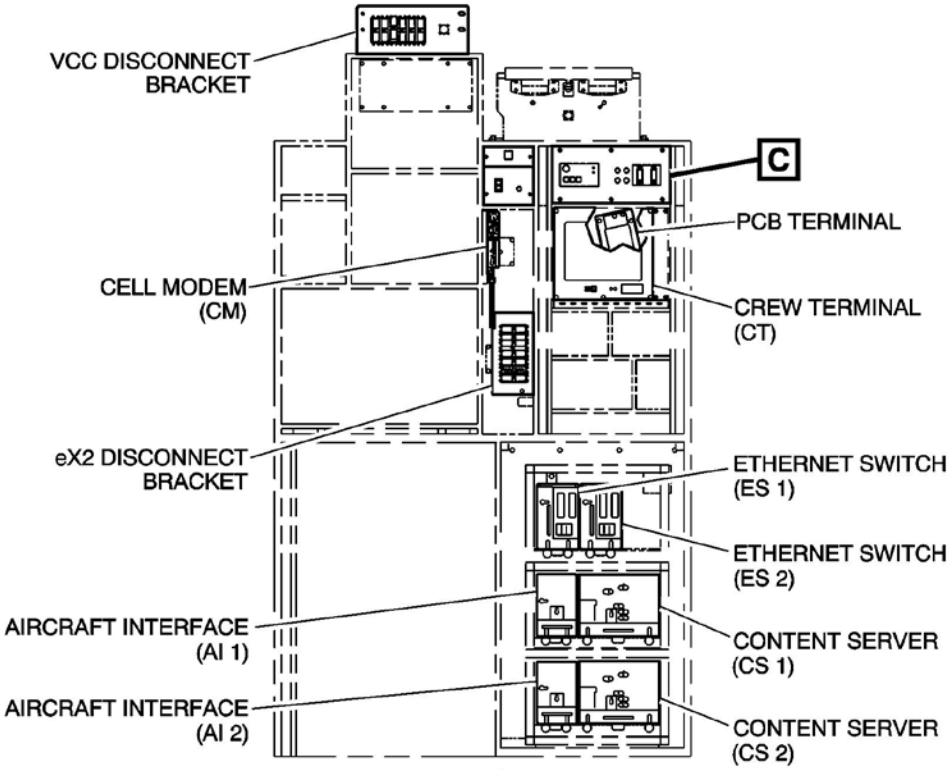


FIGURE 23-32-01.1

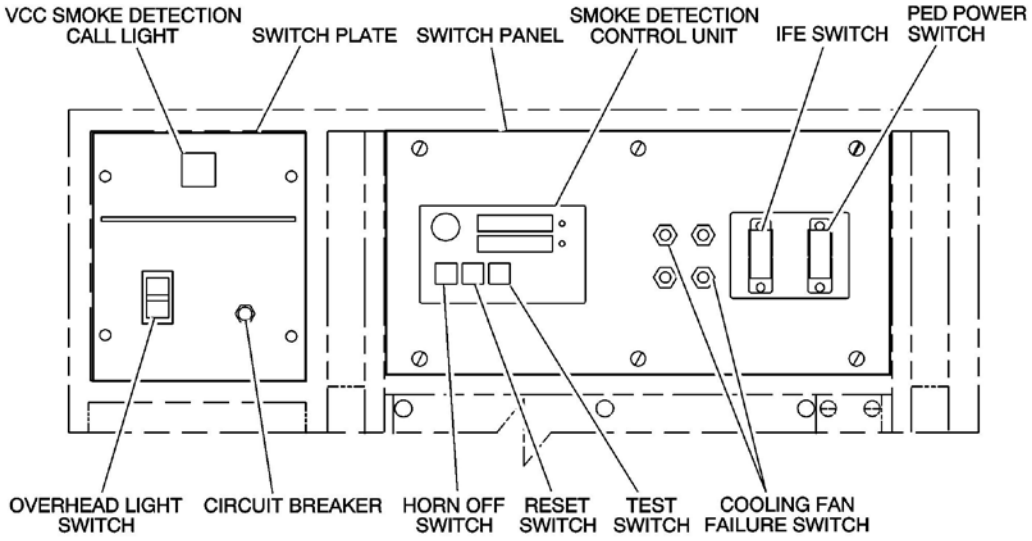


FIGURE 23-32-01.2, IFE Control Panel, Box identified as C

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-34-01A	ACESS Central Management Unit (CMU)/Passenger Service Controller (PSC)	**Y**	1	0	**C**	**(M)** May be inoperative provided: a) Cabin lighting is sufficient for cabin attendants to perform their duties, b) Passenger sign system operates normally, and c) One Cabin Interphone Controller Circuit operates normally.
23-34-01B	ACESS Central Management Unit (CMU)/Passenger Service Controller (PSC)	**Y**	1	0	**C**	**(M)** May be inoperative provided: a) Cabin lighting is sufficient for cabin attendants to perform their duties, b) Passenger sign system operates normally, and c) One Passenger Address Controller Circuit operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-34-01A	Adjacent To The Lower EICAS Display	ACESS CENTRAL MANAGEMENT UNIT (CMU)/PASSENGER SERVICE CONTROLLER (PSC) INOP
23-34-01B	Adjacent To The Lower EICAS Display	ACESS CENTRAL MANAGEMENT UNIT (CMU)/PASSENGER SERVICE CONTROLLER (PSC) INOP

(M) PROCEDURES

23-34-01A

EICAS MESSAGES	COMMENTS
CABIN SYSTEM	If the status message CABIN SYSTEM is displayed, the ACESS Central Management Unit is not interfacing with the EIUs. EICAS messages for Passenger Services, Cabin interphone and Passenger Address faults will not be displayed.
PASS SERVICES	If status message PASS SERVICES, is displayed, a controller circuit has failed. Selecting the alternate controller circuit by pressing the Passenger Services switch on the Cabin Configuration Test Module (CCTM) located on door 2R (see Figure beginning of this chapter) will eliminate status message PASS SERVICES if only one circuit has failed. If PASS SERVICES remains displayed after selecting alternate controller circuit, both controller circuits have failed.

Verify that the Cabin Interphone operates normally:

1. Ensure that the Cabin Interphone System operates normally by going to door–1 left (or door–2 left) and dialing the flight deck.
2. Turn on FASTEN SEATBELT sign from flight deck and check that the passenger signs have illuminated.
3. If an alternate controller circuit has been selected, ensure that the associated system operates normally.

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23-34-01B

EICAS MESSAGES	**COMMENTS**
CABIN SYSTEM	If the status message CABIN SYSTEM is displayed, the ACESS Central Management Unit is not interfacing with the EIUs. EICAS messages for Passenger Services, Cabin interphone and Passenger Address faults will not be displayed.
PASS SERVICES	If status message PASS SERVICES, is displayed, a controller circuit has failed. Selecting the alternate controller circuit by pressing the Passenger Services switch on the Cabin Configuration Test Module (CCTM) located on door 2R (see Figure beginning of this chapter) will eliminate status message PASS SERVICES if only one circuit has failed. If PASS SERVICES remains displayed after selecting alternate controller circuit, both controller circuits have failed.

Verify that the Passenger Address System operates normally:

1. Ensure the Passenger Address System operates normally as follows:
    a. Take the handset off of cradle.
    b. Push direct access button.
    c. Push PTT on handset and make PA announcement.
2. Turn on FASTEN SEATBELT sign from flight deck and check that the passenger signs have illuminated.
3. If an alternate controller circuit has been selected, ensure that the associated system operates normally.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	SERVICE AND FLIGHT INTERPHONE SYSTEMS					
23-41-01A	Nose Gear Jack (Flight Deck to Ground / Ground to Flight Deck Function)	**Y**	1	0	**C**	**(O)** Service interphone flight deck to ground/ground to flight deck function may be inoperative provided: a) Alternate procedures are used, and b) Nose gear or forward fuselage flight interphone jack operates normally.
23-41-01B	Nose Gear Jack/Forward Fuselage Jacks (Flight Deck to Ground / Ground to Flight Deck Function) **"Contact MCC"**	**Y**	2	0	**B**	**(O)** May be inoperative provided alternate procedures are used.
23-41-01C	Other Than Nose Gear Jack	**N**	-	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-41-01A	Adjacent To Crewmember Interphone Panel On The Aft Pedestal	SERVICE INTERPHONE NOSE GEAR JACK INOP
23-41-01B	Adjacent To Crewmember Interphone Panel On The Aft Pedestal	___ CREW INTERPHONE SYSTEM FUNCTION INOP
23-41-01C	On Service Interphone System	___ SERVICE INTERPHONE SYSTEM INOP

(O) PROCEDURES

23-41-01A

Use service interphone flight deck to ground/ground to flight deck function.

23-41-01B

Utilize standard Delta ramp hand signals. Reference FOM, Chapter 6, Ramp Signals.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	CREWMEMBER INTERPHONE SYSTEMS					
23-42-01A	Flight Deck to Cabin, Cabin to Flight Deck Functions **"Contact MCC"**	**Y**	-	-	**B**	**(O)** May be inoperative provided: a) Flight deck to cabin and cabin to flight deck interphone functions operate normally on at least fifty percent of the cabin handsets, b) Flight deck to cabin and cabin to flight deck interphone function operates normally at one door for each pair of exit doors c) Alternate communication procedures between affected flight attendant's station(s) and flight deck are established and used, and d) Operative flight deck to cabin/cabin to flight deck functions are located at operative flight attendant seats. NOTE: Any station function(s) that operate normally may be used.
23-42-01B	Cabin to Cabin Function	**Y**	-	-	**B**	**(O)** May be inoperative provided: a) Cabin to cabin interphone functions operate normally on at least fifty percent of the cabin handsets, b) Cabin to cabin interphone function operates normally at one door for each pair of exit doors, c) Alternate communications procedures between affected flight attendants stations are established and used, and d) Operative cabin to cabin functions are located at operative flight attendant seats. NOTE: Any station function(s) that operates normally may be used.
23-42-01C	Flight Deck to Ground/Ground to Flight Deck Function	**Y**	1	0	**C**	**(O)** Flight interphone flight deck to ground/ground to flight deck function may be inoperative provided: a) Alternate procedures are used, and b) Nose gear or forward fuselage service interphone jack operates normally.
23-42-01D	Flight Deck to Ground/Ground to Flight Deck Function	**Y**	1	0	**B**	**(O)** Flight interphone flight deck to ground/ground to flight deck function may be inoperative provided alternate procedures are established and used.
23-42-01E	Cabin Interphone Controller Circuits	**Y**	2	1	**C**	**(M)(O)** One circuit may be inoperative provided the operative controller circuit is selected.

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-42-01F	Flight Deck/Cabin to Flight Attendant Crew Rest, Flight Attendant Crew Rest to Flight Deck/Cabin	**Y**	-	0	**B**	**(O)** May be inoperative provided alternate procedures are established and used. NOTE: Any station function(s) that operate normally may be used.
23-42-01G	Flight Deck/Cabin to Upper Deck Flight Crew Rest, Upper Deck Flight Crew Rest to Flight Deck/Cabin (Class 1 Facility) **"DISP.APPR.REQ'D"**	**Y**	-	-	**B**	**(M)(O)** May be inoperative provided the crew rest compartment is considered inoperative and deferred per MEL 25-29-03A.
23-42-01H	Flight Deck/Cabin to Upper Deck Flight Crew Rest, Upper Deck Flight Crew Rest to Flight Deck/Cabin (Class 1 Facility) **"DISP.APPR.REQ'D"**	**Y**	-	-	**B**	**(M)(O)** May be inoperative provided: a) The flight crew rest compartment is downgraded to a Class 2 Facility for flight planning purposes, b) Placard is installed on the flight crew rest compartment door indicating the facility is downgraded to Class 2, and c) If required, appropriate adjustments to flight crew member duty period limits are made.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-42-01A	Adjacent To Interphone Panel On The Aft Pedestal	INTERPHONE FLIGHT DECK TO CABIN/CABIN TO FLIGHT DECK FUNCTION INOP
23-42-01B	Adjacent To Interphone Panel On The Aft Pedestal	INTERPHONE CABIN TO CABIN FUNCTION INOP
23-42-01C	Adjacent To Interphone Panel On The Aft Pedestal	INTERPHONE FLIGHT DECK TO GROUND/GROUND TO FLIGHT DECK FUNCTION INOP
23-42-01D	Adjacent To Interphone Panel On The Aft Pedestal	INTERPHONE FLIGHT DECK TO GROUND/GROUND TO FLIGHT DECK FUNCTION INOP
23-42-01E	Adjacent To Interphone Panel On The Aft Pedestal	ONE CABIN INTERPHONE CONTROLLER CIRCUIT CHANNEL INOP
23-42-01F	Adjacent To Interphone Panel On The Aft Pedestal	INTERPHONE FLIGHT DECK/CABIN TO CREW REST/CREW REST TO FLIGHT DECK/CABIN FUNCTION INOP
23-42-01G	Adjacent To Interphone Panel On The Aft Pedestal	INTERPHONE FLIGHT DECK/CABIN TO CREW REST/CREW REST TO FLIGHT DECK/CABIN FUNCTION INOP
23-42-01H	Adjacent To Interphone Panel On The Aft Pedestal	INTERPHONE FLIGHT DECK/CABIN TO CREW REST/CREW REST TO FLIGHT DECK/CABIN FUNCTION INOP

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(O) PROCEDURES

23-42-01A
Captain to brief Lead Flight Attendant/Purser that communication between flight deck and cabin is via operative handset positions, PA or face–to–face.

23-42-01B
Captain to brief Lead Flight Attendant/Purser that communication between affected flight attendant station(s) is via operative handset positions, PA or face–to–face.

23-42-01C, 23-42-01D
Use service interphone flight deck to ground/ground to flight deck function.

23-42-01E
Captain will brief Lead Flight Attendant/Purser to ensure the alternate controller circuit is selected by pressing the CABIN INTERPHONE switch on the Cabin Configuration Test Module (CCTM) located at door 2R. The switch will illuminate when the alternate circuit is selected.

23-42-01F
Flight crew must coordinate with the Purser/Flight Leader to establish alternate procedures for contacting and communicating with Attendant Crew Rest occupants.

23-42-01G
Ensure (O) procedures for 25-29-03A are complied with.

23-42-01H
1. Communications with the upper deck crew rest compartment must be done face to face.
2. Ensure appropriate limitations to flight crew duty periods for a Class 2 facility are followed.

NOTE: Contact the OCC Fleet Sector Manager thru the Dispatcher to coordinate any crew rest downgrade for potential crew duty time issues.

(M) PROCEDURES

23-42-01E

MAINTENANCE NOTE:
If the status message CABIN INTERPHONE is displayed, a controller circuit has failed. Select the alternate controller circuit by pressing the CABIN INTERPHONE switch on the Cabin Configuration Test Module (CCTM) located at door 2R (see figure at beginning of this chapter).
However, the CABIN INTERPHONE status message may be displayed when the cabin interphone system otherwise operates normally. The airplane may be dispatched using MEL 31-61-04.

23-42-01G
Defer the upper deck crew rest facility per MEL 25-29-03A.

23-42-01H
Install a placard on the outside of the flight crew rest compartment door stating the compartment is downgraded to a Class 2 facility.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-42-02	Flight Deck Hand Microphones	**Y**	2	0	**C**	May be inoperative or missing provided associated boom microphone operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-42-02	In View Adjacent To Affected Microphone Stowage Hook	___ FLIGHT DECK HAND MICROPHONE INOP or MISSING

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD	NUMBER INSTALLED	NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
	HANDSET SYSTEM					
23-42-03A	Flight Deck Handset	Y	1	0	C	**(O)** May be inoperative provided: a) Flight deck to cabin communication operates normally, and b) Alternate procedures are used.
23-42-03B	Main Cabin Handsets **"Contact MCC"**	Y	11	6	B	**(M)(O)** May be inoperative provided: a) Fifty percent of cabin handsets operate normally, b) One handset must operate normally at each pair of main exit doors, and c) Alternate communications procedures between the affected flight attendant station(s) are used. NOTE 1: An operative handset at an inoperative flight attendant seat shall not be counted to satisfy the fifty percent requirement. NOTE 2: Any handset(s) function(s) that operate normally may be used. NOTE 3: Handsets may be relocated to meet the requirements of the Remarks & Exceptions column.
23-42-03C	Upper Deck Cabin Handsets **"Contact MCC"**	Y	2	1	B	One may be inoperative.
23-42-03D	Upper Deck Cabin Handsets **"Contact MCC"**	Y	2	0	B	**(O)** May be inoperative provided passengers are not carried in the Upper Deck Cabin.
23-42-03E	Door 5 Crew Rests Handset	Y	1	0	B	**(O)** May be inoperative provided alternate procedures are used.
23-42-03F	Flight Crew Rests Handset (Class 1 Facility) **"DISP.APPR.REQ'D"**	N	1	0	B	**(M)(O)** May be inoperative provided the upper deck flight crew rest compartment is considered inoperative and deferred per MEL 25-29-03A.
23-42-03G	Flight Crew Rests Handset (Class 1 Facility) **"DISP.APPR.REQ'D"**	Y	1	0	B	**(M)(O)** May be inoperative provided: a) Alternate procedures are used to communicate with occupants of the compartment, b) The flight crew rest compartment is downgraded to a Class 2 Facility for flight planning purposes, c) Placard is installed on the flight crew rest compartment door indicating the facility is downgraded to Class 2, and d) If required, appropriate adjustments to flight crew member duty period limits are made.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
23-42-03A	On Flight Deck Handset	FLIGHT DECK HANDSET INOP
23-42-03B	On Affected Handset	___ CABIN HANDSET INOP
23-42-03C	On Affected Handset	___ UPPER DECK CABIN HANDSET INOP
23-42-03D	On Handset	UPPER DECK CABIN HANDSETS INOP
23-42-03E	On Door 5 Crew Rest Handset	DOOR 5 CREW REST HANDSET INOP
23-42-03F	On Handset	FLIGHT CREW REST HANDSET INOP
23-42-03G	On Handset	FLIGHT CREW REST HANDSET INOP

(O) PROCEDURES

23-42-03A
Use the Audio Control Panel for cabin interphone communication.

23-42-03B
Captain to brief Lead Flight Attendant/Purser that PA or face–to–face communication is required at all affected handset locations.

23-42-03D
Captain to brief the Lead Flight Attendant/ Purser that a main cabin handset must be used to notify the flight crew when flight deck entry is requested.

23-42-03E
Captain to brief Lead Flight Attendant/Purser that Door 5 Crew Rest Area handset is inoperative. PA or face–to–face communication is required.

23-42-03F
Ensure (O) procedures for MEL 25-29-03A are complied with.

23-42-03G
1. Captain to brief Lead Flight Attendant/Purser that Upper Deck Crew Rest Area handset is inoperative. PA or face– to–face communication is required.
2. Ensure appropriate limitations to flight crew duty periods for a Class 2 facility are followed.

NOTE: Contact the OCC Fleet Sector Manager thru the Dispatcher to coordinate any crew rest downgrade for potential crew duty time issues.

(M) PROCEDURES

23-42-03B
Cabin Attendant handset(s) relocation:
1. Install operative handset at the operative flight attendants seat.
2. Verify that one handset is operative at each pair of exit doors.
3. Perform operational test on installed handset(s).

23-42-03F
Defer the upper deck crew rest compartment per MEL 25-29-03A.

23-42-03G
Install a placard on the outside of the flight crew rest compartment door stating the compartment is downgraded to a Class 2 facility.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	CABIN INTERPHONE ALERTING SYSTEM					
23-42-04A	Flight Deck Call System (Lights and EICAS Messages) **"Contact MCC"**	**Y**	-	0	**B**	The flight deck chime must always be operative.
23-42-04B	Flight Attendant Call Lights **"Contact MCC"**	**Y**	-	0	**B**	**(O)** May be inoperative provided: a) PA system operates normally, b) If affected call light is used for lavatory smoke detector alerting, an alternate lavatory smoke detector alert (audio or visual) is installed and operates normally, and c) Alternate procedures for contacting flight attendants are used. NOTE 1: Passenger to Attendant Call System is considered Non-Essential Equipment and Furnishing (NEF). NOTE 2: Any system function(s) that operates normally may be used.
23-42-04C	Flight Attendant Audio Alerting System (Chime)	**Y**	-	0	**B**	**(O)** May be inoperative provided: a) PA system operates normally, b) If affected chime system is used for lavatory smoke detector alerting, an alternate lavatory smoke detector alert (audio or visual) is installed and operates normally, and c) Alternate procedures for contacting flight attendants are established and used. NOTE 1: Passenger to Attendant Call System is considered Non-Essential Equipment and Furnishing (NEF). NOTE 2: Any system function(s) that operates normally may be used.
23-42-04D	Crew Rest Call Lights/Chimes	**Y**	-	0	**B**	**(O)** May be inoperative provided: a) Associated crew rest cabin interphone handset operates normally, and b) Alternate procedures for contacting crew occupants are established and used. NOTE: Any system function(s) that operates normally may be used.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
23-42-04A	Adjacent To CAB Selector On Capt's Audio Selector Panel And Adjacent To The Forward Flight Attendants Handset	___ FLIGHT DECK CALL LIGHT and/or EICAS MESSAGE SYSTEM INOP
23-42-04B	On Interphone Panel Located On The Pedestal And Adjacent To The Forward Flight Attendants Handset	___ FLIGHT ATTENDANT CALL LIGHT INOP
23-42-04C	On Interphone Panel Located On The Pedestal And Adjacent To The Forward Flight Attendants Handset	___ FLIGHT ATTENDANT CHIME INOP
23-42-04D	On Interphone Panel Located On The Pedestal And Adjacent To The Forward Flight Attendants Handset	___ CREW REST CALL LIGHTS/CHIME INOP

(O) PROCEDURES

23-42-04B

Captain to brief Lead Flight Attendant/Purser that the flight attendant visual alerting system is inoperative and that PA, interphone or face–to–face communications is required at all affected locations.

23-42-04C

1. Brief Purser/Flight Leader that the flight attendant audio alerting system (chimes) is inoperative.
2. Coordinate with the Purser/Flight Leader to establish alternate procedures for contacting the flight attendants.

23-42-04D

Flight crew must coordinate with the Purser/Flight Leader to establish alternate procedures for contacting Pilot Crew Rest and Attendant Crew Rest occupants.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-43-01	Ground Crew Call System **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) EE Cooling System is continuously monitored during ground operations, and b) Alternate procedures are established and used.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-43-01	On The Cockpit Pilots Call Panel And Adjacent To Flight Deck Call Switch On The Nose Wheel P73 Panel	GROUND CREW CALL SYSTEM INOP

(O) PROCEDURES

1. Captain to brief ground crew that call system is inoperative, and visual or aural contact should be maintained between cockpit and ground crew when appropriate.
2. Equipment cooling system must be continuously monitored in the flight deck during all ground operations.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-51-02A	Headsets/Headphones (Forward Observer's Seat) **"Contact MCC"**	**Y**	1	0	**A**	May be inoperative provided: a) Seat is acceptable to an FAA inspector for the performance of official duties, or b) Occupant of seat is not performing official duties, and c) Repairs are made within two flight days. NOTE 1: These provisos are intended to provide for occupancy of the seat by an FAA Inspector when the minimum safety equipment (safety belt and oxygen) is functional and the inspector determines the conditions to be acceptable. NOTE 2: The Captain will determine if the minimum safety equipment is functional for the other persons authorized to occupy the seat.
23-51-02B	Headset/Boom Microphones **"Contact MCC"**	**Y**	-	0	**A**	May be inoperative provided: a) Associated hand microphone is installed and operates normally, b) Flight Data Recorder (FDR) operates normally, and c) Repairs are made within three flight days.
23-51-02C	Headset Earphones/Headphones	**Y**	-	1	**C**	Either the Captain's or First Officer's earphones/headphone may be inoperative provided associated Flight Deck Speaker operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-51-02A	On Inoperative Microphone Or Headset	___ MICROPHONE or HEADSET IS INOP.
23-51-02B	Adjacent To RT/INT Switch On Audio Control Panel	___ BOOM MIKE IS INOP
23-51-02C	Affected Headset Jack	___ HEADSET EARPHONE INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-51-03	Flight Deck Speakers	**Y**	2	0	**C**	May be inoperative provided: a) Procedures are not dependent upon their use, and b) Associated headset earphones or headphones are installed and operating normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-51-03	On The Inoperative Speaker	___ FLIGHT DECK SPEAKER IS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	AUDIO CONTROL PANELS					
23-51-04A	Captain's Audio Control Panel	**Y**	1	0	**C**	**(O)** May be inoperative provided First Observer's audio control panel operates normally.
23-51-04B	First Observer's Audio Control Panel **"Contact MCC"**	**Y**	1	0	**A**	May be inoperative provided: a) Captain's audio control panel operates normally, and b) Repairs are made within two flight days.
23-51-04C	Second Observer's Audio Control Panel	**Y**	1	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-51-04A	On The Captain's Audio Control Panel	CAPTAIN'S AUDIO CONTROL PANEL INOP
23-51-04B	On First Observers Audio Control Panel	FIRST OBSERVERS AUDIO CONTROL PANEL INOP
23-51-04C	On Second Observer's Audio Control Panel	SECOND OBSERVERS AUDIO CONTROL PANEL INOP

(O) PROCEDURES

23-51-04A

Position Overhead panel (P5) OBS AUDIO SYSTEM switch to CAPT.

NOTE: Captain's audio equipment (hand mic, boom mic/headset, headphone, oxygen mask mic, speaker and push–to–talk switches) is connected to the First Observer's audio control panel.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
CAPTAIN/FIRST OFFICER PUSH-TO-TALK (PTT) SWITCHES					
23-51-08A Control Wheel PTT Switches	**N**	2	1	**C**	**(M)** One may be inoperative provided: a) Associated audio control panel PTT switch operates normally, and b) Affected switch is deactivated open.
23-51-08B Flight Crew Audio Control Panel PTT Switches	**N**	2	1	**C**	**(M)** One may be inoperative provided: a) Associated control wheel PTT switch operates normally, and b) Affected switch is verified inoperative open.
23-51-08C Glareshield PTT Switches	**N**	2	0	**C**	**(M)** May be inoperative provided the affected switch is deactivated open.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-51-08A	On Associated Audio Panel	___ CONTROL WHEEL PTT SWITCH INOP
23-51-08B	Adjacent To The Inoperative PTT Switch	___ AUDIO CONTROL PANEL PTT SWITCH INOP
23-51-08C	Adjacent To The Inoperative PTT Switch	___ GLARESHIELD PTT SWITCH INOP

(M) PROCEDURES

23-51-08A

Deactivate the affected control panel PTT switch open:

1. Pull the P7 panel INTERPHONE – CAPT AND INTERPHONE – F/O circuit breakers.
2. Remove the two screws which mount the PTT switch into the control wheel.
3. Remove the PTT switch assembly to gain access to the wires.
4. Disconnect the terminal lugs from the switch.
5. Cap the wires and stow them in the control wheel horn.
6. Install the PTT switch assembly in the control wheel and secure with the two screws.
7. Close the P7 panel INTERPHONE – CAPT AND INTERPHONE – F/O circuit breakers.

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23-51-08B

Verify that the affected Audio Control Panel (ACP) PTT switch is inoperative open.

1. Push the PA transmitter select switch on the ACP and ensure the PA MIC light is illuminated.
2. Without pressing any PTT, speak into the associated microphone and determine if voice transmission can be heard over the PA system.
3. If no voice transmission can be heard, the switch is in the open position.

23-51-08C

Deactivate the affected glareshield PTT switch open:

1. Pull the P7 panel INTERPHONE – CAPT AND INTERPHONE – F/O circuit breakers.
2. Remove the screws which mount the glareshield panel containing the affected PTT switch.
3. Remove the glareshield panel to gain access to the PTT wires.
4. Disconnect the wires from the PTT switch.
5. Cap the wires and stow them behind the switch panel.
6. Install the glareshield panel and secure with mounting screws.
7. Close the P7 panel INTERPHONE – CAPT AND INTERPHONE – F/O circuit breakers.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
23-71-01	Cockpit Voice Recorder System (CVR) **"Contact MCC"**	**Y**	1	0	**A**	May be inoperative provided: a) Flight Data Recorder (FDR) operates normally, and b) Repairs are made within three flight days.

MEL ITEM	TAB LOCATION	PLACARD TEXT
23-71-01	On Voice Recorder Control Unit On The P461 Panel	VOICE RECORDER SYSTEM IS INOP

ATA 24 Contents

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-11-01A	Engine Driven Generator Systems (IDG, GCU, GCB) (AOC operates normally) **"DISP.APPR.REQ'D"**	**Y**	4	3	**B**	**(M)(O)** One may be inoperative provided: a) Generator Control Breaker (GCB), if inoperative, remains open, b) If engine Air Oil Cooler (AOC) operates normally, fuel tank temperature remains above –36 degrees C throughout the flight, and c) IDG is disconnected.
24-11-01B	Engine Driven Generator Systems (IDG, GCU, GCB) (AOC inoperative open) **"DISP.APPR.REQ'D"**	**Y**	4	3	**B**	**(M)(O)** One may be inoperative provided: a) Generator Control Breaker (GCB), if inoperative, remains open, b) If Air Oil Cooler (AOC) is inoperative open, fuel tank temperature remains above –30°C throughout the flight, and c) IDG is disconnected.
24-11-01C	Engine Driven Generator Systems (IDG removed) (AOC operates normally) **"DISP.APPR.REQ'D"**	**N**	4	3	**B**	**(M)(O)** One may be inoperative provided: a) Generator Control Breaker (GCB), if inoperative, remains open, b) If engine Air Oil Cooler (AOC) operates normally, fuel tank temperature remains above –36°C throughout the flight, and c) IDG is removed. NOTE: Apply weight and balance changes for IDG removal.
24-11-01D	Engine Driven Generator Systems (IDG removed) (AOC inoperative open) **"DISP.APPR.REQ'D"**	**N**	4	3	**B**	**(M)(O)** One may be inoperative provided: a) Generator Control Breaker (GCB), if inoperative, remains open, b) If AOC is inoperative open, fuel tank temperature remains above –30°C throughout the flight, and c) IDG is removed. NOTE: Apply weight and balance changes for IDG removal.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-11-01A	Adjacent To The Appropriate GEN CONT Switch	___ ENGINE GENERATOR IS INOP – IDG DISCONNECTED
24-11-01B	Adjacent To The Appropriate GEN CONT Switch	___ ENGINE GENERATOR IS INOP – IDG DISCONNECTED
24-11-01C	Adjacent To The Appropriate GEN CONT Switch	___ ENGINE GENERATOR IS INOP – IDG REMOVED
24-11-01D	Adjacent To The Appropriate GEN CONT Switch	___ ENGINE GENERATOR IS INOP – IDG REMOVED

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(O) PROCEDURES

24-11-01A, 24-11-01C

1. Captain to brief Purser/Flight Leader that the in-seat power supply for customers' personal electronic devices will be inoperative.

2. Ensure that fuel tank temperature remains above –36°C throughout the flight.

   NOTE: Fuel tank temperature will approximate TAT on long range flights. Use TAT–TO–SAT conversion chart below to ensure that forecast SAT will result in a TAT above –36°C.

TAT to SAT Conversion

TAT	SAT per Mach (deg C)							TAT	SAT per Mach (deg C)						
deg C	0.88	0.87	0.86	0.85	0.84	0.83	0.82	deg C	0.88	0.87	0.86	0.85	0.84	0.83	0.82
-45	-76	-75	-74	-74	-73	-73	-72	-5	-41	-40	-40	-39	-38	-37	-37
-44	-75	-74	-74	-73	-72	-72	-71	-4	-40	-39	-39	-38	-37	-37	-36
-43	-74	-73	-73	-72	-71	-71	-70	-3	-39	-39	-38	-37	-36	-36	-35
-42	-73	-72	-72	-71	-71	-70	-69	-2	-38	-38	-37	-36	-36	-35	-34
-41	-72	-72	-71	-70	-70	-69	-69	-1	-37	-37	-36	-35	-35	-34	-33
-40	-71	-71	-70	-69	-69	-68	-68	0	-37	-36	-35	-34	-34	-33	-32
-39	-70	-70	-69	-69	-68	-67	-67	1	-36	-35	-34	-34	-33	-32	-31
-38	-70	-69	-68	-68	-67	-66	-66	2	-35	-34	-33	-33	-32	-31	-31
-37	-69	-68	-67	-67	-66	-66	-65	3	-34	-33	-33	-32	-31	-30	-30
-36	-68	-67	-67	-66	-65	-65	-64	4	-33	-32	-32	-31	-30	-30	-29
-35	-67	-66	-66	-65	-64	-64	-63	5	-32	-32	-31	-30	-29	-29	-28
-34	-66	-65	-65	-64	-64	-63	-62	6	-31	-31	-30	-29	-29	-28	-27
-33	-65	-65	-64	-63	-63	-62	-61	7	-31	-30	-29	-28	-28	-27	-26
-32	-64	-64	-63	-62	-62	-61	-61	8	-30	-29	-28	-27	-27	-26	-25
-31	-63	-63	-62	-62	-61	-60	-60	9	-29	-28	-27	-27	-26	-25	-24
-30	-63	-62	-61	-61	-60	-59	-59	10	-28	-27	-26	-26	-25	-24	-24
-29	-62	-61	-60	-60	-59	-59	-58	11	-27	-26	-26	-25	-24	-23	-23
-28	-61	-60	-60	-59	-58	-58	-57	12	-26	-25	-25	-24	-23	-23	-22
-27	-60	-59	-59	-58	-57	-57	-56	13	-25	-25	-24	-23	-22	-22	-21
-26	-59	-58	-58	-57	-57	-56	-55	14	-25	-24	-23	-22	-22	-21	-20
-25	-58	-58	-57	-56	-56	-55	-54	15	-24	-23	-22	-21	-21	-20	-19
-24	-57	-57	-56	-55	-55	-54	-54	16	-23	-22	-21	-21	-20	-19	-18
-23	-57	-56	-55	-55	-54	-53	-53	17	-22	-21	-20	-20	-19	-18	-17
-22	-56	-55	-54	-54	-53	-52	-52	18	-21	-20	-20	-19	-18	-17	-17
-21	-55	-54	-53	-53	-52	-52	-51	19	-20	-19	-19	-18	-17	-16	-16
-20	-54	-53	-53	-52	-51	-51	-50	20	-19	-19	-18	-17	-16	-15	-15
-19	-53	-52	-52	-51	-50	-50	-49	21	-18	-18	-17	-16	-15	-15	-14
-18	-52	-52	-51	-50	-50	-49	-48	22	-18	-17	-16	-15	-15	-14	-13
-17	-51	-51	-50	-49	-49	-48	-47	23	-17	-16	-15	-14	-14	-13	-12
-16	-50	-50	-49	-48	-48	-47	-46	24	-16	-15	-14	-14	-13	-12	-11
-15	-50	-49	-48	-48	-47	-46	-46	25	-15	-14	-13	-13	-12	-11	-10
-14	-49	-48	-47	-47	-46	-45	-45	26	-14	-13	-13	-12	-11	-10	-9
-13	-48	-47	-47	-46	-45	-45	-44	27	-13	-12	-12	-11	-10	-9	-9
-12	-47	-46	-46	-45	-44	-44	-43	28	-12	-12	-11	-10	-9	-8	-8
-11	-46	-45	-45	-44	-43	-43	-42	29	-12	-11	-10	-9	-8	-8	-7
-10	-45	-45	-44	-43	-43	-42	-41	30	-11	-10	-9	-8	-7	-7	-6
-9	-44	-44	-43	-42	-42	-41	-40	31	-10	-9	-8	-7	-7	-6	-5
-8	-44	-43	-42	-41	-41	-40	-39	32	-9	-8	-7	-7	-6	-5	-4
-7	-43	-42	-41	-41	-40	-39	-39	33	-8	-7	-6	-6	-5	-4	-3
-6	-42	-41	-40	-40	-39	-38	-38	34	-7	-6	-6	-5	-4	-3	-2

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24-11-01B, 24-11-01D

1. Ensure that fuel tank temperature remains above –30° C throughout the flight.

   NOTE: Fuel tank temperature will approximate TAT on long range flights. Use TAT–TO–SAT conversion chart above to ensure that forecast SAT will result in a TAT above –30°C.

2. Captain to brief Purser/Flight Leader that the in-seat power supply for customers' personal electronic devices (PED Power) will be inoperative.

(M) PROCEDURES

24-11-01A, 24-11-01B

1. General:

   Use the following procedures to verify the Integrated Drive Generator (IDG) is disconnected, and deactivate the IDG when an IDG, Generator Control Unit (GCU), or Generator Control Breaker (GCB) system failure condition is indicated.

   NOTE: With one engine generator inoperative, the in-seat power supply for customers' personal electronic devices (PED Power) will be inoperative.

2. If the EICAS status message DRIVE DISC___, indicating the IDG is positively disconnected, is not already displayed, do the following procedure to disconnect the IDG:

   a) Apply APU or external power if not already accomplished.

      1) If power is being applied by maintenance, reference AMM 24-22-00/201

      2) If power is being applied by flight crew, reference OM Vol. 1, Normal Procedures, Preflight Procedure.

   b) Verify BATTERY switch, located on P5 overhead panel, is ON.

   c) Verify STANDBY POWER switch, located on P5 overhead panel, is in AUTO position.

   d) Position applicable GEN CONT switch, located on P5 overhead panel, to OFF.

   e) Verify all BUS TIE switches, located on P5 overhead panel, are in AUTO and the BUS TIE ISLN lights are extinguished.

      If associated failed GCB's BUS TIE breaker ISLN light is illuminated with all BUS tie switches set to AUTO position, and both synchronous buses are powered, this indicates a failed closed generator control breaker, **DISPATCH IS NOT ALLOWED.**

   f) Start applicable engine.

      1) If engine start is accomplished by maintenance personnel, reference AMM 71-00-00/201.

      2) If engine start is accomplished by flight crew, reference OM Vol. 1, Normal Procedures, Engine Start Procedure.

CAUTION: THE REMAINING PORTION OF THIS PROCEDURE SHOULD BE ACCOMPLISHED WITH THE APPLICABLE ENGINE RUNNING TO PREVENT DAMAGE TO THE DRIVE DISCONNECT ASSEMBLY. DO NOT DEPRESS THE IDG DISCONNECT SWITCH WHEN SPEED IS BELOW MINIMUM IDLE RPM. IDG MAY BE DAMAGED AS A RESULT OF AN INCOMPLETE DISCONNECT.

   g) With applicable engine operating at idle rpm or above, pull guard on appropriate IDG DRIVE DISC switch and momentarily depress switch.

   h) Observe DRIVE light, on DRIVE DISC switch, is illuminated.

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i) Verify applicable EICAS advisory message >DRIVE DISC___ is displayed on the EICAS display. If the >DRIVE DISC__ message is not displayed with the airplane on the ground, then remove the IDG per Para. C. below.

j) Restore airplane to required configuration.

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

3. If IDG Fails to Disconnect, defer per MEL item 24–11–01C or 24–11–01D as applicable.

24-11-01C, 24-11-01D

NOTE: With one engine generator inoperative, the in-seat power supply for customers' personal electronic devices (PED Power) will be inoperative.

1. Remove the inoperative IDG from gearbox (AMM 24–11–01/401).
2. The following procedure may be used to install IDG shaft plug and secure for dispatch, using deactivation/dispatch kit G24007 or A24012

a) Remove IDG Quick Attach–Detach (QAD) ring from main gearbox (AMM 24–11–08/401).

b) Install IDG shaft plug.

1) Lubricate packings on IDG shaft plug bolt with engine oil.

2) Install plug bolt into IDG drive gearbox, seating bolthead in the groove of the main gearbox internal splines.

3) Lubricate packings on IDG shaft plug with engine oil.

4) Install plug over plug bolt. Secure with washer and lubricated nut, and tighten to 85–95 pound–inches.

c) Secure the 4 generator power cables.

d) Cap and secure the following:

- Electrical connectors.
- IDG overtemperature drain tube.
- Oil–in and Oil–out tubes.

e) Close the left thrust reverser half (AMM 78–31–00/201).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-11-02	Generator DRIVE Lights	**Y**	4	3	**C**	One may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-11-02	Adjacent To The Inoperative Generator Drive Light	___ GENERATOR DRIVE LIGHT IS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-21-01A	Lightning Protectors	**Y**	12	9	**C**	One of each phase may be inoperative provided: a) All AC buses are paralleled, and b) At least two of the three generators used for triple channel autoland (Gen 1, 2, 3) have lightning protection on all three phases.
24-21-01B	Lightning Protectors **"DISP.APPR.REQ'D"**	**Y**	12	9	**C**	**(O)** One of each phase may be inoperative provided: a) All AC buses are paralleled, and b) Triple channel autoland is not authorized. NOTE: This item to be used if provisos stated in item 24–21–01A cannot be complied with. CAT III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-21-01A	Adjacent To Applicable BUS TIE Switch	___ LIGHTNING PROTECTORS INOP
24-21-01B	Adjacent To Applicable BUS TIE Switch	___ LIGHTNING PROTECTORS INOP

(O) PROCEDURES

24-21-01B

CAT III – Not Authorized.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
24-21-02A	APU Driven Generator Systems (Generator, AGCU, APB) (All Except APU GEN BEARING Fault) **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Associated Auxiliary Power Breaker(s) (APB) remains open, and b) EICAS Status Message APU GEN BEARING is not displayed. NOTE: APU Driven Generator System No. 1 or External Power System No. 1 must be operative to supply power to the Ground Handling Bus for cargo loading. **Repetitive Check Required (Yellow Placard)**
24-21-02B	APU Driven Generator Systems (Generator, AGCU, APB) (APU GEN BEARING Fault) **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Associated Auxiliary Power Breaker(s) (APB) remains open, and b) APU is limited to 1.5 hours of ground use per flight. NOTE 1: APU Driven Generator System No. 1 or External Power System No. 1 must be operative to supply power to the Ground Handling Bus for cargo loading. NOTE 2: External power will be required.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-21-02A	One Tab Adjacent To Appropriate APU GEN Switch and One Tab Adjacent To Affected FIELD OFF Light (AFT Overhead Panel P461).	___ APU GEN SYSTEM INOP
24-21-02B	One Tab Adjacent To Appropriate APU GEN Switch and One Tab Adjacent To Affected FIELD OFF Light (AFT Overhead Panel P461).	APU GEN SYSTEM INOP. LIMIT OPERATION TO 1.5 HRS PER FLIGHT. APU TO BE OPERATED ONLY WHEN FLIGHT CREW IS ON FLIGHT DECK

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(O) PROCEDURES

24-21-02A

1. When only one APU driven generator is operative, it is highly recommended, for initial engine start, that external electrical power also be available and utilized on the opposite side of the synchronous bus. A single APU generator may not provide sufficient electrical power when configuring for engine start and electrical load shedding will occur. Subsequent engine starts may be accomplished utilizing ship's power.
2. If single APU generator start is accomplished without external electrical power available, prior to engine start, select L UTILITY power switch to OFF. If engines cannot be started due to insufficient electrical power, select R UTILITY power switch OFF also. Utility power can be restored after completion of the engine start procedure.
3. If EE CLNG SUP FAN status message is displayed, it can be cleared by rotating the EQUIP COOLING switch to OVRD, then back to NORM.
4. If any RECIRC FAN UPR or LWR status message is displayed, momentarily depress the PACK RST switch until each has cleared.
5. Check EICAS Status Message APU GEN BEARING is not displayed PRIOR TO EACH DEPARTURE.

   NOTE: During ground operations, lack of APU generator 1 and external power 1, aux pump 4 will not be available.

24-21-02B

1. APU is limited to 1.5 hours of ground use per flight,
2. APU is to be operated by the flight crew only,
3. If the APU is to be used for engine start, it is started just prior to pushback,
4. When only one APU driven generator is operative, it is highly recommended, for initial engine start, that external electrical power also be available and utilized on the opposite side of the synchronous bus. A single APU generator may not provide sufficient electrical power when configuring for engine start and electrical load shedding will occur. Subsequent engine starts may be accomplished utilizing ship's power.
5. If single APU generator start is accomplished without external electrical power available, prior to engine start, select L UTILITY power switch to OFF. If engines cannot be started due to insufficient electrical power, select R UTILITY power switch OFF also. Utility power can be restored after completion of the engine start procedure.
6. If EE CLNG SUP FAN status message is displayed, it can be cleared by rotating the EQUIP COOLING switch to OVRD, then back to NORM.
7. If any RECIRC FAN UPR or LWR status message is displayed, momentarily depress the PACK RST switch until each has cleared.
8. If the APU is started after landing, it is shutdown after the completion of the PARKING check by the flight crew.

   NOTE: During ground operations, lack of APU generator 1 and external power 1, aux pump 4 will not be available.

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(M) PROCEDURES

24-21-02A

EICAS STATUS MESSAGE

APU GEN 1

APU GEN COOLING

NOTE: Dispatch with one or both APU generators removed is not allowed by this MEL item.

APU Driven Generator Electrical Failure (All except APU GEN BEARING faults):

1. Verify that EICAS status message APU GEN BEARING is not displayed. If the message is displayed, refer to MEL item 24–21–02B.
2. If the message APU GEN BEARING is not present, deactivate the associated generator(s) as follows:
   a) Verify BATTERY switch, located on P5 overhead panel, is set to ON.
   b) Verify the associated APU generator FIELD OFF light is illuminated on the P461 panel.

   NOTE: If the FIELD OFF light is extinguished, momentarily toggle and release the associated APU generator field switch on the P461 panel.
3. The generator will be operating in a no–load condition when the APU is operating.

Auxiliary Power Breaker (APB) Check:

1. Apply electrical power through external power receptacle No. 1 or apply power from engine driven generator No.1 and/or No.2 (AMM 24–22–00/201).

   NOTE: If electrical power (from either an external power source or from engine driven generator power) cannot be connected to the airplane, this is an indication auxiliary power breaker No.1 is failed closed.
2. Verify all BUS TIE switches, located on P5 overhead panel, are set to AUTO.
3. Verify that the ISLN lights, located on P5 overhead panel, are extinguished.

   NOTE: If any ISLN lights are illuminated when engine generator power is applied, this is an indication auxiliary power breaker (No. 1 and No. 2) is failed closed.
4. Verify split system breaker OPEN light, located on P461 pilots' overhead maintenance panel, is extinguished.

   NOTE: If split system breaker light is illuminated, toggle SPLIT SYSTEM BREAKER switch to close breaker. If split system breaker OPEN light remains illuminated, this is an indication auxiliary power breaker No. 2. is failed closed

WARNING: DISPATCH WITH APB CLOSED IS NOT ALLOWED.

24-21-02B

1. APU Driven Generator Electrical Failure: GROUND OPERATION ONLY
2. Deactivate the associated generator as follows:
   a) Verify BATTERY switch, located on P5 overhead panel, is set to ON.
   b) Verify the associated APU generator FIELD OFF light is illuminated on the P461 panel.

      NOTE: If the FIELD OFF light is extinguished, momentarily toggle and release the associated APU generator field switch on the P461 panel.
   c) Place INOP placard on appropriate APU GEN switch (P5 panel).
   d) Limit operation of the APU to ground use ONLY(P5 panel)

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
BUS TIE BREAKERS (BTB)					
24-22-01A No. 1, 2, and 3 **"DISP.APPR.REQ'D"**	**Y**	3	2	**C**	**(M)(O)** One may be inoperative closed provided No. 4 operates normally. NOTE: Triple channel autoland will not be available. CAT III Not Authorized
24-22-01B No. 4	**Y**	1	0	**C**	**(M)** May be inoperative closed provided No. 1, 2, and 3 operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-22-01A	Adjacent To Applicable BUS TIE Switch Located On P461 Overhead Panel	___ BUS TIE BREAKER IS INOP.
24-22-01B	Adjacent To No. 4 Bus Tie Switch Located On P461 Overhead Panel	NO. 4 BUS TIE BREAKER IS INOP

(O) PROCEDURES

24-22-01A

CAT III – Not Authorized.

(M) PROCEDURES

24-22-01A, 24-22-01B

Use the following procedure to verify the bus tie breaker failure condition indicated:

1. Apply APU or external power, if not already accomplished (AMM 24–22–00/201).
2. Verify all BUS TIE switches, located on P5 overhead panel, are set to AUTO and the ISLN lights are extinguished.

   NOTE: If any ISLN lights are illuminated with all BUS TIE switches set to AUTO position and both sync buses powered, this is an indication of an open bus tie breaker.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-22-02	Split System Breaker (SSB)	**Y**	1	0	**C**	**(M)(O)** May be inoperative closed provided all BTB's operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-22-02	Adjacent To SSB Switch Located On P461 Overhead Panel	SSB IS INOP CLOSED

(O) PROCEDURES

Use the following procedure to verify the split system breaker is failed closed:

1. Apply power from source 1 only (APU GEN 1 or EXT PWR 1)
2. Verify all BUS TIE switches, located on P5 overhead panel, are set to AUTO.
3. Verify ON light on selected power source switch is illuminated.
4. Verify ISLN lights on all BUS TIE switches are extinguished, and the EICAS status message(s) ELEC BTB___is not displayed.
5. Ensure that the selected power source is supplying both sides of the synchronous bus. Verify that the following EICAS message are not displayed.
   - ELEC AC BUS 3 (Caution)
   - ELEC AC BUS 4 (Caution)
   - EEC SSB OPEN (Advisory)

   If these messages are displayed, this indicates SSB is open. To check if it is failed open, press and release the guarded SSB switch located on the P461 Overhead Maintenance Panel and observe SSB OPEN light. If it remains illuminated and the above messages remain displayed, SSB is failed. Dispatch is not allowed.
6. Attempt to apply power from source 2 (APU GEN 2 or EXT PWR 2). Verify that the selected power source ON light will not illuminate.
7. Verify that the SSB OPEN light is not illuminated and the advisory message ELEC SSB OPEN is not displayed.
8. To facilitate engine starting when the SSB is inoperative, if external power trips off the line because the demand is too high, it is recommended that prior to engine start, select R UTILITY power switch OFF. If further electrical load reduction is required, also select L UTILITY power switch OFF. Utility power can be restored after completion of the engine start procedure.

   NOTE 1: If EE CLNG SUP FAN status message is displayed, it can be cleared by rotating the EQUIP COOLING switch to OVRD, then back to NORM.

   NOTE 2: If any RECIRC FAN UPR or LWR status message is displayed, momentarily depress the PACK RST switch until each has cleared.

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(M) PROCEDURES

EICAS MESSAGES COMMENTS

ELEC SSB OPEN	This message alerts the crew that the SSB is open, which is a no dispatch configuration. See para. 3 below.
SPLIT BREAKER	This message indicates that the SSB has failed. The procedure in step 4 below may be used to determine if the failure condition is acceptable for dispatch.

1. No maintenance action is required if SSB is inoperative closed.
2. If SSB is inoperative open, it must be replaced (AMM 24–22–02/401).
3. Alternatively, the same procedure may be used to replace the SSB (P/N 60B00010–30) with P/N 60B00010–25 (APB, BTB, GCB contactor). Dispatch with the substitute –25 part is limited to 10 days until permanent SSB repair is made. Contact MCC for an Engineering Authorization (E.A.) number. The 10 day limit will be tracked by the E.A.
4. The following procedure may be used to verify the split system breaker is closed.
   a) Apply power from source 1 only, APU GEN 1 or EXT PWR 1 (AMM 24–22–00/201).
   b) Verify all BUS TIE switches, located on P5 overhead panel, are set to AUTO.
   c) Verify ON light on selected power source switch is illuminated.
   d) Verify ISLN lights on all BUS TIE switches are extinguished, and the EICAS status message(s) ELEC BTB___is not displayed.
   e) Ensure that the selected power source is supplying both sides of the synchronous bus. (a) Verify that the following EICAS message are not displayed.
      - ELEC AC BUS 3 (Caution)
      - ELEC AC BUS 4 (Caution)
      - ELEC SSB OPEN (Advisory)

      If these messages are displayed, this indicates the SSB is <u>open.</u> To check if it is failed open, press and release the guarded SSB switch located on the P461 Overhead Maintenance Panel and observe the SSB OPEN light. If it remains illuminated and the above messages remain displayed, **the SSB is failed open and dispatch is not allowed.**
   f) Attempt to apply power from source 2 (APU GEN 2 or EXT PWR 2).
   g) Verify that the selected power source ON light will not illuminate.
   h) Verify that the SSB OPEN light is not illuminated and the advisory message ELEC SSB OPEN is not displayed.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-23-01	APU Generator Power ON Lights	**Y**	2	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-23-01	Adjacent To APU Gen ON Light	___ APU GENERATOR ON LIGHT IS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-23-02	APU Generator Power AVAIL Lights	**Y**	2	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-23-02	Adjacent To APU GEN AVAIL Light That Is INOP	___ APU GENERATOR AVAIL LIGHT(S) IS INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-23-03	AC Bus ISLN Lights	**Y**	4	3	**C**	**(M)** One indication may be inoperative provided associated BTB is verified to operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-23-03	Adjacent To Inoperative AC Bus ISLN Light	___ AC BUS ISLN LIGHT IS INOP

(M) PROCEDURES

Use the following procedure to verify the bus ISLN lights failure condition indicated:

1. Apply APU or external power, if not already accomplished (AMM 24–22–00/201).
2. Verify ON light on APU GEN or EXT PWR switches are illuminated.
3. Verify all BUS TIE switches, located on P5 overhead panel, are set to AUTO, and ISLN lights are extinguished.
4. Access electrical maintenance page (AMM 45–10–00/212) and verify that all AC buses are powered in normal voltage range.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-23-04	Engine and APU Generator FIELD OFF Lights (Overhead Maintenance Panel)	**Y**	6	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-23-04	Adjacent To Inoperative FIELD OFF Light On AFT Overhead Panel (P461).	___ FIELD OFF LIGHT IS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-23-05	Split System Breaker OPEN Light (Overhead Maintenance Panel)	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-23-05	Adjacent To SSB Open Light On AFT Overhead Panel (P461)	SSB OPEN LIGHT IS INOP

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
24-23-06	GEN CONT Lights	**Y**	4	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-23-06	Adjacent To Inoperative GEN CONT Light On P5 Overhead Panel	___ GEN CONT LIGHT IS INOP

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
TRANSFORMER RECTIFIER UNITS (TRU)					
24-32-01A Main	**Y**	4	3	**C**	One may be inoperative.
24-32-01B Ground Handling	**Y**	2	0	**C**	One or both may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-32-01A	Adjacent To Applicable BUS TIE Switch On P5 Overhead Panel	___ MAIN TRU IS INOP
24-32-01B	Adjacent To Applicable BUS TIE Switch On P5 Overhead Panel	____ GROUND HANDLING TRU INOP

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
DC BUS ISOLATION RELAYS					
24-32-02A No. 1, 2, and 3 **"DISP.APPR.REQ'D"**	**Y**	3	2	**B**	**(O)** One may be inoperative closed provided No. 4 operates normally. NOTE: Triple channel autoland will not be available. CAT III Not Authorized
24-32-02B No. 4 **"Contact MCC"**	**Y**	1	0	**B**	May be inoperative closed provided No. 1, 2, and 3 operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-32-02A	Adjacent To Applicable BUS TIE ISLN Light	___ DC BUS ISOLATION RELAY INOP.
24-32-02B	Adjacent To No. 4 BUS TIE ISLN Light	NO. 4 DC BUS ISOLATION RELAY INOP

(O) PROCEDURES

24-32-02A

CAT III – Not Authorized.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-41-01A	External Power Systems **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** One may be inoperative. NOTE 1: Any portion of system which operates normally may be used. NOTE 2: If External Power System No. 1 is inoperative, APU Driven Generator System No. 1 must be operative to supply power to the Ground Handling Bus for cargo loading.
24-41-01B	External Power Systems **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	May be inoperative. NOTE 1: Any portion of system which operates normally may be used. NOTE 2: APU Driven Generator System No. 1 must be operative to supply power to the Ground Handling Bus for cargo loading.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-41-01A	Adjacent To Affected External Power Switch	___ EXTERNAL POWER SYSTEM INOP
24-41-01B	Adjacent To Both External Power Switches	BOTH EXTERNAL POWER SYSTEMS INOP

(O) PROCEDURES

24-41-01A

NOTE 1: When using external power for start, if it trips off the line because the demand is too high, it is recommended that, prior to engine start, select R UTILITY power switch OFF. If further electrical load reduction is required, also select L UTILITY power switch OFF. Utility power can be restored after completion of the engine start procedure.

NOTE 2: If EE CLNG SUP FAN status message is displayed, it can be cleared by rotating the EQUIP COOLING switch to OVRD, then back to NORM.

NOTE 3: If any RECIRC FAN UPR or LWR status message is displayed, momentarily depress the PACK RST switch until each has cleared.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-51-01A	Voltage Harmonic Filters (After completion of EO 2521–01346)	**N**	6	0	**C**	**(O)** May be inoperative provided: a) Video System is selected OFF before engine start, b) Video System remains OFF until completion of the Engine Start Procedure, and c) Video System is selected OFF before all CAT III approaches.
24-51-01B	Voltage Harmonic Filters Neutral Ground Wire (A/C 6311–6316 After completion of EO 2521–01346)	**N**	-	0	**D**	May be inoperative.
24-51-01C	Voltage Harmonic Filters (After completion of EO 2521–01346)	**N**	6	5	**C**	One filter on AC Bus 3 Phase A or AC Bus 3 Phase B may be inoperative. NOTE: Voltage Harmonic Filters are interchangeable.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-51-01A	Adjacent To Upper EICAS Display	VOLTAGE HARMONIC FILTERS INOP
24-51-01B	Adjacent To Upper EICAS Display	VOLTAGE HARMONIC FILTERS NEUTRAL GROUND WIRE INOP
24-51-01C	Adjacent To Upper EICAS Display	___ VOLTAGE HARMONIC FILTERS INOP

(O) PROCEDURES

24-51-01A

1. Prior to engine start, advise Flight Attendant to select the Video System to OFF.
2. After completion of engine start, advise Flight Attendant that the Video system may be selected ON.
3. Prior to initiating a CAT III approach, advise Flight Attendant to select Video System to OFF and remain OFF until aircraft clears the landing runway.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
ELECTRICAL LOAD CONTROL UNITS (ELCU)					
24-56-01A Utility Power ELCUs **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Dispatch limitations for affected utility bus equipment are observed, and b) Utility bus #4 ELCU operates normally.
24-56-01B Galley Power ELCUs **"DISP.APPR.REQ'D"**	**Y**	4	0	**C**	May be inoperative. NOTE: Affected galley(s) will be unpowered.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-56-01A	Adjacent To The Affected UTILITY Switch/ Light On P5 Overhead Panel	___ UTILITY ELCU IS INOP AND ASSOCIATED MEL ITEMS HAVE BEEN APPLIED AS APPLICABLE TO THE SYSTEMS POWERED BY THE INOPERATIVE ELCU.
24-56-01B	Adjacent To The Affected UTILITY Switch/ Light On P5 Overhead Panel	___ GALLEY ELCU(s) ARE INOP

(O) PROCEDURES

24-56-01A

Observe dispatch limitations for affected utility bus equipment placed on MEL.

NOTE 1: Both Lav/Galley Fans are powered through Utility Bus #4. Since only one Lav/Galley Fan may be inoperative for dispatch, Utility Bus #4 must always operate normally.

NOTE 2: EICAS Advisory message ELEC UTIL BUS L and/or ELEC UTIL BUS R will remain displayed.

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(M) PROCEDURES

24-56-01A

Apply associated MEL items where applicable for affected utility bus equipment.

NOTE: See the following charts for equipment that will be inoperative when dispatching with a Utility Bus inoperative.

C/B NO.	EQUIPMENT NOMENCLATURE	ATA
UTILITY BUS # 1		
----	CABIN INT ILLUMINATION	33
809	MAIN FWD 3 FUEL BST PUMP	28
3145	EQUIP COOL SUPPLY FAN	21
3163	CARGO HTR PWR L FWD	21
3173	VENT FAN 1 PWR-FWD CRGO	21
3174	VENT FAN 2 PWR-FWD CRGO	21
10200	CAPT AUX HTR HIGH	21
10201	CAPT AUX HTR LOW	21
10202	F/O AUX HTR HIGH	21
10203	F/O AUX HTR LOW	21
10274	AUDIO ENT TAPE/MUX	23
10275	READING LTS ZN A/B LEFT	23
10276	READING LTS ZN A/B CTR	23
10278	READING LTS ZN C/D LEFT	23
10281	READING LTS ZN E LEFT	23
10284	READING LTS UP DK	23
10383	LAV WTR HTR ZN C CTR	38
UTILITY BUS # 2		
449	LAV WTR HT ZN A&B DR 1L	38
450	LAV WTR HT ZN C L	38
833	JTSN PUMP 2 FWD	28
835	OVRD JTSN PUMP CTR-L	28
838	JTSN PUMP 3 FWD	28
878	CAPT POWERED SEAT	25
1923	LAV WTR HT ZN B DR 2L	38
3067	WASTE & WTR LINE HTR-MN	30
3095	DR AREA HTR PWR 1 & 2 L	21
3096	DR AREA HTR PWR 3 & 4 L	21
3175	VENT FAN 3 PWR - FWD CGO	21
8611	LAV WATER HTR UPR DK AFT	38
8617	PASS SEAT ZN A-L FWD	25
8618	PASS SEAT ZN A-L AFT	25

C/B NO.	EQUIPMENT NOMENCLATURE	ATA
10277	READING LTS ZN A/B R	23
10279	READING LTS ZN C/D CTR	23
10280	READING LTS ZN C/D R	23
10282	READING LTS ZN E CTR	23
10283	READING LTS ZN E R	23
10285	SEAT ELEX UNITS ZN A/B	23
10286	SEAT ELEX UNITS ZN C/D	23
10287	SEAT ELEX UNITS ZN E	23
10288	SEAT ELEX UNITS ZN U/D	23
10372	AFT LWR CARGO A/C VLV	21
10385	LAV WTR HTR ZN D CTR-AFT	38
UTILITY BUS # 3		
447	LAV WTR HT ZN A & B DR 1R	38
804	MAIN FWD 2 FUEL BST PUMP	28
816	OVHD RECIRC FAN PWR-1	21
817	OVHD RECIRC FAN PWR-2	21
877	F/O POWERED SEAT	25
3093	DOOR AREA HTR PWR 1 & 2 R	21
3094	DOOR AREA HTR PWR 3 & 4 R	21
3164	CARGO HTR PWR R FWD	21
3176	VENT FAN PWR - AFT CGO	21
3177	VENT FAN PWR - BULK CGO	21
3181	UPR DK DR AREA HTR PWR	21
3185	ZONE F HEATER	21
3209	DOOR AREA HTR PWR 5	21
8609	LAV WTR HT UPR DK 3U	38
8610	LAV WTR HT UPR DK 10U	38
10430	ZONE F TEMP CONTROL	21
10470	PASS SEATS UPR DK-R FWD	25
10471	PASS SEATS UPR DK-R CTR	25
10472	PASS SEATS UPR DK-L FWD	25
10473	PASS SEATS UPR DK-L CTR	25
10474	RCDU	45

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
24-56-02	Utility Power OFF Lights	**Y**	2	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
24-56-02	Adjacent To Utility Bus OFF Light That Is Inoperative On P5 Overhead Panel	___ UTILITY POWER OFF LIGHT IS INOP

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
	FLIGHT CREW SEATS MANUAL ADJUSTMENT SYSTEM					
25-11-02A	Captain's Recline System **"Contact MCC"**	**N**	1	0	**A**	**(M)** May be inoperative provided: a) Affected seat is secured in an upright position, b) Seat is acceptable to Captain, and c) Repairs are made within two flight days.
25-11-02B	F/O Recline System **"Contact MCC"**	**N**	1	0	**A**	**(M)** May be inoperative provided: a) Affected seat is secured in an upright position, b) Seat is acceptable to F/O, and c) Repairs are made within two flight days.
25-11-02C	Captain's Armrests **"Contact MCC"**	**N**	2	0	**B**	**(M)** May be inoperative provided: a) Affected armrest is stowed in the retracted position or removed, and b) Seat is acceptable to Captain.
25-11-02D	F/O Armrests **"Contact MCC"**	**N**	2	0	**B**	**(M)** May be inoperative provided: a) Affected armrest is stowed in the retracted position or removed, and b) Seat is acceptable to F/O.
25-11-02E	Captain's Lumber/Thigh Supports	**Y**	2	0	**C**	May be inoperative provided seat is acceptable to Captain.
25-11-02F	F/O's Lumber/Thigh Supports	**Y**	2	0	**C**	May be inoperative provided seat is acceptable to F/O.
25-11-02G	Captain's Headrests	**Y**	1	0	**C**	May be inoperative provided seat is acceptable to Captain.
25-11-02H	F/O's Headrests	**Y**	1	0	**C**	May be inoperative provided seat is acceptable to F/O.
25-11-02I	Captain's Vertical Adjustment **"Contact MCC"**	**N**	1	0	**A**	**(M)** May be inoperative provided: a) Seat is acceptable to Captain, and b) Repairs are made within two flight days.
25-11-02J	F/O's Vertical Adjustment **"Contact MCC"**	**N**	1	0	**A**	**(M)** May be inoperative provided: a) Seat is acceptable to F/O, and b) Repairs are made within two flight days.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
25-11-02A	Captain's Glareshield	CAPTAIN'S RECLINE SYSTEM INOP
25-11-02B	F/O's Glareshield	F/O'S RECLINE SYSTEM INOP
25-11-02C	Captain's Glareshield	CAPTAIN'S ___ ARMREST(S) INOP and if applicable REMOVED
25-11-02D	F/O's Glareshield	F/O'S ___ ARMREST(S) INOP and if applicable, REMOVED.
25-11-02E	Captain's Glareshield	___ CAPTAIN'S LUMBAR/THIGH SUPPORT INOP
25-11-02F	F/O's Glareshield	___ F/O'S LUMBAR/THIGH SUPPORT INOP
25-11-02G	Captain's Glareshield	CAPTAIN'S HEADREST INOP
25-11-02H	F/O's Glareshield	F/O'S HEADREST INOP
25-11-02I	Affected Side Crewmember Glareshield	CAPTAIN'S VERTICAL ADJUSTMENT INOP
25-11-02J	Affected Side Crewmember Glareshield	F/O'S VERTICAL ADJUSTMENT INOP.

(M) PROCEDURES

25-11-02A, 25-11-02B

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

25-11-02C, 25-11-02D

1. Ensure inoperable armrest(s) is either in the up position or is removed.
2. Perform an operational test of the associated crewmember seat(s) (Ref MM 25–11–00/201) to ensure appropriate function of the manual adjustment system(s).

25-11-02I, 25-11-02J

Ensure that the seat is secure in an acceptable vertical position by performing a functional test to verify that the seat cannot be moved.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	OBSERVER SEAT(S)					
25-11-03A	Primary (Forward) Observer Seat (Including associated equipment) (Seat Unusable) **“DISP.APPR.REQ’D”**	**N**	1	0	**A**	**(M)(O)** May be inoperative provided: a) A passenger seat in the passenger cabin is made available to an FAA inspector for the performance of official duties, and b) Repairs are made within two flight days.
25-11-03B	Primary (Forward) Observer Seat (Including associated equipment) (Seat Unusable) **“DISP.APPR.REQ’D”**	**N**	1	0	**A**	**(M)(O)** May be inoperative provided: a) The secondary observer seat is available to an FAA inspector for the performance of official duties, and b) Repairs are made within two flight days.
25-11-03C	Primary (Forward) Observer Seat (Including associated equipment) (Seat Usable) **"Contact MCC"**	**Y**	1	0	**A**	**(O)** May be inoperative provided: a) Required minimum safety equipment (safety belt and oxygen) is available, b) Seat is acceptable to the FAA inspector for the performance of official duties, and c) Repairs are made within two flight days. NOTE 1: These provisos are intended to provide for occupancy of the above seat by an FAA inspector when the minimum safety equipment (safety belt and oxygen) is functional and the inspector determines the conditions to be acceptable. NOTE 2: The pilot in command will determine if the minimum safety equipment is functional for other persons (other than FAA) authorized to occupy any observer’s seat.

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD	NUMBER REQUIRED FOR DISPATCH		REPAIR CATEGORY	REMARKS OR EXCEPTIONS
	OBSERVER SEAT(S) (CONTINUED)					
25-11-03D	Additional (Second) Observer's Seat (Including Associated Equipment) (Seat Unusable) **"DISP.APPR.REQ'D"**	**N**	1	0	**D**	**(M)(O)** May be inoperative provided that if the forward observer's seat is inoperative, a passenger seat in the passenger cabin is made available and is acceptable to an FAA inspector for the performance of official duties.
25-11-03E	Additional (Second) Observer's Seat (Including Associated Equipment) (Seat Usable)	**Y**	1	0	**D**	**(O)** May be inoperative provided minimum safety equipment (lap belt and oxygen) are operative. NOTE: The pilot in command will determine if the minimum safety equipment is functional for persons (other than FAA) authorized to occupy seat.
25-11-03F	Additional Flight Deck Area Seat (Fifth Seat) and Crew Rest Area Seat (Including associated equipment) Seat(s) Usable	**N**	2	0	**D**	**(O)** May be inoperative provided minimum safety equipment (lap belt and oxygen) are operative. NOTE: The pilot in command will determine if the minimum safety equipment is functional for persons authorized to occupy seat.
25-11-03G	Additional Flight Deck Area Seat (Fifth Seat) and Crew Rest Area Seat (Including associated equipment) Seat(s) Unusable	**N**	2	0	**D**	**(M)** May be inoperative provided associated seat(s) is not used.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
25-11-03A	In A Conspicuous Place On The Forward Observers Seat	FORWARD OBSERVERS SEAT INOP
25-11-03B	In A Conspicuous Place On The Forward Observers Seat	FORWARD OBSERVERS SEAT INOP
25-11-03C	On Forward Observer Seat Inoperative Equipment	FORWARD OBSERVERS SEAT ___ INOP
25-11-03D	In A Conspicuous Place On Second Observers Seat	SECOND OBSERVERS SEAT INOP
25-11-03E	On Second Observer Seat Inoperative Equipment	SECOND OBSERVERS SEAT ___ INOP
25-11-03F	In A Conspicuous Place On The Additional Flight Deck Area Seat (Fifth Seat) And Crew Rest Area Seat	___ ADDITIONAL FLIGHT DECK AREA SEAT OR CREW REST AREA SEAT ___ INOP
25-11-03G	In A Conspicuous Place On The Additional Flight Deck Area Seat (Fifth Seat) And Crew Rest Area Seat	___ ADDITIONAL FLIGHT DECK AREA SEAT OR CREW REST AREA SEAT INOP

(O) PROCEDURES

25-11-03A, 25-11-03B

Captain to notify Dispatch if an FAA Inspector requires a passenger seat in the cabin.

25-11-03C

Captain to ensure that minimum safety equipment is functional if seat is to be occupied (by other than FAA personnel).

25-11-03D

Captain to notify Dispatch if an FAA Inspector requires a passenger seat in the cabin.

25-11-03E

Captain to ensure that minimum safety equipment is functional if seat is to be occupied (by other than FAA personnel).

25-11-03F

Captain to ensure that minimum safety equipment is functional if seat is to be occupied.

(M) PROCEDURES

25-11-03A, 25-11-03B, 25-11-03D, 25-11-03G

Placard the inoperative seat with OM2, “UNSERVICEABLE – DO NOT USE” tape or equivalent*.

* An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-16-01 Polar Suits **"DISP.APPR.REQ'D"** Administrative Control Item	**Y**	-	-		May be inoperative or missing provided flight is not conducted on polar routes. Polar Operations Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-16-01	On Captains Glareshield	___ POLAR SUIT INOP OR MISSING

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED	NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
		FLIGHT CREW MAY PLACARD			
25-20-01	Non-Essential Equipment and Furnishings (NEF)	-	0		May be inoperative, damaged, or missing provided that item(s) is deferred in accordance with operator's NEF deferral program. The NEF program, procedures and processes are outlined in TOPP 40-40-08. NOTE 1: Do not use this MEL item to defer a discrepancy. Defer discrepancy under NEF program in accordance with TOPP 40-40-08. NOTE 2: Exterior lavatory door ash trays are not considered NEF items.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-24-01A	Cart Lift System (Between Main and Upper Deck Galleys)	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated.
25-24-01B	Cart Lift System (Between Main and Upper Deck Galleys) Normal Mode	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) Override Mode operates normally, and b) Alternate procedures are used.
25-24-01C	Cart Lift System (Between Main and Upper Deck Galleys) Override Mode	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) Normal Mode operates normally, and b) Alternate procedures are used.
25-24-01D	Cart Lift System (Between Main and Upper Deck Galleys) Actuator Motors	**N**	2	1	**C**	**(M)(O)** May be inoperative provided: a) Associated motor is deactivated, b) Cart lift operates in Normal Mode, and c) Alternate procedures are used.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-24-01A	Adjacent To Galley Lift Control	CART LIFT SYSTEM INOP
25-24-01B	Adjacent To Galley Lift Control	CART LIFT SYSTEM NORMAL MODE INOP
25-24-01C	Adjacent To Galley Lift Control	CART LIFT SYSTEM OVERRIDE MODE INOP
25-24-01D	Adjacent To Galley Lift Control	___ CART LIFT SYSTEM ACTUATOR MOTOR INOP

(O) PROCEDURES

25-24-01A

Captain to notify Lead Flight Attendant/Purser that the Cart Lift System is inoperative.

25-24-01B

Captain to brief Lead Flight Attendant/Purser that the Cart Lift System Normal Mode is inoperative and to use the Override Mode.

25-24-01C

Captain to brief Lead Flight Attendant/Purser that the Cart Lift System Override Mode is inoperative and to use the Normal Mode.

25-24-01D

Captain to brief Lead Flight Attendant/Purser which Cart Lift System Actuator Motor is inoperative and to use the Normal Mode.

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(M) PROCEDURES

25-24-01A

1. Make sure that the lift cart is empty.
2. Pull and secure the following circuit breakers:

   P180 DC Power Distribution Panel

   - 180G8 CART LIFT CONT UPR DK
   - 180G19 CART LIFT OVRD

   P414 Power Distribution Panel – Left

   - 414F23 UPR DK CART LIFT CONT
   - 414M21 UPPER DECK CART LIFT 1
   - 414M24 UPPER DECK CART LIFT 2

25-24-01D

Deactivate the associated actuator motor as applicable:

1. Pull and secure the affected circuit breaker from P414 main power panel:
   - #1 motor – 414M21 UPPER DECK CART LIFT 1
   - #2 motor – 414M24 UPPER DECK CART LIFT 2
2. Remove, cap and stow the connector for affected motor:
   - #1 motor – P14
   - #2 motor – P15

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		REMARKS OR EXCEPTIONS
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
	FLIGHT ATTENDANT SEAT ASSEMBLIES (SINGLE OR DUAL POSITION)					
25-25-01A	Required Flight Attendant Seats **"DISP.APPR.REQ'D"** (Refer to In-flight Service Onboard Manual for required seat locations)	**N**	9	8	**B**	**(M)(O)** One required position or assembly (dual position) may be inoperative provided: a) Affected seat position or seat assembly is not occupied, b) Flight attendant(s) displaced by inoperative seat(s) occupies either an adjacent flight attendant seat or the passenger seat most accessible to the inoperative seat(s), so to most effectively perform assigned duties, c) Alternate procedures are used as published in crewmember manuals, d) Folding type seat stows automatically or seat is secured in retracted position and is checked ONCE EACH FLIGHT DAY (Logbook Entry Required), and e) If a passenger seat is needed for a required flight attendant, the assigned seat is placarded FOR FLIGHT ATTENDANT USE 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: A missing headrest renders the seat position inoperative. NOTE 4: If one side of a dual seat assembly is inoperative and a flight attendant is displaced to the adjacent seat, the adjacent seat must operate normally. **Repetitive Check Required (Yellow Placard)**

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NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
FLIGHT ATTENDANT SEAT ASSEMBLIES (SINGLE OR DUAL POSITION) (CONTINUED)					
25-25-01B Excess (Non–required) Flight Attendant Seats	**N**	-	0	**C**	**(M)(O)** May be inoperative provided: a) Affected seat position or seat assembly is not occupied, and b) Folding type seat stows automatically or is secured in the retracted position and is checked ONCE EACH FLIGHT DAY (Logbook Entry Required). 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. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-25-01A	On Affected Flight Attendant Seat Position	___ F/A SEAT POSITION INOP
25-25-01B	On Affected Flight Attendant Seat Position	___ F/A SEAT POSITION INOP

(O) PROCEDURES

25-25-01A

1. Captain to brief Lead Flight Attendant/Purser which seat is inoperative.
2. The flight attendant displaced from an inoperative required seat position occupies the operative non–required seat position of a dual seat assembly at the same location. If the non–required seat of a dual seat assembly is inoperative or not available, the flight attendant assigned to the affected seat occupies a passenger seat, most accessible to his/her assigned seat and is 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”.

25-25-01B

Captain to brief Lead Flight Attendant/Purser which seat(s) is inoperative.

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(M) PROCEDURES

25-25-01A

1. A retractable seat that does not automatically retract must be secured in the retracted position using the following procedure (*Maintenance is Required and Flight Crew May NOT Placard*):

   a) Secure seat in the retracted (fully stowed) position using high visibility tape.

   b) If not removed, placard the inoperative seat position(s) with OM–2 red UNSERVICEABLE – DO NOT USE tape or equivalent*.

      *An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

2. If unable to stow or retract seat, it may be removed (AMM 25–25–03 or 25–25–04, as applicable).

3. If a flight attendant is displaced from a required seat and requires a passenger seat to occupy, perform the following:

   NOTE: Flight attendant displaced from an inoperative required seat occupies the operative non–required seat position of a dual seat assembly at the same location, or occupies the passenger seat most accessible to his or her assigned exit.

   a) The passenger seat assigned to the flight attendant(s) must be the seat most accessible to their assigned exit and Placarded as follows:

      1) Obtain an Aircraft Placard.

      2) Print on placard in bold letters “FOR FLIGHT ATTENDANT USE ONLY”.

      3) Trim unused portion from placard and affix placard in a conspicuous place on the seat.

         NOTE: An acceptable alternate to the Aircraft Placard is a section of 2 inch wide masking tape with the words printed in black letters.

4. ONCE EACH FLIGHT DAY:

   a) Ensure seat has remained in the fully stowed position. If seat has been secured in the fully stowed position with tape, ensure tape is in good condition.

   NOTE: If seat has been removed per AMM, step 4. does not apply.

25-25-01B

1. A retractable seat that does not automatically retract must be secured in the retracted position using the following procedure (*Maintenance is Required and Flight Crew May NOT Placard*):

   a) Secure seat in the retracted (fully stowed) position using high visibility tape.

   b) If not removed, placard the inoperative seat position(s) with OM–2 red UNSERVICEABLE – DO NOT USE tape or equivalent*.

      *An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

2. ONCE EACH FLIGHT DAY:

   a) Ensure seat has remained in the fully stowed position. If seat has been secured in the fully stowed position with tape, ensure tape is in good condition.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
		FLIGHT CREW MAY PLACARD				
	PASSENGER SEATS					
25-25-02A	Passenger Seats **"DISP.APPR.REQ'D"**	**N**	-	-	**D**	**(M)** May be inoperative provided: a) Seat does not block an Emergency Exit, b) Seat does not restrict any passenger from access to the main aircraft aisle, and c) The affected seat(s) is blocked and placarded DO NOT OCCUPY. NOTE 1: A seat with an inoperative seat belt is considered inoperative. NOTE 2: Inoperative seats do not affect the required number of Flight Attendants. NOTE 3: Affected seat(s) may include the seat(s) behind and/or adjacent outboard seats. NOTE 4: MCC must contact Flight Control for coordination with ACS and ROC to remove seat from inventory until repaired.
25-25-02B	Recline Mechanism All Except Business Elite Seats	**N**	-	-	**D**	**(M)** May be inoperative and seat occupied provided seat back is secured in the full upright position. NOTE: If a seat back cannot be secured in the full upright position, apply MEL Item 25–25–02A.
25-25-02C	Recline Mechanism	**Y**	-	-	**D**	May be inoperative and seat occupied provided seat back is immovable in the full upright position. NOTE: If a seat back is not immovable in the full upright position, apply MEL Item 25–25–02B or 25–25–02D.
25-25-02D	Passenger Seats (Seat Usable) Business Elite Seats Recline, Legrest, and Footrest Mechanism **"DISP.APPR.REQ'D"**	**N**	-	-	**D**	**(M)(O)** May be inoperative and seat occupied provided seat back is secured in the upright position and leg/foot rest in the retracted position. NOTE: Seats identified as Class 3 crew rest can be manually operated to the lie flat position for crew rest periods. Seat must be secured upright and foot rest retracted for taxi, takeoff, and landing.
25-25-02E	Underseat Baggage Restraining Bar	**N**	-	-	**C**	**(M)(O)** May be inoperative or missing provided: a) Baggage is not stowed under seat with inoperative restraining bar, and b) Associated seat is placarded DO NOT STOW BAGGAGE UNDER THIS SEAT.

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	PASSENGER SEATS (CONTINUED)					
25-25-02F	Armrest With Recline Mechanism	**Y**	-	-	**D**	**(M)** May be inoperative or missing and occupied provided: a) Armrest does not block any Emergency Exit, b) Armrest does not restrict any passenger from access to the main aircraft aisle, and c) If armrest is missing, seat back is secured in the full upright position. NOTE: If armrest is missing, *Maintenance will be required and Flight Crew may NOT placard.*
25-25-02G	Armrest Without Recline Mechanism	**Y**	-	-	**D**	May be inoperative or missing and seat occupied provided: a) Armrest does not block an Emergency Exit, and b) Armrest does not restrict any passenger from access to the main aircraft aisle.
25-25-02H	Seat Belt Air Bag Restraint System **"DISP.APPR.REQ'D"**	**N**	-	-	**D**	**(M)** May be inoperative provided seat is blocked and placarded "DO NOT OCCUPY". NOTE: MCC must contact Flight Control for coordination with ACS and ROC to remove seat from inventory until repaired.
25-25-02I	Takeoff, Taxi and Landing (TTL) Position Light	**Y**	-	0	**C**	**(O)** May be inoperative and seat occupied provided Flight Attendant verifies seat(s) is in the full upright position prior to takeoff and landing.

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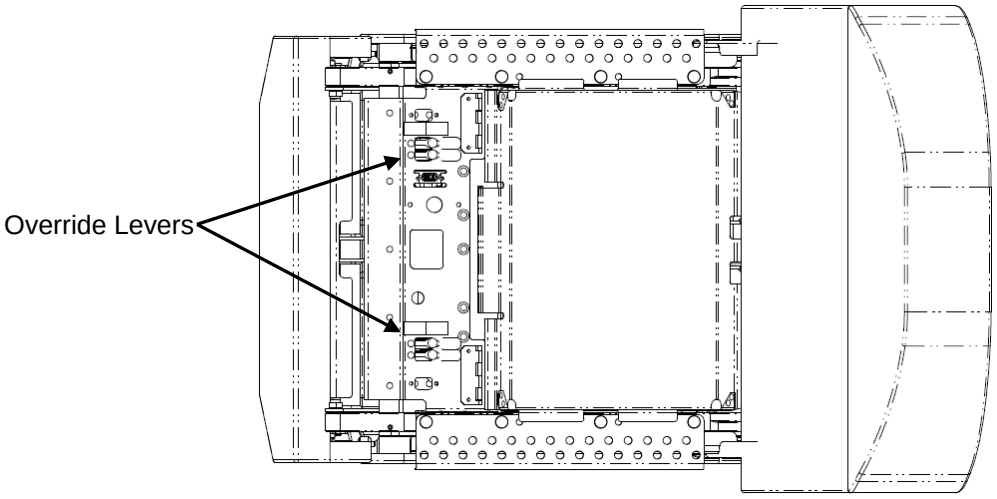
MEL ITEM	TAB LOCATION	PLACARD TEXT
25-25-02A	On The Nearest Flight Attendants Panel	___ PASSENGER SEAT(s) INOP AND SECURED and if applicable ___ ADDITIONAL SEATS BLOCKED
25-25-02B	On The Nearest Flight Attendants Panel	___ PASSENGER SEAT(s) INOP – SECURED IN AN UPRIGHT POSITION. SEAT MAY BE OCCUPIED
25-25-02C	On The Nearest Flight Attendants Panel	PASSENGER SEAT(s) INOP – IMMOVABLE IN FULL UPRIGHT POSITION. SEAT MAY BE OCCUPIED.
25-25-02D	Adjacent To Forward Flight Attendants Panel	___ BUSINESS ELITE PASSENGER SEAT BACK SECURED IN UPRIGHT POSITION and/or LEG/FOOT REST SECURED IN RETRACTED POSITION
25-25-02E	On The Nearest Flight Attendants Panel	___ PASSENGER SEAT RESTRAINING BAR INOP or MISSING
25-25-02F	Adjacent To Forward Flight Attendants Panel	___ PASSENGER SEAT(s) ARMREST INOP, SEAT MAY BE OCCUPIED.
25-25-02G	Adjacent To Forward Flight Attendants Panel	___ PASSENGER SEAT(s) ARMREST INOP, SEAT MAY BE OCCUPIED.
25-25-02H	On The Nearest Flight Attendants Panel	___ PASSENGER SEAT BELT AIR BAG RESTRAINT INOP
25-25-02I	On The Nearest Flight Attendants Panel	___ PASSENGER SEAT TTL LIGHT INOP, SEAT MAY BE OCCUPIED

(O) PROCEDURES

25-25-02D

For flat bed installations identified as a Class 3 rest facility, seat can be manually operated to the lie flat position. To manually position seat to upright or lay-flat position, use manual override levers underneath seat bottom cushion:

a. Raise seat bottom cushion for access to manual override levers.
b. Pull up access cover, move four override levers (Legrest, Tracking, Recline and Seat Pan) from LOCK to UNLOCK.
c. Reposition seat to lay-flat or full upright position.
d. Return four override levers (Legrest, Tracking, Recline and Seat Pan) to LOCK position. Close access cover and install seat bottom cushion.



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25-25-02E

Captain to brief Lead Flight Attendant/Purser:
1. Which seat(s) have inoperative underseat baggage restraining bars
2. To ensure baggage is not stowed under associated seat(s) prior to takeoff and landing.

25-25-02I

Captain to brief Lead Flight Attendant/Purser:
1. Which seat(s) have inoperative TTL Lights
2. To ensure the seat is visually verified to be in the full upright position prior to takeoff and landing.

(M) PROCEDURES

25-25-02A, 25-25-02H

NOTE: The inoperative seat or affected seat(s) must not block access to an Emergency Exit or aisle.

1. If the seat can be secured in the upright position and is not loose and does not block access to an Emergency Exit once secured:
   a) If Seat INOP Block-Out Cover is available, secure the seatback in the upright position and install Seat INOP Block-Out Cover part number 25-5136-001 per ERA 10-485792-14MA.
   b) If Seat INOP Block-Out Cover is not available, secure the seatback in the upright position, block seat per MEL applicable Remarks or Exceptions and placard “DO NOT OCCUPY” by installing a Seat INOP Block-Out Placard part number 11-0972-001 per ERA 10-485792-14MA or equivalent*. Contact MCC to schedule installation of a Seat INOP Block-Out Cover at the next maintenance station the cover is available.

Continued Next Page

2. If the seat cannot be secured in the upright position and is not loose and does not block access to an Emergency Exit:

   a) If Seat INOP Block-Out Cover is available, block off the inoperative seat, the affected seat(s) and the seat directly behind the inoperative seat by installing a Seat INOP Block-Out Cover part number 25-5136-001 per ERA 10- 485792-14MA. Affected seats would be any seat with blocked access to an aisle by the inoperative seat.

   b) If Seat INOP Block-Out Cover is not available, block off the inoperative seat, the affected seat(s) and the seat directly behind the inoperative seat per MEL applicable Remarks or Exceptions and placard "DO NOT OCCUPY" by installing a Seat INOP Block-Out Placard part number 11-0972-001 per ERA 10-485792-14MA or equivalent*. Affected seats would be any seat with blocked access to an aisle by the inoperative seat. Contact MCC to schedule installation of a Seat INOP Block-Out Cover at the next maintenance station the cover is available.

3. If seat cannot be secured in the upright position and is loose or blocks access to an Emergency Exit:

   a) If Seat INOP Block-Out Cover is available, remove the seat back and placard the seatback "MUST REMAIN WITH AIRPLANE" and stow in available closet. Block off affected seat directly behind the inoperative seat(s) by installing a Seat INOP Block-Out Cover part number 25-5136-001 per ERA 10-485792-14MA. Install a Seat INOP Block-Out Placard part number 11-0972-001 per ERA 10-485792-14MA or equivalent* on seat with removed seat back.

   b) If Seat INOP Block-Out Cover is not available, remove seatback and block off affected seat directly behind the inoperative seat per MEL applicable Remarks or Exceptions and placard "DO NOT OCCUPY" by installing a Seat INOP Block-Out Placard part number 11-0972-001 per ERA 10-485792-14MA or equivalent*. Placard seatback, "MUST REMAIN WITH AIRPLANE" and stow in available closet. Seat back is to remain in closet until removed by maintenance for repair or re–installation. Contact MCC to schedule installation of a Seat INOP Block-Out Cover at the next maintenance station the cover is available.

FOR SEATS WITH LEG RESTS

1. If the leg/foot rest can be secured in the retracted position:

   a) If Seat INOP Block-Out Cover is available, secure the inoperative leg/footrest in the retracted position by installing the Seat INOP Block-Out cover part number 25-5136-001 per ERA 10-485792-14MA such that it cannot be moved during flight.

   b) If Seat INOP Block-Out Cover is not available, Secure the leg/foot rest in the retracted position using tape or straps such that it cannot move during flight and block seat per MEL applicable Remarks or Exceptions and placard "DO NOT OCCUPY" by installing a Seat INOP Block-Out Placard part number 11-0972-001 per ERA 10-485792-14MA or equivalent*. Contact MCC to schedule installation of a Seat INOP Block-Out Cover at the next maintenance station the cover is available.

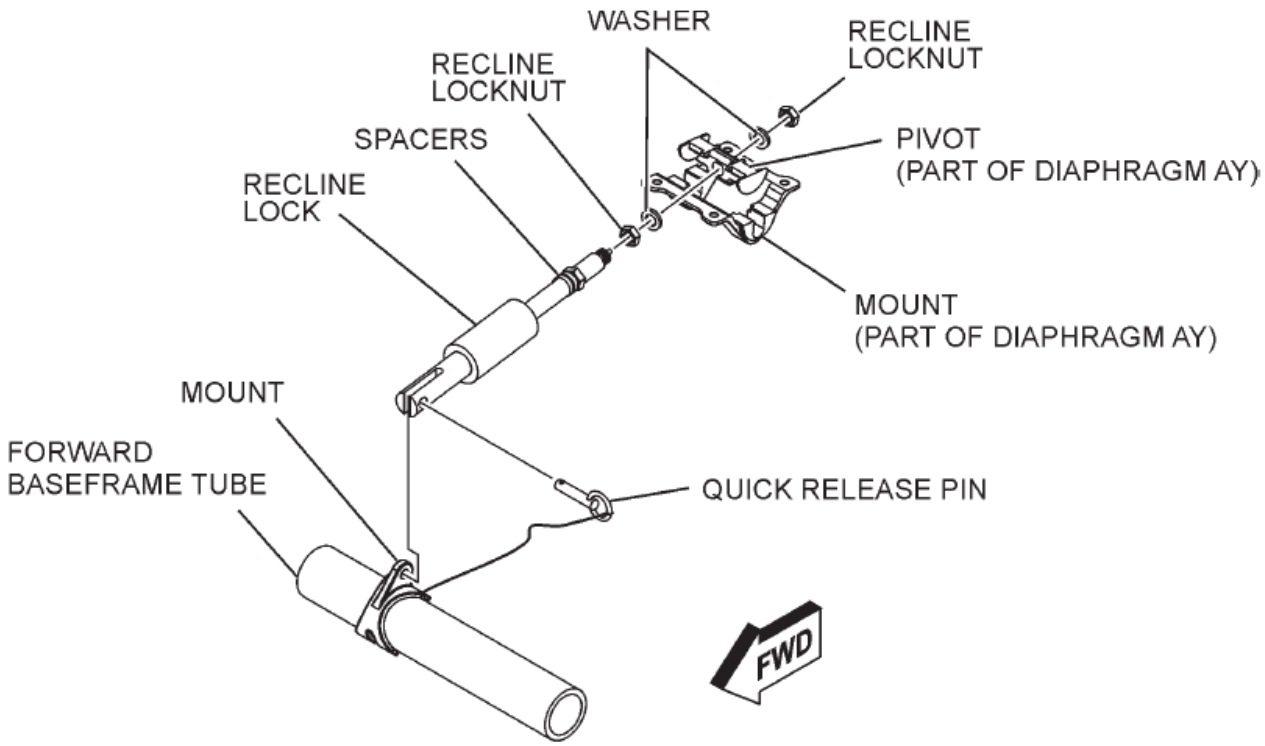
2. If the leg/foot rest is unable to be secured in the retracted position, block off the inoperative seat and the affected seat(s) per MEL applicable Remarks or Exceptions and placard "DO NOT OCCUPY" by installing a Seat INOP Block-Out Placard part number 11-0972-001 per ERA 10-485792-14MA or equivalent*. Affected seats would be any seat with blocked access to an aisle by the inoperative seat.

*An acceptable alternative to the "DO NOT OCCUPY" placard is to apply a one or two sections of 2 inch wide masking tape as required over the head rest area (seat bottom if seat back is removed) with the words "UNSERVICEABLE – DO NOT USE" printed neatly and legibly in 1.5 inch black or red letters and contacting MCC to schedule the installation of the approved Seat INOP Block-Out Cover part number 25-5136-001 and/or Seat INOP Block-Out Placard part number 11-0972-001.

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25-25-02B, 25-25-02F

Secure seat in an upright position by disconnecting the recline control cable or installing spacers, SCEPTRE P/N 33-2500-3-2575, on recline lock shaft to prevent movement.



25-25-02D **(Cirrus Flat-Bed seats Only)**

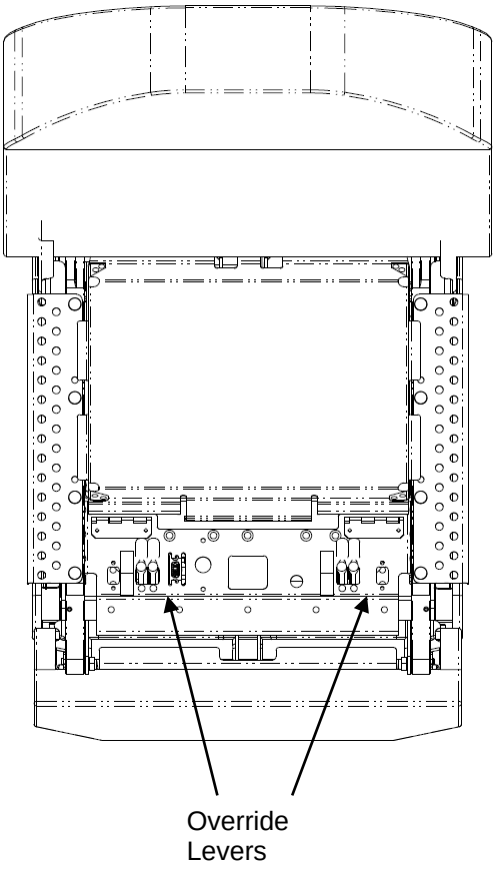
1. There are four manual override levers per seat that are used to return the Cirrus seat to upright position:
   a) Raise seat bottom cushion for access to manual override levers.
   b) Pull up access cover, move the four override levers (Legrest, Tracking, Recline and Seat Pan) from LOCK to UNLOCK. Reposition the seat to the full upright position.
   c) Manually track the seat forward to provide access to the rear of the seat. Unhook the forward edge of the blind from the lower edge of seat back to gain access to the Junction Power Box (JPB).
   d) The Junction Power Box (JPB) is located in the aft portion of the suite assembly. Pull and collar the Junction Power Box (JPB) C/B.

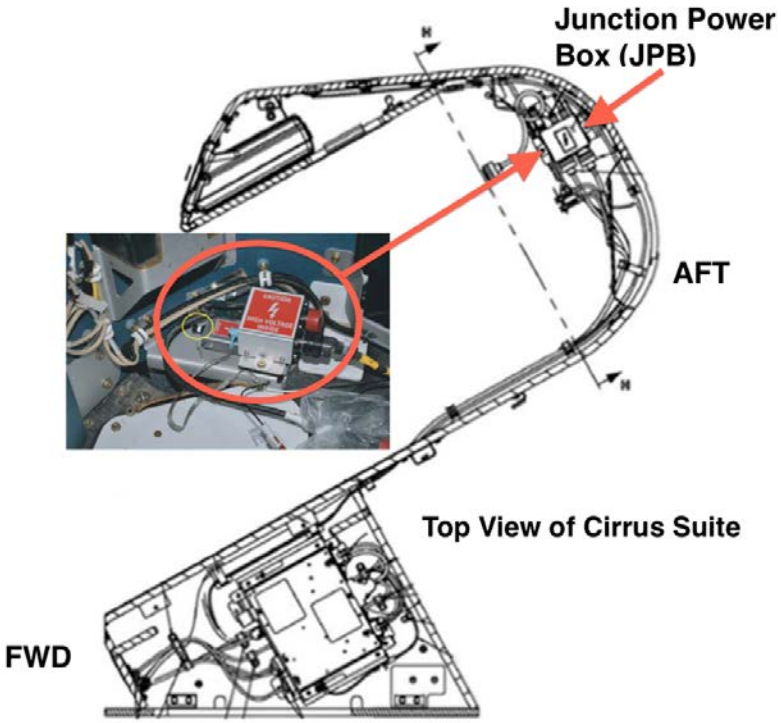
      NOTE: Do Not pull and collar the Electronic Control Box (ECCB) which is mounted directly behind the seat.

   e) Reinstall the blind securely to seat back and move seat aft to original position.
   f) Return the four override levers (Legrest, Tracking, Recline and Seat Pan) to lock. Close access cover and install seat bottom cushion

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Seat components:





25-25-02E

1. If broken, remove baggage restraining bars.
2. On a 2 inch wide section of masking tape, print legibly in 1 inch black letters “DO NOT STOW BAGGAGE UNDER THIS SEAT”.
3. Place the masking tape on the floor in the area aft of the inoperative restraining bar.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-28-01A	Overhead Storage Bin(s)/Cabin and Galley Storage Compartments/Closets	**N**	-	-	**C**	**(M)(O)** May be inoperative provided: a) Compartment/closet is secured CLOSED, b) Any emergency equipment located in affected compartment is considered inoperative and associated MEL relief is applied, c) Associated bin or compartment is prominently placarded UNSERVICEABLE – DO NOT USE, and d) Affected compartment is not used for storage of any items(s) except for those permanently affixed. NOTE: For overhead storage compartments if no partitions are installed, the entire overhead storage compartment is considered one bin or compartment.
25-28-01B	Overhead Storage Bin(s)/Cabin and Galley Storage Compartments/Closets	**N**	-	-	**C**	**(M)(O)** May be inoperative provided: a) Affected door(s) is removed or for retractable doors, secured in the retracted (fully open) position, b) Associated bin or compartment is not used for storage of any items, except for those permanently affixed, c) Associated bin or compartment is prominently placarded UNSERVICEABLE – DO NOT USE, d) Procedures are established and used to alert crew members and passengers of inoperative bins, and e) Passengers are briefed that associated bin or compartment is not used. NOTE 1: For overhead storage compartments if no partitions are installed, the entire overhead storage compartment is considered one bin or compartment. NOTE 2: Any emergency equipment located in associated compartment (permanently affixed) is available for use.
25-28-01C	Overhead Storage Bin(s)/Cabin and Galley Storage Compartments/Closets Multi Latch/Quarter Turn Lug Installations	**Y**	-	-	**C**	**(O)** One latch/lug per component may be inoperative provided: a) Remaining latch(es)/lug(s) on affected compartments operate normally, and b) If affected compartment is used for a galley cart, the cart remains empty.

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	STORAGE COMPARTMENTS (CONTINUED)					
25-28-01D	Overhead Storage Bin(s)/Cabin and Galley Storage Compartments/Closets Storage Compartment Key Locks	**N**	-	0	**D**	**(M)** May be inoperative in the unlocked position provided doors can be secured by other means.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-28-01A	On Lead Flight Attendants Panel And Affected Storage Compartment(s)	____ STORAGE COMPARTMENT(S) INOP
25-28-01B	On Lead Flight Attendants Panel And Affected Storage Compartment(s)	STORAGE COMPARTMENT(S) INOP AND DOOR(S) REMOVED
25-28-01C	On Lead Flight Attendants Panel And Affected Storage Compartment(s)	___ STORAGE COMPARTMENT(S) LATCH/QUARTER TURN LUG INSTALLATION INOP
25-28-01D	On Lead Flight Attendants Panel And Affected Storage Compartment(s)	___ STORAGE COMPARTMENT KEY LOCK(S) INOP

(O) PROCEDURES

25-28-01A

Captain to brief Lead Flight Attendant/Purser:

1. Which bins are inoperative and may not be used.
2. Flight Attendant/Purser to brief passengers which bin or compartment cannot be used.
3. Any emergency equipment located in the associated compartment (permanently affixed) is NOT available for use.

25-28-01B

Captain to brief Lead Flight Attendant/Purser:

1. Which bins are inoperative and may not be used.
2. Flight Attendant/Purser to brief passengers which bin or compartment cannot be used.
3. Any emergency equipment located in the associated compartment (permanently affixed) is available for use.

25-28-01C

Captain to brief Lead Flight Attendant/Purser that the affected compartment's galley cart must remain empty.

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(M) PROCEDURES

25-28-01A

To secure the affected compartment(s) closed, accomplish the following:

1. Affected compartment is not used for storage of any item(s) except for those permanently affixed.
2. Any emergency equipment located in affected compartment is considered inoperative.

   Defer affected emergency equipment inoperative per applicable MEL relief.
3. Secure affected compartment(s) CLOSED by placing nylon reinforced strapping tape (packing tape) across the compartment(s).Placard affected compartment(s) by placing a strip of Red colored OM–2 “UNSERVICEABLE – DO NOT USE” tape or equivalent across the compartment(s).

   An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

25-28-01B

To remove the affected door(s), accomplish the following:

1. Affected compartment is not used for storage of any item(s) except for those permanently affixed.
2. Remove the affected door.
3. Place door hardware in parts bag and attach to removed door.
4. Placard door “MUST REMAIN WITH AIRPLANE” and stow in available closet or cargo compartment as applicable. Door is to remain in closet or cargo compartment until removed by maintenance for repair or re–installation.
5. Place a strip of Red Colored OM2 UNSERVICEABLE – DO NOT USE tape (or equivalent*) diagonally across the door opening.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

To secure <u>retractable doors</u> in the retracted (fully open) position, accomplish the following:

1. Firmly secure affected compartment door(s) OPEN by placing nylon reinforced strapping tape (packing tape) across the compartment door(s) such that it cannot be dislodged during any stage of flight.
2. Place a strip of Red Colored OM2 UNSERVICEABLE – DO NOT USE tape (or equivalent*) diagonally across the door opening.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

25-28-01D

To secure the affected compartment(s) closed, accomplish the following:

1. Secure affected compartment(s) CLOSED by using the latch on the door.
2. If the latch on the door is inoperative, secure the affected compartment(s) CLOSED by placing nylon reinforced strapping tape (packing tape) across the compartment(s).

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-29-02	Flight Crew/Flight Attendant Rest Area Door Lock(s)	**N**	-	0	**C**	**(M)** May be inoperative provided: a) Associated rest area door is deactivated in the unlocked position, and b) Associated rest area door opens and closes normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-29-02	On Lead Flight Attendants Panel And On Door Lock On Door	___ FLIGHT CREW/FLIGHT ATTENDANT REST AREA DOOR LOCK INOP

(M) PROCEDURES

Ensure inoperative door lock(s) are unlocked with service key and door latch opens and closes door normally.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
25-29-03A	Flight Crew Rest Area (Class 1 Facility) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M) (O)** May be inoperative provided: a) Flight crew rest area is deactivated closed, and b) Appropriate adjustments to flight crew FDP times are applied. NOTE 1: Class 1 rest facility not available. Contact the Fleet Sector Manager through Dispatcher for alternate flight crew rest accommodations. . NOTE 2: This proviso is not intended to prohibit flight crew rest area inspections by crewmembers.
25-29-03B	Flight Attendant Rest Area **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(M)(O)** May be inoperative provided flight attendant rest area is deactivated closed. NOTE 1: If required, reserve cabin seats for flight attendant use. Refer to In-Flight Service Programs and Policies Handbook Chapter 14, or current policy, for seat locations. NOTE 2: This proviso is not intended to prohibit flight attendant rest area inspections by crewmembers.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-29-03A	On Door	FLIGHT CREW REST AREA INOP
25-29-03B	On Lead Flight Attendants Panel And On Door	FLIGHT ATTENDANT REST AREA INOP

(O) PROCEDURES

25-29-03A

1. Ensure affected crew rest area is not used.
2. Ensure appropriate limitations to flight crew duty periods are followed.

NOTE: Class 1 rest facility not available. Contact the Fleet Sector Manager through Dispatcher for alternate flight crew rest accommodations.

25-29-03B

Ensure affected crew rest area is not used.

Continued Next Page

(M) PROCEDURES

25-29-03A

1. Check that the affected crew rest area is empty.
2. Check that the affected crew rest area is deactivated closed by:
   a) Position the door against the decompression panel and locking the latch
   b) Place a sash across the door opening
3. Place a strip of red OM–2 ”UNSERVICABLE–DO NOT USE” tape or equivalent* across crew rest area door and across the sash.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words ”UNSERVICEABLE – DO NOT USE ” printed legibly in 1 inch black letters.

25-29-03B

1. Check that the affected crew rest area is empty.
2. Check that the affected crew rest area is locked closed.
3. Place a strip of red OM–2 ”UNSERVICABLE–DO NOT USE” tape or equivalent* across crew rest area door.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words ”UNSERVICEABLE – DO NOT USE ” printed legibly in 1 inch black letters.

	NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH	
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
25-30-01	Galley/Cabin Waste Receptacle Access Doors/Covers	**N**	-	-	**C**	**(M)(O)** May be inoperative provided: a) Associated waste container is empty, b) Receptacle access is secured to prevent waste introduction into the receptacle, and c) Procedures are established to ensure that sufficient galley/cabin waste receptacles are available to accommodate all waste that may be generated on a flight.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-30-01	On Affected Galley/Cabin Waste Receptacle Access Door And/Or Cover	___ GALLEY/CABIN WASTE RECEPTACLE DOOR and/or COVER IS INOP

(O) PROCEDURES

Captain to verify with Lead Flight Attendant/ Purser that sufficient galley/cabin waste receptacles are available to accommodate all waste that may be generated on the flight.

(M) PROCEDURES

1. Check the affected waste container is empty.
2. Place a strip of Red colored OM–2 UNSERVICEABLE – DO NOT USE tape or equivalent* across the affected Galley/Cabin Waste Receptacle Access Door and/or Cover.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-40-01A	Lavatory Door Ashtrays (On outside of door) **"Contact MCC"**	**Y**	-	-	**A**	Up to and including 50 percent may be missing or inoperative for 10 days.
25-40-01B	Lavatory Door Ashtrays (On outside of door) **"Contact MCC"**	**Y**	-	-	**A**	More than 50 percent may be missing or inoperative for 3 days.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-40-01A	On The Nearest Flight Attendants Panel	____ LAVATORY DOOR ASHTRAY MISSING
25-40-01B	On The Nearest Flight Attendants Panel	____ LAVATORY DOOR ASHTRAY MISSING

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
25-40-02	Lavatory Waste Receptacle Access Doors/Covers **"DISP.APPR.REQ'D"**	**N** -	7	**C**	**(M)(O)** May be inoperative provided: a) Associated waste container is empty, b) Receptacle access is secured to prevent waste introduction into the receptacle, c) Lavatory is used only by crewmembers, Associated lavatory entrance door is locked closed and placarded, UNSERVICEABLE – DO NOT USE, and d) At least seven lavatories operate normally. NOTE 1: Applicable doors include all lavatory paper and linen waste receptacle enclosure access doors and disposal doors. NOTE 2: These provisions are not intended to prohibit lavatory use or inspections by crewmembers.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-40-02	On Affected Lavatory Waste Receptacle Access Door And/Or Cover	___ LAVATORY WASTE RECEPTACLE DOOR and/or COVER IS INOP

(O) PROCEDURES

Captain to brief Lead Flight Attendant/Purser that the affected lavatory door(s) is to remain locked and not entered except for use or inspection by crewmembers.

(M) PROCEDURES

1. Check the affected lavatory waste container is empty.
2. On affected lavatory modules with waste containers that are also served by a Disposal Door mounted on the exterior of the lavatory, place a strip of Red colored OM–2 UNSERVICEABLE – DO NOT USE tape or equivalent* across the Disposal Door.
3. Close the lavatory door and lock by placing a slotted screwdriver blade in the slot in the VACANT/OCCUPIED sign on the door and move to OCCUPIED position. Check that door will not open.
4. Place a strip of Red colored OM2 "UNSERVICEABLE – DO NOT USE" tape or equivalent* ON the lavatory door. DO NOT tape door shut. This allows crew members to access lavatory.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words "UNSERVICEABLE – DO NOT USE".
5. Place a strip of 2 inch wide masking tape with the words "CREW USE ONLY" printed legibly in 1 inch black letters ON the lavatory door. DO NOT tape door shut. This allows crew members to access lavatory.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-52-01A	Lower Cargo Compartment Lining Panels (FWD) **"DISP.APPR.REQ'D"**	**Y**	-	-	**C**	May be damaged or missing provided the forward cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin contents (if any) are only approved materials.
25-52-01B	Lower Cargo Compartment Lining Panels (AFT) **"DISP.APPR.REQ'D"**	**Y**	-	-	**C**	May be damaged or missing provided the Aft/Bulk cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin contents (if any) are only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-52-01A	On Applicable Cargo Master Loading Panel And Adjacent To Main EICAS	FWD LOWER LOBE CARGO COMPARTMENT LINING PANEL(s) MISSING.
25-52-01B	On Applicable Cargo Master Loading Panel And Adjacent To Main EICAS	AFT LOWER LOBE CARGO COMPARTMENT LINING PANEL(s) MISSING.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-53-01	Lower Cargo Handling System(s)	**N**	-	0	**D**	May be inoperative. NOTE: Any portion of system(s) that operates normally may be used.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-53-01	On Applicable Cargo Master Loading Panel	CARGO HANDLING SYSTEM(S) INOP.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
25-54-01A	Lower Cargo Restraint Systems **"DISP.APPR.REQ'D"**	**N** -	0	**A**	**(M)** May be inoperative or missing as allowed in the Weight and Balance Manual Missing/Inop Cargo Restraints Tables provided repairs are made prior to the completion of the next heavy maintenance visit. NOTE: The Weight and Balance Manual Missing/Inop Cargo Restraints Tables are located in the **(M)** Procedures.
25-54-01B	Lower Cargo Restraint Systems **"DISP.APPR.REQ'D"**	**N** -	0	**C**	**(M)** May be inoperative or missing provided associated cargo compartment remains empty.
25-54-01C	Aft Bulk Bin / Aft Cargo Compartment Divider Net **"DISP.APPR.REQ'D"**	**N** -	0	**C**	May be inoperative or missing provided aft bulk bin remains empty. NOTE: For inoperative bulk bin door net, use MEL 25-54-01A.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-54-01A	Adjacent To The Applicable Loadmaster Control Panel	____ CARGO COMPARTMENT RESTRAINT(S) INOP AND REMOVED or MISSING
25-54-01B	Adjacent To The Applicable Loadmaster Control Panel	____ CARGO COMPARTMENT RESTRAINT(S) INOP AND REMOVED or MISSING.
25-54-01C	Adjacent To The Applicable Loadmaster Control Panel	AFT CARGO DIVIDER NET INOP AND REMOVED or MISSING

(M) PROCEDURES

25-54-01A, 25-54-01B

Identify exact title and cargo hold location of missing/inoperative restraints by using the Missing/Inop Cargo Restraints Tables below.

1. If the number of inoperative restraint components does not exceed the allowance in the Weight and Balance Manual Missing/Inop Cargo Restraints Tables below, placard per MEL item 25–54–01A.
2. If the number of inoperative restraint components exceeds the allowance in the Weight and Balance Manual Missing/Inop Cargo Restraints Tables below, the affected cargo compartment cannot be used. Placard the Cargo Restraint Components per MEL item 25–54–01B (compartment empty).

Continued Next Page

LOWER CARGO COMPARTMENTS REDUCED MAXIMUM CARGO BIN LOADS FOR MISSING/INOPERATIVE CARGO RESTRAINTS

The table below is intended to provide reduced cargo compartment loading limits which are in effect when operating with less than a full complement of lower cargo compartment restraint devices. It is also intended to supplement the information contained in the 747-400 Aircraft Loading Manual (ALM) Weight and Balance section.

NOTE 1: Maximum loads shown in the following tables must be adjusted to account for the tare weight of the unit load device(s) involved.

NOTE 2: Missing or inoperative cargo restraints may not be adjacent to each other.

Table A – Forward Cargo Bin Reduced Maximum Loads – Missing/Inop Restrain Equipment

Part I – Fixed Restrain Equipment

Restraint Device	Normal Complement	Number Missing	Restriction/Limitation
Side Restraint	3 per container position	1	No restriction.
		2	Do not load in affected position. Provide restraint for containers in adjacent positions by using two container stops per container for fwd/aft restraint.
Lateral Guide Rail Guides	Sta. 602 3 per side	1	No restriction forward of Sta. 602. Maximum load aft of Sta. 602 is 11,670 lbs. total (1,945 lbs. per container position).
		2	No restriction forward of Sta. 602. Maximum load aft of Sta. 602 is 7,000 lbs. total (1,167 lbs. per container position).
	Sta. 663 3 per side	1	No restriction forward of Sta. 663. Maximum load of of Sta. 663 is 11,670 lbs. total (1,945 lbs. per container position).
		2	Maximum load forward of Sta. 663 is 7,000 lbs. total (2,334 lbs. per container position).
			Maximum load aft of Sta. 663 is 7,000 lbs. total (1,400 lbs. per container position).
	NOTE: If both sets of guide rails are inop, max Fwd 1 plus Fwd 2 load is 15,000 lbs total (7,500 lbs/side).		
End Stops	Sta. 480 2 per side	1	Maximum load between Sta. 663 guide rails and Sta. 480 is 5,250 lbs. on the affected side (1,750 lbs. per container position).
	Sta. 968 2 per side	1	Maximum load between Sta. 602 guide rails and Sta. 968 is 10,000 lbs. on the affected side (1,667 lbs. per container position).
Retractable Center Guides	3 per container position	1	Maximum load on either side of missing/inop guide (or of missing/inop vertical restraint lip of guide if in doorway area) is 2,350 lbs. per container position.
		2	Do not load in affected position. Provide restraint for containers in adjacent positions by using two container stops per container for fwd/aft restraint.

Part II – Movable Restraint Equipment

Container Stops	2	0	Two stops will restrain a max. of four half-width containers at the max. weight of 3,500 lbs. per container.
		1	One stop will restrain a max. of four half-width containers at 1,750 lbs. per container (or equivalent).
Pallet Locks	2	0	Two locks will restrain a max. of two half-width containers at the max. weight of 3,500 lbs. per container.
		1	One lock will restrain a maximum of two half-width containers at 1,750 lbs. per container (or equivalent).

Continued Next Page

Table B – Aft Cargo Bin Reduced Maximum Loads – Missing/Inop Restrain Equipment			
Part I – Fixed Restrain Equipment			
Restraint Device	**Normal Complement**	**Number Missing**	**Restriction/Limitation**
Side Restraint	3 per container position	1	No restriction.
		2	Do not load in affected position. Provide restraint for containers in adjacent positions by using two container stops per container for fwd/aft restraint.
Lateral Guide Rail Guides	Sta. 1852 3 per side	1	No restriction.
		2	No restriction.
		3	No restriction.
End Stops	Sta. 1486 2 per side	1	Max. load in Aft 3 plus Aft 4 is 10,000 lbs. on the affected side (1,429 lbs. per container position).
	Sta. 1913 2 per side	1	Max. load in Aft 3 plus Aft 4 is 11,000 lbs. on the affected side (1,571 lbs. per container position).
Retractable Center Guides	3 per container position (except doorway)	1	Maximum load on either side of missing/inop guide is 2,550 lbs. per container position.
		2	Do not load in affected position. Provide restraint for containers in adjacent positions by using two container stops per container for fwd/aft restraint.
	2 per container position (doorway)	1	Maximum load on either side of missing/inop guide (or of missing/inop vertical restrain lip of guide) is 2,150 lbs. per container position.
Part II – Movable Restraint Equipment – Container Restraint			
Container Stops	2	0	Two stops will restrain a max. of four half-width containers at the max. weight of 3,500 lbs. per container.
		1	One stop will restrain a max. of four half-width containers at the max. weight of 1,750 lbs. per container (or equivalent).
Pallet Locks	2	0	Two locks will restrain a max. of two half-width containers at the max. weight of 3,500 lbs. per container.
		1	One lock will restrain a max. of two half-width containers at the max. weight of 1,750 lbs. per container (or equivalent).

Table C – Forward and Aft Cargo Bin Reduced Maximum Loads – Missing/Inop Restrain Equipment			
Part I–Movable Restraint Equipment – Pallets/ULD's with 88" x 125" base OR 96" x 125" base			
Pallet Locks	4	1	Maximum load is 8,325 lbs.
		2	Maximum load is 5,550 lbs.
Side Restraints	4	1	Maximum load is 8,325 lbs.
		2	Maximum load is 5,550 lbs.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-61-01A	Flight Crew/ Supernumerary Escape Devices (Inertial Escape Reels) **"DISP.APPR.REQ'D"**	**N**	5	2	**C**	**(M)(O)** May be inoperative or missing provided: a) The number of flight crewmembers plus supernumeraries is limited to the number of operative escape reels installed, and b) Inoperative escape reels are removed.
25-61-01B	Flight Crew/ Supernumerary Escape Devices (Inertial Escape Reels) (Safety Seals on Grommet)	**N**	1	0		**(M)** May be broken or missing provided the sealant around the grommet is inspected for breaks.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-61-01A	Adjacent To Affected Flight Deck Overhead Escape Reel	___ INERTIAL ESCAPE REEL(S) INOP OR MISSING
25-61-01B	Adjacent To Affected Flight Deck Overhead Escape Reel	___ INERTIAL ESCAPE REELS SAFETY SEAL ON GROMMET BROKEN.

(O) PROCEDURES

25-61-01A

Ensure that the number of flight crew plus supernumeraries is limited to the number of operative escape reels installed.

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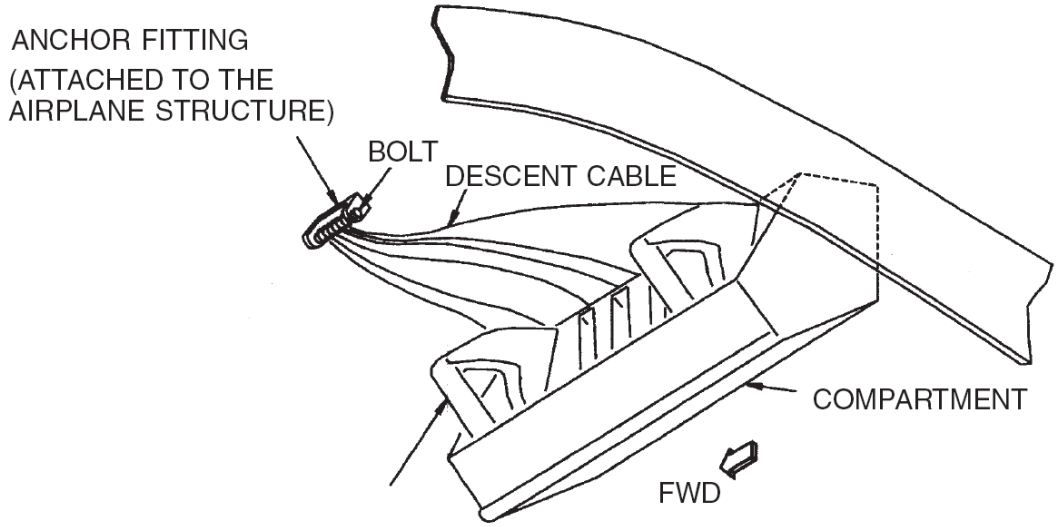
(M) PROCEDURES

25-61-01A

Remove inoperative inertial escape reel(s) as follows:

1. Open the door on the stowage compartment that contains the descent device.
2. Remove the bolt, washer and nut from the restraint bracket that attaches the descent device cable loop to the airplane.

   NOTE: The bolt is the fixed attach point for the descent device. To use the device, the bolt must be in place.
3. Remove the descent device from the container.
4. Attach remaining descent device cable loops to restraint bracket with bolt, washer and nut. Tighten nut to 180 to 250 inch pounds.
5. Close the door on the stowage compartment.



25-61-01B

Inspect the safety seal tape over the grommet and the grommet sealant per the following:

1. If the tamper proof tape over the grommet has been broken visually inspect the sealant around the grommet.
2. If the sealant around the grommet is broken remove assembly per MEL 25–61–01A for repair.

ITEM NO. NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
FLOTATION EQUIPMENT (CREW AND PASSENGER) 25-62-01A Life Vests **"DISP.APPR.REQ'D"**	**N**	-	-	**C**	**(M)(O)** One life vest required for each passenger and crewmember. If a life vest is not available, seat(s) must be blocked off, placarded DO NOT OCCUPY, and deferred per MEL 25-25-02A. NOTE: When an infant life vest is missing, a seat would not be blocked; however, it must be assured that the remaining number of life vests is sufficient for use by the actual number of occupants.
25-62-01B Life Vests (Tamper Proof Seal)	**N**	-	-	**B**	**(M)** The seal on life vest pouch(es) (or plastic containers) may be broken provided pouch (or plastic container) contents are checked PRIOR TO EACH DEPARTURE **(Logbook Entry Required)**. **Repetitive Check Required (Yellow Placard)**
25-62-01C Spare Life Vests	**Y**	15	0	**D**	May be inoperative or missing.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-62-01A	On Nearest Flight Attendant's Control Panel	___ LIFE VEST IS MISSING, and if applicable SEAT MAY NOT BE OCCUPIED
25-62-01B	On Nearest Flight Attendant's Control Panel	___ LIFE VEST POUCH OR CONTAINER SEAL BROKEN
25-62-01C	On Nearest Flight Attendant's Control Panel	___ SPARE LIFE VEST INOP OR MISSING

(O) PROCEDURES

25-62-01A

For missing infant life vests, the following applies:

Captain to brief Lead Flight Attendant/Purser to ensure the remaining number of life vests is sufficient for the actual number of occupants onboard the flight.

Continued Next Page

(M) PROCEDURES

25-62-01A

The seat(s) without a life vest must be restricted from use by placarding with OM–2 UNSERVICEABLE – DO NOT USE tape or equivalent*

* An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

25-62-01B

PRIOR TO EACH DEPARTURE CHECK:

1. If a pouch is installed, Check pouch contents to ensure a life vest exists and no foreign objects or matter have been inserted into the pouch; make sure the overhaul date on the outside of the pouch and the vest are the same. Configure the pouch as follows:

   a) If P/N NW09B25–38544–3 pull handle is used, insert the pull handle through the loops as illustrated in Figure 1, install the pull handle without the seal.

   b) If the earlier pull handle (small diameter safety hole) is missing the copper breakaway wire and lead seal and replacement assembly is not available, the pouch and vest may remain onboard without a seal. Insert the pull handle through the loops as illustrated in Figure 2 without seal. DO NOT REPLACE THE COPPER BREAKAWAY WIRE SEAL.

   NOTE: Refer to AMM 25–62–05, 201 series pages.

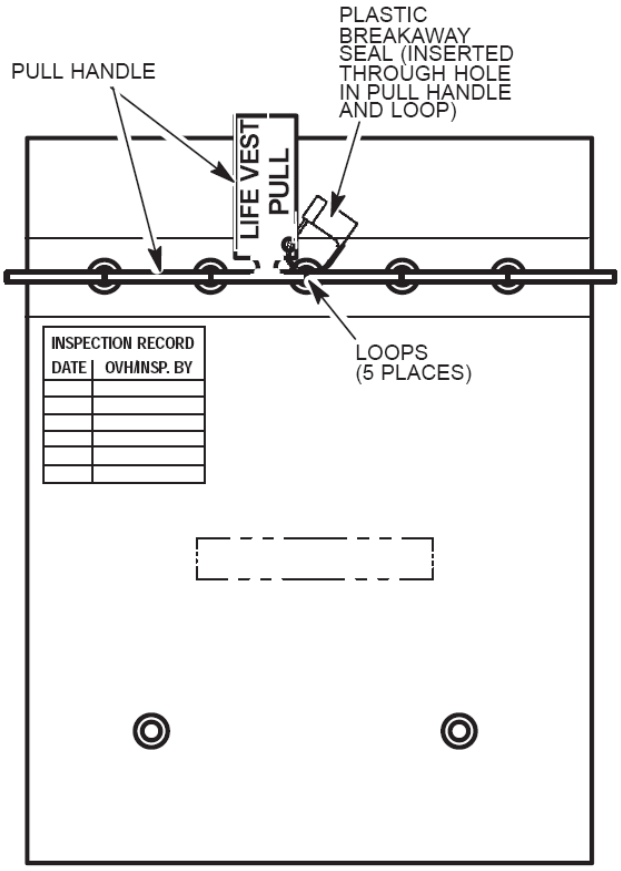
2. If horizontally mounted translucent plastic container is installed, check contents of container to ensure a life vest exists and no foreign objects or matter have been inserted into the container. Configure as follows:

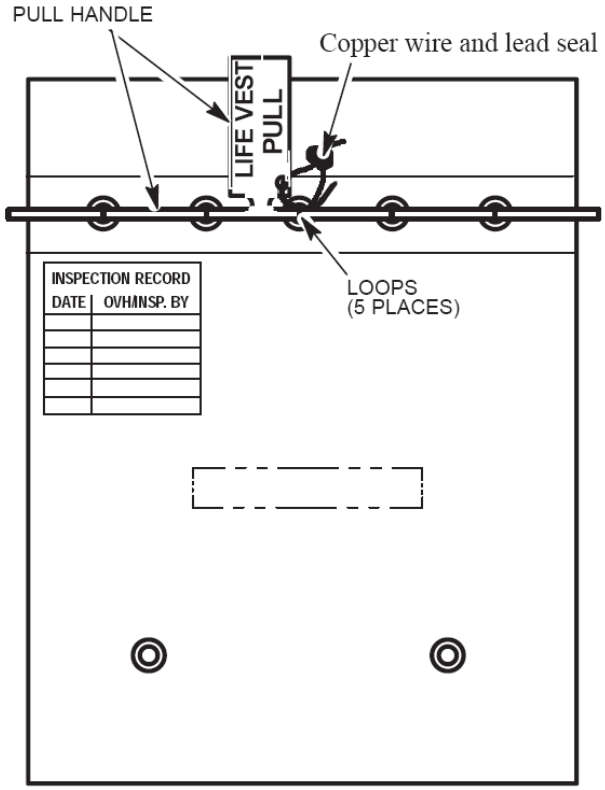
   - Insert life vest in P/N 1003118–005 pull handle and place in container. Ensure handle protrudes from container and OM 83A tag is visible through door as illustrated in Figure 3. Engage door by hooking upper edge in container slot and snapping the lower door edge over the lower container. Door will make an audible snap when properly fastened.

   NOTE: Refer to AMM 25–62–00, 201 series pages for procedures.

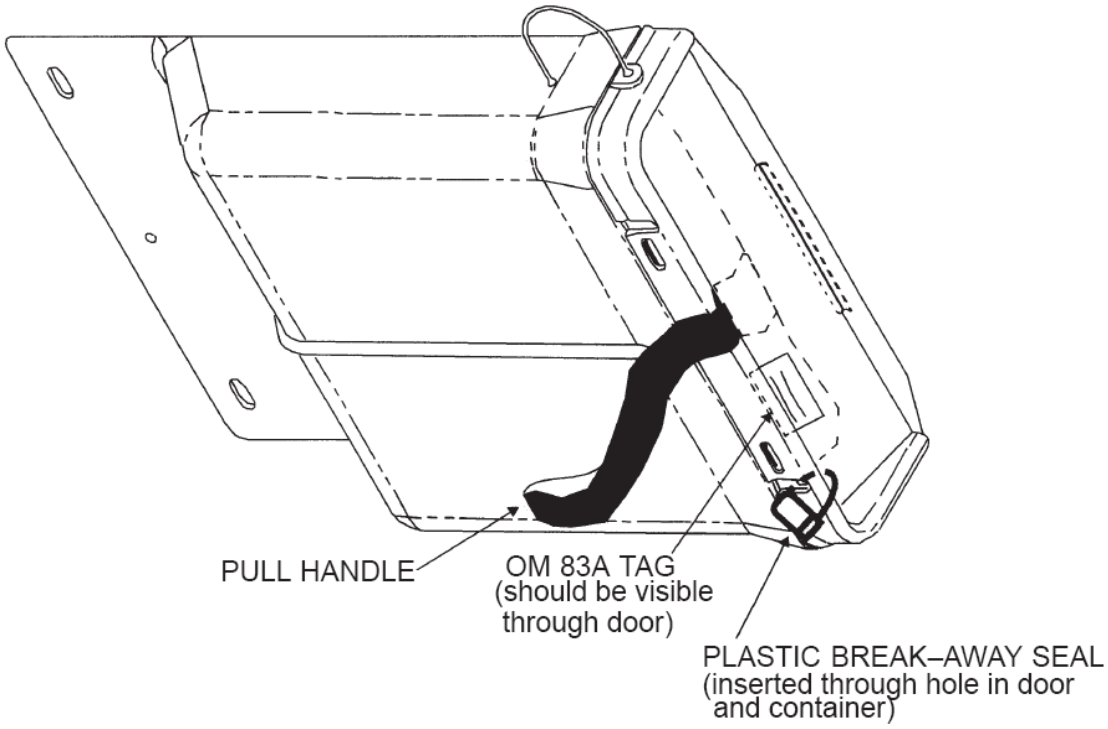
3. Accomplish required logbook entry.

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PULL HANDLE
OM 83A TAG
(should be visible
through door)
PLASTIC BREAK–AWAY SEAL
(inserted through hole in door
and container)

	NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-63-03	FASTEN SEAT BELT WHILE SEATED Placards **"DISP.APPR.REQ'D"**	**Y**	-	-	**C**	One or more signs or placards may be illegible or missing provided: a) A legible sign or placard is visible from each occupied passenger seat, and b) Each seat unable to meet the requirements of proviso a) is placarded inoperative per MEL 25-25-02A.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-63-03	Adjacent To Nearest Flight Attendant's Control Panel	____ FASTEN SEAT BELT WHILE SEATED SIGN/PLACARD IS MISSING or ILLEGIBLE.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-63-04A	Cabin Emergency Flashlight Holder / Flashlights (Cabin)	**Y**	-	-	**C**	**(O)** May be inoperative or missing provided crewmember assigned to the associated seat has an approved flashlight of equivalent characteristics readily available.
25-63-04B	Cabin Emergency Flashlight Holder / Flashlights (Upper Deck Crew Rest Compartment)	**Y**	2	1	**C**	May be inoperative.
25-63-04C	Cabin Emergency Flashlight Holder / Flashlights (Upper Deck Crew Rest Compartment)	**Y**	2	0	**C**	**(O)** May be inoperative or missing provided crewmember has an approved flashlight readily available.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-63-04A	Adjacent To Affected Flashlight Holder	____ FLASHLIGHT HOLDER ASSEMBLY MISSING or INOP
25-63-04B	Adjacent To Affected Flashlight Holder	____ FLASHLIGHT HOLDER ASSEMBLY MISSING or INOP
25-63-04C	Adjacent To Affected Flashlight Holder	____ FLASHLIGHT HOLDER ASSEMBLY MISSING or INOP

(O) PROCEDURES

25-63-04A, 25-63-04C

Captain is required to brief the Lead Flight Attendant/Purser to notify the affected crewmember(s) to locate the flashlight(s) so as to be readily available.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
EMERGENCY LOCATOR TRANSMITTER (ELT)					
25-63-05A Emergency Locator Transmitter (ELT) (ADT 406 S) **"DISP.APPR.REQ'D"**	**Y**	2	1	**D**	**(O)** One may be inoperative or missing.
25-63-05B Emergency Locator Transmitter (ELT) (ADT 406 S) **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** Both may be inoperative or missing provided: a) Departures to a country other than the United States or Canada are Not Authorized, b) Aircraft is not operated on extended overwater flights, c) Operations solely within the state of Alaska or Hawaii over uninhabited areas are Not Authorized, and d) Dispatch is prohibited for flights to and from Alaska.
25-63-05C Emergency Locator Transmitter (ELT) (ADT 406 S) (**Plastic Cover**)	**Y**	2	0	**C**	**(O)** One or both may be damaged or missing.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-63-05A	On Emergency Locator Transmitter Storage Compartment Door	___ EMERGENCY LOCATOR TRANSMITTER INOPERATIVE or MISSING
25-63-05B	On Emergency Locator Transmitter Storage Compartment Door	BOTH EMERGENCY LOCATOR TRANSMITTERS INOPERATIVE or MISSING
25-63-05C	On Emergency Locator Transmitter Storage Compartment Door	___ EMERGENCY LOCATOR TRANSMITTER(S) PLASTIC COVER DAMAGED or MISSING

(O) PROCEDURES

25-63-05A

Captain to brief Lead Flight Attendant/Purser on the equipment that is inoperative or missing.

25-63-05B

1. Captain to brief Lead Flight Attendant/Purser on the equipment that is inoperative or missing.
2. Do not operate aircraft on extended overwater flights.
3. Operations solely within the state of Alaska or Hawaii over uninhabited areas are Not Authorized.
4. Dispatch is prohibited for flights to and from Alaska.

25-63-05C

Captain to brief Lead Flight Attendant/Purser to inspect the affected ELT to ensure the ON/OFF/ARMED switch is in the ARMED position.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
25-64-01	Flexible Smoke Barrier **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	May be inoperative provided not more than eight passengers occupy the upper deck during takeoff and landing. NOTE: Coordinate with Reservation Operation Control (ROC) to ensure that not more than eight passengers occupy the upper deck during takeoff and landing.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-64-01	Adjacent To Nearest Flight Attendants Control Panel.	UPPER DECK STAIRWELL SMOKE BARRIER INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	EMERGENCY MEDICAL EQUIPMENT					
25-64-02A	Automated External Defibrillator (AED) **"DISP.APPR.REQ'D"**	**Y**	1	0	**A**	**(O)**May be incomplete, missing or inoperative provided: a) AED is resealed in a manner that will identify it as a unit that cannot be mistaken for a fully serviceable unit, and b) Repairs or replacements are made within 1 flight cycle.
25-64-02B	Automated External Defibrillator (AED) (Battery Low and/or Service Indication)	**Y**	1	1	**C**	**(O)(M)** May display fault indication provided AED is checked PRIOR TO EACH DEPARTURE to ensure AED is usable for flight. **Repetitive Check Required (Yellow Placard)**
25-64-02C	Automated External Defibrillator (AED) (Electrode Sets)	**Y**	2	1	**C**	**(M)** One set may be inoperative or missing.
25-64-02D	Enhanced Emergency Medical Kit (EEMK) **"DISP.APPR.REQ'D"**	**Y**	2	0	**A**	**(O)** Both may be incomplete, missing or inoperative provided: a) EEMK is resealed in a manner that will identify it as a unit that cannot be mistaken for a fully serviceable unit, and b) Repairs or replacements are made within 1 flight cycle.
25-64-02E	Enhanced Emergency Medical Kit (EEMK)	**Y**	2	1	**D**	**(O)** May be incomplete, missing or inoperative provided EEMK is resealed in a manner that will identify it as a unit that cannot be mistaken for a fully serviceable unit.

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	EMERGENCY MEDICAL EQUIPMENT (CONTINUED)					
25-64-02F	Required First Aid Kits (All Except Kit by Door 5) **"Contact MCC"**	**Y**	4	3	**A**	**(O)** May be incomplete, missing or inoperative provided: a) First Aid Kit is resealed in a manner that will identify it as a unit that cannot be mistaken for a fully serviceable unit, and b) Repairs or replacements are made within 1 flight cycle.
25-64-02G	First Aid Kits (Non–required (Excess) Kit by Door 5) **"Contact MCC"**	**Y**	1	0	**D**	**(O)** May be incomplete or missing provided First Aid Kit is resealed in a manner that will identify it as a unit that cannot be mistaken for a fully serviceable unit.
25-64-02H	Red Pouch (Medical Accessory Pouch)	**Y**	1	0	**D**	May be incomplete, missing, or inoperative. NOTE: This Medical Accessory Pouch is in excess of those required by FAR.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-64-02A	On Locked AED Container	AUTOMATED EXTERNAL DEFIBRILLATOR (AED) INCOMPLETE, MISSING OR INOP
25-64-02B	On Lead Flight Attendants Control Panel	AUTOMATED EXTERNAL DEFIBRILLATOR BATTERY LOW AND/OR SERVICE INDICATION DISPLAYED
25-64-02C	On Lead Flight Attendants Control Panel	AUTOMATED EXTERNAL DEFIBRILLATOR ELECTRODE SET INOP OR MISSING
25-64-02D	Logbook	BOTH EEMKs INCOMPLETE / MISSING / INOP
25-64-02E	Logbook	ONE EEMK INCOMPLETE / MISSING / INOP
25-64-02F	Across The Cover/Kit Forward Seam Of Affected First Aid Kit If First Aid Kit is missing: Place tab adjacent to affected First Aid Kit placard (Symbol)	FIRST AID KIT INCOMPLETE OR MISSING
25-64-02G	Across The Incomplete Cover/Kit Forward Seam Of Affected First Aid Kit If First Aid Kit is missing: Place tab adjacent to affected First Aid Kit placard (Symbol)	DOOR 5 FIRST AID KIT INCOMPLETE OR MISSING
25-64-02H	Logbook	RED POUCH (MEDICAL ACCESSORY POUCH) INOP / MISSING

Continued Next Page

(O) PROCEDURES

25-64-02A

AED is resealed in a manner that will identify it as a unit that cannot be mistaken for a fully serviceable unit.

25-64-02B

Captain to brief Lead Flight Attendant/ Purser that AED Low Battery and/or Service Indication is displayed.

25-64-02D

If seal is broken, reseal with green seal and record in the CDL.

25-64-02E

After use, reseal with green seal and record in the CDL.

25-64-02F

Captain to brief Lead Flight Attendant/Purser that one First Aid Kit is not fully serviceable or is missing.

NOTE: If the Kit is available but not fully serviceable, it may be used in an emergency.

25-64-02G

Captain to brief Lead Flight Attendant/Purser that one First Aid Kit is not fully serviceable or is missing.

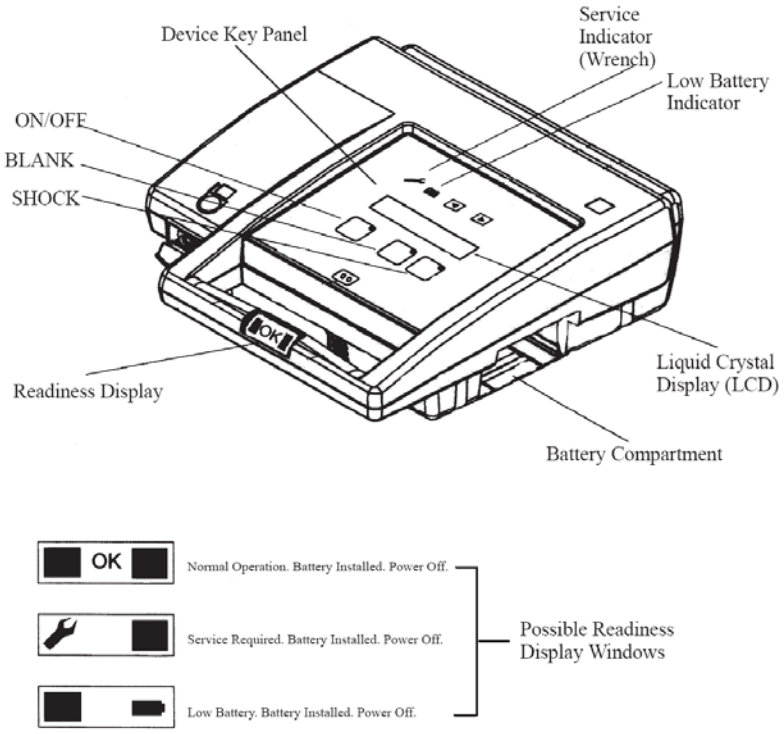
NOTE: If the Kit is available but not fully serviceable, it may be used in an emergency.

(M) PROCEDURES

25-64-02B

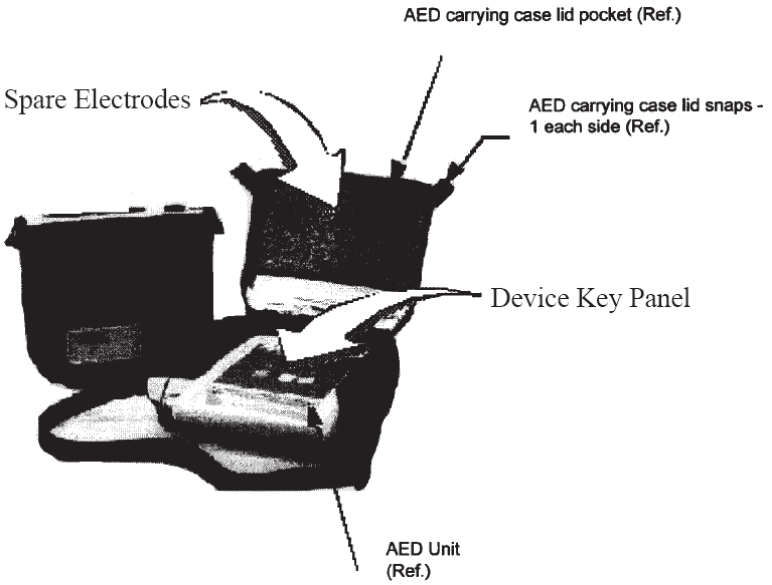
1. Unlock AED kit container using cabin access key and remove AED.
2. Verify the following AED indicator displays:
   a) Low Battery Indicator illuminates on the readiness display. (Handle)
      1) Open the AED carrying case lid to view the device key panel.
      2) If battery indicator illuminates on the device key panel.
         a. LOW BATTERY displays on the LCD.
         b. Battery is low but AED is still serviceable and can be used per MEL 25–64–02B.
      3) If battery indicator is flashing on the device key panel.
         a. REPLACE BATTERY displays on the LCD.
         b. AED is unserviceable until battery is replaced. Apply MEL 25–64–02A.
   b) Service Indicator (Wrench) illuminates on the readiness display. (Handle)
      1) Open the AED carrying case lid to view the device key panel.
      2) Turn the AED unit on by pushing the ON/OFF button on the device key panel. An internal self test is initiated.
      3) If service Indicator (Wrench) illuminates on the device key panel.
         a. The AED is still serviceable and can be used per MEL 25–64–02B.
      4) If indicator (Wrench) is flashing on the device key panel.
         a. AED is unserviceable and cannot be used. Apply MEL 25–64–02A
         b. CALL SERVICE displays on the LCD.
   c) Turn off the AED unit by pushing the ON/OFF button on the device key panel.
3. Return AED to kit container and lock.

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25-64-02C

1. Replace inoperative or missing electrodes with the spare set located in the pocket attached to the inside lid of the AED carrying case.
2. Discard any previously used or inoperative electrodes.
3. AED is resealed in a manner that will identify it as a unit that cannot be mistaken for a fully serviceable unit.



NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
PERSONAL ELECTRONIC DEVICE (PED) MOUNTS					
25-99-01A PED Mount Administrative Control Item	**Y**	-	-		Reconfigure cockpit for two (2) operative PED mounts. See TOPP 40-40-05 for instructions.
25-99-01B PED Mount **"DISP.APPR.REQ'D"** Administrative Control Item	**Y**	-	-		Reconfigure cockpit for one (1) operative PED mounts. See TOPP 40-40-05 for instructions.
25-99-01C PED Mount **"DISP.APPR.REQ'D"** Administrative Control Item	**Y**	-	-		Reconfigure cockpit for zero (0) operative PED mounts. See TOPP 40-40-05 for instructions.

MEL ITEM	TAB LOCATION	PLACARD TEXT
25-99-01A	Logbook	RECONFIGURED PED MOUNTS PER TOPP 40-40-05
25-99-01B	Logbook	RECONFIGURED PED MOUNTS PER TOPP 40-40-05
25-99-01C	Logbook	RECONFIGURED PED MOUNTS PER TOPP 40-40-05

ATA 26 Contents

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	ENGINE FIRE DETECTOR SYSTEMS					
26-11-01A	Detection Loop	**Y**	8	4	**C**	One loop per engine may be inoperative.
26-11-01B	Flight Deck Test System **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided an alternate procedure is accomplished ONCE EACH FLIGHT DAY to assure system integrity. **(Log Book Entry Required)**. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-11-01A	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	___ ENGINE FIRE DETECTION SYSTEM ___ LOOP IS INOP
26-11-01B	Adjacent To FIRE/ OVHT Test Switch On P5 Overhead Panel	ENG FIRE DET SYSTEM FLIGHT DECK TEST SYSTEM INOP

(M) PROCEDURES

26-11-01B

<u>DAILY CHECK</u> (Once each flight day):

1. Close circuit breakers (AMM 26–22–00/501).
2. Set either of the following switches to “ENABLE” position:
   - S2089 Ground Test Enable Switch (P461).
   - S2090 Remote Test Enable Switch (RCDU).
3. Set the CMC to the main menu.
4. Press LINE SELECT key for “GROUND TEST”.
5. When screen displays ATA name and chapter, select “26 FIRE PROTECTION SYSTEM”.
6. To initiate test, press LINE SELECT key for FIRE/OVHT TEST.
7. The “TEST IN PROGRESS” indication will be displayed for the duration of the test.

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8. When the test is done, the CDU will display “TEST PASSED”, or “FIRE TEST FAIL”.

   NOTE: The indication “FIRE TEST FAIL” may appear as a result of circuit breakers being open on related fire/overheat detection system.

   a) If the indication is “TEST PASSED”, the test is finished and system integrity is verified.

   b) If the indication is “FIRE TEST FAIL”, verify that the following CMC messages do not appear on CDU:

      - ENG–1 NACELLE OVERHEAT–A FAIL
      - ENG–1 NACELLE OVERHEAT–B FAIL
      - ENG–2 NACELLE OVERHEAT–A FAIL
      - ENG–2 NACELLE OVERHEAT–B FAIL
      - ENG–3 NACELLE OVERHEAT–A FAIL
      - ENG–3 NACELLE OVERHEAT–B FAIL
      - ENG–4 NACELLE OVERHEAT–A FAIL
      - ENG–4 NACELLE OVERHEAT–B FAIL

9. If CMC fault messages appear, seek corrective action.

   NOTE: Dispatch is allowed with one loop per engine inoperative (Refer to MEL item 26–11–01A).

10. Accomplish required logbook entry.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
ENGINE OVERHEAT DETECTION SYSTEM					
26-11-02A Detection Loop	**Y**	8	4	**C**	One loop per engine may be inoperative.
26-11-02B Flight Deck Test System **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided an alternate procedure is accomplished ONCE EACH FLIGHT DAY to assure system integrity. **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-11-02A	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	___ ENGINE OVERHEAT DETECTION SYSTEM ___ LOOP INOP.
26-11-02B	Adjacent To FIRE/ OVHT Test Switch On P5 Overhead Panel	___ ENGINE OVERHEAT DETECTION SYSTEM FLIGHT DECK TEST SYSTEM INOP

(M) PROCEDURES

26-11-02B

<u>DAILY CHECK</u> (Once each flight day):

1. Close circuit breakers (AMM 26–22–00/501).
2. Set either of the following switches to “ENABLE” position:
   - S2089 Ground Test Enable Switch (P461).
   - S2090 Remote Test Enable Switch (RCDU).
3. Set the CMC to the main menu.
4. Press LINE SELECT key for “GROUND TEST”.
5. When screen displays ATA name and chapter, select “26 FIRE PROTECTION SYSTEM”.
6. To initiate test, press LINE SELECT key for FIRE/OVHT TEST.
7. The “TEST IN PROGRESS” indication will be displayed for the duration of the test.
8. When the test is done, the CDU will display “TEST PASSED”, or “FIRE TEST FAIL”.

NOTE: The indication “FIRE TEST FAIL” may appear as a result of circuit breakers being open on related fire/overheat detection system.

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a) If the indication is “TEST PASSED”, the test is finished and system integrity is verified.

b) If the indication is “FIRE TEST FAIL”, verify that the following CMC messages do not appear on CDU:

- ENG–1 NACELLE OVERHEAT–A FAIL
- ENG–1 NACELLE OVERHEAT–B FAIL
- ENG–2 NACELLE OVERHEAT–A FAIL
- ENG–2 NACELLE OVERHEAT–B FAIL
- ENG–3 NACELLE OVERHEAT–A FAIL
- ENG–3 NACELLE OVERHEAT–B FAIL
- ENG–4 NACELLE OVERHEAT–A FAIL
- ENG–4 NACELLE OVERHEAT–B FAIL

9. If CMC fault messages appear, seek corrective action.

   NOTE: Dispatch is allowed with one loop per engine inoperative (Refer to MEL item 26–11–02A).

10. Accomplish required logbook entry.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
26-11-04	Fuel Control Switch Fire Light **"Contact MCC"**	**Y**	4	3	**A**	One may be inoperative provided flight does not exceed three flight days before repairs are made.

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-11-04	Adjacent To Fuel Control Switch Fire Light	___ FUEL CONTROL SWITCH FIRE LIGHT INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
26-13-01	Lavatory Smoke Detection Systems **"DISP.APPR.REQ'D"**	**N**	-	7	**C**	**(M)(O)** For each lavatory, the lavatory smoke detection system may be inoperative provided: a) Associated lavatory waste receptacle is empty, b) The associated lavatory door is locked closed and placarded UNSERVICEABLE – DO NOT USE, c) Lavatory is used only by crewmember, and d) At least seven lavatories operate normally. NOTE: These provisions are not intended to prohibit lavatory use or inspections by crewmembers. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-13-01	Adjacent To The Lavatory Door OCCUPIED Sign On Applicable Door	____ LAVATORY SMOKE DETECTOR INOP. DO NOT USE LAV

(O) PROCEDURES

Captain to brief Lead Flight Attendant/Purser that the affected lavatory door(s) is to remain locked and not entered except for use or inspection by crewmembers.

(M) PROCEDURES

1. Check the affected lavatory waste container is empty.
2. On affected lavatory modules with waste containers that are also served by a Disposal Door mounted on the exterior of the lavatory, place a strip of Red colored OM–2 UNSERVICEABLE – DO NOT USE tape or equivalent* across the Disposal Door.
3. Close the lavatory door and lock by placing a slotted screwdriver blade in the slot in the VACANT/OCCUPIED sign on the door and move to OCCUPIED position. Check that door will not open.
4. Place a strip of Red colored OM2 "UNSERVICEABLE – DO NOT USE" tape or equivalent* ON the lavatory door. DO NOT tape door shut. This allows crew members to access lavatory.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words "UNSERVICEABLE – DO NOT USE".
5. Place a strip of 2 inch wide masking tape with the words "CREW USE ONLY" printed legibly in 1 inch black letters ON the lavatory door. DO NOT tape door shut. This allows crew members to access lavatory.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
26-14-02A	Crew Rest Area Smoke Detection System (Door 5) (Photoelectric Type Detectors)	**N**	4	2	**C**	**(M)** Two may be inoperative provided at least one detector in Zone 1 and one detector in Zone 2 operate normally.
26-14-02B	Crew Rest Area Smoke Detection System (Door 5) (Photoelectric Type Detectors) **"DISP.APPR.REQ'D"**	**N**	4	0	**C**	**(M)(O)** May be inoperative provided: a) Crew rest area is empty, b) Crew rest area door is locked closed and placarded UNSERVICEABLE – DO NOT USE, and c) Crew rest area is not used for any purpose. NOTE: If required, reserve cabin seats for flight attendant use. Refer to In-Flight Service Programs and Policies Handbook Chapter 12, or current policy, for seat locations.

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-14-02A	On The Smoke Detection Control Panel In The Crew Rest Area	___ CREW REST AREA SMOKE DETECTOR INOP
26-14-02B	On The Crew Rest Area Door	___ CREW REST AREA SMOKE DETECTOR(s) INOP – DO NOT USE REST AREA.

(O) PROCEDURES

26-14-02B

Ensure crew rest area is not used.

(M) PROCEDURES

26-14-02A, 26-14-02B

1. Check the status of the detectors on the Smoke Detector Control/Alarm panel P244 located in the Door 5 Crew Rest stairwell as follows:
2. Push each of the four (4) push –to –test switches. Zone 1 and Zone 2 each have a test switch clearly marked DETR A and DETR B. An operational detector will sound an audible alarm from the panel speaker and illuminate the push–to–test switch.
   a) If one detector per zone is inoperative:
      1) Disconnect, cap and stow the associated detector's electrical connector (AMM 26–14–21, CONFIG 2, 400 series pages).
      2) Placard the inoperative detector(s) per MEL item 26–14–02A.

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b) If both DETR A and DETR B for either Zone 1 or Zone 2 is inoperative:

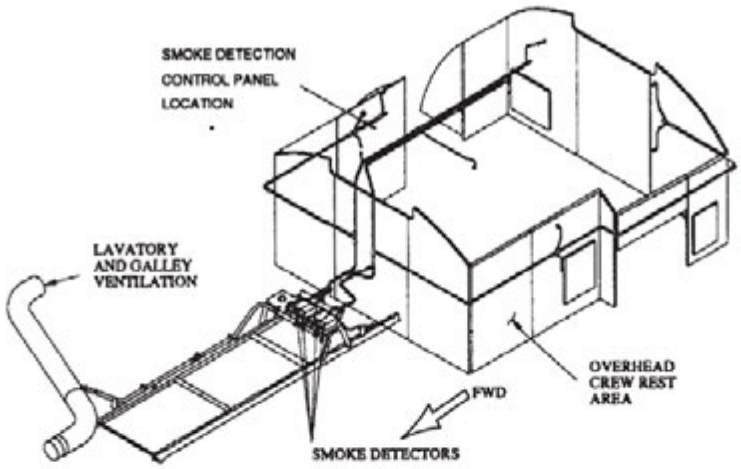
1) Disconnect, cap, and stow the associated detector's electrical connector (AMM 26–14–21, CONFIG 2, 400 series pages).

2) Placard the inoperative detectors per MEL item 26–14–02B.

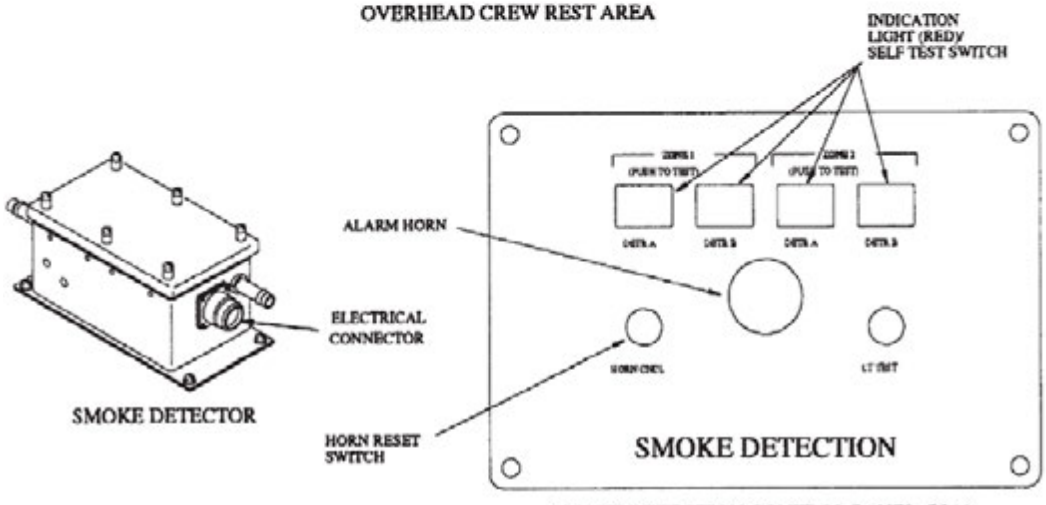
3) Check that the affected crew rest area is empty.

4) Check that the affected crew rest area is locked closed.

5) Place a strip of red OM–2 "UNSERVICABLE–DO NOT USE" tape or equivalent* across crew rest area door.
* An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words "UNSERVICEABLE – DO NOT USE " printed legibly in 1 inch black letters.



OVERHEAD CREW REST AREA



SMOKE DETECTOR

SMOKE DETECTION CONTROL PANEL, P244

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
26-14-03A	CARGO DET AIR Indicating System (Forward Cargo Compartment) **"Contact MCC"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided smoke sampling system integrity is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
26-14-03B	CARGO DET AIR Indicating System (Forward Cargo Compartment) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided the forward cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
26-14-03C	CARGO DET AIR Indicating System (AFT/Bulk Cargo Compartment) **"Contact MCC"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided smoke sampling system integrity is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
26-14-03D	CARGO DET AIR Indicating System (AFT/Bulk Cargo Compartment) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(O)** May be inoperative provided the Aft/Bulk cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-14-03A	On The CARGO FIRE Panel On The Overhead Panel	FORWARD CARGO COMP CARGO DET AIR INDICATING SYSTEM INOP
26-14-03B	On The CARGO FIRE Panel On The Overhead Panel	FORWARD CARGO COMP CARGO DET AIR INDICATING SYSTEM INOP
26-14-03C	On The CARGO FIRE Panel On The Overhead Panel	AFT/BULK CARGO COMP CARGO DET AIR INDICATING SYSTEM INOP
26-14-03D	On The CARGO FIRE Panel On The Overhead Panel	AFT/BULK CARGO COMP CARGO DET AIR INDICATING SYSTEM INOP.

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(O) PROCEDURES

26-14-03A, 26-14-03B, 26-14-03C, 26-14-03D

EICAS CARGO DET AIR Advisory message will be displayed concurrently with CGO DET AIR LWR.

(M) PROCEDURES

26-14-03A, 26-14-03C

1. General
   a) CARGO DET AIR indication system displays the following message. The message may remain displayed if the affected system is inoperative.

      >CARGO DET AIR Advisory message. Displays concurrently with the following status message: CGO DET AIR LWR

2. **PRIOR TO EACH DEPARTURE CHECK:**
   a) Verify integrity of smoke sampling system by one of the following two methods: NOTE: Refer to AMM 26–14–00/501 for locations of smoke orifices.

      METHOD 1

      1) Provide pneumatic pressure in the center crossover duct (AMM 36–00–00/201).
      2) Using a hot wire anemometer and adapter (TSI Model 1650, stock No. 00–2120–0–0001, (AMM 26–16–00/501), verify at least 150 fpm velocity airflow through the forward most smoke sampling orifice in fwd lower lobe cargo compartment and aft–most smoke sampling orifice in aft lower lobe cargo compartment.

         OR

      METHOD 2

      1) Provide pneumatic pressure in the center crossover duct (AMM 36–00–00/201).
      2) Apply electrical power to airplane.
      3) Using smoke from an available smoke generating source, accomplish the following for forward–most smoke sampling orifice in fwd lower lobe cargo compartment and aft–most smoke sampling orifice in aft lower lobe cargo compartment.
         A. For the forward–most orifice apply smoke adjacent to the detection orifice.

            Verify that the flight deck warning bell sounds off and the “CGO DET AIR LWR” EICAS warning message displays.

         B. After the flight deck warning bell has silenced and the “CGO DET AIR LWR” EICAS warning message is no longer annunciated, apply smoke adjacent to the aft–most detection orifice.

            Verify that the flight deck warning bell sounds off and the “CGO DET AIR LWR” EICAS warning message displays.

         C. Smoke sampling system integrity is verified provided the flight deck warning bell sounds off and the “CGO DET AIR LWR” EICAS warning message displays for both the forward–most and the aft–most orifices.

3. Accomplish required logbook entry.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	APU FIRE DETECTION SYSTEM					
26-15-01A	Detection Loop	**Y**	2	1	**C**	One may be inoperative.
26-15-01B	Detection Loops **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** Both loops may be inoperative provided: a) APU is used for ground operations only, and is continuously monitored, b) APU external control system operates normally, and c) APU is shut down before taxi.
26-15-01C	Flight Deck Test System **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided an alternate procedure is accomplished ONCE EACH FLIGHT DAY to assure system integrity **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-15-01A	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	___ APU FIRE DETECTION LOOP INOP
26-15-01B	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel And On The APU Control Panel	BOTH APU FIRE DETECTION LOOPS INOP. APU MAY BE USED FOR GND OPERATION ONLY – MONITOR CONTINUOUSLY
26-15-01C	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	APU FIRE DETECTION SYSTEM FLIGHT DECK TEST SYSTEM INOP

(O) PROCEDURES

26-15-01B

1. Use APU for ground operations only.
2. Ensure a qualified fire guard is positioned near the tail of the airplane to continuously monitor the APU.
3. Brief the fire guard that if an APU fire is observed, to proceed immediately to the APU FIRE CONTROL handle in the right main wheel well, pull the APU fire control handle, and push the APU EXTINGUISHER DISCHARGE switch.

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(M) PROCEDURES

26-15-01B

1. If APU is used, it must be continuously visually monitored from the ground.
   a) A qualified fire guard must be positioned near the tail of the airplane to continuously monitor the APU.
   b) If a fire is observed at the APU, the fire guard must proceed immediately to the APU FIRE CONTROL handle in the right main wheel well, pull the APU fire control handle, and push the APU EXTINGUISHER DISCHARGE switch.
2. APU must be shut down prior to taxi.

26-15-01C

<u>DAILY CHECK</u> (Once each flight day):

1. Close circuit breakers (AMM 26–15–00/501).
2. Set either of the following switch to “ENABLE” position:
   - S2089 Ground Test Enable Switch (P461).
   - S2090 Remote Test Enable Switch (RCDU).
3. Set the CDU to the CMC main menu.
4. Press LINE SELECT key for “GROUND TEST**.**
5. When screen displays ATA NAME and chapter, select “26 FIRE PROTECTION SYSTEM”.
6. To initiate test, press LINE SELECT key for FIRE/OVHT TEST.
7. The “TEST IN PROGRESS” indication will be displayed for the duration of the test.
8. When the test is done, the CDU will display “TEST PASSED”, or “FIRE TEST FAIL”.

   NOTE: The indication ”FIRE TEST FAIL” may appear as a result of circuit breakers being open on related fire/overheat detection system.

   a) If the indication is “TEST PASSED”, the test is finished and system integrity is verified.
   b) If the indication is “FIRE TEST FAIL”, verify that following CMC messages do not appear on CDU:
      - APU FIRE LOOP–A FAIL
      - APU FIRE LOOP–B FAIL
      - APU FIRE ALARM SIGNAL>MAWEA MM–A INTERFACE FAIL
      - APU FIRE ALARM SIGNAL>MAWEA MM–B INTERFACE FAIL
      - APU FIRE ALARM SIGNAL>EIU INTERFACE FAIL
      - APU FIRE SYSTEM FAIL
9. If CMC fault messages appear, seek corrective action.

   NOTE: Dispatch is allowed with one APU Fire Detector Loop inoperative.

10. Accomplish required logbook entry.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	LOWER LOBE CARGO COMPARTMENT SMOKE DETECTION SYSTEM (FORWARD, AFT/BULK)					
26-16-01A	Flight Deck Test System **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided smoke detector system integrity is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
26-16-01B	Forward Compartment Flight Deck Test System **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided the forward cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
26-16-01C	Aft/Bulk Compartment Flight Deck Test System **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided the Aft/bulk cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
26-16-01D	Forward Compartment Detectors	**N**	4	2	**C**	**(M)(O)** One detector (loop A or B) per smoke zone may be inoperative provided remaining detector is verified to operate normally PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**
26-16-01E	Aft/Bulk Compartment Detectors	**N**	4	2	**C**	**(M)(O)** One detector (loop A or B) per smoke zone may be inoperative provided remaining detector is verified to operate normally PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	LOWER LOBE CARGO COMPARTMENT SMOKE DETECTION SYSTEM (FORWARD, AFT/BULK) (CONTINUED)					
26-16-01F	Forward Compartment Detectors **"DISP.APPR.REQ'D"**	**Y**	4	0	**C**	**(O)** Both detectors (Loop A and B) per smoke zone may be inoperative provided the forward cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
26-16-01G	Aft/Bulk Compartment Detectors **"DISP.APPR.REQ'D"**	**Y**	4	0	**C**	**(O)** Both detectors (Loop A and B) per smoke zone may be inoperative provided the Aft/Bulk cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
26-16-01H	Draw Through Tube Heaters	**Y**	-	0	**D**	May be inoperative.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
26-16-01A	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	LOWER LOBE CARGO COMPARTMENT SMOKE DETECTION SYSTEM FLIGHT DECK TEST SYSTEM INOP
26-16-01B	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	FWD LOWER LOBE CARGO COMPARTMENT SMOKE DETECTION SYSTEM FLIGHT DECK TEST SYSTEM INOP
26-16-01C	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	LOWER LOBE AFT/BULK CARGO COMPARTMENT SMOKE DETECTION SYSTEM FLIGHT DECK TEST SYSTEM INOP.
26-16-01D	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	___ FWD LOWER LOBE CARGO COMPARTMENT SMOKE DETECTOR INOP
26-16-01E	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	___ AFT/BULK LOWER LOBE CARGO COMPARTMENT SMOKE DETECTOR INOP
26-16-01F	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	___ SMOKE DETECTORS IN FWD LOWER LOBE CARGO COMPARTMENT INOP
26-16-01G	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	AFT/BULK LOWER LOBE CARGO COMPARTMENT SMOKE DETECTORS INOP.
26-16-01H	Adjacent To The Lower EICAS Display	DRAW THROUGH TUBE HEATERS INOP

(O) PROCEDURES

26-16-01B, 26-16-01C, 26-16-01F, 26-16-01G

Refer to the Remarks or Exceptions Column.

26-16-01D, 26-16-01E

PRIOR TO EACH DEPARTURE:

1. Push and hold the flight deck FIRE/OVHT TEST button on overhead panel.
2. Verify proper system indications followed by EICAS message FIRE TEST PASS.
3. Release the FIRE/OVHT TEST button.

   NOTE: This action will automatically reconfigure the system to a single (operative) loop configuration for dispatch.

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(M) PROCEDURES

26-16-01A

PRIOR TO EACH DEPARTURE CHECK:

1. Verify integrity of lower cargo smoke detection system as follows:
   a) Close circuit breakers (AMM 26–16–00/501).
   b) Select either one of the following switches to the “ENABLE” position:
      - S2089 Ground Test Enable Switch (P461).
      - S2090 Ground Test Enable Switch (RCDU).
   c) Set the CDU to the CMC main menu and press LINE SELECT key for “GROUND TEST”.
   d) When the screen displays ATA name and chapter, select “26 FIRE PROTECTION SYSTEM”.
   e) Press LINE SELECT key to initiate FIRE/OVHT TEST. “TEST IN PROGRESS” will display for the duration of the test. Upon completion of the test, “TEST PASSED” or ”FIRE TEST FAIL” will be displayed on the CDU.
      1) If “TEST PASSED” is displayed, system integrity is verified.
      2) If “FIRE TEST FAIL” is displayed:

         NOTE: “FIRE TEST FAIL” may appear because of a fault in a different fire/overheat detection system.

         A. Verify the following CMC fault messages do not appear on the CDU.
            - FIRE CARGO FWD
            - FIRE CARGO AFT
            - CARGO FIRE SIGNAL>MM–A CARD FAIL
            - CARGO FIRE SIGNAL>MM–B CARD FAIL

            If the above fault messages appear, seek corrective action – **DISPATCH IS NOT ALLOWED.**

         B. Check for the following CMC fault messages on the CDU:
            - CGO DET FWD 1, CGO DET FWD 2, CGO DET AFT 1, CGO DET AFT 2.

            If the above CMC messages appear, seek corrective action or dispatch is allowed provided only non–combustible material is carried in the associated lower lobe cargo compartment. (Refer to MEL item 26–16–01E or 26–16–01F)
   f) Restore airplane to its required configuration.
2. Accomplish required logbook entry.

26-16-01D, 26-16-01E

1. At applicable smoke detector, disconnect, cap and stow electrical connector in the following table:

CONNECTOR	DETECTOR	LOOP
DM7898	M7898	Loop A – FWD CARGO ZONE1
DM7899	M7899	Loop B – FWD CARGO ZONE1
DM7900	M7900	Loop A – FWD CARGO ZONE 2
DM7901	M7901	Loop B – FWD CARGO ZONE 2
DM7902	M7902	Loop A – AFT CARGO ZONE 3
DM7903	M7903	Loop B – AFT CARGO ZONE 3
DM7904	M7904	Loop A – AFT CARGO ZONE 4
DM7905	M7905	Loop B – AFT CARGO ZONE 4

2. With the electrical connector removed the AFOLTS card will automatically configure for the single loop operation and the FIRE/OVHT test should indicate FIRE TEST PASS.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
26-17-01A	Wheel Well Fire Detection System (BTMS Operative)	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated provided: a) Brake Temperature Monitoring System (BTMS) operates normally, and b) Brakes are verified cool by monitoring brake temperature indications before engine start.
26-17-01B	Wheel Well Fire Detection System (BTMS Inoperative) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated provided: a) Brakes are verified cool to the touch before each engine start **(Log Book Entry Required)**, b) Performance corrections are applied, c) Maximum allowable Takeoff Gross Weight is limited to 720,000 lbs, d) Flaps 20 and full thrust are used, e) After takeoff, leave landing gear extended for ten minutes, and f) Maximum speed with gear extended is 270 knots. NOTE: With gear down for 10 minutes, approximately 1,700 lbs of fuel will be used over and above normal flight planned fuel. **Repetitive Check Required (Yellow Placard)**
26-17-01C	Flight Deck Test System **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative deactivated provided an alternate procedure is accomplished PRIOR TO EACH DEPARTURE to assure system integrity **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-17-01A	Adjacent To The FIRE/OVHT TEST Switch On P5 Panel	WHEEL WELL FIRE DETECTION SYSTEM IS INOP
26-17-01B	Adjacent To The FIRE/OVHT TEST Switch On P5 Overhead Panel	WHEEL WELL FIRE DETECTION SYSTEM IS INOP
26-17-01C	Adjacent To The FIRE/OVHT Test Switch On P5 Overhead Panel	WHEEL WELL FIRE DETECTION SYSTEM FLIGHT DECK TEST SYSTEM INOP

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(O) PROCEDURES

26-17-01A

1. Before engine start, verify brakes are cool by monitoring the brake temperature indications as follows:
   a) Select the Gear Synoptic on the Secondary EICAS Display.
   b) Ensure Brake Temperature Indications for all brakes are at level one (1) or zero (0).
2. After takeoff, monitor brake temperature indications prior to retracting the landing gear.
3. If an engine failure occurs after V1, retract the landing gear until obstruction clearance requirement has been met, then extend the landing gear until brake temperatures return to normal.
4. During winter operations from contaminated runways, the effects associated with delayed retraction or extension of the landing gear must be considered.

26-17-01B

1. Verify that the AWABS contains MEL item 26–17–01B.
2. Flaps 20 and full thrust are used for takeoff.
3. After takeoff, leave landing gear extended for ten minutes.
4. Maximum speed with gear extended is 270 kts.
5. If an engine failure occurs after V1, retract the landing gear until obstruction clearance requirement has been met, then extended for a 10 minute cooling period.
6. During winter operations from contaminated runways, the effects associated with delayed retraction or extension of the landing gear must be considered.

26-17-01B	**WHEEL WELL FIRE DETECTION SYSTEM / BTMS INOPERATIVE**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Increase BLOCK FUEL by 1,700 lbs. 2. Takeoff weight may not exceed 720,000 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** Reduce T/O CLIMB LIMIT by 250,000 lbs. **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Enter Structural Takeoff Weight of 720,000 lbs. under Aircraft Weight Limitations.

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(M) PROCEDURES

26-17-01A

Deactivate Flight Deck annunciations for Wheel Well Fire Warning as follows:

Pull and secure the following circuit breaker on the P6 Main Power Distribution Panel:

Circuit Breaker	Grid Location
C453 W/W FIRE DET AC	C7

26-17-01B

1. Deactivate Flight Deck annunciations for Wheel Well Fire Warning as follows:

   Pull and secure the following circuit breaker on the P6 Main Power Distribution Panel:

Circuit Breaker	Grid Location
C453 W/W FIRE DET AC	C7

2. **PRIOR TO EACH DEPARTURE CHECK**:

   Dispatch with the Wheel Well Fire Detection System inoperative as follows:

   a) To verify the brakes are cool before engine start, carefully touch each wheel's brake with bare hand to determine that each is cool (Cool means brakes can be touched/handled without protective gloves).

   b) Accomplish required logbook entry.

26-17-01C

PRIOR TO EACH DEPARTURE CHECK:

1. Close circuit breakers (AMM 26–15–00/501).
2. Set either of the following switch to "ENABLE" position:
   - S2089 Ground Test Enable Switch (P461).
   - S2090 Remote Test Enable Switch (RCDU).
3. Set the CDU to the CMC main menu.
4. Press LINE SELECT key for "GROUND TEST".
5. When screen displays ATA NAME and chapter, select "26 FIRE PROTECTION SYSTEM".
6. To initiate test, press LINE SELECT key for FIRE/OVHT TEST.
7. The "TEST IN PROGRESS" indication will be displayed for the duration of the test.
8. When the test is done, the CDU will display "TEST PASSED", or "FIRE TEST FAIL".

   NOTE: The indication "FIRE TEST FAIL" may appear as a result of circuit breakers being open on related fire/overheat detection system.

   a) If the indication is "TEST PASSED", the test is finished and system integrity is verified.

   b) If the indication is "FIRE TEST FAIL", verify that following CMC messages do not appear on CDU:
      - WHEEL WELL FIRE SIGNAL>MM–A CARD FAIL
      - WHEEL WELL FIRE SIGNAL>MM–B CARD FAIL
      - WHEEL WELL FIRE SIGNAL>EIU–FAIL
9. If CMC fault messages appear, seek corrective action or dispatch according to provisions for system inoperative (see MEL item 26–17–01A).
10. Accomplish required logbook entry.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
26-18-01	Wing Leading Edge Overheat Detection System (Flight Deck Test System) **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided an alternate procedure is accomplished PRIOR TO EACH DEPARTURE to assure system integrity **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard).**

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-18-01	Adjacent To The FIRE/OVHT Test Switch On P5 Overhead Panel	WING LEADING EDGE OVERHEAT DETECTION SYSTEM FLIGHT DECK TEST SYSTEM INOP

(M) PROCEDURES

PRIOR TO EACH DEPARTURE CHECK:

1. Close circuit breakers (AMM 26–15–00/501).
2. Set either of the following switch to “ENABLE” position:
   - S2089 Ground Test Enable Switch (P461).
   - S2090 Remote Test Enable Switch (RCDU).
3. Set the CDU to the CMC main menu.
4. Press LINE SELECT key for “GROUND TEST”.
5. When screen displays ATA NAME and chapter, select “26 FIRE PROTECTION SYSTEM”.
6. To initiate test, press LINE SELECT key for FIRE/OVHT TEST.
7. The “TEST IN PROGRESS” indication will be displayed for the duration of the test.
8. When the test is done, the CDU will display “TEST PASSED”, or “FIRE TEST FAIL”.

   NOTE: The indication ”FIRE TEST FAIL” may appear as a result of circuit breakers being open on related fire/overheat detection system.

   a) If the indication is “TEST PASSED”, the test is finished and system integrity is verified.

   b) If the indication is “FIRE TEST FAIL”, verify that following CMC messages do not appear on CDU:
      - BLEED DUCT LEAK–LEFT DETECTION SYSTEM FAIL
      - BLEED DUCT LEAK–RIGHT DETECTION SYSTEM FAIL
9. If CMC fault messages appear, seek corrective action.
10. Accomplish required logbook entry.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
26-18-02A	Center Duct Leak Detection Systems	**Y**	1	0	**C**	**(O)** May be inoperative provided in the event of cabin altitude rapid decompression use the modified Non-Normal Checklist in (O) procedure.
26-18-02B	Center Duct Leak Detection Systems (Flight Deck Test System)	**N**	1	0	**C**	**(M)** May be inoperative provided an alternate procedure is used to ensure integrity of the system.

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-18-02A	Adjacent To The FIRE/OVHT Test Switch On P5 Panel	CENTER DUCT LEAK DETECTION SYSTEM INOP
26-18-02B	Adjacent To The FIRE/OVHT Test Switch On P5 Panel	CENTER DUCT OVERHEAT DETECTION SYSTEM FLIGHT DECK TEST SYSTEM INOP

(O) PROCEDURES

26-18-02A

NOTE: The associated EICAS caution BLD DUCT LEAK C and status BLD DUCT LEAK C, DUCT LEAK C LP A, and DUCT LEAK C LP B messages may remain displayed following engine start.

In the event of a rapid decompression perform the following modified CABIN ALTITUDE (RAPID DECOMPRESSION) Non-Normal Checklist:

Condition: Cabin altitude exceeds 10,000 feet.

OXYGEN MASKS……ON

CREW COMMUNICATIONS……ESTABLISHED

ISOLATION VALVE SWITCHES (Both)……OFF

CABIN ALTITUDE AND RATE……CHECK
(Confirms pressurization problem)

If cabin altitude uncontrollable:

PASSENGER OXYGEN SWITCH ON
(Backs up automatic activation of the passenger oxygen system)

DESCENT ACCOMPLISH

Without delay, close thrust levers, extend speedbrakes, and descend at VMO/MMO. Lower off at lowest safe altitude or 10,000 feet / 14,000 feet (as designated in operator's FCOM), whichever is higher.

If structural integrity is in doubt, limit airspeed and avoid high maneuvering loads

If cabin altitude can be controlled and both pneumatic duct pressure remain normal:

a. PACK 2 CONTROL SELECTOR OFF.

Continued Next Page

If cabin altitude can be controlled and one duct pressure remains low:

a. ENGINE BLEED AIR SWITCHES (Affected side) OFF.

b. ISOLATION VALVE SWITCH (Unaffected side) ON

c. PACK CONTROL SELECTOR (Affected side) OFF.

d. HYDRAULIC DEMAND PUMP 1 OR 4 SELECTOR (Affected side) OFF.

e. Do not use wing anti-ice.

Sufficient bleed air may not be available to nacelle anti-ice if N1 less than 70% at or above 10,000 feet or less than 55% below 10,000 feet.

(M) PROCEDURES

26-18-02B

1. Close circuit breakers (AMM 26–15–00/501).
2. Set either of the following switch to “ENABLE” position:
   - S2089 Ground Test Enable Switch (P461).
   - S2090 Remote Test Enable Switch (RCDU).
3. Set the CDU to the CMC main menu.
4. Press LINE SELECT key for “GROUND TEST”.
5. When screen displays ATA NAME and chapter, select “26 FIRE PROTECTION SYSTEM”.
6. To initiate test, press LINE SELECT key for FIRE/OVHT TEST.
7. The “TEST IN PROGRESS” indication will be displayed for the duration of the test.
8. When the test is done, the CDU will display “TEST PASSED”, or “FIRE TEST FAIL”.

   NOTE: The indication ”FIRE TEST FAIL” may appear as a result of circuit breakers being open on related fire/overheat detection system.

   a) If the indication is “TEST PASSED”, the test is finished and system integrity is verified.

   b) If the indication is “FIRE TEST FAIL”, verify that following CMC messages do not appear on CDU:

      - BLEED DUCT LEAK – CENTER DETECTION SYSTEM FAIL
      - BLEED DUCT LEAK – CENTER LOOP A FAIL
      - BLEED DUCT LEAK – CENTER LOOP B FAIL

9. If CMC fault messages appear, seek corrective action.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
26-19-01	APU Duct Leak Detection System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) APU is considered inoperative, and b) APU selector switch remains OFF.

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-19-01	Adjacent To APU Selector Switch	APU DUCT LEAK DETECTION SYSTEM INOP

(O) PROCEDURES

1. Do not use APU.
2. Comply with MEL Item 49–11–01A (O) procedure.
3. Advisory message APU may be displayed.

(M) PROCEDURES

Secure the APU fuel valve closed.

4. Position overhead panel (P5) APU master switch OFF.
5. Gain access to the APU fuel valve in left wing gear wheel well, rear wing spar.
6. Manually position APU fuel valve override lever to CLOSED position.
7. Defer the APU inoperative per MEL item 49–11–01A.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
26-20-01	Fire Bottle Pressure Indication Systems (Engine, Lower Cargo, APU)	**N** -	0	**C**	**(M)** May be inoperative provided: a) Squib test is used to verify squib integrity, and b) Procedure is used to verify that the associated bottle is full. NOTE: Not required for inoperative APU or Lower Cargo Fire Extinguisher System.

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-20-01	Adjacent To The Inoperative Bottle Discharge Light On The P5 Overhead Panel	___ FIRE BOTTLE INDICATION IS INOP.

(M) PROCEDURES

Squib Integrity Test:

1. Push and hold SQUIB TEST, TEST 1 button, M7327 squib test module on P461 pilot's overhead maintenance panel.
2. Observe that following indicating lights on M7327 illuminate (green):
   a) All ENG 1, 2, 3, and 4 squib test lights.
   b) All CARGO squib test lights.
   c) The APU squib test light.
3. Release the SQUIB TEST, TEST 1 button.
4. Observe that all squib test indicating lights extinguish.
5. Push and hold SQUIB TEST, TEST 2 button, M7327 squib test module on P461 pilot's overhead maintenance panel.
6. Observe the following indicating lights on M7327 illuminate (green):
   a) All ENG 1, 2, 3, and 4 squib test lights.
   b) All CARGO squib test lights.
   c) The APU squib test light.
7. Release the SQUIB TEST, TEST 2 button.
8. Observe that all squib test indicating lights extinguish.

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Bottle Pressure Test:

1. Perform the following tests:
   a) ENGINE (AMM 26–21–00/501), paragraph titled “Pressure Switch Test”
   b) APU (AMM 26–22–00/501), paragraph titled “System Test”, subparagraph titled “Do a test of the Pressure Switch”.
   c) LOWER CARGO (AMM 26–23–00/501), paragraph titled “System Test – Bottle Pressure Switch”.
2. If above tests fail, remove and weigh the bottle.
   a) ENGINE (AMM 26-21-03/401 and AMM 26-21-03/601).
   b) APU (AMM 26-22-01/401 and AMM 26-22-01/601).
   c) LOWER CARGO (AMM 26-23-01/401 and AMM 26-23-01/601).
   d) Disconnect, cap and stow the affected bottle’s Pressure Switch connector after serviceable bottle weight is confirmed.
3. Remove electrical power if no longer required (MM-24-22-00/201)

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
26-21-01A	Fire Extinguisher Squib Test (Engine, APU, Lower Cargo) **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) It is verified that the failure is in the light circuit, and b) PRIOR TO EACH DEPARTURE, it is verified that, in the event of a fire, the bottle would discharge **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
26-21-01B	FWD Lower Cargo SQUIB Test System **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	May be inoperative provided the forward lower cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
26-21-01C	AFT/Bulk Lower Cargo SQUIB Test System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	May be inoperative provided the Aft/Bulk lower cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
26-21-01D	APU Squib Test System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) APU is considered inoperative, and b) APU selector switch remains OFF.

Continued Next Page

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-21-01A	On Fire Extinguisher Squib Test Module On P461 Maintenance Panel	___ SQUIB TEST INOP
26-21-01B	On Fire Extinguisher Squib Test Module On P461 Maintenance Panel	FWD LOWER CARGO COMP SQUIB TEST INOP
26-21-01C	On Fire Extinguisher Squib Test Module On P461 Maintenance Panel	AFT/BULK LOWER CARGO COMP SQUIB TEST INOP.
26-21-01D	On Fire Extinguisher Squib Test Module On P461 Maintenance Panel	APU SQUIB TEST INOP

(O) PROCEDURES

26-21-01D

1. Do not use APU.
2. Comply with MEL item 49–11–01A (O) procedure.

(M) PROCEDURES

26-21-01A

PRIOR TO EACH DEPARTURE CHECK:

1. Perform the Squib Discharge Circuit Test portion of the Fire Extinguisher Bottle Squib System Test:
   - ENGINE AMM 26–21–00/501
   - APU AMM 26–22–00/501
   - LOWER CARGO AMM 26–23–00/501
2. Accomplish required logbook entry.

26-21-01D

Secure the APU fuel valve closed.

1. Position overhead panel (P5) APU master switch OFF.
2. Gain access to the APU fuel valve in left wing gear wheel well, rear wing spar.
3. Manually position APU fuel valve override lever to CLOSED position.
4. Defer the APU inoperative per MEL item 49–11–01A.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
26-22-01	APU Fire Extinguisher System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) APU is considered inoperative, b) APU selector switch remains OFF, and c) APU fuel valve is secured closed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-22-01	Adjacent To APU Fire switch And Adjacent To APU Master Switch On Overhead Panel	APU FIRE EXTINGUISHER SYSTEM IS INOP

(O) PROCEDURES

1. Do not use APU.
2. Comply with MEL item 49–11–01A (O) procedure.

(M) PROCEDURES

Secure the APU fuel valve closed.

1. Position overhead panel (P5) APU master switch OFF.
2. Gain access to the APU fuel valve in left wing gear wheel well, rear wing spar.
3. Manually position APU fuel valve override lever to CLOSED position.
4. Defer the APU inoperative per MEL item 49–11–01A.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD	NUMBER REQUIRED FOR DISPATCH		REPAIR CATEGORY	REMARKS OR EXCEPTIONS
	LOWER CARGO COMPARTMENT FIRE EXTINGUISHER SYSTEM					
26-23-01A	Bottles C AND D **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** Extinguisher bottles C and D, and associated indications may be inoperative (and lower cargo compartments used) provided: a) Airplane is pressurized, and b) Flight remains within 30 minutes of a suitable landing field.
26-23-01B	Bottles C OR D **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** Either extinguisher bottle C or D and associated indications may be inoperative (and lower cargo compartments used) provided: a) Airplane is pressurized, b) Flight remains within 90 minutes of a suitable landing field.
26-23-01C	Lower Cargo Compartment Fire Extinguisher System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(O)** May be inoperative provided the Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.
26-23-01D	FWD/AFT Lower Cargo Compartment Extinguisher Bottles C and D Agent Distribution Networks **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided: a) Airplane is pressurized, and b) Flight remains within 30 minutes of a suitable landing field.
26-23-01E	Forward Lower Cargo Compartment Extinguisher Bottles C and D Agent Distribution Network **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** Forward cargo compartment bottle C and/or bottle D distribution networks may be inoperative provided the forward cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

Continued Next Page

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	LOWER CARGO COMPARTMENT FIRE EXTINGUISHER SYSTEM (CONTINUED)					
26-23-01F	Aft/Bulk Lower Cargo Compartment Extinguisher Bottles C and D Agent Distribution Networks **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(O)** Aft/Bulk cargo compartment bottle C and/or bottle D distribution networks may be inoperative provided the Aft/Bulk cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section). NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-23-01A	On Fire Control Module Near Discharge Switch	LOWER CARGO COMP FIRE EXT SYSTEM BOTTLE C AND D INOP
26-23-01B	On Fire Control Module Near Discharge Switch	LOWER CARGO COMP FIRE EXT SYSTEM BOTTLE C or D INOP
26-23-01C	On Fire Control Module Near Discharge Switch	LOWER CARGO COMPARTMENT FIRE EXTINGUISHER SYSTEM INOP.
26-23-01D	On Fire Control Module Near Discharge Switch	___ LOWER CARGO COMP FIRE EXT BOTTLES C AND D AGENT DISTRIBUTION SYSTEM INOP
26-23-01E	On Fire Control Module Near Discharge Switch	___ FWD LOWER CARGO COMP FIRE EXT BOTTLES C AND D AGENT DISTRIBUTION SYSTEM INOP
26-23-01F	On Fire Control Module Near Discharge Switch	___ FWD LOWER CARGO COMP FIRE EXT BOTTLES C AND D AGENT DISTRIBUTION SYSTEM INOP.

(O) PROCEDURES

26-23-01A, 26-23-01D

Remain within 30 minutes flying time of a suitable landing field.

26-23-01B

Remain within 90 minutes flying time of a suitable landing field.

26-23-01C, 26-23-01E, 26-23-01F

Refer to the Remarks or Exceptions Column.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
26-24-02A	Lavatory Fire Extinguishers	**Y**	-	0	**C**	For each lavatory, the lavatory fire extinguisher may be inoperative provided Lavatory Smoke Detection system operates normally.
26-24-02B	Lavatory Fire Extinguishers **"DISP.APPR.REQ'D"**	**N**	-	0	**C**	**(M)(O)** For each lavatory, the lavatory fire extinguisher system may be inoperative provided: a) Associated Lavatory waste receptacle is empty, b) The associated lavatory door is locked closed and placarded, UNSERVICEABLE – DO NOT USE, and c) Lavatory is used only by crewmembers. NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
26-24-02A	On The Forward Flt Attendants Control Panel	___ LAV FIRE EXTINGUISHER INOP
26-24-02B	Adjacent To The Lavatory Door OCCUPIED Sign On Applicable Door	___ LAVATORY FIRE EXTINGUISHER(S) ARE INOP. DO NOT USE LAV

(O) PROCEDURES

26-24-02B

Captain to brief Lead Flight Attendant/Purser that the affected lavatory door(s) is to remain locked and not entered except for use or inspection by crewmembers.

Continued Next Page

(M) PROCEDURES

26-24-02B

1. Check that lavatory waste receptacle is empty.
2. On affected lavatory modules with waste containers that are also served by a Disposal Door mounted on the exterior of the lavatory, place a strip of Red colored OM–2 UNSERVICEABLE – DO NOT USE tape or equivalent* across the Disposal Door.
3. Close the lavatory door and lock by placing a slotted screwdriver blade in the slot in the VACANT/OCCUPIED sign on the door and move to OCCUPIED position. Check that door will not open.
4. Place a strip of Red colored OM2 ”UNSERVICEABLE – DO NOT USE” tape or equivalent* ON the lavatory door. DO NOT tape door shut. This allows crew members to access lavatory.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words ”UNSERVICEABLE – DO NOT USE”.
5. Place a strip of 2 inch wide masking tape with the words “CREW USE ONLY” printed legibly in 1 inch black letters ON the lavatory door. DO NOT tape door shut. This allows crew members to access lavatory.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
26-26-01	Portable Fire Extinguishers	**Y**	12	8	**C**	**(M)** The WATER only fire extinguishers listed below may be inoperative or missing provided the inoperative water fire extinguisher is tagged inoperative and removed from the aircraft: • Passenger door L4 (on F/A seat). • Passenger door L5 (A/C 6301–6310 in last LH Bin, A/C 6311–6316 in 5L closet). • Door 5 Upper Crew Rest Area. • Upper Deck mid cabin RH door (on F/A seat).

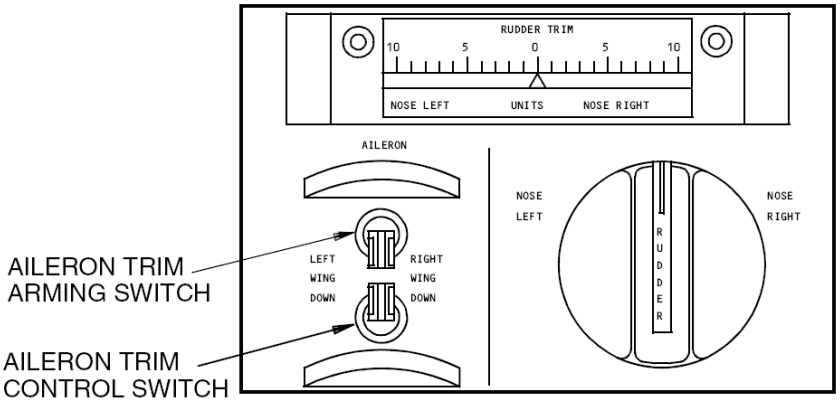
MEL ITEM	TAB LOCATION	PLACARD TEXT
26-26-01	Adjacent To Missing Extinguisher Holder And On An Empty Space On The Forward Instrument Panel	___ PORTABLE WATER FIRE EXTINGUISHER MISSING or INOP AND REMOVED

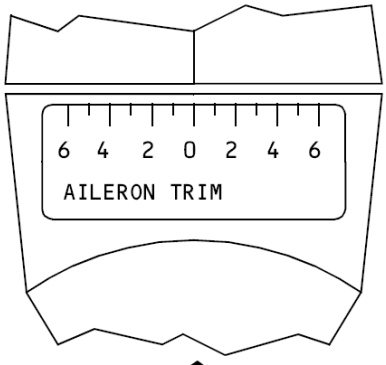
(M) PROCEDURES

Remove the unserviceable extinguisher from the aircraft.

ATA 27 Contents

27-11-01 Aileron Trim System 27-5
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27-81-03 Leading Edge Flaps Retraction System (Reverser Actuated) 27-34

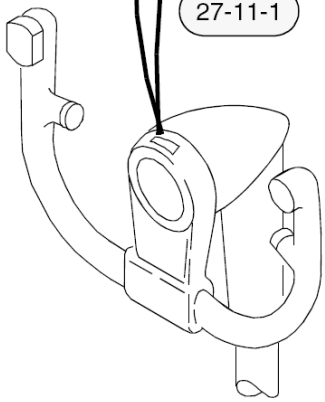


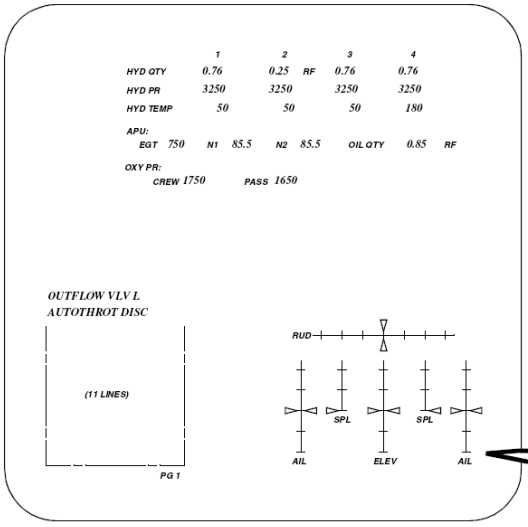


PILOTS' CONTROL STAND AILERON AND RUDDER TRIM CONTROL MODULE (P8)

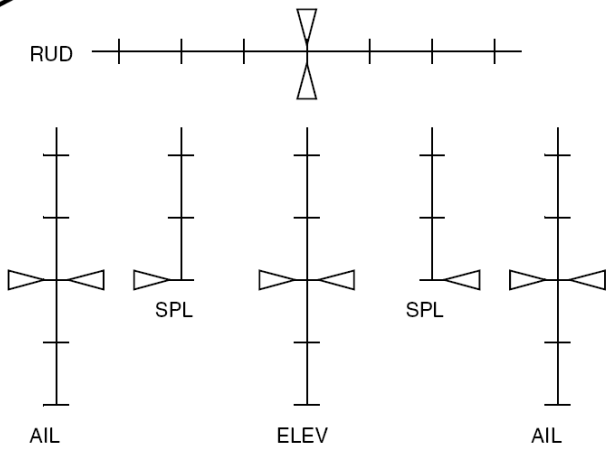
27-21-1

27-11-1





AUXILIARY EICAS DISPLAY - STATUS PAGE

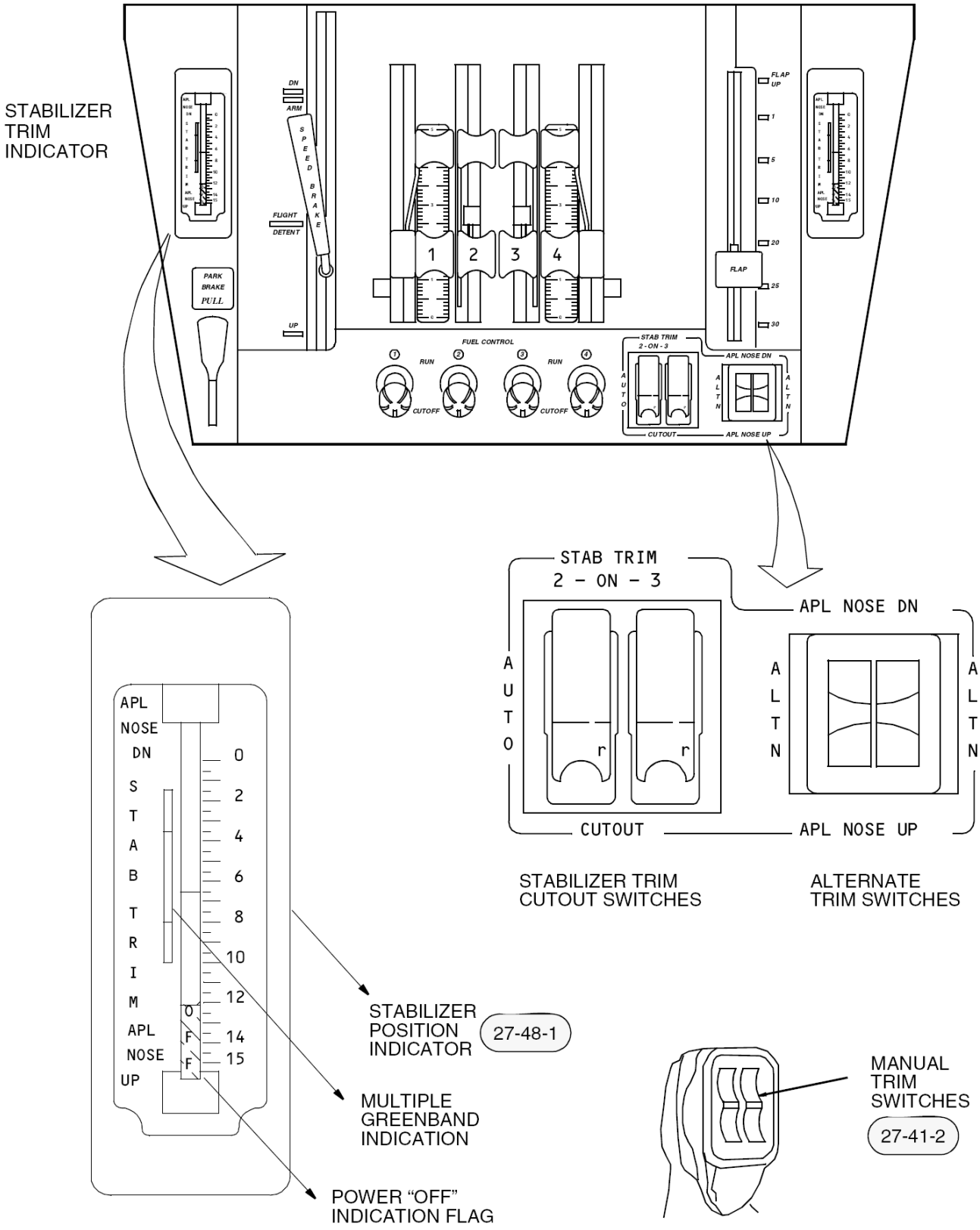


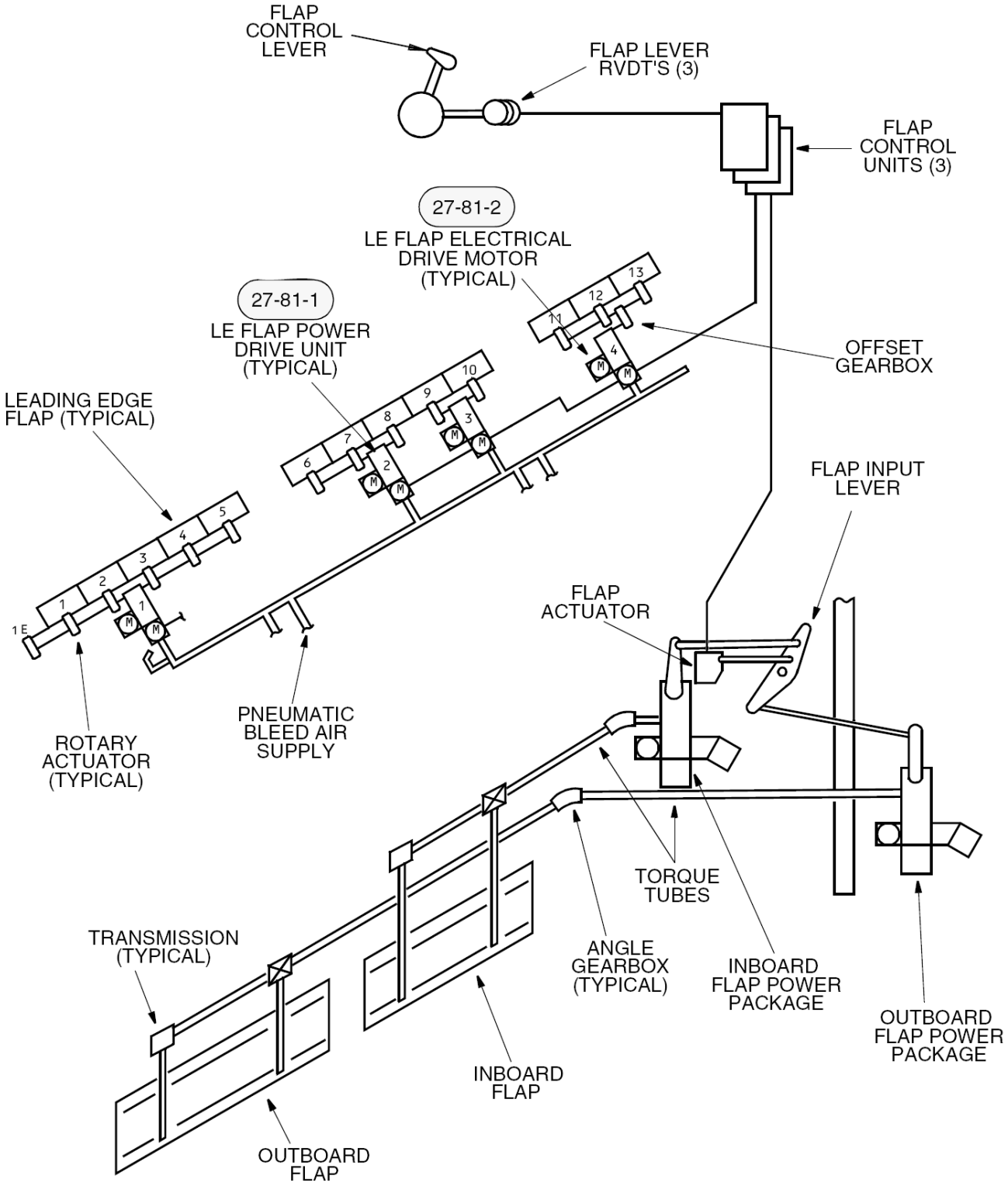
27-28-1 RUDDER POSITION: Indicates upper and lower rudder positions.

27-38-1 ELEVATOR POSITION: Indicates left and right outboard elevator positions.

27-68-1 SPOILER POSITION: Indicates flight positions (left and right), or inflight speedbrake position.

27-18-1 ALERON POSITION: Indicates inboard and outboard aileron positions.


STABILIZER TRIM INDICATOR
DN
ARM
SPEED BRAKE
FLIGHT DETENT
UP
PARK BRAKE PULL
1
2
3
4
FLAP UP
1
5
10
20
FLAP
25
30
FUEL CONTROL
RUN
CUTOFF
RUN
CUTOFF
STAB TRIM 2 - ON - 3
AUTO
CUTOUT
APL NOSE DN
ALTN
APL NOSE UP
STAB TRIM
2 - ON - 3
APL NOSE DN
AUTO
ALTN
CUTOUT
APL NOSE UP
STABILIZER TRIM CUTOUT SWITCHES
ALTERNATE TRIM SWITCHES
APL NOSE DN
STAB TRIM
APL NOSE UP
0
2
4
6
8
10
12
14
15
OFF
STABILIZER POSITION INDICATOR
27-48-1
MULTIPLE GREENBAND INDICATION
POWER "OFF" INDICATION FLAG
MANUAL TRIM SWITCHES
27-41-2


FLAP CONTROL LEVER
FLAP LEVER RVDT'S (3)
FLAP CONTROL UNITS (3)
27-81-2
LE FLAP ELECTRICAL DRIVE MOTOR (TYPICAL)
27-81-1
LE FLAP POWER DRIVE UNIT (TYPICAL)
OFFSET GEARBOX
LEADING EDGE FLAP (TYPICAL)
FLAP INPUT LEVER
FLAP ACTUATOR
ROTARY ACTUATOR (TYPICAL)
PNEUMATIC BLEED AIR SUPPLY
TORQUE TUBES
TRANSMISSION (TYPICAL)
ANGLE GEARBOX (TYPICAL)
INBOARD FLAP POWER PACKAGE
OUTBOARD FLAP POWER PACKAGE
INBOARD FLAP
OUTBOARD FLAP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-11-01	Aileron Trim System	**N**	1	0	**C**	**(M)** May be inoperative provided aileron trim system is verified to be centered.

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-11-01	Adjacent To Aileron Trim Control Switches On Center Control Stand	AIL TRIM INOP. Also if applicable, DUMMY ACTUATOR LINK INSTALLED

(M) PROCEDURES

NOTE: The terminology “aileron trim system is verified to be centered” is not intended to imply any particular tolerance. The intent is that the system be centered to the extent that it is acceptable to the pilot. A tolerance of +/– 1.0 unit of trim is acceptable.

1. Verify that aileron trim system is centered.

   a) If trim system is within tolerance (control wheels essentially centered):

      1) Open and secure circuit breaker 7D17 AILERON TRIM CONTROL (panel P–7).

      2) Restore airplane to its required configuration.

   b) If trim system is not centered within tolerance (control wheels not centered):

      1) Open and secure circuit breaker 7D17 AILERON TRIM CONTROL (panel P–7).

CAUTION: INSTALL WING AND BODY GEAR DOOR LOCKS BEFORE ENTERING WHEEL WELL.

      2) Gain access to aileron trim actuator (access is forward bulkhead, LH wing gear wheel well).

      3) Disconnect electrical connector DM254 from trim actuator and stow.

      4) Remove trim actuator.

      5) Using bolts, washers, nuts and cotter pins from trim actuator, install dummy actuator link. (P/N A27088–18, Universal on Aircraft 747–400).

      6) Confirm aileron trim is centered (control wheels at +/- 1.0 unit of trim).

      7) Restore airplane to its required configuration.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-11-02	Outboard Aileron Lockout Indication System **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided the aileron lockout system is verified to operate normally PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-11-02	Adjacent To EICAS (Flight Controls Position Indicator)	OUTBOARD AILERON LOCKOUT INDICATION SYSTEM INOP

(M) PROCEDURES

PRIOR TO EACH DEPARTURE:

To verify that the aileron lockout system is operating normally, accomplish the following:

1. Display the flight controls synoptic page to view the position of the outboard ailerons.
2. Perform an Aileron Lockout System Existing Faults Check **(Ref. AMM TASK 27–11–00/501)** including the mechanical operation check (requires hydraulic power).
3. Confirm that the outboard ailerons return to the neutral position during the lockout portion of the CMC test.
4. Following the test, confirm that the outboard ailerons move freely.

   NOTE: The CMC test will indicate FAIL due to the inoperative indication system. Dispatch with the indication system inoperative is allowed provided the lockout function operated normally during the test.
5. Accomplish required logbook entry.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
27-18-01	Aileron Position Indicating System **"Contact MCC"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided visual confirmation of proper aileron movement is made PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-18-01	Adjacent To EICAS (Flight Controls Position Indicator)	AILERON POS INDICATING SYSTEM INOP

(O) PROCEDURES

Prior to engine start, the flight crew will check the following:

1. Establish communications with maintenance personnel.
2. PRIOR TO EACH DEPARTURE: Move the aileron and have maintenance personnel verify the proper movement of the control surface.

(M) PROCEDURES

Perform a visual check of surface movement:

WARNING: TO AVOID INJURY OR DAMAGE, ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES.

1. Establish communications – flight deck to ground.
2. Pressurize all four hydraulic systems.

FLIGHT DECK	GROUND OBSERVATION
Control Wheel Full Left	Observe left ailerons up, right ailerons down.
Control Wheel Full Right	Observe right ailerons up, left ailerons down.

NOTE: Full control wheel input will result in Inboard aileron deflection approximately 20° up or down and Outboard aileron deflection approximately 25° up and 15° down. Measurement is not required.

3. Restore airplane to its required configuration.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-23-01	Flight Control Shutoff Switch Lights **"Contact MCC"**	**N**	8	6	**C**	**(M)** One per axis may be inoperative provided the associated valve position is verified open PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-23-01	Adjacent To Affected Flight Control Shutoff Switch Lights	___ FLIGHT CONTROL SHUTOFF SWITCH LIGHT(s) INOP

(M) PROCEDURES

NOTE: The FLT CONTROL HYD POWER switches are located on the overhead maintenance panel. This item allows dispatch with up to 2 VALVE CLOSED lights inoperative. “One per axis” means that only 1 in the upper row (TAIL) and 1 in the lower row (WING) may be inoperative. Use the following procedure to verify that the associated flight control hydraulic valve(s) is open before dispatch.

PRIOR TO EACH DEPARTURE CHECK:

1. Supply electrical power (AMM 24–22–00/201).
2. Check the position of the associated valve(s).
   a) Make sure the applicable FLT CONTROL HYD POWER switch(es) on the P461 Pilot’s Overhead Maintenance Panel are in the NORM position.
   b) For the affected system, pull and secure the applicable circuit breaker on the P180 DC Power Distribution Panel. Confirm that the remaining unaffected system circuit breakers are closed.

180H7	LATERAL CONT VALVE SYS 1	180H8	ELEV/RUD VLV SYS 1
180E6	LATERAL CONT VALVE SYS 2	180E7	ELEV/RUD VLV SYS 2
180H22	LATERAL CONT VALVE SYS 3	180H23	ELEV/RUD VLV SYS 3
180E21	LATERAL CONT VALVE SYS 4	180E22	ELEV/RUD VLV SYS 4

   c) Gain access to the associated valve (s).
      1) If shutoff valve is WING system 1, remove outboard aileron access panel 591BB on left wing to access the aileron/ spoiler shutoff valve.
      2) If shutoff valve is WING system 4, remove outboard aileron access panel 691BB on right wing to access the aileron/spoiler shutoff valve.
      3) If shutoff valve is WING system 2 or 3, the associated aileron/spoiler shutoff valve is located at the rear spar through the opening of the left or right wing gear wheel well.

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4) If the shutoff valve is TAIL 1, 2, 3, or 4, open access door 312A (Horizontal Stabilizer Jackscrew Access Door) to gain access to the area aft of the pressure bulkhead where the associated elevator/rudder shutoff valves are located.

d) Verify that visual indicator lever on the associated shutoff valve motor is in the valve open position (POS 2).

3. Close the access door or panel and remove electrical power.

4. Accomplish required logbook entry.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-23-02	Hydraulic Flight Controls Valves	**N**	8	0	**C**	**(M)** May be inoperative open.

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-23-02	Adjacent To Affected FLT Control HYD Power Shutoff Switch(es).	___ HYDRAULIC FLIGHT CONTROL VALVE(s) INOP OPEN

(M) PROCEDURES

1. Use the (M) procedure step 2. in MEL Item 27–23–01, Flight Control Shutoff Switch Lights, to verify the inoperative shutoff valve(s) is in the open position.

   a) If the visual indicator lever on the affected valve motor is in the valve closed position (POS 1), use the following procedure to secure valve(s) open.

      1) For the applicable system(s), pull and secure the appropriate circuit breakers on the P180 DC Power Distribution Panel:

180H7	LATERAL CONT VALVE SYS 1	180H8	ELEV/RUD VLV SYS 1
180E6	LATERAL CONT VALVE SYS 2	180E7	ELEV/RUD VLV SYS 2
180H22	LATERAL CONT VALVE SYS 3	180H23	ELEV/RUD VLV SYS 3
180E21	LATERAL CONT VALVE SYS 4	180E22	ELEV/RUD VLV SYS 4

      2) Manually move the indicator lever to the valve open position (POS 2) on the inoperative shutoff valve(s).

      3) Install lockwire on the indicator lever of the inoperative shutoff valve(s) to secure open.

   b) Make sure the VALVE CLOSED indicator light(s) on P461 Pilot's Overhead Maintenance Panel are off.

   c) Close the access door or panels and remove electrical power.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-28-01	Rudder Position Indicating System **"Contact MCC"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided visual confirmation of proper rudder movement is made PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-28-01	Adjacent To EICAS (Flight Controls Position Indicator)	RUDDER POS INDICATING SYSTEM INOP

(O) PROCEDURES

Prior to engine start, the flight crew will check the following:

1. Establish communications with maintenance personnel.
2. PRIOR TO EACH DEPARTURE: Move the rudder and have maintenance personnel verify the proper movement of the control surface.

(M) PROCEDURES

Perform a visual check of surface movement:

WARNING: ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES.

1. Establish communications – flight deck to ground.
2. Pressurize all four hydraulic systems.

FLIGHT DECK	GROUND OBSERVATION
Rudder Pedal Full Left, then Full Right	Observe both upper and lower rudder deflection to left, then right.

NOTE: Full rudder deflection is approximately +/– 31.5 degrees. Measurement is not required.

3. Restore airplane to its required configuration.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-28-02	Rudder Trim Indicator	Y	1	0	C	**(M)(O)** May be inoperative provided rudder trim is verified centered PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-28-02	Adjacent To Inoperative Rudder Trim Indicator On Aisle Stand	RUDDER TRIM INDICATOR INOP

(O) PROCEDURES

27-28-02

PRIOR TO EACH DEPARTURE, confirm rudder position is centered by checking that the rudder pedals are essentially centered and by checking the rudder position indication displayed on secondary EICAS.

(M) PROCEDURES

To verify the rudder trim is centered:

1. Establish electrical power and supply hydraulic power to the rudder.

WARNING: ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL FLIGHT CONTROL SURFACES.

2. Select STAT on the EICAS display select panel to display the flight controls position indications on secondary EICAS.
3. Rotate the rudder trim control, located on the aisle stand, to NOSE LEFT.
   a) Confirm on both Captain's and First Officer's sides that the left rudder pedals move forward and that the right rudder pedals move aft.
   b) Confirm that rudder position indications (upper and lower) on secondary EICAS indicate rudder moving to left.
4. Rotate the rudder trim control to NOSE RIGHT.
   a) Confirm on both Captain's and First Officer's sides that the left rudder pedals move aft and right rudder pedals move forward.
   b) Confirm that rudder position indications (upper and lower) on secondary EICAS indicate rudder moving to right.
5. Return rudder trim to neutral position by rotating the rudder trim control as required until rudder pedals are aligned together and rudder position indication on EICAS shows rudder (upper and lower) centered.
6. Restore airplane to required configuration.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
27-32-01A	Stall Warning Systems **"Contact MCC"**	**N**	2	1	**C**	**(M)** One may be inoperative provided remaining system is verified to operate normally PRIOR TO EACH DEPARTURE. **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
27-32-01B	Stick Shakers	**Y**	2	1	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-32-01A	Adjacent To Main EICAS	___ STALL WARNING SYSTEM INOP
27-32-01B	Adjacent To Main EICAS Display	___ STALL WARNING SYSTEM STICK SHAKER INOP

(M) PROCEDURES

27-32-01A

EICAS MESSAGE	COMMENTS
STALL WARN SYS	Conduct confidence test of left stall warning channel. If stick shaker(s) activate dispatch is allowed. If left stall warning channel is inoperative, conduct confidence test of right of right stall warning channel. If stick shaker(s) activate, dispatch is allowed.

PRIOR TO EACH DEPARTURE CHECK:

1. Perform a confidence test of the Stall Warning System using the MCDU as follows:
   a) Press MENU key.
   b) Press Line Select Key (LSK) 6L (< CMC).
   c) Press LSK 2L (< CONFIDENCE TEST).
   d) Press LSK 1 L (< STALL L SHAKER) or LSK 2L (< STALL R SHAKER) as appropriate.

   NOTE: A single stall warning computer activates both stick shakers. If one stall warning channel does not function at all, no deactivation procedure is required.
2. Accomplish required logbook entry.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-38-01	Elevator Position Indicating System **"Contact MCC"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided visual confirmation of proper elevator movement is made PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-38-01	Adjacent To EICAS (Flight Controls Position Indicator)	ELEVATOR POS INDICATING SYSTEM INOP

(O) PROCEDURES

Prior to engine start, the flight crew will check the following:

1. Establish communications with maintenance personnel.
2. PRIOR TO EACH DEPARTURE: Move the elevator and have maintenance personnel verify the proper movement of the control surface.

(M) PROCEDURES

Perform a visual check of surface movement.

WARNING: ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL CONTROL SURFACES.

1. Establish communications – flight deck to ground.
2. Pressurize all four hydraulic systems.

FLIGHT DECK	GROUND OBSERVATION
Control Column Full aft, then Full Forward.	Observe all four elevators up, down.

NOTE: Outboard elevator deflection will be approximately 23° up, 17° down. Inboard elevator deflection will be approximately 25° up, 16° down. Measurement is not required.

3. Restore airplane to its' required configuration.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
27-41-01	Stabilizer Trim/Rudder Ratio Changer Modules (SRM) (Stabilizer Trim Control) **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(M)(O)** Stabilizer trim control in one module may be inoperative provided: a) Horizontal stabilizer is verified to operate normally with the Alternate Stab Trim Switches, and b) Rudder ratio control in both modules operates normally. CAT II/III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-41-01	Adjacent To Main EICAS (Flight Controls Position Indicator).	STAB TRIM CONTROL IN ___ SRM INOP.

(O) PROCEDURES

1. Ensure that the RUDDER RATIO EICAS message is not displayed.
2. Manual stabilizer trim control is available from either control wheel trim switch, however, the stabilizer will move at one half drive speed.
3. Autotrim may be affected as follows:
   a) During single autopilot operation, if the left SRM stabilizer trim control is inoperative, the left autopilot will not engage because the left FCC will not receive a valid signal from the SRM. Similarly, the right autopilot will not engage if the right SRM trim control is inoperative.
   b) After arming APP mode when autoland status displays LAND 2 or LAND 3, the FCCs ignore the SRM valid signal input, allowing all autopilots to engage. Normal (half–rate) autotrim control is retained by the fully operative SRM.
   c) Speed Stability Trim operates normally.
4. Inflight failure of the other SRM, or stabilizer trim control in the other SRM, will result in the loss of all autopilots and autotrim capability as well as manual trim from both of the control wheel trim switches. Stabilizer trim control will only be available through the Alternate Stabilizer Trim Switches.
5. EICAS advisory message STAB TRIM 2 or STAB TRIM 3 may remain displayed. Also, the message may be cleared when the stabilizer is moved with the Alternate Stabilizer Trim Switches and reappear when using the control wheel trim switches due to half drive speed stabilizer movement.

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(M) PROCEDURES

1. Provide electrical power (AMM 24–22–00/201) and pressurize hydraulic systems 2 and 3 (AMM 29–11–00/201)
2. Check that stabilizer trim operates normally with the Alternate Stabilizer Trim switches:

WARNING: ENSURE PERSONNEL AND EQUIPMENT ARE CLEAR OF HORIZONTAL STABILIZER AND ELEVATOR SURFACES BEFORE MOVING STABILIZER. INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT COULD OCCUR

NOTE: During the following tests, the EICAS advisory messages >STAB TRIM 2 and >STAB TRIM 3 will display, along with the status message STAB TRIM. If both advisory messages >STAB TRIM 2 and >STAB TRIM 3 remain displayed at the conclusion of the tests, **DISPATCH IS NOT ALLOWED**.

a) Ensure stabilizer trim switches and cutout valves operate normally.

b) Select STAB TRIM 2 CUT OUT and STAB TRIM 3 CUT OUT position on the guarded Stabilizer Trim Cutout Switches located on the control stand.

c) Using both Alternate Stabilizer Trim Switches located on the control stand, select APL NOSE UP for at least 3 seconds. Monitor stabilizer trim indicator to confirm stabilizer does not move. If the stabilizer does move, **DISPATCH IS NOT ALLOWED** until repairs are made.

d) Using both Alternate Stabilizer Trim Switches, select APL NOSE DN for at least 3 seconds. Monitor stabilizer trim indicator to confirm stabilizer does not move. If the stabilizer does move, DISPATCH IS NOT ALLOWED until repairs are made.

e) Close the guards on both STAB TRIM 2 and TAB TRIM 3 Stabilizer Trim Cutout Switches.

f) Check that no alternate trim solenoid valve is failed in the energized position:

1) Move the left Alternate Stabilizer Trim Switch in both the airplane nose up and airplane nose down directions. Verify the stabilizer does not move. If the stabilizer does move, an arm or control solenoid valve within the STCM (Stabilizer Trim Control Module) is failed in the energized position and **DISPATCH IS NOT ALLOWED** until repairs are made.

2) Move the right Alternate Stabilizer Trim Switch in both the airplane nose up and airplane nose down directions. Verify the stabilizer does not move. If the stabilizer does move, an arm or control solenoid valve within the STCM (Stabilizer Trim Control Module) is failed in the energized position and **DISPATCH IS NOT ALLOWED** until repairs are made.

NOTE: If the EICAS advisory message >STAB TRIM 2 is displayed, perform step (h) before step (g) below.

g) Ensure stabilizer operates normally using hydraulic System 2 as follows:

1) Select STAB TRIM 3 CUT OUT position on the guarded Stabilizer Trim Cutout Switch located on the control stand.

2) Using both Alternate Stabilizer Trim Switches, select APL NOSE UP for at least 3 seconds. Monitor stabilizer trim indicator to confirm motion of stabilizer in airplane nose up direction. Note that the stabilizer will move at one half drive speed. if the stabilizer does not move, **DISPATCH IS NOT ALLOWED**.

3) Using both Alternate Stabilizer Trim Switches, select APL NOSE DN for at least 3 seconds. Monitor stabilizer trim indicator to confirm motion of stabilizer in airplane nose down direction. Note that the stabilizer will move at one half drive speed. if the stabilizer does not move, **DISPATCH IS NOT ALLOWED**.

4) Close the guards on the STAB TRIM 3 Stabilizer Trim Cutout Switch located on the control stand.

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h) Ensure stabilizer operates normally using hydraulic System 3 as follows:

i) Select STAB TRIM 2 CUT OUT position on the guarded Stabilizer Trim Cutout Switch located on the control stand.

1) Using both Alternate Stabilizer Trim Switches, select APL NOSE UP for at least 3 seconds. Monitor stabilizer trim indicator to confirm motion of stabilizer in airplane nose up direction. Note that the stabilizer will move at one half drive speed. if the stabilizer does not move, **DISPATCH IS NOT ALLOWED**.

2) Using both Alternate Stabilizer Trim Switches, select APL NOSE DN for at least 3 seconds. Monitor stabilizer trim indicator to confirm motion of stabilizer in airplane nose down direction. Note that the stabilizer will move at one half drive speed. if the stabilizer does not move, **DISPATCH IS NOT ALLOWED**.

3) Close the guard on the STAB TRIM 2 Stabilizer Trim Cutout Switch.

3. **DISPATCH IS NOT ALLOWED** with rudder ratio control inoperative in either the left or right SRM. To confirm that rudder ratio control is functioning properly in both modules, verify EICAS status message RUDDER RATIO is NOT displayed.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-41-02	Control Wheel Stabilizer Trim Switches	**Y**	2	1	**C**	**(M)(O)** One may be inoperative provided Alternate Stabilizer Trim System is verified to operate normally PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-41-02	Adjacent To Upper EICAS Display	___ TRIM SWITCH IS INOP

(O) PROCEDURES

PRIOR TO EACH DEPARTURE, verify the Alternate Stabilizer Trim system operates normally:

1. Using both Alternate Stab Trim switches located on the control stand, select APL NOSE UP for at least 3 seconds. Monitor stabilizer trim indicator to confirm the stabilizer moves in the nose up direction.
2. Using both Alternate Stab Trim switches located on the control stand, select APL NOSE DN for at least 3 seconds. Monitor stabilizer trim indicator to confirm the stabilizer moves in the nose down direction.

   NOTE: The remaining control wheel stab trim switch may be verified to operate normally by applying manual trim input in each direction for at least 3 seconds and observing corresponding stabilizer motion.

(M) PROCEDURES

1. Provide electrical power (AMM 24–22–00/201) and pressurize hydraulic systems 2 and 3 (AMM 29–11–00/201)
2. Verify the Alternate Stabilizer Trim system operates normally:
   a) Using both Alternate Stab Trim switches located on the control stand, select APL NOSE UP for at least 3 seconds. Monitor stabilizer trim indicator to confirm the stabilizer moves in the nose up direction.
   b) Using both Alternate Stab Trim switches located on the control stand, select APL NOSE DN for at least 3 seconds. Monitor stabilizer trim indicator to confirm the stabilizer moves in the nose down direction.
3. Verify operation of the remaining control wheel stab trim switch by applying manual trim input in each direction for at least 3 seconds and observing corresponding stabilizer motion.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-48-01	Stabilizer Trim Indicators	**Y**	2	1	**C**	**(M)** One may be inoperative (including multiple greenband indication) provided faulty indicator is not visible.

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-48-01	Over Inoperative Stabilizer Trim indicator (Center Control Stand)	___ STAB TRIM INDICATOR INOP

(M) PROCEDURES

Perform a check of stabilizer movement.

WARNING: ENSURE THAT ALL PERSONNEL AND EQUIPMENT ARE CLEAR OF FLIGHT CONTROL SURFACES.

1. Pressurize hydraulic systems 2 and 3.
2. Hold STAB TRIM ALTN switches on the on control stand to the APL NOSE UP position until the stabilizer stops moving. Check that the operating stabilizer trim indicator reads 14.60 to 14.90 units of trim.
3. Hold STAB TRIM ALTN switches to the APL NOSE DN position until stabilizer stops moving. Check that operating stabilizer trim indicator reads 0.10 to 0.40 units of trim.
4. Restore airplane to required configuration.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	**NAME / DESCRIPTION**					**REMARKS OR EXCEPTIONS**
27-48-02	Nose Gear Pressure Switch	**Y**	1	0	**C**	**(O)** May be inoperative provided stabilizer trim position is properly set PRIOR TO EACH DEPARTURE for the actual airplane weight, center of gravity and takeoff thrust setting. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-48-02	Adjacent To Each Stab Position Indicator (Center Control Stand).	NOSE PRESSURE SWITCH INOP

(O) PROCEDURES

1. PRIOR TO EACH DEPARTURE, verify that the stabilizer trim position is properly set for the actual airplane weight, center of gravity (CG), and takeoff thrust.
   a) Confirm that FMC takeoff data (gross weight, CG, takeoff thrust) has been correctly initialized.
   b) Verify that stabilizer trim is correctly set for the loaded airplane and takeoff thrust that will be used.
2. Advisory or status message STAB GREENBAND may remain displayed.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-51-01A	Flap Control Units (FCU) Right Inoperative **"DISP.APPR.REQ'D"**	**N**	3	2	**C**	**(M)(O)** Right FCU may be inoperative provided: a) It is verified that Flap position RVDT sensors operate normally PRIOR TO EACH DEPARTURE **(Logbook Entry Required)**, b) #1 demand pump is selected ON during takeoff and landing and c) The Left and Center FCUs operate normally. <u>CAT III</u> Not Authorized **Repetitive Check Required (Yellow Placard)**
27-51-01B	Flap Control Units (FCU) Left Inoperative **"DISP.APPR.REQ'D"**	**N**	3	2	**C**	**(M)(O)** Left FCU may be inoperative provided: a) It is verified that Flap position RVDT sensors operate normally PRIOR TO EACH DEPARTURE **(Logbook Entry Required)**, b) #4 demand pump is selected ON during takeoff and landing and c) The Right and Center FCUs operate normally. <u>CAT III</u> Not Authorized **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-51-01A	Adjacent To Flap Handle	RIGHT FLAP CONTROL UNIT INOP And if applicable, – RIGHT FCU DEACTIVATED AND REMOVED
27-51-01B	Adjacent To Flap Handle	LEFT FLAP CONTROL UNIT INOP And if applicable, – LEFT FCU DEACTIVATED AND REMOVED

(O) PROCEDURES

27-51-01A

1. Select #1 demand pump ON during takeoff and landing.
2. With any FCU inoperative, triple channel autoland will not be available and status message NO LAND 3 will be displayed.
3. The FMC scratch pad message PERF/VNAV UNAVAILABLE may be displayed.
4. EICAS status message FLAP CONTROL R will be displayed.
5. If status message FLAP SYS MONITOR is <u>not</u> displayed, dispatch is allowed. If it <u>is</u> displayed, an RVDT sensor component fault or an FCU fault has occurred. Dispatch with an RVDT sensor fault is not allowed.

Continued Next Page

6. When the flight director is selected to the FCC associated with the inoperative FCU, the pitch flight director bar will not be displayed at speeds below 60 knots.
7. Advisory message IDLE DISAGREE may be displayed in flight when selecting idle thrust with flaps not in landing position and engine anti–ice off.

27-51-01B

1. Select #4 demand pump ON during takeoff and landing.
2. With any FCU inoperative, triple channel autoland will not be available and status message NO LAND 3 will be displayed.
3. The FMC scratch pad message PERF/VNAV UNAVAILABLE may be displayed.
4. EICAS status message FLAP CONTROL L will be displayed.
5. If status message FLAP SYS MONITOR is not displayed, dispatch is allowed. If it is displayed, an RVDT sensor component fault or an FCU fault has occurred. Dispatch with an RVDT sensor fault is not allowed.
6. When the flight director is selected to the FCC associated with the inoperative FCU, the pitch flight director bar will not be displayed at speeds below 60 knots.
7. Advisory message IDLE DISAGREE may be displayed in flight when selecting idle thrust with flaps not in landing position and engine anti–ice off.

(M) PROCEDURES

27-51-01A, 27-51-01B

Ground Proximity Warning System (GPWS) MODE 4 will not function with the center Flap Control Unit (FCU) inoperative. Nuisance MODE 4 (unsafe terrain clearance) warnings will result which renders GPWS MODE 4 inoperative. The center FCU may be interchanged with either the left FCU or right FCU since all three units are functionally identical. An inoperative or removed left or right FCU will cause display of STAB XFR SIG status message, prohibiting use of the horizontal stabilizer tank.

STATUS MESSAGE	**COMMENTS**
FLAP CONTROL ____	The associated FCU is inoperative. If status message “FLAP SYS MONITOR” is not displayed, dispatch is allowed. See Paragraph below.
FLAP SYS MONITOR	An RVDT sensor component fault or a FCU fault has occurred. Dispatch with an RVDT sensor fault is not allowed. Dispatch with an FCU fault is allowed. See Paragraph below.

Continued Next Page

PRIOR TO DEPARTURE CHECK:

1. If status message “FLAP CONTROL ___ is displayed:

   a) Verify RVDT sensors operate normally. This is accomplished by ensuring status message “FLAP SYS MONITOR” is not displayed. If “FLAP SYS MONITOR” is not displayed, additional maintenance action is not required unless FCU is interchanged is elected due to an inoperative GPWS MODE 4.

   b) If the center FCU is inoperative and interchange is necessary for GPWS MODE 4 operation:

      1) Pull circuit breakers on the P7 panel listed below and interchange either the left or right FCU with the center unit.

         FLT CONT ELEC 2L AC (C10) FLT CONT ELEC 2L DC (C11)
         FLT CONT ELEC 1 L AC (C12) FLT CONT ELEC 1 L DC (C13)
         FLT CONT ELEC 1 R AC (C14) FLT CONT ELEC 1 R DC (C15)
         FLT CONT ELEC 2R AC (C16) FLT CONT ELEC 2R DC (C17)

      2) Close the circuit breakers opened in step 1) above.

      3) After interchange, EICAS Status Message “FLAP CONTROL __” will re–display to the inoperative FCU position.

2. If status message “FLAP SYS MONITOR” is displayed, verify the RVDT sensors operate normally as follows:

   a) Access CMC Existing Faults for >27 FLAP CONTROL. If any of the following faults are present, all three FCU’s detect an RVDT fault. DISPATCH IS NOT ALLOWED.

   - LE __ SWITCH FAIL
   - __ RVDT FAIL

   b) Access CMC Existing Faults for >27 FLAP CONTROL. If any of the following faults are present, either an FCU fault or a FCU detected RVDT fault has occurred and the following procedure must be accomplished to verify the RVDT sensors operate normally:

   - __ RVDT ~ FCU – __ INTERFACE FAIL
   - FLAP 26 VAC– __ >FCU– __ INTERFACE FAIL

      1) Pull the following circuit breakers on the P7 panel.

         FLT CONT ELEC 2L AC (C10) FLT CONT ELEC 2L DC (C11)
         FLT CONT ELEC 1 L AC (C12) FLT CONT ELEC 1 L DC (C13)
         FLT CONT ELEC 1 R AC (C14) FLT CONT ELEC 1 R DC (C15)
         FLT CONT ELEC 2R AC (C16) FLT CONT ELEC 2R DC (C17)

      2) Label each FCU with “Left”, “Right” and “Center” identification marks so their original location remains known.

      3) Remove the FCU that corresponds to the above reported Interface Fail faults.

      4) Close the circuit breakers opened in step 1) above. Verify “FLAP SYS MONITOR” status message does not appear within 30 seconds. If “FLAP SYS MONITOR” message appears, DISPATCH IS NOT ALLOWED.

      5) Pull the circuit breakers listed in step 1) above and remove one of the FCUs which is still installed. Install this FCU in the vacant slot of the previously removed unit.

      6) Close the circuit breakers opened in step 5) above.

      7) Wait a minimum of 30 seconds, if “FLAP SYS MONITOR” message appears, an RVDT sensor fault is confirmed and DISPATCH IS NOT ALLOWED.

Continued Next Page

8) If FLAP SYS MONITOR message does not appear, RVDT sensors are verified to operate normally. The removed FCU is classified inoperative.

9) Open circuit breakers listed in step a) above and replace the two operable FCU's in their original EE shelf slot. Do not replace the inoperative FCU.

NOTE: If the center FCU is inoperative and interchange is necessary for GPWS MODE 4 operation, move either the left or right unit to the removed center FCU's position at this time.

10) Close the circuit breakers opened in step 9) above. Status message "FLAP CONTROL __" will re–display to the removed position.

CAUTION: IF "FLAP SYS MONITOR" REMAINS DISPLAYED, DISPATCH IS NOT ALLOWED.

3. Accomplish required logbook entry.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
27-51-02	TE Flap Drive System (No-Coast Drag Brake) **"Contact MCC"**	**N**	1	0	**A**	**(M)(O)** May be inoperative provided: **a)** Flap Drive Torque Tube and No-Coast Drag Brake support bracket are verified to be undamaged PRIOR TO EACH DEPARTURE **(Log Book Entry Required),** b) Flap Control handle remains in agreement with flap position when hydraulics are unpressurized and Alternate Flaps Arm Switch remains OFF during ground operations in the terminal ramp area, and c) Repairs are made within three flight days. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-51-02	Adjacent To The ALTN FLAPS ARM Switch On The Center Instrument Panel	TE FLAP DRIVE SYSTEM NO–COAST DRAG BRAKE INOP LEAVE ALT FLAPS ARM SWITCH OFF IN TERMINAL RAMP AREA

(O) PROCEDURES

Ensure the Alternate Flaps Arm Switch remains OFF during ground operations in the terminal ramp area. This precludes uncommanded flap extension (due to gravity) when the TE flap No–Coast Drag Brake is inoperative.

(M) PROCEDURES

1. Placard the ALTN FLAPS ARM switch as follows:
   a) Obtain a Delta placard.
   b) Print on placard DISCREPANCY in bold letters “ALTN FLAPS ARM SWITCH – LEAVE OFF IN TERMINAL AREA”.
   c) Trim placard so that only the DISCREPANCY portion remains.
   d) Affix placard adjacent to the ALTN FLAPS ARM switch.

Continued Next Page

2. PRIOR TO DEPARTURE CHECK:

a) Perform the following verification procedure:

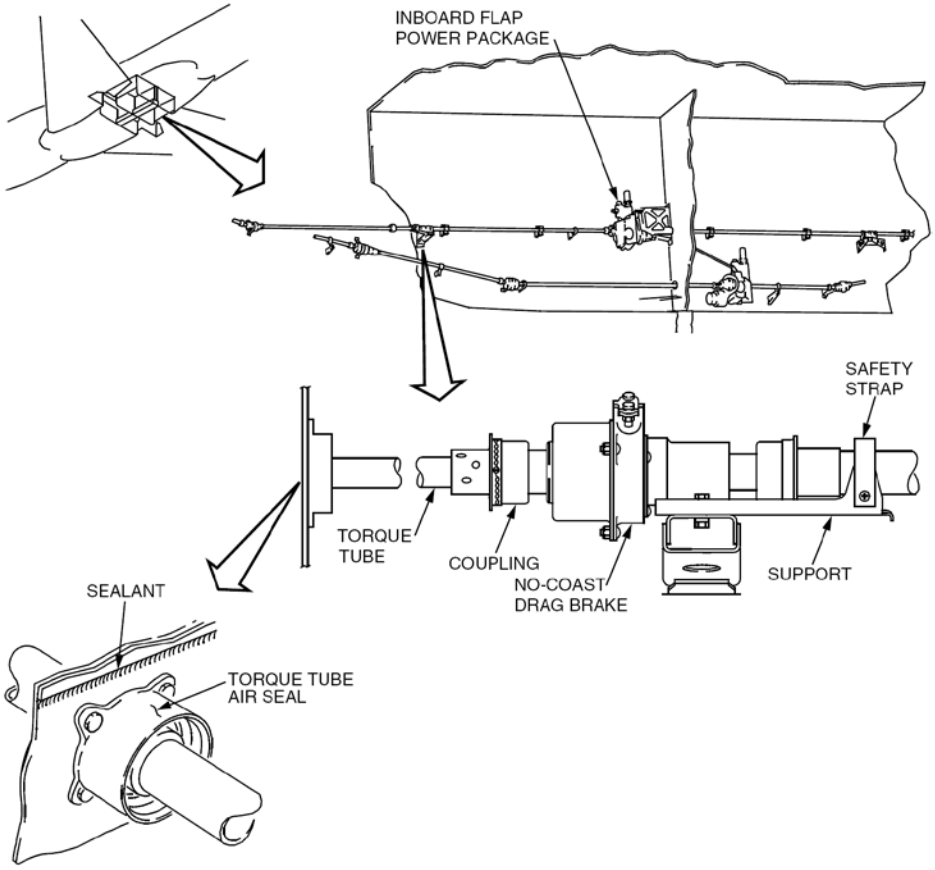
1) Examine the Flap Drive Torque tube at it's connection to the No–Coast Drag Brake. Ensure that there is no evidence of damage.

2) Examine the Flap Drive torque Tube where it passes through the body to wing air seal. Ensure that there is no evidence of damage.

3) Examine the No–Coast Drag Brake. Ensure that there is no evidence of damage to it's support bracket.

b) If there is abnormal wear or damage evident, DISPATCH IS NOT ALLOWED.

c) Accomplish required logbook entry.



FLAP DRIVE COMPONENTS

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
27-62-01	Auto Spoilers System **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(M)(O)** May be inoperative provided: a) System is deactivated, and b) Applicable gross weight penalties for Auto Ground Spoiler Inoperative are applied for landing. CAT II/III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-62-01	Adjacent To Speed Brake Handle	AUTO GROUND SPOILERS INOP AND DEACTIVATED

(O) PROCEDURES

1. Verify that the AWABS contains MEL item 27–62–01.
2. For rejected takeoff:
   a) Simultaneously close thrust levers, disengage autothrottles and apply maximum manual wheel brakes or verify operation of RTO autobrakes.
   b) Manually raise speed brake lever.
   c) Apply maximum amount of reverse thrust consistent with conditions.
3. For landing:
   a) Simultaneously close thrust levers and apply manual wheel brakes or verify operation of autobrakes.
   b) Manually raise speed brake lever.
   c) Apply reverse thrust consistent with conditions.

27-62-01	**AUTO SPOILERS SYSTEM**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** Use RWY ALLOWABLE LANDING WT for "MANUAL SPEED BRAKES" in ALM – Airport Section.

(M) PROCEDURES

Pull and secure circuit breaker SPEEDBRAKE AUTO CONT (panel P–7).

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-62-02	Speed Brake Solenoid	**N**	1	0	**C**	**(M)(O)** May be inoperative in the "ground" position provided speed brake lever is not moved beyond the FLIGHT position during flight.

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-62-02	Adjacent To Speed Brake Lever	OBSERVE FLIGHT DETENT – SPEED BRAKE SOLENOID IS INOP And if applicable, DEACTIVATED.

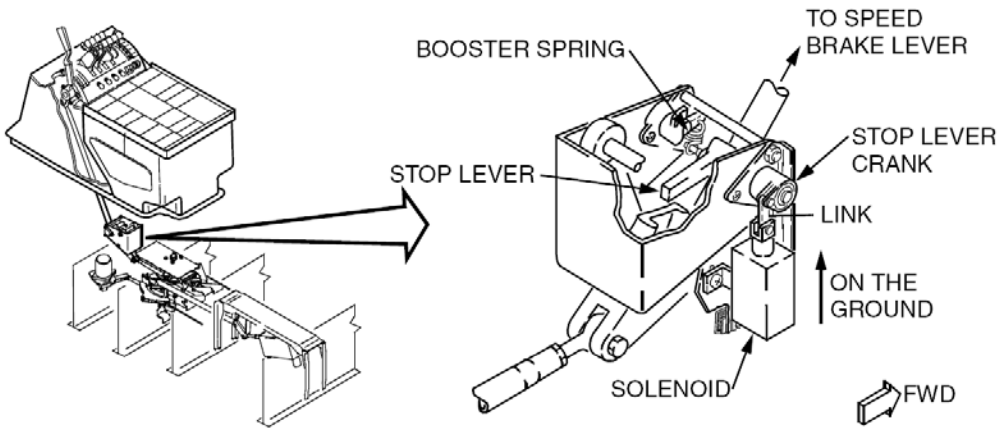
(O) PROCEDURES

Observe FLIGHT detent when speed brakes are used in flight.

NOTE: Do not extend lever to the UP position in flight, as airplane will pitch nose – up, since the two outboard spoilers on each side (which do not deploy in FLIGHT detent) will be deployed.

(M) PROCEDURES

1. Pull and secure SPEEDBRAKE FLT DETENT (panel P–7) circuit breaker.
2. Check to make sure that speed brake lever is free to move from DOWN to full UP position.
   a) If lever cannot be moved from DOWN to full UP.
      1) Remove ceiling panel (211 E) forward of main entry door No. 1, approximately at the airplane centerline.
      2) Disconnect electrical wire from solenoid.
      3) Move solenoid or solenoid actuated lever lock to the relaxed "on the ground" position so that speed brake lever is free to move to full UP position. Remove solenoid (if required) and lockwire (if required).
      4) Reinstall ceiling panel.



SPEEDBRAKE SOLENOID

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
27-68-01	Spoiler Position Indicating System **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided visual confirmation of proper spoiler movement is made PRIOR TO EACH DEPARTURE **(Logbook Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-68-01	Adjacent To EICAS Display	SPOILER POSITION INDICATING SYSTEM INOP

(M) PROCEDURES

PRIOR TO EACH DEPARTURE CHECK:

Perform visual check of surface movement:

WARNING: ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL FLIGHT CONTROL SURFACES.

1. Establish communications – flight deck to ground.
2. Pressurize all four hydraulic systems.

   NOTE: Full control wheel input will result in the most inboard spoilers will not extending, the second most inboard will extend approximately 20°, and the outboard four will extend approximately 45°.
3. Position the control wheel full left and confirm with ground observer that the left wing spoilers extended correctly.
4. Position the control wheel full right and confirm with ground observer that the right wing spoilers extended correctly.
5. Restore airplane to its required configuration.
6. Accomplish required logbook entry.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-81-01	Leading Edge Flaps Drives (Pneumatic)	**N**	8	7	**C**	**(M)(O)** One may be inoperative provided all electric drives operate normally. NOTE: Delta normal takeoff and climb performance ensures obstacle clearance without having to retract flaps.

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-81-01	Adjacent To Main EICAS	___ LEADING EDGE FLAPS PNEUMATIC DRIVE UNIT INOP

(O) PROCEDURES

1. With one pneumatic drive inoperative, the status message LE SINGLE DRIVE will be displayed. Additionally, the caution message FLAPS PRIMARY will be displayed during flap operation.
2. The FLAPS PRIMARY message indicates a temporary LE FLAP disagreement as a result of slower electrical actuation of the affected LE FLAP panels. At the completion of the flap motion, with all panels in commanded position, FLAPS PRIMARY will extinguish.
3. Dispatch with FLAPS PRIMARY displayed, or the status message LE MULT DRIVE, is prohibited.
4. After Takeoff:
   a) Leave flaps in takeoff position until obstacle clearance is assured.
   b) Retract flaps with the flap lever using normal procedures. The affected leading edge flaps will automatically be retracted electrically at a slower rate than the pneumatic flaps.
5. Flap Extension: Use the flap lever and normal procedures

(M) PROCEDURES

NOTE: If heat damage inspection is required, refer to Maintenance Manual.

1. Verify the Leading Edge Flap Electric Drives operate normally as follows:

WARNING: ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL FLIGHT CONTROL SURFACES.

   a) If all leading edge and trailing edge flaps are not fully retracted, retract them using the flap lever.
   b) Pull the following circuit breakers to inhibit trailing edge motion and leading edge pneumatic motion.

NAME	PANEL LOCATION
PRI LE FLAP DR CONT GRP B (AC)	6E5
PRI LE FLAP DR CONT GRP A (AC)	6E3
TE FLAP ELEC CONT INBD	6L20
TE FLAP ELEC CONT OTBD	6L19
PRI TE FLAP CONT DC	6E2

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CAUTION: DO NOT ELECTRICALLY EXTEND AND RETRACT THE FLAPS MORE THAN ONE TIME IN 5 MINUTES. DAMAGE TO THE MOTOR CAN OCCUR IF THE MOTOR BECOMES TOO HOT.

2. Move the flap lever to 5.

   The leading edge flaps should remain stationary for approximately 15 seconds, and then extend electrically. Verify that all leading edge flaps extend by observing the EICAS non–normal (expanded) flap display and by observing the flap panels.

   NOTE: The caution message FLAPS DRIVE and the status messages LE MULT DRIVE and TE FLAPS will remain displayed on EICAS following this step.

3. Move the flap lever to UP.

   The leading edge flaps should remain stationary for approximately 15 seconds, and then retract electrically. Verify that all leading edge flaps retract by observing the EICAS display and the flap panels.

4. Close the 5 circuit breakers opened in step 1. b).

5. Press the ALT FLAPS arm switch. Press the arm switch again and verify that the messages FLAPS DRIVE, LE MULT DRIVE, and TE FLAPS are extinguished.

   NOTE: Status message LE MULT DRIVE may be latched by a single pneumatically inoperative Flap Drive Unit. If LE MULT DRIVE remains displayed at conclusion of this maintenance procedure, dispatch may still be available by referring to MEL item 31–61–04, LE MULT DRIVE maintenance procedure, and verify the message was latched by a single pneumatically inoperative Flap Drive Unit.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-81-02	Leading Edge Flaps Drives (Electric)	**N**	8	7	**C**	**(M)** One may be inoperative provided: a) All pneumatic drives operate normally, and b) Associated electric drive is deactivated.

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-81-02	Adjacent To Alternate Flap ARM Switch	___ LEADING EDGE DRIVE ELECTRIC MOTOR INOP

(M) PROCEDURES

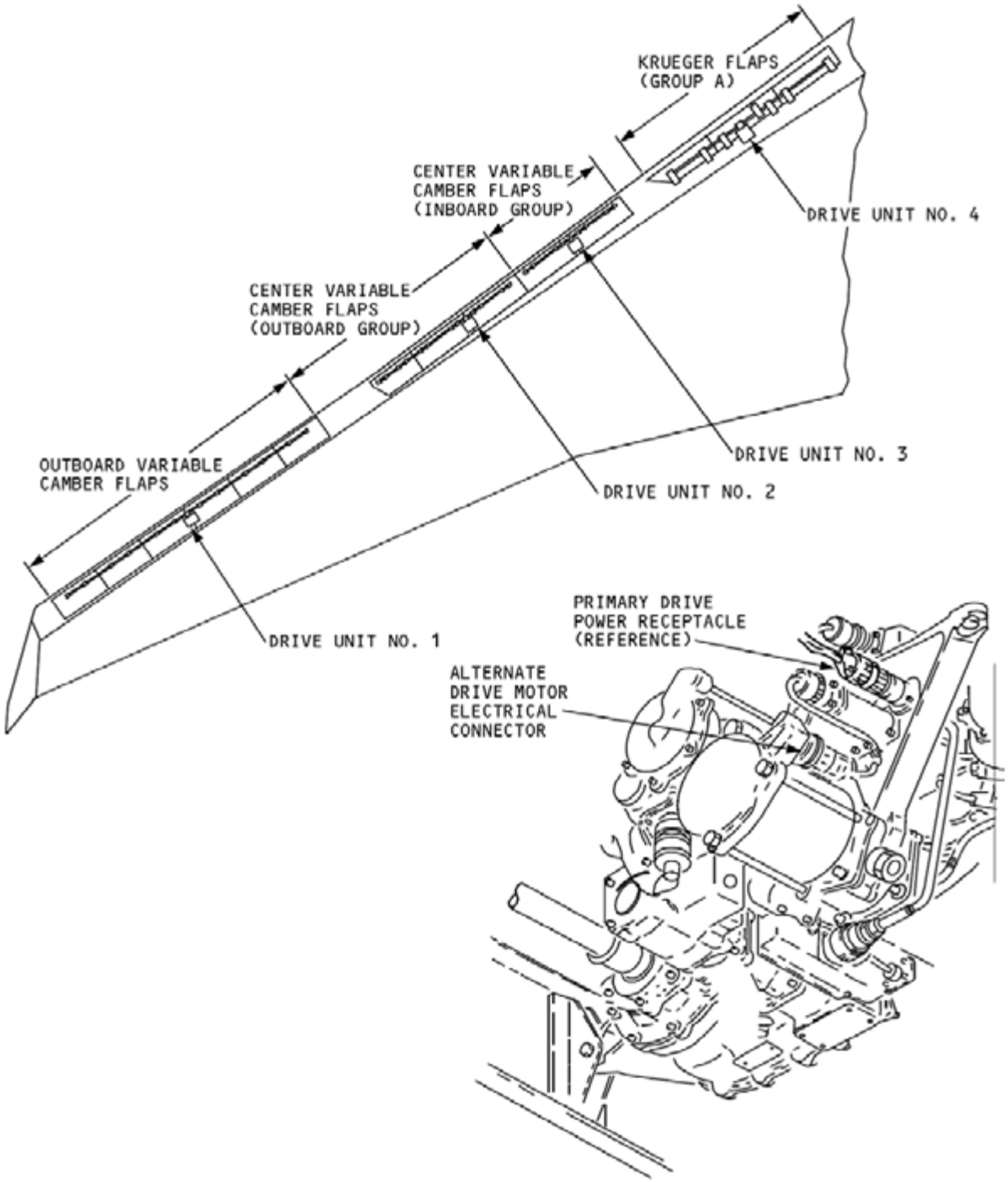
1. Deactivate the associated electric drive.
   a) Extend the leading edge flaps pneumatically (AMM 27–81–00).
   b) Check the Primary EICAS display to ensure that all leading edge flaps are extended to the correct position.
   c) Remove pneumatic power (AMM 36–00–00/201).
   d) Pull the following circuit breakers and attach DO–NOT–CLOSE tags:

P–6 Panel	P–414 Panel	P–415 Panel
PRIM LE FLAP CONT GRP A AC (E3)	LE FLAP ELEC DRIVE 1 (A5)	LE FLAP ELEC DRIVE 2 (M35)
PRIM LE FLAP CONT GRP A DC (E4)	LE FLAP ELEC DRIVE 4 (A2)	LE FLAP ELEC DRIVE 3 (M32)
PRIM LE FLAP CONT GRP B AC (E5)		
PRIM LE FLAP CONT GRP B DC (E6)		
LE FLAP ELEC CONT GRP B DRIVE 1 (L21)		
LE FLAP ELEC CONT GRP A DRIVE 2 (L22)		
LE FLAP ELEC CONT GRP A DRIVE 3 (L23)		
LE FLAP ELEC CONT GRP A DRIVE 4 (L24)		

CAUTION: INSTALL LE FLAPS LOCKS BEFORE ENTERING CAVITY AREA

   e) Locate the associated electric drive motor in the leading edge wing cavity. Disconnect, cap and stow the alternate motor P203 electrical connector.
   f) Close circuit breakers opened in step 2. (d).

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LEADING EDGE FLAP DRIVE

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
27-81-03	Leading Edge Flaps Retraction System (Reverser Actuated)	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
27-81-03	Adjacent To Main EICAS	L/E FLAP RETRACTION SYSTEM INOP

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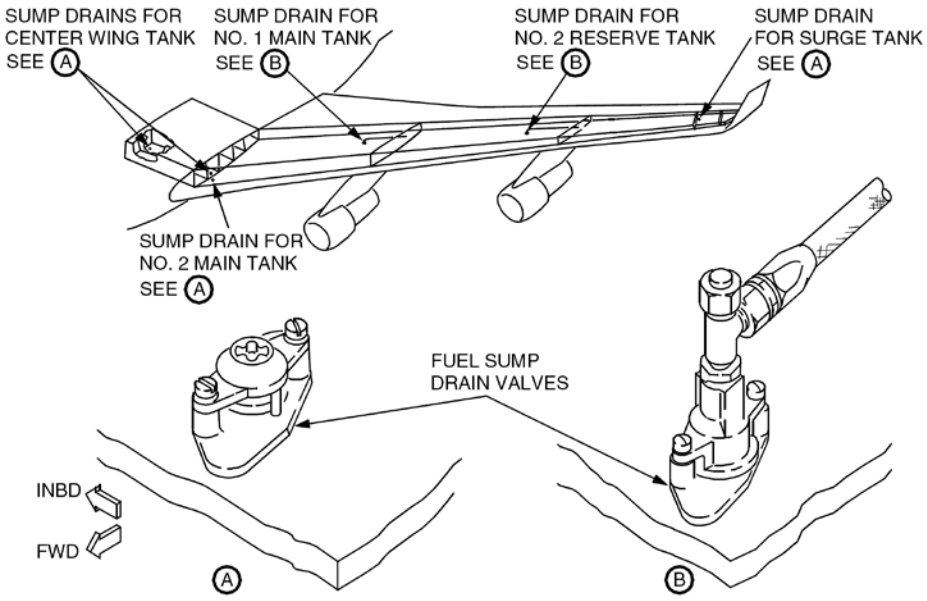
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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
28-11-01	Fuel Sump Drain Valves **"Contact MCC"**	**N**	10	0	**C**	**(M)** May be inoperative provided: a) There is no evidence of leakage, and b) Alternate procedures are used to prevent water accumulation in associated tank before and after each fuel service **(Logbook Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-11-01	On Face Of Fueling Control Panel (P42)	___ SUMP DRAIN VALVE INOP

(M) PROCEDURES

1. Visually inspect exterior surface location of the inoperative sump drain valve to verify that there is no evidence of fuel leakage. (See figure 28–11–01 for location of fuel sump drain valves)
2. **AFTER USE CHECK (Before and After each refueling):**
   a) Before and after each fuel service, check refueling service equipment for moisture accumulation. Coordinate this check with fueler.
   b) Accomplish required logbook entry.



ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
28-11-02A	Horizontal Stabilizer Sump Drain Valves **"DISP.APPR.REQ'D"**	**N**	3	0	**C**	**(M)(O)** May be inoperative provided horizontal stabilizer tank remains empty. NOTE: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.
28-11-02B	Horizontal Stabilizer Sump Drain Valves	**N**	3	0	**C**	**(M)** May be inoperative provided: a) There is no evidence of leakage, and b) Alternate procedures are used to prevent water accumulation in associated tank before and after each fuel service **(Logbook Entry Required).** **Repetitive Check Required (Yellow Placard)**
28-11-02C	Horizontal Stabilizer Sump Drain Valves (Electric Actuation Feature)	**N**	2	0	**D**	**(M)** May be inoperative provided: a) There is no evidence of leakage, and b) Valve(s) is operated manually.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-11-02A	On Face Of P211 Stabilizer Fuel Sump Drain Panel, Located On The Front Of The Workstand Above Access Door 312A And Adjacent To The Horizontal Stabilizer Tank Indicator On The Fueling Control Panel	___ HORIZONTAL STABILIZER SUMP DRAIN VALVES INOP. HORIZ STAB TANK MUST BE EMPTY
28-11-02B	On Face Of P211 Stabilizer Fuel Sump Drain Panel, Located On The Front Of The Work Stand Above Access Door 312A	___ HORIZONTAL STABILIZER SUMP DRAIN VALVE INOP
28-11-02C	On Face Of P211 Stabilizer Fuel Sump Drain Panel, Located On The Front Of Workstand Above Access Door 312A	___ HORIZONTAL STABILIZER SUMP DRAIN VALVE ELECTRONIC ACTUATION FEATURE INOP

(O) PROCEDURES

28-11-02A

NOTE: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

Continued Next Page

(M) PROCEDURES

28-11-02A

Verify that Horizontal Stabilizer Tank is empty.

28-11-02B

1. Visually inspect exterior surface location of the inoperative sump drain valve to verify that there is no evidence of fuel leakage.
2. **AFTER USE CHECK (Before and After each refueling)**:
   a) Before and after each fuel service, check refueling service equipment for moisture accumulation. Coordinate this check with fueler.
   b) Accomplish required logbook entry.

28-11-02C

1. Set stabilizer to six units of trim.
2. Visually inspect exterior surface location of the inoperative sump drain valve to verify that there is no evidence of fuel leakage.
3. Verify valve operates manually by placing suitable container, 1 U.S. gallon capacity, under drain hole. Press manual override push button on affected valve(s). Have observer, holding container, verify fuel drains into container (AMM 12–11–03/301).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-11-03	Horizontal Stabilizer Sump Drain Indicators	**N**	2	0	**C**	**(M)** May be inoperative provided there is no evidence of leakage from associated valve(s).

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-11-03	On The Associated L Valve/R Valve Indicator Light On The P211 Stabilizer Fuel Sump Drain Panel, Located On The Front Of The Workstand Above Access Door 312A	___ HOR STAB SUMP DRAIN INDICATOR LIGHTS INOP

(M) PROCEDURES

Visually inspect exterior surface location of the associated sump drain valve(s) to verify that there is no evidence of fuel leakage.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
28-15-01	Fuel Scavenge Pump (Electric) (A/C 6301 – 6310) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative deactivated provided: a) Center tank remains empty, OR b) The first 3,000 lb of center tank fuel is included as part of Zero Fuel Weight and is considered unusable.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-15-01	Adjacent To The SCAV Pump Defuel Switch On The Maintenance Overhead Panel P461, On The Flight Deck	FUEL SCAVENGE PUMP INOP AND DEACTIVATED

(O) PROCEDURES

If center tank is fueled, 3,000 lbs of fuel will be unusable.

NOTE 1: EICAS status message FUEL SCAV PUMP will be displayed when the fuel scavenge pump is commanded on.

NOTE 2: The SCAV PUMP ON advisory message may be displayed on the ground.

(M) PROCEDURES

To deactivate the inoperative pump, pull and secure circuit breaker C922 SCAVENGE PUMP on P414 panel.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-15-02A	Hydro-mechanical Fuel Scavenge Systems (A/C 6311–6316)	**Y**	2	1	**D**	One system may be inoperative provided associated main fuel tank float valve operates normally.
28-15-02B	Hydro-mechanical Fuel Scavenge Systems (A/C 6311–6316)	**Y**	2	1	**D**	One system may be inoperative provided associated main fuel tank float valve is inoperative closed.
28-15-02C	Hydro-mechanical Fuel Scavenge Systems (Main Fuel Tank Float Valve) (A/C 6311–6316)	**N**	2	1	**D**	**(M)** One main fuel tank float valve may be inoperative open provided associated system is deactivated.
28-15-02D	Hydro-mechanical Fuel Scavenge Systems (A/C 6311–6316) **"DISP.APPR.REQ'D"**	**N**	2	0	**D**	**(M)** May be inoperative provided: a) Center tank remains empty, and b) Center tank quantity indication operates normally.
28-15-02E	Hydro-mechanical Fuel Scavenge Systems (A/C 6311–6316) **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) The first 3,000 lb of center tank fuel is included as part of Zero Fuel Weight and is considered unusable, and b) If a float valve is inoperative open, the associated system is deactivated.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-15-02A	Adjacent To The SCAV Pump Defuel Switch On The Maintenance Overhead Panel P461, On The Flight Deck	___ FUEL SCAVENGE SYSTEM INOP
28-15-02B	Adjacent To The SCAV Pump Defuel Switch On The Maintenance Overhead Panel P461, On The Flight Deck	___ FUEL SCAVENGE SYSTEM INOP
28-15-02C	Adjacent To The SCAV Pump Defuel Switch On The Maintenance Overhead Panel P461, On The Flight Deck	___ MAIN FUEL TANK FLOAT VALVE INOP
28-15-02D	Adjacent To The SCAV Pump Defuel Switch On The Maintenance Overhead Panel P461, In The Flight Deck	BOTH FUEL SCAVENGE SYSTEMS INOP
28-15-02E	Adjacent To The SCAV Pump Defuel Switch On The Maintenance Overhead Panel P461, In The Flight Deck	BOTH FUEL SCAVENGE SYSTEMS INOP

Continued Next Page

(O) PROCEDURES

28-15-02E

3,000 lbs of center tank fuel is unusable.

(M) PROCEDURES

28-15-02C, 28-15-02E

NOTE: The hydro–mechanical fuel scavenge system includes two jet pumps and two float valves in each system. If the pump is inoperable or either float valve is inoperative closed, that system will not transfer fuel from the center tank making the system inoperative. With either valve inoperative open, it may be necessary deactivate system to prevent the unwanted fuel transfer from center wing to inboard main tank(s).

1. De–activate system per AMM Ref. Task 28–15–00–040–801.
2. When deactivating the system, remove the fuel strainers (AMM 28–15–00/201).

28-15-02D

Defuel the center tank using the pressure defueling procedure and drain the remaining center tank fuel (approx. 125 gallons) through the sump drain (AMM 28–26–00/201).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-16-01A	Reserve 2 and 3 Fuel Transfer Valves **"DISP.APPR.REQ'D"**	**N**	4	2	**C**	**(M)(O)** One per tank may be inoperative deactivated closed (with reserve tanks fueled) provided: a) If fuel in reserve tanks 2 or 3 does not transfer, 325 KCAS/0.92 Mach speed limitation is observed for remainder of flight, b) Required fuel load is planned considering that fuel may become trapped in affected reserve tank and is considered unusable, and c) Performance corrections are applied. NOTE 1: Fuel capacity of each reserve tank 2 or 3 is 8,800 lbs at 6.7 density. NOTE 2: With normal fuel distribution of 147,000 lbs (at 6.7 density) or less, reserve tanks are not fueled. Therefore, the adjustments indicated in provisos a), b) and c) of the Remarks & Exceptions column are not required.
28-16-01B	Reserve 2 and 3 Fuel Transfer Valves **"DISP.APPR.REQ'D"**	**Y**	4	0	**C**	**(O)** May be inoperative provided: a) Reserve tanks 2 and 3 remain empty, b) Maximum zero fuel weight is reduced by the weight of the center tank fuel, and c) Performance corrections are applied. NOTE 1: All tanks (except reserve tanks 2 and 3) may be fueled to maximum capacity provided takeoff weight does not exceed 740,000 lbs. NOTE 2: CWT fuel, if carried, LCC will adjust MZFW for any CWT fuel. CWT fuel may be used enroute.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-16-01A	Adjacent To The RESERVE 2 & 3 XFER Switch On The Defuel Panel, On The Flight Deck	___ RESERVE 2 AND 3 FUEL XFER VALVE INOP
28-16-01B	Adjacent To RESERVE 2 & 3 XFER Switch On DEFUEL Panel On The Flight Deck And Adjacent To Reserve Tanks 2 And 3 Indicator On The Fueling Control Panel	ALL RESERVE 2 & 3 FUEL TRANSFER VALVES INOP

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(O) PROCEDURES

28-16-01A

1. With reserve tanks fueled and operations conducted with one fuel transfer valve deactivated closed (in either or both reserve tanks), an additional valve failure may occur and cause fuel to become trapped in a reserve tank. Fuel load in the affected tank is considered unusable for planning purposes. If fuel in either reserve tank does not transfer, limit maximum operating speed to 325KCAS/0.92 Mach for the remainder of the flight.
2. Reserve tank fuel will automatically transfer when either Main Tank #2 or Main Tank #3 quantity is reduce below 40,000 lbs. if there is no subsequent failure. Observe fuel quantity indication and verify fuel transfer from reserve tanks. This is necessary since EICAS annunciation may not occur after subsequent failure enroute.

NOTE: Lateral imbalance due to one reserve tank full and one reserve tank empty is less than the max lateral imbalance allowable in the Weight and Balance Manual.

28-16-01A	**RESERVE 2 AND 3 FUEL TRANSFER VALVES**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Zero Fuel Weight CG limit is 2% MAC forward of the aft Limit.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Zero Fuel Weight CG limit is 2% MAC forward of the aft Limit.

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28-16-01B

Maximum takeoff weight is limited to 740,000 lbs.

NOTE: EICAS status level message(s) RES___XFR VLV will be displayed.

28-16-01B	**RESERVE 2 AND 3 FUEL TRANSFER VALVES**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Takeoff weight may not exceed 740,000 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Enter Structural Takeoff Weight of 740,000 lbs. under Aircraft Weight Limitations.

(M) PROCEDURES

28-16-01A

To deactivate affected valve(s):

1. Pull the associated circuit breaker(s):
2. For Reserve 2A and/or 3A transfer valves, open the P7 panel FUEL XFR VALVE RES 2A & 3A circuit breaker (H22).
3. For Reserve 2B and/or 3B transfer valves, open the P7 panel FUEL XFR VALVE RES 2B & 3B circuit breaker (H23).
4. Access actuator by extending and deactivating outboard trailing edge flaps (AMM 27–51–00/201) or by removing the outboard aileron access panel 591BB (Reserve 2 Transfer Valves) and/or 691BB (Reserve 3 Transfer Valves).
5. Disconnect, cap and stow electrical connector from affected valve(s) (AMM 28–16–01/401).
6. Position manual override lever for affected valve(s) in CLOSED position and lockwire.
7. Close the P7 panel FUEL XFR VALVE RES 2A & 3A and FUEL XFR VALVE RES 2B & 3B circuit breakers.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-17-01	Horizontal Stabilizer Fuel Isolation Valves **"DISP.APPR.REQ'D"**	**N**	4	0	**C**	**(M)(O)** May be inoperative secured closed provided stabilizer tank remains empty. NOTE: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-17-01	Adjacent To ISOL VALVE Switch On Fueling Control Panel	HORIZ STAB FUEL ISOL VALVES INOP – SECURED CLOSED. HORIZ STAB TANK MUST BE EMPTY

(O) PROCEDURES

NOTE 1: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

NOTE 2: EICAS status level message(s) STAB XFR VLV will be displayed.

(M) PROCEDURES

1. Gain access to the inoperative valve (AMM 28-17-00/201).
2. Disconnect, cap and stow the electrical connector from valve actuator.
3. Position manual override lever, for affected valves, located on valve actuator, to CLOSED position and lockwire.

   NOTE: If one or both Aft Isolation Valves are inoperative, it is acceptable to secure both Fwd Isolation Valves closed in lieu of the affected Aft Isolation Valve(s). Fwd Isolation Valves' manual override levers are located on wing rear spar.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
28-21-01A	Pressure Fueling System	**N**	1	0	**C**	**(M)** May be inoperative provided acceptable fueling procedures are used. NOTE 1: For an inoperative refuel valve indicator light, the associated refuel valve is considered inoperative. NOTE 2: Any function of the Fueling Control Panel that operates normally may be used.
28-21-01B	Pressure Fueling System Refuel Valves (Refuel Valve(s) Inoperative Open) **"DISP.APPR.REQ'D"**	**N**	-	0	**C**	**(M)(O)** May be inoperative open provided: a) Acceptable fueling procedures are used, b) Fuel Jettison system is considered inoperative, c) Stabilizer tank remains empty, and d) Performance corrections are applied. NOTE 1: With stabilizer tank empty, aircraft loadability is reduced at takeoff weights above 850,000 lbs. Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases. NOTE 2: Dispatch to determine which takeoff weight is appropriate. Ensure the provisos in the Remarks & Exceptions column of MEL item 28-31-01A are applied.
28-21-01C	Pressure Fueling System Refuel Valves (With Refuel Valve(s) Inoperative Closed) **"DISP.APPR.REQ'D"**	**N**	-	0	**C**	**(M)(O)** May be inoperative provided: a) Acceptable fueling procedures are used, and b) For operations with a center tank refuel valve failed closed, stabilizer tank remains empty. NOTE: With stabilizer tank empty, aircraft loadability is reduced at takeoff weights above 850,000 lbs. Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.
28-21-01D	Pressure Fueling System Volumetric Top-Off (VTO) Feature	**N**	1	0	**C**	**(M)** May be inoperative provided acceptable fueling procedures are used.

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-21-01E	Pressure Fueling System Preselect Feature	**N**	1	0	**C**	**(M)** May be inoperative provided acceptable fueling procedures are used for refueling affected fuel tank.
28-21-01F	Pressure Fueling System Horizontal Stabilizer Position Light (Fueling Panel) **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided Stabilizer is set to 5 to 7 units of trim PRIOR TO EACH FUELING **(Logbook Entry Required).** **Repetitive Check Required (Yellow Placard)**
28-21-01G	Pressure Fueling System Fueling Power Control Switch (Fueling Panel Continuously Powered "Failed On") **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided fueling panel is deactivated PRIOR TO EACH DEPARTURE **(Logbook Entry Required).** **Repetitive Check Required (Yellow Placard)**
28-21-01H	Pressure Fueling System Fueling Power Control Switch (Fueling Panel Not Continuously Powered "Failed Off")	**N**	1	0	**C**	**(M)** May be inoperative provided the fuel control panel indicator test switch operates normally when Refuel POWER Select Switch is used in the BATT position.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
28-21-01A	Adjacent To Affected Refuel Valve Position Switch On Fueling Control Panel	PRESSURE FUELING SYSTEM INOP
28-21-01B	Adjacent To Affected Refuel Valve Position Switch On Fueling Control Panel	PRESSURE FUELING SYSTEM ___ REFUEL VALVE FAILED OPEN. HORIZ STAB TANK MUST BE EMPTY.
28-21-01C	Adjacent To Affected Refuel Valve Position Switch On Fueling Control Panel	PRESSURE FUELING SYSTEM ___ REFUEL VALVE(S) FAILED CLOSED. If applicable “HORIZ STAB TANK MUST BE EMPTY”
28-21-01D	Adjacent To Affected Tank Indicator On Fueling Control Panel	PRESSURE FUELING SYSTEM VTO INOP
28-21-01E	Adjacent To Preselect Switch On Fueling Control Panel	PRESSURE FUELING SYSTEM PRESELECT FEATURE INOP
28-21-01F	Adjacent To STAB POSITION Light On Fueling Control Panel	PRESSURE FUELING SYSTEM HORIZONTAL STAB POSITION LIGHT INOP. STAB MUST BE SET TO 5 TO 7 UNITS OF TRIM FOR FUELING
28-21-01G	Adjacent To FUELING POWER CONTROL SWITCH On Fueling Control Panel	FUELING POWER CONTROL SWITCH INOP
28-21-01H	Adjacent To FUELING POWER CONTROL SWITCH On Fueling Control Panel	FUELING POWER CONTROL SWITCH INOP

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(O) PROCEDURES

28-21-01B

Verify that the AWABS contains MEL item 28–21–01B.

NOTE 1: With stabilizer tank empty, aircraft loadability is reduced at takeoff weights above 850,000 lbs. Load control will make loading adjustments.

NOTE 2: Status message CTR REFUEL VLV may remain displayed if a Center Tank Refuel Valve is affected.

28-21-01B	**PRESSURE FUELING SYSTEM / REFUEL VALVES – REFUEL VALVE FAILED OPEN IN MAIN TANKS 2 OR 3**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Takeoff weight may not exceed the lower of: 740,000 lbs. *or* The departure airport Approach Climb Limit weight plus 16,000 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Enter Structural Takeoff Weight of 740,000 lbs. *or* the departure airport Approach Climb Limit weight plus 16,000 lbs. (whichever is lower) under Aircraft Weight Limitations.

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28-21-01B	PRESSURE FUELING SYSTEM / REFUEL VALVES – REFUEL VALVE FAILED OPEN IN MAIN TANKS 1 OR 4
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Takeoff weight may not exceed the lower of: 535,000 lbs. *or* The departure airport Approach Climb Limit weight plus 16,000 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Enter Structural Takeoff Weight as the lower of 535,000 lbs. *or* The departure airport Approach Climb Limit weight plus 16,000 lbs.

28-21-01C

NOTE 1: For operations with stabilizer tank empty, aircraft loadability is reduced at takeoff weights above 850,000 lbs. Load control will make loading adjustments.

NOTE 2: Status message CTR REFUEL VLV may remain displayed if a Center Tank Refuel Valve is affected.

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(M) PROCEDURES

28-21-01A

1. Refuel the airplane using alternate procedures established in AMM 12-11-03/301, AMM 12-11-04/301, or AMM 12-11-06/301 as appropriate.

   NOTE: AMM 12-11-04/301, Overwing Pressure Refueling, may only be used with prior authorization from Engineering.

2. Operative functions of the system may be used.
3. For inoperative refuel valve indicator light, defer associated valve per MEL 28-21-01B or 28-21-01C as appropriate.

28-21-01B

If a refuel valve has failed open and cannot be manually closed, pressure fuel airplane, using manual mode, until affected tank is full or filled to desired level.

1. Ensure that stabilizer tank remains empty.
2. If fuel load in main tanks 2 and 3 exceeds tanks 1 and 4, center wing tank and main tank 2 and 3 jettison/transfer valves must operate normally to ensure they remain closed.
3. Defer the fuel jettison system inoperative per MEL item 28–31–01A.

28-21-01C

1. If a refuel valve has failed closed, the valve may be opened using the manual override. Refer to Fueling Procedures Manual, paragraph titled, “Refueling With Inop Tank Indicator/Valve”.
2. If a main tank refuel valve cannot be opened, tank cannot be refueled.

NOTE: If a center tank refuel valve is failed closed, the stabilizer tank remains empty.

28-21-01D

If the Pressure Fueling System Volumetric Top Off (VTO) system is inoperative, Reference the Fueling Procedures Manual for alternate refueling procedures.

28-21-01E

If the Preselect Feature is inoperative, Reference the Fueling Procedures Manual for alternate refueling procedures for affected tank.

28-21-01F

AFTER USE CHECK (Prior to each refueling):

1. Verify stabilizer is set to 5 to 7 units of trim for fueling.
2. Accomplish required logbook entry.

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28-21-01G

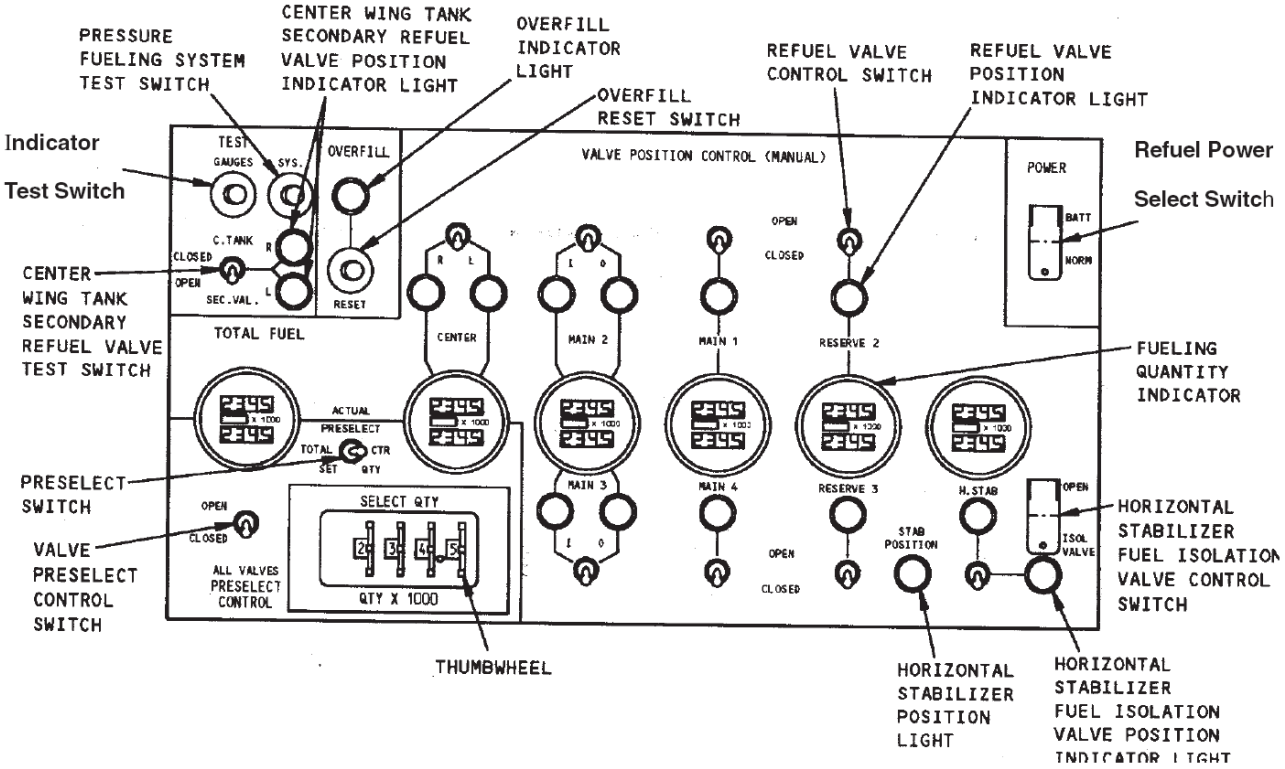
AFTER USE CHECK (Prior to each refueling):

1. If the fueling power control switch (S681) has failed such that power cannot be removed from the refueling control panel, deactivate the panel following refueling as follows:
   a) Position the refueling control panel power switch to NORM.
   b) At the Power Distribution Center – Left Panel, P414, pull and secure FUELING PWR (or FUELING LTS) circuit breaker (position F22).
   c) Verify that power has been removed from the refueling control panel.
   d) Close the refueling control panel access door.
2. Accomplish required logbook entry.

28-21-01H

1. On Refuel Control Panel Move the Refuel Power Select Switch to the BATT position.
2. Placard the Refueling Control Panel as follows:
   a) Obtain an Aircraft Placard.
   b) Print on placard, "FUELING POWER CONTROL SWITCH INOP. REFUELING POWER SELECT SWITCH MUST BE IN THE BATT POSITION FOR REFUELING".
   c) Trim unused portion from placard and affix placard in a conspicuous place on Wing Fueling Panel.

   NOTE: An acceptable alternate to the Aircraft Placard is a section of 2 inch wide masking tape with the words printed in black letters.
3. Press the Indicator Test Switch to verify that Refuel Valve Position Indicator Lights illuminate.
4. For Refueling Procedure REF. Fueling Procedures Manual.



NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-21-04	Fueling Receptacle Caps	**Y**	4	0	**C**	May be inoperative (missing) provided no leakage can be detected after refueling is complete.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-21-04	On Flight Deck Fuel Panel And On The Fueling Panel Door	___ FUELING RECEPTACLE CAP(S) IS INOP OR MISSING

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD	NUMBER REQUIRED FOR DISPATCH		REPAIR CATEGORY	REMARKS OR EXCEPTIONS
	MAIN TANK BOOST PUMPS					
28-22-01A	Main Tank 1 and 4 Boost Pumps **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) All main tank 2 and 3 boost pumps operate normally, b) Main tanks 1 and 4 transfer valves are verified to operate normally, c) Fuel quantity indicating system for the associated tank operates normally, d) Delta standard fuel loading, balance, and usage is used, and e) The following minimum fuel quantities are retained in each Main Tanks 1, 2, 3 and 4, for the flight condition shown (normal fuel loading, balance and usage requirements still apply): Takeoff 24,254 lbs, Landing 4,690 lbs NOTE: Minimum takeoff fuel is 97,100 lb (use normal fuel distribution), and 18,760 lb of fuel is considered unusable.
28-22-01B	Main Tank 1 and 4 Boost Pumps **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Prior to engine start, a minimum of 17,000 lbs fuel is loaded in the Center Wing Tank (CWT) and maximum zero fuel weight is reduced by the weight of the center tank fuel, b) All main tank 2 and 3 boost pumps operate normally, c) Main tanks 1 and 4 transfer valves are verified to operate normally, d) Both Center Wing Override/Jettison pumps operate normally, e) Fuel quantity indicating system for the associated tank operates normally, f) For takeoff, engines 1 and 4 are manifolded to the CWT, g) Delta standard fuel loading, balance, and usage is used and h) A minimum fuel quantity of 4,690 lbs is retained in each Main Tank 1, 2, 3 and 4 for takeoff and landing (normal fuel loading, balance and usage requirements still apply). NOTE 1: CWT fuel, if carried, LCC will adjust MZFW for any CWT fuel. CWT fuel may be used enroute. NOTE 2: 18,760 lbs of fuel is considered unusable.

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	MAIN TANK BOOST PUMPS (CONTINUED)					
28-22-01C	Main Tank 2 and 3 Boost Pumps **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) All main tank 1 and 4 boost pumps operate normally, b) All main tank fuel quantity indicating systems operate normally, c) The associated fuel crossfeed valve is deactivated open, d) Remaining fuel crossfeed valves operate normally, e) Associated tank override/ jettison pumps are selected on for takeoff, f) Center wing tank (CWT) remains empty or maximum zero fuel weight is reduced by the weight of the center fuel, g) Horizontal stabilizer tank remains empty, and h) The following minimum fuel quantities are retained in each Main Tank 1, 2, 3 and 4 for the flight condition shown (normal fuel loading, balance and usage requirements still apply): Landing 8,610 lbs. NOTE 1: CWT fuel, if carried, LCC will adjust MZFW for any CWT fuel. CWT fuel may be used enroute. NOTE 2: 34,440 lbs of fuel is considered unusable. NOTE 3: Appropriate procedures are to be applied for horizontal tank stab empty, after initial and amended releases.

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NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
MAIN TANK BOOST PUMPS (CONTINUED)					
28-22-01D Main Tank 2 and 3 Boost Pumps (Aft Boost Pumps) **"DISP.APPR.REQ'D"**	**N**	2	1	**C**	**(M)(O)** One aft boost pump may be inoperative provided: a) All main tank 1 and 4 boost pumps and main tank 2 and 3 fwd boost pumps operate normally, b) Aft Override/Jettison pump in associated tank operates normally, c) Fuel quantity indicating system for the associated tank operates normally, d) Delta standard fuel loading, balance, and usage is used, e) For takeoff, a minimum fuel quantity of 78,390 lbs is retained in each Main Tank 2 and 3 (normal fuel loading, balance and usage requirements still apply), and f) For landing, a minimum fuel quantity of 8,610 lb is retained in each Main Tank 1, 2, 3 and 4. NOTE: Minimum takeoff fuel is 234,600 lbs (use normal fuel distribution), and 34,440 lbs of fuel is considered unusable.
28-22-01E Main Tank 2 and 3 Boost Pumps (Aft Boost Pumps) **"DISP.APPR.REQ'D"**	**N**	2	1	**C**	**(M)(O)** One aft boost pump may be inoperative provided: a) All main tank 1 and 4 boost pumps and main tank 2 and 3 fwd boost pumps operate normally, b) Fuel quantity indicating system for the associated tank operates normally, c) All engine drive generator systems operate normally, d) Delta standard fuel loading, balance, and usage is used, e) For takeoff, a minimum fuel quantity of 78,390 lbs is retained in each Main Tank 2 and 3 (normal fuel loading, balance and usage requirements still apply), and f) For landing, a minimum fuel quantity of 8,610 lbs is retained in each Main Tank 1, 2, 3 and 4. NOTE: Minimum takeoff fuel is 234,600 lbs (use normal fuel distribution), and 34,440 lbs of fuel is considered unusable.

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED	NUMBER REQUIRED FOR DISPATCH	FLIGHT CREW MAY PLACARD	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
	MAIN TANK BOOST PUMPS (CONTINUED)					
28-22-01F	Main Tank 2 and 3 Boost Pumps (Fwd Boost Pumps) **"DISP.APPR.REQ'D"**	**N**	2	1	**C**	**(M)(O)** One forward boost pump may be inoperative provided: a) All main tank 1 and 4 boost pumps and main tank 2 and 3 aft boost pumps operate normally, b) Fuel quantity indicating system for the associated tank operates normally, c) Delta standard fuel loading, balance, and usage is used, and d) The following minimum fuel quantities are retained in each Main Tank 1, 2, 3 and 4, for the flight condition shown (normal fuel loading, balance and usage requirements still apply): Takeoff 24,254 lbs, Landing 8,610 lbs. NOTE: Minimum takeoff fuel is 97,100 lbs (use normal fuel distribution), and 34,440 lbs of fuel is considered unusable.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-22-01A	Adjacent To Affected Boost Pump Switch On Fuel Management Control Module (Pilots Overhead P5 Panel)	___ MAIN TANK BOOST PUMP INOP
28-22-01B	Adjacent To Affected Boost Pump Switch On Fuel Management Control Module (Pilots Overhead P5 Panel)	___ MAIN TANK BOOST PUMP INOP
28-22-01C	Adjacent To Affected Boost Pump Switch On Fuel Management Control Module (Pilots Overhead P5 Panel)	___ MAIN TANK BOOST PUMP INOP
28-22-01D	Adjacent To Affected Boost Pump Switch On Fuel Management Control Module (Pilots Overhead P5 Panel)	___ AFT TANK MAIN BOOST PUMP INOP
28-22-01E	Adjacent To Affected Boost Pump Switch On Fuel Management Control Module (Pilots Overhead P5 Panel)	___ AFT MAIN TANK BOOST PUMP INOP
28-22-01F	Adjacent To Affected Boost Pump Switch On Fuel Management Control Module (Pilots Overhead P5 Panel)	___ FWD MAIN TANK BOOST PUMP INOP

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(O) PROCEDURES

28-22-01A

1. For takeoff, ensure Main Tanks 1, 2, 3 and 4 each contain a minimum of 24,254 lbs of fuel.
2. For landing, ensure Main Tanks 1, 2, 3 and 4 each contain a minimum of 4,690 lbs of fuel. This fuel is considered unusable and is to be in excess of fuel requirements.

   NOTE 1: Minimum takeoff fuel is 97,100 lbs (use normal fuel distribution), and 18,760 lbs of fuel is considered unusable.

   NOTE 2: EICAS advisory message FUEL PUMP __ for the associated pump will be displayed and the low pressure light illuminated.

28-22-01B

1. Minimum amount of fuel in center tank is 17,000 pounds.
2. All center tank fuel is included as part of zero fuel weight.
3. For takeoff and landing, minimum amount of fuel in each main tank 1, 2, 3 and 4 is 4,690 pounds.
4. For takeoff with main tanks less than full, position crossfeed valves 1 and 4 ON.
5. After takeoff, burn CWT fuel on schedule.

   NOTE 1: 18,760 lbs of fuel is considered unusable.

   NOTE 2: The >FUEL TANK/ENG advisory message will be displayed.

   NOTE 3: EICAS advisory message FUEL PUMP __ FWD or AFT for the associated pump will be displayed and the low pressure light illuminated.

28-22-01C

1. For takeoff, select associated main tank override/jettison pumps ON and center tank override pumps OFF.
2. After takeoff and following flap retraction, resume normal fuel management (select override/jettison pumps OFF if in tank–to–engine configuration).

   NOTE 1: If CWT fuel is carried in lieu of payload, ensure CWT Override/Jettison pumps are selected OFF prior to takeoff.

3. Takeoff fuel feed must be main tank–to–engine or main tanks 2 and 3 to all engines.
4. Crossfeed valve 2 and 3 open is the normal position for the flight.
5. For landing, ensure Main Tanks 1, 2, 3 and 4 each contain a minimum of 8,610 lbs of fuel. This fuel is considered unusable and is to be in excess of fuel requirements.

   NOTE 2: 34,440 lbs of fuel is considered unusable.

   NOTE 3: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

   NOTE 4: EICAS advisory message FUEL PUMP __ FWD or AFT for the associated pump will be displayed and the low pressure light illuminated.

   NOTE 5: Advisory messages FUEL TANK/ENG and X FEED CONFIG will remain displayed.

   NOTE 6: Advisory and Status messages FUEL X FEED _ for the associated valve will be displayed.

   NOTE 7: EICAS Fuel synoptic will display the affected valve indication as CLOSED and AMBER in color.

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28-22-01D, 28-22-01E

1. For takeoff:
   a) Ensure Main Tanks 2 and 3 each contain a minimum of 78,390 lbs of fuel, and
   b) Main Tanks 1 and 4 are fueled to capacity.
2. For landing, ensure Main Tanks 1, 2, 3 and 4 each contain a minimum of 8,610 lbs of fuel. This fuel is considered unusable and is to be in excess of fuel requirements.

   NOTE 1: Minimum takeoff fuel is 234,600 lbs (use normal fuel distribution), and 34,440 lbs of fuel is considered unusable.

   NOTE 2: EICAS advisory message FUEL PUMP AFT for the associated pump will be displayed and the low pressure light illuminated.

28-22-01F

1. For takeoff, ensure Main Tanks 1, 2, 3 and 4 each contain a minimum of 24,254 lbs of fuel.
2. For landing, ensure Main Tanks 1, 2, 3 and 4 each contain a minimum of 8,610 lbs of fuel. This fuel is considered unusable and is to be in excess of fuel requirements.

   NOTE 1: Minimum takeoff fuel is 97,100 lbs (use normal fuel distribution), and 34,440 lbs of fuel is considered unusable.

   NOTE 2: EICAS advisory message FUEL PUMP FWD for the associated pump will be displayed and the low pressure light illuminated.

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(M) PROCEDURES

28-22-01A, 28-22-01B

1. General

   a) Inoperative boost pump operations may require large amounts of fuel to be retained in the main fuel tanks for takeoff/landing. Inoperative boost pump operations may also require large amounts of fuel to be retained in the main fuel tanks for landing. Payload and/or range restrictions may result.

   b) Payload restrictions when operating short range flights with an inoperative boost pump in Main Tank 1 or 4 can be minimized by dispatching in accordance with MEL item 28–22–01E. If wing tanks are less than full, at least 10,000 pounds fuel is in the center tank for takeoff. All Center Wing Tank fuel must be carried in lieu of payload (included as part of Zero Fuel Weight).

2. Verify that Main Tank 1 and 4 transfer valves operates normally (AMM 28–16–04, 400 series pgs.) by either method (a) or (b) below.

   a) Fuel System Synoptic verification method:

      1) On the Pilots Overhead Panel, set the FUEL XFER MAIN 1 & 4 switch to the ON position. On the Fuel System Synoptic display, confirm the transfer arrows are displayed between Main Tanks 1 & 2 and Main Tanks 3 & 4.

      2) Confirm that Main Tanks 1 & 4 quantity indications are decreasing.

      3) Set the FUEL XFER MAIN 1 & 4 switch to the OFF position. On the Fuel System Synoptic display, confirm that transfer arrows are no longer displayed between Main Tanks 1 & 2 and Main Tanks 3 & 4.

   b) Manual Override Handle visual verification method:

      1) Position the FUEL XFER MAIN 1 & 4 switch ON and OFF.

      2) Confirm that the Manual Override Handle on both main tank transfer valves cycle to the open and closed positions.

3. Deactivate the inoperative fuel pump by pulling and securing the appropriate circuit breaker:

   - Tank 1 Fwd Boost Pump: P415 panel, FUEL BOOST PUMP MAIN FWD 1 (B35)
   - Tank 1 Aft Boost Pump: P414 panel, FUEL BOOST PUMP MAIN AFT 1 (B5)
   - Tank 4 Fwd Boost Pump: P414 panel, FUEL BOOST PUMP MAIN FWD 4 (A8)
   - Tank 4 Aft Boost Pump: P415 panel, FUEL BOOST PUMP MAIN AFT 4 (A35)

28-22-01C

1. General

   a) Inoperative boost pump operations may require large amounts of fuel to be retained in the main fuel tanks for takeoff/landing. Inoperative boost pump operations may also require large amounts of fuel to be retained in the main fuel tanks for landing. Payload and/or range restrictions may result.

   b) Payload and range restrictions can be kept to a minimum by exchanging an inoperative Main Tank 2 or 3 boost pump with an operative boost pump from Main Tank 1 or 4 (AMM 28–22–03/401). The boost pumps are interchangeable.

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2. Deactivate the inoperative fuel pump by pulling and securing the appropriate circuit breaker:
   - Tank 2 Fwd Boost Pump: P415 panel, FUEL BOOST PUMP MAIN FWD 2 (G29)
   - Tank 2 Aft Boost Pump: P414 panel, FUEL BOOST PUMP MAIN AFT 2 (R18)
   - Tank 3 Fwd Boost Pump: P414 panel, FUEL BOOST PUMP MAIN FWD 3 (J5)
   - Tank 3 Aft Boost Pump: P415 panel, FUEL BOOST PUMP MAIN AFT 3 (M29)
3. Defer the associated crossfeed valve open per MEL item 28–22–05A/B.

28-22-01D, 28-22-01E, 28-22-01F

1. General
   a) Inoperative boost pump operations may require large amounts of fuel to be retained in the main fuel tanks for takeoff/landing. Inoperative boost pump operations may also require large amounts of fuel to be retained in the main fuel tanks for landing. Payload and/or range restrictions may result.
   b) Payload and range restrictions can be kept to a minimum by exchanging an inoperative Main Tank 2 or 3 boost pump with an operative boost pump from Main Tank 1 or 4 (AMM 28–22–03/401). The boost pumps are interchangeable.
2. Deactivate the inoperative fuel pump by pulling and securing the appropriate circuit breaker:
   - Tank 2 Fwd Boost Pump: P415 panel, FUEL BOOST PUMP MAIN FWD 2 (G29)
   - Tank 2 Aft Boost Pump: P414 panel, FUEL BOOST PUMP MAIN AFT 2 (R18)
   - Tank 3 Fwd Boost Pump: P414 panel, FUEL BOOST PUMP MAIN FWD 3 (J5)
   - Tank 3 Aft Boost Pump: P415 panel, FUEL BOOST PUMP MAIN AFT 3 (M29)

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
28-22-02A	Fuel Management Systems (FSMC A/FSMC B) (Reserve Tanks 2 and 3 empty) **"DISP.APPR.REQ'D"**	**N**	2	1	**C**	**(M)(O)** One card may be inoperative with reserve tanks 2 and 3 empty provided: a) Stabilizer tank remains empty, and b) Performance corrections are applied. NOTE 1: All tanks (except stabilizer tank and reserve tanks 2 and 3) may be fueled to maximum capacity provided takeoff weight does not exceed 740,000 lbs. NOTE 2: CWT fuel, if carried, LCC will adjust MZFW for any CWT fuel. CWT fuel may be used enroute. NOTE 3: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.
28-22-02B	Fuel Management Systems (FSMC A/FSMC B) (Reserve Tanks 2 and 3 fueled) **"DISP.APPR.REQ'D"**	**N**	2	1	**C**	**(M)(O)** One card may be inoperative with reserve tanks 2 and 3 fueled provided: a) Stabilizer tank remains empty, b) Performance corrections are applied, c) If fuel in reserve tanks 2 or 3 does not transfer, observe 325 KCAS/0.92 M speed limitation for remainder of flight, d) Main tanks 2 and 3 fuel quantity indicating systems operate normally, and e) Required fuel load is planned considering that fuel may become trapped in affected reserve tank and is considered unusable. NOTE 1: Fuel capacity of each reserve tank 2 or 3 is 8,800 lbs. at 6.7 density. NOTE 2: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-22-02A	Adjacent To Primary EICAS Display Unit And Adjacent To The Horiz Stab Tank Indicator On The Fueling Control Panel	___ FUEL SYSTEM MANAGEMENT CARD INOP. RESERVE TANKS 2 AND 3 and HORIZ STAB TANK MUST BE EMPTY
28-22-02B	Adjacent To Primary EICAS Display Unit And Adjacent To The Horiz Stab Tank Indicator On The Fueling Control Panel	___ FUEL SYSTEM MANAGEMENT CARD INOP. HORIZ STAB TANK MUST BE EMPTY

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(O) PROCEDURES

28-22-02A

28-22-02A	FUEL MANAGEMENT SYSTEMS *FSMC A / FSMC B*
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Takeoff weight may not exceed 740,000 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Enter Structural Takeoff Weight of 740,000 lbs. under Aircraft Weight Limitations.

28-22-02B

1. Fuel management remains automatic. However, failure of fuel transfer from Reserve tank 2 or 3 to inboard main tank (due to subsequent enroute failure of remaining FSMC) may not be annunciated on EICAS. Therefore, flight crew should monitor fuel quantity indications to verify fuel has transferred. Reserve fuel normally transfers when either inboard main tank quantity is reduced below approximately 40,000 lbs.
2. If the associated tank is not empty, the fuel will be considered unusable for planning purposes.
3. If fuel in Reserve tanks 2 or 3 does not transfer, observe 325 KCAS/0.92 M speed limitation.

   NOTE: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

28-22-02B	FUEL MANAGEMENT SYSTEMS *FSMC A / FSMC B*
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Zero Fuel Weight CG limit is 4% MAC forward of the Aft Limit.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Zero Fuel Weight CG limit is 4% MAC forward of the Aft Limit.

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(M) PROCEDURES

28-22-02A, 28-22-02B

1. Confirm one Fuel System Management Card (FSMC) operates normally by performing the FSMC operational test (AMM 28-22-13/501).

NOTE 1: For Main Tank 2 Quantity signal failure or Main Tank 3 Quantity signal failure, use MEL 28–41–01.

NOTE 2: For Single Point Sensor signal failure, use MEL 28-41-02.

2. Placard the Wing Fueling Panel as follows:

   a) Obtain an Aircraft Placard.

   b) For MEL item 28–22–02A:

      Print on placard in bold letters “ONE FUEL MANAGEMENT SYSTEM CARD INOP – DO NOT FUEL RESERVE 2 AND 3 AND HORZ STAB TANKS”.

   c) For MEL item 28–22–02B:

      Print on placard in bold letters “FUEL MANAGEMENT SYSTEM INOP – DO NOT FUEL HORZ STAB TANK”.

   d) Trim unused potion from placard and affix trimmed placard to the Wing Fueling Panel.

      NOTE: An acceptable alternate to the Aircraft Placard is a section of 2 inch wide masking tape with the words printed in black letters.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-22-03	Fuel Crossfeed VALVE Lights	**Y**	4	3	**C**	**(M)** One may be inoperative provided associated valve operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-22-03	Adjacent To Affected Fuel Crossfeed Valve Light On P–5 Panel	___ FUEL CROSSFEED VALVE LIGHT INOP

(M) PROCEDURES

Use the fuel synoptic page to verify associated valve position.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	HORIZONTAL STABILIZER FUEL TRANSFER SIGNALS					
28-22-04A	In-Air Signals (Reserve Tanks 2 and 3 empty) **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(M)(O)** One may be inoperative provided: a) Stabilizer Tank remains empty, b) Reserve Tanks 2 and 3 remain empty, and c) Performance corrections are applied. NOTE 1: All tanks (except stabilizer tank and reserve tanks 2 and 3) may be fueled to maximum capacity provided takeoff weight does not exceed 740,000 lbs. NOTE 2: CWT fuel, if carried, LCC will adjust MZFW for any CWT fuel. CWT fuel may be used enroute. NOTE 3: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.
28-22-04B	In-Air Signals (Reserve Tanks 2 and 3 Fueled) **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(M)(O)** One may be inoperative (with Reserve Tanks 2 and 3 fueled) provided: a) Main Tanks 2 and 3 Fuel Quantity Indicating systems operate normally, b) Stabilizer Tank remains empty, c) Performance corrections are applied, d) If fuel in Reserve Tanks 2 or 3 does not transfer, observe 325 KCAS/0.92 M speed limitation for remainder of flight, and e) Required fuel load is planned considering that fuel may become trapped in affected reserve tank and is considered unusable. NOTE 1: Fuel capacity of each reserve tank 2 or 3 is 8,800 lbs. at 6.7 density. NOTE 2: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		REMARKS OR EXCEPTIONS
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
	HORIZONTAL STABILIZER FUEL TRANSFER SIGNALS (CONTINUED)					
28-22-04C	Flaps-Retracted Signals **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(M)(O)** One may be inoperative provided Stabilizer Tank remains empty. NOTE: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.
28-22-04D	Stabilizer Pump Switch-Position Signals **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(M)(O)** May be inoperative provided Stabilizer Tank remains empty. NOTE: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-22-04A	On Fuel Management Panel And Adjacent To The Horiz Stab Tank Indicator On The Fueling Control Panel	___ HORIZ STAB IN–AIR FUEL TRANSFER SIGNAL INOP. STAB TANK TRANSFER INOP. HORIZ STAB TANK AND RESERVE TANKS 2 AND 3 MUST BE EMPTY
28-22-04B	On Fuel Management Panel And Adjacent To The Horiz Stab Tank Indicator On The Fueling Control Panel	___ HORIZ STAB IN–AIR FUEL TRANSFER SIGNAL INOP. STAB TANK TRANSFER INOP. HORIZ STAB TANK MUST BE EMPTY
28-22-04C	On Fuel Management Panel And Adjacent To The Horiz Stab Tank Indicator On The Fueling Control Panel	___ HORIZ STAB FLAP RETRACTED FUEL TRANSFER SIGNAL INOP. STAB TANK TRANSFER INOP. HORIZ STAB TANK MUST BE EMPTY
28-22-04D	On Fuel Management Panel And Adjacent To The Horiz Stab Tank Indicator On The Fueling Control Panel	___ HORIZ STAB PUMP SWITCH POSITION FUEL TRANSFER SIGNAL INOP. STAB TANK TRANSFER INOP. HORIZ STAB TANK MUST BE EMPTY.

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(O) PROCEDURES

28-22-04A

Ensure Stabilizer Tank and Reserve Tanks 2 and 3 are empty.

28-22-04A	HORIZONTAL STABILIZER FUEL TRANSFER SIGNALS
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Maximum takeoff weight is limited to 740,000 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Enter 740,000 as Structural Takeoff Weight under Aircraft Weight Limitations.

28-22-04B

1. Fuel management remains automatic. However, failure of fuel transfer from Reserve Tank 2 or 3 to inboard main tank may not be annunciated on EICAS. Therefore, flight crew should monitor fuel quantity indications to verify fuel has transferred. Reserve fuel normally transfers when either inboard main tank quantity is reduced below approximately 40,000 lbs.
2. If the associated tank is not empty, the fuel will be considered unusable for planning purposes.
3. If fuel in Reserve tanks 2 or 3 does not transfer, observe 325 KCAS/0.92 M speed limitation.

NOTE: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

28-22-04B	HORIZONTAL STABILIZER FUEL TRANSFER SIGNALS
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Zero Fuel Weight CG limit is 4% MAC forward of the Aft Limit.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Zero Fuel Weight CG limit is 4% MAC forward of the Aft Limit.

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28-22-04C, 28-22-04D

NOTE: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

(M) PROCEDURES

28-22-04A

1. There are five (5) possible signal failures which may cause STAB XFR SIG to display:

   - In–Air signals — See MEL Item 28–22–04A or 28–22–04B.
   - Flaps–Retracted signals — See MEL Item 28–22–04C
   - HS Pump Switch Position signals — See MEL Item 28–22–04D
   - Center Wing Tank Quantity signal — See MEL Item 28–41–04.
   - Single Point Sensor signals — See MEL Item 28–41–04.

2. Verify that Horizontal Stabilizer Tank and Reserve Tanks 2 and 3 are empty.

28-22-04B, 28-22-04C, 28-22-04D

1. There are five (5) possible signal failures which may cause STAB XFR SIG to display:

   - In–Air signals — See MEL Item 28–22–04A or 28–22–04B.
   - Flaps–Retracted signals — See MEL Item 28–22–04C.
   - HS Pump Switch Position signals — See MEL Item 28–22–04D.
   - Center Wing Tank Quantity signal — See MEL Item 28–41–04.
   - Single Point Sensor signals — See MEL Item 28–41–04.

2. Verify that Horizontal Stabilizer Tank is empty.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	FUEL CROSSFEED VALVES					
28-22-05A	Fuel Crossfeed Valves 1 and 4 (Valve Deactivated Open)	**N**	2	1	**C**	**(M)(O)** One may be inoperative provided: a) Valve is secured OPEN, b) All main tank fuel quantity indicating systems operate normally, and c) Crossfeed Valves 2 and 3 operate normally.
28-22-05B	Fuel Crossfeed Valves 2 and 3 (Valve Deactivated Open) **"DISP.APPR.REQ'D"**	**N**	2	1	**C**	**(M)(O)** One may be inoperative provided: a) Valve is secured OPEN, b) All main tank fuel quantity indicating systems operate normally, c) Crossfeed Valves 1 and 4 operate normally, d) Center wing tank (CWT) remains empty or maximum zero fuel weight is reduced by the weight of the center tank fuel, and e) Horizontal stabilizer tank remains empty. NOTE 1: CWT fuel, if carried, LCC will adjust MZFW for any CWT fuel. CWT fuel may be used enroute. NOTE 2: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-22-05A	Adjacent To Affected Fuel Crossfeed Valve Switch	___ FUEL CROSSFEED VALVE IS INOP AND SECURED OPEN
28-22-05B	Adjacent To Affected Fuel Crossfeed Valve Switch	___ FUEL CROSSFEED VALVE IS INOP AND SECURED OPEN. HORIZ STAB TANK MUST BE EMPTY

(O) PROCEDURES

28-22-05A

1. For takeoff, feed the outboard engines from the center wing tank if it contains usable fuel.
2. Use normal fuel procedures until main tanks are equal (>FUEL TANK/ENG advisory message displayed).
3. When >FUEL TANK/ ENG advisory message is displayed, accomplish the following:
   a) Set main tank 2 and 3 OVRD FWD and AFT pump switches OFF.
   b) Set X FEED valve switches 2 and 3 to OFF.

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4. For airplanes with hydro-mechanical fuel scavenge systems (A/C 6311-6316), expect fuel usage from tanks 1 and 4 to be greater than tanks 2 and 3, and >FUEL IMBALANCE advisory message may be displayed.

   a) For >FUEL IMBALANCE displayed, set X FEED valve switches 2 and 3 ON and set MAIN PUMP switches 1 and 4 to OFF.

   b) When >FUEL IMBALANCE is no longer displayed, set MAIN PUMP switches 1 and 4 ON and set X FEED to OFF.

   NOTE 1: EICAS Advisory messages FUEL TANK/ENG and X FEED CONFIG will remain displayed.

   NOTE 2: EICAS Advisory and Status messages FUEL X FEED__ for the associated valve will be displayed.

   NOTE 3: The fuel synoptic crossfeed valve position will be blank for all four crossfeed valves.

28-22-05B

Takeoff fuel feed must be main tank–to–engine or main tanks 2 and 3 to all engines.

NOTE 1: If CWT fuel is carried in lieu of payload, ensure CWT Override/Jettison pumps are selected OFF prior to takeoff.

NOTE 2: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

NOTE 3: EICAS Advisory messages FUEL TANK/ENG and X FEED CONFIG will remain displayed.

NOTE 4: EICAS Advisory and Status messages FUEL X FEED _ for the associated valve will be displayed.

NOTE 5: The fuel synoptic crossfeed valve position will be blank for all four crossfeed valves.

(M) PROCEDURES

28-22-05A, 28-22-05B

1. Secure the affected valve open as follows:

   a) Access front wing spar. (Access for No. 1 or No. 4 crossfeed valve between inboard and outboard engines; for No. 2 or No. 3 is just inboard of the inboard engines.)

   b) Extend and deactivate leading edge flaps (AMM 27–81–00/201).

CAUTION: INSTALL LOCKS TO PREVENT INADVERTENT FLAP RETRACTION AND RESULTANT INJURY TO PERSONNEL.

   c) Open the circuit breaker on the P6 Main Power Distribution Panel for the applicable engine and install DO–NOT–CLOSE identifier.

   - 6L14 FUEL XFEED VALVE ENG 1
   - 6L15 FUEL XFEED VALVE ENG 2
   - 6L16 FUEL XFEED VALVE ENG 3, or
   - 6L17 FUEL XFEED VALVE ENG 4

   d) Disconnect, cap and stow electrical connector from the affected valve (AMM 28–22–02/401).

   e) Position manual override lever for affected valve in the OPEN position and lockwire.

   f) Remove DO–NOT–CLOSE identifier and close the circuit breaker opened in step 1. c).

   g) Remove leading edge flap locks and restore airplane to its required configuration.

2. If No. 2 or No. 3 Fuel Crossfeed Valve is inoperative, verify that the Horizontal Stabilizer Tank is empty.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-25-01	APU Fuel (DC) Pump **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(M)** May be inoperative deactivated. NOTE 1: No. 2 main fuel tank aft boost pump may be used to supply fuel to the APU. NOTE 2: AC power must be available on the airplane to operate the No. 2 Main Fuel Tank Aft Boost pump.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-25-01	Adjacent To The APU Control Switch On The P–5 Pilot's Overhead Panel	APU (DC) FUEL PUMP INOP

(M) PROCEDURES

Pull and secure P6 panel DC FUEL PUMP APU circuit breaker.

NOTE: AC power must be available on the airplane to operate the No. 2 main tank boost pump, which will automatically supply fuel to the APU.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
28-25-02	APU Fuel Valve **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative CLOSED provided: a) APU is considered inoperative and deferred per MEL 49-11-01A, and b) APU selector switch remains OFF.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-25-02	Adjacent To APU Control Switch On Pilot's P–5 Overhead Panel	APU FUEL VALVE INOP CLOSED

(O) PROCEDURES

Comply with MEL item 49–11–01A (O) procedures.

(M) PROCEDURES

NOTE: For towing airplane with an inoperative APU refer to AMM 09-11-00/201.

Deactivate the APU fuel valve in the closed position.

1. Position the Electrical System Control Panel (P5) APU master control switch OFF.
2. Open and collar the P6 panel APU FUEL SHUT OFF circuit breaker.
3. Open and collar P6 panel APU ALTN CONT circuit breaker.
4. Open and collar P83 panel APU PRIMARY CONT circuit breaker.
5. Gain access to the APU fuel valve (AMM 28-25-02/401).
6. Manually position the APU fuel valve closed.
7. Defer the APU inoperative per MEL item 49–11–01A.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-26-01	Manually Operated Defuel Valves	**N**	2	0	**C**	**(M)** May be inoperative secured closed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-26-01	Affected Wing Refueling Control Panel (P42)	___ DEFUEL VALVE INOP – SECURED CLOSED

(M) PROCEDURES

To secure valve(s) closed, manually rotate valve handle to closed position and lockwire valve handle to nearby structure.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD	NUMBER REQUIRED FOR DISPATCH		REPAIR CATEGORY	REMARKS OR EXCEPTIONS
28-31-01A	Fuel Jettison System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** All components may be inoperative provided: a) Performance corrections are applied, b) Jettison nozzle valves are secured closed, c) Main tanks 1 and 4 transfer valves are secured closed, and d) All main tank 1 and 4 boost pumps operate normally.
28-31-01B	Center Wing Tank Jettison/Transfer Valves **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Valve(s) is secured open, b) Both jettison nozzle valves operate normally, and c) Stabilizer tank remains empty. NOTE: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.
28-31-01C	Center Wing Tank Jettison/Transfer Valves	**N**	2	0	**C**	**(M)** May be inoperative secured closed provided associated inboard main tank jettison/transfer valve(s) operates normally.
28-31-01D	Main Tanks 2 and 3 Jettison/Transfer Valves	**N**	2	0	**C**	**(M)** May be inoperative secured closed provided associated center wing tank jettison/transfer valve(s) operates normally.
28-31-01E	Main Tanks 2 and 3 Jettison/Transfer Valves **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Valve(s) is secured OPEN, b) Both jettison nozzle valves operate normally, and c) Stabilizer tank remains empty. NOTE: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.
28-31-01F	Main Tanks 1 and 4 Transfer Valves	**N**	2	0	**C**	**(M)** May be inoperative secured closed provided: a) Required fuel to be jettisoned does not deplete inboard main tank below the quantity in the outboard main tanks, and b) Both boost pumps for associated tank operate normally.
28-31-01G	Fuel Jettison Control Cards (FJCC A) **"Contact MCC"**	**N**	2	1	**C**	**(M)** FJCC A may be inoperative provided the FJCC B is verified to operate normally PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

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MEL ITEM	TAB LOCATION	PLACARD TEXT
28-31-01A	On The Fuel Jettison Panel On Pilots P–5 Overhead Panel	FUEL JETTISON SYSTEM INOP – JETTISON NOZZLE VALVES SECURED CLOSED. Placard No.1 and No. 4 Main Tank Transfer Valves inoperative and secured closed per MEL item 28–31–01F.
28-31-01B	On Fuel Jettison Control Panel (Pilots' P5 Overhead Panel) And Adjacent To Horiz Stab Tank Indicator On Fueling Control Panel	___ CENTER WING TANK JETTISON/ TRANSFER VALVE INOP – SECURED OPEN. HORIZ STAB TANK MUST BE EMPTY
28-31-01C	On The Fuel Jettison Panel On Pilots P–5 Overhead Panel	___ CENTER WING TANK JETTISON/ TRANSFER VALVE INOP – SECURED CLOSED
28-31-01D	On The Fuel Jettison Panel On Pilots P–5 Overhead Panel	___ MAIN TANKS JETTISON VALVE INOP – SECURED CLOSED
28-31-01E	On Fuel Jettison Control Panel (Pilots' P5 Overhead Panel) And Adjacent To Horiz Stab Tank Indicator On Fueling Control Panel	___ MAIN TANKS JETTISON VALVE INOP – SECURED OPEN. HORIZ STAB TANK MUST BE EMPTY
28-31-01F	On The Fuel Jettison Panel On Pilots P–5 Overhead Panel	___ MAIN TANKS TRANSFER VALVE INOP – SECURED CLOSED
28-31-01G	On Fuel Jettison Control Panel (Pilots' P5 Overhead Panel)	FUEL JETTISON CONTROL CARD "A"_ INOP

(O) PROCEDURES

28-31-01A

Verify that the AWABS contains MEL item 28–31–01A.

28-31-01A	**FUEL JETTISON SYSTEM**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Limit Max Takeoff Weight to the maximum landing climb limited weight at the departure airport plus 16,000 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Determine maximum landing climb limited weight at the departure airport and add 16,000 lbs. Enter the total as Structural Takeoff Weight under Aircraft Weight Limitations.

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28-31-01B, 28-31-01E

NOTE: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

(M) PROCEDURES

28-31-01A

1. The jettison nozzle valves may be secured closed by disconnecting the electrical connector and positioning the manual override lever to the closed position (AMM 28–31–05/401).
2. Main tanks 1 and 4 transfer valves may be secured closed by disconnecting the electrical connector and positioning the manual override lever to the closed position (AMM 28–16–04/401).

28-31-01B

1. Center wing tank jettison/transfer valves may be secured open by disconnecting the electrical connector and positioning the manual override lever to the open position (MM 28–31–04/401).
2. Jettison nozzle valve operation may be verified by performing the fuel jettison nozzle valve operational test (AMM 28–31–00/501).

28-31-01C

1. Center wing tank jettison/transfer valves may be secured closed by disconnecting the electrical connector and positioning the manual override lever to the closed position (AMM 28–31–04/401).
2. Associated inboard main tank jettison/transfer valve operation may be verified by performing the fuel jettison/transfer valve CMC Ground Test (AMM 28–31–00/501). CMC messages 28649 thru 28652 will identify inoperative jettison/transfer valves.

28-31-01D

1. Main tanks 2 and 3 jettison/transfer valves may be secured closed by disconnecting the electrical connector and positioning the manual override lever to the closed position (AMM 28–31–04/401).
2. Associated Center Wing tank jettison/transfer valve operation may be verified by performing the fuel jettison transfer valve CMC Ground Test (AMM 28–31–00/501). CMC messages 28649 thru 28652 will identify inoperative jettison/transfer valves.

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28-31-01E

1. Main tanks 2 and 3 jettison/transfer valves may be secured open by disconnecting the electrical connector and positioning the manual override lever to the open position (AMM 28–31–04/401).
2. Jettison nozzle valve operation may be verified by performing fuel jettison nozzle valve operational test (AMM 28–31–00/501).

28-31-01F

1. Main tanks 1 and 4 transfer valves may be secured closed by disconnecting the electrical connector and positioning the manual override lever to the closed position (AMM 28–16–04/401).
2. Verify that both boost pumps for associated tank operate normally.

28-31-01G

PRIOR TO EACH DEPARTURE CHECK:

1. To verify FJCC B is operating normally perform fuel Jettison control card operational test per AMM 28–31–00/501.
2. Accomplish required logbook entry.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-31-02A	Main Tanks 2 and 3 Override/Jettison Pumps (Forward Pumps)	**N**	2	1	**C**	**(M)(O)** One forward Override/Jettison pump may be inoperative deactivated provided both Aft Override/Jettison Pumps operate normally.
28-31-02B	Main Tanks 2 and 3 Override/Jettison Pumps (Aft Pumps)	**N**	2	1	**C**	**(M)(O)** One AFT Override/Jettison pump may be inoperative deactivated provided: a) Both Forward Override/Jettison Pumps operate normally, and b) All engine driven generator systems operate normally.
28-31-02C	Main Tanks 2 and 3 Override/Jettison Pumps (Aft Pumps)	**N**	2	1	**C**	**(M)(O)** One AFT Override/ Jettison pump may be inoperative deactivated provided: a) Both Forward Override/ Jettison Pumps operate normally, and b) Both associated main tank boost pumps operate normally.
28-31-02D	Main Tanks 2 and 3 Override/Jettison Pumps (Aft Pumps)	**N**	4	2	**C**	**(M)** One forward or aft Override/Jettison Pump per tank may be inoperative deactivated provided: a) If an Aft Override/Jettison pump is inoperative, all engine driven generator systems operate normally, and b) All main tanks 2 and 3 boost pumps operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-31-02A	On The Fuel Management Panel (P–5) Adjacent To Affected Pump Switch	___ MAIN TANK OVERRIDE/ JETTISON PUMP INOP
28-31-02B	On The Fuel Management Panel (P–5) Adjacent To Affected Pump Switch	___ MAIN TANK OVERRIDE/ JETTISON PUMP INOP
28-31-02C	On The Fuel Management Panel (P–5) Adjacent To Affected Pump Switch	___ MAIN TANK OVERRIDE/ JETTISON PUMP INOP
28-31-02D	On The Fuel Management Panel (P–5) Adjacent To Affected Pump Switch	___ MAIN TANK OVERRIDE/ JETTISON PUMP INOP

(O) PROCEDURES

28-31-02A, 28-31-02B, 28-31-02C

NOTE: To preclude a possible fuel imbalance between main tanks 2 and 3 with one override/ jettison pump inoperative, it's recommended that an override/jettison pump in the symmetrical main tank be selected OFF. It may be selected ON again to minimize time required to jettison fuel.

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(M) PROCEDURES

28-31-02A, 28-31-02B, 28-31-02C, 28-31-02D

Deactivate the inoperative fuel pump(s) by pulling and securing the appropriate circuit breaker(s):

- Tank 2 Fwd override/jettison pump: P414 panel, FUEL OVRD/JTSN PUMP FWD 2 (C2).
- Tank 2 Aft override/jettison pump: P415 panel, FUEL OVRD/JTSN PUMP AFT 2 (A38).
- Tank 3 Fwd override/jettison pump: P414 panel, FUEL OVRD/JTSN PUMP FWD 3 (C5).
- Tank 3 Aft override/jettison pump: P415 panel, FUEL OVRD/JTSN PUMP AFT 3 (B38).

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	**NAME / DESCRIPTION**				**REMARKS OR EXCEPTIONS**
28-31-03	Horizontal Stabilizer Pumps **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative deactivated provided Stabilizer tank remains empty. NOTE: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-31-03	On The Fuel Management Panel (P–5) Adjacent To Affected Pump Switch And Adjacent To Horiz Stab Tank Indicator On Fueling Control Panel	___ HORIZ STAB TRANSFER/ JETTISON PUMP(S) INOP. HORIZ STAB TANK MUST BE EMPTY

(O) PROCEDURES

NOTE 1: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

NOTE 2: EICAS Status Message STAB XFR VLV will be displayed.

NOTE 3: EICAS Status Message FUEL PUMP STAB __ may be displayed.

(M) PROCEDURES

Deactivate the inoperative fuel pump(s) by pulling and securing the appropriate circuit breaker(s):

1. Left stabilizer pump: P85 panel, HORIZ STAB XFER/JETT PUMP – LEFT.
2. Right stabilizer pump: P85 panel, HORIZ STAB XFER/JETT PUMP – RIGHT.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
28-31-04A	Center Tank Override Jettison Pumps **"DISP.APPR.REQ'D"**	**N**	2	1	**C**	**(M)(O)** One may be inoperative deactivated provided: a) Horizontal stabilizer tank remains empty, b) With center tank fueled, fuel quantity remaining in main wing tanks is adequate to reach a suitable airport if remaining center tank pump fails at any time, c) Maximum zero fuel weight is reduced by the weight of the center tank fuel, and d) Center tank quantity indication operates normally, and e) Associated CWT Override/Jettison pump switch must remain selected OFF. NOTE: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.
28-31-04B	Center Tank Override Jettison Pumps **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** Both may be inoperative deactivated provided: a) Horizontal stabilizer tank remains empty, b) Maximum zero fuel weight is reduced by the weight of the center tank fuel, c) Center tank fuel is considered unusable, and d) Both CWT Override/ Jettison pump switches must remain OFF. NOTE 1: When CWT fuel is carried, it must be carried in lieu of payload. NOTE 2: Appropriate procedures are to be applied for horizontal stab tank empty after initial and amended releases.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-31-04A	On Fuel Management Panel Adjacent To Affected Pump Switch And Adjacent To Horiz Stab Tank Indicator On Fueling Control Panel	___ CENTER TANK FUEL OVERRIDE/ JETTISON PUMP INOP.
28-31-04B	On Fuel Management Panel Adjacent To Affected Pump Switch And Adjacent To Horiz Stab Tank Indicator On Fueling Control Panel	___ BOTH CENTER TANK FUEL OVERRIDE/ JETTISON PUMP INOP.

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(O) PROCEDURES

28-31-04A

1. Ensure associated CWT Override/Jettison pump switch remains selected OFF.

   NOTE 1: The associated FUEL OVD CTR advisory message will be displayed if the center tank contains more than 17,000 lbs of fuel when on the ground and prior to engine start and more than 4000 lbs of fuel when in cruise flight.

2. For takeoff, ensure the Override/Jettison pumps are selected OFF until reaching cruise.
3. After reaching cruise, select the operative Override/Jettison Pump ON, and accomplish the FUEL PRESS CTR advisory message abnormal procedure in the QRH, Section 12, ">FUEL OVD CTR L, R".

   NOTE 2: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

4. Flight plan for the possibility of enroute failure of the remaining override/ jettison pump and the need for an alternate destination. In general, there will be enough fuel on board to return to the departure point but the dispatcher should verify this for each flight.

28-31-04B

Ensure that both CWT Override/Jettison pump switches remain OFF.

NOTE 1: The associated FUEL OVD CTR advisory message will be displayed if the center tank contains more than 17,000 lbs of fuel when on the ground and prior to engine start and more than 4000 lbs of fuel when in cruise flight.

NOTE 2: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

(M) PROCEDURES

28-31-04A, 28-31-04B

Deactivate the inoperative fuel pump(s) by pulling and securing the appropriate circuit breaker(s):

- Center Left override/jettison pump: P414 panel, FUEL OVRD/JTSN PUMP CENTER LEFT.
- Center Right override/jettison pump: P415 panel, FUEL OVRD/JTSN PUMP CENTER RIGHT.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
28-41-01	Main Tank Fuel Quantity Indicating Systems (Flight Deck) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** Except for ER operations beyond 180 minutes, one may be inoperative provided: a) FMC is initialized with the known total fuel quantity, b) Engine fuel flow indications operate normally, c) FMC calculated fuel quantity operates normally, d) Fuel quantity in associated tank is verified by an alternate procedure, e) All boost pumps for the associated tank operate normally, f) If failed indicator is for main tank 2 or 3, management and jettison single point sensor systems for both tanks operate normally, and g) Remaining individual tank quantity indications are available. POLAR OPERATIONS Not Authorized **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-41-01	Adjacent To Lower R/H Corner Of Primary EICAS Display Unit And Adjacent To The Inoperative Indicator On The Fueling Control Panel	___ MAIN TANK FUEL QUANTITY INDICATION INOP

(O) PROCEDURES

1. ER (ETOPS) beyond 180 minutes – Not Authorized.
2. POLAR ROUTES – Not Authorized.
3. To initialize FMC with the known total fuel quantity:
   a) Calculate total fuel quantity
   b) Subtract 7700 pounds from the total fuel quantity
   c) Manually initialize the adjusted total fuel quantity on the FMC PERF INIT page

   NOTE: FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
4. If associated tank is refueled:

   Ensure receipt of a completed paper FSR.

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5. The FUEL IMBALANCE and the associated main tank pair FUEL IMBAL 1-4 or FUEL IMBAL 2-3 advisory messages will be inhibited for a blanked main tank quantity indication.
6. If it is necessary to jettison fuel enroute:
   a) Record the FUEL TO REMAIN quantity selected for the jettison operation.
   b) Wait two minutes after fuel jettison is complete and then manual re– initialize the FMC with the total FUEL TO REMAIN quantity recorded above.

(M) PROCEDURES

PRIOR TO EACH DEPARTURE CHECK:

1. Verify alternate fueling procedures have been accomplished per the Fueling Procedures Manual.
2. Install second MCO placard in a conspicuous location at the fueling station and place MCO tab on, or adjacent to, the inoperative indicator.
3. Defer the Total Fuel Quantity Indication inoperative per MEL item 28–41–03.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD		REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	SINGLE POINT SENSOR SYSTEMS					
28-41-02A	Center Tank Sensors	**Y**	2	1	**C**	**(O)** One may be inoperative provided center tank fuel quantity indicating system operates normally.
28-41-02B	Center Tank Sensors **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided Stabilizer tank remains empty.
28-41-02C	Main Tanks 2 and 3 Sensors (Reserve Transfer)	**Y**	2	1	**C**	**(O)** One may be inoperative provided main tanks 2 and 3 fuel quantity indicating systems operate normally.
28-41-02D	Main Tanks 2 and 3 Sensors (Reserve Transfer) **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided: a) Reserve tanks 2 and 3 remain empty, and b) Performance corrections are applied. NOTE 1: All tanks (except reserve tanks 2 and 3) may be fueled to maximum capacity provided takeoff weight does not exceed 740,000 lbs. NOTE 2: CWT fuel, if carried, LCC will adjust MZFW for any CWT fuel. CWT fuel may be used enroute.
28-41-02E	Main Tanks 2 and 3 Sensors (Reserve Transfer) **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative (with Reserve tanks fueled) provided: a) Main tanks 2 and 3 fuel quantity indicating systems operate normally, b) Performance corrections are applied, c) If fuel in Reserve tanks 2 or 3 does not transfer, 325 KCAS/0.92 M speed limitation is observed for remainder of flight, and d) Required fuel load is planned considering that fuel may become trapped in affected reserve tank and is considered unusable. NOTE: Fuel capacity of each reserve tank 2 or 3 is 8,800 lbs at 6.7 density.
28-41-02F	Single Point Sensor Systems Main Tanks 2 and 3 Sensors (Main 1 and 4 Jettison Transfer)	**Y**	2	1	**C**	**(O)** One may be inoperative provided main tanks 2 and 3 fuel quantity indicating systems operate normally.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
28-41-02A	Adjacent To Applicable EICAS Display Unit	CENTER TANK ___ SINGLE POINT SENSOR INOP
28-41-02B	Adjacent To Applicable EICAS Display Unit And Adjacent To Horiz Stab Tank Indicator On Fueling Control Panel	CENTER TANK ___ SINGLE POINT SENSOR INOP. HORIZ STAB TANK MUST BE EMPTY
28-41-02C	Adjacent To Applicable EICAS Display Unit	___ SINGLE POINT SENSOR INOP
28-41-02D	Adjacent To Applicable EICAS Display Unit And Adjacent To Reserve Tank 2 And 3 Indicators On Fueling Control Panel	___ SINGLE POINT SENSORS INOP. RESERVE TANKS 2 AND 3 MUST BE EMPTY
28-41-02E	Adjacent To Applicable EICAS Display Unit	___ SINGLE POINT SENSOR INOP
28-41-02F	Adjacent To Applicable EICAS Display Unit	___ SINGLE POINT SENSOR INOP

(O) PROCEDURES

28-41-02A

NOTE: EICAS Status Message STAB XFR SIG may be displayed.

28-41-02B

NOTE 1: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

NOTE 2: EICAS Status Message STAB XFR SIG may be displayed.

28-41-02C

NOTE: EICAS Status Message M2/M3 < 6K SIG may be displayed.

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28-41-02D

NOTE: EICAS Status Message M2/M3 < 6K SIG may be displayed.

1. Empty reserve tanks 2 and 3 requires empty tail tank.
2. Center Wing Tank (CWT) fuel must be included as part of Zero Fuel Weight. CWT fuel included as part of Zero Fuel Weight may be used.

28-41-02D	**SINGLE POINT SENSOR SYSTEMS**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Maximum takeoff weight is limited to 740,000 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Enter Structural Takeoff Weight of 740,000 lbs. under Aircraft Weight Limitations.

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28-41-02E

1. With reserve tanks fueled and operations conducted with one fuel transfer valve deactivated closed (in either or both reserve tanks), an additional valve failure may occur and cause fuel to become trapped in the reserve tank(s). Any fuel in the associated tank is considered unusable for planning purposes. If fuel in either reserve tank does not transfer, limit maximum operating speed to 325KCAS/0.92 Mach for the remainder of the flight.
2. Reserve tank fuel will automatically transfer when either Main Tank #2 or Main Tank #3 quantity is reduced below 40,000 lbs if there is no subsequent failure. Observe fuel quantity indication and verify fuel transfer from reserve tanks. This is necessary since EICAS annunciation may not occur after subsequent failure enroute.

NOTE 1: Lateral imbalance due to one reserve tank full and one reserve tank empty is less than the max lateral imbalance allowable in the Weight and Balance Manual.

NOTE 2: EICAS Status Message M2/M3 < 6K SIG may be displayed.

28-41-02E	**SINGLE POINT SENSOR SYSTEMS**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Zero Fuel Weight CG limit is 4% MAC forward of the Aft Limit.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Zero Fuel Weight CG limit is 4% MAC forward of the Aft Limit.

28-41-02F

NOTE: EICAS Status Message M2/M3 < 3K SIG may be displayed.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-41-03	Total Fuel Quantity Indication **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(M)(O)** Except for ER operations beyond 180 minutes, may be inoperative provided: a) FMC is initialized with the known total fuel quantity, b) Engine fuel flow indication and FMC calculated fuel quantity operates normally, and c) Both FMCs operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-41-03	Adjacent To Applicable EICAS Display Unit	TOTAL FUEL QUANTITY INDICATION INOP

(O) PROCEDURES

1. ER (ETOPS) Operations beyond 180 minutes – Not Authorized.
2. To initialize FMC with the known total fuel quantity:
   a) Calculate total fuel quantity
   b) Subtract 7700 pounds from the total fuel quantity
   c) Manually initialize the adjusted total fuel quantity on the FMC PERF INIT page

   NOTE 1: FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
3. If total fuel quantity is inoperative as a result of an individual tank quantity indication, MEL restrictions for that item must be observed.
4. If it is necessary to jettison fuel enroute:
   a) Record the FUEL TO REMAIN quantity selected for the jettison operation.
   b) Wait two minutes after fuel jettison is complete and then manual re– initialize the FMC with the total FUEL TO REMAIN quantity recorded above.
5. In case of enroute failure of the FMC calculated total fuel quantity, compute the fuel burn for each leg manually and log it on the flight plan for each remaining waypoint.

   NOTE 2: 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 FUEL USED data may be available. EICAS status message FUEL QTY SYS will be displayed.

(M) PROCEDURES

If any individual tank quantities required for dispatch are not available on the EICAS fuel synoptic page, MEL restrictions for the associated tank quantity indicating system must be observed. Placard the tank quantity and observe required (M) PROCEDURES per the applicable MEL Item.

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-41-04	Center Tank Fuel Quantity Indicating System (Flight Deck) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** Except for ER operations beyond 180 minutes, may be inoperative provided: a) Center tank and stabilizer tank remain empty, and b) FMC is initialized with the known total fuel quantity. POLAR OPERATIONS Not Authorized **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-41-04	Adjacent To Lower R/H Corner Of Primary EICAS Display Unit And Adjacent To The Center Tank Indicator On The Fueling Control Panel	FLIGHT DECK CENTER TANK FUEL QUANTITY INDICATION INOP.

(O) PROCEDURES

1. ER (ETOPS) operations beyond 180 minutes – Not Authorized.
2. POLAR Operations – Not Authorized.
3. Calculate total fuel quantity and manually initialize it on the FMC PERF INIT page.

   NOTE: FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
4. Center tank override jettison pumps and horizontal stabilizer pumps remain OFF.
5. EICAS message FUEL QTY SYS will be displayed.
6. If it is necessary to jettison fuel enroute:
   a) Record the FUEL TO REMAIN quantity selected for the jettison operation.
   b) Wait two minutes after fuel jettison is complete and then manually reinitialize the FMC with the total FUEL TO REMAIN quantity recorded above.

(M) PROCEDURES

1. Deactivate the center tank override/jettison fuel pump(s) by pulling and securing the appropriate circuit breaker(s):
   - Center Left override/jettison pump: P414 panel, FUEL OVRD/JTSN PUMP CENTER LEFT.
   - Center Right override/jettison pump: P415 panel, FUEL OVRD/JTSN PUMP CENTER RIGHT.
2. **PRIOR TO EACH DEPARTURE CHECK**:
   a) Verify center tank is empty using one of the methods in the Fueling Procedures Manual.
3. Defer the Total Fuel Quantity Indication inoperative per MEL item 28–41–03.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-41-05A	Reserve Tank Fuel Quantity Indicating Systems (Flight Deck) **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** Except for ER operations beyond 180 minutes, may be inoperative with reserve tanks 2 and 3 fueled provided: a) Tank is emptied and serviced with a known quantity of fuel or measuring stick readings are taken to verify quantity in tank with inoperative indicator after each refueling, b) FMC is initialized with the known total fuel quantity, c) Engine fuel flow indication and FMC calculated fuel quantity operates normally, and d) Remaining individual tank quantity indications are available. POLAR OPERATIONS Not Authorized **Repetitive Check Required (Yellow Placard)**

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FLIGHT CREW MAY PLACARD					REPAIR CATEGORY	
ITEM NO.	**NAME / DESCRIPTION**					**REMARKS OR EXCEPTIONS**
28-41-05B	Reserve Tank Fuel Quantity Indicating Systems (Flight Deck) **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** Except for ER operations beyond 180 minutes, may be inoperative with reserve tanks 2 and 3 empty provided: a) Takeoff weight is limited to a maximum of 740,000 lbs, b) Reserve Tanks 2 and 3 remain empty, and c) Remaining individual tank quantity indications are available. NOTE 1: All tanks (except stabilizer tank and reserve tanks 2 and 3) may be fueled to maximum capacity provided takeoff weight does not exceed 740,000 lbs. NOTE 2: CWT fuel, if carried, LCC will adjust MZFW for any CWT fuel. CWT fuel may be used enroute. NOTE 3: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases. POLAR OPERATIONS Not Authorized **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-41-05A	Adjacent To Lower R/H Corner of Primary EICAS Display Unit And Adjacent To The Inoperative Indicator On The Fueling Control Panel	___ FLIGHT DECK RESERVE TANK FUEL QUANTITY INDICATION INOP
28-41-05B	Adjacent To Lower R/H Corner of Primary EICAS Display Unit And Adjacent To The Inoperative Indicator On The Fueling Control Panel	___ FLIGHT DECK RESERVE TANK FUEL QUANTITY INDICATION INOP.

Continued Next Page

(O) PROCEDURES

28-41-05A

1. ER (ETOPS) Operations beyond 180 minutes – Not Authorized.
2. POLAR Operations - Not Authorized.
3. If associated tank is refueled:

   Ensure receipt of a completed paper FSR.
4. To initialize FMC with the known total fuel quantity:
   a) Calculate total fuel quantity
   b) Subtract 7700 pounds from the total fuel quantity
   c) Manually initialize the adjusted total fuel quantity on the FMC PERF INIT page

   NOTE 1: FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
5. If it is necessary to jettison fuel enroute:
   a) Record the FUEL TO REMAIN quantity selected for the jettison operation.
   b) Wait two minutes after fuel jettison is complete and then manual re– initialize the FMC with the total FUEL TO REMAIN quantity recorded above.

28-41-05B

1. ER (ETOPS) Operations beyond 180 minutes – Not Authorized.
2. POLAR Operations – Not Authorized.
3. Total fuel quantity must be calculated and manually initialized on the FMC PERF INIT page.
4. FMC Progress Page 1 LAST waypoint FUEL may display 0.0.

   NOTE: EICAS status message FUEL QTY SYS will be displayed.

Continued Next Page

28-41-05B	RESERVE TANK FUEL QUANTITY INDICATING SYSTEMS
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Maximum takeoff weight is limited to 740,000 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Enter Structural Takeoff Weight of 740,000 lbs. under Aircraft Weight Limitations.

(M) PROCEDURES

28-41-05A

PRIOR TO EACH DEPARTURE CHECK:

1. Verify alternate fueling procedures have been accomplished per the Fueling Procedures Manual.
2. Install second MCO placard in a conspicuous location at the fueling station and place MCO tab on, or adjacent to, the inoperative indicator.
3. Defer the Total Fuel Quantity Indication inoperative per MEL item 28–41–03.

28-41-05B

PRIOR TO EACH DEPARTURE CHECK:

1. Verify alternate fueling procedures have been accomplished per the Fueling Procedures Manual.
2. Install second MCO placard in a conspicuous location at the fueling station and place MCO tab on, or adjacent to, the inoperative indicator.
3. Defer the Total Fuel Quantity Indication inoperative per MEL item 28–41–03.
4. Verify that reserve tanks 2 and 3 are empty.
5. Verify that Stabilizer Tank is empty.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-41-06	Wing Fueling Station Quantity Indicating	**N**	1	0	**C**	**(M)** May be inoperative provided preselect refueling is not used.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-41-06	On Wing Fueling Panel P42	___ WING FUELING STATION QUANTITY INDICATION SYSTEM INOP. PRESELECT REFUELING CANNOT BE USED – USE MANUAL REFUELING PROCEDURE

(M) PROCEDURES

Use the “Manual Refueling” procedure (Fueling Procedures Manual). Use the flight deck fuel synoptic or measuring sticks to ensure that the correct amount of fuel has been loaded.

NOTE: If the flight deck fuel synoptic is blank for one or more tanks, the automatic fuel shutoff for the related tank(s) will be inoperative.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
28-41-07	Horizontal Stabilizer Tank Fuel Quantity Indicating System (Flight Deck) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** Except for ER operations beyond 180 minutes, may be inoperative provided: a) Flight is not conducted on polar routes, b) Stabilizer tank remains empty, c) FMC is initialized with the known total fuel quantity, and d) Horizontal Stabilizer REU is deactivated (Removed). NOTE: Appropriate procedures are to be applied for horizontal stab tank empty, after initial and amended releases.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-41-07	Adjacent To Lower R/H Corner Of Primary EICAS Display Unit And Adjacent To The Inoperative Indicator On The Fueling Control Panel	FLIGHT DECK HORIZONTAL STABILIZER TANK (HST) FUEL QUANTITY INDICATING SYSTEM INOP. REMOTE ELECTRONICS UNIT (REU) REMOVED – HORIZ STAB TANK MUST BE EMPTY

(O) PROCEDURES

1. ER (ETOPS) operations beyond 180 minutes – Not Authorized.
2. Do not operate on polar routes.
3. Total fuel quantity indication will be inoperative (see MEL Item 28–41–03). Calculate total fuel quantity and manually initialize it on the FMC PERF INIT page.

   NOTE: FMC Progress Page 1 LAST waypoint FUEL may display 0.0.
4. If it is necessary to jettison fuel enroute:

   a) Record the FUEL TO REMAIN quantity selected for the jettison operation.

   b) Wait two minutes after fuel jettison is complete and then manual re–initialize the FMC with the total FUEL TO REMAIN quantity recorded above.
5. In case of enroute failure of the FMC calculated total fuel quantity, compute the fuel burn for each leg manually and log it on the flight plan for each remaining waypoint.

   NOTE 1: 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.

   NOTE 2: Aircraft loadability is reduced at takeoff weights above 850,000 lbs with stabilizer tank empty. Load control will make loading adjustments.

   NOTE 3: EICAS status messages FUEL QTY SYS and STAB XFR VLV will be displayed.

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(M) PROCEDURES

1. To ensure the stabilizer tank remains empty:
   a) Transfer fuel from stabilizer tank to center wing tank (AMM 28–26–00/201).
   b) Verify tank is empty by activating the Left and Right Stabilizer Tank Pumps until each pump's low pressure light illuminates continuously for ten seconds.
   c) After stabilizer tank is empty, verify H STAB ISOL VALVE switch, located on P42 fueling control, is closed.
   d) Pull and secure the following circuit breakers:
      - REFUEL & XFR STAB L (P7 panel)
      - REFUEL & XFR STAB R (P7 panel)
2. Deactivate the horizontal stabilizer tank Fuel Quantity Indicating System (FQIS) by accomplishing either step (a) or (b) below:
   a) Accomplish the "Horizontal Stabilizer Remote Electronic Unit (REU) Removal" Task (AMM 28–41–14/401).

      OR

   b) Accomplish the "Remote Electronic Unit – Individual Fuel Quantity Channel (IFQC) Card Removal" Task (AMM 28–41–17/401).
   c) If the CMC message "FUEL QTY HORIZ STAB REMOTE ELEC UNIT IFQC BOARD FAIL" is displayed prior to removal:
      1) Tag the Horizontal Stabilizer Remote Electronic Unit (REU) or the REU IFQC Card and route for repair.
      2) Include in MEL Logbook entry, "Horizontal Stabilizer Remote Electronic Unit or the REU IFQC Card removed and routed for repair".
   d) If the CMC message "FUEL QTY HORIZ STAB REMOTE ELEC UNIT IFQC BOARD FAIL" IS NOT displayed prior to removal:
      1) Place the REU or the REU IFQC Card in a suitable container to prevent damage.
      2) Mark on container, "REU or REU IFQC CARD REMOVED PER MEL ITEM 28–41–07. LOGPAGE XXXXXXXX. DO NOT REMOVE FROM AOG BOX. TO BE REINSTALLED WHEN MEL ITEM CLEARED".
      3) Place the REU or the REU IFQC Card in the AOG box.
      4) Include in the MEL Logbook entry – "Horizontal Stabilizer Remote Electronic Unit or REU IFQC Card removed and placed in AOG Box – to remain in AOG Box until MEL item is cleared".
   e) Remove DO–NOT–CLOSE identifiers and close circuit breakers opened as directed in "Horizontal Stabilizer Remote Electronic Unit (REU) or REU IFQC Card Removal" Task.
3. Defer the Total Fuel Quantity Indication inoperative per MEL item 28–41–03.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH			
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-42-01	Fuel Pump Low PRESS Lights	**Y**	14	-	**C**	One PRESS light may be inoperative for each tank containing fuel. NOTE: Not required for empty tanks.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-42-01	Adjacent To Affected Fuel Pump LOW PRESS Light(s) Switches On Pilot's Overhead Panel (P–5)	___ FUEL PUMP LOW PRESS LIGHT(S) INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-42-02	Stabilizer Fuel Pump Low PRESS Lights	**Y**	2	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-42-02	Adjacent To Affected Fuel Pump LOW PRESS Light Switch On Fuel Management Module (Pilot's P5 Overhead Panel)	___ STABILIZER FUEL PUMP LOW PRESS LIGHT INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-43-01	Fuel Temperature Indication (Main Tank #1) **"DISP.APPR.REQ'D"**	**Y**	-	0	**C**	**(O)** May be inoperative provided: a) Flight is not conducted on polar routes, and b) Total Air Temperature (TAT) or Static Air Temperature (SAT) to (TAT) conversion is substituted as an indication of fuel temperature. Polar Routes Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
28-43-01A	Adjacent To Main EICAS Display Unit	FUEL TEMP INDICATION INOP

(O) PROCEDURES

1. Do not operate on polar routes.
2. Use Total Air Temperature (TAT) or convert SAT to TAT as a substitute to comply with fuel temperature limitations.

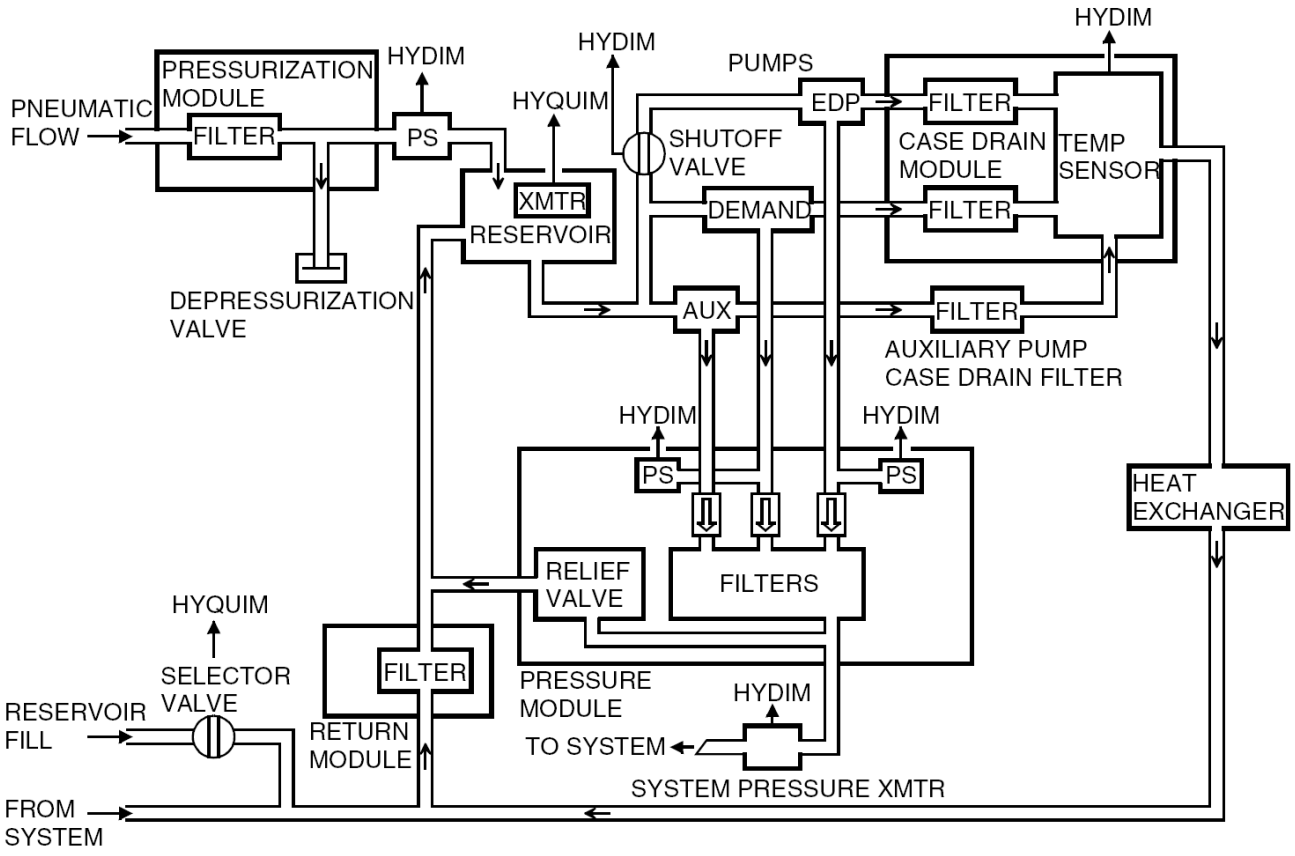
   NOTE: SAT to TAT conversion chart is located in MEL item 75–33–01.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
28-44-01	Measuring Sticks	Y	-	0	C	May be inoperative provided fuel quantity is verified by other means. NOTE: With an associated fuel quantity indicator inoperative, the remaining operative fuel measuring sticks must be able to verify fuel quantity.

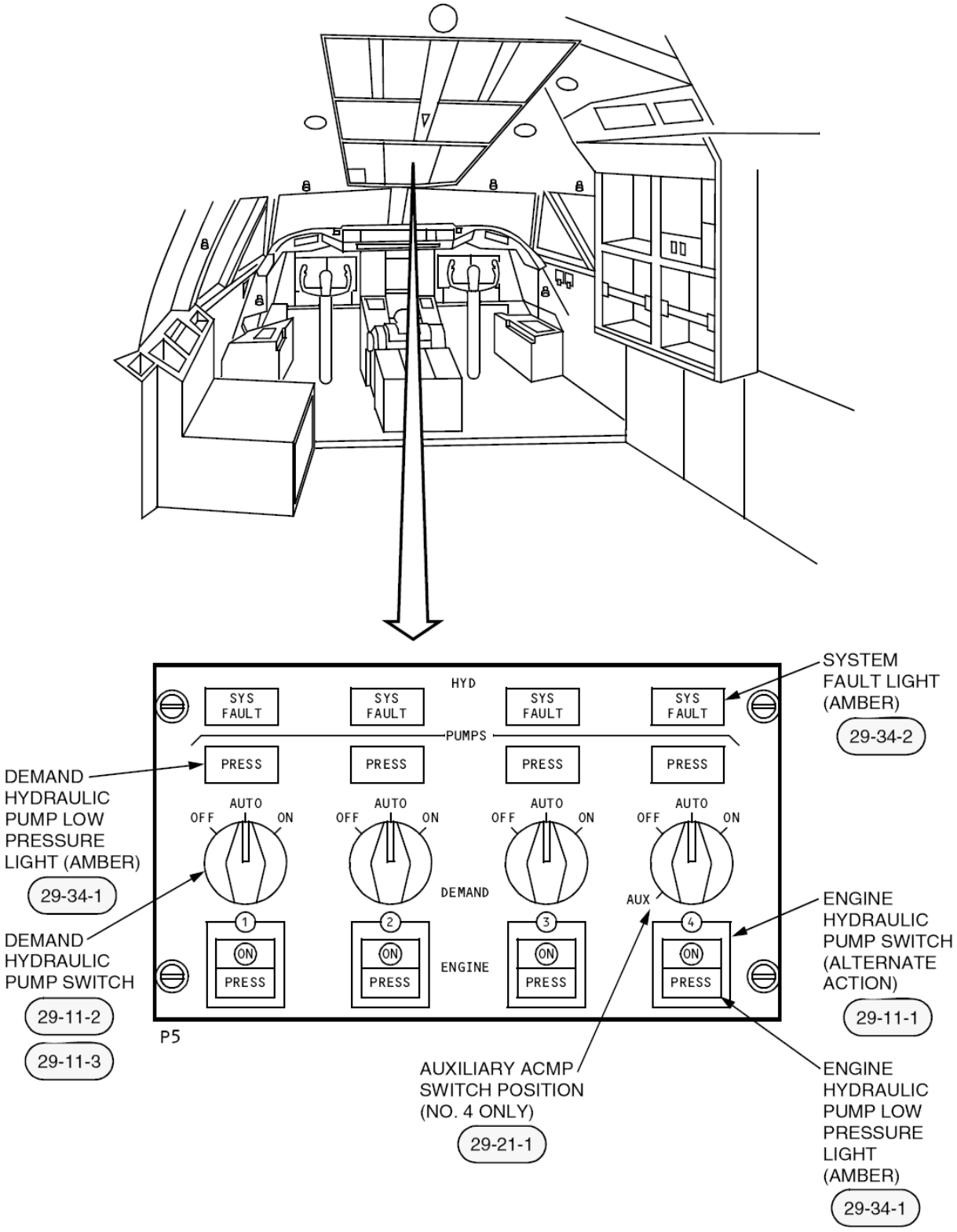
MEL ITEM	TAB LOCATION	PLACARD TEXT
28-44-01	Adjacent To Appropriate EICAS Display Unit And Also On Fueling Control Panel (P42) On Left Wing Station	___ FUEL MEASURING STICK IS INOP

ATA 29 Contents

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MAIN HYDRAULIC SYSTEM



HYDRAULIC SYSTEM CONTROL MODULE

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
29-11-01A	Engine Driven Hydraulic Pump Systems (Pump Installed)	**N**	4	3	**C**	**(M)(O)** One engine pump system, including the pump and/or associated plumbing, may be inoperative provided: a) All Demand pumps operate normally, b) Demand pump for the associated hydraulic system remains ON, and c) Associated pump is operated in the depressurized mode, with fluid supply and pump case return functioning normally.
29-11-01B	Engine Driven Hydraulic Pump Systems (Pump Deactivated)	**N**	4	3	**C**	**(M)(O)** One engine pump system, including the pump and/or associated plumbing, may be inoperative provided: a) All Demand pumps operate normally, b) Demand pump for the associated hydraulic system remains ON, and c) Associated pump is properly deactivated.
29-11-01C	Engine Driven Hydraulic Pump Systems (Pump Removed)	**N**	4	3	**C**	**(M)(O)** One engine pump system, including the pump and/or associated plumbing, may be inoperative provided: a) All Demand Pumps operate normally, b) Demand Pump for the associated hydraulic system remains ON, and c) Associated pump is removed and a cover plate installed.
29-11-01D	Engine Driven Hydraulic Pump Systems (Pump Depressurization Function)	**Y**	4	3	**C**	One pump depressurization function may be inoperative.
29-11-01E	Engine Driven Hydraulic Pump Systems Supply Shutoff Valves (Pump Deactivated)	**N**	4	3	**C**	**(M)(O)** One Supply Shutoff Valve may be inoperative Closed provided: a) All Demand pumps operate normally, b) Demand pump for the associated hydraulic system remains ON, and c) Associated pump is properly deactivated.
29-11-01F	Engine Driven Hydraulic Pump Systems Supply Shutoff Valves (Pump Removed)	**N**	4	3	**C**	**(M)(O)** One Supply Shutoff Valve may be inoperative Closed provided: a) All Demand Pumps operate normally, b) Demand Pump for the associated hydraulic system remains ON, and c) Associated pump is removed and a cover plate installed.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
29-11-01A	Adjacent To Affected Engine Pump Switch (Overhead Panel)	___ ENGINE DRIVEN HYDRAULIC PUMP SYSTEM INOP. PUMP INSTALLED – OPERATE IN DEPRESSURIZED MODE
29-11-01B	Adjacent To Affected Engine Pump Switch (Overhead Panel)	___ ENGINE DRIVEN HYDRAULIC PUMP SYSTEM INOP. PUMP DEACTIVATED
29-11-01C	Adjacent To Affected Engine Pump Switch (Overhead Panel)	___ ENGINE DRIVEN HYDRAULIC PUMP SYSTEM INOP. PUMP REMOVED
29-11-01D	Adjacent To Affected Engine Pump Switch (Overhead Panel)	___ EDP DEPRESSURIZATION FUNCTION INOP – LEAVE ON
29-11-01E	Adjacent To Affected Engine Pump Switch (Overhead Panel)	___ ENGINE DRIVEN HYDRAULIC PUMP SUPPLY SHUTOFF VALVE INOP. PUMP DEACTIVATED
29-11-01F	Adjacent To Affected Engine Pump Switch (Overhead Panel)	___ ENGINE DRIVEN HYDRAULIC PUMP SUPPLY SHUTOFF VALVE INOP. PUMP REMOVED

(O) PROCEDURES

29-11-01A, 29-11-01B, 29-11-01C, 29-11-01E, 29-11-01F

Move the Demand Pump Selector to ON. The Demand Pump Selector on the affected system must remain ON throughout the flight.

CAUTION: There is a possibility of delayed thrust reverser actuation if hydraulic pump is inoperative on systems 2, 3 or 4.

(M) PROCEDURES

29-11-01A, 29-11-01B, 29-11-01C

NOTE: If the affected EDP shutoff is inoperative in the closed position or the fluid supply or pump case drain lines are not functioning normally, the EDP must be removed with an approved cover plate installed, or deactivated (AMM 29-11-05/201). Operation in the depress mode is not possible.

1. To ensure fluid supply is available while operating in the depressurized mode, confirm that the affected EDP shutoff valve is in the open position as follows:
   a) Gain access to the hydraulic shutoff valve via the appropriate strut access panel/fairing (AMM 29–11–04).
   b) View thru the access door and confirm that the HYDRAULIC SHUTOFF VALVE POSITION INDICATOR is in the open position.
   c) Confirm fluid supply and pump drain case are satisfactory by engine motoring (AMM 71-00-00/201) and ensure pressure, quantity and temperature indications on the hydraulic synoptic page are within correct ranges.
2. If the affected EDP shutoff valve is in the open position and the fluid supply and pump case lines are functioning normally. Placard the EDP inoperative per MEL item 29–11–01A.

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3. If the affected EDP shutoff valve is in the closed position or if the affected fluid supply or case drain lines are not functioning normally:

   a) The affected pump must be properly deactivated, (AMM 29–11–05/201). Placard the EDP inoperative per MEL item 29–11–01B.

   OR

   b) The EDP must be removed and an approved cover plate installed, (AMM 29–11–05/201). Placard the EDP inoperative per MEL item 29–11–01C.

29-11-01E

1. The affected pump must be properly deactivated, (AMM 29–11–05/201).
2. To deactivate the EDP hydraulic supply shutoff valve closed:

   a) Gain access to the hydraulic shutoff valve via the appropriate strut access panel/fairing (AMM 29–11–04).

   b) Open the associated P6 panel engine fire extinguisher circuit breakers:

   - Engines 1 or 3: FIRE EXT ENG 1 & 3 BTL A and FIRE EXT ENG 1 & 3 BTL B.
   - Engines 2 or 4: FIRE EXT ENG 2 & 4 BTL A and FIRE EXT ENG 2 & 4 BTL B.

   c) PULL THE ASSOCIATED P5 ENGINE FIRE CONTROL PANEL ENGINE FIRE HANDLE.

   NOTE: You must push the fire override switch installed below the fire switch to operate the fire handle.

WARNING: DO NOT TURN THE FIRE HANDLE. THE EXTINGUISHER BOTTLES WILL LET THE CONTENTS OUT AND CAUSE DAMAGE TO THE ENGINE IF YOU TURN THE FIRE HANDLE.

   d) Verify the position indicator on the EDP hydraulic shutoff valve moves to the CLOSED position and the motor stops.

   e) Pull and secure the associated P7 panel HYDRAULICS EDP SUPPLY circuit breaker.

   f) Push the fire handle back to its usual position.

   g) Close the engine fire extinguisher circuit breakers opened above.

29-11-01F

1. The EDP must be removed and an approved cover plate installed, (AMM 29–11–05/201).
2. To deactivate the EDP hydraulic supply shutoff valve closed:

   a) Gain access to the hydraulic shutoff valve via the appropriate strut access panel/fairing (AMM 29–11–04).

   b) Open the associated P6 panel engine fire extinguisher circuit breakers:

   - Engines 1 or 3: FIRE EXT ENG 1 & 3 BTL A and FIRE EXT ENG 1 & 3 BTL B.
   - Engines 2 or 4: FIRE EXT ENG 2 & 4 BTL A and FIRE EXT ENG 2 & 4 BTL B.

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c) PULL THE ASSOCIATED P5 ENGINE FIRE CONTROL PANEL ENGINE FIRE HANDLE.

NOTE: You must push the fire override switch installed below the fire switch to operate the fire handle.

WARNING: DO NOT TURN THE FIRE HANDLE. THE EXTINGUISHER BOTTLES WILL LET THE CONTENTS OUT AND CAUSE DAMAGE TO THE ENGINE IF YOU TURN THE FIRE HANDLE.

d) Verify the position indicator on the EDP hydraulic shutoff valve moves to the CLOSED position and the motor stops.

e) Pull and secure the associated P7 panel HYDRAULICS EDP SUPPLY circuit breaker.

f) Push the fire handle back to its usual position.

g) Close the engine fire extinguisher circuit breakers opened above.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	DEMAND HYDRAULIC PUMPS					
29-11-02A	No. 1 or No. 4 Demand Pump Systems **"DISP.APPR.REQ'D"**	**N**	2	1	**C**	**(M)(O)** One may be inoperative deactivated provided: a) Demand Pumps 2 and 3 operate normally, b) Performance corrections are applied, c) Maximum allowable takeoff gross weight is limited to 720,000 lbs, and d) Vmcg is increased by 5 kts.
29-11-02B	No. 2 or No. 3 Demand Pump Systems	**N**	2	1	**C**	**(M)(O)** One may be inoperative deactivated provided Demand Pumps 1 and 4 operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
29-11-02A	Adjacent To Affected Demand Pump Selector On Hydraulic Control Module	___ DEMAND HYDRAULIC PUMP SYSTEM INOP AND DEACTIVATED
29-11-02B	Adjacent To Affected Demand Pump Selector On Hydraulic Control Module	___ DEMAND HYDRAULIC PUMP SYSTEM INOP AND DEACTIVATED

(O) PROCEDURES

29-11-02A

1. Verify that the AWABS contains MEL item 29–11–02A.
2. Takeoff:

   With Demand Hydraulic Pump No. 1 or No. 4 inoperative, an engine failure at the same position (No. 1 or No. 4) on takeoff will cause a hydraulic system loss, preventing retraction of some landing gear, and will require secondary mode (electric) operation of trailing edge flaps. Takeoff performance (including obstacle clearance) is based on gear and flaps extended.
3. Increase Vmcg by 5 kts. A table to calculate Vmcg can be found in the ODM, Abnormal, MEL Support section.
4. After takeoff:
   a) Retract Landing Gear with the Gear Lever using normal procedures.
   b) Retract flaps with the flap lever using normal procedures.

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CAUTION: There is a possibility of delayed thrust reverser actuation if hydraulic pump is inoperative on systems 2, 3 or 4.

29-11-02A	DEMAND HYDRAULIC PUMPS
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**Manual WDR not permitted with MEL 29-11-02A**

29-11-02B

CAUTION: There is a possibility of delayed thrust reverser actuation if hydraulic pump is inoperative on systems 2, 3 or 4.

(M) PROCEDURES

29-11-02A, 29-11-02B

1. Position affected HYD PUMPS DEMAND switch to OFF.
2. Pull and secure the HYDRAULICS DEMAND circuit breaker for the applicable demand pump.
3. If demand pump is an Air Driven Pump (ADP), confirm that the air shutoff valve is closed using one of the following two methods:
   a) Method 1
      1) Pressurize the pneumatic manifold (AMM 36–00–00/201).
      2) Confirm that no air is being exhausted from the ADP exhaust louvers. If air is exhausting, continue with Method 2.
   b) Method 2
      1) Depresssurize the pneumatic manifold (AMM 36–00–00/201).
      2) Gain access to the air shutoff valve (RH trailing edge fairing door).
      3) Confirm that the shutoff valve is closed (actuator should be fully retracted).
      4) If both the speed and shutoff valves are open, disconnect at least one valve actuator from the valve shaft (leaving cranking arm on shaft). Move valve shaft to the closed position and lockwire.
      5) Close the RH trailing edge fairing door.
      6) Pressurize the pneumatic system if desired (AMM 36–00–00/201).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	DEMAND PUMP SELECTOR					
29-11-03A	AUTO Position (Associated Demand Pump Operative)	**Y**	4	0	**C**	**(M)(O)** May be inoperative provided: a) If the affected pump is either No. 1 and/or No. 4, it remains ON during takeoff and landing, and b) Verify OFF and ON positions operate normally.
29-11-03B	AUTO Position (Associated Demand Pump Inoperative) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided associated Demand Pump is inoperative.
29-11-03C	ON Position (Associated Demand Pump Operative)	**Y**	4	2	**C**	**(M)** Two may be inoperative provided: a) Verify AUTO and OFF function of the associated Demand Pump operate normally, and b) Associated EDP operates normally.
29-11-03D	ON Position (Associated Demand Pump Inoperative) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided associated Demand Pump is inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
29-11-03A	Adjacent To Affected Demand Pump Selector On Hydraulic Control Module	___ DEMAND PUMP AUTO POSITION INOP
29-11-03B	Adjacent To Affected Demand Pump Selector On Hydraulic Control Module	___ DEMAND PUMP AUTO POSITION INOP
29-11-03C	Adjacent To Affected Demand Pump Selector On Hydraulic Control Module	___ DEMAND PUMP ON POSITION INOP
29-11-03D	Adjacent To Affected Demand Pump Selector On Hydraulic Control Module	___ DEMAND PUMP ON POSITION AND ASSOCIATED DEMAND PUMP INOP

Continued Next Page

(O) PROCEDURES

29-11-03A

If the Demand Pump Selector AUTO Position is inoperative on either the No. 1 and/or No. 4 system, move the selector for that system to the ON Position for takeoff and landing.

29-11-03B, 29-11-03D

If associated inoperative Demand Pump is No. 1 or No. 4, comply with MEL item 29–11–02A (O) procedures.

(M) PROCEDURES

29-11-03A

1. After engine start or using an alternate air source for affected pump, confirm that the associated system pressure with the affected Demand Pump Selector in ON position, and no other pump running, is 2800–3200 psi.
2. Position selector to OFF and confirm the system pressure decreases.

29-11-03B

Defer the associated demand pump inoperative per MEL items 29–11–02A or –02B as required.

29-11-03C

1. Start the associated engine.
2. Position the associated Engine Driven Pump (EDP) OFF.
3. Position the associated Demand Pump AUTO and confirm the system pressure is 2800-3200 psi.
4. Position the associated Demand Pump OFF and confirm the system pressure decreases to less than 500 psi.
5. Position associated Demand Pump AUTO.
6. Position associated EDP ON.
7. For inoperative demand pumps 1 and/or 4 selector, confirm the auto control of the ADP continuous solenoid functions properly:

WARNING: ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL FLIGHT CONTROL SURFACES.

a) Select the Hydraulic Synoptic page for display on EICAS. Verify the associated ADP is not operating.

b) Verify Flaps Up, then select Flaps 5 while monitoring ADP run status on the synoptic display. Confirm the ADP starts to operate upon selecting Flaps 5. If the ADP does not start, It must be considered inoperative (see MEL item 29–11–02A or 29–11–02B as applicable).

29-11-03D

Defer the associated demand pump inoperative per MEL items 29–11–02A or –02B as required.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
29-18-01	Reservoir Servicing Gauge	**Y**	1	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
29-18-01	Adjacent To Servicing Gauge	RESERVOIR SERVICING GAUGE INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
29-21-01	Auxiliary Pump (AC Motor Pump) System	**Y**	1	0	**C**	**(M)(O)** May be inoperative provided Demand Pump Selector is properly positioned.

MEL ITEM	TAB LOCATION	PLACARD TEXT
29-21-01	Adjacent To Demand Pump Selector AUX Position	AUX PUMP SYSTEM (AC MOTOR PUMP) INOP

(O) PROCEDURES

1. Before engine start, position the associated Demand Pump Selector OFF.
2. After engines are started, use normal procedures to position the Demand Pump Selector.

(M) PROCEDURES

1. Position Associated Demand Pump(s) Selector to OFF or AUTO.
2. When towing airplane, have APU running providing electrical power and bleed air. Pressurize hydraulic system No. 4, or 1 or 2 with applicable system demand pump.

   NOTE: On airplanes with an AC motor–driven Demand Pump on System No. 2, it is not necessary to provide pneumatic power from the APU

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
29-31-01	HYD RSVR PRES Messages **"Contact MCC"**	**N**	4	0	**C**	**(M)** May be inoperative provided associated reservoir pressurization is verified to operate normally ONCE EACH FLIGHT DAY **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
29-31-01	Adjacent To Main EICAS Display	___ HYD RSVR PRESS MESSAGE INOP

(M) PROCEDURES

DAILY CHECK (Once each flight day)

1. Verify that the reservoir pressurization operates normally by using Method 1 or Method 2:
   a) Method 1:
      1) Pressurize the pneumatic system.
      2) Depress the reservoir pressurization bleed valve (port “BLD” on the reservoir pressurization module) for two minutes and verify that air can be heard flowing through the valve.
   b) Method 2:
      1) With the reservoir depressurized, install a pressure gauge at the “GA” port on the reservoir pressurization module. Pressurize the pneumatic system and verify that pressure is maintained greater than 21 psia (6 psig).

         NOTE: Status message HYD RSVR PRESS ___ may remain displayed.
2. Accomplish required logbook entry.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
29-32-01A	Hydraulic System Temperature Indications	**Y**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) The associated system pressure indication operates normally, and b) The associated hydraulic quantity indication operates normally.
29-32-01B	Hydraulic System Temperature Indications	**Y**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) The associated system pressure indication operates normally, and b) The associated Hydraulic SYS FAULT Light operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
29-32-01A	Adjacent To The Aux EICAS Display	___ HYDRAULIC SYSTEM TEMP IND INOP
29-32-01B	Adjacent To The Aux EICAS Display	___ HYDRAULIC SYSTEM TEMP IND INOP

(O) PROCEDURES

29-32-01A

1. Ensure associated system pressure and quantity indications on the Secondary EICAS operates normally.
2. Ensure associated system Engine Hydraulic Low Pressure Light goes out after engine start.

   NOTE: The associated EICAS advisory and status HYD OVHT SYS ___ messages may remain displayed following engine start.

29-32-01B

1. Ensure associated system pressure and quantity indications on the Secondary EICAS operates normally.
2. Ensure associated system Engine Hydraulic Low Pressure Light goes out after engine start.
3. Ensure associated Engine Hydraulic SYS FAULT Light goes out after engine is started.

   NOTE: The associated EICAS advisory and status HYD OVHT SYS ___ messages may remain displayed following engine start.

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(M) PROCEDURES

29-32-01A

Required indications for the associated system are verified as follows:

1. Push the HYD switch on the EICAS Display Panel. The Hydraulic Synoptic Page will come into view on the Auxiliary EICAS screen.
2. Pressurize the associated system and verify the following indications:
   a) Hydraulic fluid press is 2800 – 3200 psi.
   b) Hydraulic quantity is .75 to 1.15 full (fraction of total capacity).

29-32-01B

Required indications for the associated system are verified as follows:

1. Push the HYD switch on the EICAS Display Panel. The Hydraulic Synoptic Page will come into view on the Auxiliary EICAS screen.
2. Verify the associated “SYS FAULT” light is ON before the system is pressurized.
3. Pressurize the associated system and verify the following indications:
   a) Hydraulic fluid press is 2800 – 3200 psi.
   b) Associated “SYS FAULT” light is OFF when the system is pressurized and indicating 2800 – 3200 psi.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
29-33-01A	Hydraulic Quantity Indications **"Contact MCC"**	**N**	4	2	**C**	**(M)** May be inoperative provided: a) Associated reservoir level is verified normal PRIOR TO EACH DEPARTURE **(Log Book Entry Required),** b) Associated system pressure indication is verified to operate normally, and c) Associated hydraulic temperature indication is verified to operate normally, OR d) Associated hydraulic SYS FAULT light is verified to operate normally. **Repetitive Check Required (Yellow Placard)**
29-33-01B	Hydraulic Quantity Indications **"Contact MCC"**	**N**	4	0	**B**	**(M)** May be inoperative provided: a) Associated reservoir level is verified normal PRIOR TO EACH DEPARTURE **(Log Book Entry Required),** b) Associated system pressure indication is verified to operate normally, and c) Associated hydraulic temperature indication is verified to operate normally, OR d) Associated hydraulic SYS FAULT light is verified to operate normally. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
29-33-01A	Adjacent To Main EICAS Display	___ HYDRAULIC QUANTITY INDICATION INOP
29-33-01B	Adjacent To Main EICAS Display	___ HYDRAULIC QUANTITY INDICATION INOP

(M) PROCEDURES

29-33-01A, 29-33-01B

1. Confirm the associated system indications operate normally using one of the following methods:
   a) TEMPERATURE INDICATION METHOD
      1) Push the HYD switch on the EICAS Display Select Panel. The Hydraulic Synoptic Page will come into view on the Auxiliary EICAS screen.
      2) Pressurize the associated system.
      3) Confirm the hydraulic pressure is 2800-3200 psi.
      4) Confirm the hydraulic temperature is less than 80 degrees C.

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b) SYS FAULT LIGHT METHOD

1) Push the HYD switch on the EICAS Display Select Panel. The Hydraulic Synoptic Page will come into view on the Auxiliary EICAS screen.

2) Verify the associated SYS FAULT LIGHT is on before the system is pressurized.

3) Pressurize the associated system.

4) Confirm the hydraulic pressure is 2800-3200 psi.

5) Confirm the SYS FAULT light extinguishes.

2. If desired, the inoperative quantity indication may be deactivated by disconnecting, capping and stowing the associated hydraulic quantity transmitter electrical connector (DT401, DT402, DT403 or DT404).

3. **PRIOR TO EACH DEPARTURE CHECK**:

a) Confirm the associated reservoir level is normal prior to each departure using the fill station indication or the reservoir sight gauge. Reference AMM 12-12-01, Hydraulic Reservoir Fluid Level Check.

b) Service the reservoir if required (AMM 12–12–01).

c) Accomplish required logbook entry.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
	PUMP LOW PRESSURE INDICATION SYSTEMS				
29-34-01A	Pump LOW PRESS Lights	**Y** 8	4	**C**	**(M)** One light per hydraulic system may be inoperative provided: a) Associated system pressure indication operates normally, and b) Associated pump operates normally PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**
29-34-01B	Engine Driven Pump Pressure Switches	**Y** 4	3	**C**	**(M)** One may be inoperative provided: a) Associated Demand pump AUTO function is considered inoperative, b) Associated system pressure indication operates normally, c) Associated pump operates normally PRIOR TO EACH DEPARTURE, and d) Associated Demand pump indication system operates normally. Ensure the provisos in the Remarks & Exceptions column of MEL item 29–11–03A are applied. **Repetitive Check Required (Yellow Placard)**
29-34-01C	Demand Pump Pressure Switches	**Y** 4	3	**C**	**(M)** One may be inoperative provided: a) Associated system pressure indication operates normally, b) Associated pump operates normally PRIOR TO EACH DEPARTURE, and c) Associated Engine Driven pump indication system operates normally. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
29-34-01A	Adjacent To Affected Pump LOW PRESS Lights	___ PUMP LOW PRESS LIGHT INOP
29-34-01B	Adjacent To Affected Pump Switch	___ ENGINE DRIVEN PUMP PRESSURE SWITCH INOP
29-34-01C	Adjacent To Affected Pump Switch	___ DEMAND PUMP PRESSURE SWITCH INOP

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(M) PROCEDURES

29-34-01A

PRIOR TO EACH DEPARTURE, confirm associated pump operates normally as follows:

CAUTION: DO NOT OPERATE PUMPS FOR MORE THAN 15 MINUTES WITHOUT MINIMUM QUANTITIES IN FUEL TANKS DUE TO POSSIBLE PUMP OVERHEAT.

1. For an Air Driven Pump (ADP) or AC Motor–Driven Pump (ACMP) low PRESS light inoperative:
   a) Ensure that personnel are clear of flight controls.
   b) With electrical power on airplane, and pneumatic manifold pressurized, turn HYD PUMPS DEMAND switch to AUTO or ON.
   c) System hydraulic pressure display on EICAS must read between 2800 – 3200 psi.
   d) Restore airplane to its required configuration.
2. For an Engine Driven Pump (EDP) low PRESS light inoperative:

NOTE: This check can be performed by the flight crew prior to shutting down engines on previous flight or prior to departure after engine start.

   a) Start the associated engine.
   b) Position the associated engine pump switch ON.
   c) Confirm the hydraulic pressure is 2800 - 3200 psi.

29-34-01B

1. Defer the associated Demand Pump Auto Position inoperative per MEL item 29–11–03A
2. **PRIOR TO EACH DEPARTURE**, confirm associated pump operates normally as follows:

CAUTION: DO NOT OPERATE PUMPS FOR MORE THAN 15 MINUTES WITHOUT MINIMUM QUANTITIES IN FUEL TANKS DUE TO POSSIBLE PUMP OVERHEAT.

NOTE: This check can be performed by the flight crew prior to shutting down engines on previous flight or prior to departure after engine start.

   a) Start the associated engine.
   b) Position the associated engine pump switch ON.
   c) Confirm the hydraulic pressure is 2800 - 3200 psi.

29-34-01C

PRIOR TO EACH DEPARTURE, confirm associated pump operates normally as follows:

CAUTION: DO NOT OPERATE PUMPS FOR MORE THAN 15 MINUTES WITHOUT MINIMUM QUANTITIES IN FUEL TANKS DUE TO POSSIBLE PUMP OVERHEAT.

1. Ensure that personnel are clear of flight controls.
2. With electrical power on airplane, and pneumatic manifold pressurized, turn HYD PUMPS DEMAND switch to AUTO or ON.
3. System hydraulic pressure display on EICAS must read between 2800 – 3200 psi.
4. Restore airplane to its required configuration.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
29-34-02A	Hydraulic SYS FAULT Lights	**Y**	4	3	**C**	**(M)(O)** One may be inoperative provided the following indications are verified to operate normally: a) Associated System Pressure Indication, and b) Associated System Temperature Indication.
29-34-02B	Hydraulic SYS FAULT Lights	**Y**	4	3	**C**	**(M)(O)** One may be inoperative provided the following indications are verified to operate normally: a) Associated System Pressure Indications, and b) Associated Hydraulic Quantity Indication.

MEL ITEM	TAB LOCATION	PLACARD TEXT
29-34-02A	Adjacent To Affected Hyd. SYS FAULT Light	___ HYD SYS FAULT LIGHT INOP
29-34-02B	Adjacent To Affected Hyd. SYS FAULT Light	___ HYD SYS FAULT LIGHT INOP

(O) PROCEDURES

29-34-02A, 29-34-02B

NOTE: The associated EICAS advisory and status HYD OVHT SYS ___ messages may remain displayed following engine start.

(M) PROCEDURES

29-34-02A

1. Push the HYD switch on the EICAS Display Select Panel. The Hydraulic Synoptic Page will come into view on the Auxiliary EICAS screen.
2. Pressurize the associated system and verify the following indications on the hydraulic synoptic page:
   a) Hydraulic fluid pressure is 2800–3200 psi and,
   b) Hydraulic fluid temperature is less than 80 degrees C.

29-34-02B

1. Push the HYD switch on the EICAS Display Select Panel. The Hydraulic Synoptic Page will come into view on the Auxiliary EICAS screen.
2. Pressurize the associated system and verify the following indications on the hydraulic synoptic page:
   a) Hydraulic fluid pressure is 2800–3200 psi and,
   b) Hydraulic quantity is .75 to 1.15 full (fraction of total capacity).

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ATA 30 Contents

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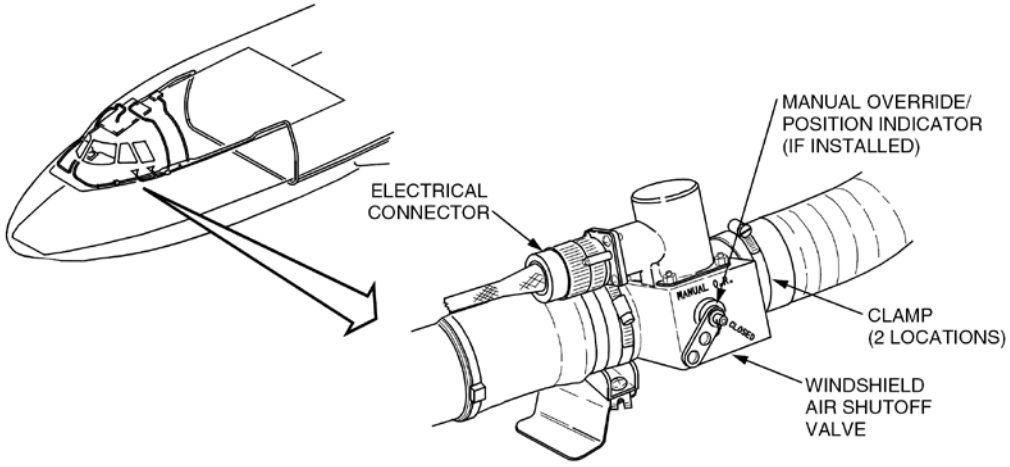
NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
30-00-01	Windshield Air (Defog) System Controls	**N**	2	0	**C**	**(M)** May be inoperative provided defogging valve(s) is secured ON.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-00-01	Adjacent To WINDOW Air Switch On The Flight Deck Auxiliary Panels	___ WINDSHIELD DE–FOG CONTROL INOP – LOCKED OPEN

(M) PROCEDURES

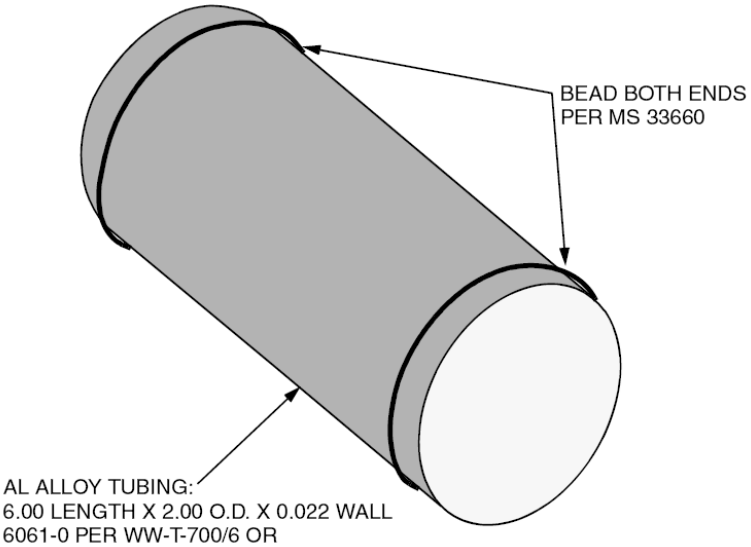
1. For Windshield Air (Defog) System fault(s) that result in a valve(s) inoperative in the closed position.
   a) Gain access to the associated air valve(s) as follows:
      1) Remove Captain's (First Officer's) oxygen mask/stowage box (AMM 35–11–18/401).
      2) Remove flight crew sidewall lining below the number 2 window.
   b) Open the P180 panel WSHLD AIR circuit breaker (H25).
   c) Disconnect, cap and stow electrical connector DV464 (Captain) or DV465 (First Officer) from valve.
   d) Secure valve(s) ON as follows:
      1) If defog valve with manual override Lever (P/N 86705–1) is installed, move the manual override lever to the open position.
      2) If defog valve without manual override Lever (P/N 84535–1) is installed:
         A. Loosen two clamps on valve and remove from flexible hose.
         B. As shown in the following figure 30–00–1A, fabricate a shutoff valve replacement duct.
         C. Install fabricated replacement duct in place of defogging valve.
   e) Re–install flight deck sidewall lining.
   f) Close circuit breaker opened in step 1 b).
   g) Install Captain's (First Officer's) oxygen mask/stowage box.
2. For Windshield Air (Defog) System fault(s) that result in one or both valves inoperative in the open position, both valves must be secured ON as follows:
   a) Select Captain's and First Officer's WSHLD AIR Switches ON.
   b) With one or more Packs operating, ensure air is being supplied to both windshields by feeling that air flows freely from the defog outlets.
   c) Pull and secure 180H25 WSHLD Air Circuit breaker on the P180 DC Power Distribution Panel.

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CAPTAINS WINDSHIELD AIR SHUTOFF VALVE

Figure 30-00-1



WINDSHIELD AIR SHUTOFF VALVE REPLACEMENT DUCT

Figure 30-00-1A

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
30-11-01	Wing Anti-Ice Valves **"DISP.APPR.REQ'D"**	**N** 2	0	**C**	**(M)(O)** May be inoperative secured closed provided airplane is not operated in known or forecast structural icing conditions. Theater Restrictions May Apply

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-11-01	Adjacent To WING ANTI–ICE Switch On P5 Overhead Panel	___ WING ANTI–ICE VALVE INOP – CLOSED

(O) PROCEDURES

Avoid structural icing conditions.

(M) PROCEDURES

To secure valve(s) closed:

WARNING: ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL FLIGHT CONTROL SURFACES.

1. Extend and deactivate the leading edge flaps and install safety locks (AMM 27-81-00/201).

WARNING: INSTALL LOCKS IN LEADING EDGE FLAPS TO PREVENT INADVERTENT RETRACTION AND INJURY TO PERSONNEL.

2. Open P6 panel WING ANTI-ICE CONT and WING THERMAL ANTI-ICE VALVE circuit breakers.
3. Gain access to the inoperative anti-ice valve (AMM 30-11-03/401).
4. Disconnect, cap and stow electrical connector.
5. Move manual handle until position indicator on top of valve indicates CLOSED.
6. Activate leading edge flaps (AMM 27-81-00/201).
7. Close P6 panel WING ANTI-ICE CONT and WING THERMAL ANTI-ICE VALVE circuit breakers.
8. Restore airplane to its required configuration.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
30-11-02A	Wing Anti-Ice VALVE Light or WAI Indications **"DISP.APPR.REQ'D"**	**N**	-	0	**C**	**(M)(O)** May be inoperative provided associated valve is verified to operate normally PRIOR TO EACH DEPARTURE **(Log Book Entry Required)** in known or forecast structural icing conditions. **Repetitive Check Required (Yellow Placard)**
30-11-02B	Wing Anti-Ice VALVE Light or WAI Indications **"DISP.APPR.REQ'D"**	**N**	-	0	**C**	**(M)(O)** May be inoperative provided: a) The associated wing anti–ice valve is inoperative, and b) Airplane is not operated in known or forecast structural icing conditions. Theater Restrictions May Apply

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-11-02A	Adjacent To WING ANTI–ICE Switch On P5 Overhead Panel Or Adjacent To EICAS Display As Appropriate	WING ANTI–ICE VALVE LIGHT or ___ WAI VALVE INDICATION IS INOP
30-11-02B	Adjacent To WING ANTI–ICE Switch On P5 Overhead Panel Or Adjacent To EICAS Display As Appropriate	WING ANTI–ICE VALVE LIGHT or ___ WAI VALVE INDICATION IS INOP

(O) PROCEDURES

30-11-02A

Disregard Anti Ice Valve position disagreement Advisory level message WAI VALVE LEFT or WAI VALVE RIGHT for the affected engine.

30-11-02B

1. Avoid structural icing conditions.
2. Disregard Anti Ice Valve position disagreement Advisory level message WAI VALVE LEFT or WAI VALVE RIGHT for the affected engine.

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(M) PROCEDURES

30-11-02A

PRIOR TO EACH DEPARTURE CHECK (Before operating in known or forecast structural icing conditions):

1. To verify the associated valve operates normally, perform the Wing Thermal Anti–Ice System operational test (AMM 30–11–00, 500 series pages). Since VALVE Light and/or EICAS WAI indications are inoperative under this MEL item, disregard procedure steps calling for verification that these items function. Verification is by observing the position indicator on the valve assembly on the wing.
2. Accomplish required logbook entry.

30-11-02B

Defer the associated wing anti–ice valve per MEL item 30–11–01.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
30-21-01A	Nacelle Anti-Ice Valves (Inoperative Closed) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative secured closed provided airplane is not operated in known or forecast induction icing conditions.
30-21-01B	Nacelle Anti-Ice Valves (Inoperative Open) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(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 for engine start, c) Associated engine nacelle anti-ice switch is operated manually, d) Bleed systems on the remaining engines operate normally, e) Left and right ISLN valves remain OPEN for takeoff and during flaps operation, f) A minimum of 70% N1 is maintained at or above10,000 ft. MSL, or 55% N1 is maintained below 10,000 ft. MSL on the associated engine while in induction icing conditions, g) Associated PRV operates normally, and h) Performance corrections are applied.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-21-01A	Adjacent To Nacelle Anti–Ice VALVE Switchlight On P5 Panel	___ NAC ANTI–ICE VALVE INOP CLOSED
30-21-01B	Adjacent To Nacelle Anti–Ice VALVE Switchlight On P5 Panel	___ NAC ANTI–ICE VALVE INOP – OPEN

(O) PROCEDURES

30-21-01A

1. Disregard anti–ice position disagreement advisory level message NAI VALVE__ for affected engine.

   NOTE: Advancing the throttle off Idle to approximately 75% N2 will open the PRSOV and extinguish the Engine Bleed Air OFF light.

2. Do not operate in known or forecast induction icing conditions. If induction icing conditions are inadvertently encountered, reducing thrust on affected engine will minimize damage if ice is ingested.

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30-21-01B

1. Verify that the AWABS contains MEL item 30–21–01B.
2. For the affected engine, select Engine Bleed OFF except for ground engine starting. Starter assisted inflight start is not available for the affected engine.
3. Don't use more than two different thrust settings for takeoff on four engines.
4. Disregard anti–ice position disagreement advisory level message NAI VALVE__ for affected engine.
5. When operating in induction icing conditions, select Nacelle Anti–Ice ON and maintain a minimum 70% N1 (55% N1 below 10,000 ft MSL) on associated engine to ensure adequate air supply to Nacelle TAI manifold.
6. During takeoff and for all flap operations, ensure that the L and R ISLN valve switches are in the Open position.
7. With the HPSOV secured closed, it is normal for the Pressure Regulating and Shutoff Valve (PRSOV) to close during engine operation at idle or if engine power settings are unequal. Consequently, the associated Engine Bleed Air OFF light will illuminate whenever the PRSOV is closed. Advancing the throttle off idle to approximately 75% N2 will open the PRSOV and extinguish the Engine Bleed Air OFF light.
8. Advisory and status messages BLEED HP ENG __ will remain displayed.

30-21-01B	**NACELLE ANTI-ICE VALVES**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 17,600 lbs. 2. Increase BLOCK FUEL by 0.5%.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF – Anti Ice On** 1. Reduce RATOW by 12,200 lbs. 2. Reduce T/O CLIMB LIMIT by 12,200 lbs. **TAKEOFF – Anti-Ice Off** 1. Reduce RATOW by 4,500 lbs. 2. Reduce T/O CLIMB LIMIT by 4,500 lbs. **LANDING – Anti-Ice On** 1. Reduce RWY ALLOWABLE LANDING WT by 12,200 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 12,200 lbs. **LANDING – Anti-Ice Off** 1. Reduce RWY ALLOWABLE LANDING WT by 4,500 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 4,500 lbs.

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(M) PROCEDURES

30-21-01A

Secure affected NAI valve closed as follows:

1. Gain access to affected valve through access door in nacelle strut (reference AMM 30-21-03/401):

ENGINE	DOOR
1	453CL451AR
2	463CL461AR
3	473 CL471AR
4	483CL481AR

2. Disconnect and stow electrical connector.
3. Turn shaft hex stud to closed position.
4. With valve in the closed position, pull and rotate the lockout knob to the LOCKED CLOSED position.
5. Restore airplane to its required configuration.

30-21-01B

Secure affected NAI valve open as follows:

1. Gain access to affected valve through access door in nacelle strut (reference AMM 30-21-03/401):

ENGINE	DOOR
1	453CL451AR
2	463CL461AR
3	473 CL471AR
4	483CL481AR

2. Disconnect and stow electrical connector.
3. Turn shaft hex stud to open position.
4. With valve in the open position, pull and rotate the lockout knob to the LOCKED OPEN position.
5. Verify the Fan Air Modulating Valve is operating normally (AMM 36–12–04).
6. Defer the associated High Pressure Shutoff Valve (HPSOV) in the CLOSED position per MEL item 36–11–03.
7. Restore airplane to its required configuration.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
30-21-02A	Nacelle Anti-Ice VALVE Lights or NAI Indications **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)** One may be inoperative provided associated valve is verified to operate normally PRIOR TO EACH DEPARTURE **(Log Book Entry Required)** in known or forecast induction icing conditions. NOTE: Both indications may be inoperative for one engine. **Repetitive Check Required (Yellow Placard)**
30-21-02B	Nacelle Anti-Ice VALVE Lights or NAI Indications **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided associated nacelle anti–ice valve is considered inoperative and deferred per MEL 30-21-01A or 30-21-01B as appropriate.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-21-02A	Adjacent To The Respective Control Light On The P5 Overhead Panel Or Adjacent The EICAS Display As Appropriate	___ NACELLE ANTI–ICE VALVE LIGHT or NAI VALVE INDICATION IS INOP
30-21-02B	Adjacent To The Respective Control Light On The P5 Overhead Panel Or Adjacent The EICAS Display As Appropriate	___ NACELLE ANTI–ICE VALVE LIGHT or NAI VALVE INDICATION IS INOP

(O) PROCEDURES

30-21-02B

Comply with MEL 30–21–01A or 30–21–01B, (O) procedures as appropriate.

Continued Next Page

(M) PROCEDURES

30-21-02A

PRIOR TO EACH DEPARTURE CHECK (Before operating in known or forecast induction icing conditions):

1. To verify valve associated with inoperative VALVE light or NAI indication operates normally, perform the following procedure:

   a) Supply electrical power (AMM 24–22–00/201).

   b) Pressurize the pneumatic system with either a ground air source or with the APU (AMM 36–00–00/201).

WARNING: ENGINES MUST NOT BE RUNNING WHEN PERSONNEL OR EQUIPMENT ARE NEARBY.

   c) Manually open the associated engine PRSOV (Ref. AMM Task 36–11–04–702–045–0010).

   d) Gain access to the associated nacelle anti–ice valve assembly on the nacelle anti–ice duct. Access panel is located on the left side of the strut forward fairing, No. 3 fairing:

Engine	Location Zone
1	451
2	461
3	471
4	481

   e) Locate the valve position indicator hex nut adjacent to the valve manual override selector. Hex nut has position pointer indicating OPEN or CLOSE. The manual override selector must remain at NORMAL.

   f) Verify that nacelle anti–ice valve opens:

      1) Position associated Anti–Ice/Rain Removal panel (P5) NACELLE ANTI–ICE switch ON.

CAUTION: IF THE PNEUMATIC AIR IS HOT (APPROXIMATELY 350 DEGREES), DO NOT OPEN THE ENGINE INLET ANTI–ICE VALVE FOR MORE THAN 30 SECONDS. AFTER THE VALVE CLOSES, LET THE INLET COWL BECOME COOL. TOO MUCH HEAT CAN CAUSE DAMAGE TO THE INLET COWL.

      2) Verify that the white ON indicator in the switch shows and/or NAI appears on the main EICAS display.

      3) Visually confirm that the valve position indicator hex nut rotates toward OPEN.

   g) Verify that anti–ice valve closes:

      1) Position associated Anti–Ice/Rain Removal panel (P5) NACELLE ANTI–ICE switch OFF.

      2) Verify that the white ON indicator in the switch does not show and/or NAI does not show on the main EICAS display.

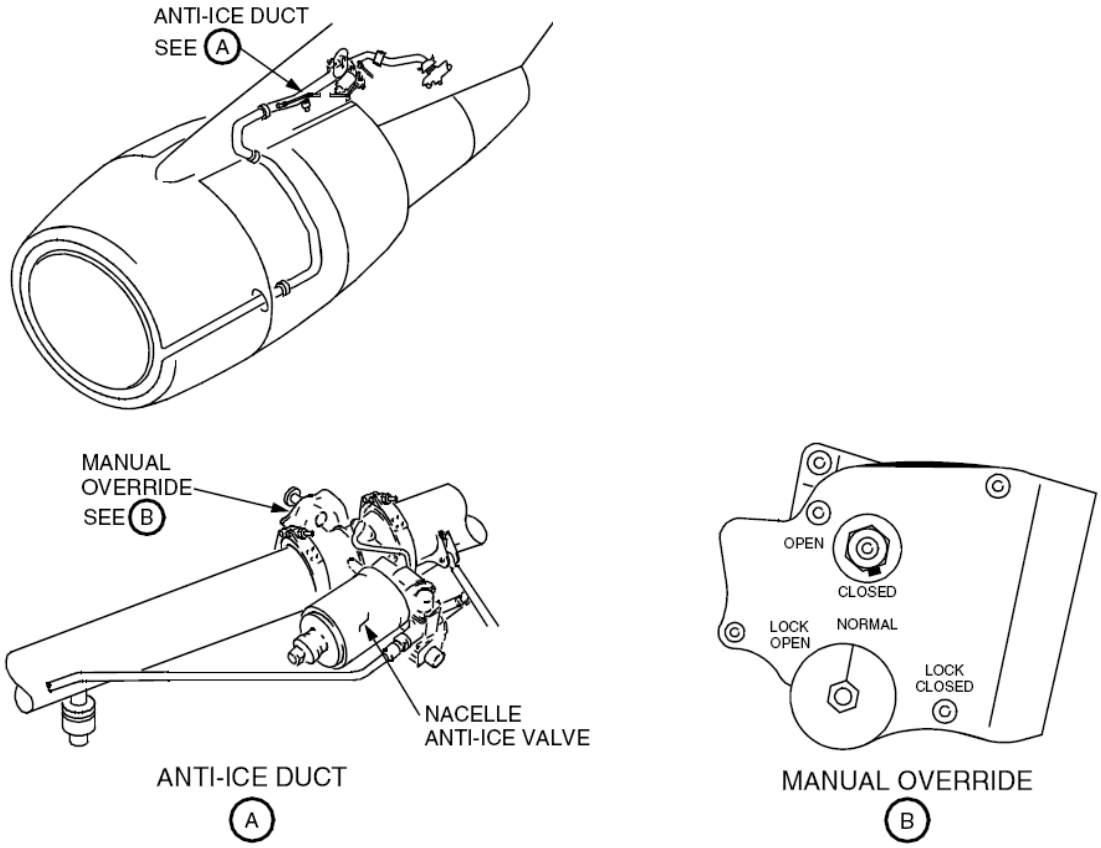
      3) Visually confirm that the valve position indicator hex nut rotates to indicate CLOSED.

   h) Release the pressure in the pneumatic system (AMM 36–00–00/210).

   i) Remove electrical power if no longer required (AMM 24–22–00/201).

2. Accomplish required logbook entry.

Continued Next Page



30-21-02B

Defer the inoperative Nacelle Anti–Ice Valve per MEL Item 30–21–01A or –01B as required.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
30-31-01	Pitot-Static Probe Heater Systems **"DISP.APPR.REQ'D"**	**Y**	4	3	**B**	**(O)** Heater elements in one probe may be inoperative provided airplane is not operated in visible moisture or in known or forecast structural icing conditions. NOTE: For probe heat to be considered operative, both heater elements in that probe must operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-31-01	Adjacent To The Main EICAS Display	___ PITOT–STATIC PROBE HEATER IS INOP

(O) PROCEDURES

Avoid visible moisture and structural icing conditions.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	**NAME / DESCRIPTION**					**REMARKS OR EXCEPTIONS**
30-31-02	Angle of Attack Sensor Heater Systems **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** One may be inoperative provided airplane is not operated in known or forecast structural icing conditions.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-31-02	Adjacent To The Main EICAS Display	___ ANGLE OF ATTACK HEATER SYSTEM IS INOP

(O) PROCEDURES

Avoid structural icing conditions.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
30-31-03	Temperature Probe Heater Systems	**Y**	2	1	**C**	**(O)** One may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-31-03	Adjacent To The Main EICAS Display y	___ TEMP PROBE HEATER SYSTEM IS INOP

(O) PROCEDURES

NOTE: Flight in structural icing conditions may result in unreliable performance calculations.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
30-41-01	Window Heat INOP Lights	**Y**	2	1	**C**	One may be inoperative provided associated heater operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-41-01	Adjacent To Window Heat INOP Lights On Anti–Ice/Rain Removal Panel On P5	___ WINDOW HEAT INOP LIGHT INOP

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
30-41-02	Flight Deck Window Heater Systems (No. 1 & No. 2) **"DISP.APPR.REQ'D"**	**Y**	4	3	**C**	**(O)** The window heaters may be inoperative on one No. 1 or one No. 2 window provided: a) Operation is not predicated on flights into known or forecast structural icing, and b) Windshield air (anti–fog systems) are operative and remaining No. 1 and No. 2 window heaters are operative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-41-02	Adjacent To Window Heat INOP Lights On Anti–Ice/Rain Removal Panel On P5	___ WINDOW HEATER SYSTEM IS INOP

(O) PROCEDURES

1. Avoid structural icing conditions.
2. Place WINDOW HEAT switch on affected side OFF.
3. Place WINDSHIELD AIR switch ON.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
30-41-03	Flight Deck Window Heater Systems (No. 3)	**N**	2	0	**C**	**(M)** May be inoperative provided affected No. 3 window heat circuit is deactivated.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-41-03	Adjacent To Window Heat INOP Lights On Anti–Ice/Rain Removal Panel On P5	___ WINDOW HEATER SYSTEM IS INOP AND DEACTIVATED

(M) PROCEDURES

1. General:

   No. 3L and 2R window heat circuits share a common power supply and circuit breaker, as do No. 3R and 2L circuits. To ensure that No. 2 window heat is unaffected by associated No. 3 window heat faults over the dispatch repair interval, one of the following two methods may be used to deactivate the No. 3 window heat circuit.

2. METHOD 1 (for control thermostat with electrical connector installed).

   Remove the control thermostat (AMM 30-41-06/401) from the affected No. 3 window(s):

   a) Open 6E28 WINDOW HEAT PWR 2L & 3R and 6E30 WINDOW HEAT PWR 2R & 3L circuit breakers on the P6 Main Power Distribution Panel.

   b) Gain access to the No. 3 window control thermostat (window 3L control thermostat S759 and/or window 3R control thermostat S762) installed below the overheat thermostat on the aft edge of the window.

   c) Lift the retainer and move the thermostat away from the windowpane.

   d) Move the thermostat to one side and carefully lower the spring.

   e) Remove the thermostat from the electrical connector.

   f) Cap and stow the electrical connector for the removed control thermostat.

WARNING: ELECTRICAL SHOCK MAY INJURE PERSONNEL OR DAMAGE EQUIPMENT IF CONTROL THERMOSTAT WIRING IS NOT PROPERLY SECURED.

   g) CLOSE 6E28 WINDOW HEAT PWR 2L & 3R and 6E30 WINDOW HEAT PWR 2R & 3L circuit breakers on the P6 Main Power Distribution Panel.

3. METHOD 2 (for control thermostat without electrical connector installed).

   Remove the overheat thermostat (AMM 30-41-06/403) from the affected No. 3 window(s):

   NOTE: Removal of the overheat thermostat will generate the CMC message WINDOW 3_ HEAT FAIL.

Continued Next Page

a) Open 6E28 WINDOW HEAT PWR 2L & 3R and 6E30 WINDOW HEAT PWR 2R & 3L circuit breakers on the P6 Main Power Distribution Panel.

b) Gain access to the No. 3 window overheat thermostat (window 3L overheat thermostat S1026 and/or window 3R overheat thermostat S1029) installed above the control thermostat on the aft edge of the window.

c) Lift the retainer spring and remove the thermostat from the rubber ring.

d) Lower the spring against the window pane.

e) Disconnect thermostat wires and insulate each wire to prevent electrical shorting and then stow the wiring for the removed overheat thermostat.

WARNING: ELECTRICAL SHOCK MAY INJURE PERSONNEL OR DAMAGE EQUIPMENT IF OVER HEAT THERMOSTAT WIRING IS NOT PROPERLY SECURED.

f) CLOSE 6E28 WINDOW HEAT PWR 2L & 3R and 6E30 WINDOW HEAT PWR 2R & 3L circuit breakers on the P6 Main Power Distribution Panel.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
30-42-01A	Windshield Wipers **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided the airplane is not operated in known or forecast precipitation within 5 statute miles of the airport of departure or intended landing. CAT II/III Not Authorized
30-42-01B	Windshield Wipers Low Speed Function	**Y**	2	0	**C**	May be inoperative provided associated high speed function(s) operates normally.
30-42-01C	Windshield Wipers High Speed Function	**Y**	2	1	**C**	One may be inoperative provided associated low speed function operates normally.
30-42-01D	Windshield Wipers High Speed Function **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	May be inoperative provided: a) Both low speed functions operate normally, and b) Airplane is not operated in known or forecast precipitation of **moderate or greater intensity** within 5 statute miles of the airport of departure or intended landing.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-42-01A	Adjacent To WIPER Control Switch On Overhead P5 Panel	___ WINDSHIELD WIPER IS INOP
30-42-01B	Adjacent To WIPER Control Switch On Overhead P5 Panel	___ WINDSHIELD WIPER LOW SPEED FUNCTION INOP
30-42-01C	Adjacent To WIPER Control Switch On Overhead P5 Panel	___ WINDSHIELD WIPER HIGH SPEED FUNCTION INOP
30-42-01D	Adjacent To WIPER Control Switch On Overhead P5 Panel	BOTH WINDSHIELD WIPERS HIGH SPEED FUNCTION INOP

(O) PROCEDURES

30-42-01A

CAT II – Not Authorized.

CAT III – Not Authorized.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
30-43-01	Rain Repellent Systems	**Y**	2	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-43-01	Adjacent To L or R RAIN REPELLENT Control Switch On The P5 Overhead Panel	___ RAIN REPELLENT SYSTEM IS INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
30-44-01	Windshield Washer Systems	**Y**	2	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-44-01	Adjacent To L Or R Windshield Washer Switch	___ WINDSHIELD WASHER SYSTEM IS INOP

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
30-71-01A	Drain Mast Heaters (Lavatory Water Supply Secured Off) **"DISP.APPR.REQ'D"**	**N**	3	0	**C**	**(M)** May be inoperative provided: a) Water supply to the associated lavatory, galley, and service center basins is secured off, and b) Associated lavatory, galley, and service center basins are not used.
30-71-01B	Drain Mast Heaters (Lavatory Water Supply Not Used) **"DISP.APPR.REQ'D"**	**N**	3	0	**C**	**(M)(O)** May be inoperative provided: a) Water supply to associated galley and service center basin(s) is secured off, b) Associated lavatory, galley and service center basin(s) is not used, c) At least seven lavatories are operative, d) Associated lavatory doors are locked closed and placarded UNSERVICEABLE – DO NOT USE, and e) Lavatory is used only by crewmembers. NOTE 1: These provisos are not intended to prohibit lavatory use or inspections by crewmembers. NOTE 2: Moist towelettes (or equivalent) must be provided for crewmember needs.

MEL ITEM	TAB LOCATION	PLACARD TEXT
30-71-01A	On Applicable Attendants Control Panel	___ DRAIN MAST HEATER(S) INOP. ___ LAVATORY, GALLEY and SERVICE CENTER BASINS MAY NOT BE USED
30-71-01B	On Applicable Attendants Control Panel	___ DRAIN MAST HEATER(S) INOP. ___ LAVATORY, GALLEY and SERVICE CENTER BASINS MAY NOT BE USED. ___ LAVATORY DOORS SECURED CLOSED

(O) PROCEDURES

30-71-01B

Captain to brief Lead Flight Attendant/Purser that:

1. The affected lavatory doors are to remain locked and not entered except for use or inspection by crewmembers.
2. The affected galley and service center basins are not to be used.

Continued Next Page

(M) PROCEDURES

30-71-01A

1. Secure the water supplies associated with the inoperative drain mast heater off.
   a. Gain access to the water supply shutoff valves for the lavatory sinks, galley sinks, and drinking fountains associated with the inoperative drain mast.
   b. Close the associated water supply shutoff valves.
2. Associated lavatory, galley, and service center basin(s) is not used.

30-71-01B

1. Place a strip of Red colored OM–2 “UNSERVICEABLE DO NOT USE” tape or equivalent* across affected lavatory, galley and service center basins.
2. To secure the associated basin shutoff valve(s) closed:

   NOTE: Refer to Figures 30–71–01 A.1 and 30–71–01 A.2 for drain mast galley and lavatory drain allocation.

   a) Open access panel at all galley sinks, and drinking fountains which drain into inoperative drain mast.
   b) Close water supply shutoff valve at each location.
   c) Close access panels.
3. To secure the associated lavatory entrance door closed:
   a) Close the lavatory door and lock by placing a slotted screwdriver blade in the slot in the VACANT/OCCUPIED sign on the door and move to OCCUPIED position. Check that door will not open.
   b) Place a strip of Red colored OM2 “UNSERVICEABLE – DO NOT USE” tape or equivalent* ON the lavatory door. DO NOT tape door shut. This allows crew members to access lavatory.

      *An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE”.
   c) Place a strip of 2 inch wide masking tape with the words “CREW USE ONLY” printed legibly in 1 inch black letters ON the lavatory door. DO NOT tape door shut. This allows crew members to access lavatory.

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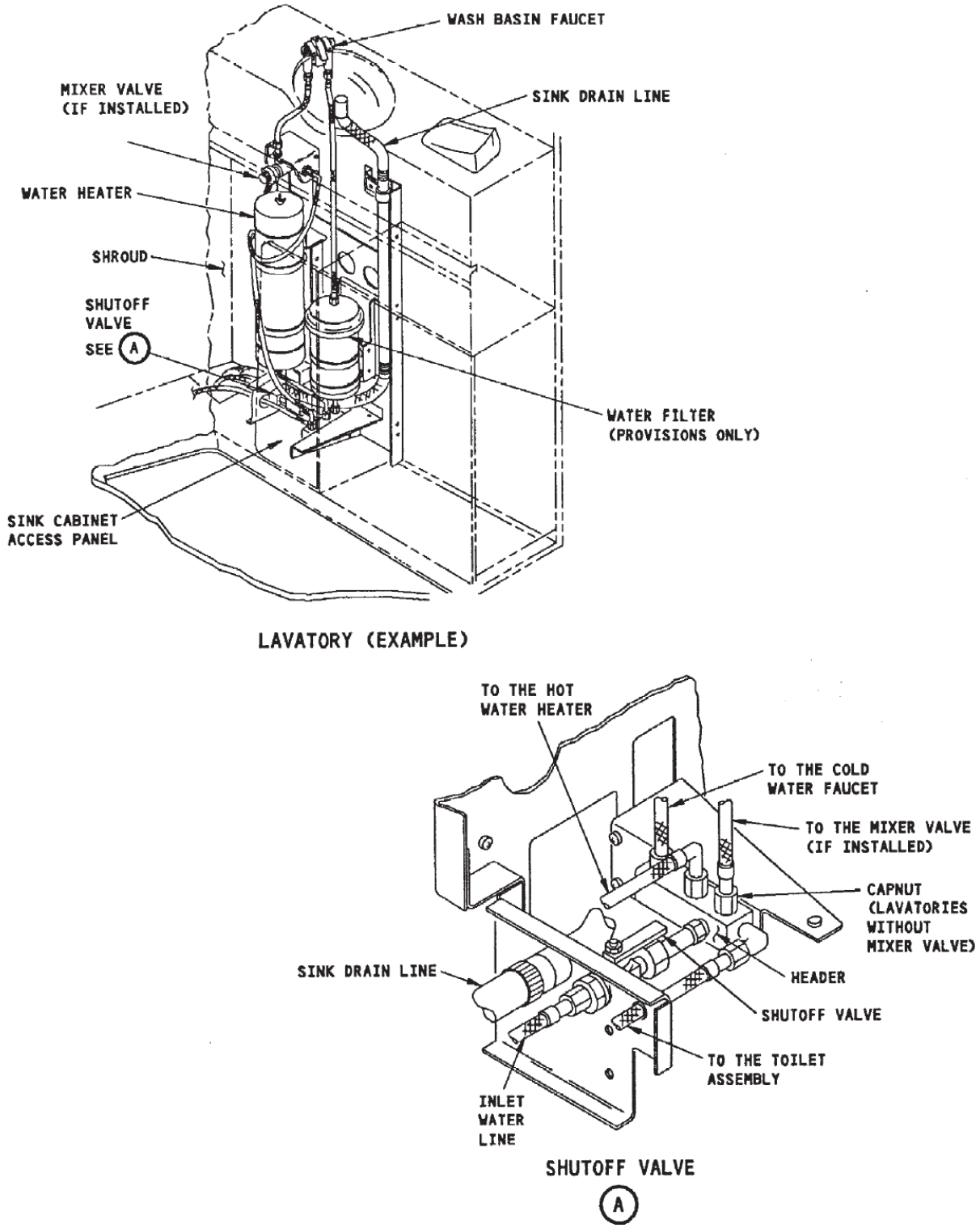


Figure 30–71–1A Lavatory Sink Water Supply Shutoff Valve Location

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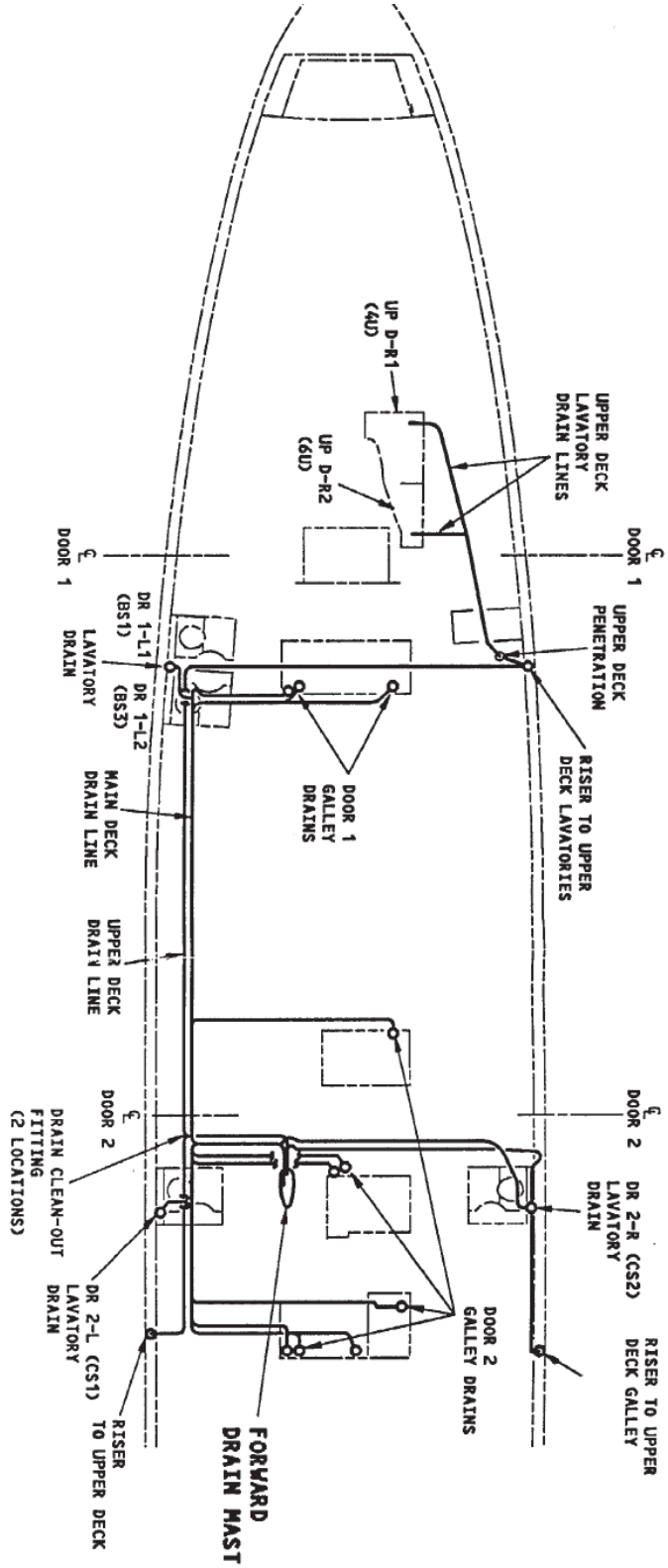


Figure 30–71–1A.1 DRAIN MAST GALLEY AND LAVATORY DRAIN ALLOCATION– SHEET 1 OF 2

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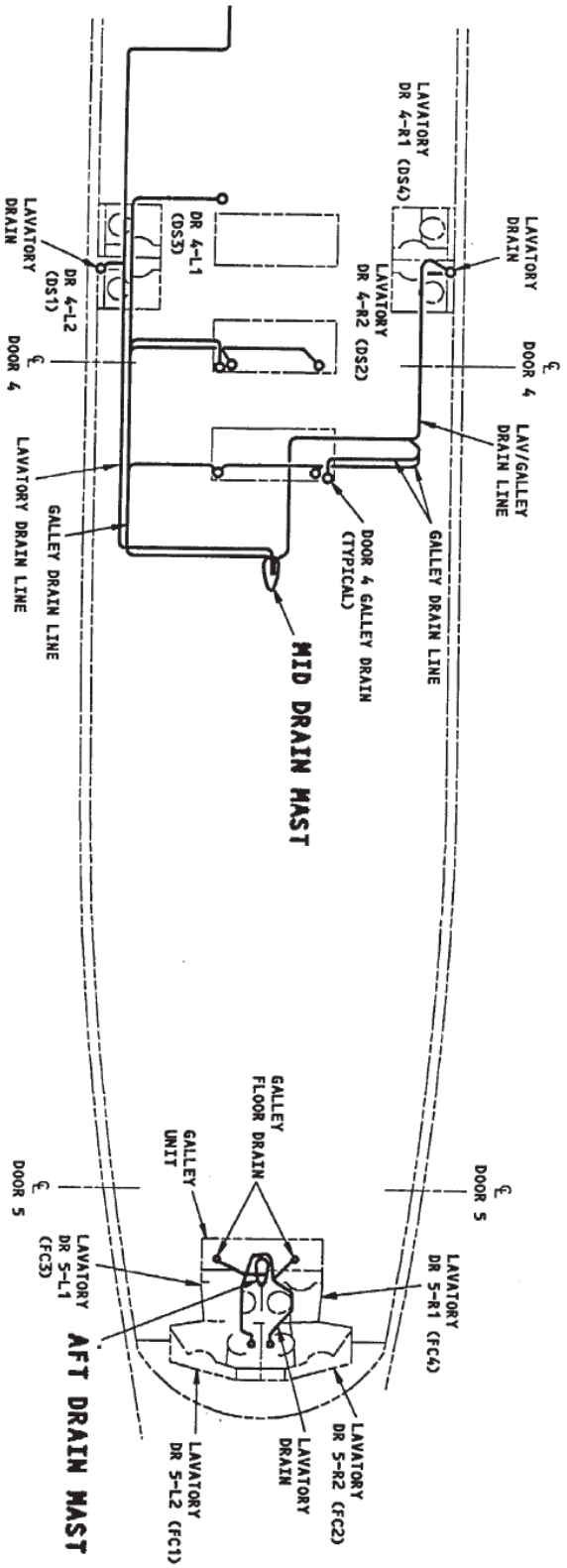


Figure 30–71–1A.2 DRAIN MAST GALLEY AND LAVATORY DRAIN ALLOCATION– SHEET 2 OF 2

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NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
31-25-01	Clock	**Y**	2	1	**C**	One may be inoperative at either pilot's or copilot's station.

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-25-01	Adjacent To The Inoperative Clock	___ CLOCK IS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
31-31-01A	Flight Data Recorder (FDR) System **"Contact MCC"**	**Y**	1	0	**A**	**(O)** May be inoperative provided: a) Cockpit Voice Recorder (CVR) operates normally, b) Airplane is not dispatched from MSP, DTW, or NRT unless: 1) The FDR failure occurs after pushback but prior to takeoff, or 2) The FDR repair was attempted but was not successful. c) In those cases where repair is attempted but not successful, the aircraft may be dispatched on a flight or series of flights until the next arrival at MSP, DTW or NRT where repair must be accomplished prior to dispatch, and d) Repairs are made within three flight days.
31-31-01B	Flight Data Recorder (FDR) System DFDR Recording Parameters required by FAR	**N**	-	0	**A**	**(M)** Up to three (3) recording parameters may be inoperative provided: a) Cockpit Voice Recorder (CVR) operates normally, and b) Repairs are made within 20 calendar days.
31-31-01C	Flight Data Recorder (FDR) System DFDR Recording Parameters not required by FAR	**N**	-	0	**A**	**(M)** May be inoperative provided repairs are made prior to the completion of the next heavy maintenance visit.

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-31-01A	Adjacent To Lower EICAS Display	FLIGHT DATA RECORDER SYSTEM INOP
31-31-01B	Adjacent To Lower EICAS Display	FLIGHT DATA RECORDER SYSTEM REQUIRED PARAMETER(S) ___ NOT BEING RECORDED
31-31-01C	Adjacent To Lower EICAS Display	FLIGHT DATA RECORDER SYSTEM NOT REQUIRED PARAMETER(S) ___ NOT BEING RECORDED

(O) PROCEDURES

31-31-01A

If FDR failure occurs after pushback but prior to takeoff (including MSP, DTW or NRT), contact maintenance control for deferral instructions.

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(M) PROCEDURES

31-31-01B, 31-31-01C

1. The following is a list of the required parameters recorded on the 747–400.

   - If any parameter(s) on this list is not being recorded, apply MEL 31–31–01B.
   - If any parameter(s) NOT on this list is not being recorded, defer per MEL 31–31–01C and see step 2 below.

(1) Frame Counter	(29) LE Flap In–Transit (L4)
(2) Altitude (Fine)	(30) LE Flap In–Transit (R4)
(3) Altitude (Coarse)	(31) LE Flap In–Transit (L3)
(4) Calibrated Airspeed	(32) LE Flap In–Transit (R3)
(5) Heading (Capt)	(33) LE Flap In–Transit (L4)
(6) Accel, Vertical	(34) LE Flap In–Transit (R4)
(7) Attitude, Pitch	(35) T/R In–Transit (Eng 1)
(8) Attitude, Roll	(36) T/R Deployed (Eng 1)
(9) VHF Keying	(37) T/R In–Transit (Eng 2)
(10) HF Keying	(38) T/R Deployed (Eng 2)
(11) EPR (Eng 1)	(39) T/R In–Transit (Eng 3)
(12) EPR (Eng 2)	(40) T/R Deployed (Eng 3)
(13) EPR (Eng 3)	(41) T/R In–Transit (Eng 4)
(14) EPR (Eng 4)	(42) T/R Deployed (Eng 4)
(15) Flap Position (TE RIB)	(43) Speed Brake Handle Position
(16) Flap Position (Lever)	(44) Marker – Middle
(17) Flap Position (TE LOB)	(45) Marker – Outer
(18) LE Flap Disagree	(46) Marker – Inner
(19) LE Flap In–Transit (L1)	(47) A/P CMD Engaged (Left)
(20) LE Flap In–Transit (R1)	(48) A/P CMD Engaged (Center)
(21) LE Flap In–Transit (L2)	(49) A/P CMD Engaged (Right)
(22) LE Flap In–Transit (R2)	(50) Accel, Longitudinal
(23) LE Flap In–Transit (L1)	(51) Parameter
(24) LE Flap In–Transit (R1)	(52) Pitch Control Position
(25) LE Flap In–Transit (L2)	(53) Yaw Control Position
(26) LE Flap In–Transit (R2)	(54) Roll Control Position
(27) LE Flap In–Transit (L3)	(55) Pitch Control Surface Position (LOB Elevator)
(28) LE Flap In–Transit (R3)	(56) Pitch Control Surface Position (LIB Elevator)

(57) Pitch Control Surface Position (ROB Elevator)

(58) Pitch Control Surface Position (RIB Elevator)

(59) Yaw Control Surface Position (Upper Rudder)

(60) Yaw Control Surface Position (Lower Rudder)

(61) Yaw Control Surface Position (Upper Rudder)

(62) Yaw Control Surface Position (Lower Rudder)

(63) Roll Control Surface Position (LOB Aileron)

(64) Roll Control Surface Position (LIB Aileron)

(65) Roll Control Surface Position (ROB Aileron)

(66) Roll Control Surface Position (RIB Aileron)

(67) Accel, Lateral

(68) Pitch Trim Control Surface Position

(69) Glideslope Deviation (Capt)

(70) Localizer Deviation (Capt)

(71) A/P Status – No Autoland

(72) A/P Status – No Land 3

(73) A/P Mode – Go Around

(74) A/P Status – Land 3 (Green)

(75) A/P Status – Land 2 (Green)

(76) A/P Mode – Flare

(77) A/P Mode – Loc

(78) A/P Mode – Rollout

(79) A/P Mode – G/S

(80) Radio Altitude (Capt)

(81) Master Warning (Capt)

(82) Air/Ground

(83) AOA (Indicated)

(84) Total Air Temperature

(85) Hydraulic System Low Pressure (4)

(86) Hydraulic System Low Pressure (3)

(87) Hydraulic System Low Pressure (2)

(88) Hydraulic System Low Pressure (1)

(89) Ground Speed

(90) Drift Angle

(91) Wind Direction

(92) Wind Speed

(93) Latitude – LSP

(94) Longitude – LSP

(95) Latitude – MSP

(96) Longitude – MSP

(97) N1 (Eng 1)

(98) N2 (Eng 1)

(99) EGT (Eng 1)

(100) EGT (Eng 2)

(101) EGT (Eng 3)

(102) EGT (Eng 4)

(103) N1 (Eng 2)

(104) N1 (Eng 2)

(105) N1 (Eng 3)

(106) N2 (Eng 3)

(107) N2 (Eng 4)

(108) N2 (Eng 4)

(109) FF (Eng 1)

(110) FF (Eng 2)

(111) FF (Eng 3)

(112) FF (Eng 4)

(113) GPWS – Too Low Flaps

(114) GPWS – Sink Rate

(115) GPWS – Pull Up

(116) GPWS – Terrain

(117) GPWS – Don’t Sink

(118) GPWS – Too Low Gear

(119) GPWS – Too Low Terrain

(120) GPWS – Glideslope

(121) GPWS – Terrain Pull Up

(122) Gear Disagree

(123) Landing Gear Lever Down

(124) DME Distance (Capt)

(125) DME Distance (F/O)

(126) Nav Freq (Capt)

(127) Nav Freq (F/O)

(128) DME Freq (Capt)

(129) DME Freq (F/O)

2. FDR Recording parameters not required to be recorded.

   Create MON (monitor) log deferral:

   a) Create a log page stating which specified parameters are not being recorded.

   b) State in deferral that repairs are to be made prior to the completion of the next (L/H/M) scheduled maintenance check.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
31-31-02	Quick Access Recorder (QAR) System	**Y**	1	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-31-02	Adjacent To Lower EICAS Display	QUICK ACCESS RECORDER SYSTEM (QAR) INOP

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
31-35-01	Aircraft Condition Monitoring System (ACMS)	**Y**	1	0	**C**	**(M)(O)** May be inoperative. NOTE: If an ENCON monitoring page is not available at the time of deferral and Maintenance Control determines that there is no requirement for ENCON readings during that flight segment, the ENCON monitoring page may be boarded at the destination.

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-35-01	Adjacent To Lower EICAS Display	AIRCRAFT CONDITIONING MONITORING SYSTEM INOP

(O) PROCEDURES

Record engine data on the inflight engine monitoring page.

NOTE: If an ENCON monitoring page is not available and Maintenance Control has determined that ENCON readings are not required for the flight segment, engine readings are not required.

(M) PROCEDURES

1. Initial MEL deferral may be accomplished by maintenance or the flight crew in coordination with Maintenance Control.
2. Ensure inflight engine monitoring logbook is installed in aircraft logbook.

   NOTE: If an ENCON monitoring page is not available at the time of deferral and Maintenance Control determines that there is no requirement for ENCON readings during that flight segment, the ENCON Monitoring page may be boarded at the destination.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	MASTER CAUTION/WARNING SYSTEMS					
31-51-01A	Master Warning Lights (Pilot's Glare Shield)	**Y**	2	1	**C**	One may be inoperative provided master warning aural systems and all discrete warning lights operate normally.
31-51-01B	Master Caution Lights (Pilot's Glare Shield)	**Y**	2	1	**C**	One may inoperative provided master caution aural systems and all discrete caution lights operate normally.
31-51-01C	Aural Warning Speaker Systems	**Y**	2	1	**C**	One may inoperative provided Master Warning, Master Caution and all discrete caution lights operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-51-01A	Adjacent to the inoperative Master Caution/Warning Light	___ MASTER WARNING LIGHT IS INOP
31-51-01B	Adjacent To The Inoperative Master Caution/Warning Light	___ MASTER CAUTION LIGHT IS INOP
31-51-01C	Adjacent To The Inoperative Aural Warning Speaker	___ AURAL WARNING SPEAKER IS INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
31-51-02	MAWEA ID Card **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(M)(O)** May be inoperative provided ACARS is considered inoperative and deferred per MEL 23–27–01A.

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-51-02	On Left Control Display Unit (CDU)	MAWEA ID CARD INOP

(O) PROCEDURES

Comply with the MEL item 23–27–01A (O) procedure.

(M) PROCEDURES

Defer ACARS inoperative per MEL item 23–27–01A.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
31-61-01	EICAS Lower Integrated Display Unit (IDU)	**Y**	1	0	**C**	**(M)(O)** May be inoperative provided it is verified that EICAS can be switched to an alternative IDU CRT (in case of enroute failure of the EICAS Upper IDU).

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-61-01	On Inoperative IDU Screen	LOWER EICAS IDU CRT IS INOP

(O) PROCEDURES

In case of en route failure of remaining IDU CRT, EICAS can be switched to alternate IDU.

(M) PROCEDURES

NOTE: This item allows dispatch only with the IDU located in the lower EICAS position inoperative. The four EFIS IDUs and the upper EICAS IDU must operate normally. However, all of the IDUs are interchangeable. Therefore, if an IDU located in the upper EICAS position or any one of the EFIS positions is inoperative (and no spares are available), it can be swapped with the lower (operative) IDU. This switches the inoperative IDU to the lower EICAS position to permit dispatch per this MEL item.

Verify that EICAS can be switched to an alternative IDU:

1. Select INBD CRT switch on Captain's or First Officer's Display Transfer Module to EICAS position.
2. Confirm that EICAS is switched to Captain's or First Officer's inboard IDU.
3. Return switch to NORM position.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
31-61-02	EFIS Control Panels	**Y**	2	1	**C**	**(M)(O)** One may be inoperative deactivated provided left and right CDU EFIS control functions are verified to operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-61-02	On Inoperative EFIS Control panel	___ EFIS CONTROL PANEL IS INOP

(O) PROCEDURES

NOTE: Three models of CDU are in use. MDA selection is not available on two models of CDU. Minimums can be determined by reference to the barometric or radio altimeter.

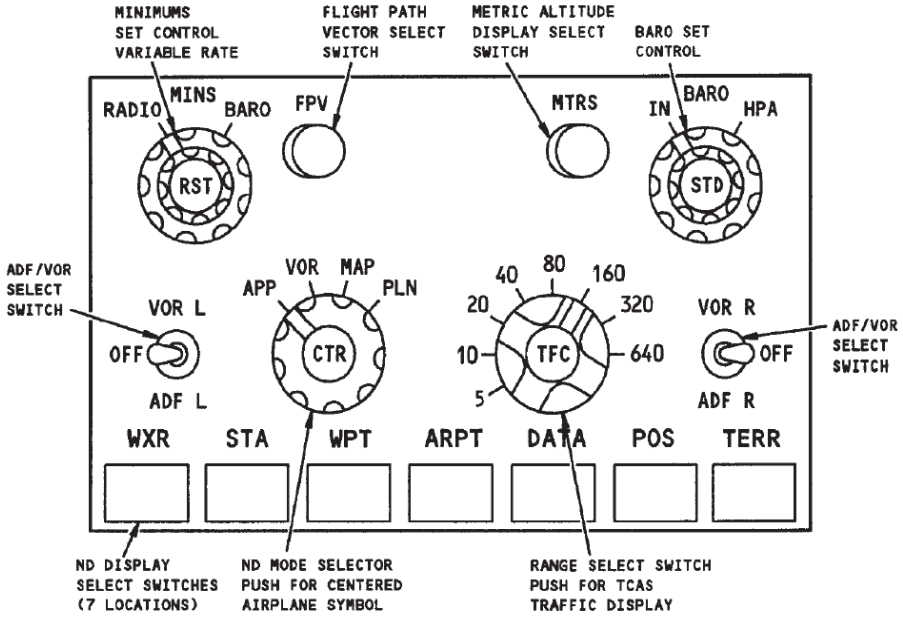
Use the associated CDU for EFIS control

(M) PROCEDURES

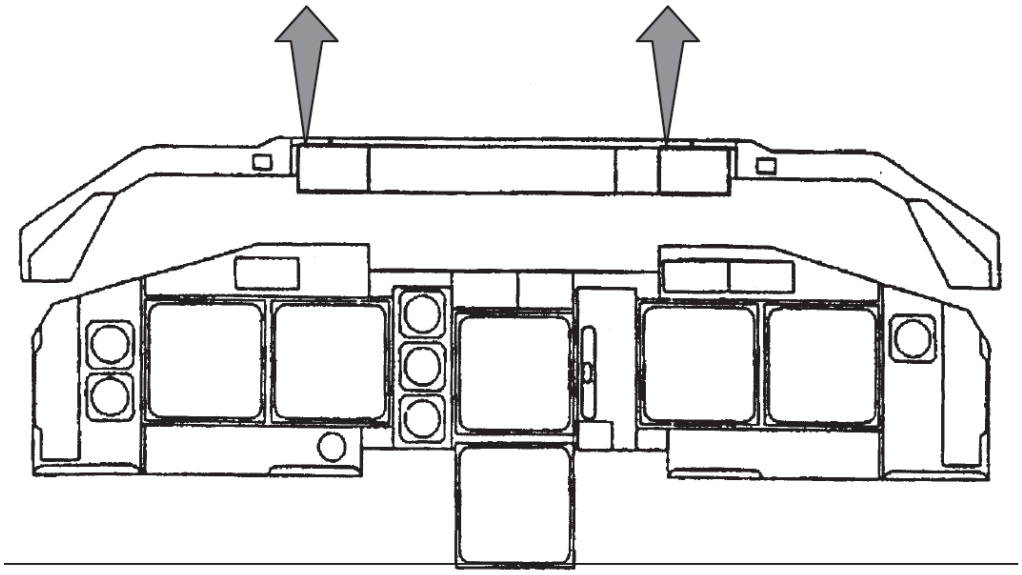
Deactivate affected EFIS control panel and verify the EFIS control function for both left and right Control Display Units (CDUs) operates normally.

1. Open circuit breakers 7F11 EFIS CONT L and 7F16 EFIS CONT R.
2. Press MENU key on left and right CDU's and confirm SELECT> prompt is displayed below the EFIS CP annunciation on both CDU's.
3. Secure the circuit breaker (7F11 EFIS CONT L, or 7F16 EFIS CONT R as appropriate) associated with the inoperative control panel.
4. Close the circuit breaker (7F11 EFIS CONT L, or 7F16 EFIS CONT R as appropriate) associated with the operative control panel.

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EFIS CONTROL PANEL



ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
31-61-03	EICAS Display Select Panel **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Left and right CDU EICAS control functions are verified to operate normally, and b) Individual fuel quantity indications required for dispatch operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-61-03	On Display Select Panel On P10 Panel	EICAS DISPLAY SELECT PANEL INOP

(O) PROCEDURES

Use the associated CDU for EFIS and EICAS control.

(M) PROCEDURES

Verify CDU EICAS control functions operate normally and deactivate one of the EFIS control panels.

1. Verify EICAS control function operates normally from the left and right Control Display Units (CDUs).
   a) Open the P7 panel EFIS CONT L circuit breaker.
   b) Open the P7 panel EFIS CONT R circuit breaker.
   c) Press MENU key on left and right CDUs and verify SELECT> prompt is displayed below EICAS CP annunciation on both CDUs.
2. Deactivate one of the EFIS control panels and use the associated CDU for EFIS control panel and EICAS display select panel functions.
   a) Secure one of the P7 panel EFIS CONT L or EFIS CONT R circuit breakers and close the other.

      NOTE: It is preferable to collar the EFIS CONT R circuit breaker.

   b) Select EICAS CP function and EFIS CP function using the CDU associated with the deactivated EFIS control panel.
3. Defer deactivated EFIS Control Panel per MEL item 31-61-02.

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NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
31-61-04	EICAS Status Messages **"DISP.APPR.REQ'D"**	**N** -	0	**C**	**(M)(O)** May be inoperative provided associated equipment is verified to operate normally BEFORE EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-61-04	Adjacent to Lower IDU Screen	___ EICAS STATUS MESSAGES INOP

(O) PROCEDURES

Dispatch with inoperative (nuisance) Status level messages is allowed by the provisions of this MEL item.

An inoperative message is one which is displayed when there is no actual equipment fault. If such an EICAS message is suspected, the airplane may be dispatched provided the (M) PROCEDRUES below are complied with.

Dispatch is accomplished by verifying the equipment associated with the inoperative EICAS Status Message operates normally. The EICAS Cross Reference List can be used to locate the appropriate MEL item for possible dispatch if verification is not possible.

(M) PROCEDURES

1. Dispatch with inoperative (nuisance) Status level messages is allowed by the provisions of this MEL item.
2. An inoperative message is one which is displayed when there is no actual equipment fault. If such an EICAS message is suspected, dispatch may still be accomplished by verifying the equipment associated with the inoperative EICAS Status Message operates normally, or by observing the Dispatch Deviation(s) for the associated equipment, if available.
3. The EICAS Cross Reference List under the EICAS/ECAM MESSAGES tab of this manual can be used to locate the appropriate MEL item for possible dispatch.
4. Maintenance procedures are presented herein to verify normal operation of equipment for several nuisance Status messages. The EICAS STATUS MESSAGE list that follows is not intended to be all inclusive:
   - FUEL SPAR VLV __ See Paragraph 5. below
   - LE MULT DRIVE See Paragraph 6. below
5. FUEL SPAR VALVE __ : The following procedure may be used to verify that the Fuel Spar Valve operates normally if dispatching with the EICAS status message "FUEL SPAR VLV __" displayed. (1) Check that all boost pumps and override/jettison pump switches on the Fuel Control Panel are OFF.
   a) Check that all fuel crossfeed valve switches on the Fuel Control Panel are OFF.
   b) Check that all FUEL CONTROL switches on the Control Stand are set to CUTOFF.
   c) Check that all Engine Start switches on the P5 panel are OFF.

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WARNING: FAILURE TO OPEN THE APPLICABLE ENGINE IGNITION CIRCUIT BREAKERS (C/B) PRIOR TO OPENING ENGINE FUEL CONTROL VALVE C/B WILL RESULT IN AUTOMATIC FIRING OF IGNITER PLUGS IF/WHEN FLAPS ARE OUT OF ZERO DETENT, NACELLE ANTI–ICE IS ON , CONTINUOUS IGNITION SWITCH IS PULLED ”ON”, OR ENGINE START SWITCH IS PULLED ”ON”. WHEN UNBURNED FUEL IS IN THE COMBUSTION CHAMBER, INTERNAL TAILPIPE FIRE MAY RESULT, CAUSING PERSONNEL INJURY OR ENGINE DAMAGE.

d) On the P6 Main Power Panel, open the following circuit breakers and attach ”DO–NOT–CLOSE identifiers:

NOTE: Do not proceed to step (e) until step (d) has been completed in it’s entirety.

- 6H2 FIRE EXTINGUISHER ENG 1 & 3 A
- 6H1 FIRE EXTINGUISHER ENG 1 & 3 B
- 6H4 FIRE EXTINGUISHER ENG 2 & 4 A
- 6H3 FIRE EXTINGUISHER ENG 2 & 4 B
- 6F1 IGN 1 ENG 1
- 6F2 IGN 1 ENG 2
- 6F3 IGN 1 ENG 3
- 6F4 IGN 1 ENG 4
- 6G19 STBY IGN ENG 1
- 6G20 STBY IGN ENG 2
- 6G21 STBY IGN ENG 3
- 6G22 STBY IGN ENG 4
- 6K19 IGN 2 ENG 1
- 6K20 IGN 2 ENG 2
- 6K21 IGN 2 ENG 3
- 6K22 IGN 2 ENG 4

e) On the P6 Main Power Panel, open the following circuit breakers and attach ”DO–NOT–CLOSE identifiers:

- 6L10 FUEL CONT VALVE ENG 1
- 6L11 FUEL CONT VALVE ENG 2
- 6L12 FUEL CONT VALVE ENG 3
- 6L13 FUEL CONT VALVE ENG 4

f) Extend Wing Leading Edge Flaps for access to Spar Valves.

WARNING: INSTALL FLAP LOCKS TO PREVENT INADVERTENT FLAP RETRACTION AND RESULTANT INJURY TO PERSONNEL.

g) Station an observer on an elevated platform near the affected Spar Valve.

h) Observer visually verify that the Manual Override Lever on the Spar Valve is in the CLOSED position.

i) Set the associated FUEL CONTROL switch on the Aisle Stand to RUN.

j) Observer visually verify that the Manual Override Lever on the Spar Valve moves to the OPEN position.

k) Pull the associated engine FIRE switch on the P5 Fire Control Module.

l) Observer visually verify that the Manual Override Lever on the Spar Valve moves to the CLOSED position.

m) Reset the Fire switch.

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n) Observer visually verify that the Manual Override Lever on the Spar Valve moves to the OPEN position.

o) Set the associated FUEL CONTROL switch on the Aisle Stand to CUTOFF.

p) Observer visually verify that the Manual Override Lever on the Spar Valve moves to CLOSED position.

q) Restore the airplane to it's required configuration. Remove Flap Locks, DO–NOT–CLOSE identifiers and close all circuit breakers opened in steps d) and e).

r) If the Fuel Spar Valve positions were all positively verified in the above steps, the affected Spar Valve operates normally and the airplane may be dispatched.

6. **LE MULT DRIVE**: The following procedure may be used to verify that "LE MULT DRIVE" was latched by a single pneumatically inoperative Flap Drive Unit. If "LE MULT DRIVE" remains annunciated at the conclusion of the verification procedure, dispatch is not allowed.

WARNING: LEADING AND TRAILING EDGE FLAPS WILL OPERATE. ENSURE THAT PERSONNEL AND EQUIPMENT ARE CLEAR OF ALL FLIGHT CONTROL SURFACES

a) Apply power to Flap Control Units (FCU's).

b) Apply hydraulic and pneumatic power to the flaps.

c) Move the flap lever to the "UP" detent and wait until the flaps are fully retracted.

d) Open and close the following circuit breakers located on the P7 panel:

- 7C10 FLT CONT ELEC 2L AC 7C14 FLT CONT ELEC 1R AC
- 7C11 FLT CONT ELEC 2L DC 7C15 FLT CONT ELEC 1R DC
- 7C12 FLT CONT ELEC 1L AC 7C16 FLT CONT ELEC 2R AC
- 7C13 FLT CONT ELEC 1L DC 7C17 FLT CONT ELEC 2R DC

e) Verify that all flap related EICAS messages and all existing flap related CMC faults are no longer displayed.

f) Move the flap lever to the "5" detent and wait until the flaps fully extend. Affected leading edge flaps will operate in the primary electric mode.

CAUTION: DO NOT ELECTRICALLY EXTEND AND RETRACT FLAPS MORE THAN ONE TIME IN 5 MINUTES. DAMAGE TO THE MOTOR CAN OCCUR IF THE MOTOR BECOMES TOO HOT.

g) Verify that "LE MULT DRIVE" is not displayed.

h) Move the flap lever to the "UP" detent and wait until the flaps fully retract. Affected leading edge will operate in the primary electric mode.

i) Verify that "LE MULT DRIVE" is not displayed.

NOTE: Dispatch is not allowed if the "LE MULT DRIVE" was displayed at any time after the circuit breakers were opened and closed by step (d) above. Defer per MEL Item 27–81–01 if "LE SINGLE DRIVE" status message remains displayed.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
31-61-05	EICAS Synoptic Displays **"DISP.APPR.REQ'D"**	**Y**	6	0	**C**	May be inoperative provided individual fuel quantity indications required for dispatch operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-61-05	Adjacent To The EICAS Display Select Panel On P10	EICAS ___ SYNOPTIC DISPLAY IS INOP.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
31-61-06	EFIS/EICAS Interface Units (EIU) **"DISP.APPR.REQ'D"**	**Y**	3	2	**B**	**(M)(O)** Center or Right EIU may be inoperative provided: a) EIU Instrument Source Selector is verified to operate normally, and b) EICAS EIU Selector is verified to operate normally. CAT II/III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
31-61-06	Adjacent To Both EIU Source Selectors	___ EIU INOP

(O) PROCEDURES

CAT II – Not Authorized.

CAT III – Not Authorized.

(M) PROCEDURES

Deactivate the inoperative EIU and verify EIU instrument source selector and EIU selector operate normally.

NOTE: If EIU selectors are positioned to the same source on both pilot's source selectors, the EICAS advisory message SOURCE SEL EIU will be displayed. Captain's and First Officer's instruments must be on separate sources for dispatch. See MEL item 34–00–01 for dispatch with inoperative EIU auto–select feature.

1. For Center EIU inoperative, open and secure circuit breaker F10 EIU C on the P7 panel.
2. For Right EIU inoperative, open and secure circuit breaker F15 EIU R on the P7 panel.
3. Position the Capt's EIU source selector to the inoperative EIU (C or R) and confirm the associated EFIS displays are blank.
4. Position the Capt's EIU source selector to L and confirm associated EFIS displays are normal.
5. Position the Capt's EIU source selector to the remaining operative EIU (R or C) and confirm associated EFIS displays are normal.
6. Position the Capt's EIU source selector to AUTO and confirm associated EFIS displays are normal.
7. Position the F/O's EIU source selector to the inoperative EIU (C or R) and confirm associated EFIS displays are blank.
8. Position the F/O's EIU source selector to L and confirm associated EFIS displays are normal.
9. Position the F/O's EIU source selector to remaining operative EIU (R or C) and confirm associated EFIS displays are normal.

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10. Position the F/O's EIU selector to AUTO and confirm associated EFIS displays are normal.
11. Confirm SOURCE SEL EIU advisory message is not displayed.
12. With both primary and secondary EICAS displays operating, position the EICAS EIU selector to the inoperative EIU and confirm EICAS displays are blank.
13. Position the EICAS EIU selector to L and confirm EICAS displays are normal.
14. Position the EICAS EIU selector to the remaining operative EIU (C or R) and confirm EICAS displays are normal.
15. Position the EICAS EIU selector to AUTO and confirm EICAS displays are normal.
16. Confirm EIU DISAGREE status message is not displayed. If EICAS message EIU DISAGREE is displayed while performing this maintenance procedure, dispatch is not allowed.

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NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
32-10-01	Main Gear Wheel Tiebolts **"Contact MCC"**	**N**	-	-	**A**	**(M)** One per wheel may be broken or missing provided: a) Affected wheel is removed, checked for broken parts or damage, and replaced if broken parts or damage is found, b) Associated brake is checked for broken parts or damage, and is replaced or deactivated if broken parts or damage is found, c) AFTER EACH LANDING, wheel is inspected for additional broken or missing tiebolts **(Log Book Entry Required)**, and d) Operations are limited to five departures before repairs are made. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-10-01	On Pilots Center Panel	ONE TIEBOLT MISSING ___ WHEEL

(M) PROCEDURES

1. Remove the affected wheel and tire assembly, and inspect the wheel and brake assembly for broken parts or damage.

   a) Deflate affected wheel to 40 psig or less (AMM 32–45–01/401).

CAUTION: YOU MUST DEFLATE THE TIRE BEFORE YOU REMOVE THE WHEEL AND TIRE ASSEMBLY. A DEFECTIVE WHEEL AND TIRE CAN BURST IF YOU DO NOT DEFLATE THE TIRE BEFORE YOU REMOVE THE ASSEMBLY. INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.

   b) Remove each wheel with a broken, loose or missing tiebolt. (AMM 32–45–01/401).

   c) Inspect the wheel for broken parts or damage (AMM 32–45–03/601).

   d) If other bolts are broken, loose or missing, or if other areas of the wheel have been damaged, the affected wheel is to be replaced.

   e) Inspect the brake for broken or missing parts or damage (AMM 32–41–15/601). If parts are missing or damage is found, the affected brake is to be replaced or deactivated per MEL Item 32–41–01A, 32–41–01B, or 32–41–01C.

   f) Reinstall the affected wheel (AMM 32–45–01/401).

   g) Inflate tire to correct pressure (AMM 12–15–06/301).

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NOTE: Do not move the airplane while the tire is deflated. If the airplane is moved, the deflated tire and associated wheel, and the wheel and tire on the opposite side of the axle must be replaced.

2. **PRIOR TO DEPARTURE CHECK** (After each landing):

   a) After each landing (up to 5 maximum), inspect remaining tiebolts on the affected wheel (wheel removal not required) to ensure no other bolts are broken, loose or missing. The affected wheel is to be replaced immediately if discrepant tiebolts are found.

   b) Replace the affected wheel after a maximum of 5 subsequent landings and replace the brake assembly if damaged.

   c) Accomplish required logbook entry.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-11-01	Landing Gear Strut Pressure Gauges	**N**	-	0	**D**	**(M)** May be inoperative provided landing gear strut is checked for proper inflation and extension.

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-11-01	On Pilots Center Panel	___ LDG STRUT PRESSURE GAUGE INOP

(M) PROCEDURES

Use external pressure gage. Check shock strut for proper inflation and extension as specified on placard located on shock strut (wing or body gear) or adjacent to strut in wheel well (nose gear). If required, service shock strut (AMM 12–15–03/301, AMM 12–15–04/301 or AMM 12–15–05/301).

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-31-01	Landing Gear Latch Solenoid	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Solenoid is in the latched position, and b) Override mechanism operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-31-01	Adjacent To Landing Gear Lever	LANDING GEAR LATCH LEVER SOLENOID INOP

(O) PROCEDURES

When retracting landing gear, refer to QRH, Section 14, “Gear Lever Will Not Move UP”.

(M) PROCEDURES

With landing gear lever down, determine that override mechanism operates normally as follows.

WARNING: REFER TO AMM 32–00–30/201 FOR LOCK INSTALLATION PROCEDURE. RAPID ACTION OF DOORS MAY INJURE PERSONNEL OR DAMAGE EQUIPMENT IF LOCKS ARE NOT PROPERLY INSTALLED.

1. Install all landing gear ground lockpins (AMM 32-00-30/201).
2. Move landing gear control lever from the DN to the OFF position.
3. Without pushing the landing gear control handle LOCK OVRD button, ensure that the landing gear control handle cannot be moved from the OFF to the UP position.
4. Push landing gear control lever LOCK OVERRIDE button and ensure that landing gear control lever moves from the OFF to the UP position and into the detent.
5. Return the landing gear control lever to the DN position.
6. Remove all landing gear ground lockpins installed in step (1).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-32-01	Wing Gear Uplock Bungee Springs **"Contact MCC"**	**N**	4	3	**B**	**(M)(O)** One may be broken or missing provided gear handle remains UP after gear retraction.

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-32-01	Adjacent To Landing Gear Lever	___ WING GEAR UPLOCK SPRING BROKEN. LEAVE LEVER IN UP POSITION

(O) PROCEDURES

1. After takeoff, retract the gear normally and leave the landing gear lever in the UP position.
2. Extend gear normally

(M) PROCEDURES

Inspect and remove any broken pieces of spring (AMM 32-32-08/401).

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
32-33-01	Body Gear Uplock Bungee Springs **"Contact MCC"**	**N**	4	3	**B**	**(M)(O)** One may be broken or missing provided gear handle remains UP after gear retraction.

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-33-01	Adjacent To Landing Gear Lever	___ BODY GEAR UPLOCK SPRING BROKEN. LEAVE LEVER IN UP POSITION

(O) PROCEDURES

1. After takeoff, retract the gear normally and leave the landing gear lever in the UP position.
2. Extend gear normally.

(M) PROCEDURES

Inspect and remove any broken pieces of spring (AMM 32-33-08/401).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-41-01A	Wheel Brakes (Deactivation Tool) Method 1 **"DISP.APPR.REQ'D"**	**N**	16	14	**C**	**(M)(O)** One or two brakes may be deactivated with a deactivation tool provided: a) Applicable gross weight penalties for Two Brakes Inoperative are applied for takeoff and landing, b) If Auto Ground Spoilers and One or Two Brakes are Inoperative at the same time, the weight penalties for both are applied for landing, c) Performance corrections are applied, and d) Additional brake associated failures are confirmed to have not occurred PRIOR TO EACH DEPARTURE**.** **Repetitive Check Required (Yellow Placard)**
32-41-01B	Wheel Brakes (Capped Lines) Method 2 **"DISP.APPR.REQ'D"**	**N**	16	14	**C**	**(M)(O)** One or two brakes may be deactivated by capping the brake line provided: a) Takeoff performance is based on AFM appendix "Landing Gear Extended" performance data for Obstacle Clearance and Takeoff Climb, b) Applicable gross weight penalties for Two Brakes Inoperative are applied for takeoff & landing, c) If Auto Ground Spoilers and One or Two Brakes are Inoperative at the same time, the weight penalties for both are applied for landing, d) Performance corrections are applied, e) After takeoff, gear remains down for two minutes before retraction, and f) Additional brake associated failures are confirmed to have not occurred PRIOR TO EACH DEPARTURE**.** NOTE: Approximately 800 lbs of fuel will be used over and above normal flight planned fuel, with the gear down for two minutes. **Repetitive Check Required (Yellow Placard)**

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
32-41-01C	Wheel Brakes (Brakes Removed and Lines Capped) Method 3 **"DISP.APPR.REQ'D"**	**N**	16	14	**C**	**(M)(O)** One or two brakes may be deactivated by removing the brake(s) and capping the lines provided: a) Applicable gross weight penalties for Two Brakes Inoperative are applied for takeoff & landing, b) If Auto Ground Spoilers and One or Two Brakes are Inoperative at the same time, the weight penalties for both are applied for landing, c) Performance corrections are applied, d) After takeoff, gear remains down for two minutes before retraction, e) If inoperative brake(s) are on wheels other than No. 1, 2, 13, or 14, one forward and one aft brake on the same side must be removed to maintain a balanced truck, or if inoperative brake(s) are on wheels No. 1, 2, 13, or 14, one brake on each affected truck may be removed, and, f) Additional brake associated failures are confirmed to have not occurred PRIOR TO EACH DEPARTURE**.** NOTE: Approximately 800 lbs of fuel will be used over and above normal flight planned fuel, with the gear down for two minutes. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-41-01A	Adjacent To Lower EICAS Display	___ BRAKE(S) ARE INOP. DEACTIVATION TOOL(S) INSTALLED
32-41-01B	Adjacent To Lower EICAS Display	___ BRAKE(S) ARE INOP. BRAKE LINES CAPPED
32-41-01C	Adjacent To Lower EICAS Display	___ BRAKES ARE INOP. BRAKES REMOVED AND LINES CAPPED

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(O) PROCEDURES

32-41-01A

1. Verify that the AWABS contains MEL item 32–41–01A.
2. When brakes are deactivated with the deactivation tool, gear retract braking remains operative. Normal gear retraction procedures may be used.

32-41-01A	**WHEEL BRAKES – ASSOCIATED BRAKE DEACTIVATED WITH TOOL**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**Manual WDR not permitted with MEL 32-41-01A.**

32-41-01B

1. Verify that the AWABS contains MEL item 32–41–01B.
2. After takeoff, leave the landing gear extended for two minutes to allow the wheel(s) to spin down prior to gear retraction. Gear retract braking will not be available on the affected wheels.

   NOTE 1: Approximately 800 lbs of fuel will be used over and above normal flight planned fuel.

   NOTE 2: At takeoff weights greater than 720,000 pounds, flaps up maneuver speed (VREF + 100 kt) may exceed VLO (270 kt). Therefore, ensure gear is retracted prior to selecting Flaps Up.

32-41-01B	**WHEEL BRAKES - ASSOCIATED BRAKE LINE(S) CAPPED**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 800 lbs.
NOTES	Brake Line Capped requires a significant weight penalty over Brake Deactivated by Tool (32-41-01A).
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**Manual WDR not permitted with MEL 32-41-01B.**

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32-41-01C

1. Verify that the AWABS contains MEL item 32–41–01C.
2. After takeoff, leave the landing gear extended for two minutes to allow the wheel(s) to spin down prior to gear retraction.

   NOTE 1: Approximately 800 lbs of fuel will be used over and above normal flight planned fuel.

   NOTE 2: At takeoff weights greater than 720,000 pounds, flaps up maneuver speed (VREF + 100 kt) may exceed VLO (270 kt). Therefore, ensure gear is retracted prior to selecting Flaps Up.

32-41-01C	**WHEEL BRAKES – BRAKES REMOVED AND ASSOCIATED BRAKE LINE(S) CAPPED**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 800 lbs.
NOTES	Brake Line Capped requires a significant weight penalty over Brake Deactivated by Tool (32-41-01A).
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**Manual WDR not permitted with MEL 32-41-01C.**

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(M) PROCEDURES

32-41-01A

WARNING: RAPID ACTION OF DOORS MAY INJURE PERSONNEL OR DAMAGE EQUIPMENT IF LOCKS ARE NOT PROPERLY INSTALLED.

1. Install wing and body gear door locks (AMM 32–00–30/201) and ensure all wheels are chocked.
2. Examine the wheel brake(s) for leaks (AMM 32–41–15/601) or damage.
   a) If there is no leak and no damage, proceed to step 3.
   b) If there is a leak and no damage, use CAPPED LINES MEL Item 32–41–01B or 32–41–01C as applicable.
   c) If damage exists, use BRAKE(S) REMOVED AND LINES CAPPED MEL Item 32–41–01D.
3. TO DEACTIVATE BRAKES USING DEACTIVATION TOOL:
   a) Remove pressure from hydraulic systems 1, 2 and 4 (AMM 29–11–00/201).
   b) Release parking brake.
   c) Release pressure from hydraulic brake accumulator by operating the brake pedals until the HYD BRAKE PRESS gauge on the P1 panel shows precharge pressure (approximately 750 psi).

CAUTION: REMOVAL OF OTHER THAN ONLY THE SHUTTLE VALVE END CAP CAN RESULT IN EJECTION OF THE SHUTTLE VALVE.

   d) Remove the applicable shuttle valve cap (the valve that supplies the brakes to be deactivated).

      NOTE: To identify the shuttle valve that supplies the brakes to be deactivated, refer to both FIM 32–42–00/101, figure 126 and AMM 32–42–02/401.

   e) Install brake disconnect tool A32080–1 in place of the valve cap and tighten 50 pound inches. Install lockwire.
   f) Restore airplane to its required configuration.
   g) Test for proper deactivation.
      1) Pressurize hydraulic system 4 (AMM 29–11–00/201).
      2) Operate the brakes and make sure that the deactivated brake does not apply by observing brake piston movement.
   h) If Brake System Control Unit (BSCU) P/N S283U002-5 (or later) is not installed, the ANTISKID and BRAKE LIMITER messages may be displayed.
   i) If Brake System Control Unit (BSCU) P/N S283U002-5 (or later) is installed, inhibit the ANTISKID and BRAKE LIMITER advisory messages by rotating the BSCU (E9 rack) message inhibit knobs on the unit's front face so one knob points to each affected wheel's position number.

PRIOR TO EACH DEPARTURE:

4. Confirm additional brake associated failures have not occurred.

   NOTE: If BSCU P/N S283U002-5 (or later) is installed, Advisory message ANTISKID will not display if an antiskid fault is present. While enroute, if an additional antiskid fault occurs affecting another wheel, EICAS will again display ANTISKID.

   NOTE: The disconnect tool should be returned to the aircraft fly away kit when the brake is reactivated.

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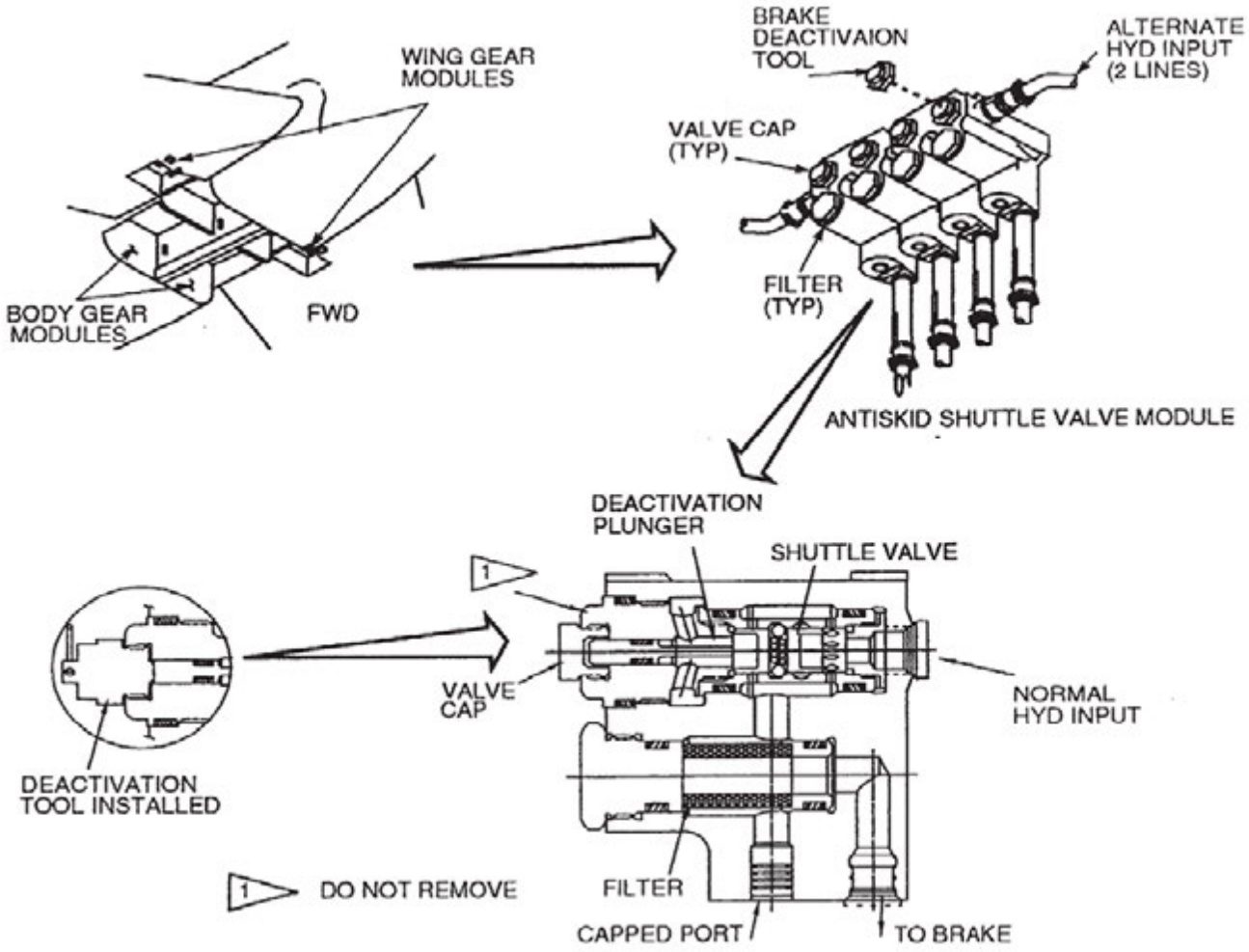


Figure 32–41–1A BRAKE DEACTIVATION TOOL INSTALLATION

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32-41-01B

WARNING: RAPID ACTION OF DOORS MAY INJURE PERSONNEL OR DAMAGE EQUIPMENT IF LOCKS ARE NOT PROPERLY INSTALLED.

1. Install wing and body gear door locks (AMM 32–00–30/201) and ensure all wheels are chocked.
2. TO DEACTIVATE BRAKE(S) BY CAPPING BRAKE LINES:
   a) Remove pressure from hydraulic systems 1,2 and 4 (AMM 29–11–00/201).
   b) Release the parking brake.
   c) Release pressure from the hydraulic brake accumulator by operating the brake pedals until HYD BRAKE PRESS gauge on the P1 panel shows precharge pressure (approximately 750 PSI).
   d) Uncouple the Brake Disconnect – Brake Hose Half and attach the hose to the landing gear truck using P/N BACS38K3D or equivalent. This will ensure that the hose will not interfere with the brake rotation when the gear is retracted.

      NOTE 1: The part of the Brake Disconnect that is attached to the hose is called the Brake Disconnect – Brake Hose Half. The part of the Brake Disconnect that is attached to the brake is called the Brake Disconnect – Brake Half.

      NOTE 2: The Brake Disconnect incorporates a pressure release function in the Brake Half: there is no need to open the brake bleed fitting for dispatch.

   e) Pressurize hydraulic system 1, 2 or 4.
   f) Apply brake pressure and check for leaks.
   g) Restore airplane to its required configuration.
   h) If Brake System Control Unit (BSCU) P/N S283U002-5 (or later) is not installed, the ANTISKID and BRAKE LIMITER messages may be displayed.
   i) If Brake System Control Unit (BSCU) P/N S283U002-5 (or later) is installed, inhibit the ANTISKID and BRAKE LIMITER advisory messages by rotating the BSCU (E9 rack) message inhibit knobs on the unit's front face so one knob points to each affected wheel's position number.

PRIOR TO EACH DEPARTURE:

3. Confirm additional brake associated failures have not occurred.

   NOTE: If BSCU P/N S283U002-5 (or later) is installed, Advisory message ANTISKID will not display if an antiskid fault is present. While enroute, if an additional antiskid fault occurs affecting another wheel, EICAS will again display ANTISKID.

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32-41-01C

WARNING: RAPID ACTION OF DOORS MAY INJURE PERSONNEL OR DAMAGE EQUIPMENT IF LOCKS ARE NOT PROPERLY INSTALLED.

1. Install wing and body gear door locks (AMM 32–00–30/201) and ensure all wheels are chocked.
2. Examine the wheel brake(s) for leaks (AMM 32–41–15/601) or damage.
   a) If there is no leak and no damage, Use DEACTIVATION TOOL MEL Item 32–41–01A.
   b) If there is a leak and no damage, use CAPPED LINES MEL Item 32–41–01B or 32–41–01C as applicable.
   c) If damage exists, proceed to step 3.
3. TO REMOVE INOPERATIVE BRAKE(S):

   NOTE: To ensure that the truck will tilt to the retract position, one forward and one aft brake on the same side must be removed to maintain a balanced truck. It may be necessary to remove or relocate an operative brake in order to balance the truck and insure proper retraction. However, if the inoperative brake(s) is on wheel No. 1,2,13 or 14, one brake on each affected truck may be removed.

   a) Remove the affected brakes (AMM 32–41–15).
   b) Cap and secure the hydraulic lines and electrical wiring for the affected brakes, using procedure in MEL Item 32–41–01B.
   c) Remove the associated brake equalizer rods from the truck.
   d) Install tire and wheel assemblies and restore the airplane to normal (AMM 32–41–15).
   e) If Brake System Control Unit (BSCU) P/N S283U002-5 (or later) is not installed, the ANTISKID and BRAKE LIMITER messages may be displayed.
   f) If Brake System Control Unit (BSCU) P/N S283U002-5 (or later) is installed, inhibit the ANTISKID and BRAKE LIMITER advisory messages by rotating the BSCU (E9 rack) message inhibit knobs on the unit's front face so one knob points to each affected wheel's position number.

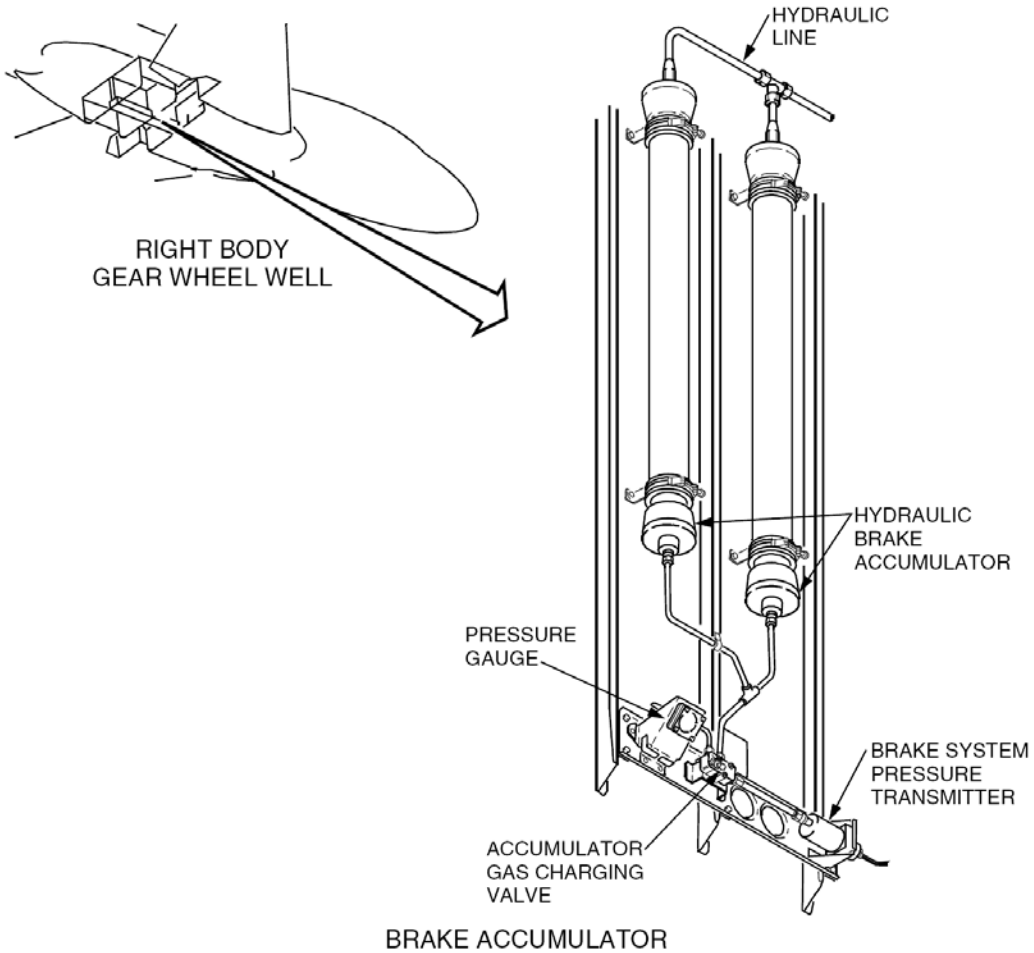
PRIOR TO EACH DEPARTURE:

4. Confirm additional brake associated failures have not occurred.

   NOTE: If BSCU P/N S283U002-5 (or later) is installed, Advisory message ANTISKID will not display if an antiskid fault is present. While enroute, if an additional antiskid fault occurs affecting another wheel, EICAS will again display ANTISKID.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
32-41-02	Brake Accumulator Pressure Indicator (In Wheel Well)	**Y**	1	0	**C** May be inoperative provided flight deck indication operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-41-02	On Affected Gauge	WHEEL WELL BRAKE ACCUMULATOR PRESSURE IND INOP



BRAKE ACCUMULATOR

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-41-03	HYD BRAKE PRESS Indicator (Flight Deck) **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Brake accumulator charge is verified normal ONCE EACH FLIGHT DAY **(Log Book Entry Required)**, and b) Brake source discrete light operates normally. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-41-03	On Gauge	FLT DECK BRAKE PRESS IND INOP

(M) PROCEDURES

DAILY CHECK (Once each flight day):

Verify the brake accumulator charge is normal as follows:

1. Chock the wheels, release the parking brake and depressurize hydraulic systems 1, 2 and 4.
2. Apply and release brakes 8 times.
3. Confirm landing gear ground lockpins are installed on all landing gear (AMM 09–11–00/201).

WARNING: REFER TO AMM 32–00–30/201 FOR LOCK INSTALLATION PROCEDURES. RAPID ACTION OF DOORS MAY INJURE PERSONNEL OR DAMAGE EQUIPMENT IF LOCKS ARE NOT PROPERLY INSTALLED.

4. Install wing and body gear door locks.
5. Gain access to the hydraulic brake accumulator direct reading pressure gauge in the right side body landing gear wheel well.
6. Confirm the direct reading pressure gauge adjacent to the hydraulic brake accumulator air charging valve indicates correct precharge (approx. 750 psi–see placard adjacent to gauge).

WARNING: REFER TO AMM 32–00–30/201 FOR LOCK INSTALLATION PROCEDURES. RAPID ACTION OF DOORS MAY INJURE PERSONNEL OR DAMAGE EQUIPMENT .

7. Remove the landing gear door locks and landing gear ground lockpins.
8. Accomplish required logbook entry.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-41-04	Inflight Wheel Braking System **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative in the NOT APPLIED mode provided: a) Performance corrections are applied, b) Takeoff performance is based on AFM appendix "Landing Gear Extended" performance data for Obstacle Clearance and Takeoff Climb, and c) After takeoff, landing gear remains extended for a minimum of two minutes before retraction. NOTE: Approximately 800 lbs of fuel will be used over and above normal flight planned fuel, with the gear down for two minutes.

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-41-04	Adjacent Gear Handle	INFLIGHT WHEEL BRAKING INOP

(O) PROCEDURES

1. Verify that the AWABS contains MEL item 32–41–04.
2. Delay retracting the landing gear for two minutes after takeoff to permit wheel(s) to spin down prior to gear retraction.

   NOTE: At takeoff weights greater that 720,000 lbs, flaps up maneuver speed (V_{REF} + 100 Kts) may exceed V_{LO} (270 Kts). Therefore, ensure gear is retracted prior to selecting Flaps Up.

32-41-04	**INFLIGHT WHEEL BRAKING SYSTEM**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 800 lbs.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**Manual WDR not permitted with MEL 32-41-04.**

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-41-05	BRAKE SOURCE Light	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-41-05	Adjacent To BRAKE SOURCE Light	BRAKE SOURCE LIGHT INOP

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD	NUMBER REQUIRED FOR DISPATCH		REPAIR CATEGORY	REMARKS OR EXCEPTIONS
32-42-01A	Antiskid System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Applicable gross weight penalties for Anti–Skid Inoperative are applied for takeoff and landing, b) Takeoff is prohibited on a contaminated, or slippery runway, c) Takeoff with a tail wind is prohibited, d) Performance corrections are applied, e) All wheel brakes must operate normally, and f) Maintenance FAULT ISOLATION Procedure in MEL item 32–42–01A must be accomplished PRIOR TO EACH DEPARTURE (Log Book Entry Required). CAT III Not Authorized **Repetitive Check Required (Yellow Placard)**
32-42-01B	Antiskid System Control Channels (Brake(s) Deactivated with a Deactivation Tool) **"DISP.APPR.REQ'D"**	**N**	16	14	**C**	**(M)(O)** Anti–skid control channels for one or two brakes may be inoperative provided: a) The affected brakes are deactivated and deferred per MEL 32-41-01A, and b) Performance corrections for MEL 32-41-01A are applied.
32-42-01C	Antiskid System Control Channels Brake(s) Deactivated (Brakes Lines Capped) **"DISP.APPR.REQ'D"**	**N**	16	14	**C**	**(M)(O)** Anti–skid control channels for one or two brakes may be inoperative provided: a) The affected brakes are deactivated and deferred per MEL 32-41-01B, and b) Performance corrections for MEL 32-41-01B are applied.
32-42-01D	Antiskid System Control Channels Brake(s) Deactivated (Brakes removed and lines capped) **"DISP.APPR.REQ'D"**	**N**	16	14	**C**	**(M)(O)** Anti–skid control channels for one or two brakes may be inoperative provided: a) The affected brakes are deactivated and deferred per MEL 32-41-01C, and b) Performance corrections for MEL 32-41-01C are applied.

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
32-42-01E	Antiskid System Wheelspeed Transducers **"DISP.APPR.REQ'D"**	**N**	16	14	**C**	**(M)(O)** One transducer in a locked wheel protection pair (fore & aft wheels) may be inoperative provided: a) Performance corrections are applied for One or Two Brakes Inoperative are applied for takeoff and landing (even though the brakes may not actually be deactivated), and b) Maintenance FAULT ISOLATION Procedure in MEL item 32–42–01E must be accomplished PRIOR TO EACH DEPARTURE (Log Book Entry Required). CAT III Not Authorized **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-42-01A	Adjacent To The Lower EICAS Display	ANTI SKID SYSTEM INOP AND DEACTIVATED
32-42-01B	Adjacent To The Lower EICAS Display	ANTISKID CONTROL CHANNEL(S) FOR BRAKES ___ INOP, DEACTIVATION TOOL INSTALLED
32-42-01C	Adjacent To The Lower EICAS Display	ANTISKID CONTROL CHANNEL(S) FOR BRAKES ___ INOP, BRAKE LINES CAPPED
32-42-01D	Adjacent To The Lower EICAS Display	ANTISKID CONTROL CHANNEL(S) FOR BRAKES ___ INOP, BRAKES REMOVED AND LINES CAPPED
32-42-01E	Adjacent To The Lower EICAS Display	___ ANTI–SKID SYSTEM WHEELSPEED TRANSDUCERS INOP

(O) PROCEDURES

32-42-01A

1. Verify that the AWABS contains MEL item 32–42–01A.
2. Use of assumed temperature reduced thrust procedures are not allowed with antiskid inoperative.

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3. If an aborted takeoff becomes necessary:
   a) Place all thrust levers to idle,
   b) Deploy full speed brakes,
   c) Apply steady light braking for landing weights under approximately 500,000 lbs or apply steady light to moderate manual braking at heavier weights.
4. For landing:
   a) Deploy full speed brakes immediately after touchdown,
   b) Apply steady light braking for landing weights under approximately 500,000 lbs or apply steady light to moderate manual braking at higher weights.
   c) Modulate brakes as necessary to prevent skidding.

   NOTE: RTO and landing Autobrakes are inoperative.

32-42-01A	**ANTISKID SYSTEM**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**Manual WDR not permitted with MEL 32-42-01A.**

32-42-01B

Accomplish the operating procedures MEL item 32–41–01A.

NOTE 1: If advisory message ANTISKID is displayed, RTO and landing Autobrakes are inoperative.

NOTE 2: For each flight, when advisory message ANTISKID or ANTISKID OFF is displayed, state in A/C maintenance log the following "_____ message displayed, fault isolation procedure in MEL item 32–42–01A must be accomplished by maintenance before next flight."

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32-42-01C

Accomplish the operating procedures MEL item 32–41–01B.

NOTE 1: If advisory message ANTISKID is displayed, RTO and landing Autobrakes are inoperative.

NOTE 2: For each flight, when advisory message ANTISKID or ANTISKID OFF is displayed, state in A/C maintenance log the following "_____ message displayed, fault isolation procedure in MEL item 32–42–01A must be accomplished by maintenance before next flight."

32-42-01D

Accomplish the operating procedures MEL item 32–41–01C.

NOTE 1: If advisory message ANTISKID is displayed, RTO and landing Autobrakes are inoperative.

NOTE 2: For each flight, when advisory message ANTISKID or ANTISKID OFF is displayed, state in A/C maintenance log the following "_____ message displayed, fault isolation procedure in MEL item 32–42–01A must be accomplished by maintenance before next flight."

Continued Next Page

32-42-01E

Verify that the AWABS contains MEL item 32–42–01E.

NOTE: Advisory message ANTISKID will remain displayed, RTO and landing Autobrakes are inoperative.

32-42-01E	**ANTISKID SYSTEM – WHEELSPEED TRANSDUCERS**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**Manual WDR not permitted with MEL 32-42-01E.**

(M) PROCEDURES

32-42-01A

EICAS MESSAGES	COMMENTS
ANTISKID	There is an alternate antiskid fault valve (or a normal antiskid valve fault and the alternate system is currently in use). Refer to MEL item 32–42–02 for possible relief.
ANTISKID	There is an antiskid fault affecting the brake system in use (normal or alternate). See below.
ANTISKID OFF	There are faults affecting power to all antiskid control channels. Dispatch is allowed per the Antiskid Inoperative Procedures – see below.
ANTISKID OFF(in combination with “PARK BRK VLV” plus BRAKE LIMITER”)	**Dispatch is not allowed.** The park brake valve is closed and the brake limiter system is inoperative. This condition causes CMC messages “PARK BRK VLV NOT OPEN WHEN RELEASED” or “NO PARK BRKE PWR” to be displayed.

Continued Next Page

1. **PRIOR TO EACH DEPARTURE CHECK**

   a) General

      1) A FAULT ISOLATION procedure (Step (b) below) is necessary to determine which one of three possible maintenance actions is to be used for dispatch.

      2) If only one or two wheels are affected by the antiskid fault, it may be necessary to deactivate the affected wheels for dispatch.

      3) If Brake System Control Unit (BSCU) P/N S283U002–5 or later version is installed Advisory message ”ANTISKID” will be inhibited for one or two brakes deactivated in accordance with the following maintenance procedure. Should an additional enroute antiskid fault(s) occur affecting another wheel, EICAS will again display “ANTISKID”.

      4) Following conclusion of the Maintenance Procedure, if EICAS message “ANTISKID” or ”ANTISKID OFF” remains displayed, the FAULT ISOLATION procedure must be performed prior to every departure to determine if additional antiskid faults occurred enroute.

   b) FAULT ISOLATION:

      Conduct a CMC Brake System Ground Test to identify antiskid fault(s):

      NOTE: The ground setup procedure may be simplified as follows:

      - The IRU ’s do not need to be in NAV mode. (Ignore any IRS signal fault indications)
      - Hydraulic pressure is not required.
      - Autobrake system does not need to be armed.

      A. Select “32 BRAKE CONTROL” from the CMC GROUND TEST menu.

      B. Execute the “BRAKE SYSTEM BITE” test. Record all antiskid system configuration and input faults annunciated during the test.

      C. Following the conclusion of the CMC Brake System Ground Test, select the line–select key opposite the FAIL prompt on the CMC and record the antiskid system fault. Continue to select the NEXT PAGE key on the CMC as required and record the antiskid system faults. Use the following CMC Messages Correlation List to determine the appropriate Maintenance Action.

         NOTE: When CMC message “PARK BRK VLV NOT OPEN WHEN RELEASED” or “NO PARK BRKE PWR” is displayed, dispatch is not allowed (Brake Torque Limiter is inoperative). This condition causes EICAS Status message “PARK BRK VALVE” as well as ”ANTISKID OFF” and ”BRAKE LIMITER” Advisory messages.

CMC MESSAGE CORRELATION LIST		
CMC Message	Maintenance Requirements	
	1 or 2 wheels	3 or more wheels
”ANTISKID TRANSDUCER X FAIL” Fore–aft pair not involved	Maintenance Action 1 or 2	Maintenance Action 3
”ANTISKID TRANSDUCER X FAIL” Fore–aft pair involved	Maintenance Action 1	Maintenance Action 3
”BSCU FAIL; ANTISKID CONTROL CANNEL X–Y”	Maintenance Action 1	Maintenance Action 3
”NO POWER ON ANTISKID CHANNEL X–Y”	Maintenance Action 1	Maintenance Action 3
”NORMAL ANTISKID VALVE X FAIL”	Maintenance Action 1	Maintenance Action 3
ANY COMBINATION OF THE ABOVE MESSAGES INVOLVING 3 OR MORE WHEELS	– – – – – – –	Maintenance Action 3

Continued Next Page

c) Accomplish required logbook entry.

2. Maintenance Action 1

a) Deactivate the affected brakes per one of the following MEL procedures:

1) One (or two) Brake(s) Deactivated – Deactivation Tool(s) used – Use MEL Item 32–41–01A (Wheel Brakes). Defer the Antiskid System per MEL Item 32–42–01B (Controls).

2) One (or two) Brake(s) Deactivated – Brake Hose(es) capped – Use MEL Item 32–41–01B (Wheel Brakes). Defer the Antiskid System per MEL item 32–42–01C (Controls).

3) One (or two) Brake(s) Deactivated – Brakes Removed and Hose(es) capped – Use MEL a Item 32–41–01C (Wheel Brakes). Defer the Antiskid System per MEL item 32–42–01D (Controls).

b) If BSCU P/N S283U002–5 or later is installed (E9 rack), rotate the message inhibit knobs on the unit's front face so that one knob points to each affected wheel's position number. Advisory level message "ANTISKID" will no longer remain annunciated. While enroute, if an additional antiskid fault occurs for another wheel, EICAS will again display advisory level "ANTISKID". This requires FAULT ISOLATION (Step 1.b) to be repeated to determine necessary additional maintenance action.

3. Maintenance Action 2

a) Brake deactivation is not required (fore–aft locked wheel protection remains).

b) Defer the Antiskid System per MEL item 32–42–01E.

c) **Do not** use BSCU message inhibit knobs (use of the knobs would also inhibit brake torque limiter fault annunciation for the affected wheels).

d) EICAS message "ANTISKID" will remain displayed. Conduct FAULT ISOLATION (para. 1.b) PRIOR TO EACH DEPARTURE.

4. Maintenance Action 3

a) Defer the Antiskid System per MEL Item 32–42–01A.

NOTE: For any two wing gear wheel circuit breakers opened, body gear steering will be inoperative. The airplane must also be dispatched using MEL Item 32-53-01

b) If CMC message "ANTISKID TRANSDUCER X FAIL" and/or "BSCU FAIL; ANTISKID CONTROL CHANNEL X–Y" are identified in FAULT ISOLATION (step B. above), pull and secure C/B's corresponding to the affected wheel(s) as indicated in the Circuit Breaker (C/B) Table below.

* WHEELS	C/B NO.	NOMENCLATURE	LOCATION
1, 3	C00369	ANTISKID 1–3	J07, P180
2, 4	C00664	ANTISKID 2–4	F07, P180
5, 7	C10078	ANTISKID 5–7	J22 P180
6, 8	C10080	ANTISKID 6–8	F22, P180
9, 11	C10081	ANTISKID 9–11	F23, P180
10, 12	C10079	ANTISKID 10–12	J23, P180
13, 15	C00665	ANTISKID 13–15	F08, P180
14, 16	C00370	ANTISKID 14–16	J08, P180

NOTES: 1. Each C/B contains a fore–aft locked–wheel–protection pair .
2. If any two circuit breakers associated with the wing gear wheels are opened, body gear steering will be inoperative.

c) If CMC message "NO POWER ON ANTISKID CHANNEL X–Y" is identified, the associated antiskid system channel is already unpowered. Therefore, it is not required to open associated C/B's.

Continued Next Page

d) If CMC message “NORMAL ANTISKID VALVE X FAIL” is identified, verify manual operation of the normal brake system for the affected wheel(s).

1) Provide electrical power to all operative antiskid and torque limiter channels (AMM 24–22–00/201).

2) Chock wheels.

3) Pressurize hydraulic system 4 (AMM 29–11–00/201).

4) Fully depress and fully release brake pedals. Observe the brake wear indicator pins and/or brake pistons to verify that the affected brakes apply and release.

5) If manual operation is not available:

A. Pull circuit breaker for affected wheel(s).

B. Remove and stow associated antiskid valve electrical connector(s).

C. Close the C/B for the affected wheels and repeat Step 4) to verify manual operation.

NOTE: Since on C/B provides power for antiskid protection of two wheels, if a failed valve interferes with the manual braking, the electrical connector is removed from the valve instead of pulling and securing the associated circuit breaker.

5. Defer Autobrakes inoperative per MEL item 32–42–03A or –03B

32-42-01B, 32-42-01C, 32-42-01D

EICAS MESSAGES	COMMENTS
ANTISKID	There is an alternate antiskid fault valve (or a normal antiskid valve fault and the alternate system is currently in use). Refer to MEL item 32–42–02 for possible relief.
ANTISKID	There is an antiskid fault affecting the brake system in use (normal or alternate). See below
ANTISKID OFF	There are faults affecting power to all antiskid control channels. Dispatch is allowed per the Antiskid Inoperative Procedures – see below.
ANTISKID OFF (in combination with “PARK BRK VLV” plus BRAKE LIMITER”)	**Dispatch is not allowed.** The park brake valve is closed and the brake limiter system is inoperative. This condition causes CMC messages ”PARK BRK VLV NOT OPEN WHEN RELEASED” or ”NO PARK BRKE PWR” to be displayed.

1. General

a) A FAULT ISOLATION procedure (Step 2 below) is necessary to determine which one of three possible maintenance actions is to be used for dispatch.

b) If only one or two wheels are affected by the antiskid fault, it may be necessary to deactivate the affected wheels for dispatch.

c) If Brake System Control Unit (BSCU) P/N S283U002–5 or later version is installed: Advisory message “ANTISKID” will be inhibited for one or two brakes deactivated in accordance with the following maintenance procedure. Should an additional enroute antiskid fault(s) occur affecting another wheel, EICAS will again display “ANTISKID”.

Continued Next Page

2. FAULT ISOLATION:

   Conduct a CMC Brake System Ground Test to identify antiskid fault(s):

   NOTE: The ground setup procedure may be simplified as follows: – The IRU 's do not need to be in NAV mode. (Ignore any IRS signal fault indications) – Hydraulic pressure is not required. – Autobrake system does not need to be armed.

   1) Select "32 BRAKE CONTROL" from the CMC GROUND TEST menu.

   2) Execute the "BRAKE SYSTEM BITE" test. Record all antiskid system configuration and input faults annunciated during the test.

   3) Following the conclusion of the CMC Brake System Ground Test, select the line–select key opposite the FAIL prompt on the CMC and record the antiskid system fault. Continue to select the NEXT PAGE key on the CMC as required and record the antiskid system faults. Use the following CMC Messages Correlation List to determine the appropriate Maintenance Action.

      NOTE: When CMC message "PARK BRK VLV NOT OPEN WHEN RELEASED" or "NO PARK BRKE PWR" is displayed, dispatch is not allowed (Brake Torque Limiter is inoperative). This condition causes EICAS Status message "PARK BRK VALVE" as well as "ANTISKID OFF" and "BRAKE LIMITER" Advisory messages

CMC MESSAGE CORRELATION LIST		
CMC Message	Maintenance Requirements	
	1 or 2 wheels	3 or more wheels
"ANTISKID TRANSDUCER X FAIL" Fore–aft pair not involved	Maintenance Action 1 or 2	Maintenance Action 3
"ANTISKID TRANSDUCER X FAIL" Fore–aft pair involved	Maintenance Action 1	Maintenance Action 3
"BSCU FAIL; ANTISKID CONTROL CANNEL X–Y"	Maintenance Action 1	Maintenance Action 3
"NO POWER ON ANTISKID CHANNEL X–Y"	Maintenance Action 1	Maintenance Action 3
"NORMAL ANTISKID VALVE X FAIL"	Maintenance Action 1	Maintenance Action 3
ANY COMBINATION OF THE ABOVE MESSAGES INVOLVING 3 OR MORE WHEELS	– – – – – – –	Maintenance Action 3

3. Maintenance Action 1

   a) Deactivate the affected brakes per one of the following MEL procedures:

      1) One (or two) Brake(s) Deactivated – Deactivation Tool(s) used – Use MEL Item 32–41–01A (Wheel Brakes). Defer the Antiskid System per MEL Item 32–42–01B (Controls).

      2) One (or two) Brake(s) Deactivated – Brake Hose(es) capped – Use MEL Item 32–41–01B (Wheel Brakes). Defer the Antiskid System per MEL item 32–42–01C (Controls).

      3) One (or two) Brake(s) Deactivated – Brakes Removed and Hose(s) capped – Use MEL Item 32–41–01C (Wheel Brakes). Defer the Antiskid System per MEL item 32–42–01D (Controls).

   b) If BSCU P/N S283U002–5 or later is installed (E9 rack), rotate the message inhibit knobs on the unit's front face so that one knob points to each affected wheel's position number. Advisory level message "ANTISKID" will no longer remain annunciated. While enroute, if an additional antiskid fault occurs for another wheel, EICAS will again display advisory level "ANTISKID". This requires FAULT ISOLATION (Step 2.) to be repeated to determine necessary additional maintenance action.

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4. Maintenance Action 2

   a) Brake deactivation is not required (fore–aft locked wheel protection remains).

   b) Placard the Antiskid System (Wheelspeed transducers) per MEL item 32–42–01E.

   c) **Do not** use BSCU message inhibit knobs (use of the knobs would also inhibit brake torque limiter fault annunciation for the affected wheels).

   d) EICAS message “ANTISKID” will remain displayed. Conduct FAULT ISOLATION (para. 2.) PRIOR TO EACH DEPARTURE.

5. Maintenance Action 3

   Defer the Antiskid System per MEL Item 32–42–01A

32-42-01E

EICAS MESSAGES	COMMENTS
ANTISKID	There is an alternate antiskid fault valve (or a normal antiskid valve fault and the alternate system is currently in use). Refer to MEL item 32–42–02 for possible relief.
ANTISKID	There is an antiskid fault affecting the brake system in use (normal or alternate). See below
ANTISKID OFF	There are faults affecting power to all antiskid control channels. Dispatch is allowed per the Antiskid Inoperative Procedures – see below.
ANTISKID OFF (in combination with “PARK BRK VLV” plus BRAKE LIMITER”)	**Dispatch is not allowed.** The park brake valve is closed and the brake limiter system is inoperative. This condition causes CMC messages ”PARK BRK VLV NOT OPEN WHEN RELEASED” or ”NO PARK BRKE PWR” to be displayed.

1. **PRIOR TO EACH DEPARTURE CHECK**

   a) General

      1) A FAULT ISOLATION procedure (Step 1. b) below) is necessary to determine which one of three possible maintenance actions is to be used for dispatch.

      2) If only one or two wheels are affected by the antiskid fault, it may be necessary to deactivate the affected wheels for dispatch.

      3) If Brake System Control Unit (BSCU) P/N S283U002–5 or later version is installed: Advisory message “ANTISKID” will be inhibited for one or two brakes deactivated in accordance with the following maintenance procedure. Should an additional enroute antiskid fault(s) occur affecting another wheel, EICAS will again display “ANTISKID”.

      4) Following conclusion of the Maintenance Procedure, if EICAS message “ANTISKID” or “ANTISKID OFF” remains displayed, the FAULT ISOLATION procedure must be performed prior to every departure to determine if additional antiskid faults occurred enroute.

   b) FAULT ISOLATION:

      Conduct a CMC Brake System Ground Test to identify antiskid fault(s):

      NOTE: The ground setup procedure may be simplified as follows:

      - The IRU ’s do not need to be in NAV mode. (Ignore any IRS signal fault indications)
      - Hydraulic pressure is not required.
      - Autobrake system does not need to be armed.

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A. Select “32 BRAKE CONTROL” from the CMC GROUND TEST menu.

B. Execute the “BRAKE SYSTEM BITE” test. Record all antiskid system configuration and input faults annunciated during the test.

C. Following the conclusion of the CMC Brake System Ground Test, select the line–select key opposite the FAIL prompt on the CMC and record the antiskid system fault. Continue to select the NEXT PAGE key on the CMC as required and record the antiskid system faults . Use the following CMC Messages Correlation List to determine the appropriate Maintenance Action.

NOTE: When CMC message “PARK BRK VLV NOT OPEN WHEN RELEASED” or “NO PARK BRKE PWR” is displayed, dispatch is not allowed (Brake Torque Limiter is inoperative). This condition causes EICAS Status message “PARK BRK VALVE” as well as ”ANTISKID OFF” and “BRAKE LIMITER” Advisory messages.

CMC MESSAGE CORRELATION LIST

CMC Message	Maintenance Requirements	
	1 or 2 wheels	3 or more wheels
”ANTISKID TRANSDUCER X FAIL” Fore–aft pair not involved	Maintenance Action 1 or 2	Maintenance Action 3
”ANTISKID TRANSDUCER X FAIL” Fore–aft pair involved	Maintenance Action 1	Maintenance Action 3
”BSCU FAIL; ANTISKID CONTROL CANNEL X–Y”	Maintenance Action 1	Maintenance Action 3
”NO POWER ON ANTISKID CHANNEL X–Y”	Maintenance Action 1	Maintenance Action 3
”NORMAL ANTISKID VALVE X FAIL”	Maintenance Action 1	Maintenance Action 3
ANY COMBINATION OF THE ABOVE MESSAGES INVOLVING 3 OR MORE WHEELS	– – – – – – –	Maintenance Action 3

c) Accomplish required logbook entry.

2. Maintenance Action 1

a) Deactivate the affected brakes per one of the following MEL procedures:

1) One (or two) Brake(s) Deactivated – Deactivation Tool(s) used – Use MEL Item 32–41–01A (Wheel Brakes). Defer the Antiskid System per MEL Item 32–42–01B (Controls).

2) One (or two) Brake(s) Deactivated – Brake Hose(es) capped – Use MEL Item 32–41–01B (Wheel Brakes). Defer the Antiskid System per MEL item 32–42–01C (Controls).

3) One (or two) Brake(s) Deactivated – Brakes Removed and Hose(es) capped – Use MEL Item 32–41–01C (Wheel Brakes). Defer the Antiskid System per MEL item 32–42–01D (Controls).

b) If BSCU P/N S283U002–5 or later is installed (E9 rack), rotate the message inhibit knobs on the unit’s front face so that one knob points to each affected wheel’s position number. Advisory level message “ANTISKID” will no longer remain annunciated. While enroute, if an additional antiskid fault occurs for another wheel, EICAS will again display advisory level “ANTISKID”. This requires FAULT ISOLATION (Step 1. b to be repeated to determine necessary additional maintenance action.

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3. Maintenance Action 2

   a) Brake deactivation is not required (fore–aft locked wheel protection remains).

   b) Placard the Antiskid System per MEL item 32–42–01E.

   c) **Do not** use BSCU message inhibit knobs (use of the knobs would also inhibit brake torque limiter fault annunciation for the affected wheels).

   d) EICAS message “ANTISKID” will remain displayed. Conduct FAULT ISOLATION (para.1.b PRIOR TO EACH DEPARTURE.

4. Maintenance Action 3

   Defer the Antiskid System per MEL Item 32–42–01A.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-42-02	Alternate Antiskid Valves **"DISP.APPR.REQ'D"**	**N**	8	7	**C**	**(M)(O)** One valve (affecting two wheels) may be inoperative provided: a) Both of the associated brakes are deactivated by capping the supply pressure hydraulic line and deferred per MEL 32-41-01B, and b) Performance corrections for MEL 32-41-01B are applied. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-42-02	Adjacent To Lower EICAS Display	___ ALTERNATE ANTI–SKID VALVE INOP

(O) PROCEDURES

Accomplish the operating procedures listed in the Flight Crew Operating Procedures column of MEL item 32–41–01B.

NOTE 1: If advisory message ANTISKID is displayed, RTO and landing Autobrakes are inoperative.

NOTE 2: For each flight, when advisory message ANTISKID or ANTISKID OFF is displayed, state in A/C maintenance log the following "_____ message displayed, fault isolation procedure in MEL item 32–42–01A must be accomplished by maintenance before next flight."

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(M) PROCEDURES

Cap and deactivate the associated brake lines and prior to every flight review CMC messages when ANTISKID advisory message is displayed.

1. Deactivate the associated brakes using MEL 32-41-01B.
2. PRIOR TO EACH DEPARTURE for ANTISKID advisory message displayed, review CMC for additional antiskid faults.

NOTE: The ground set-up procedure may be simplified. The IRUs do not need to be in NAV mode. (Ignore any IRS signal fault indications). Hydraulic pressure is not required. Autobrake system does not need to be armed.

A. Select 32 BRAKE CONTROL from the CMC GROUND TEST menu.

B. Execute the BRAKE SYSTEM BITE test. Record all antiskid system configuration and input faults annunciated during the test.

C. Following the conclusion of the CMC Brake System Ground Test select the line-select key opposite the FAIL prompt on the CMC and record the antiskid system fault. Continue to select the NEXT PAGE key on the CMC as required and record the antiskid system faults.

NOTE: When CMC message PARK BRK VLV NOT OPEN WHEN RELEASED or NO PARK BRKE PWR is displayed, dispatch is not allowed (Brake Torque Limiter is inoperative). This condition causes Status message PARK BRK VALVE as well as ANTISKID OFF and BRAKE LIMITER Advisory messages.

D. For additional faults indicated, use MEL 32-41-01B

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
32-42-03A	Autobrake System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Autobrake selector remains in the OFF position, b) Autobrake solenoid valve is verified closed, and c) Approach minimums do not require its use. CAT III Not Authorized
32-42-03B	Autobrake System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Autobrake selector remains in the OFF position, b) Autobrake pressure control module is deactivated, and c) Approach minimums do not require its use. CAT III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-42-03A	Adjacent To Main EICAS Display	AUTOBRAKE SYSTEM INOP
32-42-03B	Adjacent To Main EICAS Display	AUTOBRAKE SYSTEM INOP. AUTOBRAKE PRESSURE CONTROL MODULE DEACTIVATED

(O) PROCEDURES

32-42-03A, 32-42-03B

CAT III – Not Authorized

(M) PROCEDURES

32-42-03A, 32-42-03B

To verify the Autobrake solenoid valve position:

1. Apply electrical power to airplane, chock the wheels, set parking brake OFF, and pressurize hydraulic system No. 4 (auxiliary pump or a ground pressure source may be used).
2. Place the AUTOBRAKE SELECTOR SWITCH to the OFF position.
   a) If the AUTOBRAKES advisory message is no longer displayed, the solenoid valve is closed.

      No further action is required. Defer the Autobrake system inoperative per MEL item 32–42–03A.

   b) If the AUTOBRAKES advisory message remains displayed on EICAS at this point, either an electrical malfunction or a solenoid valve malfunction is indicated. Continue with the next step.

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3. Pull and secure the P180 panel AUTOBRAKES circuit breaker.
   a) If the AUTOBRAKES message is no longer displayed a valve malfunction is not indicated and the valve is assumed to be closed.

      No further action is required. Defer the Autobrake system inoperative per MEL item 32–42–03A.

   b) If the AUTOBRAKES message remains displayed on EICAS, continue with the next step.

   c) Depressurize Hydraulic Systems No. 1, 2 and 4, then pump the brake pedals until the brake accumulator pressure gage on the captain's panel will reduce no further (approximately 750 psi).
      1) If the AUTOBRAKES message remains displayed, a solenoid valve pressure switch or indication system malfunction is indicated, and the solenoid valve is closed.

         No further action is required. Defer the Autobrake system inoperative per MEL item 32–42–03A.

      2) If the AUTOBRAKES message is no longer displayed, the solenoid valve has failed open. Continue with the next step.

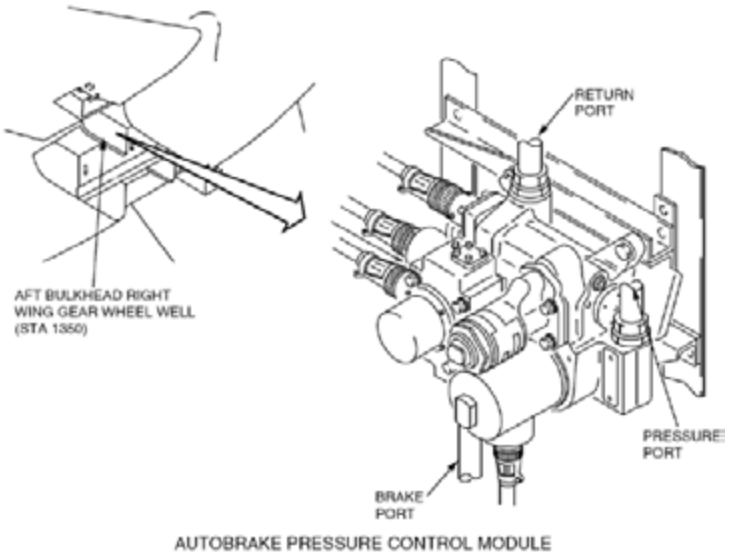
   d) Hydraulically deactivate the auto–brake system as follows:
      1) Remove the hydraulic power from system No. 4 (AMM 29–11–00). Pump the brake pedals until the brake accumulator pressure gage will reduce no further (approximately 750 PSI).
      2) Locate the autobrake pressure control module in the right hand wing gear wheel well on aft bulk head near top center. See diagram on adjacent page.
      3) Disconnect and cap the PRESSURE line on the Autobrake Pressure Control Module (P/N 60B00263–3),

         Or

         Remove the Autobrake Pressure Control Module (P/N 60B00263–3), cap the PRESSURE line to the module, and interconnect the BRAKE and RETURN lines straight section of –10 tubing 7–1/2 inches long including fittings, will suffice).

         NOTE: Do not cap the BRAKE line from the valve. Interconnection between the BRAKE and RETURN ports, either through the valve or interconnect tube, is required to ensure that a leaky Autobrake Shuttle Valve cannot result in an inability to release brakes when the pilot's pedals are released.

      4) Restore hydraulic power to system No. 4 (AMM 29–11–00), and check for leaks
      5) Leaving the AUTOBRAKE circuit pulled and secured, restore the airplane to its normal configuration.
      6) Defer the Autobrake System inoperative per MEL item 32–42–03B.



AUTOBRAKE PRESSURE CONTROL MODULE

ITEM NO. NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD	NUMBER REQUIRED FOR DISPATCH		REPAIR CATEGORY	REMARKS OR EXCEPTIONS
TORQUE LIMITER SYSTEM					
32-42-04A Torque Limiter Control **"DISP.APPR.REQ'D"**	**N**	16	14	**C**	**(M)(O)** Torque limiter control for two brakes on one truck may be inoperative provided: a) Associated brakes are considered inoperative and deferred per MEL 32-41-01A, 32-41-01B, or 32-41-01C, b) Appropriate performance adjustments are applied for inoperative brake(s), and c) BRAKE LIMITER indication is not displayed.
32-42-04B Torque Limiter Control **"DISP.APPR.REQ'D"**	**N**	16	10	**C**	**(M)(O)** May be inoperative provided: a) Two torque limiters and associated brakes per truck operate normally, b) For two torque limiters inoperative on the same truck, at least one associated brake must be considered inoperative and deferred per MEL 32-41-01A, 32-41-01B, or 32-41-01C, c) CMC is reviewed for additional brake limiter faults PRIOR TO EACH DEPARTURE, and d) Performance corrections are applied. NOTE: This relief allows up to 2 torque limiters inoperative on 1 truck, 2 torque limiters inoperative on a 2nd truck (1 brake deactivated on each truck) and 1 torque limiter inoperative on each remaining truck. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-42-04A	Adjacent To Main EICAS Display	___ BRAKE TORQUE LIMITER CONTROL(S) INOP
32-42-04B	Adjacent To Main EICAS Display	___ BRAKE TORQUE LIMITER CONTROL(S) INOP

(O) PROCEDURES

32-42-04A

Confirm BRAKE LIMITER advisory and status messages are not displayed.

Continued Next Page

32-42-04B

1. Verify that the AWABS contains MEL item 32–42–04B.
2. Confirm BRAKE LIMITER advisory message is not displayed.

32-42-04B	**TORQUE LIMITER SYSTEM**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Reduce the Maximum Quick Turnaround Limit Weight by 10,000 lbs.

(M) PROCEDURES

32-42-04A

Deactivate the associated brakes and confirm BRAKE LIMITER messages are not displayed.

1. Deactivate the two associated brakes using MEL 32-41-01A, 32-41-01B, or 32-41-01C.

   NOTE: BRAKE LIMITER advisory and status messages will again display if additional brake limiter faults occur affecting other wheel positions.

32-42-04B

PRIOR TO EACH DEPARTURE CHECK:

Review CMC faults and deactivate brakes as required.

1. For only BRAKE LIMITER status message displayed:
   a) Prior to each flight review CMC for additional brake limiter faults.
2. For BRAKE LIMITER advisory message displayed:
   a) Prior to each flight review CMC for additional brake limiter faults.
   b) For two torque limiters inoperative on the same truck, deactivate at least one associated brake using MEL 32-41-01A, 32-41-01B, or 32-41-01C.

NOTE 1: MEL item 32-41-01A, 32-41-01B, or 32-41-01C allows only two brakes inoperative.

NOTE 2: This relief allows up to 2 torque limiters inoperative on 1 truck, 2 torque limiters inoperative on a 2nd truck (1 brake deactivated on each truck) and 1 torque limiter inoperative on each remaining truck.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-45-01	Nose Wheel Snubber Pads	**Y**	2	0	**C**	May be inoperative

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-45-01	Adjacent To Main EICAS Display	___ NOSE WHEEL SNUBBER PADS MISSING

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-46-01	Brake Temperature Monitoring System (BTMS) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided the Maximum Quick Turnaround Weight limitations are observed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-46-01	Adjacent To Main EICAS Display	BRAKE TEMP MONITORING SYSTEM INOP

(O) PROCEDURES

32-46-01	**BRAKE TEMPERATURE MONITORING SYSTEM (BTMS)**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS** Reduce the Maximum Quick Turnaround Limit Weight by 10,000 lbs.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD	NUMBER REQUIRED FOR DISPATCH		REPAIR CATEGORY	REMARKS OR EXCEPTIONS
32-48-01A	Tire Pressure Indication System **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01B	Tire Pressure Indication System Left Wing Gear LWG #1 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01C	Tire Pressure Indication System Left Wing Gear LWG #2 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01D	Tire Pressure Indication System Left Wing Gear LWG #3 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01E	Tire Pressure Indication System Left Wing Gear LWG #4 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01F	Tire Pressure Indication System Left Body Gear LBG #5 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01G	Tire Pressure Indication System Left Body Gear LBG #6 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01H	Tire Pressure Indication System Left Body Gear LBG #7 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01I	Tire Pressure Indication System Left Body Gear LBG #8 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-48-01J	Tire Pressure Indication System Right Body Gear RBG #9 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01K	Tire Pressure Indication System Right Body Gear RBG #10 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01L	Tire Pressure Indication System Right Body Gear RBG #11 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01M	Tire Pressure Indication System Right Body Gear RBG #12 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01N	Tire Pressure Indication System Right Wing Gear RWG #13 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01O	Tire Pressure Indication System Right Wing Gear RWG #14 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01P	Tire Pressure Indication System Right Wing Gear RWG #15 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01Q	Tire Pressure Indication System Right Wing Gear RWG #16 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		REMARKS OR EXCEPTIONS
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
32-48-01R	Tire Pressure Indication System Nose Gear NG #17 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-01S	Tire Pressure Indication System Nose Gear NG #18 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided tire pressures are verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-48-01A	Adjacent To Main EICAS Display	TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01B	Adjacent To Main EICAS Display	LWG #1 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01C	Adjacent To Main EICAS Display	LWG #2 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01D	Adjacent To Main EICAS Display	LWG #3 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01E	Adjacent To Main EICAS Display	LWG #4 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01F	Adjacent To Main EICAS Display	LBG #5 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01G	Adjacent To Main EICAS Display	LBG #6 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01H	Adjacent To Main EICAS Display	LBG #7 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01I	Adjacent To Main EICAS Display	LBG #8 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01J	Adjacent To Main EICAS Display	RBG #9 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01K	Adjacent To Main EICAS Display	RBG #10 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01L	Adjacent To Main EICAS Display	RBG #11 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01M	Adjacent To Main EICAS Display	RBG #12 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01N	Adjacent To Main EICAS Display	RWG #13 TIRE PRESSURE INDICATION SYSTEM INOP

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MEL ITEM	TAB LOCATION	PLACARD TEXT
32-48-01O	Adjacent To Main EICAS Display	RWG #14 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01P	Adjacent To Main EICAS Display	RWG #15 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01Q	Adjacent To Main EICAS Display	RWG #16 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01R	Adjacent To Main EICAS Display	NG #17 TIRE PRESSURE INDICATION SYSTEM INOP
32-48-01S	Adjacent To Main EICAS Display	NG #18 TIRE PRESSURE INDICATION SYSTEM INOP

(M) PROCEDURES

32-48-01A thru 32-48-01S

PRIOR TO EACH DEPARTURE CHECK:

1. Using a calibrated Tire Pressure Gauge, verify affected tire pressures are within the required operational range per M/M reference 32–45–04, 600 series pages.
2. Accomplish required logbook entry.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-48-02A	Tire Pressure Indication System Tire Pressure Sensor Left Wing Gear LWG #1 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02B	Tire Pressure Indication System Tire Pressure Sensor Left Wing Gear LWG #2 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02C	Tire Pressure Indication System Tire Pressure Sensor Left Wing Gear LWG #3 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02D	Tire Pressure Indication System Tire Pressure Sensor Left Wing Gear LWG #4 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02E	Tire Pressure Indication System Tire Pressure Sensor Left Body Gear LBG #5 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02F	Tire Pressure Indication System Tire Pressure Sensor Left Body Gear LBG #6 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02G	Tire Pressure Indication System Tire Pressure Sensor Left Body Gear LBG #7 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02H	Tire Pressure Indication System Tire Pressure Sensor Left Body Gear LBG #8 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-48-02I	Tire Pressure Indication System Tire Pressure Sensor Right Body Gear RBG #9 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02J	Tire Pressure Indication System Tire Pressure Sensor Right Body Gear RBG #10 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02K	Tire Pressure Indication System Tire Pressure Sensor Right Body Gear RBG #11 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02L	Tire Pressure Indication System Tire Pressure Sensor Right Body Gear RBG #12 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02M	Tire Pressure Indication System Tire Pressure Sensor Right Wing Gear RWG #13 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02N	Tire Pressure Indication System Tire Pressure Sensor Right Wing Gear RWG #14 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02O	Tire Pressure Indication System Tire Pressure Sensor Right Wing Gear RWG #15 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

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ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
32-48-02P	Tire Pressure Indication System Tire Pressure Sensor Right Wing Gear RWG #16 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02Q	Tire Pressure Indication System Tire Pressure Sensor Nose Gear NG #17 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
32-48-02R	Tire Pressure Indication System Tire Pressure Sensor Nose Gear NG #18 **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Associated sensor(s) is deactivated, and. b) Tire pressure is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-48-02A	Adjacent To Main EICAS Display	LWG #1 Tire Pressure Sensor INOP
32-48-02B	Adjacent To Main EICAS Display	LWG #2 Tire Pressure Sensor INOP
32-48-02C	Adjacent To Main EICAS Display	LWG #3 Tire Pressure Sensor INOP
32-48-02D	Adjacent To Main EICAS Display	LWG #4 Tire Pressure Sensor INOP
32-48-02E	Adjacent To Main EICAS Display	LBG #5 Tire Pressure Sensor INOP
32-48-02F	Adjacent To Main EICAS Display	LBG #6 Tire Pressure Sensor INOP
32-48-02G	Adjacent To Main EICAS Display	LBG #7 Tire Pressure Sensor INOP
32-48-02H	Adjacent To Main EICAS Display	LBG #8 Tire Pressure Sensor INOP
32-48-02I	Adjacent To Main EICAS Display	RBG #9 Tire Pressure Sensor INOP
32-48-02J	Adjacent To Main EICAS Display	RBG #10 Tire Pressure Sensor INOP
32-48-02K	Adjacent To Main EICAS Display	RBG #11 Tire Pressure Sensor INOP
32-48-02L	Adjacent To Main EICAS Display	RBG #12 Tire Pressure Sensor INOP
32-48-02M	Adjacent To Main EICAS Display	RWG #13 Tire Pressure Sensor INOP
32-48-02N	Adjacent To Main EICAS Display	RWG #14 Tire Pressure Sensor INOP
32-48-02O	Adjacent To Main EICAS Display	RWG #15 Tire Pressure Sensor INOP
32-48-02P	Adjacent To Main EICAS Display	RWG #16 Tire Pressure Sensor INOP
32-48-02Q	Adjacent To Main EICAS Display	NG #17 Tire Pressure Sensor INOP
32-48-02R	Adjacent To Main EICAS Display	NG #18 Tire Pressure Sensor INOP

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(M) PROCEDURES

32-48-02A thru 32-48-02R

1. Associated failed tire pressure sensors are deactivated. They must be removed and sealing caps installed per the following:

   - Main tires – AMM 32–45–11, Pg 401 series pages
   - Nose tires – AMM 32–45–12, Pg 401 series pages

2. **PRIOR TO EACH DEPARTURE CHECK**:

   a) Using a calibrated Tire Pressure Gauge, verify affected tire pressures are within the required operational range per AMM 32–45–04, 601 series pages.

   b) Accomplish required logbook entry.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
32-51-01	Rudder Pedal Nose Wheel Steering System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Related systems operate normally, b) Landing approach minimums do not require automatic rollout guidance system, and c) Both the takeoff and landing must be flown by the captain. NOTE: Related systems include the rudder and the tiller steering. CAT III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-51-01	Adjacent To Main EICAS Display	RUDDER PEDAL NOSE WHEEL STEERING INOP. ALSO – If rudder nose steering deactivated, RUDDER NOSE STEERING DEACTIVATED

(O) PROCEDURES

CAUTION: When using the tiller in place of rudder pedal nose wheel steering, prudent handling is advised, as a small movement of the tiller can cause a large change in direction.

CAUTION: Use caution when using the nose wheel steering tiller at speeds above 20 knots to avoid over– controlling the nose wheels resulting in possible loss of directional control.

1. Takeoff:
   a) Captain to maintain directional control by steering first with the tiller and then transitioning to control solely with the rudder as the rudder becomes fully effective. The transition typically occurs between 60 and 80 knots and is normally completed by 80 knots.
   b) The tiller should be guarded until directional control is established with the rudder. Captain should gradually release the pressure on the tiller while establishing the required amount of rudder control.
   c) F/O should hold a light forward pressure on the control column and maintain wings level during the initial phase of the takeoff roll. At approximately 80 knots, when the Captain has transitioned from steering tiller to rudder control, the F/O will release the control wheel.
2. Landing:
   a) The Captain should use the rudder and tiller as required during the landing roll and should be prepared to steer the airplane, using the tiller, once the rudder has become ineffective (approximately 80 knots).
   b) The F/O should assist the Captain, as necessary, in maintaining the wings level during the initial phase of the landing roll and in holding a light forward pressure on the control column.

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(M) PROCEDURES

1. Ensure that operation of rudder pedals is not impaired.
2. Ensure that the tiller steering operates normally.
3. If it is necessary to deactivate the rudder pedal nose wheel steering system:

   a) Remove the second center ceiling panel aft in the LH Forward Passenger Cabin (Zone A) to gain access to the rudder pedal steering interconnect mechanism (AMM 32–51–07/401).

   b) Prepare safety-sensitive systems for air mode simulation (AMM 32-09-02/201).

      NOTE: Putting the airplane in air mode simulation, will cause the engine probe heaters to turn on with the possibility of overheating and damaging the probes. It may be desirable to open circuit breakers for all four engine probe heaters during this maintenance procedure.

   c) Place proximity switch slugs (P/N A27092–61 at nose gear squat switch sensors.

      NOTE: In lieu of using a proximity switch slug, the Nose Landing Gear Torsion Links Apex Pin may be disconnected and the torsion links carefully lowered. The upper link in the lowered position will provide proximity for the Squat Switch Sensors. To avoid potential for sensor damage, support the Upper Torsion Link until it is carefully lowered into position.

   d) Check that the rudder pedal interconnect mechanism moves to the disconnected position (ie that full travel of the rudder pedal does not move the interconnect mechanism quadrant).

   e) Pull and secure the following circuit breakers on the P7 panel:

      P7 Panel

      - C01212 G25 NOSE GR STRG PRI
      - C02000 G26 NOSE GR STRG ALTN

   f) Remove and stow the electrical connector from the nose gear steering interconnect actuators.

   g) Remove installed proximity switch slug (or reconnect the Nose Landing Gear Torsion Links Apex Pin if disconnected).

   h) Check that the nose gear steering system operates normally using the tiller.

   i) Check that the rudder operates normally.

   j) Install main deck ceiling panel.

   k) Close circuit breakers for all four engine probe heaters if they were opened during this maintenance procedure.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-53-01	Body Gear Steering System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Body gear steering actuators are verified locked, and b) Body gear steering is deactivated.

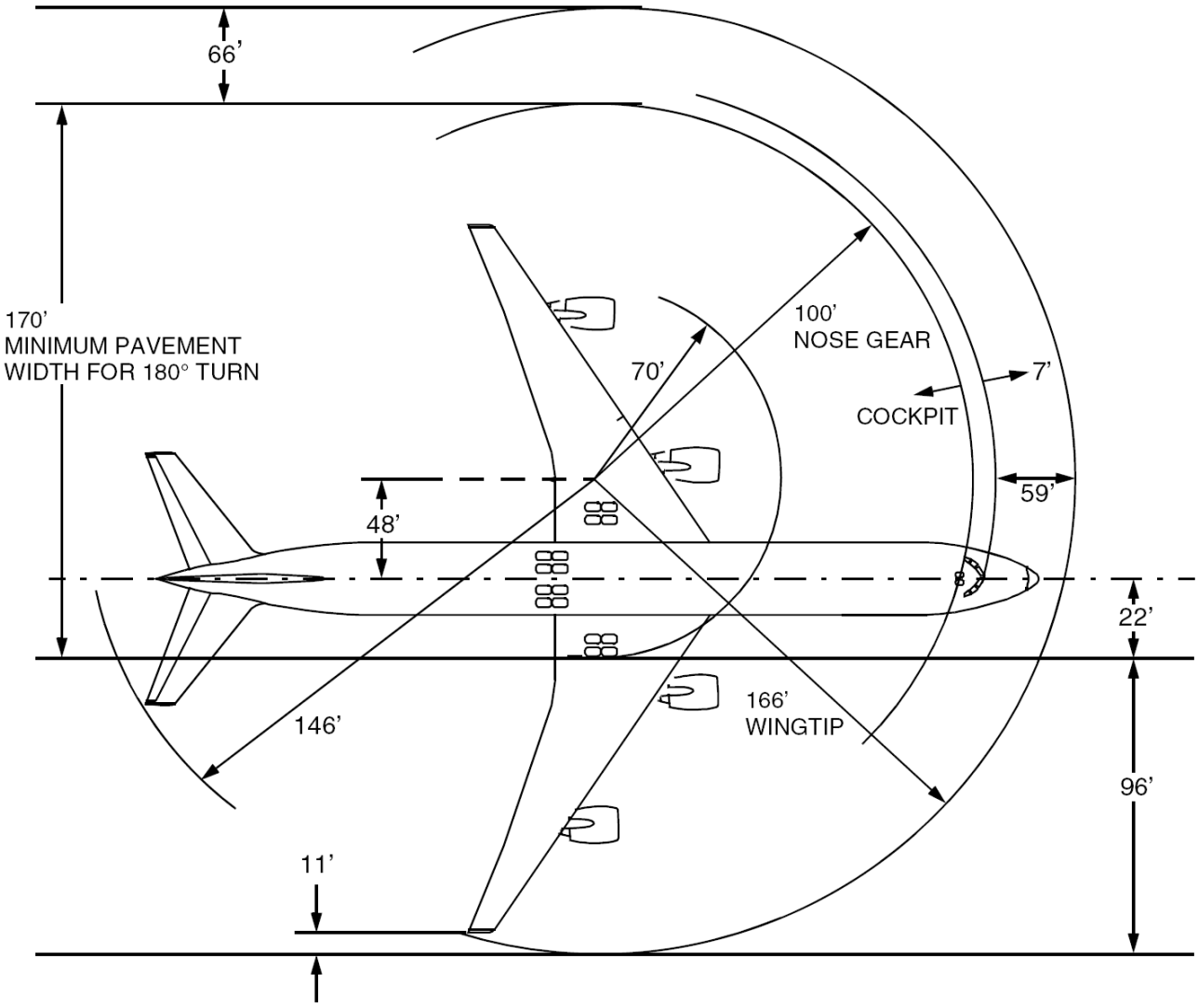
MEL ITEM	TAB LOCATION	PLACARD TEXT
32-53-01	Adjacent To Main EICAS Display	BODY GEAR STEERING INOP AND DEACTIVATED

(O) PROCEDURES

1. With body gear steering deactivated or inoperative, turning capability will be reduced. Observe taxi procedures and turning radius for body gear steering inoperative. Reference Steering Limitations and Minimum Turning Radius diagram (next page).
2. Do not attempt to make a turn away from an obstruction within 11 feet of the wing tip or within 59 feet of the flight deck.
3. If required, use the GEAR LEVER WILL NOT MOVE UP Non-Normal Checklist in the QRH.

NOTE: The EICAS advisory message BODY GEAR STRG may remain displayed due to a pressure switch fault.

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NOTE: PILOT TECHNIQUE, TAXI SPEED, G.W., C.G., RUNWAY/RAMP CONDITIONS, NOSE WHEEL STEERING, AND AMOUNT OF DIFFERENTIAL THRUST WILL AFFECT TURN RADIUS AND LOCATION OF TURN CENTER.

CONDITIONS:
- TURN INITIATED AT 10 KT
- 70° NOSE STEERING
- BODY GEAR STEERING DEACTIVATED
- NO BRAKING
- DIFFERENTIAL THRUST.

APPROXIMATE MINIMUM TURNING RADIUS
BODY GEAR STEERING DEACTIVATED

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(M) PROCEDURES

1. Verify Body Gear Steering actuators are locked.

   a) Perform a BITE test of the steering system of the body gear using Body Gear Steering Actuator Lock Switch installation procedure AMM 32–53–16 procedures 3.F.15(a) through (i).

   b) Confirm at least one lock switch (either primary or alternate) has a bit status of 1 (locked) on each actuator.

      NOTE: For both primary and alternate lock switches on an actuator having a bit status of 0 (unlocked), the actuator may be unlocked or the body gear steering indication system may be inoperative (MEL 32-53-02).

   c) If any bit status indicates ”0”, verify actuator integrity as follows:

      1) Depressurize hydraulic system No. 1

      2) Tow airplane (using normal towing procedures) as follows, observing that no body gear steering actuator extension or separation occurs.

         - Nosewheel left 45 degrees, move 50 feet, stop.
         - Nosewheel right 45 degrees, move 50 feet, stop.

      3) Repressurize hydraulic system No. 1.

2. Deactivate Body Gear Steering using Procedure A and if necessary, Procedure B (actuator leak) and/or Procedure C (control module leak or pressure switch fault).

3. Procedure A

   a) Remove nose gear torsion link apex pin and secure upper torsion link so that it clears structure when turning.

   b) Pull and secure the P7 panel BODY GR STRG ARM AC (G23) and BODY GR STRG ARM DC

   c) Using tiller, steer left and right at least 25 degrees. Verify that no body gear steering actuator extension occurs.

   d) Reconnect nose gear steering links.

4. Procedure B – Use when the steering actuator(s) leaks excessively.

   a) Deactivate body gear steering using Procedure A, then disconnect the steering hydraulic system as follows:

   b) Depressurize hydraulic system No. 1.

   c) Disconnect the OUTBD and INBD CYL EXT (extend) hoses on the Lt. and the Rt. BLG swivel fittings. Cap the trunnion swivel fittings. (**Ref. Figure 32–53–1.4 & 32–53–1.5**)

   d) Disconnect the RET (return) hose from the Lt. and Rt. BLG hydraulic line support bracket.

   e) Cap the return line fittings. (**Ref. Figure 32–53–1.2 & 32–53–1.3**)

CAUTION: AFTER DISCONNECTING LINES MAKE SURE THAT YOU FOLLOW THE LINES DOWN TO ENSURE THAT THE CORRECT LINES ARE DISCONNECTED. MAKE SURE THAT YOU DO NOT DISCONNECT THE (TILT CYL) LINE. IF THE (TILT CYL) LINE IS DISCONNECTED, THE BODY LANDING GEAR WILL NOT RETRACT INTO WHEEL WELL.

   f) Loosen the B nuts on EXT and RET hoses on the four steering actuators. Drain the fluid from the hoses and retighten the B nuts.

   g) Cap and stow the disconnected hoses so they clear the gear retraction swing.

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h) Rotate the top disconnected swivel INBD EXT on the right body gear, and the OUTBD EXT on the left body gear, toward the nose of the airplane to a horizontal position and secure there with lock–wire. This prevents possible interference with the closing of slaved gear door.

i) Pressurize hydraulic system No. 1.

j) Pressure check system.

5. Procedure C – Use when the hydraulic module leaks excessively or when the pressure switch indicates a fault.

a) Deactivate body gear steering using Procedure A, then disconnect both hydraulic modules as follows:

1) Depressurize hydraulic system No. 1.

2) Remove pressure supply lines (P1) to the control modules (from the landing gear down LGD1 lines). Remove the return lines (R1) that connect to the top of the control modules. Cap disconnected ports on tee line fittings. Stow tubes aboard airplane.

3) Disconnect EXT and RET hoses at the four actuators and drain lines. Reconnect hoses.

4) Cap open ports on control modules.

5) Pressure check system.

6) Restore hydraulic system No. 1 pressure.

NOTE: The EICAS advisory message >BODY GR STRG may remain displayed.

6. Steering Limitations

a) With the body gear steering deactivated or inoperative, turning capability will be reduced. See figure in the (O) PROCEDURES for illustration depicting approximate minimum turning radii using differential thrust in addition to nose wheel steering.

b) As with all turns, the cockpit must travel outside the centerline of the turn to align the main path. The tip of the winglet describes the largest arc while turning and determines the minimum obstruction clearance path. All other portions of the airplane structure are within this arc. It should be noted from the TURNING RADIUS illustration that the wingtips are moved outboard about 11 feet and travel 59 feet in front of the cockpit.

CAUTION: DO NOT ATTEMPT TO MAKE A TURN AWAY FROM AN OBSTACLE WITHIN 11 FEET OF THE WING TIP OR WITHIN 59 FEET OF THE COCKPIT.

c) Avoid sharp turns if possible, due to excessive tire scrubbing.

CAUTION: AVOID USE OF EXCESSIVE THRUST IN RAMP AREA DUE TO POSSIBLE DAMAGE OR INJURY FROM JET WAKE.

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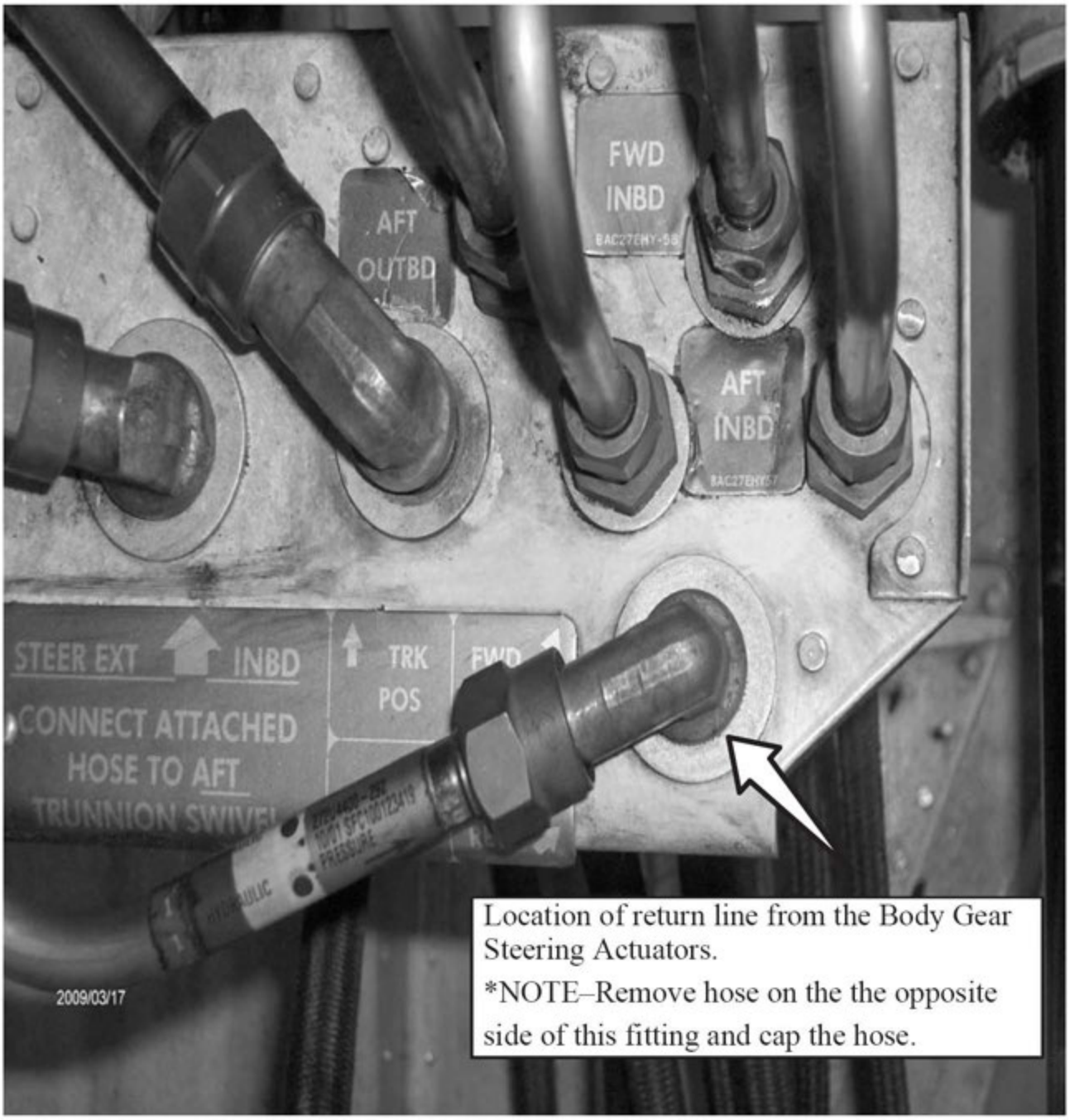


Figure 32–53–1.2
Body Landing Gear Return Line Location
(View looking aft in the RH BLG wheel well)

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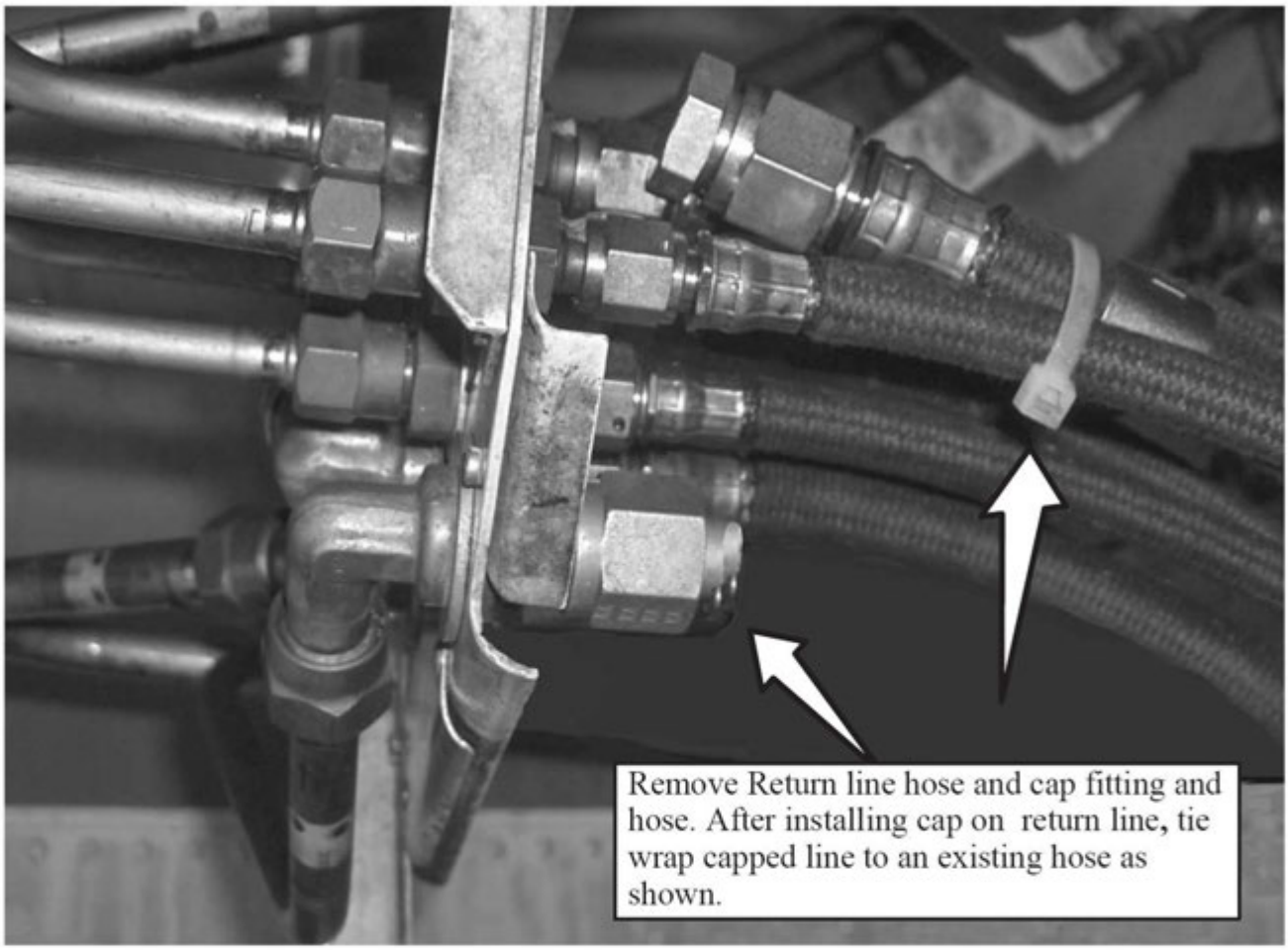


Figure 32–53–1.3
Body Landing Gear Return Line Location
(View looking outboard in the Aft RH BLG wheel well)

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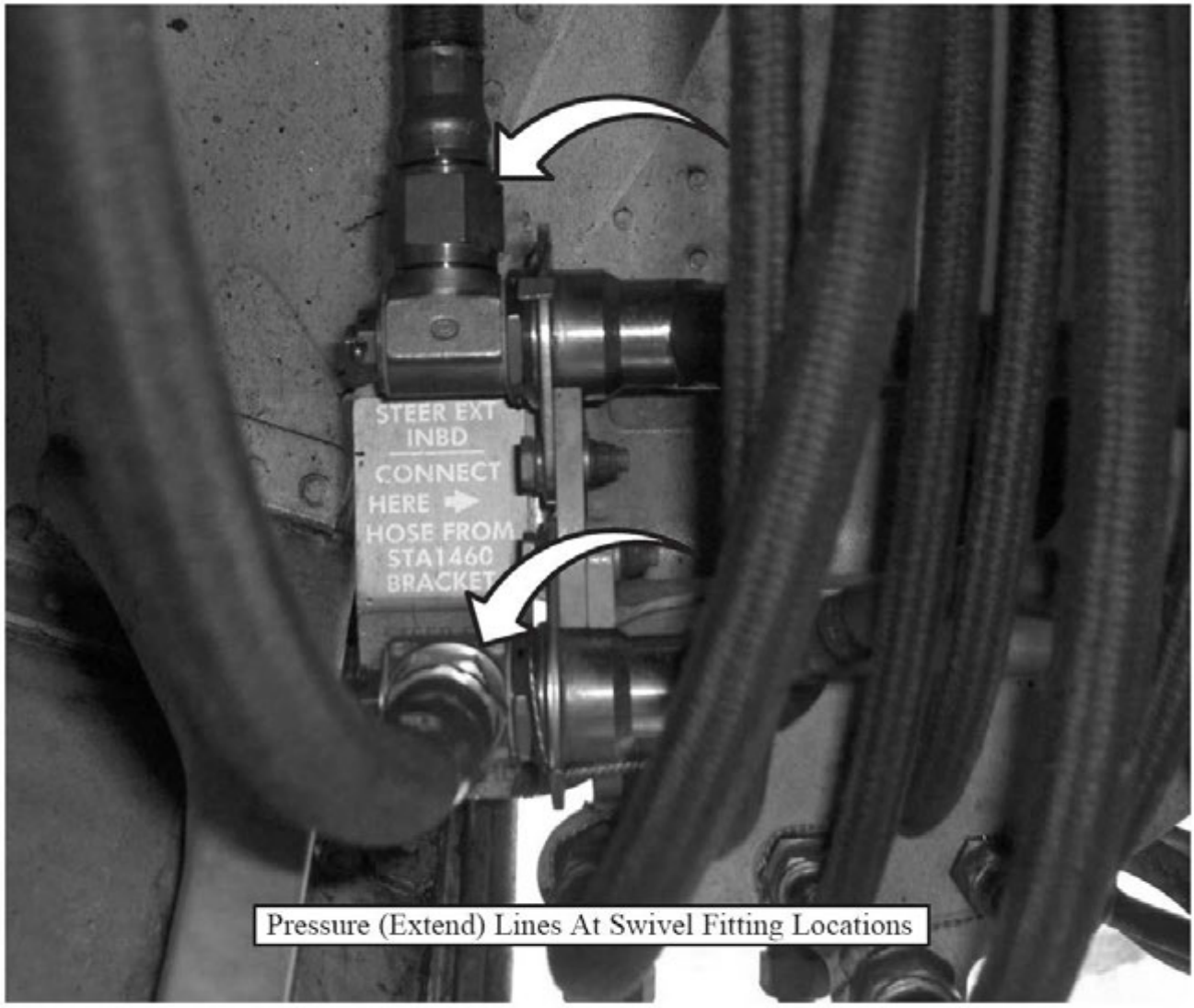


Figure 32–53–1.4
Body Landing Gear Pressure (Extend) Line Locations at Swivel Fittings
(View looking aft in the RH BLG wheel well)

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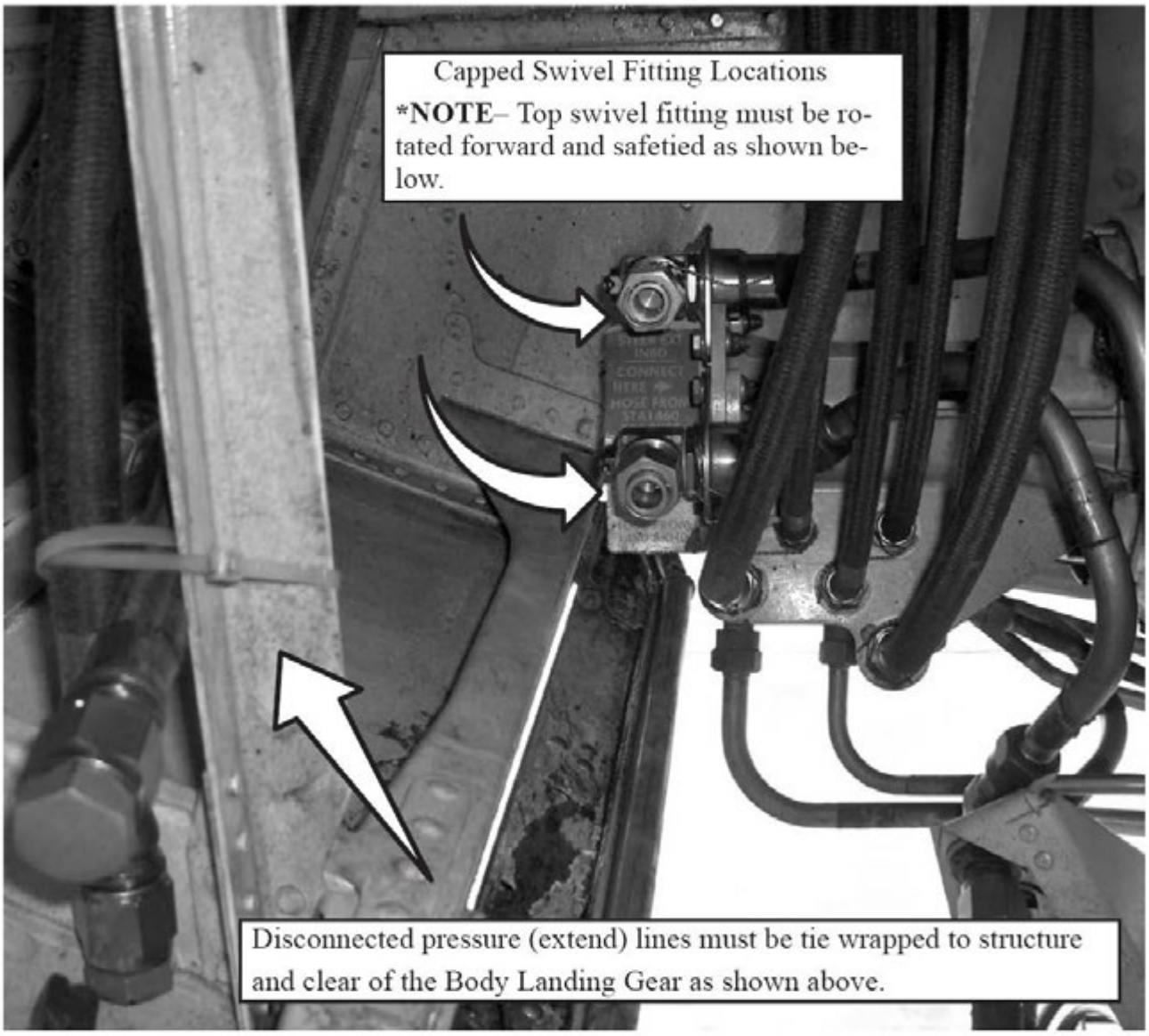


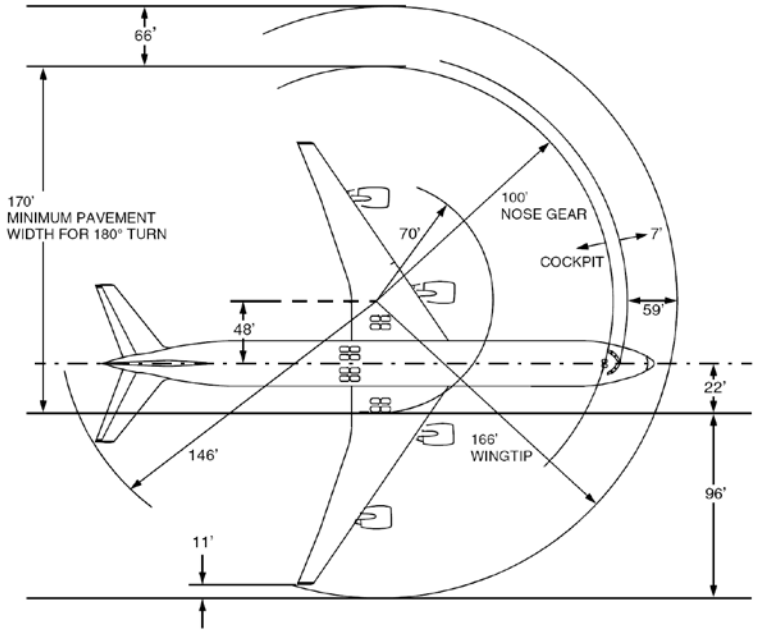
Figure 32–53–1.5
Body Landing Gear Pressure (Extend) Line Locations at Swivel Fittings
(View looking aft in the RH BLG wheel well)

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
32-53-02	Body Gear Steering Indication System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Body gear steering actuators are verified locked, b) Body gear steering is deactivated, and c) Body gear steering actuator integrity is verified PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-53-02	Adjacent To Main EICAS Display	BODY GEAR STEERING INDICATION INOP

(O) PROCEDURES

With body gear steering deactivated or inoperative turning capability will be reduced. Observe taxi procedures and turning radius for body gear steering inoperative.



NOTE: PILOT TECHNIQUE, TAXI SPEED, G.W., C.G., RUNWAY/RAMP CONDITIONS, NOSE WHEEL STEERING, AND AMOUNT OF DIFFERENTIAL THRUST WILL AFFECT TURN RADIUS AND LOCATION OF TURN CENTER.

CONDITIONS:
- TURN INITIATED AT 10 KT
- 70° NOSE STEERING
- BODY GEAR STEERING DEACTIVATED
- NO BRAKING
- DIFFERENTIAL THRUST.

APPROXIMATE MINIMUM TURNING RADIUS
BODY GEAR STEERING DEACTIVATED

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(M) PROCEDURES

NOTE: The indication system is designed to display the EICAS advisory message BODY GEAR STRG and status message BODY GR STRG SYS if the system is operating when not commanded. This requires that both body gear steering actuator lock switches (primary and alternate) indicate a body gear steering actuator is unlocked when the system is not armed. A single lock switch failure is not annunciated on EICAS, and does not constitute an inoperative indication system.

1. Verify that the body gear steering actuators are locked using MEL Item 32–53–01 Para 1 a).
2. Deactivate the body gear steering system using the appropriate procedure(s) from MEL Item 32–53–01.
3. Disconnect, cap and stow the electrical connector on the affected body gear steering actuator(s).
4. Defer Body Gear Steering inoperative per MEL item 32–53–01.
5. **PRIOR TO EACH DEPARTURE CHECK**:
   a) Verify actuator integrity as follows:
      1) Depressurize hydraulic system No. 1
      2) Tow airplane as follows, observing that no body gear steering actuator extension or separation occurs.
         - Nosewheel left 45 degrees, move 50 feet, stop.
         - Nosewheel right 45 degrees, move 50 feet, stop.
      3) Repressurize hydraulic system No. 1.
   b) Accomplish required logbook entry.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-61-01	Body and Wing Landing Gear Uplocks Position Sensors **"Contact MCC"**	**N**	8	7	**B**	**(M)(O)** One may be inoperative provided the associated Primary and Alternate Landing Gear Door Warning Sensors are verified to operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-61-01	Adjacent To Landing Gear Handle	___ LANDING GEAR UPLOCK POSITION SENSOR INOP

(O) PROCEDURES

When retracting the landing gear, to ensure the associated landing gear has operated properly, verify that the EICAS advisory level message GEAR DOOR does not display.

NOTE 1: If advisory level message GEAR DOOR displays, accomplish QRH, Section 14, “GEAR DOOR”.

NOTE 2: If caution level message GEAR DISAGREE displays, accomplish QRH, Section 14, “GEAR DISAGREE or Gear Lever Jammed In Off Position”.

(M) PROCEDURES

NOTE: Dispatch with faulty Nose Gear Not Compressed position sensors, Main Gear Down and Locked sensors, Main Gear Tilt sensors, or Body Gear Downlock sensors is not permitted, as this will affect essential systems including the Air/Ground System.

If one uplock sensor (primary or alternate) on any gear is failed, the associated Landing Gear Door Warning Sensors may be verified to operate normally as follows:

Verify that the primary and alternate gear door warning sensors have not failed on the associated gear door by checking for the following CMC messages:

PRIMARY SENSOR	ALTERNATE SENSOR
X GEAR DOOR PRIMARY PROX SWITCH SENSOR FAIL (PSEU)	X GEAR DOOR ALTERNATE PROX SWITCH SENSOR FAIL (PSEU)
X GEAR DOOR PRIMARY PROX SWITCH TARGET FAIL (PSEU)	X GEAR DOOR ALTERNATE PROX SWITCH TARGET FAIL (PSEU)
X GEAR DOOR PRIMARY PROX SWITCH SENSOR/WIRE FAIL (PSEU)	X GEAR DOOR ALTERNATE PROX SWITCH SENSOR/WIRE FAIL (PSEU)

(X identifies the landing gear)

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
32-61-02	Landing Gear Door Warning Sensors	**N**	10	5	**C**	**(M)(O)** One per door may be inoperative provided the associated operative sensor is verified to function correctly PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
32-61-02	Adjacent To Lower EICAS Display	___ LANDING GEAR DOOR WARNING SENSOR(S) INOP. LANDING GEAR DOOR INDICATION ON GEAR SYNOPTIC PAGE INOP

(O) PROCEDURES

32-61-02

After takeoff, if EICAS advisory message GEAR DOOR displays, accomplish QRH, Section 14, “GEAR DOOR”.

(M) PROCEDURES

PRIOR TO EACH DEPARTURE:

1. Isolate the landing gear door warning sensor fault to the LRU level (AMM 32-09-03/501).
2. Verify the following CMC messages are not displayed for both the primary and alternate sensors on each landing gear door:

PRIMARY SENSOR	ALTERNATE SENSOR
X GEAR DOOR PRIMARY PROX SWITCH SENSOR FAIL (PSEU)	X GEAR DOOR ALTERNATE PROX SWITCH SENSOR FAIL (PSEU)
X GEAR DOOR PRIMARY PROX SWITCH TARGET FAIL (PSEU)	X GEAR DOOR ALTERNATE PROX SWITCH TARGET FAIL (PSEU)
X GEAR DOOR PRIMARY PROX SWITCH SENSOR/WIRE FAIL (PSEU)	X GEAR DOOR ALTERNATE PROX SWITCH SENSOR/WIRE FAIL (PSEU)

(X identifies the landing gear)

3. Accomplish required logbook entry.

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NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-11-01	Flight Compartment and Instrument Lighting System	**Y**	-	-	**C**	**(O)** Individual lights or light controls 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 lighting system lights are positioned so that direct rays are shielded from flight crew eyes, c) Flight deck emergency light operates normally, and d) Lighting configuration and intensity is acceptable to the flight crew. NOTE: Individual buttons/switch lights and/or annunciations/indications are excluded from this relief.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-11-01	Adjacent To Applicable Light Control Switch	___ LIGHTS INOP

(O) PROCEDURES

Verify flight compartment lighting is satisfactory.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-12-01	Storm Override Switch	**Y**	1	0	**C**	**(O)** May be inoperative provided associated lights operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-12-01	Adjacent To Storm Override Switch	STORM OVERRIDE SWITCH INOP

(O) PROCEDURES

Verify associated lights operate normally.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-18-01	Master Dim and Test System **"Contact MCC"**	**Y**	1	0	**B**	Dim function may be inoperative provided: a) Test and Bright functions operate normally, and b) Light intensity is acceptable to the flight crew.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-18-01	Adjacent To Applicable Light Control Switch	DIM FUNCTION INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-21-01A	Cabin Interior Illumination	**Y**	-	-	**C**	**(O)** Individual lights may be inoperative provided remaining lighting is sufficient for cabin attendants to perform their duties.
33-21-01B	Cabin Interior Illumination Flight Deck Door Security Lighting System **"Contact MCC"**	**Y**	1	0	**B**	**(O)** May be inoperative provided alternate procedures are used to visually observe personnel requesting flight deck entry.
33-21-01C	Upper Deck Crew Rest Interior Illumination Lighting (Class 1 Facility)	**Y**	-	-	**C**	**(O)** May be inoperative provided: a) Remaining lighting is sufficient for crew members to perform their duties, and b) Lighting is acceptable to crew members
33-21-01D	Upper Deck Crew Rest Bunk Area Illumination Lighting (Class 1 Facility)	**Y**	-	-	**C**	**(M)(O)** May be inoperative provided: a) Affected light is OFF, and b) Lighting is acceptable to crew members.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-21-01A	Adjacent To Cabin Lighting Switch On The Cabin System Module At Door 2 Left Attendant's Panel	___ CABIN LIGHTS INOP
33-21-01B	Adjacent To Flight Deck Door Security Lighting System Light Switch	FLIGHT DECK DOOR SECURITY LIGHTING SYSTEM INOP
33-21-01C	Adjacent to the Upper Deck Crew Rest Light Control	FLIGHT CREW REST LIGHTS INOP
33-21-01D	Adjacent to the Upper Deck Crew Rest Bunk Light Control	FLIGHT CREW REST BUNK LIGHT INOP

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(O) PROCEDURES

33-21-01A

Ensure lighting is sufficient for flight attendants to perform their duties.

33-21-01B

Captain to brief Lead Flight Attendant/Purser to utilize a flashlight to illuminate the area outside the flight deck door to allow visual verification.

33-21-01C, 33-21-01D

Ensure lighting is acceptable to crewmembers.

(M) PROCEDURES

33-21-01D

Ensure affected light is OFF.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-24-01A	Passenger Lighted Information Signs (No Smoking/Fasten Seat Belt/Return to Seat) PA System Inoperative **"DISP.APPR.REQ'D"**	**N**	-	-	**C**	**(M)** May be inoperative provided: a) Associated passenger seat or flight attendant crew rest area bunk is not occupied from which a passenger lighted information sign is not readily legible, and b) Associated seat or bunk must be blocked and placarded UNSERVICEABLE – DO NOT USE. NOTE: Use 33-24-01F for Upper Deck Crew Rest Facility lighted signs.
33-24-01B	Passenger Lighted Information Signs (No Smoking/Fasten Seat Belt/Return to Seat) Lavatory PA System Inoperative **"DISP.APPR.REQ'D"**	**N**	-	7	**C**	**(M)(O)** May be inoperative provided: a) Associated lavatory is not occupied from which a passenger lighted information sign is not readily legible, b) Associated lavatory must be blocked and placarded UNSERVICEABLE – DO NOT USE, c) Associated lavatory(s) is used only by crewmembers, and d) At least seven lavatories operate normally. NOTE: These provisos are not intended to preclude lavatory use or inspections by crewmembers.
33-24-01C	Passenger Lighted Information Signs (No Smoking/Fasten Seat Belt/Return to Seat) PA System Operative	**Y**	-	-	**C**	**(O)** May be inoperative and associated passenger seat(s), flight attendant seat(s), lavatories or flight attendant crew rest areas may be occupied provided: a) Passenger Address System operates normally, and b) PA system is used to alert the cabin crew and to notify passengers when seat belts should be fastened and smoking is prohibited.

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NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-24-01D Passenger Lighted Information Signs (No Smoking/Fasten Seat Belt/Return to Seat) Aural Tone System	**Y**	1	0	**C**	May be inoperative.
33-24-01E Passenger Lighted Information Signs (No Smoking/Fasten Seat Belt/Return to Seat) Flight Deck Automatic Function	**Y**	1	0	**C**	**(O)** Automatic function may be inoperative provided: a) Manual Control function operates normally, and b) Procedures for its use are established and used.
33-24-01F Passenger Lighted Information Signs (No Smoking/Fasten Seat Belt/Return to Seat) in Upper Deck Crew Rest Compartment (Class 1 Facility)	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) Passenger Address System operates normally, b) The flight crew rest compartment is downgraded to a Class 2 Facility for flight planning purposes, c) If required, appropriate adjustments to flight crew member duty period limits are made, and d) Alternate procedures are used to alert crewmembers when seat belts should be fastened NOTE: Class 1 rest facility not available. Contact the Fleet Sector Manager through Dispatcher for alternate flight crew rest accommodations. .

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-24-01A	On The Inoperative Light Assembly And On The Face Of The OM–2 Tape Blocking Unusable Seats	___ PASSENGER SIGN IS INOP, SEATS ___ BLOCKED, CREW REST___ BUNK INOP
33-24-01B	On Affected Lavatory Door And Nearest Flight Attendants Control Panel	LAVATORY INOP CLOSED – DO NOT USE
33-24-01C	Adjacent To The Inoperative Light Assembly And On The Forward Cabin Attendant's Control Panel	___ PASSENGER SIGN IS INOP
33-24-01D	Adjacent To Passenger Info Signs Module On P–8 Panel	PASSENGER SIGN SYSTEM AURAL TONE FUNCTION IS INOP
33-24-01E	Adjacent To Passenger Info Signs Module On P–8 Panel	PASSENGER SIGN SYSTEM FLIGHT DECK AUTO FUNCTION INOP
33-24-01F	On The Inoperative Light Assembly	UPPER DECK CREW REST FASTEN SEAT BELT SIGN IS INOP

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(O) PROCEDURES

33-24-01B
Captain to brief Lead Flight Attendant/Purser that the affected lavatory door(s) is to remain locked and not entered except for use or inspection by crewmembers.

33-24-01C
1. Ensure that PA system operates normally.
2. Use PA system to notify passengers and cabin crew when associated sign(s) are placed on or off.

33-24-01E
1. Ensure that manual control function operates normally.
2. Operate manually during appropriate phases of flight.

33-24-01F
1. Ensure appropriate limitations to flight crew duty periods for a Class 2 facility are followed.
2. Captain will brief head flight attendant/purser that the occupants of the upper deck crew rest will need to be told face to face when seat belts signs are placed on or off.

NOTE: Class 1 rest facility not available. Contact the Fleet Sector Manager through Dispatcher for alternate flight crew rest accommodations.

(M) PROCEDURES

33-24-01A, 33-24-01B

1. For an individual 'NO SMOKING' or 'FASTEN SEAT BELT' sign inoperative:
   a) Verify from all affected passenger seat(s) if a "NO SMOKING' or 'FASTEN SEAT BELT' sign can be read from that particular seat.
   b) Verify from affected flight attendant crew rest bed bunk if a 'NO SMOKING' or 'FASTEN SEAT BELT' sign can be read from that particular seat or bed bunk.

      NOTE: A sign can be considered "readily legible" if enough of the sign could be seen to identify it. NO SMOK and FASTEN SEAT B would be considered examples of signs that are readily legible.

   c) If required, block off seat(s), lavatories or bed bunks from which sign(s) is not readily legible. Red colored OM–2, UNSERVICABLE – DO NOT USE tape or equivalent* must be used to block access to unusable seats, bed bunks or lavatories prior to boarding passengers

      *An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words "UNSERVICEABLE – DO NOT USE" printed legibly in 1 inch black letters.
2. For an inoperative "RETURN TO CABIN" sign in a lavatory, place a strip of Red colored OM2 "UNSERVICEABLE – DO NOT USE" tape or equivalent* across the lavatory door. Do not tape the door shut.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words "UNSERVICEABLE – DO NOT USE" printed legibly in 1 inch black letters.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-25-01	Sterile Flight Compartment Light System ATTND ADVISORY Light (Green Light)	**Y**	1	0	**D**	**(O)** May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-25-01	Adjacent To ATTND ADVISORY Light Switch	ATTND ADVISORY LIGHT (GREEN LIGHT) INOP

(O) PROCEDURES

1. Captain to brief Flight Attendants on sterile flight deck procedures that must be observed in flight.
2. During climb–out, after passing 10,000 ft, notify Flight Attendants that sterile flight deck conditions are no longer in effect.
3. During descent, before passing 10,000 ft, notify Flight Attendants that sterile flight deck conditions are in effect.
4. Approximately one aircraft length from the gate: F/O should call “Flight Attendants prepare for arrival.”

	NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-31-01	Wheel Well, Cargo Compartment, Servicing, Exterior Cargo Loading Area, and Electrical Equipment Center Lights Systems	**Y**	-	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-31-01	Adjacent To Inoperative Light Control And/Or Applicable Circuit Breaker	As Applicable: ___ WHEEL WELL LIGHTS INOP ___ CARGO COMPARTMENT LIGHTS INOP ___ SERVICING LIGHTS INOP ___ EXTERIOR CARGO/LOADING AREA LIGHTS INOP ___ ELECTRICAL EQUIPMENT CENTER LIGHTS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-41-01	Wing Illumination Lights **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided ground de-icing procedures do not require their use.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-41-01	Adjacent To WING Lights Switch On Overhead Panel	___ WING ILLUMINATION LIGHTS INOP

(O) PROCEDURES

When a pre–takeoff contamination check is necessary and lighting conditions are not adequate: Return to gate or de–icing site.

Reference OM Volume I, Supplementary Section, Adverse Weather.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-42-01 Taxi Lights	**Y**	2	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-42-01	Adjacent To TAXI Lights On Overhead Panel	___ TAXI LIGHT(S) INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-42-02A	Landing Lights	**Y**	4	2	**C**	One light per side may be inoperative.
33-42-02B	Landing Lights **"DISP.APPR.REQ'D"**	**Y**	4	0	**C**	May be inoperative for day operations.
33-42-02C	Landing Lights Dim Position	**Y**	4	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-42-02A	Adjacent To Inoperative Landing Light Switch On External Light Control Panel (P5)	___ LANDING LIGHT IS INOP
33-42-02B	Adjacent To Inoperative Landing Light Switch On External Light Control Panel (P5)	___ LANDING LIGHT IS INOP
33-42-02C	Adjacent To Inoperative Landing Light Switch On External Light Control Panel (P5)	___ LANDING LIGHTS DIM POSITION INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-42-03A	Runway Turn-Off Lights	**Y**	2	0	**C**	May be inoperative provided both landing lights on the same side of airplane as inoperative turn-off light(s) operate normally.
33-42-03B	Runway Turn-Off Lights **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	May be inoperative for day operations.
33-42-03C	Runway Turn-Off Lights	**Y**	2	0	**C**	May be inoperative provided nose gear taxi lights are installed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-42-03A	Adjacent To Appropriate Runway Turnoff Light Switch On External Light Control Panel (P5)	___ RUNWAY TURNOFF LIGHT(S) INOP
33-42-03B	Adjacent To Appropriate Runway Turnoff Light Switch On External Light Control Panel (P5)	___ RUNWAY TURNOFF LIGHT(S) INOP
33-42-03C	Adjacent To Appropriate Runway Turnoff Light Switch On External Light Control Panel (P5)	___ RUNWAY TURNOFF LIGHT(S) INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-43-01A	Position Lights (Wing Tips and Tail)	**Y**	6	3	**C**	For night operations, all except the following minimum may be inoperative: a) One stationary red wing tip bulb, b) One stationary green wing tip bulb, and c) One stationary white tail bulb.
33-43-01B	Position Lights (Wing Tips and Tail) **"DISP.APPR.REQ'D"**	**Y**	6	0	**C**	All may be inoperative for day operations.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-43-01A	Adjacent To NAV Light Switch On Overhead Panel (P5)	___ POSITION LIGHT(S) IS INOP
33-43-01B	Adjacent To NAV Light Switch On Overhead Panel (P5)	___ POSITION LIGHT(S) IS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-44-01A	Anti-Collision Light Systems **"DISP.APPR.REQ'D"**	**Y**	-	0	**C**	May be inoperative for day operations.
33-44-01B	Anti-Collision Light Systems Red Upper and Lower Fuselage Beacon Lights	**Y**	2	0	**C**	May be inoperative for night operations provided the White Tail and Wing Tip Strobe lights operate normally.
33-44-01C	Anti-Collision Light Systems White Tail and Wing Tip Strobe Lights	**Y**	3	0	**C**	May be inoperative for night operations provided the Red Upper and Lower Fuselage Beacon lights operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-44-01A	Adjacent To BEACON And STROBE Light Switches On Overhead Panel P5	ANTI–COLLISION LIGHT SYSTEMS ARE INOP
33-44-01B	Adjacent To BEACON Light Switch On Overhead Panel P5	___ RED FUSELAGE BEACON ANTI–COLLISION LIGHT(S) IS INOP
33-44-01C	Adjacent To STROBE Light Switch On Overhead Panel P5	___ WHITE STROBE ANTI–COLLISION LIGHT(S) IS INOP

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-45-01 LOGO Light System	**Y**	1	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-45-01	Adjacent To LOGO Switch On Overhead Panel P5	LOGO LIGHTS SYSTEM INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-51-01A	Interior Emergency Lighting System	Y	1	-	C	**(M)** A random 25% of lights may be inoperative provided: a) Inoperative lights are not adjacent, b) At least two of the three lights at each entry door operate normally, and c) Flight deck light and one upper deck door light for an operative door/slide operate normally at all times. NOTE: Not required for an inoperative or deactivated main entry door.
33-51-01B	Interior Emergency Lighting System (Upper Deck Exit Signs) **"DISP.APPR.REQ'D"**	Y	-	-	C	**(M)(O)** May be inoperative provided: a) Exit signs above each operative door/ slide must be operative, and b) Upper deck occupancy is limited to those flight crewmembers essential to the flight (including official observer in forward observer seat) during takeoff or landing.
33-51-01C	Upper Deck Crew Rest Compartment Emergency Lighting **"DISP.APPR.REQ'D"**	Y	-	-	C	**(M)(O)** May be inoperative provided the flight crew rest compartment is considered inoperative and deferred per MEL 25-29-03A.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-51-01A	Adjacent To EMER Lights Control Switch On P–5 Overhead Panel	___INTERIOR EMERGENCY LIGHT(S) IS INOP
33-51-01B	Adjacent To EMER Lights Control Switch On P–5 Overhead Panel	___UPPER DECK EXIT SIGN(S) IS INOP
33-51-01C	Flight Crew Rest Door	UPPER DECK CREW REST EMERGENCY LIGHT(S) INOP

(O) PROCEDURES

33-51-01B

Captain to brief Lead Flight Attendant/Purser that upper deck occupancy is limited to those flight crewmembers essential to the flight (including official observer in forward observer seat) during takeoff and landing and to brief passengers that access to the upper deck is restricted.

33-51-01C

Ensure (O) procedures for MEL 25-29-03A are applied.

Continued Next Page

(M) PROCEDURES

33-51-01A

Check that the inoperative lights do not exceed the number specified below.

1. Ceiling Fixtures:
   a) All lamps in a ceiling fixture can be inoperative, provided all lamps in the two nearest ceiling fixtures operate normally.
   b) If only partial illumination is put out by a ceiling fixture, the two nearest ceiling fixtures must have at least partial illumination.
2. The following light fixtures must operate normally as indicated:

Upper deck stair well light(s)	One lamp in the stairwell illumination light must operate normally.
Overhead lights	Minimum of one lamp per fixture must operate normally.
Overhead light (aft flight deck)	Overhead Light (L1382 must operate normally. Closet light (L1470), if installed, may be inoperative.
Emergency Exit Signs	Must operate normally and be legible.
Main entry door lights (One in ceiling above door, two in upper door sills)	At least one lamp in the ceiling light and one door sill light must operate normally.
Upper deck emergency exit(s) sill(s)	One light must operate normally (each door).

33-51-01B

Cover associated exit signs, block passenger access to upper deck:

1. Cover or block each inoperative upper deck exit sign.
2. Block passenger access to upper deck with conspicuous barrier strap or rope and placard NO PASSENGER ACCESS.

33-51-01C

Defer the Upper Deck Crew Rest Area per MEL 25-29-03A.

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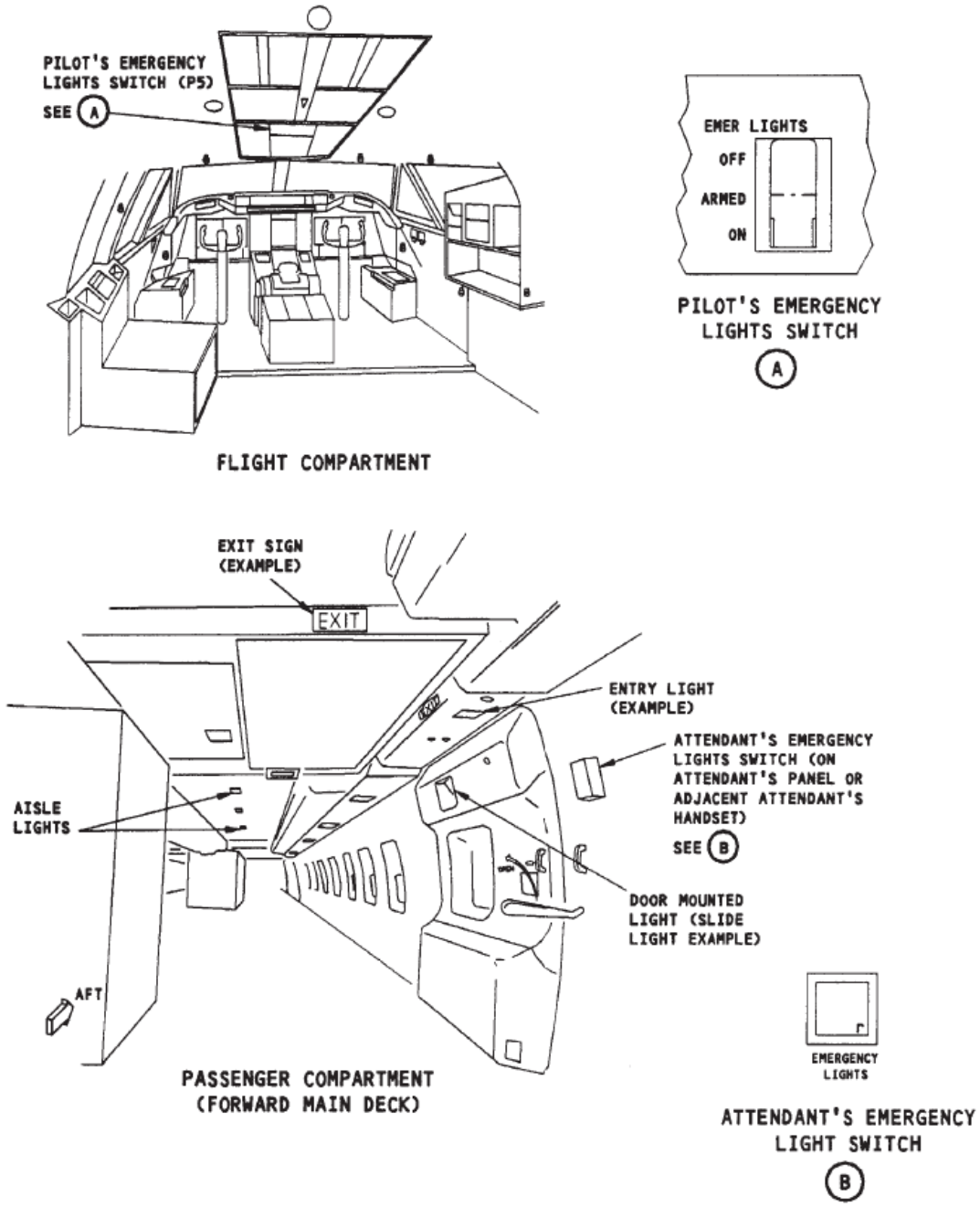


Figure 33–51–1.1 – INTERIOR EMERGENCY EXIT LIGHTS – LOCATION

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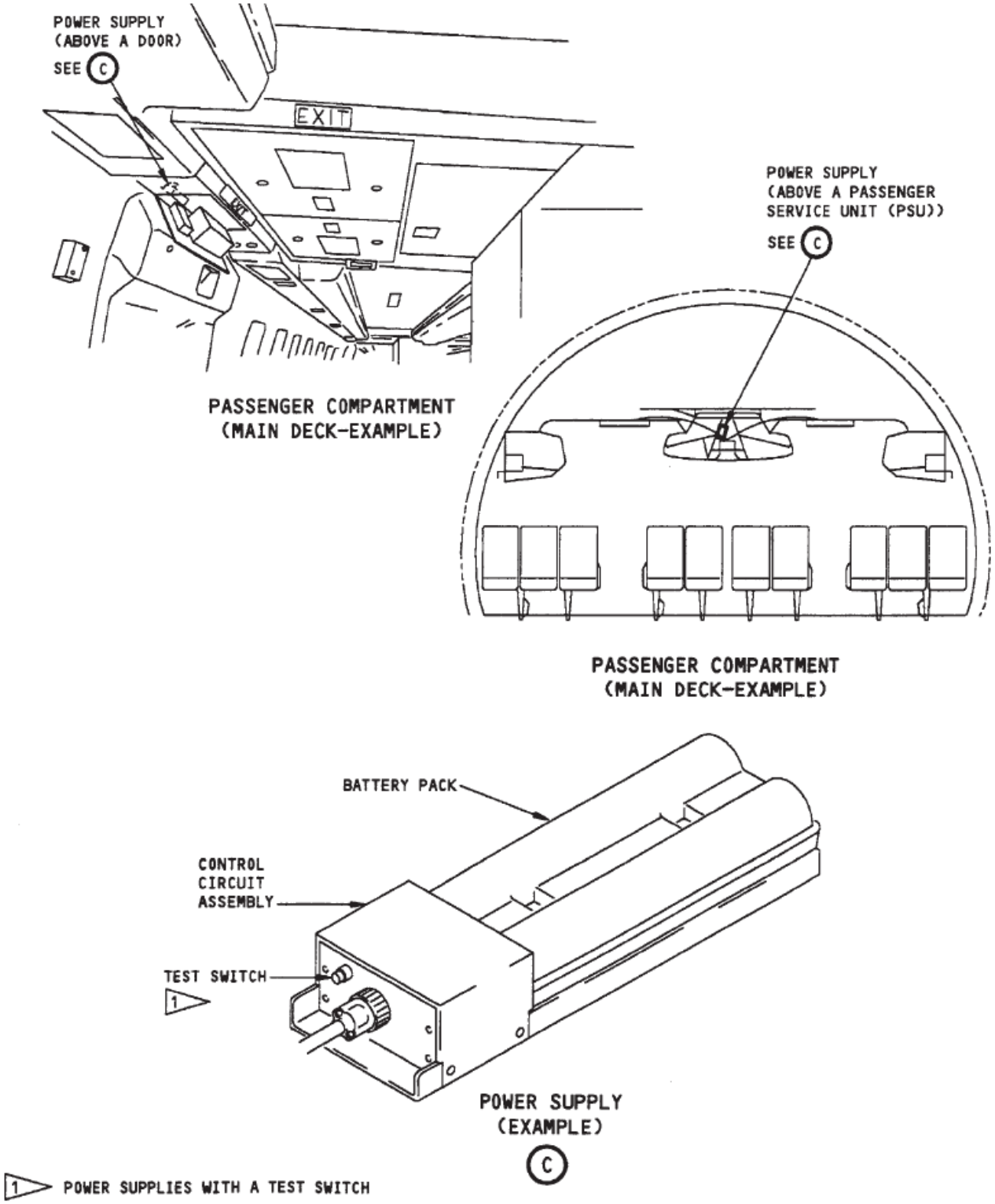


Figure 33–51–1.2 – INTERIOR EMERGENCY EXIT LIGHTS – LOCATION

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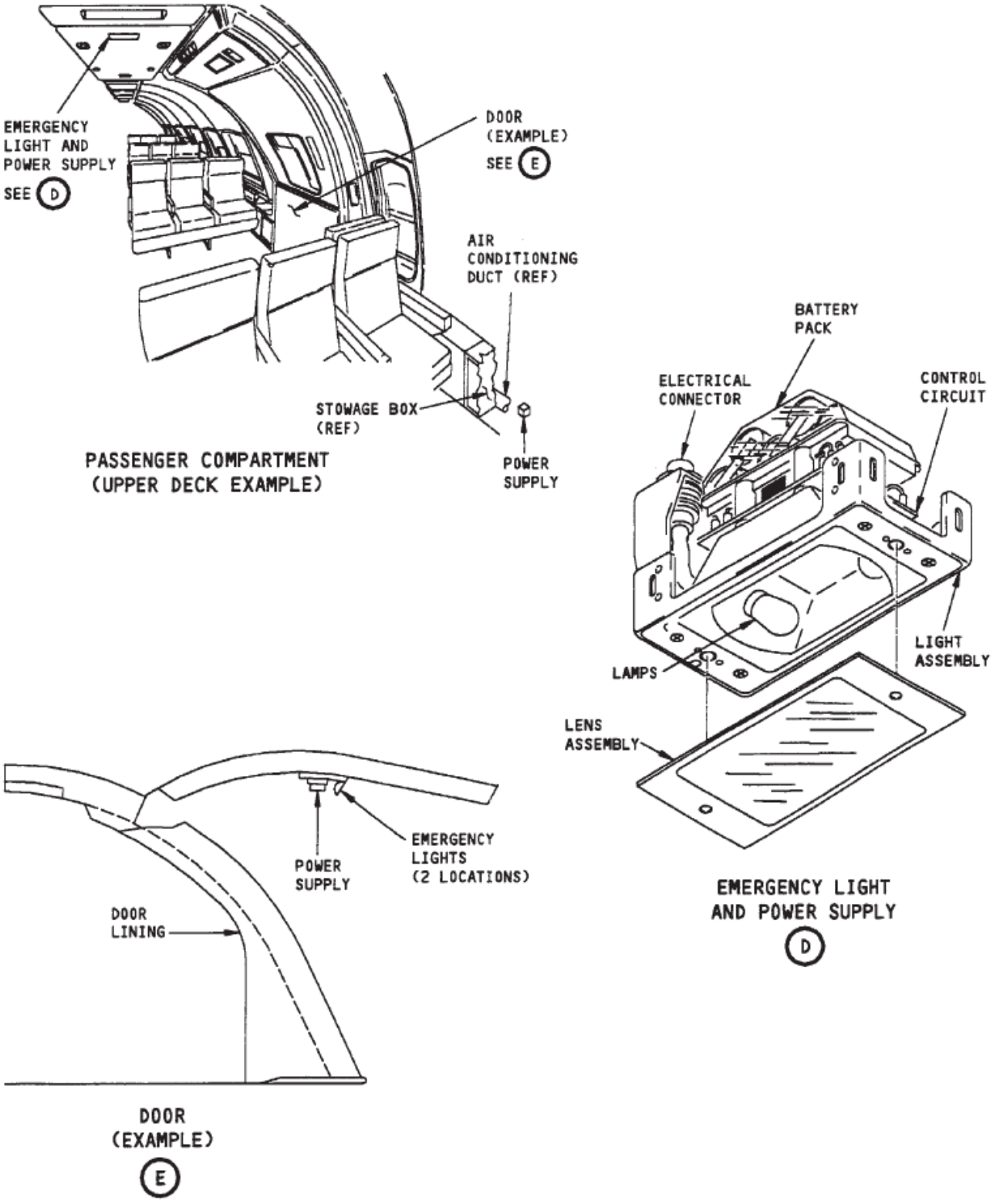


Figure 33–51–1.3 – INTERIOR EMERGENCY EXIT LIGHTS – LOCATION

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-51-02A	Exterior Emergency Lighting System **"DISP.APPR.REQ'D"**	**N**	1	0	**A**	**(M)(O)** May be inoperative provided: a) Associate main entry door/slide is considered inoperative and deferred per MEL 52-11-01, and b) Repairs are made in one flight day.
33-51-02B	Exterior Emergency Lighting System **"DISP.APPR.REQ'D"**	**Y**	1	0	**B**	May be inoperative for day operations.

MEL ITEM	TAB LOCATION	PLACARD TEXT
33-51-02A	Adjacent To EMER LIGHTS Control Switch On P5 Overhead Panel	___ EXTERIOR EMERGENCY LIGHT(S) IS INOP
33-51-02B	Adjacent To EMER LIGHTS Control Switch On P5 Overhead Panel	___ EXTERIOR EMERGENCY LIGHT(S) IS INOP

(O) PROCEDURES

33-51-02A

Accomplish MEL item 52–11–01 (O) procedures.

(M) PROCEDURES

33-51-02A

Defer the affected door inoperative per MEL item 52–11–01.

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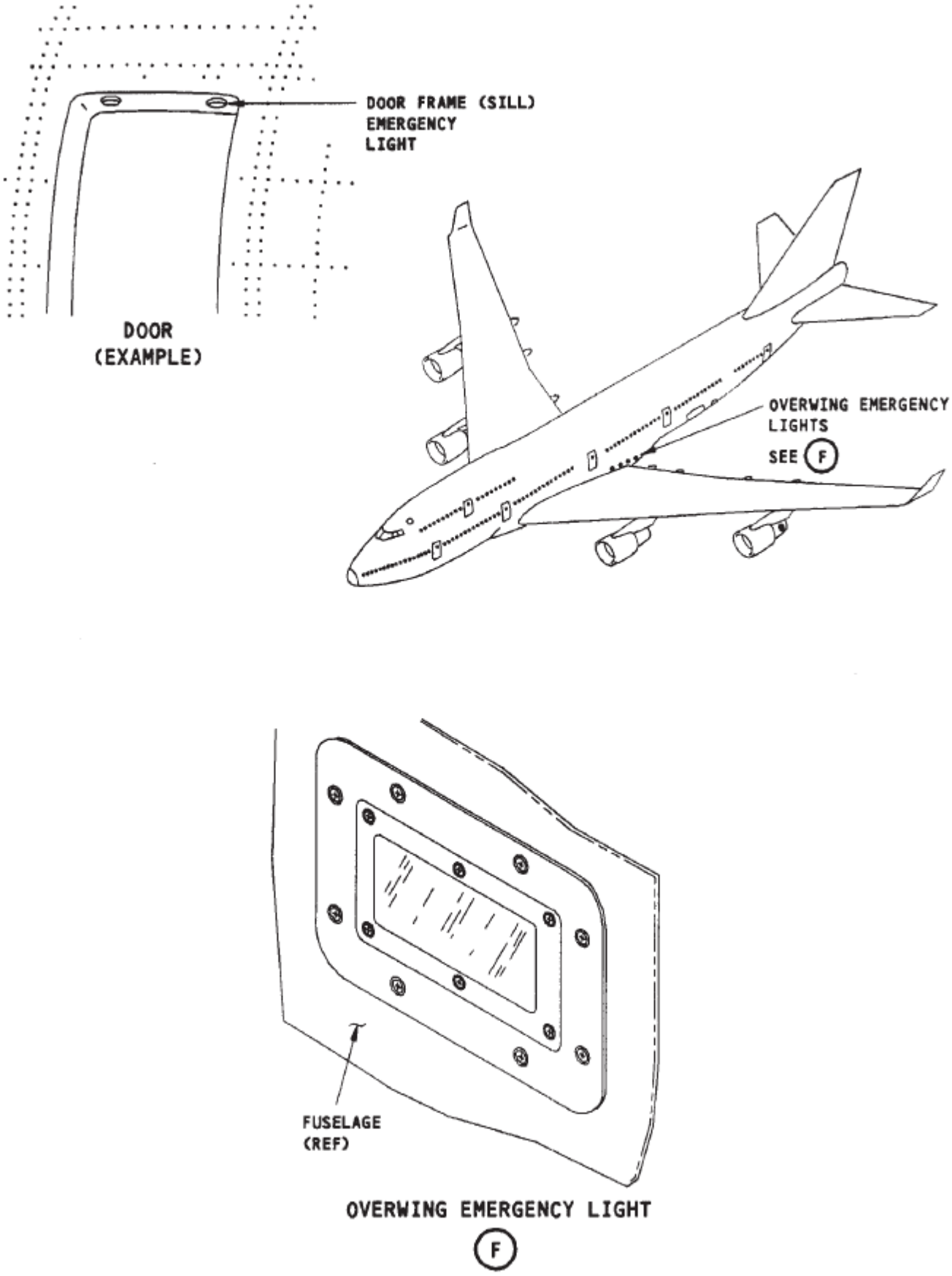


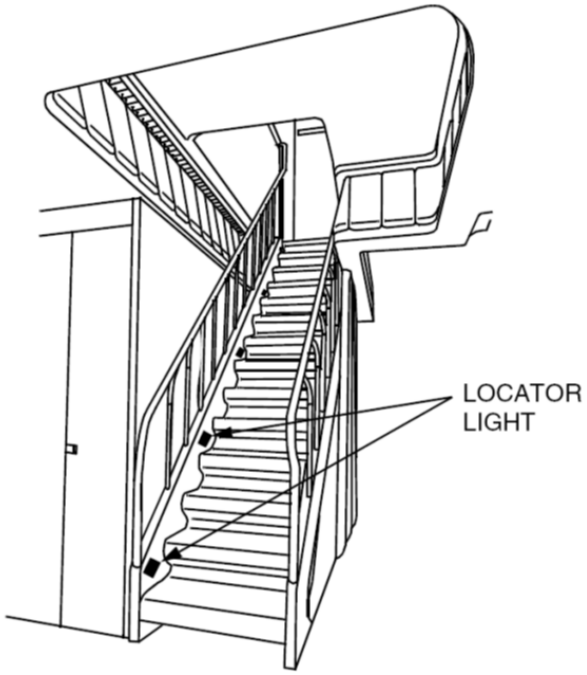
Figure 33–51–2 – EXTERIOR EMERGENCY EXIT LIGHTS – LOCATION

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
33-51-03A	Floor Proximity Emergency Path Marking System (Main Deck)	**Y**	1	1	**C**	Individual lights may be inoperative provided the following minimum acceptable lighting levels are complied with: a) Incandescent floor marker lights installed in the main aisles, cross aisles and galley areas may be inoperative provided: 1) No two adjacent floor marker lights are inoperative. 2) All end marker lights adjacent to exit doors must be operative. 3) Both outer lights in the cross aisles or galley areas must be operative., b) All incandescent floor marker lights installed on galley stanchions must be operative. c) A maximum of three lamps at random positions in each exit identifier may be inoperative. d) Floor proximity light covers must be installed on all operative lights. NOTE: All interior Emergency Exit Sign light covers must be installed.
33-51-03B	Floor Proximity Emergency Path Marking System (Upper Deck)	**Y**	1	1	**C**	Individual lights may be inoperative provided the following minimum acceptable lighting levels are complied with: a) Incandescent floor marker lights installed in the main aisles (floor mounted or seat mounted) may be inoperative provided: 1) No two adjacent floor marker lights are inoperative. 2) End aisle floor marker light adjacent to exit doors or top step of the stairway must be operative. b) A maximum of three lamps at random positions in each exit identifier may be inoperative. c) Floor proximity light covers must be installed on all operative lights. NOTE: All interior Emergency Exit Sign light covers must be installed.

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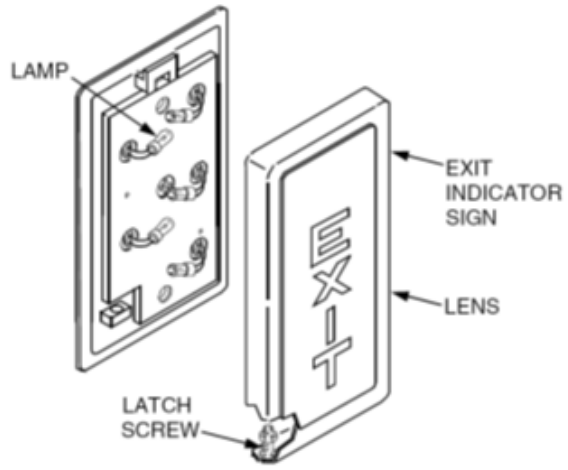
NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
33-51-03C	Floor Proximity Emergency Path Marking System (Stairway)	**Y**	1	1	**C**	Individual lights may be inoperative provided the following minimum acceptable lighting levels are complied with: a) No two adjacent stairway locator lights may be inoperative. b) Stairway floor proximity light covers must be installed on all operative lights. NOTE: All interior Emergency Exit Sign light covers must be installed.

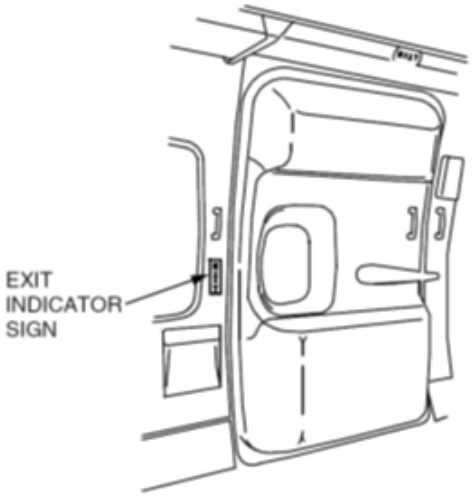
MEL ITEM	TAB LOCATION	PLACARD TEXT
33-51-03A	Adjacent To EMER LIGHTS Control Switch On P5 Overhead Panel	___ MAIN DECK FLOOR PROXIMITY LIGHT(S) INOP
33-51-03B	Adjacent To EMER LIGHTS Control Switch On P5 Overhead Panel	___ UPPER DECK FLOOR PROXIMITY LIGHT(S) INOP
33-51-03C	Adjacent To EMER LIGHTS Control Switch On P5 Overhead Panel	___ STAIRWAY FLOOR PROXIMITY LIGHT(S) INOP



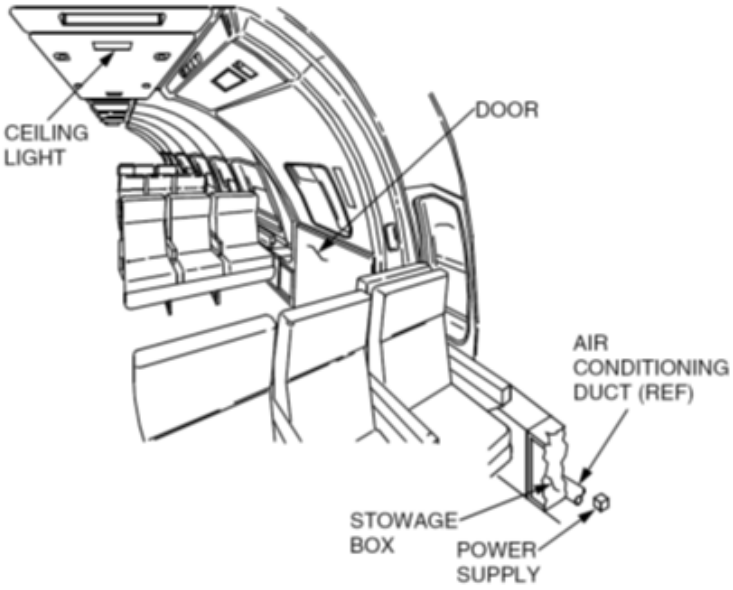
STAIRWAY

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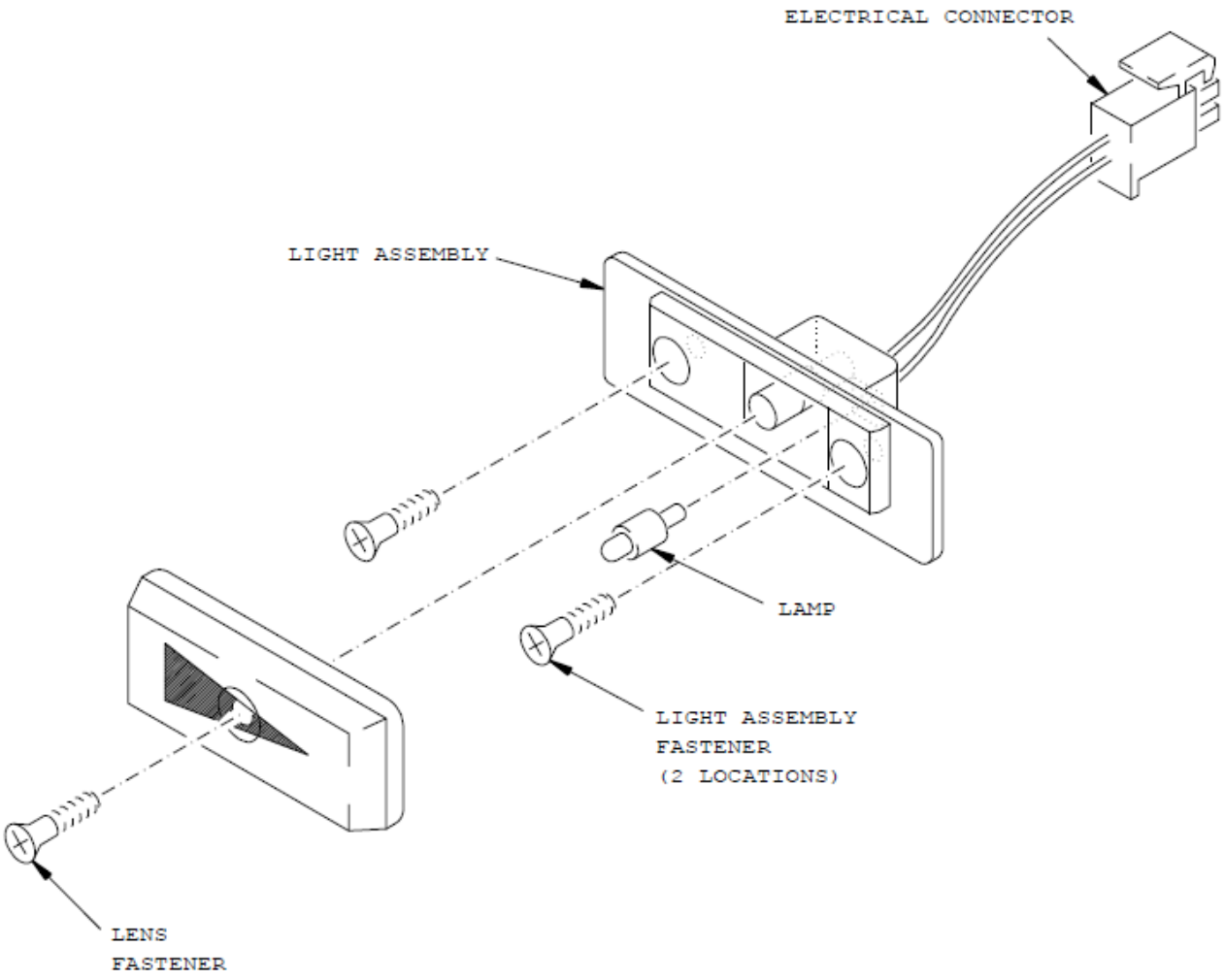


TYPICAL DOOR



PASSENGER COMPARTMENT
(UPPER DECK - EXAMPLE)

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TYPICAL AISLE LOCATOR LIGHT ON SEAT ASSEMBLY

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NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-00-00L LLM Category II/III Status **"DISP.APPR.REQ'D"** Administrative Control Item	**N**	-	-		**(M)** Aircraft restricted to CAT I due to AMT is non-AFQ authorized. Aircraft restricted from autopilot coupled Autoland. a) This Item Number is only used for deferring the Autoland status of the aircraft and MCC authorization is required prior to its usage or removal. CAT II/III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-00-00L	Adjacent To Each PFD	AUTOLAND NOT AUTHORIZED

(M) PROCEDURES

1. Create a new log page in the aircraft logbook using the appropriate MEL Item Number (contact MCC for instructions).
2. The deferral code LLM must also be entered on the log page and the placard when deferring this item.
3. MCC authorization is required prior to its usage or removal.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
34-00-05R	RNP–5 Status (BRNAV) **"DISP.APPR.REQ'D"**	**N** -	-		**(M)** Authorized by MCC when: a) RNP-5 (BRNAV) airspace operations cannot be used, and b) No specific MEL item applies. NOTE: This Item Number is only used for deferring the RNP-5 (BRNAV) status of the aircraft and MCC authorization is required prior to its usage or removal. <u>RNP-5 (BRNAV) Operations</u> Not Authorized
34-00-10R	RNP–10 Status **"DISP.APPR.REQ'D"**	**N** -	-		**(M)** Authorized by MCC when: a) RNP-10 airspace operations cannot be used, and b) No specific MEL item applies. NOTE: This Item Number is only used for deferring the RNP-10 status of the aircraft and MCC authorization is required prior to its usage or removal. <u>RNP-10 Operations</u> Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-00-05R	Adjacent To Each PFD	RNP–5 (BRNAV) AIRSPACE OPERATIONS NOT AUTHORIZED
34-00-10R	Adjacent To Each PFD	RNP–10 AIRSPACE OPERATIONS NOT AUTHORIZED.

(M) PROCEDURES

34-00-05R, 34-00-10R

1. Create a new log page in the aircraft logbook using the appropriate MEL Item Number (contact MCC for instructions).
2. The deferral code RNP must also be entered on the log page and the placard when deferring this item.
3. MCC authorization is required prior to its usage or removal.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-00-01A	Instrument Source Select Switches (FLT DIR, NAV, EIU, IRS, AIR DATA)	**Y**	10	-	**C**	**(M)(O)** May be inoperative provided: a) Associated instruments operate from isolated sources, and b) Inoperative switches are not moved in flight.
34-00-01B	Auto-Select Feature	**Y**	2	0	**C**	**(M)** May be inoperative provided source is verified.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-00-01A	Adjacent To Appropriate Instrument Source Select Switch	___ INSTRUMENT SOURCE SELECT SWITCH INOP
34-00-01B	Adjacent To EIU Source Select Switch	EIU AUTO SELECT FEATURE INOP

(O) PROCEDURES

34-00-01A

1. Inoperative switches must not be moved by the flight crew after maintenance has positioned them per the MEL procedure.
2. One or more switches may be inoperative provided the instruments associated with one pilot's switch, and the instruments associated with the corresponding switch for the other pilot, operate from isolated sources.

   NOTE: Taking into account the design of the IDS, the wording of the above may not include both pilots instruments operating from the same EIU.

(M) PROCEDURES

34-00-01A

To dispatch with Instrument Source Select Switch(es) inoperative:

1. Position Captain's or First Officer's unaffected Source Select Switch(es) so that both pilot's instruments are operating from different sources.
2. Confirm the following advisory messages are not displayed:

   >SOURCE SEL ADC
   >SOURCE SEL EIU
   >SOURCE SEL F/D
   >SOURCE SEL IRS
   >SOURCE SEL NAV

34-00-01B

Verify source for inoperative EIU Auto–Select feature

1. Select L on Captain's EIU source selector and R or C on First Officer's selector.
2. Confirm >SOURCE SEL EIU advisory message is not displayed.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-11-01	Static Air Temperature (SAT) Indications	**Y**	-	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-11-01	Adjacent To The Lower EICAS Display	SAT INDICATION IS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-11-02	Pitot/Static Probe Source Select Valves	**Y**	2	0	**C**	May be inoperative provided left and right ADCs operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-11-02	Adjacent To Upper EICAS display	___ PITOT/STATIC PROBE SOURCE SELECT VALVES INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-12-01	Air Data Computer System (ADC)	**Y**	3	2	**C**	**(O)** May be inoperative provided at least the left, and one other ADC operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-12-01	Adjacent To Captain's And First Officers Air Data Switch On Both Instr. Source Select Switches	___ AIR DATA COMPUTER SYSTEM INOP

(O) PROCEDURES

Ensure the Left ADC operates normally.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-12-02A	Total Air Temperature Indication	**Y**	1	0	**C**	**(O)** May be inoperative provided Static Air Temperature (SAT) indication is available.
34-12-02B	Total Air Temperature Indication (Total Air Temperature Probes)	**Y**	2	1	**C**	One may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-12-02A	Adjacent To Lower EICAS Display	TAT INDICATION IS INOP
34-12-02B	Adjacent To Lower EICAS Display	___ TAT PROBE IS INOP

(O) PROCEDURES

34-12-02A

Ensure SAT indication is available.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-13-01A	Mach Indications **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** One may be inoperative provided flight descends to FL 290 or below if failure of the second indication occurs in flight.
34-13-01B	Mach Indications **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided flight remains at or below FL 290.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-13-01A	Adjacent To Captain & First Officer's PFD	___ MACH INDICATION IS INOP
34-13-01B	To Both PFD's	BOTH MACH INDICATORS INOP, ALTITUDE LIMITED TO FL290

(O) PROCEDURES

34-13-01A

Descend to FL290 or below if second indication failure occurs in flight.

34-13-01B

Aircraft to limit altitude to FL290 or below.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-13-02	Mach/Airspeed Warning Systems **"Contact MCC"**	**Y**	2	1	**B**	One (Captain's or F/O's) may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-13-02	Adjacent To The Master/Caution Warning Lights	___ MACH/AIRSPEED WARNING SYSTEM INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-13-03	Standby Altimeter Vibrator **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided VMC conditions exist at departure and arrival airports.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-13-03	On Inoperative Indicator	STANDBY ALTIMETER VIBRATOR IS INOP

(O) PROCEDURES

Verify VMC conditions exist at departure and arrival airports.

	NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-13-04	True Airspeed Indications	**Y**	-	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-13-04	Adjacent To Both Primary Flight Displays	___ TRUE AIRSPEED INDICATIONS ARE INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-16-01A	Altitude Alerting System **"DISP.APPR.REQ'D"**	**Y**	1	0	**A**	**(O)** May be inoperative provided: a) Autopilot with altitude hold and altitude capture operates normally, b) Airplane does not depart from DTW, MSP or NRT where repair or replacement can be made, c) Repairs are made within three flight days, and d) The airplane is limited to FL280 or below. <u>RVSM Operations</u> Not Authorized
34-16-01B	Altitude Alerting System (Aural Alert)	**Y**	1	0	**C**	May be inoperative provided: a) Visual alert operates normally, and b) Auto-pilot with altitude hold and altitude capture operates normally.
34-16-01C	Altitude Alerting System (Visual Alert)	**Y**	1	0	**C**	May be inoperative provided: a) Aural alert operates normally, and b) Autopilot with altitude hold and altitude capture operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-16-01A	Adjacent To Upper EICAS Display	ALTITUDE ALERTING SYSTEM INOP
34-16-01B	Adjacent To Upper EICAS Display	ALTITUDE AURAL ALERT INOP
34-16-01C	Adjacent To Upper EICAS Display	ALTITUDE VISUAL ALERT INOP

(O) PROCEDURES

24-16-01A

1. RVSM operations – Not Authorized. Limit altitude to FL280 or below.
2. Utilize Altitude Hold function of Autopilot,
3. Use standard altitude awareness during climbs and descents.
4. Be aware that the usual alerts for altitude deviations will not occur.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
34-21-01A	Inertial Reference Units (IRUs) (Center) **"DISP.APPR.REQ'D"**	**Y** 3	2	**C**	**(O)** Center IRU may be inoperative provided: a) Flight is not conducted in areas of magnetic unreliability, b) Flight is not conducted on polar routes, and c) RNAV procedures do not require its use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. NOTE: Areas of magnetic unreliability are established in the Canadian AIP (Northern Domestic Airspace in Canada). CAT III - Polar Operations Not Authorized
34-21-01B	Inertial Reference Units (IRUs) (Right) (A/C 6315–6316) **"DISP.APPR.REQ'D"**	**Y** 3	2	**C**	**(O)** Right IRU may be inoperative provided: a) Standby power to the Captain's ND is available, b) Flight is not conducted in areas of magnetic unreliability, c) Flight is not conducted on polar routes, and d) RNAV procedures do not require its use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements NOTE: Areas of magnetic unreliability are established in the Canadian AIP (Northern Domestic Airspace in Canada). CAT III - Polar Operations Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-21-01A	Adjacent To IRU Switch On Instrument Source Select Switch Panel (Captain's & First Officer's)	CENTER IRU IS INOP
34-21-01B	Adjacent To IRU Switch On Instrument Source Select Switch Panel (Captain's & First Officer's)	RIGHT IRU IS INOP

(O) PROCEDURES

34-21-01A, 34-21-01B

1. Do not operate on polar routes.
2. Do not operate in areas of magnetic unreliability.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-21-02	IRS “ON BAT” Light	**N**	1	0	**C**	**(M)** May be inoperative provided the ground crew call horn is verified to operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-21-02	Adjacent To IRS “ON BAT” Light	IRS “ON BAT” LIGHT INOP

(M) PROCEDURE

To verify the ground crew horn is operating:

1. Momentarily open the P180 panel IRS ON BATTERY circuit breaker and confirm that the ground crew horn is operating normally. (AMM 23-43-00/3)
2. Close the opened circuit breaker.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-22-01A	Non-Stabilized Magnetic Compass (Standby) **"Contact MCC"**	**Y**	1	0	**B**	May be inoperative provided three IRUs operate normally.
34-22-01B	Non-Stabilized Magnetic Compass (Standby) **"DISP.APPR.REQ'D"**	**Y**	1	0	**B**	**(O)** May be inoperative provided: a) Any combination of two IRUs operate normally, and b) Airplane is operated with dual independent navigation capability and under positive radar control by ATC on the enroute portion of the flight.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-22-01A	On Standby Compass	STANDBY COMPASS IS INOP
34-22-01B	On Standby Compass	STANDBY COMPASS IS INOP

(O) PROCEDURES

34-22-01B

1. Ensure that two IRU's operate normally.
2. Operate only under positive radar control by ATC.
3. Operate aircraft with dual independent navigation equipment and remain under positive radar control by ATC on the enroute portion of the flight.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-22-02	Standby Radio Magnetic Indicator (RMI) (A/C 6315–6316)	**Y**	1	0	**C**	May be inoperative provided standby power to Captain's ND is available.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-22-02	Adjacent To Standby Radio Magnetic Indicator (RMI)	STANDBY RADIO MAGNETIC INDICATOR INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-22-03A	Flight Director Systems **"DISP.APPR.REQ'D"**	**Y**	3	0	**C**	**(O)** One may be inoperative provided RNAV operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. CAT II Not Authorized
34-22-03B	Flight Director Displays **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** Both may be inoperative provided RNAV operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. NOTE: Windshear guidance may be unavailable. CAT II Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-22-03A	Adjacent To Inoperative PFD Or NAV Display	___ FLIGHT DIRECTOR SYSTEM INOP
34-22-03B	Adjacent To Inoperative PFD Or NAV Display	_____ FLIGHT DIRECTOR DISPLAYS INOP

(O) PROCEDURES

34-22-03A

CAT II – Not Authorized.

CAT III – **None Required**.

34-22-03B

At least one autopilot must be operative for RNAV Departure Procedures, RNAV Arrival Procedures, PRNAV Procedures, and Q–Routes.

CAT III – **None Required.**

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
STANDBY ATTITUDE/ILS INDICATION					
34-22-04A Attitude **"DISP.APPR.REQ'D"**	**Y**	1	0	**B**	**(O)** May be inoperative provided: a) Operations are conducted in Day VMC only, and b) 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.
34-22-04B ILS **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** ILS indication only may be inoperative provided flight is restricted to VMC conditions at departure and arrival airports.
34-22-04C ILS (A/C 6315–6316)	**Y**	1	0	**C**	May be inoperative provided standby power to Captain's PFD/ND is available.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-22-04A	Adjacent To The Standby Attitude/ILS indicator	STANDBY ATTITUDE INOP
34-22-04B	Adjacent To The Standby Attitude/ILS indicator	STANDBY ILS INOP
34-22-04C	Adjacent To The Standby Attitude/ILS indicator	STANDBY ILS INOP.

(O) PROCEDURES

34-22-04A

Limit operation to day VMC only.

34-22-04B

Limit operation to VMC only conditions at departure and arrival airports.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED: FLIGHT CREW MAY PLACARD	NUMBER INSTALLED	NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
34-31-01A	Instrument Landing System (ILS) (Center or Right Localizer) **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** One may be inoperative. CAT III Not Authorized
34-31-01B	Instrument Landing System (ILS) (Center and Right Localizer) **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** Both may be inoperative provided destination weather is not less than 4000 RVR, 3/4 mi. CAT II/III Not Authorized
34-31-01C	Instrument Landing System (ILS) (Glide Slope) Right **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided when any two independent glide slopes are inoperative, no approaches are conducted which require a glide slope. CAT II operations require 2 LLM operative systems. NOTE: When the Right and Center glide slopes are inoperative, the Left glide slope may be referenced but approach minimums must be predicated on non–precision approaches. CAT III Not Authorized
34-31-01D	Instrument Landing System (ILS) (Glide Slope) Center **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided when any two independent glide slopes are inoperative, no approaches are conducted which require a glide slope. CAT II operations require 2 LLM operative systems. NOTE: When the Right and Center glide slopes are inoperative, the Left glide slope may be referenced but approach minimums must be predicated on non–precision approaches. CAT III Not Authorized
34-31-01E	Excessive Beam Deviation Feature **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** One may be inoperative. CAT III Not Authorized
34-31-01F	Excessive Beam Deviation Feature **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative. CAT II/III Not Authorized

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MEL ITEM	TAB LOCATION	PLACARD TEXT
34-31-01A	On Captain's And F/O's CDU	___ LOCALIZER SYSTEM INOP
34-31-01B	On Captain's And F/O's CDU	BOTH LOCALIZER SYSTEMS INOP
34-31-01C	On Captain's And F/O's CDU	RIGHT GLIDE SLOPE SYSTEM INOP
34-31-01D	On Captain's And F/O's CDU	CENTER GLIDE SLOPE SYSTEM INOP
34-31-01E	Adjacent To Captain's and F/O's PFD	___ EXCESSIVE BEAM DEVIATION FEATURE INOP
34-31-01F	Adjacent To Captain's and F/O's PFD	EXCESSIVE BEAM DEVIATION FEATURE INOP

(O) PROCEDURES

34-31-01A

CAT III – Not Authorized.

34-31-01B

CAT II – Not Authorized.

CAT III – Not Authorized.

34-31-01C

CAT II operations require 2 of 3 systems be LLM operative.

CAT III – Not Authorized.

34-31-01D

CAT II operations require 2 of 3 systems be LLM operative.

CAT III – Not Authorized.

34-31-01E

CAT III – Not Authorized.

34-31-01F

CAT II – Not Authorized.

CAT III – Not Authorized.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	ILS ANTENNA SWITCHING					
34-31-02A	Center or Right Glide Slope **"DISP.APPR.REQ'D"**	**Y**	3	2	**C**	**(O)** Center or right may be inoperative. CAT III Not Authorized
34-31-02B	Center and Right Glide Slope **"DISP.APPR.REQ'D"**	**Y**	3	1	**C**	**(O)** Center and right may be inoperative provided no approaches are conducted which require a glide slope. NOTE: When the Right and Center glide slopes are inoperative, the Left glide slope may be referenced but approach minimums must be predicated on non–precision approaches. CAT II/III Not Authorized
34-31-02C	Center or Right Localizer **"DISP.APPR.REQ'D"**	**Y**	3	2	**C**	**(O)** Center or right may be inoperative. CAT III Not Authorized
34-31-02D	Center and Right Localizer **"DISP.APPR.REQ'D"**	**Y**	3	1	**C**	**(O)** Center and right may be inoperative provided destination weather is not less than 4000 RVR, 3/4 mi. CAT II/III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-31-02A	Adjacent To Both PDF's	___ GLIDE SLOPE ANTENNA SWITCH INOP
34-31-02B	Adjacent To Both PDF's	CENTER AND RIGHT GLIDE SLOPE ANTENNA SWITCHES INOP
34-31-02C	Adjacent To Both PDF's	___ LOCALIZER ANTENNA SWITCH INOP
34-31-02D	Adjacent To Both PDF's	CENTER AND RIGHT LOCALIZER ANTENNA SWITCHES INOP

(O) PROCEDURES

34-31-02A, 34-31-02C, 34-31-02D

Confirm that the associated ILS receiver is not required for planned approach.

34-31-02B

Confirm that the glide slope is not required for planned approach.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-32-01A	Navigation Systems (Marker Beacon) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative for IMC flight conditions provided approach to be flown does not require outer marker beacon for navigation or an approved outer marker substitute is available. Example: compass locator, precision radar, surveillance radar, or fix from NDB, VOR or DME.
34-32-01B	Navigation Systems (Marker Beacon) **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative for VMC flight conditions.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-32-01A	Adjacent To Marker Switch On Audio Control Panel	MARKER BEACON INOP
34-32-01B	Adjacent To Marker Switch On Audio Control Panel	MARKER BEACON INOP

(O) PROCEDURES

34-32-01A, 34-32-01B

CAT II – Not Authorized, at airports where approach states "RA NOT AUTH".

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	RADIO ALTIMETERS (RA)					
34-33-01A	Center RA **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative. CAT II operations require 2 LLM operative systems. CAT III Not Authorized
34-33-01B	Right RA **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative. CAT II operations require 2 LLM operative systems. CAT III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-33-01A	Adjacent To The MINS Switch On The EFIS Control Panel	CENTER RADIO ALTIMETER SYSTEM INOP
34-33-01B	Adjacent To The MINS Switch On The EFIS Control Panel	RIGHT RADIO ALTIMETER SYSTEM INOP

(O) PROCEDURES

34-33-01A, 34-33-01B

1. CAT II operations require 2 of 3 systems be LLM operative.
2. CAT III – Not Authorized.
3. For one Radio Altimeter inoperative, status message NO LAND 3 will be displayed.
4. For more than one Radio Altimeter inoperative, status message NO AUTOLAND will be displayed.
5. For Right RA inoperative: For proper operation of the Autopilot Flight Director System (AFDS) takeoff and approach modes, an operative RA and FCC on the same side (L/R) is required.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-43-01A	Weather Radar System	**Y**	2	1	**D**	One may be inoperative
34-43-01B	Weather Radar System **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** Both may be inoperative provided: a) One operative weather radar system is required when current weather reports indicate thunderstorms or other potentially hazardous weather conditions, which can be detected by airborne weather radar, can reasonably be expected to be encountered along the route to be flown, and b) Reactive windshear alert (GPWS Mode 7) operates normally. Theater Restrictions May Apply
34-43-01C	Weather Radar System (Auxiliary Side Panel Displays)	**Y**	2	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-43-01A	Adjacent To WXR SWITCH ON EFIS Control Panels	___ WEATHER RADAR SYSTEM INOP
34-43-01B	Adjacent To WXR SWITCH ON EFIS Control Panels	BOTH WEATHER RADAR SYSTEM INOP
34-43-01C	On Affected Display	___ WEATHER RADAR SYSTEM AUX SIDE PANEL DISPLAY INOP

(O) PROCEDURES

34-43-01B

Ensure the route to be flown meets the requirements of the Remarks & Exceptions column.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-45-01A	Traffic Collision and Avoidance System (TCAS) **"DISP.APPR.REQ'D"**	**Y**	1	0	**B**	**(M)(O)** May be inoperative provided: a) System is deactivated and secured, and b) Routing restrictions for TCAS are observed. Theater Restrictions May Apply
34-45-01B	Traffic Collision and Avoidance System (TCAS) Resolution Advisory (RA) Display Systems	**Y**	2	1	**C**	One may be inoperative on the non-flying pilot side.
34-45-01C	Traffic Collision and Avoidance System (TCAS) Resolution Advisory (RA) Display Systems **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	**(O)** May be inoperative provided: a) Traffic Alert (TA) visual display and audio functions are operative, b) TA only mode is selected by the crew, and c) Routing restrictions for TCAS are observed. Theater Restrictions May Apply
34-45-01D	Traffic Collision and Avoidance System (TCAS) Traffic Alert (TA) Display Systems **"DISP.APPR.REQ'D"**	**Y**	-	0	**C**	**(O)** May be inoperative provided: a) RA visual display and audio functions are operative, and b) Routing restrictions for TCAS are observed. Theater Restrictions May Apply
34-45-01E	Traffic Collision and Avoidance System (TCAS) Audio Functions **"DISP.APPR.REQ'D"**	**Y**	1	0	**B**	**(O)** May be inoperative provided routing restrictions for TCAS are observed. Theater Restrictions May Apply

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-45-01A	Adjacent To TCAS Selector On ATC Control Panel	TCAS INOP AND DEACTIVATED
34-45-01B	Adjacent To Affected Display	___ RESOLUTION ADVISORY (RA) DISPLAY SYSTEM INOP
34-45-01C	Adjacent To Affected Display	RESOLUTION ADVISORY (RA) DISPLAY SYSTEM INOP
34-45-01D	Adjacent To Affected Display	TRAFFIC ALERT (TA) DISPLAY SYSTEM INOP
34-45-01E	ATC Control Panel	AUDIO FUNCTIONS INOP

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(O) PROCEDURES

34-45-01A, 34-45-01E

1. TCAS must be operative on routes outbound from the Continental United States to destinations outside the Continental United States, except Canada.

34-45-01C

1. TCAS must be operative on routes outbound from the Continental United States to destinations outside the Continental United States, except Canada.
2. Select TA mode. Observe operative indications and advisories. Respond as appropriate.

34-45-01D

1. TCAS must be operative on routes outbound from the Continental United States to destinations outside the Continental United States, except Canada.
2. Observe operative indications and advisories. Respond as appropriate.

(M) PROCEDURES

34-45-01A

Open and collar the TCAS (7A5) circuit breaker.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
	GROUND PROXIMITY WARNING SYSTEM (GPWS)					
34-46-01A	Modes 1 thru 4	**N**	4	4		NO RELIEF APPROVED
34-46-01B	Test Mode	**N**	1	1		NO RELIEF APPROVED
34-46-01C	Glideslope Deviation(s) (Mode 5) **"Contact MCC"**	**Y**	1	0	**B**	**(O)** May be inoperative.
34-46-01D	Windshear Alert Mode (Reactive) (Mode 7) **"DISP.APPR.REQ'D"**	**Y**	1	0	**B**	**(O)** May be inoperative provided takeoffs, approaches and landings are not conducted when windshear of greater than 15 kts (plus or minus) at or below 1000 ft and/or microburst alerts are in effect for the runway of intended use.
34-46-01E	Forward Looking Terrain Avoidance (FLTA) and Premature Descent Alert (PDA) Functions **"Contact MCC"**	**Y**	1	0	**B**	**(O)** May be inoperative provided alternate procedures are used.
34-46-01F	Terrain Display Functions	**Y**	2	1	**C**	May be inoperative.
34-46-01G	Terrain Display Functions **"Contact MCC"**	**Y**	2	0	**B**	May be inoperative

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-46-01C	On Ground Prox Warning Module	GPWS GLIDESLOPE DEVIATION (MODE 5) INOP
34-46-01D	On Ground Prox Warning Module	GPWS WINDSHEAR ALERT MODE (MODE 7) INOP
34-46-01E	On Ground Prox Warning Module	EGPWS TAWS INOP
34-46-01F	On Ground Prox Warning Module	___ GPWS EGPWS TERRAIN DISPLAY FUNCTIONS INOP
34-46-01G	On Ground Prox Warning Module	EGPWS TERRAIN DISPLAY FUNCTIONS INOP

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(O) PROCEDURES

34-46-01C

The pilot not flying will monitor the aircraft flight path and alert the pilot flying if deviating below glideslope.

34-46-01D

Reference Airway Manual, Section 4, and OM Volume I, Supplementary Section, Adverse Weather.

34-46-01E

The pilot not flying will monitor the aircraft flight path and alert the pilot flying to any terrain or obstacle awareness and warning situations

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-51-02	VOR Mode Selection Switching	**Y**	2	1	**C**	**(O)** One may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-51-02	Adjacent To Both EFIS Control Panels	___ VOR MODE SELECTOR IS INOP

(O) PROCEDURES

Ensure remaining mode selection switching is operable.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
34-53-01A	ATC Transponders (All Functions)	**Y**	2	1	**C**	One may be inoperative.
34-53-01B	ATC Transponders (All Functions) **"DISP.APPR.REQ'D"**	**N**	2	0	**B**	**(M)(O)** Both ATC Transponders (Including Automatic Altitude Reporting functions) may be inoperative for dispatch provided: a) Dispatch has notified the ATC facility(s) having jurisdiction over the airspace concerned prior to departure, b) TCAS is considered inoperative and deferred per MEL 34-45-01A, c) ATC approval has been obtained prior to flight, d) The airplane is limited to FL280 or below, and e) RNAV operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. RVSM – PRM Operations Not Authorized Theater Restrictions May Apply
34-53-01C	ATC Transponders (Automatic Altitude Reporting Function)	**Y**	2	1	**C**	One may be inoperative.
34-53-01D	ATC Transponders (Automatic Altitude Reporting Function) **"DISP.APPR.REQ'D"**	**N**	2	0	**B**	**(M)(O)** Both Automatic Altitude Reporting Functions may be inoperative for dispatch provided: a) Dispatch has notified the ATC facility(s) having jurisdiction over the airspace concerned prior to departure, b) TCAS is considered inoperative and deferred per MEL 34-45-01A, c) ATC approval has been obtained prior to flight, d) The airplane is limited to FL280 or below, and e) RNAV operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. RVSM – PRM Operations Not Authorized Theater Restrictions May Apply

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-53-01E	ATC Transponders (Elementary Downlink Aircraft Reportable Parameters not Required by 14 CFR) **"DISP.APPR.REQ'D"**	**Y**	4	0	**A**	May be inoperative provided repairs are made prior to completion of the next heavy maintenance visit. NOTE: Elementary parameters are: 1. Aircraft Identification (Flight ID). 2. Capability Report. 3. Pressure Altitude (25 ft or better resolution). 4. Flight Status.
34-53-01F	ATC Transponders (Enhanced Downlink Aircraft Reportable Parameters not Required by 14 CFR) **"DISP.APPR.REQ'D"**	**Y**	9	0	**A**	May be inoperative provided repairs are made prior to completion of the next heavy maintenance visit. NOTE: Enhanced parameters are: 1. Mag heading. 2. Indicated airspeed. 3. Mach number. 4. Vertical rate (baro or baro/inertial). 5. Roll angle. 6. Track angle rate. 7. True track angle. 8. Ground speed. 9. Selected altitude.
34-53-01G	ATC Transponders (ADS–B Squitter Transmissions) **"DISP.APPR.REQ'D"**	**Y**	-	0	**D**	May be inoperative provide operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
34-53-01A	On ATC Control Panel On AFT Panel P8.	___ TRANSPONDERS INOP, ALL FUNCTIONS
34-53-01B	On ATC Control Panel	BOTH TRANSPONDER(s) INOP, ALL FUNCTIONS
34-53-01C	On ATC Control Panel On AFT Panel P8.	___ AUTO ALT REPORTING FUNCTION INOP
34-53-01D	On ATC Control Panel On AFT Panel P8.	BOTH ATC TRANSPONDERS AUTOMATIC ALTITUDE REPORTING FUNCTIONS INOP
34-53-01E	On ATC Control Panel On Center Pedestal	___ ATC TRANSPONDER ELEMENTARY DOWNLINK AIRCRAFT REPORTABLE PARAMETER(S) INOP
34-53-01F	On ATC Control Panel On Center Pedestal	___ ATC TRANSPONDER ENHANCED DOWNLINK AIRCRAFT REPORTABLE PARAMETER(S) INOP
34-53-01G	On ATC Control Panel On Center Pedestal	ATC TRANSPONDER SQUITTER TRANSMISSION(S) INOP

(O) PROCEDURES

34-53-01B, 34-53-01D

1. RVSM operations – Not Authorized. Limit altitude to FL280 or below.
2. Precision Runway Monitor (PRM) approaches – Not Authorized.
3. PRIOR TO EACH DEPARTURE, ensure dispatch has obtained ATC approval for flight.
4. Comply with MEL item 34–45–01A (O) procedure.

(M) PROCEDURES

34-53-01B, 34-53-01D

Defer TCAS inoperative per MEL item 34–45–01A.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-55-01	Distance Measuring Equipment (DME) **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** One may be inoperative provided if the remaining DME fails enroute and GPS updating is not available, ATC is notified immediately.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-55-01	Adjacent To FMC Master Switch On Center Instrument Panel P–2	___ DISTANCE MEASURING EQUIPMENT INOP

(O) PROCEDURES

If the remaining DME fails enroute and GPS updating is not available, notify ATC immediately.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-57-01	Navigation Systems (ADF) **"DISP.APPR.REQ'D"**	**Y**	2	0	**C**	May be inoperative if dispatch not dependent on ADF use.

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-57-01	Adjacent To VOR/ADF Selector Switch On Audio Control Panel	___ ADF SYSTEM IS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-58-01A	Global Positioning System (GPS) **"DISP.APPR.REQ'D"**	**Y**	2	1	**C**	**(O)** May be inoperative provided: a) Destination and alternate airports do not require a RNAV (GPS) approach, and b) RNAV operations do not require its use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements.
34-58-01B	Global Positioning System (GPS) **"DISP.APPR.REQ'D"**	**Y**	2	0	C	**(O)** May be inoperative provided: a) Destination and alternate airports do not require a RNAV (GPS) approach, and b) RNAV operations do not require their use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. Theater Restrictions May Apply

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-58-01A	Adjacent To FMCS Control Display Units	___ GPS INOP
34-58-01B	Adjacent To FMCS Control Display Units	BOTH GPS INOP

(O) PROCEDURES

34-58-01A

Ensure destination and alternate airports do not require a RNAV (GPS) approach.

34-58-01B

1. RNAV procedures that require the use of GPS – Not Authorized.
2. Ensure destination and alternate airports do not require a RNAV (GPS) approach.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
	FLIGHT MANAGEMENT COMPUTER SYSTEMS (FMCS INCLUDES THRUST MANAGEMENT FUNCTION)					
34-61-01A	Left FMCS **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(M)(O)** One may be inoperative provided: a) Ground Proximity warning system (GPWS) is verified to operate normally PRIOR TO EACH DEPARTURE, b) Right FMCS operates normally, and c) RNAV operations do not require its use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. CAT III – Polar Operations Not Authorized Theater Restrictions May Apply **Repetitive Check Required (Yellow Placard)**
34-61-01B	Right FMCS **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) Left FMCS operates normally, and b) RNAV operations do not require its use. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. CAT III – Polar Operations Not Authorized Theater Restrictions May Apply

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NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
FLIGHT MANAGEMENT COMPUTER SYSTEMS (FMCS INCLUDES THRUST MANAGEMENT FUNCTION)					
34-61-01C Navigation Databases **"DISP.APPR.REQ'D"**	**Y**	-	-	**C**	**(O)** May be out of currency provided: a) Current Aeronautical Charts or current Nav Database are used to verify Navigation Fixes PRIOR TO EACH DEPARTURE, b) Pilot or Flight Control use charts or RVAL tool to verify status and suitability of Navigation Facilities used to define route of flight, c) Approach Navigation Radios are manually tuned and identified, and d) Dispatch will not file a flight plan requiring RNAV data that is identified as changed within the current database. Refer to Navigation Equipment Tab (this manual) for RNAV Minimum Requirements. Theater Restrictions May Apply **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-61-01A	Adjacent To FMC Selector Switch On P2 Center Instrument Panel	LEFT FMCS IS INOP
34-61-01B	Adjacent To FMC Selector Switch On P2 Center Instrument Panel	RIGHT FMCS IS INOP
34-61-01C	Adjacent To FMCS Control Display Units	___ NAVIGATION DATABASE(S) OUT OF CURRENCY

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(O) PROCEDURES

34-61-01A, 34-61-01B

1. PRNAV Procedures–Not Authorized.
2. The FMC Master Switch should be positioned to the operable FMC.
3. The pilot with the inoperative FMC must select the operating system on the NAV Source Select switch.
4. Do not operate on polar routes.
5. Do not operate in areas of magnetic unreliability.

34-61-01C

1. PRNAV Procedures–Not Authorized.
2. Enter flight plan into the affected FMCS(s) (waypoints, etc.) using standard FMCS procedures.
3. Cross check FMCS waypoints using current flight crew navigation charts or RVAL tool.
4. Manually tune and identify approach navigation radios.
5. Captain must ensure that after 2.5 hours in NAV, aircraft is not operating in RNP–5 (BRNAV) airspace, or
6. Captain must ensure that after 12.0 hours in NAV, aircraft is not operating in RNP–10 airspace

(M) PROCEDURES

34-61-01A

NOTE: FMCS's are interchangeable.

PRIOR TO EACH DEPARTURE:

1. Confirm the GND PROX SYS status message is not displayed.
2. When GND PROX SYS status message is displayed perform the following:
   a) Make sure the left IRU is initialized and aligned.
   b) On the P414 panel OPEN the CMC LEFT circuit breaker located at L8.
   c) Push the STATUS switch on the EICAS display select panel to set the status page.
   d) Prepare the CDU for the test:
      i) Push the MENU key on the CDU to show the menu.
      ii) Push the line select key adjacent to <CMC to show the CMC menu.
      iii) If <RETURN shows after you push the line select key, push the line select key adjacent to <RETURN until you see the CMC MENU.
      iv) Push the line select key adjacent to <GROUND TEST to show the GROUND TEST menu.
      v) Push the NEXT PAGE key until you find <34 NAVIGATION RADIOS.

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vi) Push the line select key that is adjacent to <34 NAVIGATION RADIOS to show the GROUND TESTS menu.

vii) Push the NEXT PAGE key until you find <GPWC.

NOTE: If INHIBIT shows above <GPWC, the test will not run.

viii) If INHIBIT shows above <GPWC:

(1) Push line select key that is adjacent to the test prompt.

(2) Do the steps shown on the CDU.

(3) Push the line select key that is adjacent to <RETURN to show the test menu again.

e) Push the line select key that is adjacent to <GPWC.

i) When the TEST PRECONDITIONS page shows, make sure each instruction on the page is completed.

NOTE: Push the NEXT PAGE key to see the subsequent pages.

f) Push the line select key that is adjacent to START TEST>.

NOTE: IN PROGRESS shows during the test

i) These messages will show at some time during the test:

NOTE: The sequence does not matter.

(1) GND PROX SYS – EICAS Advisory

(2) WINDSHEAR SYS – EICAS Advisory

(3) >ALT CALLOUTS – EICAS Advisory

(4) TERR POS – EICAS Advisory

(5) GND PROX SYS – EICAS Status

(6) WINDSHEAR REAC – EICAS Status

(7) TERR SYS – EICAS Status

(8) TERR TEST – ND’s

(9) TERR FAIL – ND’s

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g) Make sure the aural and visual indications are as follows:

AURAL	WARN LIGHTS
"GLIDESLOPE"	GND PROX Light (amber)
"PULL UP"	PULL UP (red) on PFD's Master Warning Light (red)
Two Tone Siren "WINDSHEAR" "WINDSHEAR" "WINDSHEAR"	WINDSHEAR (red) on PFD's
"TERRAIN, TERRAIN" "PULL UP"	TERRAIN (red) on ND's PULL UP (red) on ND's GND PROX Light (amber) and TERRAIN (amber) on ND's
"SINK RATE"	Off
"PULL UP"	Off
"TERRAIN"	Off
"PULL UP"	Off
"DON'T SINK	Off
"DON'T SINK	Off
"TOO LOW TERRAIN"	Off
"TOO LOW GEAR"	Off
"TOO LOW FLAPS"	Off
"TOO LOW TERRAIN"	Off
"GLIDESLOPE"	Off
"BANK ANGLE"	Off
"BANK ANGLE"	Off
"APPROACHING MINIMUMS"	Off
"MINIMUMS"	Off
"TWENTY FIVE HUNDRED"	Off
"ONE THOUSAND"	Off
"FIVE HUNDRED"	Off

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AURAL	WARN LIGHTS
“ONE HUNDRED”	Off
“FIFTY”	Off
“FORTY”	Off
“THIRTY”	Off
“TWENTY”	Off
“TEN”	Off
“FIVE HUNDRED”	Off
Two Tone Siren “WINDSHEAR” “WINDSHEAR” “WINDSHEAR”	Off
“TOO LOW TERRAIN”	Off
“CAUTION TERRAIN” “CAUTION TERRAIN” “TERRAIN, TERRAIN” “PULL UP”	Off

h) When IN PROGRESS goes out of view, confirm the PASS is displayed adjacent to <GPWC.

i) On the P414 panel, close CMC LEFT circuit breaker located at L8.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
34-61-02	Control Display Units (CDU) **"DISP.APPR.REQ'D"**	**Y**	3	2	**C**	**(O)** Center CDU may be inoperative provided left and right IRUs operate normally. CAT III Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
34-61-02	On Inoperative Control Display Unit	___ CDU INOP

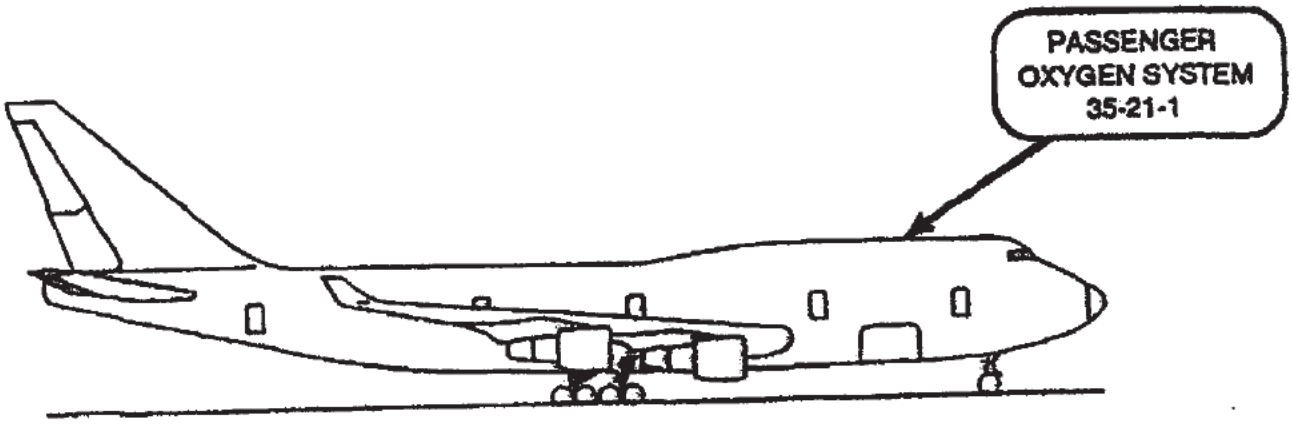
(O) PROCEDURES

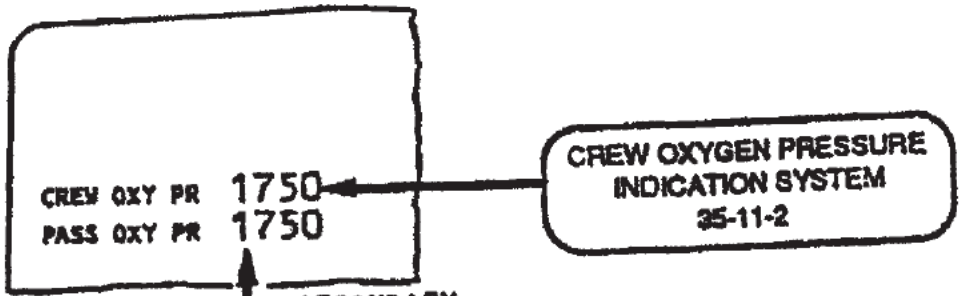
CAT III – Not Authorized.

The FMC Master Switch and the Navigation Source Selectors should be positioned to the operable FMC.

ATA 35 Contents

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PASSENGER
OXYGEN SYSTEM
35-21-1


CREW OXY PR 1750
PASS OXY PR 1750
CREW OXYGEN PRESSURE
INDICATION SYSTEM
35-11-2
SECONDARY
EICAS
PASSENGER OXYGEN
PRESSURE INDICATION SYSTEM
35-21-2


O2

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
35-11-02	Crew Oxygen Pressure Indication System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided PRIOR TO EACH DEPARTURE an accepted procedure is used to ensure that oxygen supply is above the minimum required for flight. **(Logbook Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
35-11-02	Adjacent To Applicable EICAS Display Unit	CREW OXYGEN PRESSURE INDICATION SYSTEM INOP

(O) PROCEDURES

Ensure logbook entry has been made by maintenance that the average pressure reading on the crew oxygen cylinder gauge(s) meets dispatch requirement pressure.

(M) PROCEDURES

PRIOR TO EACH DEPARTURE CHECK:

1. Ensure that the average pressure reading on the crew oxygen cylinder gauges meet dispatch requirement pressure. Refer to AMM 12-15-08-301 Oxygen Servicing.
2. Verify that the crew oxygen cylinder shutoff valve(s) is open.
3. Accomplish required logbook entry.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
35-11-03	Oxygen Overboard Discharge Indicator	**Y**	1	0	**C**	**(O)** May be damaged or missing. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
35-11-03	Adjacent To Passenger Oxygen Control Switch P5 Panel	OXYGEN OVERBOARD DISCHARGE INDICATOR DAMAGED OR MISSING

(O) PROCEDURES

PRIOR TO EACH DEPARTURE:

1. Select EICAS status page and note oxygen pressure.
2. Select 100% on the NORMAL/100% switch.
3. Push down and hold the RESET/TEST SLIDE lever.
4. Observe yellow cross appears momentarily in FLOW indicator.
5. Push and hold the EMERGENCY/TEST selector:
   a) While holding the RESET/TEST SLIDE lever down, push EMERGENCY TEST selector and observe yellow cross appears in FLOW indicator.
   b) Observe oxygen pressure did not decrease more than 100 psi during test.
6. Ensure that flight crew/passenger oxygen system pressure, indicated on the EICAS status page, is adequate for dispatch.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
35-21-01A	Passenger Oxygen System (Service Units (PSU's)) **"DISP.APPR.REQ'D"**	**N**	-	-	**B**	**(M)(O)** Passenger service units (PSUs) may be inoperative without flight altitude restriction provided: a) Associated seats are blocked and placarded to prevent occupancy, and b) Units operate normally for all usable lavatory and flight attendant locations.
35-21-01B	Passenger Oxygen System **"DISP.APPR.REQ'D"**	**Y**	1	0	**B**	**(O)** May be inoperative provided: a) Flight is not conducted where the minimum altitude enroute is above 14,000 feet MSL, b) All air conditioning packs operate normally, c) All remaining components of the pressurization system operate normally, d) Flight altitude remains at or below FL 250, e) Portable oxygen units for at least 10% of the passengers are provided as follows: The normal number of portable oxygen dispensing units kept onboard, limits the number of passengers to 240, and f) Passengers are appropriately briefed.
35-21-01C	Passenger Oxygen System **"DISP.APPR.REQ'D"**	**Y**	1	0	**B**	**(O)** May be inoperative provided flight remains at or below 10,000 ft MSL.
35-21-01D	Upper Deck Crew Rest Oxygen System **"DISP.APPR.REQ'D"**	**N**	-	-	**B**	**(M)(O)** May be inoperative provided the upper deck crew rest compartment is considered inoperative and deferred per MEL 25-29-03A.
35-21-01E	Automatic Presentation System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provide: a) Manual deployment system operates normally, and b) Flight remains at or below FL 300.

MEL ITEM	TAB LOCATION	PLACARD TEXT
35-21-01A	Adjacent To Passenger Oxygen Control Switch P5 Panel	OXYGEN SYSTEM INOP and if applicable, ___ SEATS ARE BLOCKED
35-21-01B	Adjacent To Passenger Oxygen Control Switch P5 Panel	PASS OXYGEN SYSTEM INOP
35-21-01C	Adjacent To Passenger Oxygen Control Switch P5 Panel	PASS OXYGEN SYSTEM INOP
35-21-01D	Logbook	FLIGHT CREW REST OXYGEN SYS INOP
35-21-01E	Adjacent To Passenger Oxygen Control Switch P5 Panel	PASS OXYGEN AUTOMATIC PRESENTATION SYSTEM INOP

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(O) PROCEDURES

35-21-01A

Ensure that affected seats are blocked and placarded.

35-21-01B

1. Do not operate where minimum altitude enroute is above 14,000 ft MSL.
2. Ensure that all air conditioning packs and pressurization system operates normally.
3. Do not exceed FL250.
4. Ensure that portable oxygen units are provided. Reference OM Volume I, Limitations Section.
5. Ensure passengers are briefed appropriately.

35-21-01C

Limit flight to 10,000 ft MSL or below.

35-21-01D

Ensure (O) procedures for MEL 25-29-03A are applied.

35-21-01E

Limit flight to FL 300 or below.

(M) PROCEDURES

35-21-01A

One or more PSU's may be inoperative without flight altitude restrictions provided:

1. The inoperative PSU door(s) are closed and secured using adhesive tape.
2. That affected passenger seat(s) are Placarded with Red Colored OM2, UNSERVICEABLE – DO NOT USE tape or equivalent*.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words "UNSERVICEABLE – DO NOT USE " printed legibly in 1 inch black letters.

35-21-01D

Defer the Upper Deck Crew Rest Compartment per MEL 25-29-03A.

35-21-01E

Verify that the MANUAL deployment function operates normally (AMM 35–21–00).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
35-21-02	Passenger Oxygen Pressure Indication System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided PRIOR TO EACH DEPARTURE an accepted procedure is used to ensure that oxygen supply is above minimum required for that flight. **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
35-21-02	Adjacent To Applicable EICAS Display Unit	PASS OXYGEN PRESSURE INDICATION SYSTEM INOP

(O) PROCEDURES

1. Ensure logbook entry has been made by maintenance that the average pressure reading on the passenger oxygen cylinder gauge(s) meets dispatch requirement pressure.

(M) PROCEDURES

PRIOR TO EACH DEPARTURE:

1. Confirm the passenger oxygen average pressure shown on the gauge of the passenger oxygen cylinder gauges meet dispatch requirement pressure. Refer to AMM 12-15-08-301 Oxygen Servicing.
2. Confirm the passenger oxygen cylinder shutoff valve(s) is open.
3. Accomplish required logbook entry.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
35-31-01A	Portable Oxygen Dispensing Units (Bottle and Mask) (Passenger Cabin) **"DISP.APPR.REQ'D"**	**Y**	24	-	**B**	**(M)(O)** Any in excess of those required may be unserviceable or missing provided: a) Required distribution of serviceable bottles is maintained throughout aircraft, and b) Bottles not properly serviced are replaced, serviced, or removed at the next available maintenance facility, and c) Affected bottles are identified as unusable units. NOTE: No relief is granted for bottles installed in the following location: • Two on the flight deck (third observer seat location).
35-31-01B	Portable Oxygen Dispensing Units (Bottle and Mask) Upper Deck Crew Rest Area **"DISP.APPR.REQ'D"**	**Y**	-	-	**B**	**(M)(O)** May be inoperative or missing provided: a) Bottles not properly serviced are replaced, serviced, or removed at the next available maintenance facility, b) Affected bottles are identified as unusable units, and c) The upper deck crew rest compartment is considered inoperative and deferred per MEL 25-29-03A.

MEL ITEM	TAB LOCATION	PLACARD TEXT
35-31-01A	On The Affected Oxygen Bottle Pressure Indicator If Oxygen Bottle is missing: Adjacent To Affected Oxygen Bottle Placard (Symbol)	____ PORTABLE OXYGEN DISPENSING UNIT UNUSABLE or REMOVED
35-31-01B	On The Affected Oxygen Bottle Pressure Indicator If Oxygen Bottle is missing: Adjacent To Affected Oxygen Bottle Placard (Symbol)	FLIGHT CREW REST PORTABLE OXYGEN DISPENSING UNIT UNUSABLE or REMOVED

(O) PROCEDURES

35-31-01A

1. Reference the following table containing the number of oxygen bottles required for flight.
2. Captain to brief Lead Flight Attendant/Purser on location of unusable or missing units.

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NUMBER OF PASSENGERS AND FLIGHT ATTENDANTS	MIN NUMBER OF FULL 11 CU. FT. OXY BOTTLES REQUIRED												
1 –50	9	9	9	9	9	9	9	9	9	9	9	9	9
51 – 100	9	9	9	9	9	9	9	9	9	9	9	9	9
101 – 150	9	9	9	9	9	9	9	9	9	9	9	9	9
151 – 200	9	9	9	9	9	9	10	11	12	13	14	16	17
201 – 250	9	9	9	9	9	11	12	13	15	16	18	19	21
251 – 300	9	9	9	9	11	13	14	16	18	20	21	23	
301 – 350	9	9	9	11	13	15	17	19	21	23			
351 – 400	9	9	10	12	14	17	19	21	24				
401 – 450	9	9	11	13	16	19	21	24					
451 – 500	10	10	12	15	18	21	24						
	1	**1.5**	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**	**5.5**	**6**	**6.5**	**7**
	DURATION OF FLIGHT THAT ENROUTE ALTERNATE IS NOT AVAILABLE (HRS)												

35-31-01B

Ensure (O) procedures for MEL 25-29-03A are complied with.

(M) PROCEDURES

35-31-01A

Placard unserviceable oxygen bottle(s) or remove unserviceable oxygen bottle(s) from aircraft.

35-31-01B

1. Placard unserviceable oxygen bottle(s) or remove unserviceable oxygen bottle(s) from aircraft.
2. Defer the upper deck crew rest compartment per MEL 25-29-03A.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
35-31-02A	Protective Breathing Equipment (PBE) (A/C 6301–6310 prior to E.O. 2560–01318)	**Y**	10	8	**C**	**(M)** One PBE unit installed adjacent to the L1 or R1 passenger door, and one PBE unit installed adjacent to the L4 or R4 passenger door may be inoperative provided: a) PBE(s) is removed from aircraft before departure, and b) Associated location placarding is removed or obscured.
35-31-02B	Protective Breathing Equipment (PBE) (A/C 6311–6316 and A/C 6301–6310 after completion of E.O. 2560–01318)	**Y**	10	8	**C**	**(M)** One PBE unit installed adjacent to the L1 passenger door, and one PBE unit installed adjacent to the L5 passenger door may be inoperative provided: a) PBE(s) is removed from aircraft before departure, and b) Associated location placarding is removed or obscured.

MEL ITEM	TAB LOCATION	PLACARD TEXT
35-31-02A	Adjacent To Missing PBE Bracket And On Associated Location Placard	____ PBE INOP. PBE REMOVED FROM AIRCRAFT
35-31-02B	Adjacent To Missing PBE Bracket And On Associated Location Placard	____ PBE INOP. PBE REMOVED FROM AIRCRAFT

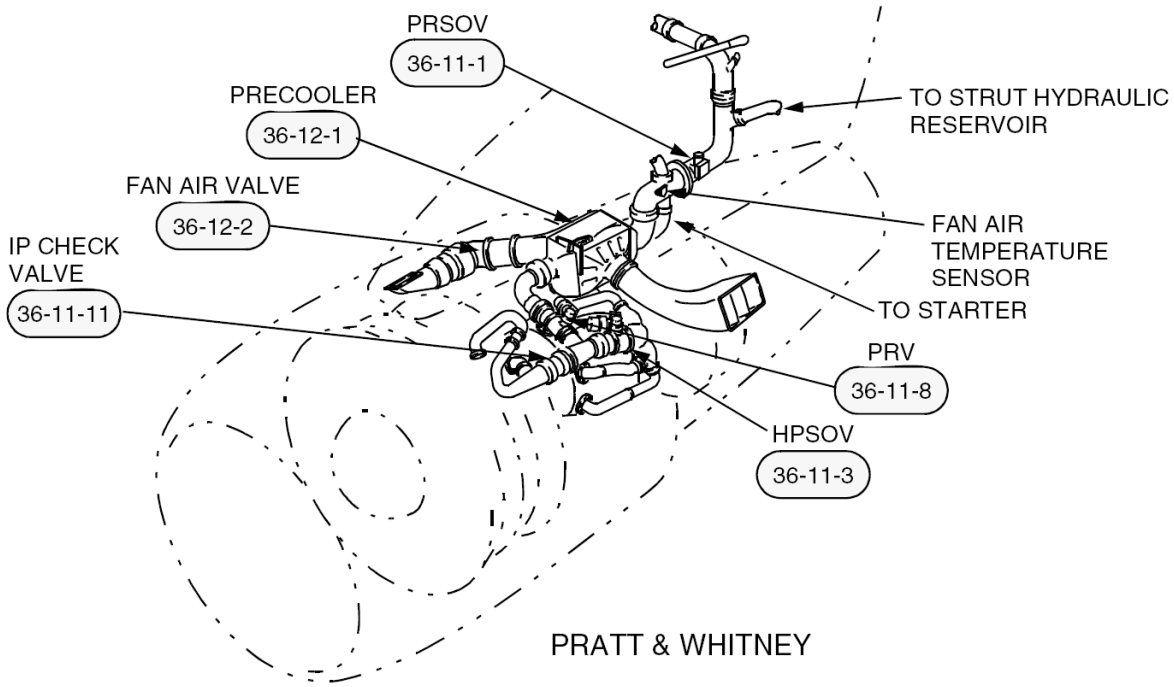
(M) PROCEDURES

35-31-02A, 35-31-02B

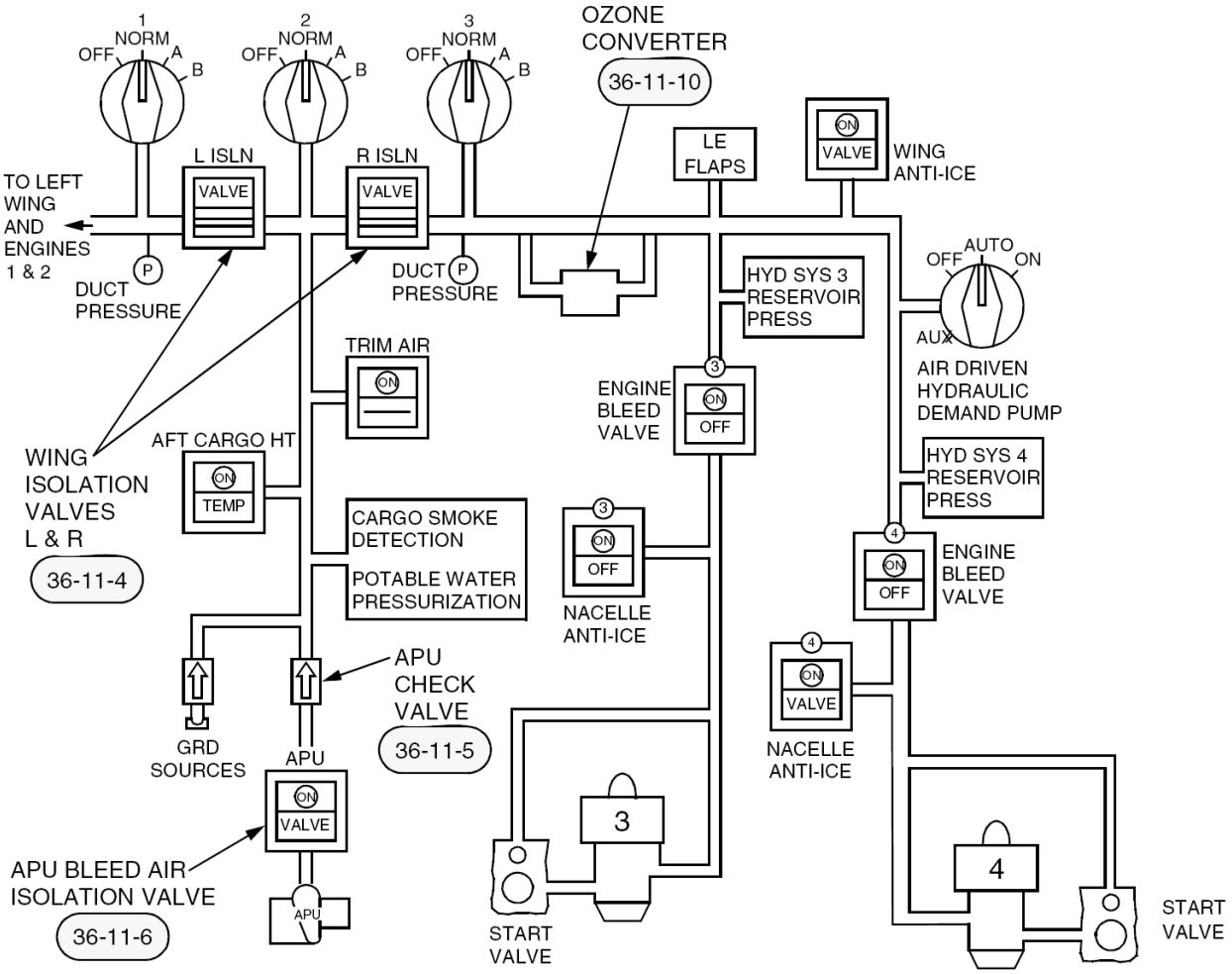
1. Remove PBE from aircraft before departure.
2. Remove, cover, or obscure associated location placarding.

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PRATT & WHITNEY



		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-11-01	Engine Bleed Pressure Regulating and Shutoff Valves (PRSOV) **"Contact MCC"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Associated PRSOV is secured closed except for engine start, b) Manual PRSOV Override Start is required PRIOR TO DEPARTURE, c) L and R ISLN valves are open for takeoff, and when flaps are operated, d) Bleed systems on remaining engines operate normally, and e) Start valves on remaining engines operate normally. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-11-01	Adjacent To Affected Engine Bleed Air Switch And Adjacent To Main EICAS Display	___ PRSOV INOP AND SECURED CLOSED EXCEPT FOR ENGINE START. ___ ENGINE STARTER INOP IN FLIGHT

(O) PROCEDURES

1. PRIOR TO DEPARTURE: Manual PRSOV Override Start is required. Accomplish the following:
   a) Coordinate with Maintenance to determine if the PRSOV will be opened with the wing pneumatic manifold pressurized or unpressurized.
   b) If PRSOV is to be opened with wing pneumatic manifold unpressurized:
      1) Select the appropriate L(R) ISLN VALVE Switch OFF.
      2) If the other engine on the same wing is running, select its ENGINE BLEED Switch OFF.
      3) When ready for engine start, advise ground crew to open the PRSOV.
      4) Select appropriate L(R) ISLN VALVE Switch ON after PRSOV is confirmed open by ground crew.
   c) If PRSOV is to be opened with wing pneumatic manifold pressurized, when ready for engine start, advise ground crew to open PRSOV.
   d) Ensure pneumatic manifold is pressurized and pull appropriate engine start switch.
   e) At 50% N2, request ground crew to close the PRSOV.
   f) Continue engine start.
   g) Select ENGINE BLEED Switch OFF when requested by ground crew to enable them to secure the PRSOV closed.
   h) Select ON for the associated Engine Bleed Switch after ground crew has secured the PRSOV locked closed. This enables the HPSOV, PRV, and FAV (Fan Air Valve) to operate normally.
   i) Set ENGINE BLEED switch for other engine on same wing ON.

Continued Next Page

2. During takeoff and for all flap operations, ensure that the L and R ISLN valve switches are in the open position. This assures air is available for operation of the ADP and L.E. flaps in the event of an adjacent engine shutdown.
3. Reference QRH, Section 7, Engine In-flight Start.

(M) PROCEDURES

1. General
   a) The PRSOV is installed in the strut. Access to the PRSOV manual override drive is on the left side of the strut. It is not necessary to open any access panels to gain access to the PRSOV manual override drive.
   b) The PRSOV is spring loaded to the closed position. It can be manually held in the open position for engine starting. After engine start, the inoperative PRSOV must be manually place in the locked closed position.

      Special Tools and Equipment: – G71021–6, Drive Extension Starter Valve and PRSOV.

WARNING: DO NOT OPERATE THE THRUST REVERSER DURING MANUAL OPERATION OF THE PRSOV. THRUST REVERSER OPERATION DURING MANUAL OPERATION OF THE PRSOV CAN CAUSE INJURY AND DAMAGE.

WARNING: DO NOT USE ENGINE NACELLE SERVICE INTERPHONE JACK ON ENGINE WHICH IS TO BE STARTED OR ON ENGINE IN OPERATION. PERSONNEL COULD ENTER HAZARD AREA RESULTING IN SERIOUS INJURY OR LOSS OF LIFE.

WARNING: PERSONNEL SHOULD BE AWARE AND REMAIN CLEAR OF ENGINE INLET AND EXHAUST HAZARD AREAS (AMM 71-00-00).

2. **PRIOR TO DEPARTURE CHECK** (Each engine start):
   a) Establish interphone communication with the flight deck and determine if the applicable wing manifold will be pressurized or unpressurized for associated engine start.

      NOTE: The amount of torque necessary to open the PRSOV depends on existing pneumatic pressure. If manifold is unpressurized, the PRSOV will open easily. If manifold is pressurized, the PRSOV may require up to 50 ft-lb of applied torque to open.

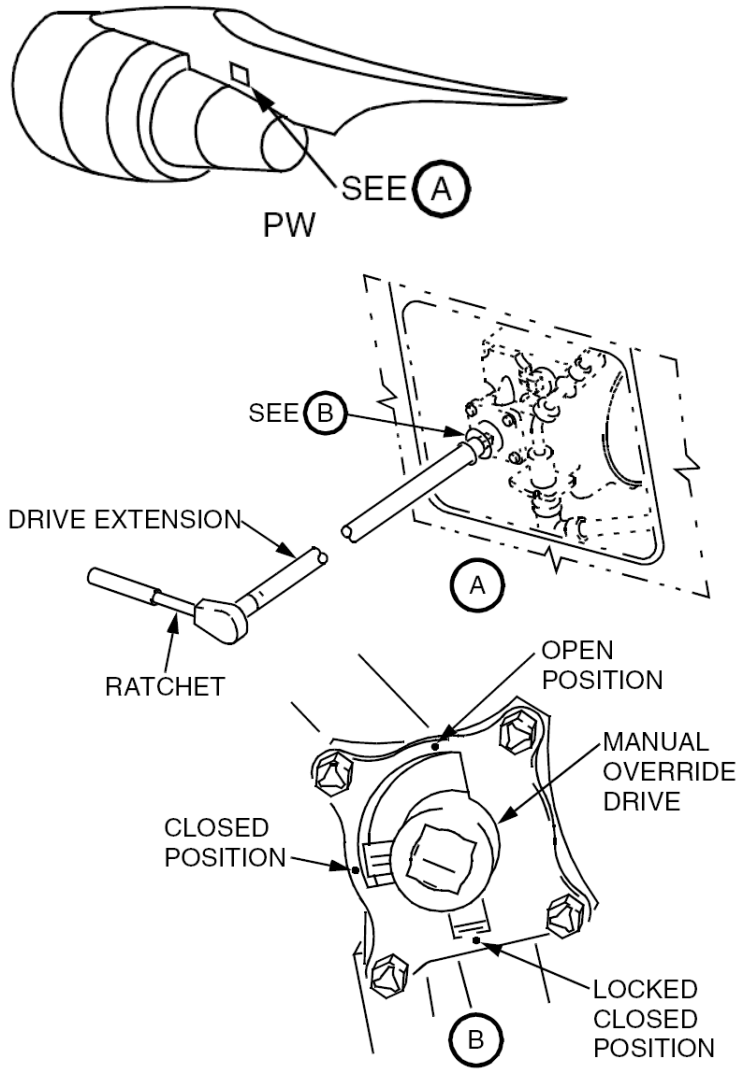
CAUTION: DO NOT ROTATE THE MANUAL OVERRIDE DRIVE QUICKLY WHEN THERE IS NO WING MANIFOLD PNEUMATIC PRESSURE. FAST OPERATION OF THE MANUAL OVERRIDE DRIVE MAY RESULT IN TEMPORARY JAMMING OF THE ACTUATOR OR POSSIBLE DIAPHRAGM DAMAGE.

   b) When requested by the flight crew, slowly turn the PRSOV manual override drive 90° clockwise to the open position. Hold it in the open position until the flight crew requests a closed PRSOV.
   c) When flight crew requests closed PRSOV, turn the PRSOV manual override drive 90° counterclockwise to the closed position.

      NOTE: Request that flight deck select ENGINE BLEED Switch OFF before proceeding to next step.

Continued Next Page

d) After the flight crew switches engine bleed off, lock the PRSOV in the locked closed position by depressing the manual override drive approximately 1/4 inch. Then turn the drive counter-clockwise to the locked closed position (90° past the closed position). Advise flight deck that the PRSOV is locked closed.



NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-11-02	Engine Bleed PRSOV Start Solenoids	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Bleed valve otherwise functions normally, and b) Start valves on remaining engines operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-11-02	On Engine Start Panel	___ ENG BLEED PRSOV START SOL INOP. ENG ___ STARTER INOP INFLIGHT – USE WINDMILL RESTART

(O) PROCEDURES

Comply with MEL Item 36-11-01 (O) procedure.

(M) PROCEDURES

The PRSOV must be opened manually for engine start. See MEL Item 36-11-01 (M) procedure, Engine Bleed PRSOV, for manual opening procedure with the exception of step 2 d). DO NOT LOCK THE PRSOV IN THE CLOSED POSITION. Once engine start has been achieved, valve may be released.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-11-03	Engine High Pressure Bleed Systems	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Associated High Pressure Shutoff Valve (HPSOV) is secured closed, b) A minimum of 70% N1 is maintained at or above 10,000 ft. MSL, or 55% N1 is maintained below 10,000 ft. MSL on the associated engine while in induction icing conditions, and c) Bleed systems on remaining engines operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-11-03	Adjacent To EICAS	___ ENG HIGH PRESS BLEED SYSTEM INOP. ___ HPSOV INOP – SECURED CLOSED

(O) PROCEDURES

1. When operating in induction icing conditions, set a minimum of 70% N1 (55% N1 below 10,000 ft. MSL) on associated engine(s). This will ensure adequate air supply to the Nacelle TAI manifold.
2. During takeoff and for all flap operations, ensure that the L and R ISLN valve switches are in the open position. This assures air is available for operation of the ADP and L.E. flaps in the event of an adjacent engine shutdown at lower power settings.
3. With the HPSOV secured closed, it is a normal occurrence for the PRSOV to close during engine operation at idle or at times when engine power settings are unequal. As a consequence, the associated Engine Bleed Air OFF light will illuminate whenever the PRSOV is closed. Advancing the Thrust Lever to approximately 75% N2 will open the PRSOV and extinguish the Engine Bleed Air Off Light.
4. Advisory and status messages BLEED HP ENG__ will remain displayed.

Continued Next Page

(M) PROCEDURES

1. General:

   The Pressure Regulating Valve (PRV) and the High Pressure Shutoff Valve (HPSOV) are interchangeable and may be swapped to minimize dispatch restrictions.

2. Secure the affected HPSOV closed as follows:

   a) General

   The HPSOV is located near the high pressure compressor (HPC) case in the 9:00 o'clock position. To deactivate the HPSOV, it is necessary to remove the positioning screw in the valve actuator to release the actuator pressure. The positioning screw is then installed in the switch actuating lever to lock the valve in the CLOSED position. It is necessary to open the left thrust reverser half to get access to the HPSOV (AMM 36–11–05/201).

   b) Deactivate the HPSOV closed

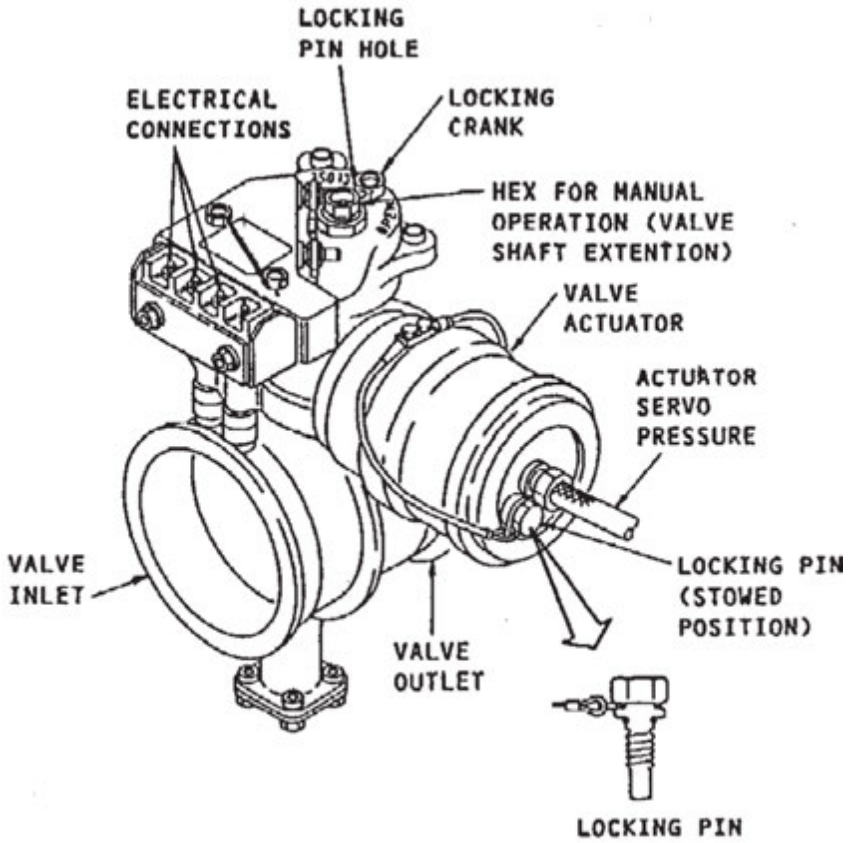
      1) Release the pressure in the pneumatic system (AMM 36–00–00/201).

      2) Open the left thrust reverser half (AMM 78–31–00/201).

      3) Remove the positioning screw from the actuator cap. Do not disconnect the retaining cable from the positioning screw.

      4) Install the positioning screw in the switch actuating lever to lock the HPSOV in the CLOSED position.

      5) Close the left thrust reverser half (AMM 78–31–00/201).



		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-11-04	Wing Isolation Valves (Left and Right)	**N**	2	1	**C**	**(M)(O)** One may be inoperative deactivated open provided the pack on the same side as operative valve operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-11-04	Adjacent To Main EICAS	___ WING ISLN VLV INOP – OPEN

(O) PROCEDURES

Ensure that the duct isolation valve switches are in the open position for takeoff and all flap operations to assure that air is available for operation of ADP and L. E. flaps in the event of an adjacent engine shutdown.

(M) PROCEDURES

1. General

   The two isolation valves are installed in the pneumatic manifold aft of the air–conditioning bay. It is necessary to open the appropriate air–conditioning access door to gain access to the valves. To deactivate the isolation valve, you must put the valve in the OPEN position and disconnect the electrical connector.

2. Deactivate the Wing Isolation Valve as follows:

   a) Supply electrical power (AMM 24–22–00/201).

   b) Position P5 Overhead Panel wing ISLN switch open. Approximately 10 seconds are required for the valve to open.

   c) For inoperative left wing isolation valve, open and secure the P6 panel L ISO VLV AIR SUPPLY PWR (H20) circuit breaker.

   d) For inoperative right wing isolation valve, open and secure the P6 panel R ISO VLV AIR SUPPLY PWR (H24) circuit breaker.

   e) Open access panel door 191 NL for left isolation valve or 192NR for the right isolation valve (AMM 06–09–03/201).

   f) Examine the position indicator on the actuator housing. If the position indicator is not in the OPEN position, turn the manual drive until the valve is in the OPEN position.

   g) Disconnect, cap and stow the electrical connector from the isolation valve:

      - DV108 VALVE – WING ISOLATION L
      - DV109 VALVE – WING ISOLATION R

   h) Install caps on the open ends of the electrical connector and the receptacle on actuator. Store the electrical connector in a safe position.

   i) Remove electrical power if it is not necessary for other operations (Ref. MM 24–22–00/201).

   j) Close the applicable access door (191 NL or 192NR).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-11-05	APU Check Valve	**Y**	1	0	**C**	**(O)** May be inoperative provided the APU Isolation Valve remains closed after first engine starts.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-11-05	Adjacent To Main EICAS	APU CHECK VALVE INOP. PERFORM CROSS BLEED STARTS AFTER FIRST ENGINE IS STARTED

(O) PROCEDURES

1. After first engine is started, close APU Isolation Valve.
2. Perform subsequent engine starts by Cross–Bleed Start procedure. Reference OM Volume I, Supplementary Section.
3. Keep APU Isolation Valve closed.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-11-06	APU Bleed Air Isolation Valve **"Contact MCC"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided valve is deactivated closed after engines are started **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-11-06	Adjacent To Main EICAS	APU ISOLATION VALVE INOP – CLOSED

(O) PROCEDURES

NOTE: The amber VALVE light on the overhead panel may remain illuminated. The ECS synoptic page the APU Bleed Air Isolation valve may be displayed OPEN in amber. The EICAS BLEED ISLN APU advisory and status message may remain displayed.

(M) PROCEDURES

1. General

   The APU bleed air shutoff valve is installed in the upper outboard aft corner of the left body gear wheel well. Access to the valve is available in the body gear wheel well. To deactivate the APU bleed air valve, you must put the valve in the CLOSED position and disconnect the electrical connector.

2. **PRIOR TO EACH DEPARTURE CHECK** (After engine start):

   a) After engines are started deactivate the APU Bleed Valve (AMM 36–11–00/201).

      1) Supply electrical power (AMM 24–22–00/201).

WARNING: REFER TO AMM 32–00–30/201 FOR THE LANDING GEAR DOOR LOCK PROCEDURE. SUDDEN MOVEMENT OF DOORS CAN CAUSE INJURY OR DAMAGE IF DOOR LOCKS ARE NOT CORRECTLY INSTALLED.

      2) Install wing and body gear door locks (AMM 32–00–30/201).

      3) Make sure that landing gear ground lock pins are installed (AMM 09–11–00/201).

      4) Put the APU BLEED switch (P5 overhead panel) in the OFF position. Wait approximately 10 seconds for the valve to close.

      5) Pull and secure the 6H22 APU ISO VLV AIR SUPPLY PWR circuit breaker on the P6 main power distribution panel.

      6) Examine the position indicator on the actuator housing. If position indicator is not in the CLOSED position, turn the manual drive until the valve is in the CLOSED position.

      7) Disconnect, cap and stow the electrical connector from the APU bleed air valve.

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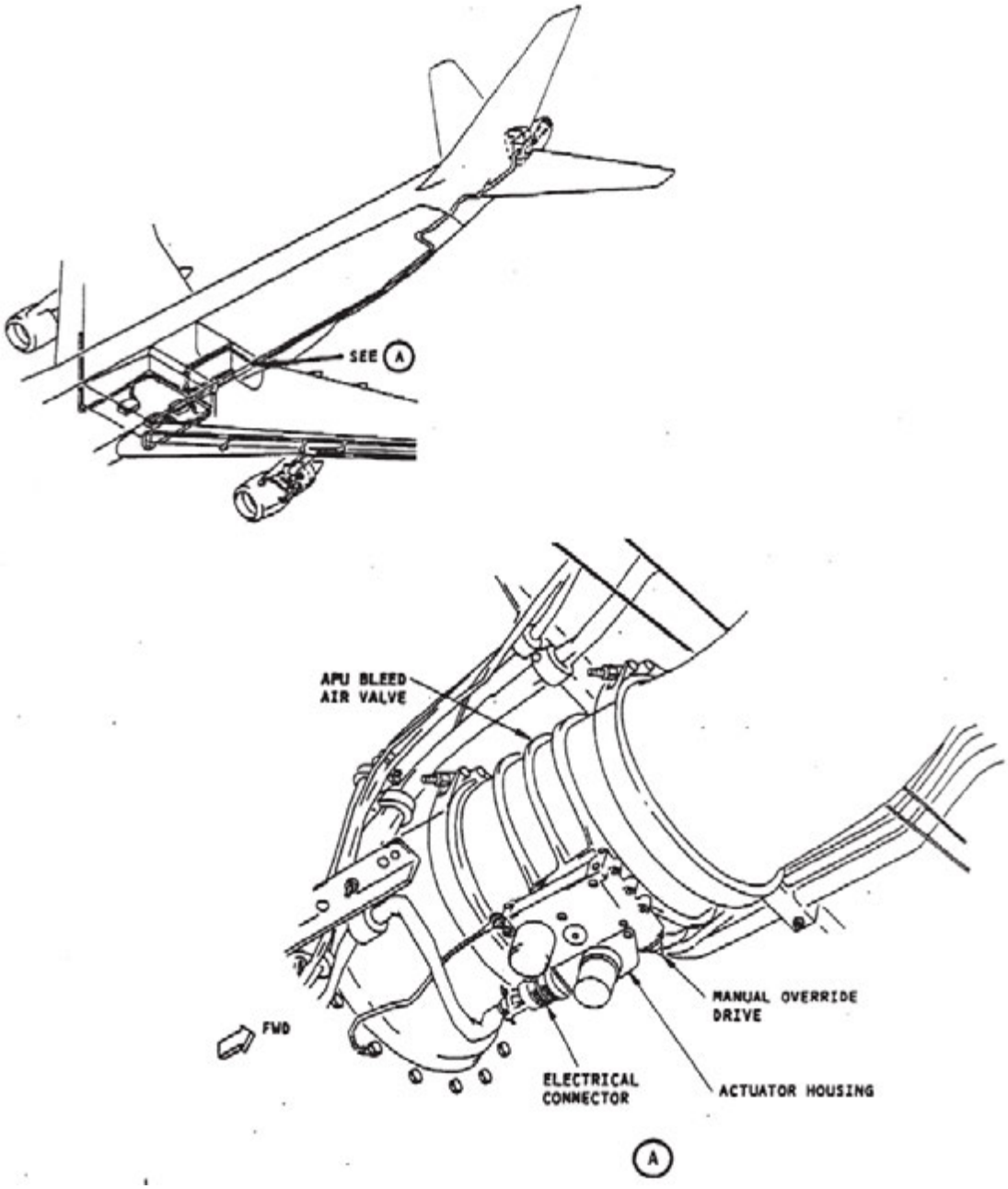
8) Install cap on the connection on the valve's actuator housing.

9) Remove wing and body gear door locks installed above.

10) Remove landing gear ground lock pins installed above.

11) Remove electrical power (AMM 24–22–00/201).

b) Accomplish required logbook entry.



		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-11-07	Left and Right Wing Isolation VALVE Lights	**Y**	2	1	**C**	**(O)** One may be inoperative provided associated duct pressure indication is available.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-11-07	Adjacent To Inop Light	___ WING ISLN VALVE LIGHT INOP

(O) PROCEDURES

If proper operation of Isolation Valve is in question, refer to the ECS Synoptic Page and/or duct pressure indications.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-11-08A	Bleed Air Pressure Regulating Valve (PRV) Systems (PRV Closed) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative with associated PRV secured closed provided: a) Airplane is not operated in known or forecast induction icing conditions, b) L and R ISLN valves are open for takeoff, and when flaps are operated, c) Bleed systems on remaining engines operate normally, d) Associated ENGINE BLEED switch is selected OFF except for engine start, and e) Appropriate performance corrections are applied.
36-11-08B	Bleed Air Pressure Regulating Valve (PRV) Systems (PRV Closed and FAV Secured in Intermediate Open Position) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative with associated PRV secured closed provided: a) Associated fan air valve (FAV) is secured in the intermediate open position, b) Airplane is not operated in known or forecast induction icing conditions, c) L and R ISLN valves are open for takeoff, and when flaps are operated, d) Bleed systems on remaining engines operate normally, e) Associated ENGINE BLEED switch is selected OFF except for engine start, and f) Appropriate performance corrections are applied.
36-11-08C	Bleed Air Pressure Regulating Valve (PRV Open) Systems	**N**	4	3	**C**	**(M)(O)** One may be inoperative with associated PRV open provided: a) Associated PRV operates pneumatically in the full open position, b) Associated HPSOV is secured closed, c) Associated Bleed Air Overpressure switch is deactivated, d) Associated ENGINE BLEED switch is selected OFF except for engine start, e) L and R ISLN valves are open for takeoff, and when flaps are operated, f) Bleed systems on remaining engines operate normally, and g) A minimum of 70% N1 is maintained at or above 10,000 ft. MSL, or 55% N1 is maintained below 10,000 ft. MSL on the associated engine while in induction icing conditions.

Continued Next Page

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-11-08A	Adjacent To Main EICAS Display And Associated Engine Nacelle Anti–Ice Valve Switch	___ BLEED AIR PRV INOP AND SECURED CLOSED. ASSOCIATED ENG NACELLE ANTI–ICE INOP – LEAVE OFF
36-11-08B	Adjacent To Main EICAS Display And Associated Engine Nacelle Anti–Ice Valve Switch	___ BLEED AIR PRV INOP AND SECURED CLOSED. ASSOCIATED FAV INOP – SECURED IN INTERMEDIATE OPEN POSITION. ASSOCIATED ENG NACELLE ANTI–ICE INOP – LEAVE OFF
36-11-08C	Adjacent To Main EICAS Display l	___ BLEED AIR PRV INOP OPEN. ASSOCIATED BLEED OVERPRESSURE SWITCH DEACTIVATED

(O) PROCEDURES

36-11-08A

1. Verify that the AWABS contains MEL item 36–11–08A.
2. For the associated engine, select Engine Bleed OFF except for ground engine start and when bleed air is required for in-flight start.
3. During takeoff and for all flap operations, ensure that the L and R ISLN valve switches are in the open position. This assures air is available for operation of the ADP and L.E. flaps in the event of an adjacent engine shutdown.
4. Operations must NOT be conducted in induction icing conditions. Do not select associated engine Nacelle Anti–Ice switch ON.
5. Advisory message BLD __ OVHT/PRV may be displayed.
6. Status message BLEED PRV ENG__ will be displayed.

36-11-08A	**BLEED AIR PRESSURE REGULATING VALVE (PRV) SYSTEMS – PRV CLOSED AND FAV FULL OPEN**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 6,300 lbs. 2. Increase BLOCK FUEL by 0.5%.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 4,500 lbs. 2. Reduce T/O CLIMB LIMIT by 4,500 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 4,500 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 4,500 lbs.

Continued Next Page

36-11-08B

1. Verify that the AWABS contains MEL item 36–11–08B.
2. For the associated engine, select Engine Bleed OFF except for ground engine start and when bleed air is required for in–flight start.
3. During takeoff and for all flap operations, ensure that the L and R ISLN valve switches are in the open position. This assures sufficient bleed air is available for operation of the ADP and L.E. flaps in the event of an adjacent engine shutdown and/or engines operating at low power settings.
4. Operations must NOT be conducted in induction icing conditions. Do not select associated engine Nacelle Anti–Ice switch ON.
5. Advisory message BLD __ OVHT/PRV may be displayed.
6. Status message BLEED PRV ENG__ will be displayed.

36-11-08B	**BLEED AIR PRESSURE REGULATING VALVE (PRV) SYSTEMS – PRV CLOSED AND FAV SECURED IN INTERMEDIATE OPEN POSITION**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 3,200 lbs.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 2,200 lbs. 2. Reduce T/O CLIMB LIMIT by 2,200 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 2,200 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 2,200 lbs.

36-11-08C

1. For the associated engine, select Engine Bleed OFF except for ground engine start and when bleed air is required for in–flight start.
2. During takeoff and for all flap operations, ensure that the L and R ISLN valve switches are in the open position. This assures air is available for operation of the ADP and L.E. flaps in the event of an adjacent engine shutdown.
3. Operations may be conducted in induction icing conditions. When operating in induction icing conditions, set a minimum of 70% N1 (55% below 10,000 ft MSL) on the associated engine to ensure adequate air supply to the Nacelle TAI manifold.
4. During engine start, the associated advisory message BLEED__ will temporarily display. It will disappear at the conclusion of engine start when the PRV is no longer commanded closed.
5. With the HPSOV secured closed, it's normal for the PRSOV to close at engine idle or if engine power settings are unequal. The associated Engine Bleed Air OFF light will illuminate whenever the PRSOV is closed.

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6. Advancing the throttle off idle to about 75% N2 will open the PRSOV and extinguish the Engine Bleed Air OFF light.
7. Since the HPSOV is secured closed, advisory and status message BLEED HP ENG__ will be displayed.
8. Status messages BLEED OVERPRESS__ and BLEED PRV ENG__ will be displayed.

(M) PROCEDURES

36-11-08A

1. General:

   The Pressure Regulating Valve (PRV) and the High Pressure Shutoff Valve (HPSOV) are interchangeable and may be swapped to minimize dispatch restrictions.

2. Secure the PRV in the closed position:

   NOTE: The PRV is installed near the high pressure compressor (HPC) case in the 10:00 o'clock position.

   a) Release the pressure in the pneumatic system (AMM 36–00–00/201).

   b) Open the left thrust reverser half (AMM 78–31–00/201).

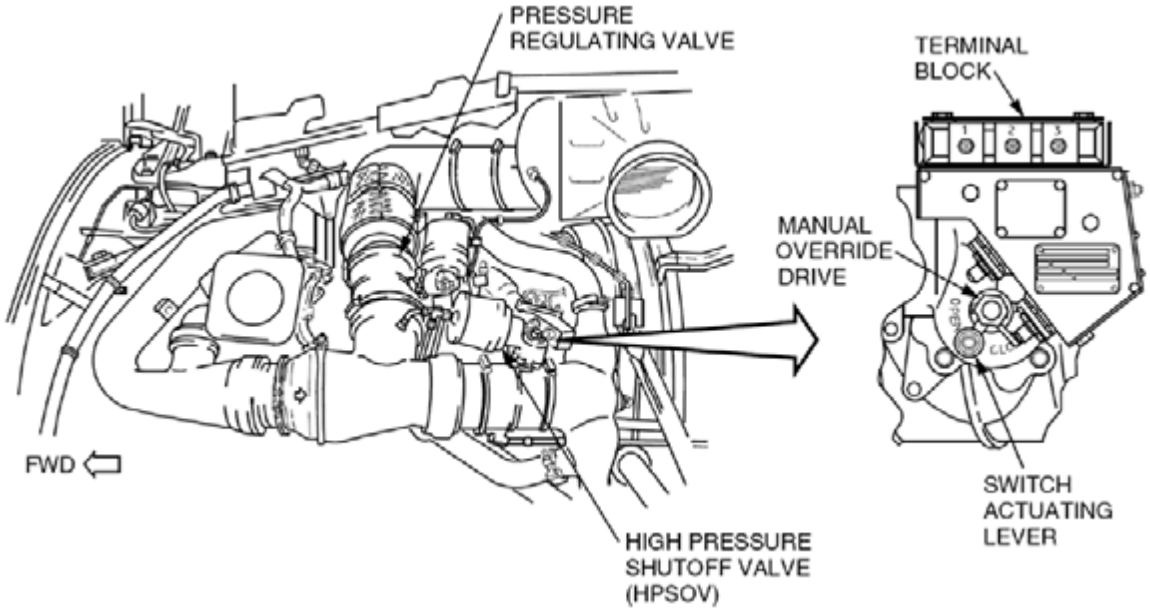
   c) Remove the locking pin screw from the PRV actuator cap. Do not disconnect the retaining cable from locking pin screw.

   d) Rotate the hex for manual operation to the valve CLOSED position.

   e) Install the locking pin screw in the switch actuating lever to lock the PRV in the CLOSED position.

   f) Close the thrust reverser half (AMM 78–31–00/201).

3. Status message "BLEED PRV ENG ___" will remain displayed with the PRV secured closed. Advisory message "BLD___OVHT/PRV" may be displayed.
4. The P5 panel BLEED AIR SYS fault light will be inoperative. Apply MEL 36-21-02.
5. The associated engine P5 panel Nacelle Anti-Ice Valve switch will be inoperative. Apply MEL 30-21-01.



Continued Next Page

36-11-08B

1. General:

   The Pressure Regulating Valve (PRV) and the High Pressure Shutoff Valve (HPSOV) are interchangeable and may be swapped to minimize dispatch restrictions.

2. Open the left and right thrust reverser halves (AMM 78–31–00/201).

3. Secure the PRV in the closed position:

   NOTE: The PRV is installed near the high pressure compressor (HPC) case in the 10:00 o'clock position.

   a) Release the pressure in the pneumatic system (AMM 36–00–00/201).

   b) Remove the locking pin screw from the PRV actuator cap. Do not disconnect the retaining cable from locking pin screw.

   c) Rotate the hex for manual operation to the valve CLOSED position.

   d) Install the locking pin screw in the switch actuating lever to lock the PRV in the CLOSED position.

4. Secure the associated Fan Air Valve (FAV) in the intermediate open position as follows:

   NOTE: The FAV is installed on the right side of the precooler. The valve is spring–loaded open and is controlled by the Fan Air Temperature sensors. It has a locking crank to permit the valve to be operated manually.

   a) Remove the positioning screw from the FAV actuator housing. Remove and discard the O–ring. Do not disconnect the retaining cable from the positioning screw.

   b) Turn the locking crank to the 45 degree position.

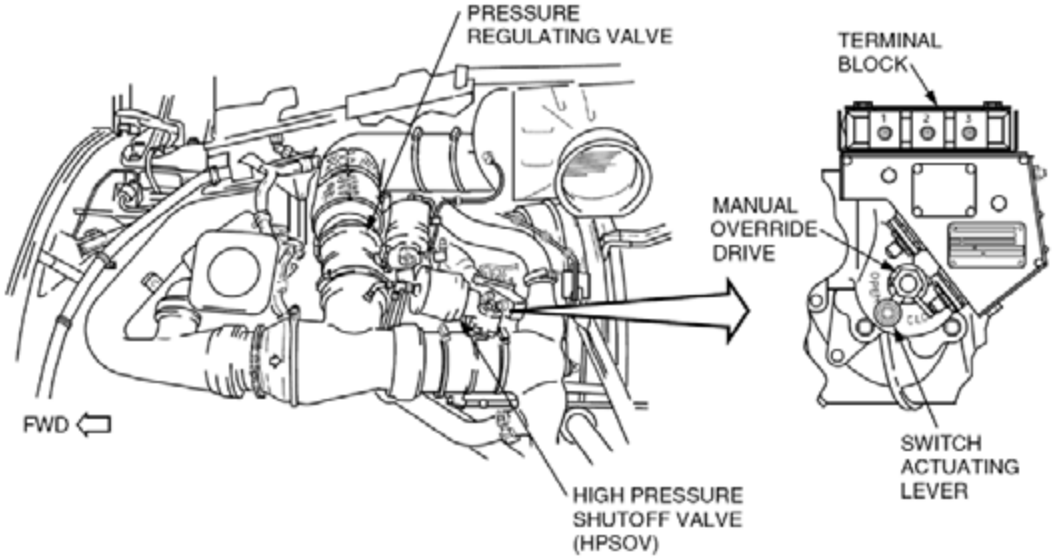
   c) Install the positioning screw in the locking crank until it is engaged with the switch bracket. This will lock the valve in the 45 degree position.

5. Close the left and right thrust reverser halves (AMM 78–31–00/201).

6. Status message "BLEED PRV ENG ___" will remain displayed with the PRV secured closed. Advisory message "BLD ___ OVHT/PRV" may be displayed.

7. The P5 panel BLEED AIR SYS fault light will be inoperative. Apply MEL 36-21-02.

8. The associated engine P5 panel Nacelle Anti-Ice Valve switch will be inoperative. Apply MEL 30-21-01.



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36-11-08C

1. General:

   a) The Pressure Regulating Valve (PRV) and the High Pressure Shutoff Valve (HPSOV) are interchangeable and may be swapped to minimize dispatch restrictions.

2. Dispatch With PRV Inoperative Open:

   a) Defer the HPSOV closed per MEL item 36–11–03, but do not close the thrust reverser half at this time.

   b) Verify the PRV operates pneumatically:

      1) Access the engine start valve and disconnect the electrical connector.

      2) Pressurize the pneumatic manifold to above 20 psig.

      3) Select the associated engine's bleed switch ON.

      4) Open the PRSOV by pulling the engine's start switch.

CAUTION: THE PRV CAN OPEN QUICKLY WHEN THE MANUAL OVERRIDE DRIVE IS TURNED AND PULL A WRENCH OUT OF YOUR HANDS. THIS CAN CAUSE INJURIES TO PERSONS OR EQUIPMENT DAMAGE.

      5) Use a ratchet wrench to rotate the PRV's manual override hex toward the open position.

      6) Confirm that the PRV opens fully and remains in the full open position by using any one of the following methods:

         A. Observe the position pointer on the valve.

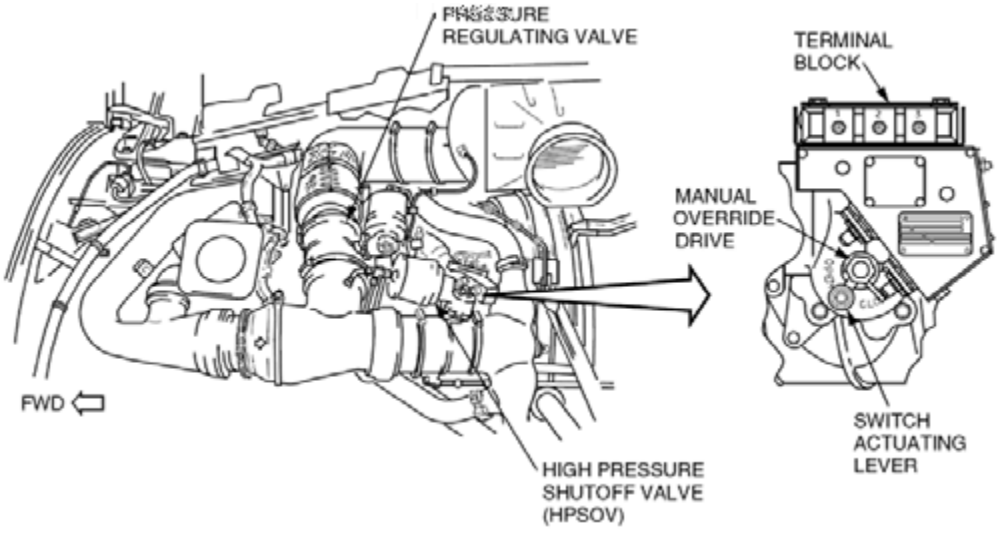
            OR

         B. Observe the position indicated on the CMC ECS Maintenance Page.

            OR

         C. CMC input monitoring for:

            - Engine 1: E/59/351/10 BIT 19 = 0
            - Engine 2: E/59/351/01 BIT 19 = 0
            - Engine 3: E/59/351/11 BIT 19 = 0
            - Engine 4: E/59/351/00 BIT 19 = 0



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7) After confirming the associated engine's start switch is off, reconnect the start valve's three electrical connectors.

c) Close the thrust reverser half (AMM 78–31–00/201).

d) Deactivate Bleed Air Overpressure Switch.

NOTE: The Bleed Air Overpressure Switch is deactivated to prevent the BLEED ___ advisory and the BLEED OVERPRESSURE ___ status message from displaying.

WARNING: MAKE SURE THE SAFETY LOCKS FOR THE LEADING EDGE FLAPS ARE INSTALLED BEFORE YOU DO WORK ADJACENT TO THE LEADING EDGE FLAPS. OPERATION OF THE LEADING EDGE FLAPS CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.
MAKE SURE THERE ARE NO PERSONS OR EQUIPMENT NEAR THE LE AND TE FLAPS AND THE FLAP DRIVE MECHANISMS BEFORE YOU MOVE THE FLAP CONTROL LEVER. WHEN YOU MOVE THE CONTROL LEVER WITH THE HYDRAULIC POWER REMOVED, THE ELECTRICAL POWER CAN MOVE THE FLAPS AND CAN CAUSE INJURIES TO PERSONS OR DAMAGE TO EQUIPMENT.

1) Extend and lock the Leading edge Flaps (AMM 27–81–00/201).

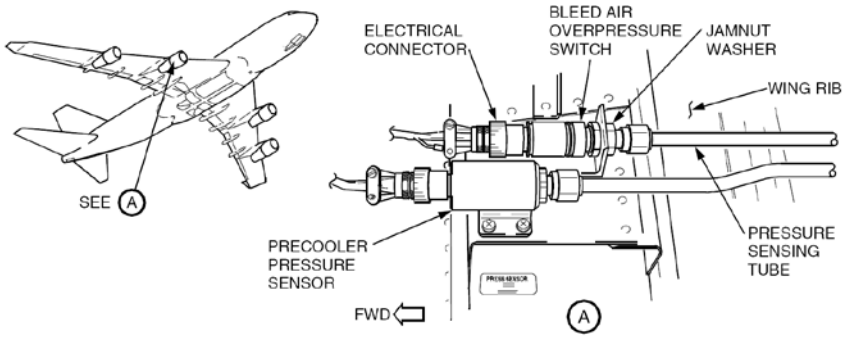
2) Gain access to the associated engine bleed air overpressure switch (AMM 36-21-03/401).

3) Disconnect the electrical connector from the switch.

4) Fabricate a 3 to 4 inch shorting wire from wire type 6A (BMS 13–60 Type 1 or BMS 13-48 Type 10 or equivalents) wire and two 20 gauge pins P/N BACC47CN1A.

5) Connect sockets 2 and 5 with the fabricated shorting wire and stow the connector securely using a bundle strap.

6) Unlock and retract the leading edge flaps.



BLEED AIR OVERPRESSURE SWITCH INSTALLATION
(NOTE: INBOARD ENGINE INSTALLATION SHOWN, OUTBOARD ENGINES HAVE SWITCH AND SENSOR POSITION REVERSED.)

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
36-11-11	Intermediate Bleed Check Valves	**N**	4	3	**C**	**(M)(O)** One may be inoperative open provided: a) A minimum of 70% N1 is maintained at or above 10,000 ft. MSL, or 55% N1 is maintained below 10,000 ft. MSL on the associated engine while in induction icing conditions, b) Associated HPSOV is secured closed and deferred per MEL 36-11-03, and c) Bleed systems on remaining engines operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-11-11	Adjacent To Main EICAS	___ INTERMEDIATE BLEED CHECK VALVE INOP OPEN

(O) PROCEDURES

1. When operating in induction icing conditions, set a minimum of 70% N1 (55% below 10,000 feet MSL) on the associated engine and select Nacelle Anti–Ice ON. This will ensure adequate air supply to the Nacelle TAI manifold.
2. With the HPSOV secured closed, it is normal for the PRSOV to close during engine operation at idle or if engine power settings are unequal. Consequently, the associated Engine Bleed Air OFF light will illuminate whenever the PRSOV is closed. Advancing the throttle off idle to approximately 75% N2 will open the PRSOV and extinguish the Engine Bleed Air Off Light.
3. Advisory and Status messages BLEED HP ENG__ will remain displayed.

(M) PROCEDURES

Defer the HPSOV per MEL Item 36-11-03.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
36-12-01A	Precoolers (FAV NOT Secured) **"DISP.APPR.REQ'D"**	**Y**	4	3	**C**	**(O)** One may be inoperative provided: a) Associated ENGINE BLEED switch is selected OFF except for engine start, b) Airplane is not operated in known or forecast induction icing conditions, c) L and R ISLN valves are open for takeoff, and when flaps are operated, d) Bleed systems on remaining engines operate normally, e) Associated Engine Anti-Ice switch remains OFF, and f) Appropriate performance corrections are applied.
36-12-01B	Precoolers (FAV Secured in Intermediate Open Position) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Associated ENGINE BLEED switch is selected OFF except for engine start, b) Airplane is not operated in known or forecast induction icing conditions, c) L and R ISLN valves are open for takeoff, and when flaps are operated, d) Bleed systems on remaining engines operate normally, e) Associated Engine Anti-Ice switch remains OFF, f) Associated Fan Air Valve is secured in the intermediate open position and deferred per MEL 36-12-02A, and g) Appropriate performance corrections are applied. NOTE: Airplane may be dispatched with damage to the precooler (including core damage) provided engine start is not precluded.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-12-01A	Adjacent To Main EICAS Display	___ PRECOOLER INOP
36-12-01B	Adjacent To Main EICAS Display	___ PRECOOLER INOP. ASSOCIATED FAN AIR VALVE SECURED IN THE INTERMEDIATE OPEN POSITION

Continued Next Page

(O) PROCEDURES

36-12-01A

1. For the associated engine, select Engine Bleed OFF except for ground engine start and when bleed air is required for in–flight start.
2. Associated Engine Anti–Ice switch must remain OFF.
3. Operations must NOT be conducted in induction icing conditions.
4. During takeoff and for all flap operations, ensure that the L and R ISLN valve switches are in the open position. This assures air is available for operation of the ADP and L.E. flaps in the event of an adjacent engine shutdown.
5. Ensure appropriate performance limited weight reductions are applied.

36-12-01A	**PRECOOLERS – FAV NOT BLOCKED**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 6,300 lbs. 2. Increase BLOCK FUEL by 0.5%.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 4,500 lbs. 2. Reduce T/O CLIMB LIMIT by 4,500 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 4,500 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 4,500 lbs.

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36-12-01B

1. For the associated engine, select Engine Bleed OFF except for ground engine start and when bleed air is required for in–flight start.
2. Associated Engine Anti–Ice switch must remain OFF.
3. Operations must NOT be conducted in induction icing conditions.
4. During takeoff and for all flap operations, ensure that the L and R ISLN valve switches are in the open position. This assures air is available for operation of the ADP and L.E. flaps in the event of an adjacent engine shutdown.

36-12-01B	**PRECOOLERS – FAV SECURED IN THE INTERMEDIATE OPEN POSITION**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 3,200 lbs.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 2,200 lbs. 2. Reduce T/O CLIMB LIMIT by 2,200 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 2,200 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 2,200 lbs.

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(M) PROCEDURES

36-12-01B

Defer the associated Fan Air Valve (FAV) in the intermediate open position per MEL Item 36-12-02A.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-12-02A	Fan Air (Precooler) Control Systems (FAV In Intermediate Open Position) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One control system may be inoperative provided: a) Associated Fan Air valve is secured in the intermediate open position, and b) Appropriate performance corrections are applied.
36-12-02B	Fan Air (Precooler) Control Systems (FAVs In Intermediate Open Position) **"DISP.APPR.REQ'D"**	**N**	4	2	**C**	**(M)(O)** One control system per side may be inoperative provided: a) Associated fan air valve(s) is secured in the intermediate open position, b) Appropriate performance corrections are applied.
36-12-02C	Fan Air (Precooler) Control Systems (FAVs Full Open) **"DISP.APPR.REQ'D"**	**N**	4	1	**C**	**(M)(O)** Three may be inoperative provided: a) Associated Fan Air Valve(s) is secured full open, b) Airplane is not operated in known or forecast induction icing conditions, and c) Appropriate performance corrections are applied.
36-12-02D	Fan Air (Precooler) Control Systems (FAVs Full Open) **"DISP.APPR.REQ'D"**	**N**	4	0	**C**	**(M)(O)** All may be inoperative provided: a) Associated Fan Air Valve(s) is secured full open, b) Airplane is not operated in known or forecast induction icing conditions, and c) Appropriate performance corrections are applied.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-12-02A	Adjacent To Main EICAS Display	___ FAN AIR PRECOOLER CONTROL SYSTEM INOP. ASSOCIATED FAN AIR VALVE LOCKED IN INTERMEDIATE POSITION
36-12-02B	Adjacent To Main EICAS Display	___ FAN AIR PRECOOLER CONTROL SYSTEM INOP. ASSOCIATED FAN AIR VALVE LOCKED IN INTERMEDIATE POSITION
36-12-02C	Adjacent To Main EICAS Display	___ FAN AIR PRECOOLER CONTROL SYSTEM INOP. ASSOCIATED FAN AIR VALVE LOCKED IN FULL OPEN POSITION
36-12-02D	Adjacent To Main EICAS Display	___ FAN AIR PRECOOLER CONTROL SYSTEM INOP. ASSOCIATED FAN AIR VALVE LOCKED IN FULL OPEN POSITION

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(O) PROCEDURES

36-12-02A

Verify that the AWABS contains MEL item 36–12–02A.

36-12-02A	**FAN AIR (PRECOOLER) CONTROL SYSTEMS /FAV IN INTERMEDIATE OPEN POSITION/**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 3,200 lbs. 2. Increase BLOCK FUEL by 0.3%.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 2,200 lbs. 2. Reduce T/O CLIMB LIMIT by 2,200 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 2,200 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 2,200 lbs.

36-12-02B

Verify that the AWABS contains MEL item 36–12–02B.

36-12-02B	**FAN AIR (PRECOOLER) CONTROL SYSTEMS /FAV S IN INTERMEDIATE OPEN/ POSITION**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 6,400 lbs. 2. Increase BLOCK FUEL by 0.6%.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 4,400 lbs. 2. Reduce T/O CLIMB LIMIT by 4,400 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 4,400 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 4,400 lbs.

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36-12-02C

1. Verify that the AWABS contains MEL item 36–12–02C.
2. Do not operate aircraft in known or forecast induction icing conditions.
3. Status message BLEED FAMV ENG__ will remain displayed for the affected engines.

36-12-02C	**FAN AIR (PRECOOLER) CONTROL SYSTEMS /FAV S FULL OPEN/**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 18,900 lbs. 2. Increase BLOCK FUEL by 1.5%.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 13,500 lbs. 2. Reduce T/O CLIMB LIMIT by 13,500 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 13,500 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 13,500 lbs.

36-12-02D

1. Verify that the AWABS contains MEL item 36–12–02D.
2. Do not operate aircraft in known or forecast induction icing conditions.
3. Status message BLEED FAMV ENG__ will remain displayed for the affected engines.

36-12-02D	**FAN AIR (PRECOOLER) CONTROL SYSTEMS /FAV S FULL OPEN/**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 25,200 lbs. 2. Increase BLOCK FUEL by 2.0%.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 18,000 lbs. 2. Reduce T/O CLIMB LIMIT by 18,000 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 18,000 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 18,000 lbs.

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(M) PROCEDURES

36-12-02A, 36-12-02B

1. General

   The Fan Air Modulating Valve is installed on the right side of the precooler. It is necessary to open the right reverser half to get access to valve. The valve is spring loaded open and is controlled by fan air temperature sensors. It has a locking crank to permit the valve to be operated manually.

2. Deactivate the Fan Air Valve in the intermediate open position

   a) Open the right thrust reverser half (AMM 78–31–00/201).

   b) Remove the positioning screw from the actuator housing. Remove and discard the O ring. Do not disconnect the retaining cable from the positioning screw.

   c) Turn the locking crank to the 45 degree position.

   d) Install the positioning screw in the locking crank until it is engaged with the switch bracket. This will lock the valve in the 45 degree position.

   e) Close the right thrust reverser half (AMM 78–31–00/201).

36-12-02C, 36-12-02D

1. General

   The Fan Air Modulating Valve is installed on the right side of the precooler. It is necessary to open the right reverser half to get access to valve. The valve is spring loaded open and is controlled by fan air temperature sensors. It has a locking crank to permit the valve to be operated manually.

2. Deactivate the Fan Air Valve full open:

   a) Release the pressure in the pneumatic system (AMM 36–00–00/201).

   b) Open the right thrust reverser half (AMM 78–31–00/201).

   c) Disconnect the signal pressure tube from the fan air temperature sensor.

   d) Make sure that the valve position indicator shows that the valve is in the full open position. If necessary, turn the locking crank to the full open position.

   e) Put caps on the open signal pressure tube and tube port.

   f) Lockwire the signal pressure tube to the cooling air tube.

   g) Close the thrust reverser half (AMM 78–31–00/201).

   h) Status message “BLEED FAMV ENG ___” will be displayed.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
36-16-01A	APU Pneumatic Duct (APU electrical power usable) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative (leaking) provided: a) APU check valve operates normally, and b) APU Bleed Air Valve is deactivated closed. NOTE: Two air carts are required for engine start, unless a single cart has a high volume output.
36-16-01B	APU Pneumatic Duct (APU considered inoperative) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative (leaking) provided: a) APU check valve operates normally, b) APU is considered inoperative and deferred per MEL 49-11-01A, and c) APU selector switch remains OFF. NOTE: Two air carts are required for engine start, unless a single cart has a high volume output.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-16-01A	Adjacent To Main EICAS	APU PNEUMATIC DUCT INOP (LEAKING)
36-16-01B	Adjacent To Main EICAS	APU PNEUMATIC DUCT INOP (LEAKING)

(O) PROCEDURES

36-16-01A

1. External pneumatic power is required for normal starting.
2. APU bleed switch OFF.

36-16-01B

Comply with MEL item 49-11-01A (O) procedures.

Continued Next Page

(M) PROCEDURES

36-16-01A

Confirm the operation of the forward APU check valve and configure the valve for dispatch, if necessary.

1. Check that landing gear ground locks are installed and open wing and body gear doors.
2. Install wing and body gear door locks.
3. If the APU check valve has a valve bypass line installed, remove the bypass line from the pneumatic duct. On the downstream side of the APU check valve only, seal the connection on the pneumatic duct with a suitable cap.
4. Using an external air source, pressurize the pneumatic manifold.
5. Check the APU check valve for internal leaks by listening near the valve.
6. Remove external air source.
7. If leak is between the APU and the APU bleed air valve, do not use APU.
8. If leak is between the APU check valve and the APU bleed air valve, and the APU is to be used as a source of electrical power, secure the APU bleed air valve closed.
   A. With the APU shut down and the APU bleed air valve closed, check the valve position indicator in the closed position.
   B. Disconnect the electrical connector from the APU bleed air valve and stow.
9. Remove the wing and body gear door locks and close the doors, if appropriate.

36-16-01B

1. Defer the APU inoperative per MEL item 49–11–01A.
2. If the APU check valve has a valve bypass line installed, remove the bypass line from the pneumatic duct. On the downstream side of the APU check valve only, seal the connection on the pneumatic duct with a suitable cap.
3. Using an external air source, pressurize the pneumatic manifold.
4. Check the APU check valve for internal leaks by listening near the valve.
5. Remove external air source.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-21-01A Duct Pressure Indicating Systems	**Y**	2	1	**C**	**(M)** One may be inoperative provided L and R ISLN valves are verified to operate normally.
36-21-01B Duct Pressure Indicating Systems	**Y**	2	0	**C**	**(M)** Both may be inoperative provided: a) Center Duct Leak Detection system operates normally, and b) L and R ISLN valves are verified to operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-21-01A	Adjacent To Main EICAS Display	___ DUCT PRESS INDICATING SYSTEM INOP
36-21-01B	Adjacent To Main EICAS Display	LEFT AND RIGHT DUCT PRESSURE INDICATING SYSTEM INOP

(M) PROCEDURES

36-21-01A, 36-21-01B

1. Perform the following Wing Isolation Valves Operational Check procedure to verify that the L and R ISLN valves operate normally.
   a) Push the ECS switch on the EICAS Display Select panel.
   b) Position the P5 panel L and R ISLN valve switches closed.
   c) Confirm on the ECS synoptic page that both Left and Right Isolation Valves go to the closed position within ten seconds.
   d) Position the L ISLN valve switch to the open position.
   e) Confirm on the ECS synoptic page that the Left Isolation Valve goes to the open position within ten seconds.
   f) Position the R ISLN valve switch to the open position.
   g) Confirm on the ECS synoptic page that the Right Isolation Valve goes to the open position within ten seconds.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-21-02	ENGINE BLEED OFF Lights	**Y**	4	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-21-02	Adjacent To Main EICAS Display	___ ENGINE BLEED OFF LIGHTS INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-21-03	Engine Bleed Pressure Sensor	**Y**	4	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-21-03	Adjacent To Affected System Fault Light On Pneumatics Panel	___ ENGINE BLEED PRESSURE SENSOR INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-21-04	Engine Bleed Overpressure Switch	**N**	4	3	**C**	**(M)(O)** One may be inoperative deactivated provided: a) Associated High Pressure Shutoff Valve (HPSOV) is secured closed, b) Associated Bleed switch remains OFF for takeoff, c) A minimum of 70% N1 is maintained at or above 10,000 ft. MSL, or 55% N1 is maintained below 10,000 ft. MSL on the associated engine while in induction icing conditions, and d) Bleed systems on remaining engines operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-21-04	Adjacent To EICAS	___ OVERPRESSURE SWITCH INOP. ___ HPSOV INOP – SECURED CLOSED

(O) PROCEDURES

1. When operating in induction icing conditions, set a minimum of 70% N1 (55% N1 below 10,000 ft. MSL) on associated engine(s). This will ensure adequate air supply to the Nacelle TAI manifold.
2. During takeoff and for all flap operations, ensure that the L and R ISLN valve switches are in the open position. This assures air is available for operation of the ADP and L.E. flaps in the event of an adjacent engine shutdown at lower power settings.
3. With the HPSOV secured closed, it is a normal occurrence for the PRSOV to close during engine operation at idle or at times when engine power settings are unequal. As a consequence, the associated Engine Bleed Air OFF light will illuminate whenever the PRSOV is closed. Advancing the Thrust Lever to approximately 75% N2 will open the PRSOV and extinguish the Engine Bleed Air Off Light.
4. Advisory and status messages BLEED HP ENG__ will remain displayed.
5. Set the associated ENGINE BLEED switch OFF for takeoff. The ENGINE BLEED switch may be selected ON after flaps are UP.

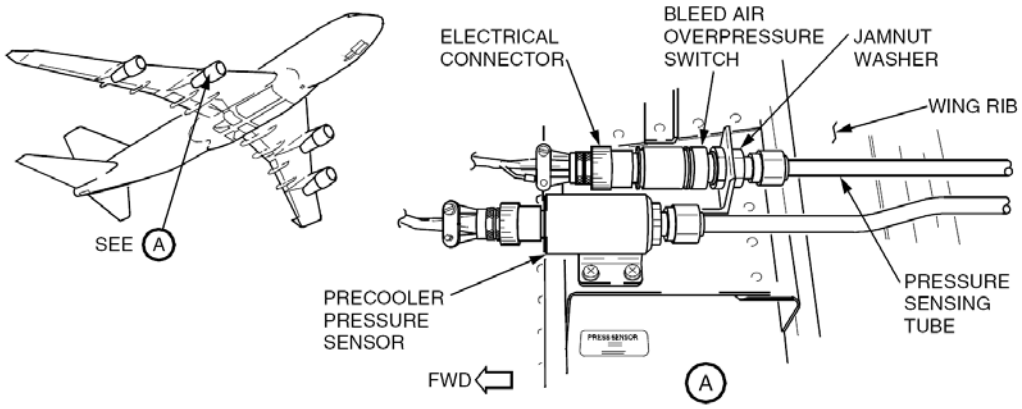
(M) PROCEDURES

Deactivate the associated Bleed switch and secure associated HPSOV closed.

1. Extend and lock the leading edge flaps (AMM 27-81-00/201).
1. Gain access to the associated engine bleed air overpressure switch (AMM 36-21-03/401).
2. Fabricate a 3 to 4 inch jumper wire from type 6A (BMS 13-60 Type 1 or BMS 13-48 Type 10 or equivalents) wire. Terminate wire with P/N BACC47CN1A 20 AWG (or equivalent) pins on each end, per the Standard Wiring Practices Manual.
3. Disconnect the electrical connector from the switch.

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4. Jumper connector locations 2 and 5 with the fabricated jumper wire.
5. Stow the connector.
6. Unlock and retract the leading edge flaps.
7. Defer HPSOV closed per MEL Item 36-11-03.



BLEED AIR OVERPRESSURE SWITCH INSTALLATION
(NOTE: INBOARD ENGINE INSTALLATION SHOWN, OUTBOARD ENGINES HAVE SWITCH AND SENSOR POSITION REVERSED.)

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-22-01	Bleed Air SYS FAULT Lights	**Y**	4	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-22-01	Adjacent To Affected Bleed Air Sys Fault Lights	___ BLEED AIR SYS FAULT LIGHT INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-22-02	APU Isolation VALVE Light	**Y**	1	0	**C**	**(O)** May be inoperative provided associated EICAS message is not displayed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-22-02	Adjacent To APU Isolation Valve Light	APU BLEED VALVE LIGHT INOP

(O) PROCEDURES

Ensure EICAS message BLEED ISLN APU is not displayed.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
36-22-03	Engine Bleed Temperature Sensor	**Y**	4	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
36-22-03	Adjacent To Affected System Fault Light On Pneumatics Panel	___ ENGINE BLEED TEMPERATURE SENSOR INOP

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ATA 38 Contents

38-10-01A Potable Water Systems (Compressor) 38-2
38-10-01B Potable Water Systems (Individual Components) 38-2
38-10-01D Potable Water Systems (Galley Drains) 38-2
38-10-01E Potable Water Systems (Water Quantity Indicating System) 38-2
38-10-01F Potable Water Systems 38-3
38-10-01G Potable Water System Contaminated 38-3
38-30-01A Lavatory Waste Systems 38-6
38-50-01A Vacuum Blower Right Side 38-8
38-50-01B Vacuum Blower Left Side 38-8

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
38-10-01A	Potable Water Systems (Compressor)	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Compressor is deactivated or isolated, and b) Compressor is verified not to have leaks. NOTE: Water system pressure may be supplied on the ground by operating the APU or running an engine.
38-10-01B	Potable Water Systems (Individual Components) (ALL EXCEPT Compressor, Water Quantity Indicating System, Lavatory Sink Drain or Faucet and Galley Drain)	**N**	-	-	**C**	**(M)** Individual components may be inoperative provided: a) Associated components are deactivated or isolated, and b) Associated system components are verified not to have leaks. NOTE 1: Any portion of system which operates normally may be used. NOTE 2: Leaking lines or tank renders system inoperative.
38-10-01C	Potable Water Systems Individual Components (Lavatory Sink Drain or Faucet) **"DISP.APPR.REQ'D"**	**N**	-	-	**C**	**(M)** Lavatory sink drain or faucet may be inoperative provided: a) Associated components are deactivated or isolated, and b) Associated system components are verified not to have leaks. NOTE 1: Any portion of system which operates normally may be used. NOTE 2: Moist towelettes (or equivalent) must be provided for passenger needs.
38-10-01D	Potable Water Systems (Galley Drains)	**N**	8	0	**C**	**(M)(O)** May be inoperative provided associated galley drain is blocked.
38-10-01E	Potable Water Systems (Water Quantity Indicating System) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Indicating system is deactivated or isolated, b) Indicating system is verified not to have leaks, and c) Water tanks are filled PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

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NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
38-10-01F	Potable Water Systems **"DISP.APPR.REQ'D"**	**N**	1	0	**A**	**(M)(O)** May be inoperative provided: a) System is drained, b) System is not serviced, c) Repairs are made within one flight day, and d) Appropriate performance corrections are applied. NOTE: A source of potable water and moist towelettes (or equivalent) must be provided for passenger needs.
38-10-01G	Potable Water System Contaminated **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Each galley potable water shut–off valve is turned to OFF b) Each lavatory sink potable water is deactivated. NOTE: A source of potable water and moist towelettes (or equivalent) must be provided for passenger needs.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
38-10-01A	On The Lead Flight Attendants Control Panel	POTABLE WATER SYSTEM COMPRESSOR INOP
38-10-01B	On The Lead Flight Attendants Control Panel	___ INDIVIDUAL COMPONENTS INOP
38-10-01C	On The Lead Flight Attendants Control Panel	___ LAVATORY SINK DRAIN/FAUCET INOP
38-10-01D	On The FWD Flight Attendants Control Panel	___ GALLEY DRAIN(S) INOP
38-10-01E	Adjacent To The Water Quantity Indicator On The Servicing Panel And The No.2 RH Door Attendants Panel	WATER QUANTITY INDICATING SYSTEM INOP
38-10-01F	On The FWD Flight Attendants Control Panel	POTABLE WATER SYSTEM INOP
38-10-01G	N/A	POTABLE WATER SYSTEM CONTAMINATED

(O) PROCEDURES

38-10-01D

Captain to brief Lead Flight Attendant/Purser which galley drains are blocked.

38-10-01F

Captain to brief Lead Flight Attendant/Purser:

1. To pour a small bottle/cup of water down each lavatory toilet hourly to prevent clogging.
2. That the Galley water and coffee makers cannot be used.

38-10-01F	**POTABLE WATER SYSTEMS**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None **OTHER CORRECTIONS (Manual Weight & Balance Worksheet only)** Use applicable OEW correction for “Potable Water System Drained” in ALM – Weight and Balance Section.

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38-10-01G

Captain to brief Lead Flight Attendant/Purser that the Galley water and coffee makers cannot be used.

NOTE: Rinse water is still available for toilet flushing only.

(M) PROCEDURES

38-10-01A

1. Compressor is deactivated or isolated.
2. Compressor is verified not to have leaks.

   NOTE: Water system pressure is supplied on the ground by operating the APU or a running engine.

38-10-01B, 38-10-01C

1. Associated components are deactivated or isolated.
2. Associated system components are verified not to have leaks.

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

38-10-01D

To deactivate galley basin drain(s), accomplish the following:

Place a strip of Red colored OM–2 “UNSERVICEABLE–DO NOT USE” tape or equivalent* across the applicable galley basin drain.

* An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE” printed legibly in 1 inch black letters.

38-10-01E

1. **PRIOR TO EACH DEPARTURE CHECK**:
   a) Fill the water tanks to full using the overflow method. (Reference Fueling Procedures Manual).
   b) Accomplish required logbook entry.
2. Water quantity indicating system is deactivated or isolated.
3. Water quantity indicating system is verified not to have leaks.

38-10-01F

1. Tanks must be drained.
2. Pull and secure all Lavatory Water Heater circuit breakers located on panels P414, P415 and P85.
3. The outside water servicing cap is safety wired closed and placarded with a manila tag approximately 2 inches by 4 inches or equivalent with a wire attached stating, POTABLE WATER SYSTEM INOP, DO NOT SERVICE.

38-10-01G

1. At each galley, turn WATER SHUTOFF VALVE selector to OFF.
2. Deactivate each lavatory sink potable water per AMM 38–10–02, Page 401.
3. Flush each toilet to verify that water is visible in the bowl and operates normally.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH	REPAIR CATEGORY	REMARKS OR EXCEPTIONS
38-30-01A	Lavatory Waste Systems (Including Wheelchair Accessible Lavatories) (Individual Components)	**N**	-	-	**C**	**(M)** Individual components may be inoperative provided: a) Associated components are deactivated or isolated, and b) Associated system components are verified not to have leaks. NOTE: Any portion of the system which operates normally may be used.
38-30-01B	Lavatory Waste Systems (Including Wheelchair Accessible Lavatories) **"DISP.APPR.REQ'D"**	**N**	-	0	**C**	**(M)(O)** May be inoperative provided: a) Associated components are deactivated or isolated to prevent leaks, and b) Associated lavatory door is secured closed and placarded UNSERVICEABLE – DO NOT USE. NOTE: These provisions are not intended to prohibit inspections by crewmembers.

MEL ITEM	TAB LOCATION	PLACARD TEXT
38-30-01A	On Affected Lavatory Door And Nearest Flight Attendants Control Panel	___ INDIVIDUAL COMPONENT(S) INOP
38-30-01B	On Affected Lavatory Door And Nearest Flight Attendants Control Panel	____ LAVATORY INOP AND LOCKED CLOSED – DO NOT USE

(O) PROCEDURES

38-30-01B

1. Captain to brief Lead Flight Attendant/Purser that the affected lavatory door(s) is to remain locked and not entered except for inspection by crewmembers.
2. Check that the remaining operative lavatories have been appropriately serviced as indicated at the Flight Attendants Control Panel.

(M) PROCEDURES

38-30-01A

Individual components may be inoperative provided:

1. Associated components are deactivated or isolated.
2. Associated system components are verified not to have leaks.

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

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38-30-01B

1. Deactivate or isolate inoperative components to prevent leaks.
2. Close the lavatory door and lock by placing a slotted screwdriver blade in the slot in the VACANT/OCCUPIED sign on the door and move to OCCUPIED position. Check that door will not open.
3. Place a strip of Red colored OM2 “UNSERVICEABLE – DO NOT USE” tape or equivalent* across the lavatory door.

   * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE”.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
38-50-01A	Vacuum Blower Right Side (Upper Deck Aft Lav, and RH Main Deck Lavs, plus Door 1 LH Aft Lav)	**Y**	1	0	**C**	**(O)** May be inoperative provided LH Main Deck Lavs and Upper Deck Fwd Lav operate normally. NOTE: Lavatories will not flush on ground or altitudes below 16,000 ft. Lavatories will flush normally above 16,000 ft, (by differential pressure).
38-50-01B	Vacuum Blower Left Side (Upper Deck Fwd Lav, and LH Main Deck Lavs except Door 1 LH Aft Lav)	**Y**	1	0	**C**	**(O)** May be inoperative provided RH Main Deck Lavs and Upper Deck Aft Lav operate normally. NOTE: Lavatories will not flush on ground or altitudes below 16,000 ft. Lavatories will flush normally above 16,000 ft, (by differential pressure).

MEL ITEM	TAB LOCATION	PLACARD TEXT
38-50-01A	On Forward Flight Attendants Control Panel	RH VACUUM BLOWER INOP. RH MAIN DECK LAVS AND UPPER DECK AFT LAV WILL FLUSH ONLY ABOVE 16,000 FT
38-50-01B	On Forward Flight Attendants Control Panel	LH VACUUM BLOWER INOP. LH MAIN DECK LAVS AND UPPER DECK FWD LAV WILL FLUSH ONLY ABOVE 16,000 FT

(O) PROCEDURES

38-50-01A, 38-50-01B

Captain to brief Flight Attendants to lock affected lavatories below 16,000 ft and unlock affected lavatories above 16,000 ft.

ATA 45 Contents

45-45-01 Central Maintenance Computers....45-2
45-45-02 Ground Test Enable Switches....45-3
45-45-03 Multiple-Input Printer....45-4

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
45-45-01	Central Maintenance Computers	**Y**	2	1	**C**	One may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
45-45-01	Adjacent To Captain's & First Officer's CDU	___ CMC INOP

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
45-45-02	Ground Test Enable Switches	**N**	2	0	**C**	**(M)** May be inoperative provided switches are deactivated.

MEL ITEM	TAB LOCATION	PLACARD TEXT
45-45-02	On The Ground Test Enable Switch Located On Overhead Maintenance Panel (P461)	___ GROUND TEST ENABLE SWITCH INOP

(M) PROCEDURES

To deactivate the ground test enable switches:

1. Pull and secure CMC ENABLE SWITCH circuit breaker 180 DM (P180).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
45-45-03	Multiple-Input Printer	**Y**	1	0	**D**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
45-45-03	Adjacent To The Multiple–Input Printer On The Center Console	MULTIPLE-INPUT PRINTER INOP

ATA 47 Contents

47-11-01A Nitrogen Generation System (NGS) 47-2
47-11-01B Nitrogen Generation Performance 47-2

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
INERT GAS SYSTEM					
47-11-01A Nitrogen Generation System (NGS)	**N**	1	0	**A**	**(M)** May be inoperative provided: a) NGS shutoff valve is deactivated closed, and b) Repairs are made within ten flight days.
47-11-01B Nitrogen Generation Performance	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
47-11-01A	Logbook	NITROGEN GENERATION SYSTEM INOP
47-11-01A	Logbook	NITROGEN GENERATION PERFORMANCE INOP

(M) PROCEDURES

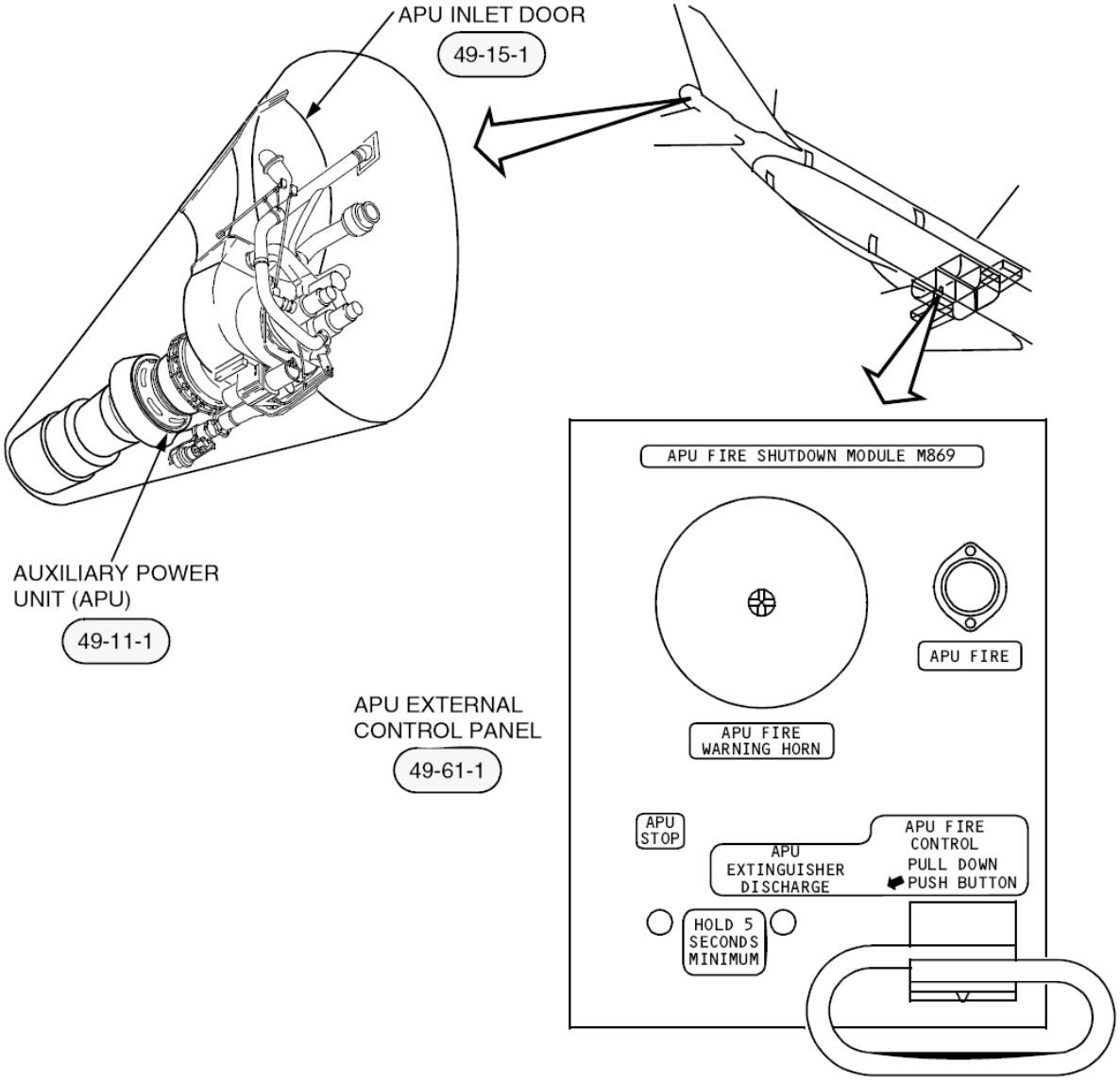
47-11-01A

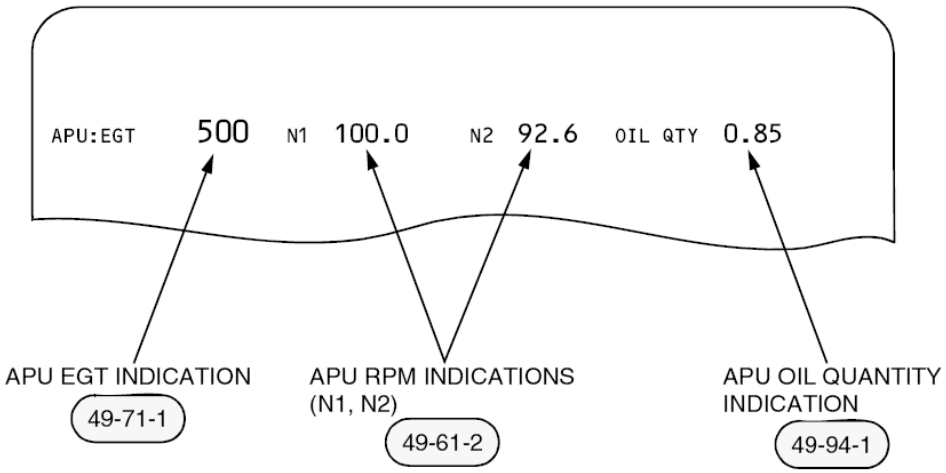
Deactivate the NGS shutoff valve in the closed position.

1. Gain access to the NGS shutoff valve (AMM 47-00-01).
2. Deactivate the shutoff valve in the closed position.

ATA 49 Contents

49-11-01A Auxiliary Power Unit 49-3
49-11-01B Auxiliary Power Unit Pneumatic Function 49-3
49-15-01A APU Inlet Door (Inoperative closed) 49-4
49-15-01B APU Inlet Door (Inoperative partially open, 15 degrees) 49-4
49-61-01 APU External Control Panel 49-8
49-61-02 APU RPM Indications (N1, N2) 49-9
49-71-01 APU EGT Indication 49-10
49-94-01 APU Oil Quantity Indication 49-11


APU INLET DOOR
49-15-1
AUXILIARY POWER UNIT (APU)
49-11-1
APU EXTERNAL CONTROL PANEL
49-61-1
APU FIRE SHUTDOWN MODULE M869
APU FIRE
APU FIRE WARNING HORN
APU STOP
APU EXTINGUISHER DISCHARGE
APU FIRE CONTROL PULL DOWN PUSH BUTTON
HOLD 5 SECONDS MINIMUM


APU:EGT 500 N1 100.0 N2 92.6 OIL QTY 0.85
APU EGT INDICATION
49-71-1
APU RPM INDICATIONS (N1, N2)
49-61-2
APU OIL QUANTITY INDICATION
49-94-1

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
49-11-01A	Auxiliary Power Unit **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided: a) APU is not required for electrical or pneumatic supply, and b) APU battery and APU battery charger operate normally. NOTE: Two air carts are required for engine start, unless a single cart has a high volume output. Theater Restrictions May Apply
49-11-01B	Auxiliary Power Unit Pneumatic Function **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided an alternate air source is available for engine start. NOTE: Two air carts are required for engine start, unless a single cart has a high volume output. Theater Restrictions May Apply

MEL ITEM	TAB LOCATION	PLACARD TEXT
49-11-01A	Adjacent To The APU MASTER Control Switch On P–5 Panel	APU IS INOPERATIVE
49-11-01B	Adjacent To The APU MASTER Control Switch On P–5 Panel	APU PNEUMATICS INOP

(O) PROCEDURES

49-11-01A

1. Do not use APU.
2. APU selector switch must remain OFF.
3. External electrical and pneumatic power are required for normal starting.

   NOTE 1: If external power trips off the line because the demand is too high, it is recommended that, prior to engine start, select L UTILITY power switch OFF. If further electrical load reduction is required, also select R UTILITY power switch OFF. Utility power can be restored after completion of the engine start procedure.

   NOTE 2: If EE CLNG SUP FAN status message is displayed, it can be cleared by rotating the EQUIP COOLING switch to OVRD, then back to NORM.

   NOTE 3: If any RECIRC FAN UPR or LWR status message is displayed, momentarily depress the PACK RST switch until each has cleared.

49-11-01B

1. External pneumatic power is required for normal starting.
2. When using the APU for electrical power, close APU Bleed Air on P5 panel.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
49-15-01A	APU Inlet Door (Inoperative closed) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative secured closed provided APU is not used. NOTE: Two air carts are required for engine start, unless a single cart has a high volume output. Theater Restrictions May Apply
49-15-01B	APU Inlet Door (Inoperative partially open, 15 degrees) **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative partially open provided: a) APU is not used, and b) Appropriate performance corrections are applied. NOTE: Two air carts are required for engine start, unless a single cart has a high volume output. Theater Restrictions May Apply

MEL ITEM	TAB LOCATION	PLACARD TEXT
49-15-01A	On The APU Module On The P–5 Panel	APU INLET DOOR INOP – SECURED CLOSED
49-15-01B	Adjacent To The APU Module On The P–5 Panel	APU INLET DOOR IS INOP 15 DEGREES OPEN

(O) PROCEDURES

49-15-01A

1. Do not use APU.
2. External electrical and pneumatic power are required for normal starting.

   NOTE 1: If external power trips off the line because the demand is too high, it is recommended that, prior to engine start, select R UTILITY power switch OFF. If further electrical load reduction is required, also select L UTILITY power switch OFF. Utility power can be restored after completion of the engine start procedure.

   NOTE 2: If EE CLNG SUP FAN status message is displayed, it can be cleared by rotating the EQUIP COOLING switch to OVRD, then back to NORM.

   NOTE 3: If any RECIRC FAN UPR or LWR status message is displayed, momentarily depress the PACK RST switch until each has cleared.

Continued Next Page

49-15-01B

1. Verify that the AWABS contains MEL item 49–15–01B.
2. Do not use APU.
3. External electrical and pneumatic power are required for normal starting.
4. Reduce performance limited weights by the appropriate adjustments:

   NOTE 1: If external power trips off the line because the demand is too high, it is recommended that, prior to engine start, select R UTILITY power switch OFF. If further electrical load reduction is required, also select L UTILITY power switch OFF. Utility power can be restored after completion of the engine start procedure.

   NOTE 2: If EE CLNG SUP FAN status message is displayed, it can be cleared by rotating the EQUIP COOLING switch to OVRD, then back to NORM.

   NOTE 3: If any RECIRC FAN UPR or LWR status message is displayed, momentarily depress the PACK RST switch until each has cleared.

   NOTE 4: APU DOOR advisory message may be displayed when the APU is not running.

49-15-01B	**APU INLET DOOR – INOPERATIVE OPEN**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 9,700 lbs. 2. Increase BLOCK FUEL by 2.0%.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 3,200 lbs. 2. Reduce T/O CLIMB LIMIT by 3,200 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 3,200 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 3,200 lbs.

Continued Next Page

(M) PROCEDURES

49-15-01A

Secure door closed manually, refer to AMM 49–15–00/201 and perform the following:

1. With manual drive actuator:
   a) Open the P83 panel circuit breakers, AIR INLET DOOR, APU PRIMARY CONT, and APU START.
   b) Close P6 main power supply panel circuit breaker APU ALTN CONT.
   c) Open APU access doors.
   d) Remove access cover (located on top external surface of actuator canister).
   e) With 1/4 inch square drive, turn the transfer socket to MANUAL position.

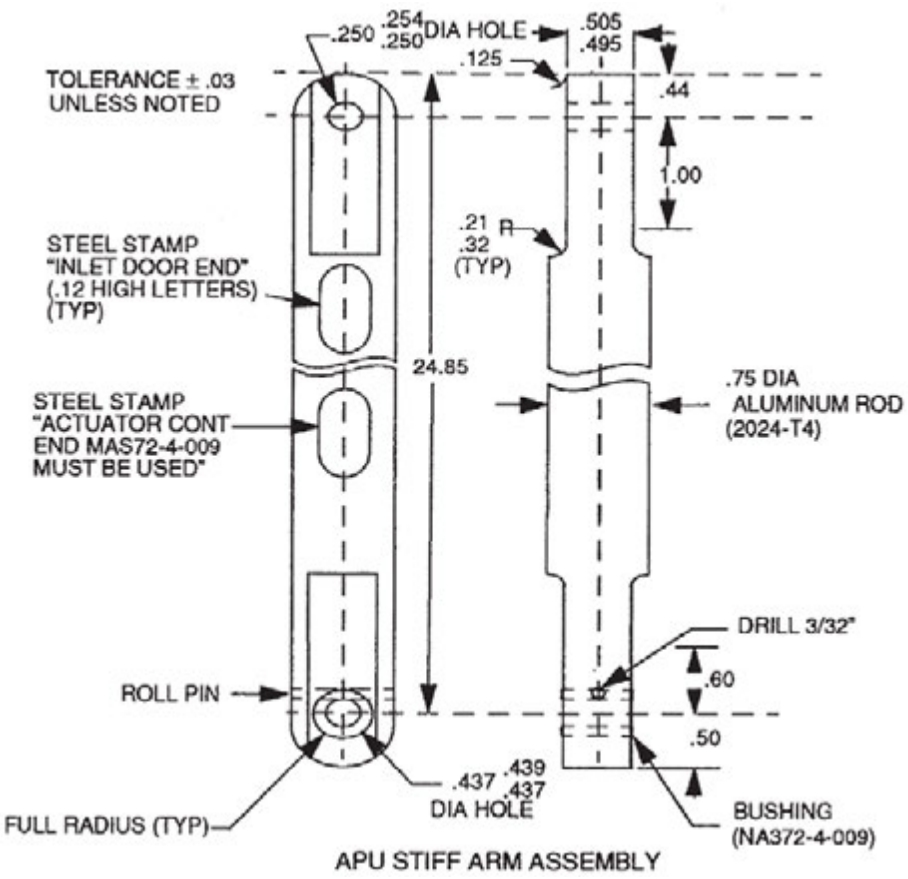
CAUTION: MAKE SURE TO SET THE TRANSFER SOCKET TO THE MANUAL POSITION BEFORE YOU OPERATE THE ACTUATOR WITH YOU HANDS. DAMAGE TO THE ACTUATOR CAN OCCUR.

   f) With 1/4 inch square drive, engage socket on actuator and using 25 pound–inches or les of torque, trun socket counterclockwise until the door is closed.

CAUTION: DO NOT EXCEED 25 POUND–INCHES OF TORQUE AT DRIVE SOCKET. A SHARP TORQUE RISE WILL OCCUR AT END OF ACTUATOR TRAVEL. APPROACH CAUTIOUSLY.

   g) Remove 1/4 inch drive from actuator socket.
   h) With 1/4 inch square drive, turn the transfer socket to the ELECTRICAL position.
   i) Install the access cover.
   j) Close P6 main power supply panel circuit breaker APU ALTN CONT.
   k) Close the P83 panel circuit breakers: AIR INLET DOOR, APU PRIMARY CONT, and APU START.
   l) Close the APU access doors.
2. If door cannot be operated manually refer to AMM 49–15–00/201 and perform the following:
   a) Open the P83 panel circuit breakers: AIR INLET DOOR, APU PRIMARY CONT, and APU START.
   b) Open P6 main power supply panel circuit breaker APU ALTN CONT.
   c) Remove actuator and install fixed link to secure door closed (AMM 49–15–00).
   d) Use Boeing Tool MIT 65B 98813 for fixed link, or manufacture per Figure 49–15–1.
   e) Close P6 main power supply panel circuit breaker APU ALTN CONT.
   f) Close the P83 panel circuit breakers: AIR INLET DOOR, APU PRIMARY CONT, and APU START.
   g) Close the APU access doors.
3. Defer the APU per MEL 49-11-01A.

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APU STIFF ARM ASSEMBLY

49-15-01B

1. Visually check that the APU inlet door is in the inflight position (approx. 15 degrees open).
2. Defer the APU per MEL 49-11-01A.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
49-61-01	APU External Control Panel **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative (and APU used) provided a qualified operator remains in the vicinity of the APU controls on the flight deck. NOTE: This item is designed to allow operation of the APU with any of the following functions inoperative at the APU Remote Control Module (in the right bodygear wheel well.) 1. Fire Warning Light. 2. Fire Warning Horn. 3. Stop Switch. 4. Bottle Discharge Switch. 5. Fire Shutdown Handle (Switch).

MEL ITEM	TAB LOCATION	PLACARD TEXT
49-61-01	Adjacent To APU Control Panel On The P–5 Panel And APU Remote Control Panel In RH Body Gear Wheel Well	(as applicable): (1) FIRE WARNING LIGHT INOP. (2) FIRE WARNING HORN INOP. (3) STOP SWITCH INOP. (4) FIRE BOTTLE DISCHARGE SWITCH INOP. (5) FIRE SHUTDOWN HANDLE (SWITCH) INOP. FUNCTION IS INOP FROM THE APU REMOTE CONTROL MODULE IN RH WHEEL WELL. APU OPERATION MUST BE MONITORED FROM THE COCKPIT.

(O) PROCEDURES

Ensure that a qualified operator remains in the vicinity of the APU controls during APU operation.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
49-61-02	APU RPM Indications (N1, N2)	**Y**	2	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
49-61-02	Adjacent To Auxiliary EICAS Display Unit	___ APU RPM INDICATION INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
49-71-01	APU EGT Indication	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
49-71-01	Adjacent To Auxiliary EICAS Display Unit	APU EGT INDICATION INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
49-94-01	APU Oil Quantity Indication **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative (and APU used) provided: a) APU oil quantity is filled to capacity ONCE EACH FLIGHT DAY **(Log Book Entry Required)**, and b) There is no evidence of above normal oil consumption or leakage. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
49-94-01	Adjacent To Auxiliary EICAS Display Unit	APU OIL QUANTITY INDICATION – INOP

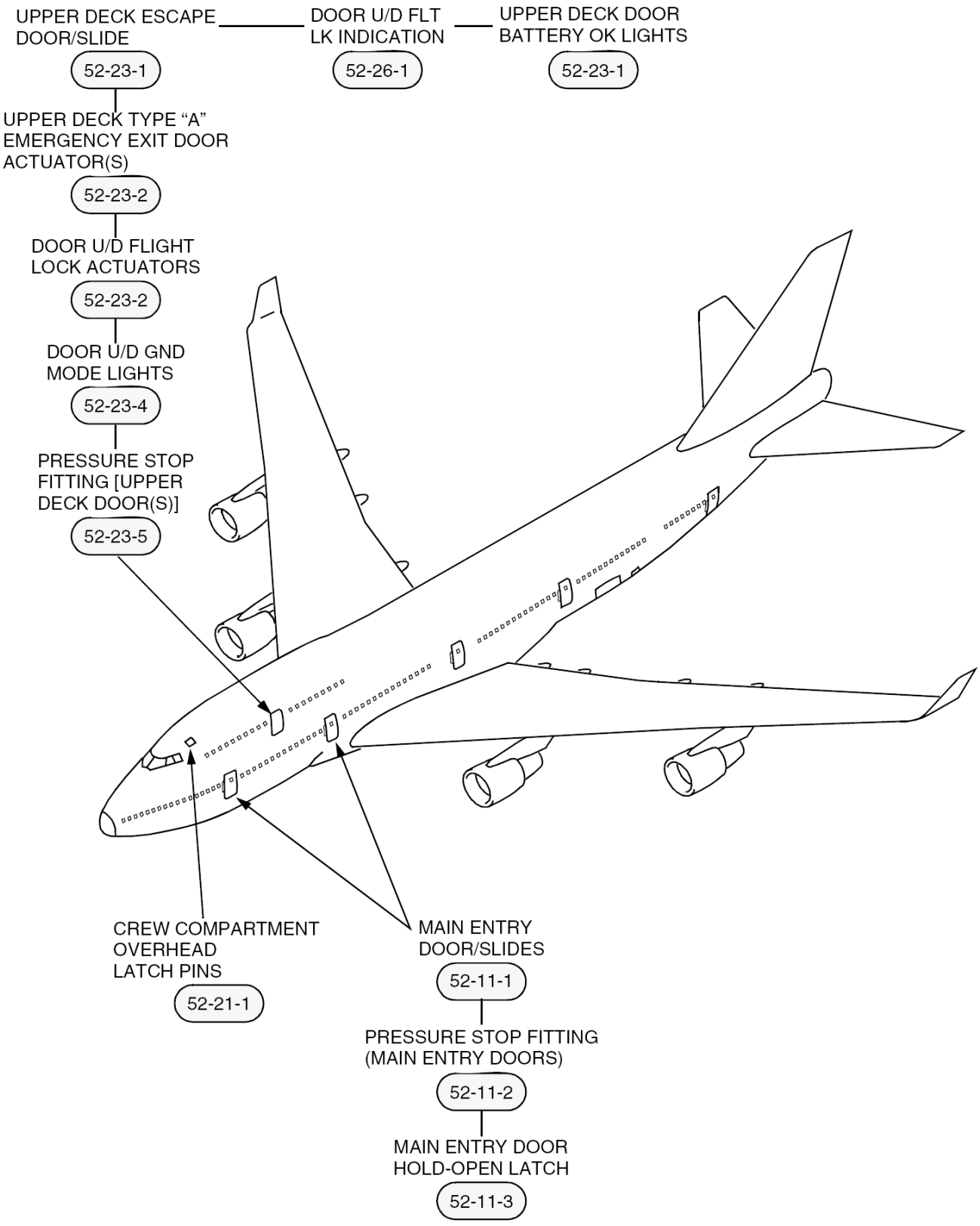
(M) PROCEDURES

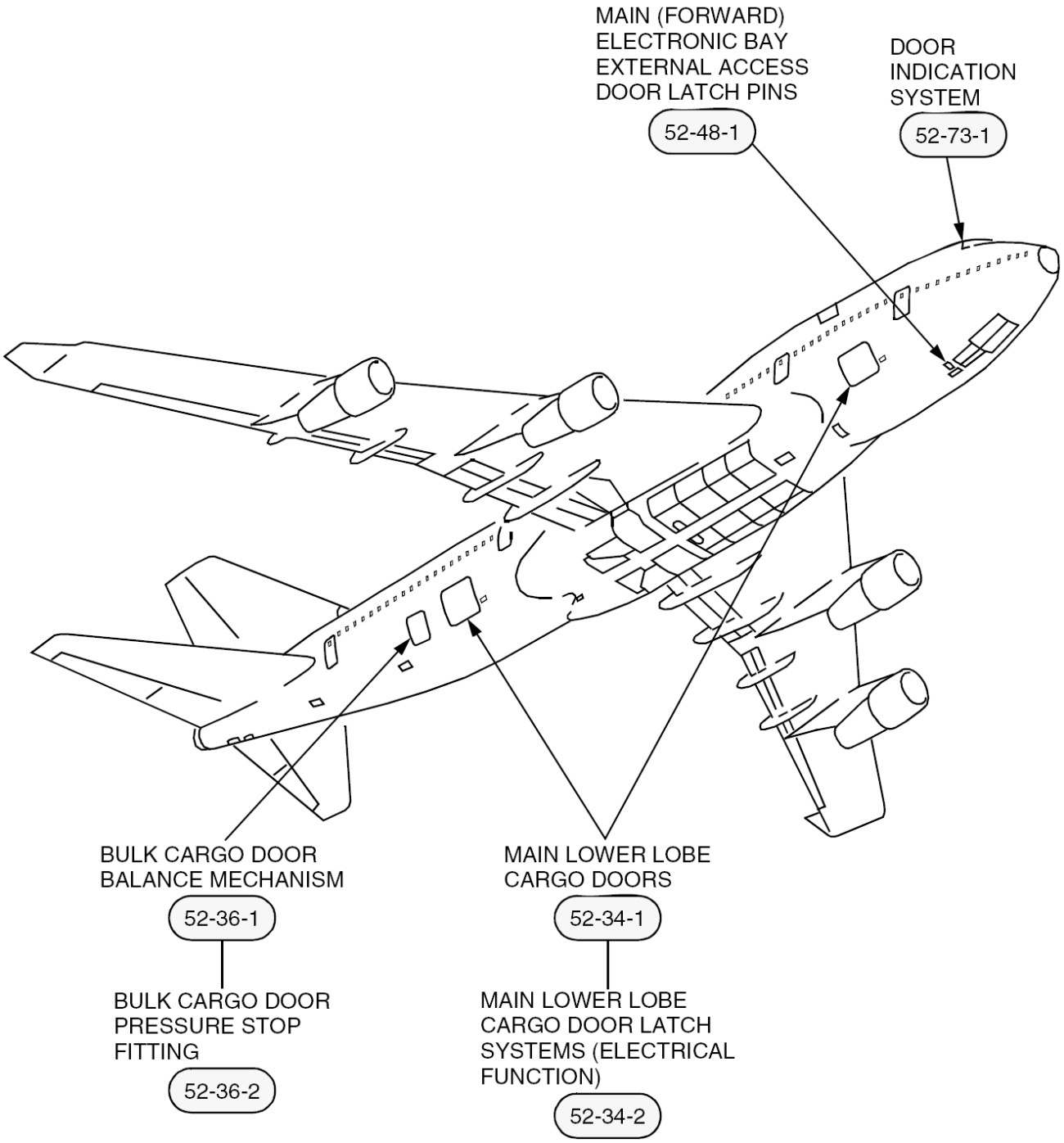
1. Contact Maintenance Control to verify that APU oil consumption is not above normal.
2. **DAILY CHECK** (Once each flight day)
   a) Check that APU oil is to the center of the top oil level sight glass (full level).
   b) If APU oil is not to the center of the top sight glass, replenish APU oil (AMM 12–13–02/301).
   c) Accomplish required logbook entry.

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		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-11-01	Main Entry Doors/Slides **"DISP.APPR.REQ'D"**	**N**	10	9	**A**	**(M)(O)** One may be inoperative or slide missing provided: a) All remaining entry doors are fully operational, b) Associated door is not used for passenger loading, 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 or light associated with the inoperative exit must be covered to obscure the sign, e) Passengers must be advised to not use associated door, f) Crew shall be advised that evacuation procedures must not include associated door, though opposite door may be used, g) Persons (other than assigned cabin attendants) are not permitted to be seated in blocked areas when the associated door is as indicated below: Door L-1 or R-1: From forward cabin end to a line midway between L-1/R-1 and L-2/R-2. Door L-2 or R-2: Halfway to next exits in both directions from the affected door. Door L-3 or R-3: Halfway to next exits in both directions from the affected door. Door L-4 or R-4: Halfway to next exits in both directions from the affected door. Door L-5 or R-5: From a line midway between L-4/R-4 and L-5/R-5 to aft cabin end. NOTE: Restriction extends across entire cabin and those seats located on designated boundaries will be blocked.

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FLIGHT CREW MAY PLACARD		REPAIR CATEGORY
ITEM NO.	**NAME / DESCRIPTION**	**REMARKS OR EXCEPTIONS**
52-11-01	Main Entry Doors/Slides (Continued)	h) Tapes or ropes of conspicuous colors shall be installed to block access to unusable seats before boarding of passengers, i) Conspicuous signs and placards shall be placed in appropriate locations to indicate seats are not to be occupied by passengers, j) Main passenger aisles, cross aisles and exit access areas must not be blocked, k) Seating capacity must not exceed rated capacity of remaining pairs of exits, l) For extended overwater operations, occupancy shall not exceed the normal rated capacity of the slide/rafts, or the remaining slide/rafts, or the rated overload capacity of the slide/rafts remaining after loss of one additional slide/raft of greatest capacity, whichever is least, and m) Repairs are made within one flight day. NOTE 1: Blocked seating listed in the Aircraft Loading Manual (ALM) meet the requirements of proviso g), k), and l). Refer to the Aircraft Loading Manual (ALM) Section 463 “B-747-400 Door Slide/Raft Inoperative” for blocked seating tables and procedures to be used for Weight and Balance. NOTE 2: Cabin attendant’s may be stationed in the vicinity of each door within blocked areas. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-11-01	Adjacent To /On Affected Door/Slide And Nearest Flight Attendants Control Panel	___ DOOR/SLIDE INOP ___ ROWS OF SEATS ARE BLOCKED

(O) PROCEDURES

1. Ensure passengers and flight crewmembers are briefed regarding exits which are not usable for emergency evacuation prior to takeoff and landing.
2. Ensure affected door is not used for passenger loading.

Continued Next Page

(M) PROCEDURES

1. General

   If dispatching with a slide missing, retain the door slide hardware (eg; girt bar, etc.) with the aircraft for reinstallation when the replacement slide is installed.

2. When dispatching with an inoperative door/slide, perform the following;

   a) Each 'EMERGENCY EXIT' sign or light, identifying an unusable evacuation route (including the floor proximity escape path marking system arrows) should be covered or otherwise blocked so that it is not visible.

   b) The inoperative door(s) must be blocked by the use of UNSERVICABLE – DO NOT USE tape or equivalent*.

3. Blocked seating listed in the Aircraft Loading Manual (ALM) meet the requirements of proviso g), k), and l).

   a) Refer to the ALM Section 463 "B-747-400 Door Slide/Raft Inoperative" for blocked seating tables.

   b) All affected passenger seats must be blocked off by the use of UNSERVICABLE – DO NOT USE tape or equivalent*.

      NOTE: Do not block any passenger aisles or cross ship aisles.

   *An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words "UNSERVICEABLE – DO NOT USE " printed legibly in 1 inch black letters.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
52-11-02	Pressure Stop Fitting Assemblies (Main Entry Doors) **"DISP.APPR.REQ'D"**	**N** -	-	**C**	**(M)(O)** One forward fitting assembly and/or one aft fitting assembly per door (with a total of 10 fittings per airplane) may be missing or inoperative provided: a) There are no visible defects on other fitting assemblies for the associated door(s), b) Cabin altitude auto controller operates normally, and c) Maximum cabin differential pressure is limited to 5.2 psi.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-11-02	Adjacent To Flight/Cabin Altitude Selector (P5) Panel	___ PRESSURE STOP FITTING ASSEMBLIES MISSING/INOP. MAXIMUM CABIN DIFF. PRESS. 5.2 PSI

(O) PROCEDURES

1. Limit airplane altitude to 11,000 ft MSL to assure 5.2 psi differential pressure is not exceeded.
2. Monitor cabin altitude.

(M) PROCEDURES

Visually inspect the remaining fittings on the affected door for any possible defects.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-11-03A	Main Entry Door Hold-Open Latch **"DISP.APPR.REQ'D"**	**N**	1	0	**B**	**(M)(O)** May be inoperative provided the associated door is considered inoperative and deferred per MEL 52-11-01.
52-11-03B	Main Entry Door Hold-Open Latch (Latch Release Lever)	**Y**	1	0	**C**	May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-11-03A	On Affected Door	___ ENTRY DOOR HOLD OPEN LATCH INOP
52-11-03B	On Affected Door	ENTRY DOOR HOLD – OPEN LATCH RELEASE LEVER INOP

(O) PROCEDURES

52-11-03A

Comply with MEL item 52–11–01 (O) procedure.

(M) PROCEDURES

52-11-03A

Defer associated door inoperative per MEL 52-11-01.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-21-01	Crew Compartment Overhead Hatch Latch Pins	**N**	4	3	**C**	**(M)** One may be removed provided hatch operates normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-21-01	On Flight Deck Overhead Crew Escape Hatch	___ FLIGHT DECK OVERHEAD HATCH LATCH PIN REMOVED

(M) PROCEDURES

1. Remove the crew compartment overhead hatch (AMM 52–21–01).
2. Using the applicable steps of 747 Overhaul Manual, 52–22–11, remove the broken or cracked latch pin assembly.
3. Replace the latch pin assembly with washer(s) the same diameter as Part No. 63–1658 and equal in thickness to the rack gear on the latch pin assembly.
4. Reassemble the door mechanism using the applicable steps of 747 Overhaul Manual, 52–22–11.
5. Reinstall the crew compartment overhead hatch (AMM 52–21–01).

   NOTE: With a missing latch pin with the extend stop collar, be careful not to over–rotate the door handle when securing the door closed. When closing the door, do not rotate the outside handle past the hatch skin cutout or the interior handle past the closed guide markings.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-23-01A	Upper Deck Escape Door/Slide **"DISP.APPR.REQ'D"**	**N**	2	1	**C**	**(M)(O)** One may be inoperative, or a slide missing provided upper deck occupancy is limited to 24 passengers.
52-23-01B	Upper Deck Escape Door/Slide **"DISP.APPR.REQ'D"**	**N**	2	0	**C**	**(M)(O)** May be inoperative, or slides missing provided: a) Upper deck occupancy is limited to those flight crewmembers essential to the flight (including official observer in observer seats) during takeoff or landing, and b) Inertial escape reels are installed and operate normally for upper deck occupants.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-23-01A	On Affected Slide Bustle And Nearest Flight Attendants Control Panel	UPPER DECK DOOR/SLIDE INOP
52-23-01B	On Affected Slide Bustle And Captains Glareshield	BOTH UPPER DECK DOOR/SLIDES INOP OR MISSING

(O) PROCEDURES

52-23-01A

1. Upper deck occupancy is limited to 24 passengers.
2. Captain to ensure that upper deck passengers, if any, and flight crewmembers are briefed prior to takeoff and landing regarding the exit which is not usable for emergency evacuation.

52-23-01B

Captain to ensure that flight crewmembers are briefed prior to takeoff and landing regarding the exits that are not usable for emergency evacuation.

Continued Next Page

(M) PROCEDURES

52-23-01A

1. General

   If dispatching with a missing slide(s), retain the door slide hardware (eg; girt bar, etc.) with the aircraft for reinstallation when the replacement slide is installed.

2. When dispatching with a inoperative door/slide(s), perform the following:

   a) Each “EMERGENCY EXIT” sign or light, identifying an unusable evacuation route (including the floor proximity escape path marking system arrows) should be covered or otherwise blocked so that it is not visible.

   b) The inoperative door(s) must be blocked by the use of UNSERVICABLE – DO NOT USE tape or equivalent*.

   c) All affected passenger seats must be blocked off by the use of UNSERVICABLE – DO NOT USE tape or equivalent*. Refer to applicable configuration.

      NOTE: Do not block any passenger aisles or cross ship aisles.

      * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE ” printed legibly in 1 inch black letters.

   NOTE: One Door or Slide may be inoperative provided occupancy is limited to twenty four (24) passengers.

52-23-01B

1. General

   If dispatching with a missing slide(s), retain the door slide hardware (eg; girt bar, etc.) with the aircraft for reinstallation when the replacement slide is installed.

2. When dispatching with a inoperative door/slide(s), perform the following:

   a) Each ‘EMERGENCY EXIT’ sign or light, identifying an unusable evacuation route (including the floor proximity escape path marking system arrows) should be covered or otherwise blocked so that it is not visible.

   b) The inoperative door(s) must be blocked by the use of UNSERVICABLE – DO NOT USE tape or equivalent*.

   c) Block passenger access to upper deck with conspicuous barrier strap or rope and placard NO PASSENGER ACCESS.

      * An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words “UNSERVICEABLE – DO NOT USE ” printed legibly in 1 inch black letters.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-23-02	Upper Deck Type “A” Emergency Exit Door Actuator(s)	**Y**	2	0	**C**	Electrical operation feature of one or both doors may be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-23-02	On Affected Door And Nearest Flight Attendants Control Panel	___ UPPER DECK DOOR/ EMERGENCY EXIT ELECTRICAL OPERATION INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-23-03	DOOR U/D Flight Lock Actuators **"Contact MCC"**	**N**	2	0	**C**	**(M)(O)** May be inoperative or missing provided: a) Each upper deck Type “A” (Upper Deck L and R Emergency Exit) door is verified to be capable of being unlatched PRIOR TO EACH DEPARTURE **(Log Book Entry Required)**, and b) Cabin attendant(s) monitors the door handle(s) when cabin differential pressure is less than 3.0 PSI. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-23-03	On Affected Door And Nearest Flight Attendants Control Panel	___ UPPER DECK DOOR FLIGHT LOCK ACTUATOR INOP

(O) PROCEDURES

1. Captain to notify Lead Flight Attendant/Purser to designate one flight attendant to monitor each door handle when the cabin differential pressure is below 3.0 PSI.
2. Flight deck crew will inform the designated flight attendant(s) when to monitor the door(s) and when monitoring is no longer necessary.

   NOTE: The Ground Mode light may remain illuminated and EICAS DOOR U/D FLT LOCK caution and status messages may remain displayed.

Continued Next Page

(M) PROCEDURES

1. If desired, remove the affected flight deck door lock actuator as follows:
   a) Pull and secure the affected (LH) (RH) UPR DK DR FLT LOCK circuit breaker on the P180 panel.
   b) Disconnect, cap and stow flight lock electrical connector.
   c) Remove the flight lock actuator (AMM 52–23–08).
2. PRIOR TO EACH DEPARTURE:
   a) Verify the affected door is capable of being unlatched, as follows:
      1) Place the door mode selector lever in the MANUAL position.

CAUTION: DO NOT RAISE THE INSIDE HANDLE WHEN THE DOOR IS IN THE AUTOMATIC MODE, DOOR WILL OPEN RAPIDLY AND SLIDE WILL DEPLOY AND INFLATE.

      2) Rotate the inside handle to the OPEN position. Door should translate upward approximately 2 inches.
      3) Rotate the inside handle downward to the latched position.
3. Accomplish required logbook entry.

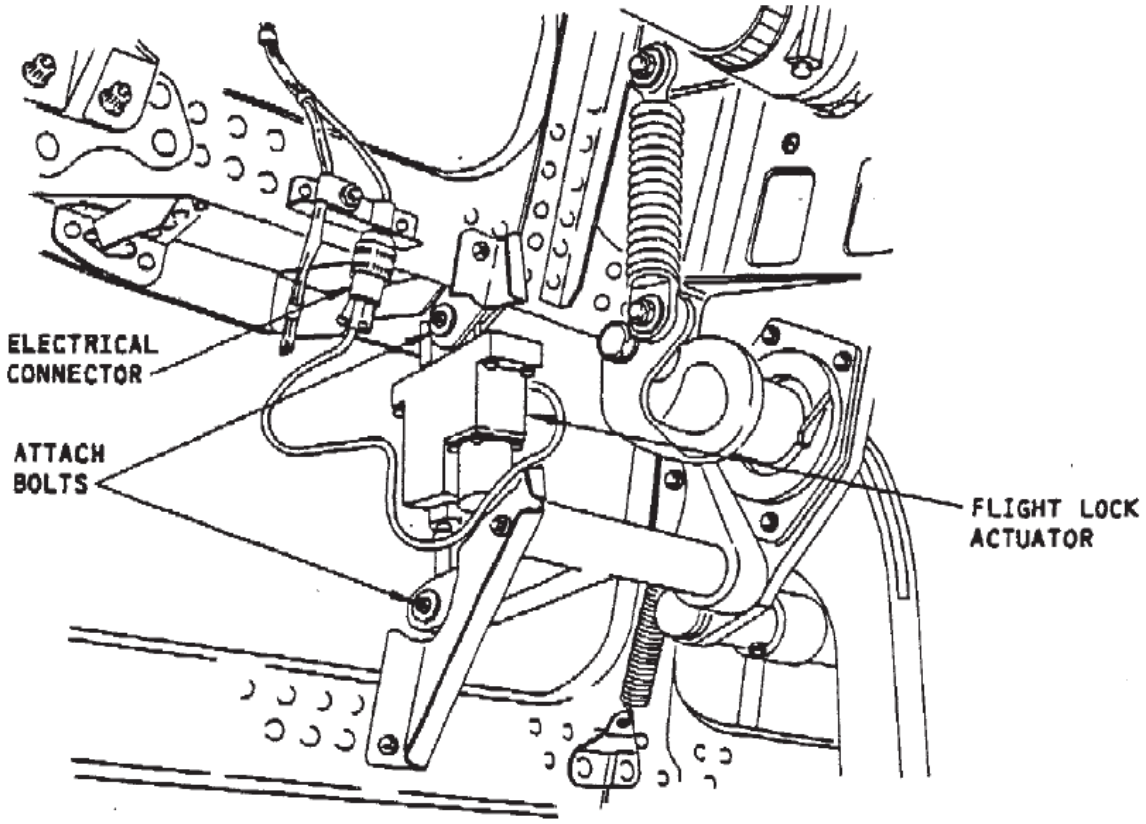


FIGURE 52–23–3

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-23-04A	DOOR U/D GND MODE Lights (Above Door) **"Contact MCC"**	**N**	2	0	**C**	**(M)** May be inoperative provided: a) Each upper deck Type “A” (Upper Deck L and R Emergency Exit) door is verified to be capable of being unlatched PRIOR TO EACH DEPARTURE **(Log Book Entry Required)**, and b) DOOR U/D FLT LK message operates normally. **Repetitive Check Required (Yellow Placard)**
52-23-04B	DOOR U/D GND MODE Lights (Above Door) **"Contact MCC"**	**N**	2	0	**C**	**(M)(O)** May be inoperative provided: a) Each upper deck Type “A” (Upper Deck L and R Emergency Exit) door is verified to be capable of being unlatched PRIOR TO EACH DEPARTURE **(Log Book Entry Required)**, and b) Cabin attendant(s) monitors the door handle(s) when cabin differential pressure is less than 3.0 psi. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-23-04A	On Affected Door And Nearest Flight Attendants Control Panel	___ UPPER DECK DOOR GND MODE LIGHT INOP
52-23-04B	On Affected Door And Nearest Flight Attendants Control Panel	___ UPPER DECK DOOR GND MODE LIGHT INOP

(O) PROCEDURES

52-23-04B

1. Captain to notify Lead Flight Attendant/Purser to designate one flight attendant to monitor each door handle when the cabin differential pressure is below 3.0 psi.
2. Flight deck crew will inform the designated flight attendant(s) when to monitor the door(s) and when monitoring is no longer necessary.

Continued Next Page

(M) PROCEDURES

52-23-04A

1. **PRIOR TO EACH DEPARTURE CHECK**:

   Verify that the affected door is capable of being unlatched, as follows:

   a) Place the door mode selector lever in the MANUAL position.

CAUTION: DO NOT RAISE THE INSIDE HANDLE WHEN THE DOOR IS IN THE AUTOMATIC MODE, DOOR WILL OPEN RAPIDLY AND SLIDE WILL DEPLOY AND INFLATE.

   b) Rotate the inside handle to the OPEN position. Door should translate upward approximately 2 inches.

   c) Rotate the inside handle downward to the latched position.

2. Ensure the EICAS message DOOR U/D FLT LK is operating normally.

   a) Energize all 28 V DC Buses.

   b) Remove the flight lock actuator access panel. (These are the 10 inch square access panels located in the door upper lining just left of the inside handle).

   c) Rotate the flight lock lever arm until it comes in contact with the inside handle shaft and verify the EICAS message DOOR U/D FLT LK, appears on EICAS.

   d) Release the flight lock lever arm and verify that the EICAS Message DOOR U/D FLT LK is not displayed.

WARNING: REFER TO AMM 32–09–02/201. PUT THE AIR/GROUND RELAY SYSTEM IN THE AIR MODE. AUTOMATIC OPERATION OF THE AIRPLANE SYSTEM IN THE AIR MODE CAN CAUSE INJURY OR DAMAGE.

   e) Put the Air/Ground relay system in the Air Mode (AMM 32–09–02/201).

   f) Pull 180G02 LH UPR DK DR FLT LOCK circuit breaker on the P180 DC Power Distribution Panel.

   g) Check that the EICAS Message DOOR U/D FLT LK appears on EICAS.

   h) Close 180G02 LH UPR DK DR FLT LOCK circuit breaker on the P180 DC Power Distribution Panel.

   i) Check that the EICAS Message DOOR U/D FLT LK extinguishes.

   j) Pull 180D02 RH UPR DK DR FLT LK circuit breaker on the P180 DC Power Distribution Panel.

   k) Check that the Message DOOR U/D FLT LK appears on EICAS.

   l) Close 180D02 RH UPR DK DR FLT LK circuit breaker on the P180 DC Power Distribution Panel.

   m) Check that the EICAS Message DOOR U/D FLT LK is extinguished.

   n) Put the Air/Ground relay system back to the Ground Mode (AMM 32–09–02/201).

3. Restore the flight lock actuator access panel.

4. Accomplish required logbook entry.

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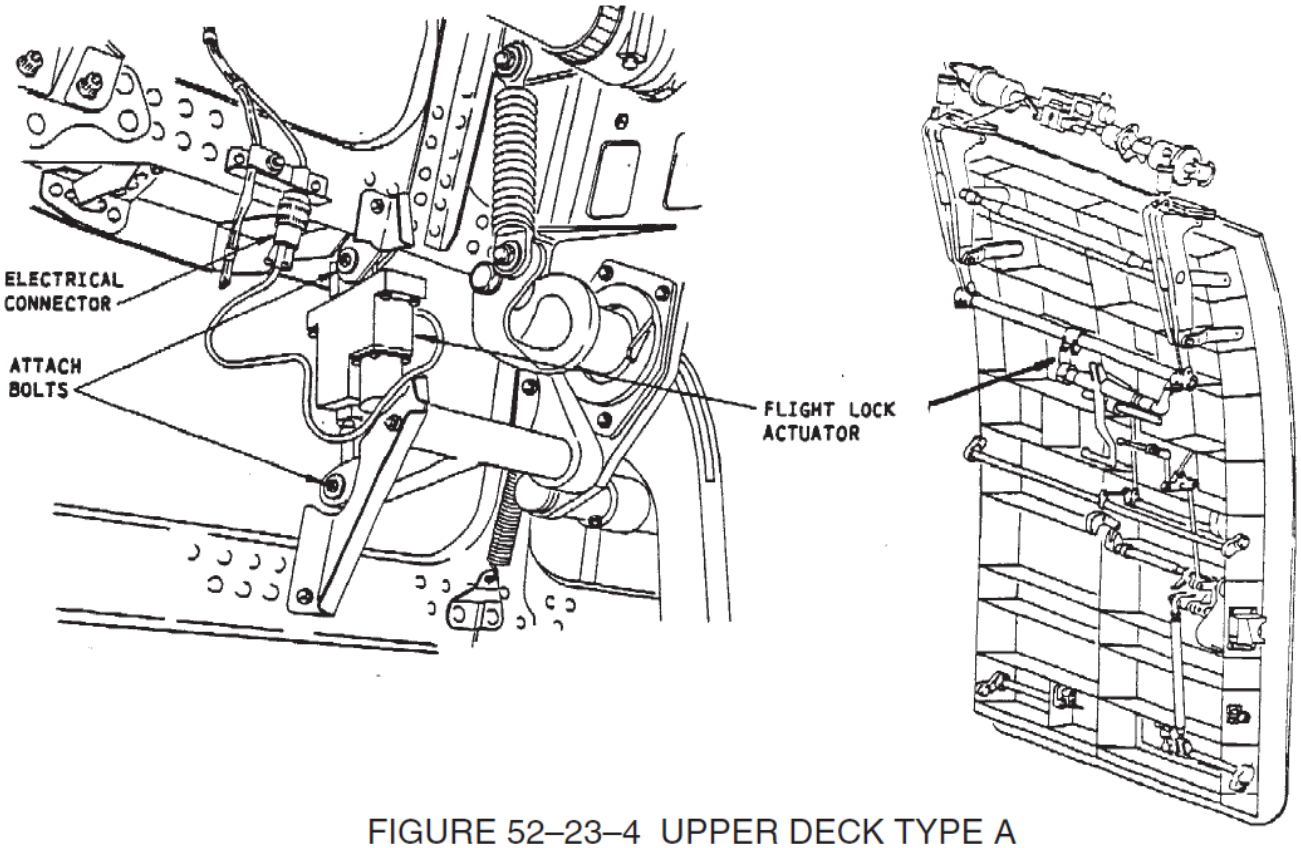


FIGURE 52–23–4 UPPER DECK TYPE A DOOR

52-23-04B

PRIOR TO EACH DEPARTURE CHECK:

1. Verify that the affected door is capable of being unlatched, as follows:
   a) Place the door mode selector lever in the MANUAL position.

CAUTION: DO NOT RAISE THE INSIDE HANDLE WHEN THE DOOR IS IN THE AUTOMATIC MODE, DOOR WILL OPEN RAPIDLY AND SLIDE WILL DEPLOY AND INFLATE.

   b) Rotate the inside handle to the OPEN position. Door should translate upward approximately 2 inches.
   c) Rotate the inside handle downward to the latched position.
2. Accomplish required logbook entry.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
52-23-05A	Pressure Stop Fitting Assemblies (Upper Deck Door(s) Pressurized) **"DISP.APPR.REQ'D"**	**N** -	-	**C**	**(M)(O)** One forward fitting assembly and/or one aft fitting assembly per door may be missing or inoperative provided: a) There are no visible defects on remaining fitting assemblies for associated door(s), b) Cabin altitude auto controller operates normally, and c) Maximum cabin pressure differential is limited to 3.0 psi.
52-23-05B	Pressure Stop Fitting Assemblies (Upper Deck Door(s) Unpressurized) **"DISP.APPR.REQ'D"**	**N** -	-	**C**	**(M)(O)** One forward fitting assembly and/or one aft fitting assembly per door may be missing or inoperative provided: a) Flight is conducted in an unpressurized configuration, b) No revenue passengers are carried, c) Extended overwater flight is prohibited, d) Flight remains within 60 minutes of a suitable airport, e) Crew rest areas with a door and smoke detection system are empty, locked closed and placarded UNSERVICEABLE – DO NOT USE, f) Lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section), and g) If cargo containers are carried in the lower cargo compartments, they must be empty. NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-23-05A	Adjacent To Main EICAS And Nearest Attendants Control Panel	___ UPPER DECK DOOR PRESSURE STOP FITTING ASSEMBLIES MISSING/INOP. MAXIMUM CABIN DIFF PRESS 3.0 PSI.
52-23-05B	Adjacent To Main EICAS And Nearest Attendants Control Panel On Crew Rest Door And Lead Flight Attendants Control Panel	___ UPPER DECK DOOR PRESSURE STOP FITTING ASSEMBLIES MISSING/INOP. DOOR 5 CREW REST AREA INOP AND LOCKED CLOSED – DO NOT USE

Continued Next Page

(O) PROCEDURES

52-23-05A

1. In Automatic Cabin Altitude control, limit airplane altitude to 7,000 ft MSL to assure maximum cabin pressure differential limit of 3.0 psi is not exceeded.
2. Monitor cabin altitude.

52-23-05B

1. Carriage of revenue passengers – Not Authorized
2. Comply with MEL Item 21-31-01B (O) procedure.

(M) PROCEDURES

52-23-05A

Visually inspect remaining fitting assemblies on affected door(s) for defects.

52-23-05B

Defer Outflow Valves inoperative per MEL item 21-31-01B.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-23-06A	Door U/D FLT LK Indication **"Contact MCC"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided: a) Each upper deck Type “A” (Upper Deck L and R Emergency Exit) door is verified to be capable of being unlatched PRIOR TO EACH DEPARTURE **(Log Book Entry Required)**, and b) Cabin attendant(s) monitors the door handle(s) when cabin differential pressure is less than 3.0 psi. **Repetitive Check Required (Yellow Placard)**
52-23-06B	Door U/D FLT LK Indication **"Contact MCC"**	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Each upper deck Type “A” (Upper Deck L and R Emergency Exit) door is verified to be capable of being unlatched PRIOR TO EACH DEPARTURE **(Log Book Entry Required)**, and b) DOOR U/D GND MODE lights above each upper deck type “A” door operates normally. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-23-06A	Adjacent To Main EICAS Display	DOOR U/D FLT LK INDICATION INOP
52-23-06B	Adjacent To Main EICAS Display	DOOR U/D FLT LK INDICATION INOP

OPERATIONS (O)

52-23-06A

1. Captain to notify Lead Flight Attendant/Purser to designate one flight attendant to monitor each door handle when the cabin differential pressure is below 3.0 psi.
2. Flight deck crew will inform the designated flight attendant(s) when to monitor the door(s) and when monitoring is no longer necessary.

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(M) PROCEDURES

52-23-06A

PRIOR TO EACH DEPARTURE CHECK:

1. Verify both upper deck doors are capable of being unlatched.

   Place the Mode Selector Lever in the MANUAL position.

CAUTION: DO NOT RAISE INSIDE HANDLE WHEN DOOR IS IN AUTOMATIC MODE. DOOR WILL OPEN RAPIDLY AND SLIDE WILL BE DEPLOYED, AND INFLATE.

   a) Rotate the inside handle to the open position. Door should translate upward approximately 2 inches.

   b) Rotate the inside handle downward to the latched position.

2. Accomplish required logbook entry.

52-23-06B

1. **PRIOR TO EACH DEPARTURE CHECK:**

   Verify both upper deck doors are capable of being unlatched.

   a) Place the Mode Selector Lever in the MANUAL position.

CAUTION: DO NOT RAISE INSIDE HANDLE WHEN DOOR IS IN AUTOMATIC MODE. DOOR WILL OPEN RAPIDLY AND SLIDE WILL BE DEPLOYED, AND INFLATE.

   b) Rotate the inside handle to the open position. Door should translate upward approximately 2 inches.

   c) Rotate the inside handle downward to the latched position.

2. Ensure both DOOR U/D GND MODE lights operate normally.

   a) Energize all 28 VDC Busses.

   b) Remove the flight lock actuator access panel. (These are the 10 inch square access panels located in the door upper lining just left of the inside handle)

   c) Rotate the flight lock lever arm until it comes in contact with the inside handle shaft and verify the DOOR U/D GND MODE light is extinguished.

   d) Release the flight lock lever arm and verify the DOOR U/D GND MODE light is illuminated.

WARNING: REFER TO AMM 32–09–02/201 TO PUT THE AIR/GROUND RELAY SYSTEM IN THE AIR MODE. AUTOMATIC OPERATION OF AIRPLANE SYSTEMS IN THE AIR MODE CAN CAUSE INJURY OR DAMAGE.

   e) Put the air/ground relay system in the air mode (AMM 32–09–02/201).

   f) Pull 180G02 LH UPR DK DR FLT LOCK circuit breaker on the P180 DC Power Distribution Panel.

   g) Check that the DOOR U/D GND MODE light above the left hand door is illuminated.

   h) Close 180G02 LH UPR DK DR FLT LOCK circuit breaker on the P180 DC Power Distribution Panel.

   i) Check that the DOOR U/D GND MODE light above the left hand door is extinguished.

   j) Pull 180D02 RH UPR DK DR FLT LOCK circuit breaker on the P180 DC Power Distribution Panel.

Continued Next Page

k) Check that the DOOR U/D GND MODE light above the right hand door is illuminated.

l) Close 180D02 RH UPR DK DR FLT LOCK circuit breaker on the P180 DC Power Distribution Panel.

m) Check that the DOOR U/D GND MODE light above the right hand door is extinguished.

n) Put the air/ground relay system in the ground mode (AMM 32–09–02/201).

o) Restore the flight lock actuator access panel.

3. Accomplish required logbook entry.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
52-23-07	Upper Deck Door Battery OK Lights **"Contact MCC"**	**N**	2	1	**C**	**(M)** One press-to-test system may be inoperative provided associated system is verified to be adequately charged ONCE EACH FLIGHT DAY **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-23-07	Adjacent To Affected BATTERY OK Light	___ UPPER DECK DOOR BATTERY OK LIGHT INOP

(M) PROCEDURES

<u>DAILY CHECK</u> (Once each Flight Day):

1. Depress and hold operational BATTERY OK lighted switch on DOOR ANNUNCIATOR module above door. Check that light illuminates after a delay of approximately 2 seconds and extinguishes when switch is released.
2. Open hinged access panels in overhead between doors.
3. Remove batteries from M7037 and M7038 receptacles (AMM 52–23–14).
4. Install M7037 battery in M7038 receptacle and M7038 battery in M7037 receptacle.
5. Depress and hold operational BATTERY OK lighted switch on DOOR ANNUNCIATOR module above door. Check that light illuminates after a delay of approximately 2 seconds and extinguishes when switch is released. If light illuminates, both systems are adequately charged.
6. Close access panels.
7. Accomplish required logbook entry.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-32-04	Cargo Door Lift Systems (Main Lower Lobe Cargo Doors) **"Contact MCC"**	**N**	2	0	**B**	**(M)** May be inoperative provided: a) There is no damage to the latch mechanism, b) There is no damage to the master latch lock mechanism, and c) Associated door is opened, closed and locked using an accepted maintenance manual procedure **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-32-04	On Affected Cargo Door Control Panel And Adjacent To Main EICAS Display	___ MAIN LOWER LOBE CARGO DOOR ELECTRICAL or MANUAL LIFT SYSTEM INOP

(M) PROCEDURES

1. Visually check the associated cargo door to ensure that there is no damage to the latch mechanism or the exterior master latch lock mechanism.
2. **PRIOR TO EACH DEPARTURE CHECK:**
   a) The door must be locked and unlocked using the exterior master latch lock handle only.
   b) The door must be locked and latched for dispatch.
   c) Open, close, latch and lock the door using the appropriate Maintenance Manual procedure (AMM 52–34–00), Description and Operation for Lower Lobe Cargo Door. The appropriate procedure will be contained in one or more of the following Maintenance Manual paragraphs:
      1) Open door manually.
      2) Close door manually.
      3) Open or close door with one or more electrically inoperative actuators.
      4) Open door with a jammed actuator or mechanism.
      5) Close door with a jammed actuator or mechanism.

WARNING: TO AVOID PERSONNEL INJURY OR CARGO DOOR DAMAGE, USE ONLY AN APPROPRIATE SLING WHEN DOOR MUST BE LIFTED OR SUPPORTED DUE OR A JAMMED ACTUATOR OR MECHANISM.

3. Accomplish required logbook entry.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-32-05	Cargo Door Hook Systems (Main Lower Lobe Cargo Doors) (Electrical Function) **"Contact MCC"**	**N**	2	0	**C**	**(M)** May be inoperative provided: a) Manual function operates normally, b) There is no damage to the hook mechanism, and c) Associated door(s) is closed and locked using an accepted maintenance manual procedure **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-32-05	On Affected Cargo Door Control Panel And Adjacent To Main EICAS Display	___ MAIN LOWER LOBE CARGO DOOR HOOK SYSTEM ELECTRICAL FUNCTION INOP

(M) PROCEDURES

1. Visually check the associated cargo door's hook mechanism to confirm no damage exists.
2. PRIOR TO EACH DEPARTURE CHECK:
   a) Open, close, latch and lock the door using the appropriate Maintenance Manual procedure (AMM 52–34–00), Description and Operation for Lower Lobe Cargo Door. The appropriate procedure will be contained in one or more of the following Maintenance Manual paragraphs:
      1) Open door manually.
      2) Close door manually.
      3) Open or close door with one or more electrically inoperative actuators.
   b) Accomplish required logbook entry.

NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH			
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
52-34-01	Main Lower Lobe Cargo Doors **"DISP.APPR.REQ'D"**	**N**	2	-	**C**	**(M)(O)** One latch or hinge section per door may be missing be inoperative provided: a) A visual check is made PRIOR TO EACH DEPARTURE to ensure that there is no damage to remaining hinge sections or latches on the associated door **(Log Book Entry Required),** b) Flight is conducted in an unpressurized configuration, c) No revenue passengers are carried, d) Extended overwater flight is prohibited, e) Flight remains within 60 minutes of a suitable airport, f) Crew rest areas with a door and smoke detection system are empty, locked closed and placarded UNSERVICEABLE – DO NOT USE, g) Lower lobe cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast, and/or flyaway kits (see MEL Instructions Section), and h) If cargo containers are carried in the lower cargo compartments, they must be empty. NOTE: Remarks on the Weight Data Record (WDR) will provide verification to flight crews that bin(s) is empty or contains only approved materials. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-34-01	Adjacent To Applicable EICAS Display Unit And Cabin Altitude Selector On Crew Rest Door 5 And Lead Flight Attendants Control Panel	___ LOWER LOBE CARGO DOOR LATCH OR HINGE INOP DOOR 5 CREW REST AREA INOP AND LOCKED CLOSED – DO NOT USE

(O) PROCEDURES

1. Carriage of revenue passengers – Not Authorized
2. Comply with MEL Item 21-31-01B (O) procedure.

Continued Next Page

(M) PROCEDURES

1. Visually inspect all remaining hinge sections and latches for damage.
2. Defer both Outflow valves secured Open per MEL item 21–31–01B.

PRIOR TO EACH DEPARTURE CHECK:

1. Visually check all hinges and latches on affected door to confirm that no additional damage exists.
2. Accomplish required logbook entry.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
52-34-02	Main Lower Lobe Cargo Door Latch Systems (Electrical Function) **"Contact MCC"**	**N** 2	0	**C**	**(M)** May be inoperative provided: a) Manual function operates normally, b) There is no damage to the latch mechanism, c) There is no damage to the master latch lock mechanism, d) Doors are closed and locked using an accepted maintenance manual procedure, and e) All latch cams on lower sill are confirmed to be in the closed position after affected door(s) is closed and latched **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-34-02	On Affected Cargo Door Control Panel And Adjacent To Lower EICAS DISPLAY	___ MAIN LOWER LOBE CARGO DOOR LATCH ELECTRICAL FUNCTION INOP

(M) PROCEDURES

1. Deactivate affected cargo door electrical system by pulling and securing the following circuit breakers for the applicable door:

Forward Lower Lobe Cargo Door

Circuit Breaker	**Panel Location**	**Panel**	**Location**
LOWER CARGO DOOR FWD		P414	MEC – LEFT (A21)
FWD CARGO DOOR CONTROL		P414	MEC – LEFT (F15)

Aft Lower Lobe Cargo Door:

Circuit Breaker		
AFT CARGO DOOR POWER UNITS	P59	Aft Cargo Comp
AFT CARGO DOOR CONTROL	P414	MEC – LEFT (F16)

2. Open affected door manually and ensure manual operation of the door latch system is normal (AMM 52–34–00/201).

Continued Next Page

3. Remove cargo door liner as required to gain access to the latch mechanism and master latch lock mechanism. Reference figure 52–34–2.2

4. Visually inspect the master latch mechanism (Reference figure 52–34–2.3) and the latch mechanism (Reference figure 52–34–2.4). Confirm that no damage exists to either mechanism.

5. Secure cargo door liner.

6. **AFTER USE CHECK** (Each time cargo door is opened):

   a) Close, latch and lock the door using the procedure for manual operation (AMM 52–34–00/201), “Close the Door Manually”.

   b) Verify all cam latches and lock sectors are in the closed/locked position by checking the marks on the latch cams through the viewing ports along the bottom of the doors and by checking the pressure relief doors closed and the master latch handle fully stowed. (Refer to Figure 52–34–2.1)

   c) Accomplish required logbook entry.

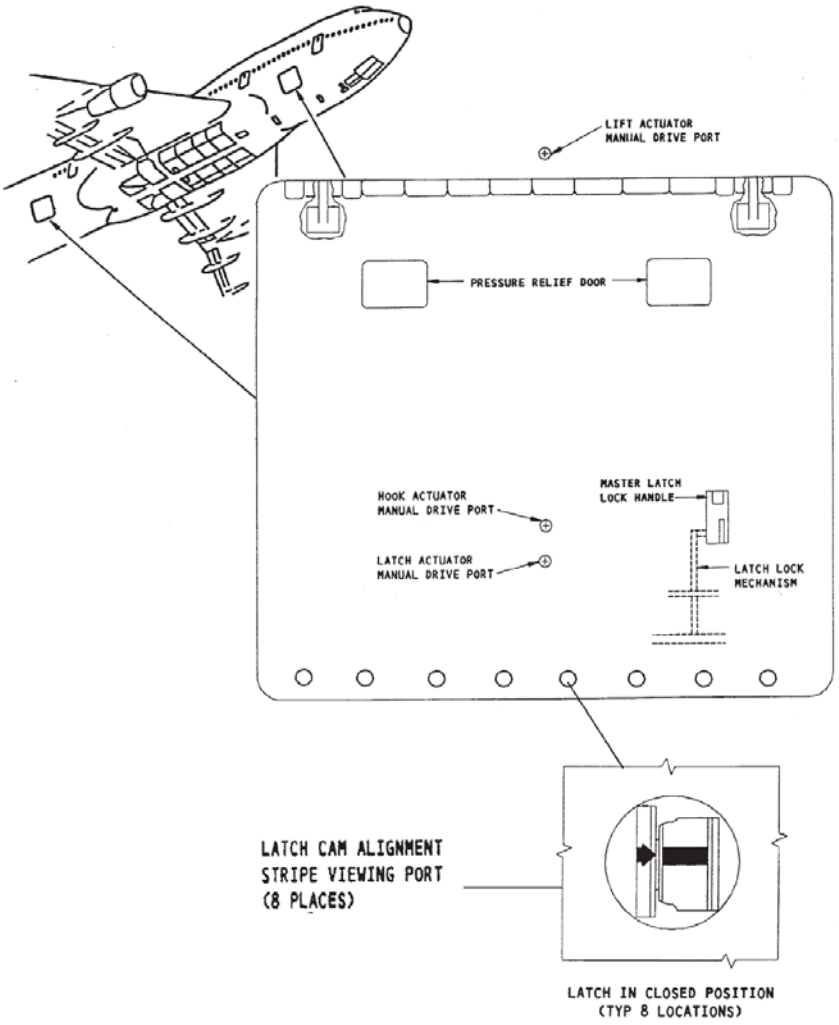


Figure 52–34–2.1 TYPICAL LOWER LOBE CARGO DOOR LOCATION

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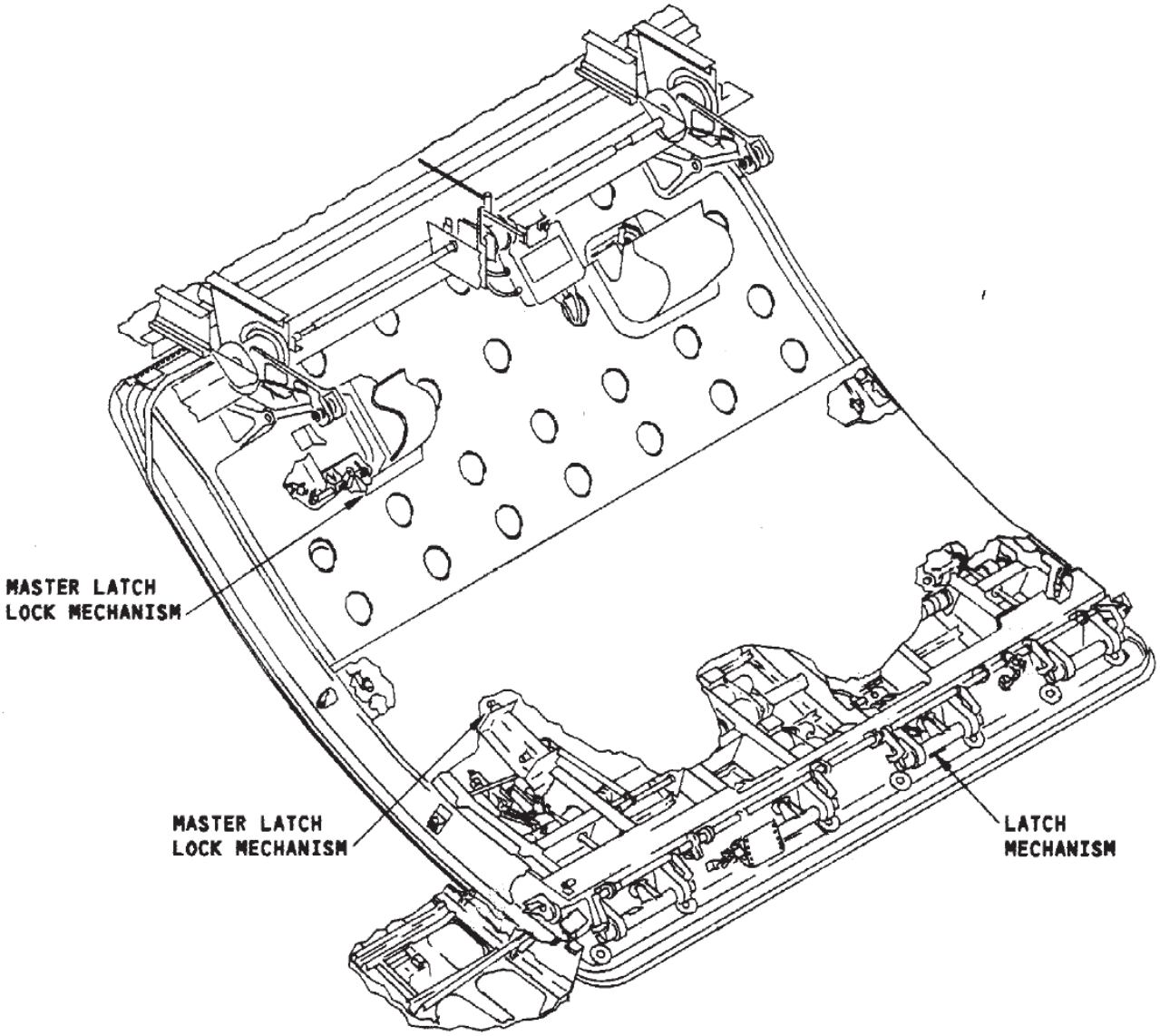


Figure 52–34–2.2 FWD AND AFT LOWER LOBE CARGO DOOR LATCH SYSTEMS

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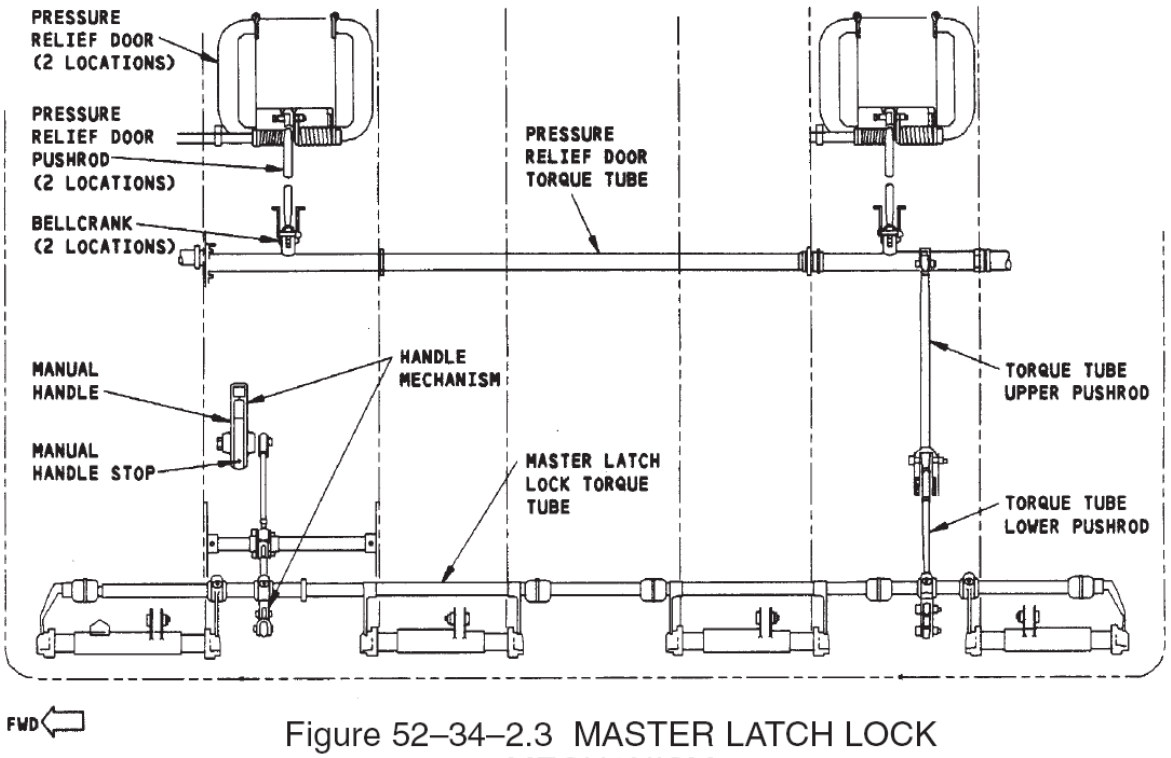


Figure 52–34–2.3 MASTER LATCH LOCK MECHANISM

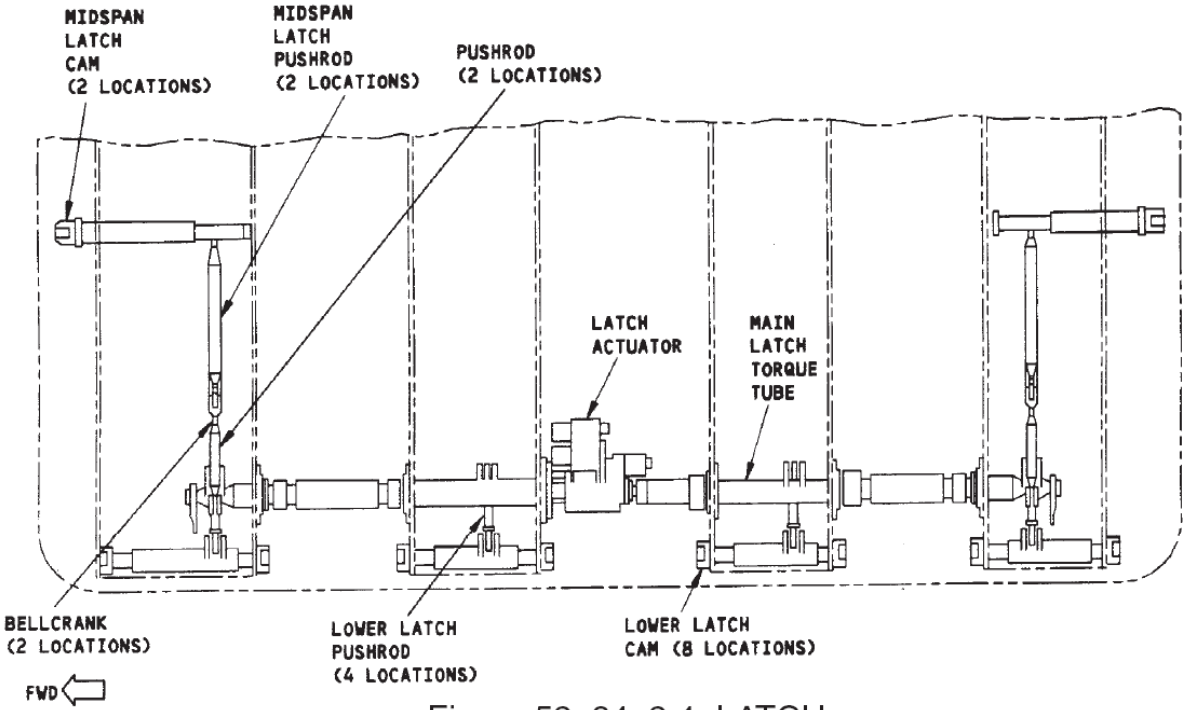


Figure 52–34–2.4 LATCH MECHANISM

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-36-01	Bulk Cargo Door Balance Mechanism **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)** May be inoperative provided a safety hold open device is used when door is in OPEN position.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-36-01	On Bulk Cargo Door Uplatch Release Handle	BULK CARGO DOOR BALANCE MECHANISM INOP

(M) PROCEDURES

1. Open Bulk Cargo to the full open position
2. Ensure the door latch support clip at the door's lower edge engages a latch in the compartment ceiling.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
52-36-02	Bulk Cargo Door Pressure Stop Fitting Assemblies **"DISP.APPR.REQ'D"**	**N** -	-	**C**	**(M)(O)** One forward fitting assembly or one aft fitting assembly may be missing or inoperative provided: a) There are no visible defects on remaining fitting assemblies for associated door, b) Cabin altitude auto controller operates normally, and c) Maximum cabin pressure differential is limited to 5.2 psi.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-36-02	Adjacent To Flight/Cabin Altitude Selector (P5) Panel	BULK CARGO DOOR ___ PRESSURE STOP FITTING ASSEMBLIES MISSING/ INOP. MAXIMUM CABIN DIFF. PRESS. 5.2 PSI

(O) PROCEDURES

1. Limit airplane altitude to 11,000 ft MSL to assure 5.2 psi differential pressure is not exceeded.
2. Monitor cabin altitude

(M) PROCEDURES

Visually inspect remaining fittings on the affected door(s) for defects.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-48-01A	Main (Forward) Electronic Bay External Access Door Latch Pins (Door Operates Normally)	**N**	4	3	**C**	**(M)** One may be damaged or removed provided door operates normally.
52-48-01B	Main (Forward) Electronic Bay External Access Door Latch Pins (Door Does Not Operate Normally) **"Contact MCC"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Integrity of remaining pins is verified, b) Remaining pins are verified to be fully engaged, and c) Verification procedures are repeated each time the door is opened and closed **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-48-01A	Adjacent To LOWER EICAS DISPLAY	___ MAIN (FORWARD) ELECTRONIC BAY EXTERNAL ACCESS DOOR LATCH PIN DAMAGED or REMOVED – DOOR OPERATIVE
52-48-01B	Adjacent To LOWER EICAS DISPLAY	___ MAIN (FORWARD) ELECTRONIC BAY EXTERNAL ACCESS DOOR LATCH PIN INOP DOOR INOP – DO NOT OPEN.

(O) PROCEDURES

52-48-01B

NOTE 1: The inspection and logbook entry are only required after affected door is opened and closed.

NOTE 2: Do not open the access door on preflight.

(M) PROCEDURES

52-48-01A

NOTE: With a missing latch pin with the extend stop collar, be careful not to over–rotate the door handle when securing the door closed. When closing the door, do not rotate the outside handle past the hatch skin cutout or the interior handle past the closed guide markings.

To remove Latch Pin:

1. Remove the door (AMM 52–48–03/401).
2. Remove the damaged latch pin assembly using the appropriate steps in the 747 Overhaul Manual, Electronics Access Door Assembly, 52–48–21.
3. Replace the latch pin assembly with washer(s) that are the same diameter as the adjacent washers and the same total thickness as the rack gear on the latch pin assembly.

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4. Reassemble door mechanism using the appropriate steps in the 747 Overhaul Manual, Electronics Access Door Assembly, 52–48–21.
5. Reinstall the door (AMM 52–48–03/403).

52-48-01B

1. Confirm the integrity of the access door's remaining latch pins from inside the airplane in the Main Electronic Bay:
   a) Remove the internal handle and door liner.
   b) Visually confirm the integrity of the three remaining latch pins.
   c) Replace door liner and internal handle.
   d) Confirm the door handle is in the latched position.
   e) Visually confirm the three remaining latch pins are fully engaged with their respective keeper fittings.
2. Placard the Forward Electronics Bay Access Door as follows:
   a) Obtain a Yellow Placard.
   b) Print on placard DISCREPANCY in bold letters "FWD ELECT BAY EXT ACCESS DOOR LATCH PIN INOP – MEL ITEM 52–48–01B, AFTER USE CHECK MUST BE ACCOMPLISHED IF DOOR IS OPENED ".
   c) Trim placard so that only the DISCREPANCY portion remains.
   d) Affix placard adjacent to Main Equipment Center Light Switch on forward side of door well.
3. **AFTER USE CHECK** (Each time door is opened and closed):
   a) To verify the closed door's remaining pins are fully engaged before departure:

      NOTE: The following check must be accomplished just prior to departure. If door is opened again before departure, the Prior to Flight Check must again be performed.

      1) Confirm that the exterior operating handle is stowed flush with the door and is secured in the latched position by the handle latch.
      2) Confirm that the door is flush with the fuselage skin.
      3) Confirm that the door is latched by pushing inward on the door and confirm that it does not move.

   b) Accomplish required logbook entry.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-51-02A	Boeing/C&D Aerospace Enhanced Flight Deck Security Door Automatic Locking System **"Contact MCC"**	**Y**	1	0	**A**	**(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.
52-51-02B	Flight Deck Access Panel System (Keypad, Door Chime)	**N**	1	0	**B**	**(M)(O)** May be inoperative provided: a) Keypad is deactivated, and b) Alternate procedures are established and used.
52-51-02C	Flight Deck Access Panel System (Keypad, Door Chime) LEDs	**Y**	-	0	**C**	**(O)** May be inoperative provided alternate procedures are used.
52-51-02D	Flight Deck Access Panel System (Keypad, Door Chime) Door Bell Mode	**Y**	1	0	**C**	**(O)** May be inoperative provided alternate procedures are used.
52-51-02E	Flight Deck Door LOCK FAIL Light	**N**	1	0	**C**	**(M)** May be inoperative provided automatic lock controls are verified to operate normally.
52-51-02F	Flight Deck Door AUTO UNLK Light	**N**	1	0	**C**	**(M)** May be inoperative provided: a) Automatic lock controls are verified to operate normally, and b) Door chime operates normally.
52-51-02G	Flight Deck Door Lock Control Selector	**N**	1	0	**B**	**(M)(O)** May be inoperative provided: a) Keypad is deactivated and deferred per MEL 52-51-02B, b) Automatic lock is verified to operate normally, and c) Alternate procedures are used.
52-51-02H	Pressure Rate-of-Change Sensing Module **"Contact MCC"**	**N**	1	0	**A**	**(M)(O)** May be inoperative in the latched position provided: a) Pressure sensing module is deactivated and deferred per MEL 52-51-02A, and b) Repairs are made within two flight days.

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MEL ITEM	TAB LOCATION	PLACARD TEXT
52-51-02A	Adjacent To The Flt Deck Door Switch On The P5 Panel	ENHANCED FLIGHT DECK SECURITY DOOR AUTOMATIC LOCKING SYSTEM INOP
52-51-02B	Adjacent To The Flt Deck Door Switch On The P5 Panel	FLIGHT DECK ACCESS PANEL SYSTEM (KEYPAD, DOOR CHIME) INOP
52-51-02C	Adjacent To The Flt Deck Door Switch On The P5 Panel	___ FLIGHT DECK ACCESS PANEL SYSTEM LEDs INOP
52-51-02D	Adjacent To The Flt Deck Door Switch On The P5 Panel	FLIGHT DECK ACCESS PANEL SYSTEM (DOOR BELL MODE) INOP
52-51-02E	Adjacent To The Flt Deck Door Switch On The P5 Panel	FLIGHT DECK DOOR LOCK FAIL LIGHT INOP
52-51-02F	Adjacent To The Flt Deck Door Switch On The P5 Panel	FLIGHT DECK DOOR AUTO UNLK LIGHT INOP
52-51-02G	Adjacent To The Flt Deck Door Switch On The P5 Panel	FLIGHT DECK DOOR LOCK CONTROL SELECTOR INOP
52-51-02H	Adjacent To The Flt Deck Door Switch On The P5 Panel	FLIGHT DECK DOOR PRESSURE RATE–OF–CHANGE SENSING MODULE INOP

(O) PROCEDURES

52-51-02A, 52-51-02H

1. Captain to brief Lead Flight Attendant/Purser that the flight deck door automatic locking system is inoperative.
2. Ensure deadbolt lock is engaged when the flight deck door is in the closed position.

   NOTE: Disregard Dead bolt placard “FOR GROUND USE ONLY.”
3. Crewmember will use the interphone to notify flight deck of desired entry.
4. Flight deck crewmember will use peep hole to verify entrants identification.
5. When a flight deck crewmember exits the flight deck, a flight attendant will enter the flight deck to re–engage the dead bolt until the occupant returns unless an XCM remains on the flight deck.

   NOTE: LOCK FAIL light will remain illuminated when the Chime Module switch is in the OFF position (guard extended).

52-51-02B

1. Captain to brief Lead Flight Attendant/Purser that the flight deck access panel keypad is inoperative.
2. Crewmember will use the interphone to notify flight deck of desired entry.

   NOTE: When flight deck door is closed with the flight deck not occupied, make sure the Chime Module switch is in the OFF position (guard extended).

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52-51-02C

1. Captain to brief Lead Flight Attendant/Purser which flight deck access panel keypad LED light(s) is inoperative:
   a) If the amber light is inoperative, it will not illuminate when emergency access code is entered in the keypad.
   b) If the green light is inoperative, it will not illuminate when door is unlocked.
   c) If the red light is inoperative, it will not illuminate when access is denied or Flight Deck Access System switch is OFF.
   d) Communicate via interphone to coordinate flight deck entry.
   e) If emergency access code is entered, wait 60 seconds then open the flight deck door.

   NOTE 1: Door is set to open 60 seconds after correct access code is entered on keypad. Depending on keypad LED failure, a watch may be needed to time the unlock sequence

   NOTE 2: Audible cues, such as cockpit door unlock tone and mechanical sounds of door lock solenoid releasing, may aid in determining when cockpit door is unlocked.

52-51-02D

1. Captain to brief Lead Flight Attendant/Purser that the door bell mode is inoperative.
2. Communicate via interphone to coordinate flight deck entry.

52-51-02G

1. Captain to brief Lead Flight Attendant/Purser that the flight deck Door Lock Control Selector is inoperative.
2. Crewmember will use the interphone to notify flight deck of desired entry.
3. When a flight deck crewmember exits the flight deck, a flight attendant will enter the flight deck to manually unlock the door when the occupant returns unless an XCM remains on the flight deck.

(M) PROCEDURES

52-51-02A

To deactivate the automatic locking system:

Position the chime module power switch to the off position (up – guard extended). Located facing flight deck door from inside flight deck on left side door post.

NOTE: LOCK FAIL light may remain illuminated when the Flight Deck Access System switch is in the OFF position (guard extended).

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52-51-02B

For deactivating the keypad:

1. Pull and secure the circuit breaker (D21) for the flight deck door lock located on panel P6.
2. Remove the keypad.
3. Disconnect the electrical connector from the keypad.
4. Install the keypad.
5. Close the circuit breaker for the flight deck door lock.

   NOTE: When flight deck door is closed with the flight deck not occupied, make sure the Flight Deck Access System switch is in the OFF position (guard extended).

52-51-02E, 52-51-02F

For verifying automatic lock controls are operating normally:

1. With airplane powered, position personnel on both sides of the flight deck door.
2. Position Chime Module switch NORM (guard extended).
3. Position the door lock control selector to AUTO and verify the flight deck door can not be opened from the cabin side.
4. Enter keypad emergency access code and verify the door chime sounds.
5. Position the Door Lock Control Selector DENY and verify chime stops.
6. Before the 15 minute DENY time delay has expired, enter the keypad access code and verify the door chime does not sound.
7. Position the door lock control selector to UNLKD and verify the flight deck door can be opened from the cabin side.
8. Position the door lock control selector to AUTO.
9. Verify the flight deck door cannot be opened from the cabin side.

52-51-02G

To verify the automatic lock is operating normally:

1. With airplane powered, position personnel on both sides of the flight deck door.
2. Verify the flight deck door can not be opened from the cabin side.
3. Position the chime control module power switch to the off position (up–guard extended).
4. Verify the flight deck door can be opened from the cabin side.
5. Position the chime control module power switch to the on position (down–guard closed).
6. Verify the flight deck door can not be opened from the cabin side.
7. Defer the Access Panel System (Keypad, Door Chime) per MEL item 52–51–02B.

Continued Next Page

52-51-02H

To deactivate the pressure sensing module (pressure sensor):

1. Pull the circuit breaker for the flight deck door lock.
2. Remove the pressure sensor.
3. Disconnect the electrical connector from the pressure sensor.
4. Install the pressure sensor.
5. Close the circuit breaker for the flight deck door lock.

   NOTE: Door dead bolt must operate normally.
6. Defer the Flight Deck Security Door Automatic Locking System per MEL item 52–51–02A.

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
52-51-03	Boeing/C&D Aerospace Enhanced Flight Deck Security Door Dead Bolt **"Contact MCC"**	**Y**	1	0	**A**	May be inoperative provided: a) Automatic lock controls operate normally, and b) Repairs are made within two flight days.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-51-03	Adjacent To The Flt Deck Door Switch On The P5 Panel	ENHANCED FLIGHT DECK SECURITY DOOR DEAD BOLT LOCKING SYSTEM INOP

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
52-73-01A	Door Indication System **"DISP.APPR.REQ'D"**	**N**	1	0	**C**	**(M)(O)** May be inoperative provided door(s) is verified closed and locked by an alternate procedure **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**
52-73-01B	Auto/Man EICAS Indications	**Y**	-	0	**C**	**(O)** May be inoperative provided door(s) is verified in Auto or Man as appropriate by an alternate procedure.

MEL ITEM	TAB LOCATION	PLACARD TEXT
52-73-01A	Adjacent To Lower EICAS Display Unit	DOOR INDICATION SYSTEM INOP
52-73-01B	Adjacent To Lower EICAS Display Unit	AUTO/MAN EICAS DOOR INDICATION INOP.

(O) PROCEDURES

52-73-01A

1. Ensure maintenance has verified associated door is properly closed and locked.
2. Associated EICAS door indication may remain displayed.
3. Report Out, Off, On, In, times using free text downlinks to station or by radio communication.

52-73-01B

1. Captain to notify the Lead Flight Attendant/ Purser to verify that the door(s) is in Auto or Man, as appropriate, by checking the position of the door mode selector lever (main entry doors) or the door arm/disarm lever (upperdeck doors).
2. Associated EICAS door indication may remain displayed.

(M) PROCEDURES

52-73-01A

1. General

   Maintenance procedures are to be performed as the final closing of an affected door(s) prior to takeoff. The status of the affected door(s) should be communicated to the flight crew as appropriate.

2. **PRIOR TO EACH DEPARTURE CHECK**:

   Verify the affected door(s) is closed and locked as follows:

   Main Entry and Upper Deck Doors:

   a) Check that the door is flush with the fuselage skin.

   b) Check that the exterior operating handle is stowed flush with the door.

   c) Check that the interior operating handle is rotated to the fully latched (closed) position.

Continued Next Page

Crew Compartment Overhead Door (Hatch):

a) Open the door and check that the exterior handle is stowed flush with the door and is secured in the latched position by the handle latch.

b) Close and latch the door.

c) Ensure that the latch pins properly engage the keeper fittings on the body and that the arrow on the interior handle is aligned with the LOCKED arrow on the door lining.

Bulk Cargo Door:

a) Ensure the interior and exterior operating handles are working in phase by pulling the exterior handle from its recess in the door until it is fully extended. Restow the handle.

b) Check that the exterior operating handle is stowed flush with the door.

c) Check that the door is flush with the fuselage skin.

d) Check that the door is latched by pushing inward on the door and verify that it does not move.

Main/Center Electronics Equipment Access Door:

a) Ensure the interior and exterior operating handles are working in phase by pulling the exterior handle from its recess in the door until it is fully extended. Restow the handle.

b) Check that the exterior operating handle is stowed flush with the door and is secured in the latched position by the handle latch.

c) Check that the door is flush with the fuselage skin.

d) Check that the door is latched by pushing inward on the door and verify that it does not move.

Forward and Aft Lower Lobe Cargo Doors Control Panel Latches Closed Green Light:

a) Close and latch door per normal procedure.

b) Check that the door is fully latched by observing, through the door's viewports, that the stripe on each rotary latch cam is aligned with the arrow on the adjacent latch pin fitting.

c) Observe that the pressure relief doors are open prior to closing the master latch lock handle. Observe the pressure relief doors closing while moving the master latch lock handle to the closed position.

CAUTION: Do not force master latch lock handle closed - resistance or interference indicates latch cams may not be in fully latched position.

d) Check that the master latch lock handle and its trigger are stowed flush with the door and that the pressure relief doors are closed. The top of a fully closed pressure relief door is approximately one half inch inboard of the cargo door skin when the airplane is unpressurized.

NOTE: The top of a fully closed pressure relief door is approximately one half inch inboard of the cargo door skin when the airplane is unpressurized.

3. Accomplish required logbook entry.

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ATA 53 Contents

53-00-00V RVSM Status 53-2
53-21-01 Floor Vents 53-3
53-21-02 Sidewall Vents 53-4

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
53-00-00V RVSM Status **"DISP.APPR.REQ'D"** Administrative Control Item	**Y**	-	-		**(M)(O)** Authorized by MCC when: a) RVSM operations cannot be used, b) No specific MEL item applies, and c) The aircraft must remain at or below FL280. NOTE: This SYS/SEQ number is to be used for deferring the RVSM Status of the aircraft. This number also requires Maintenance Control's authorization prior to its usage or removal. <u>RVSM Operations</u> Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
53-00-00V	Adjacent To Each PFD	RVSM OPERATIONS NOT AUTHORIZED

(O) PROCEDURES

1. Limit altitude to FL280 or below.

(M) PROCEDURES

1. Create a new log page in the aircraft logbook using the appropriate MEL Item Number (contact MCC for instructions).
2. The deferral code VSM must also be entered on the log page and the placard when deferring this item.
3. MCC authorization is required prior to its usage or removal.

	NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
53-21-01	Floor Vents	**Y**	-	-	**C**	Two in each zone may be open or missing.

MEL ITEM	TAB LOCATION	PLACARD TEXT
53-21-01	Adjacent To The Nearest Flight Attendants Control Panel	___ FLOOR VENTS ARE OPEN/MISSING

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
53-21-02	Sidewall Vents **"DISP.APPR.REQ'D"**	**N**	-	-	**C**	**(M)** Two sidewall vents on each side of each zone may be open or missing provided the adjacent passenger seat is blocked from occupancy.

MEL ITEM	TAB LOCATION	PLACARD TEXT
53-21-02	Adjacent To The Nearest Flight Attendants Control Panel	___ SIDEWALL VENTS ARE OPEN/MISSING. ___ SEATS ARE BLOCKED.

(M) PROCEDURES

The passenger seat(s) adjacent to the inoperative or missing sidewall vent must be placarded with "UNSERVICABLE – DO NOT USE" tape or equivalent*.

* An acceptable alternate to the OM2 tape is a section of 2 inch wide masking tape with the words "UNSERVICEABLE – DO NOT USE" printed legibly in 1 inch black letters.

THERE ARE NO ATA 56 ITEMS IN THE B747-400 MINIMUM EQUIPMENT LIST

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ATA 73 Contents

	MINIMUM IDLE / APPROACH IDLE SELECTION SYSTEMS	73-2
73-21-01A	Ground Minimum Idle Selection System	73-2
73-21-01E	Continuous Ignition Selected Approach Idle	73-2
73-21-02A	Electronic Engine Control Systems (EEC) ENG __EEC Mode	73-5
73-21-02B	Electronic Engine Control Systems (EEC) ENG __ EEC C1 (EEC Fault Level B)	73-5
73-21-02C	Electronic Engine Control Systems (EEC) ENG __ EEC C2 (EEC Fault Level C)	73-5
73-21-04	Engine Overspeed Protection Systems	73-7
73-31-01	Fuel Flow Indications	73-8
73-31-02	Fuel Control ENG FUEL VLV Indications	73-9
73-34-01	Fuel Filter Bypass Warning Systems	73-10

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		REMARKS OR EXCEPTIONS
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
	MINIMUM IDLE / APPROACH IDLE SELECTION SYSTEMS					
73-21-01A	Ground Minimum Idle Selection System **"DISP.APPR.REQ'D"**	**Y**	4	3	**C**	**(O)** One may be inoperative provided: a) Anti–skid operates normally, b) Performance corrections are applied.
73-21-01B	Ground Minimum Idle Selection System **"DISP.APPR.REQ'D"**	**Y**	4	2	**C**	**(O)** Two may be inoperative provided a) Anti–skid operates normally, b) Performance corrections are applied.
73-21-01C	Ground Minimum Idle Selection System **"DISP.APPR.REQ'D"**	**Y**	4	1	**C**	**(O)** Three may be inoperative provided: a) Anti–skid operates normally, b) Performance corrections are applied.
73-21-01D	Ground Minimum Idle Selection System **"DISP.APPR.REQ'D"**	**Y**	4	0	**C**	**(O)** All may be inoperative provided: a) Anti–skid operates normally, b) Performance corrections are applied.
73-21-01E	Continuous Ignition Selected Approach Idle **"DISP.APPR.REQ'D"**	**Y**	4	0	**C**	**(O)** May be inoperative provided during operation in or near heavy rain or hail, N1 is maintained at 45% for Flight Levels below 10,000 ft and N1 is maintained at 50% for Flight Levels 10,000 ft and higher.

MEL ITEM	TAB LOCATION	PLACARD TEXT
73-21-01A	Adjacent To Primary EICAS Display	___ GROUND MINIMUM IDLE SELECTION SYSTEM INOP
73-21-01B	Adjacent To Primary EICAS Display	___ GROUND MINIMUM IDLE SELECTION SYSTEM INOP
73-21-01C	Adjacent To Primary EICAS Display	___ GROUND MINIMUM IDLE SELECTION SYSTEM INOP
73-21-01D	Adjacent To Primary EICAS Display	___ GROUND MINIMUM IDLE SELECTION SYSTEM INOP
73-21-01E	Adjacent To Primary EICAS Display	___ CONTINUOUS IGNITION SELECTED APPROACH IDLE INOP

Continued Next Page

(O) PROCEDURES

73-21-01A

Verify that the AWABS contains MEL item 73–21–01A.

73-21-01A	**MINIMUM IDLE/APPROACH IDLE SELECTION SYSTEMS**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 6,750 lbs. 2. Reduce T/O CLIMB LIMIT by 6,750 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 32,000 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 32,000 lbs.

73-21-01B

Verify that the AWABS contains MEL item 73–21–01B.

73-21-01B	**MINIMUM IDLE/APPROACH IDLE SELECTION SYSTEMS**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 13,500 lbs. 2. Reduce T/O CLIMB LIMIT by 13,500 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 64,000 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 64,000 lbs.

Continued Next Page

73-21-01C

Verify that the AWABS contains MEL item 73–21–01C.

73-21-01C	**MINIMUM IDLE/APPROACH IDLE SELECTION SYSTEMS**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 20,250 lbs. 2. Reduce T/O CLIMB LIMIT by 20,250 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 96,000 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 96,000 lbs.

73-21-01D

Verify that the AWABS contains MEL item 73–21–01D.

73-21-01D	**MINIMUM IDLE/APPROACH IDLE SELECTION SYSTEMS**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	None
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 27,000 lbs. 2. Reduce T/O CLIMB LIMIT by 27,000 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 128,000 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 128,000 lbs.

73-21-01E

For operations in or near heavy rain or hail (or anticipated):

1. For TAT 10 degrees C or below:
    A. Position Nacelle Anti–ice switches ON.
    B. During descent, disconnect Autothrottles.
2. For TAT above 10 degrees C:
    A. Set Continuous Ignition switch ON
    B. During descent:
        1) Disconnect Autothrottles.
        2) Set thrust levers minimum of 50% N1 at or above 10,000 feet, 45% N1 below 10,000 feet except for landing.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
73-21-02A	Electronic Engine Control Systems (EEC) ENG __EEC Mode **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) All engines are operated in the alternate (ALTN) mode, b) Anti–skid is operative, c) Full (TO) thrust is used for takeoff, d) All pack selectors are OFF for takeoff, e) Applicable performance limitations and decrements for the "EEC Normal Mode Inoperative" procedure in the ODM, Abnormal Section are applied, f) Performance corrections are applied, and g) Autothrottles are deferred per MEL 22-31-01. CAT II/III Not Authorized
73-21-02B	Electronic Engine Control Systems (EEC) ENG __ EEC C1 (EEC Fault Level B)	**N**	4	0	**A**	**(M)** May be dispatched with C1 faults provided repairs are made within 20 days. NOTE: Status message ENG ___ EEC C1 will be displayed.
73-21-02C	Electronic Engine Control Systems (EEC) ENG __ EEC C2 (EEC Fault Level C)	**N**	4	0	**A**	**(M)** May be dispatched with C2 faults provided repairs are made within 500 hours NOTE: CMCS message ENG ___ EEC CAT 2 FAULT will be displayed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
73-21-02A	On ELEC ENG CONTROL panel (Pilots' P5 Overhead Panel)	___ EEC NORMAL MODE INOP – OPERATE ALL ENGINES IN ALTERNATE MODE
73-21-02B	On ELEC ENG CONTROL panel (Pilots' P5 Overhead Panel)	___ EEC FAULT LEVEL B (C1) INOP
73-21-02C	On ELEC ENG CONTROL panel (Pilots' P5 Overhead Panel)	___ EEC FAULT LEVEL C (C2) INOP

Continued Next Page

(O) PROCEDURES

73-21-02A

1. Verify that the AWABS contains MEL item 73–21–02A.
2. Reference the “EEC Normal Mode Inoperative” procedure in the ODM, Abnormal Section for performance limitations and decrements.
3. Do not use the autothrottles.

   NOTE : Autothrottles are not available in the alternate mode.
4. For takeoff, set all pack selectors OFF.
5. (PF) As the thrust is advanced during takeoff, press the TO/GA switch to initialize the FMC.
6. (PM) After takeoff, select one pack on passing 1,000 feet HAA. Select the remaining packs ON in conjunction with the After Takeoff procedure (refer to Operations Manual Volume 1, Supplementary Procedures, SP.2, Packs Off Takeoff).

   NOTE 1: EICAS advisory and status level message ENG __ EEC MODE will be displayed.

   NOTE 2: EPR will not be displayed for the affected engine.

73-21-02A	**ELECTRONIC ENGINE CONTROL SYSTEMS (EEC)**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 1.6%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**Manual WDR not permitted with MEL 73-21-02A.**

(M) PROCEDURES

73-21-02A

1. Record the Central Maintenance Computer (CMC) five digit fault code(s) associated with the EEC fault in the Deferral section of the logpage.
2. Set all EEC mode switches to ALTN.
3. Defer the Autothrottles inop per MEL item 22–31–01.

73-21-02B, 73-21-02C

Record the Central Maintenance Computer (CMC) five digit fault code(s) associated with the EEC fault in the Deferral section of the logpage.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
73-21-04	Engine Overspeed Protection Systems **"Contact MCC"**	**N**	4	3	**C**	**(M)** One may be inoperative provided PRIOR TO EACH DEPARTURE, ENG CONTROL status message is verified to be displayed due to an overspeed fault only **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
73-21-04	Adjacent To Primary EICAS Display Unit	___ ENGINE OVERSPEED PROTECTION SYSTEM INOP

(M) PROCEDURES

PRIOR TO EACH DEPARTURE CHECK:

Verify ENG ___ CONTROL status message is displayed due to an overspeed fault:

1. Ensure EEC ground test power is OFF.
2. Pull associated engine Start Switch ON and monitor N2.
3. When rotation is above 20% N2, push associated engine Start Switch IN.
4. Allow N2 rotation to decrease until EPR indication blanking is observed at approximately 5% N2.
5. Accomplish a normal start on the associated engine.
6. When engine idle is stabilized, check EICAS for advisory messages.
   a) If advisory message “ENG __ CONTROL” is displayed, a **NO DISPATCH** engine control fault is present and **DISPATCH IS NOT PERMITTED**.
   b) If advisory message “ENG __ CONTROL” is not displayed, the ENG __ CONTROL status message is verified to be displayed due to an overspeed fault.

      NOTE: EICAS status message “ENG __ CONTROL” will remain displayed.

   c) Accomplish required logbook entry.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	**NAME / DESCRIPTION**					**REMARKS OR EXCEPTIONS**
73-31-01	Fuel Flow Indications **"DISP.APPR.REQ'D"**	**Y**	4	3	**B**	**(O)** Except for ER operations beyond 180 minutes, one may be inoperative provided: a) Associated N1, N2, and EPR indications operate normally, and b) Fuel quantity indicating systems for tanks containing fuel operate normally.

MEL ITEM	TAB LOCATION	PLACARD TEXT
73-31-01	Adjacent To Auxiliary EICAS DISPLAY UNIT	___ ENGINE FUEL FLOW INDICATION INOP

(O) PROCEDURES

NOTE 1: The affected engines Fuel Used indication, FMC Calculated Fuel Quantity and Total Fuel Used indication on Progress Page 2/3 will be inoperative.

NOTE 2: The Total Fuel indication on the primary EICAS and the FMC Totalizer Fuel Quantity on Progress Page 2/3 are not affected.

NOTE 3: The estimated fuel remaining at waypoint or destination on Progress Page 1/3 and the FMC Gross Weight indication will be available and predicated on totalizer fuel quantity.

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
73-31-02	Fuel Control ENG FUEL VLV Indications	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Associated Engine Fuel Valve is verified to operate normally, and b) Associated EICAS message is deactivated. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
73-31-02	Adjacent To Main EICAS Display	___ FUEL CONTROL ENG FUEL VLV INDICATION INOP

(O) PROCEDURES

AFTER EACH FLIGHT, upon shutdown verify the following on the affected engine, (enter results as Note in maintenance logbook):

1. With the affected engine running at idle, select FUEL CONTROL switch to CUTOFF.
2. If N 1, N2, and EGT begin to decrease rapidly within 5 seconds of CUTOFF, engine shutdown has commenced and valve is verified to operate normally,

   OR

3. If engine continues to run at idle for more than 5 seconds after CUTOFF, the valve is not operating normally and dispatch is not allowed.

(M) PROCEDURES

1. Verify operation of the engine fuel valve.
   a) With the affected engine running at idle, select FUEL CONTROL switch to CUTOFF.
   b) If N1, N2, and EGT begin to decrease rapidly within 5 seconds of CUTOFF, engine shutdown has commenced and valve is verified to operate normally.
   c) If engine continues to run at idle for more than 5 seconds after CUTOFF, the valve is not operating normally and DISPATCH IS NOT ALLOWED.

      NOTE: Fuel spar valve is commanded closed simultaneously when CUTOFF is selected. If engine fuel valve is inoperative, engine shutdown will be delayed approximately 30 seconds until fuel downstream of fuel spar valve is used.
2. Deactivate associated ENG_FUEL VLV message.
   a) Open left fan cowl (AMM 71–11–04/201) and left thrust reverser half (AMM 78–31–00/201) on affected engine.
   b) Disconnect ground wires W3506–457–16R from grounding stud GD6595DC, located on upper forward left side of engine. Reinstall unaffected wires on grounding stud and secure with a new locknut.
   c) Install protective closure on disconnected wire/ground lug, using heat resistance tape or shrink sleeve. Secure protected wire as appropriate.
   d) Close thrust reverser and fan cowl.

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
73-34-01	Fuel Filter Bypass Warning Systems **"Contact MCC"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) It is verified that the malfunction is in the fuel filter bypass switch, and b) Associated fuel filter is checked for contaminants BEFORE EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
73-34-01	Adjacent To Main EICAS Display	___ FUEL FILTER BYPASS WARNING INOP

(O) PROCEDURES

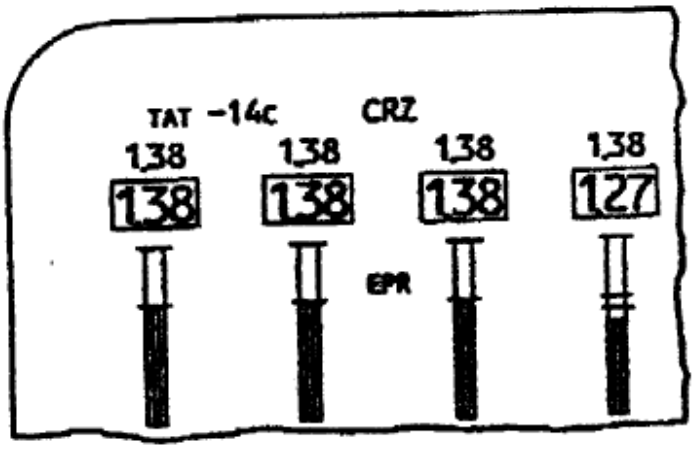
NOTE: Associated advisory and status messages ENG __ FUEL FILT will remain displayed.

(M) PROCEDURES

1. Verify that the malfunction is in the associated fuel filter bypass warning system:
   a) Remove and replace the fuel filter (AMM 73-11-02/401).
   b) If the EICAS status message ENG_FUEL FILT remains displayed after system is restored to normal configuration and 70 seconds time has elapsed, the fuel filter bypass warning system is faulty.
2. **PRIOR TO EACH DEPARTURE CHECK**:
   a) Check the fuel filter to ensure there no contaminants:
      1) Verify that fuel drained from the filter plug is free of contaminants (AMM 73-11-02/401).
   b) Accomplish required logbook entry.

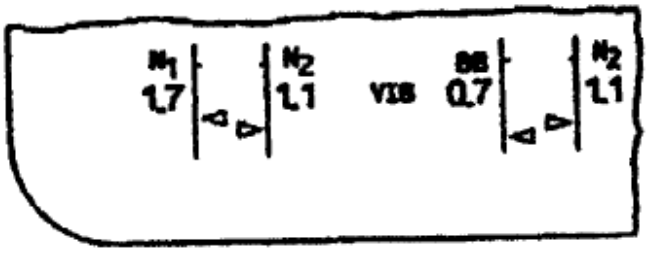
ATA 74 Contents

74-00-01 Ignition Systems 74-4
CONTINUOUS IGNITION SELECTION SYSTEM 74-5
74-00-02A Flap Actuated 74-5
74-00-02B Nacelle Anti–Ice Actuated 74-5
74-00-02C Switch Actuated 74-5



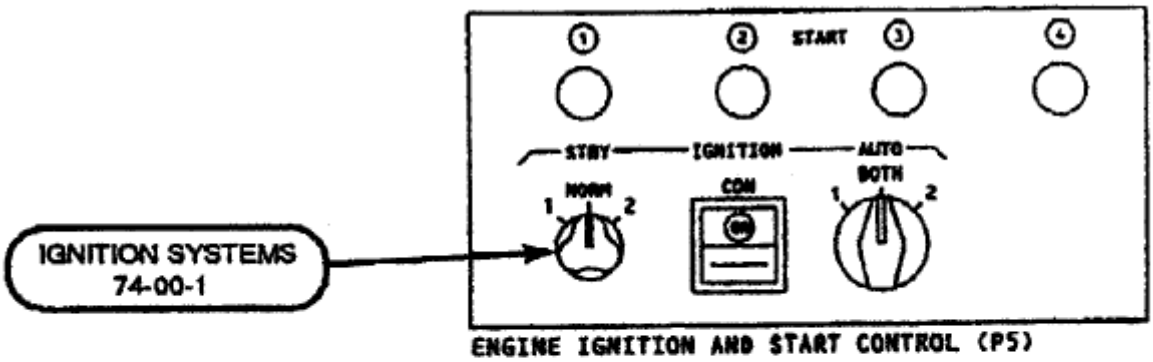
PRIMARY EICAS DISPLAY

EPR INDICATING SYSTEMS
(PW & RR ENGINES)
77-11-1



SECONDARY EICAS DISPLAY

VIBRATION INDICATION
SYSTEMS
77-31-1



ENGINE IGNITION AND START CONTROL (P5)

AUTO IGNITION SYSTEMS
(FLAP AND NACELLE TAI ACTUATED)
74-00-2

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
74-00-01	Ignition Systems	**Y** 8	4	**C**	**(O)** One per engine may be inoperative provided: a) Nacelle anti-ice system on the associated engine operates normally, b) Ignition Selector is positioned to ensure ignition to all engines, and c) No. 1 ignition system is verified to operate on at least two engines PRIOR TO EACH DEPARTURE. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
74-00-01	On Ignition System Control Module On Pilot's Overhead P–5 Panel	___ IGNITION SYSTEM INOP

(O) PROCEDURES

1. To verify No.1 Ignition System operates, select position "1" on Auto Ignition selector to start at least two engines.
2. After start, to ensure Ignition to all engines:
   a) Select NORM on STBY Ignition selector, and
   b) Select BOTH on Auto Ignition selector.

	NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
	FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
CONTINUOUS IGNITION SELECTION SYSTEM					
74-00-02A Flap Actuated	**Y**	1	0	**C**	**(O)** May be inoperative provided continuous ignition is manually selected ON when required.
74-00-02B Nacelle Anti–Ice Actuated	**Y**	4	0	**C**	**(O)** May be inoperative provided continuous ignition is manually selected ON when required.
74-00-02C Switch Actuated **"DISP.APPR.REQ'D"**	**Y**	1	0	**C**	**(O)** May be inoperative provided standby ignition system is used to provide continuous ignition when required.

MEL ITEM	TAB LOCATION	PLACARD TEXT
74-00-02A	On Ignition System Control Module On Pilot's Overhead P–5 Panel	FLAP ACTUATED CONTINUOUS IGNITION SELECTION SYSTEM INOP
74-00-02B	On Ignition System Control Module On Pilot's Overhead P–5 Panel	___ NACELLE ANTI–ICE ACTUATED CONTINUOUS IGNITION SELECTION SYSTEM INOP
74-00-02C	On Ignition System Control Module On Pilot's Overhead P–5 Panel	___ SWITCH ACTUATED CONTINUOUS IGNITION SELECTION SYSTEM INOP

(O) PROCEDURES

74-00-02A

Select Continuous Ignition Switch ON when flaps are extended from the FLAPS UP position.

74-00-02B

Select Continuous Ignition Switch ON prior to entering induction icing conditions.

74-00-02C

1. Select Standby Ignition Switch position 1 or 2 when required per OM Volume I, Supplementary Section.
2. If moderate to heavy rain or hail is encountered or anticipated:

   CAT II/III operations - Not Authorized

   TAT 10° C or below:

   a) Position Nacelle Anti-ice switches ON.
   b) During descent, disconnect Autothrottles.

   TAT above 10° C:

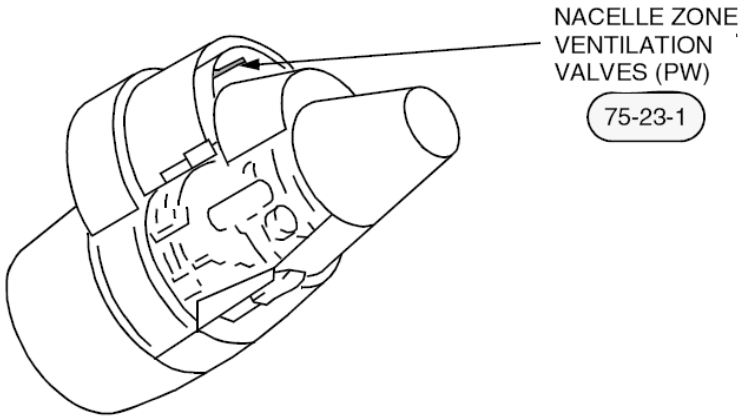
   a) During descent:
      1) Disconnect Autothrottles
      2) At or above 10,000 feet, set thrust levers minimum of 50% N1.
      3) Below 10,000 feet, set thrust levers minimum 45% N1 except for landing.

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.

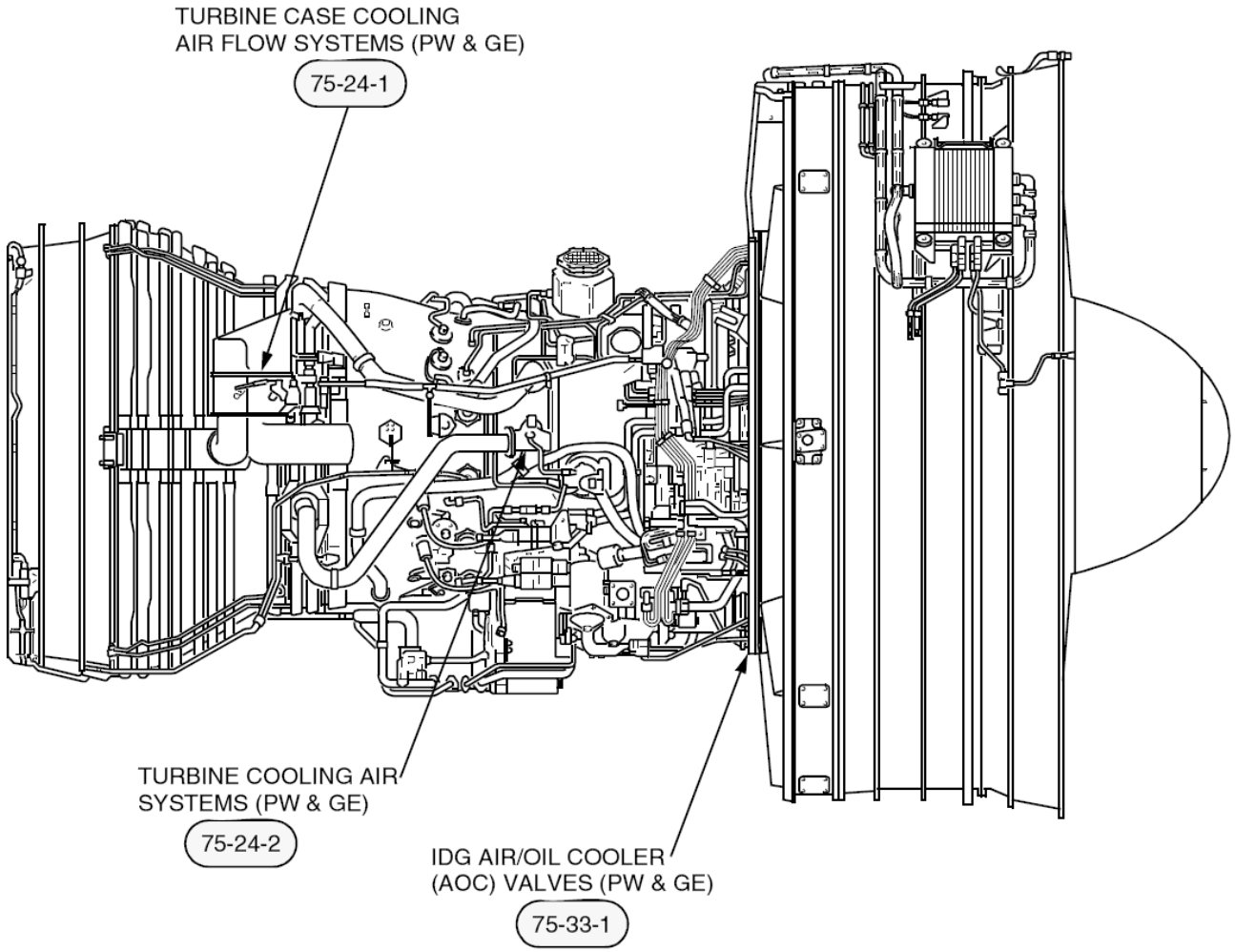
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ATA 75 Contents

75-23-01A Nacelle Zone Ventilation Valves....75-3
75-24-01A Turbine Case Cooling Air Flow Systems....75-6
75-24-02 Turbine Cooling Air Systems....75-9
75-33-01 IDG Air/Oil Cooler (AOC) Valves....75-10



PW ENGINE SHOWN



		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
75-23-01A	Nacelle Zone Ventilation Valves **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Associated valve remains open, and b) Performance corrections are applied.
75-23-01B	Nacelle Zone Ventilation Valves **"DISP.APPR.REQ'D"**	**N**	4	2	**C**	**(M)(O)** Two may be inoperative provided: a) Associated valves remain open, b) Performance corrections are applied.
75-23-01C	Nacelle Zone Ventilation Valves **"DISP.APPR.REQ'D"**	**N**	4	1	**C**	**(M)(O)** Three may be inoperative provided: a) Associated valves remain open, b) Performance corrections are applied.
75-23-01D	Nacelle Zone Ventilation Valves **"DISP.APPR.REQ'D"**	**N**	4	0	**C**	**(M)(O)** All may be inoperative provided: a) Associated valves remain open, b) Performance corrections are applied.

MEL ITEM	TAB LOCATION	PLACARD TEXT
75-23-01A	On Main EICAS Display Unit	ENG ___ NACELLE VENT VALVE INOP – LOCKED IN OPEN POSITION
75-23-01B	On Main EICAS Display Unit	ENG ___ NACELLE VENT VALVE INOP – LOCKED IN OPEN POSITION
75-23-01C	On Main EICAS Display Unit	ENG ___ NACELLE VENT VALVE INOP – LOCKED IN OPEN POSITION
75-23-01D	On Main EICAS Display Unit	ENG ___ NACELLE VENT VALVE INOP – LOCKED IN OPEN POSITION

(O) PROCEDURES

75-23-01A

75-23-01A	**NACELLE ZONE VENTILATION VALVES**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 1,200 lbs.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

Continued Next Page

75-23-01B.

75-23-01B	**NACELLE ZONE VENTILATION VALVES**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 2,400 lbs.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

75-23-01C.

75-23-01C	**NACELLE ZONE VENTILATION VALVES**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 3,600 lbs.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

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75-23-01D

75-23-01D	NACELLE ZONE VENTILATION VALVES
EFFECTIVITY	All
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 4,800 lbs.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

(M) PROCEDURES

75-23-01A, 75-23-01B, 75-23-01C, 75-23-01D

If the valve is inoperative, manually lock the valve in the open position as follows:

1. Pull circuit breakers on P–6 Main Distribution Panel as follows for applicable engine.
   - 6F14 ENG 1 EEAC
   - 6E14 ENG 2 EEAC
   - 6D14 ENG 3 EEAC
   - 6C14 ENG 4 EEAC
2. Open left thrust reverser half (AMM 78–31–00/201).
3. Remove cotter pin from manual override locking pin Nacelle Zone Ventilation Valve.
4. Push in manual override locking pin.
5. Verify that valve is in OPEN position by viewing valve position indicator.
6. Close left thrust reverser half (AMM 78–31–00/201).
7. Close circuit breakers opened in step (1).

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
75-24-01A	Turbine Case Cooling Air Flow Systems	**N**	4	3	**C**	**(M)** May be inoperative provided the associated turbine case cooling valve remains CLOSED.
75-24-01B	Turbine Case Cooling Air Flow Systems **"DISP.APPR.REQ'D"**	**N**	4	2	**C**	**(M)(O)** Two may be inoperative provided: a) Associated turbine case cooling valve remains CLOSED, and b) Performance corrections are applied.
75-24-01C	Turbine Case Cooling Air Flow Systems **"DISP.APPR.REQ'D"**	**N**	4	1	**C**	**(M)(O)** Three may be inoperative provided: a) Associated turbine case cooling valve remains CLOSED, and b) Performance corrections are applied.
75-24-01D	Turbine Case Cooling Air Flow Systems **"DISP.APPR.REQ'D"**	**N**	4	0	**C**	**(M)(O)** All may be inoperative provided: a) Associated turbine case cooling valves remain CLOSED, and b) Performance corrections are applied.

MEL ITEM	TAB LOCATION	PLACARD TEXT
75-24-01A	Adjacent To Auxiliary EICAS Display Unit	ENG ___ TURB CASE COOLING SYSTEM INOP. SHUTOFF VALVES SECURED CLOSED
75-24-01B	Adjacent To Auxiliary EICAS Display Unit	ENG ___ TURB CASE COOLING SYSTEM INOP. SHUTOFF VALVES SECURED CLOSED
75-24-01C	Adjacent To Auxiliary EICAS Display Unit	ENG ___ TURB CASE COOLING SYSTEM INOP. SHUTOFF VALVES SECURED CLOSED
75-24-01D	Adjacent To Auxiliary EICAS Display Unit	ENG ___ TURB CASE COOLING SYSTEM INOP. SHUTOFF VALVES SECURED CLOSED

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(O) PROCEDURES

75-24-01B

75-24-01B	TURBINE CASE COOLING AIR FLOW SYSTEMS
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 0.8%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

Continued Next Page

75-24-01C

75-24-01C	TURBINE CASE COOLING AIR FLOW SYSTEMS
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 1.2%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

75-24-01D

75-24-01D	TURBINE CASE COOLING AIR FLOW SYSTEMS
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Increase BLOCK FUEL by 1.6%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** None **LANDING** None

(M) PROCEDURES

75-24-01A, 75-24-01B, 75-24-01C, 75-24-01D

If turbine case cooling air flow system is inoperative, secure turbine case cooling (TCC) air shutoff valves in the CLOSED position as follows:

1. Open right thrust reverser half (AMM 78–31–00/201).
2. Disconnect turbine case cooling (TCC) air valve control cable aft rod end from HPT case cooling air shutoff valve idler arm.
3. Check if HPT and LPT case cooling air shutoff valves are in closed position.
4. If the valves are not in closed position, manually position the valves to the closed position.
5. Close right thrust reverser half (AMM 78–31–00/201).

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
75-24-02	Turbine Cooling Air Systems	**N**	4	0	**C**	**(M)** May be inoperative provided the associated turbine cooling valve(s) remain OPEN.

MEL ITEM	TAB LOCATION	PLACARD TEXT
75-24-02	Adjacent To Auxiliary EICAS Display Unit	ENG ___ TURBINE COOLING AIR SYSTEM INOP – TURBINE COOLING VALVE(S) OPEN

(M) PROCEDURES

75-24-02

If turbine vane and blade cooling air (TVBCA) valve is inoperative due to valve failure or HPC secondary flow control valve and TVBCA valve solenoid failure, verify valve is in open position as follows:

1. Open thrust reverser halves (AMM 78–31–00/201).
2. Check if the visual position indicator on left TVBCA valve or on right TVBCA valve position switch, as applicable, is in the protruded position.
3. Disconnect air signal tube nut from applicable TVBCA valve.
4. Install plug in air signal tube and protective cap on valve adapter. Stow tube securely.
5. Close thrust reverser halves (AMM 78–31–00/201).

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
75-33-01	IDG Air/Oil Cooler (AOC) Valves **"DISP.APPR.REQ'D"**	**N**	4	0	**C**	**(M)(O)** One may be inoperative provided: a) IDG AOC valve is inoperative open, b) Fuel tank temperature remains above –42°C (–36°C if IDG is disconnected) throughout the flight, and c) Performance corrections are applied.

MEL ITEM	TAB LOCATION	PLACARD TEXT
75-33-01	Adjacent To Applicable EICAS Display Unit	___ IDG AIR/OIL VALVE INOP – OPEN

(O) PROCEDURES

75-33-01

NOTE: Fuel tank temperature will approximate TAT on long range flights. Use the TAT–to–SAT conversion chart below to ensure that forecasted SAT will result in a TAT above the required temperature.

75-33-01	IDG AIR/OIL COOLER VALVES
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	Reduce ENROUTE LIMIT WT by 2,000 lbs. per inoperative valve. Increase BLOCK FUEL by 0.5% when all four valves are inoperative.
NOTES	Make a notation on the Flight Plan when Enroute Climb is limiting.
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** Reduce RATOW by 1,400 lbs. per inoperative valve. Reduce T/O CLIMB LIMIT by 1,400 lbs. per inoperative valve. **LANDING** Reduce RWY ALLOWABLE LANDING WT by 1,400 lbs. per inoperative valve. Reduce LANDING CLIMB LIMIT WT by 1,400 lbs. per inoperative valve.

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TAT	SAT per Mach (deg C)							TAT	SAT per Mach (deg C)						
deg C	0.88	0.87	0.86	0.85	0.84	0.83	0.82	deg C	0.88	0.87	0.86	0.85	0.84	0.83	0.82
-45	-76	-75	-74	-74	-73	-73	-72	-5	-41	-40	-40	-39	-38	-37	-37
-44	-75	-74	-74	-73	-72	-72	-71	-4	-40	-39	-39	-38	-37	-37	-36
-43	-74	-73	-73	-72	-71	-71	-70	-3	-39	-39	-38	-37	-36	-36	-35
-42	-73	-72	-72	-71	-71	-70	-69	-2	-38	-38	-37	-36	-36	-35	-34
-41	-72	-72	-71	-70	-70	-69	-69	-1	-37	-37	-36	-35	-35	-34	-33
-40	-71	-71	-70	-69	-69	-68	-68	0	-37	-36	-35	-34	-34	-33	-32
-39	-70	-70	-69	-69	-68	-67	-67	1	-36	-35	-34	-34	-33	-32	-31
-38	-70	-69	-68	-68	-67	-66	-66	2	-35	-34	-33	-33	-32	-31	-31
-37	-69	-68	-67	-67	-66	-66	-65	3	-34	-33	-33	-32	-31	-30	-30
-36	-68	-67	-67	-66	-65	-65	-64	4	-33	-32	-32	-31	-30	-30	-29
-35	-67	-66	-66	-65	-64	-64	-63	5	-32	-32	-31	-30	-29	-29	-28
-34	-66	-65	-65	-64	-64	-63	-62	6	-31	-31	-30	-29	-29	-28	-27
-33	-65	-65	-64	-63	-63	-62	-61	7	-31	-30	-29	-28	-28	-27	-26
-32	-64	-64	-63	-62	-62	-61	-61	8	-30	-29	-28	-27	-27	-26	-25
-31	-63	-63	-62	-62	-61	-60	-60	9	-29	-28	-27	-27	-26	-25	-24
-30	-63	-62	-61	-61	-60	-59	-59	10	-28	-27	-26	-26	-25	-24	-24
-29	-62	-61	-60	-60	-59	-59	-58	11	-27	-26	-26	-25	-24	-23	-23
-28	-61	-60	-60	-59	-58	-58	-57	12	-26	-25	-25	-24	-23	-23	-22
-27	-60	-59	-59	-58	-57	-57	-56	13	-25	-25	-24	-23	-22	-22	-21
-26	-59	-58	-58	-57	-57	-56	-55	14	-25	-24	-23	-22	-22	-21	-20
-25	-58	-58	-57	-56	-56	-55	-54	15	-24	-23	-22	-21	-21	-20	-19
-24	-57	-57	-56	-55	-55	-54	-54	16	-23	-22	-21	-21	-20	-19	-18
-23	-57	-56	-55	-55	-54	-53	-53	17	-22	-21	-20	-20	-19	-18	-17
-22	-56	-55	-54	-54	-53	-52	-52	18	-21	-20	-20	-19	-18	-17	-17
-21	-55	-54	-53	-53	-52	-52	-51	19	-20	-19	-19	-18	-17	-16	-16
-20	-54	-53	-53	-52	-51	-51	-50	20	-19	-19	-18	-17	-16	-15	-15
-19	-53	-52	-52	-51	-50	-50	-49	21	-18	-18	-17	-16	-15	-15	-14
-18	-52	-52	-51	-50	-50	-49	-48	22	-18	-17	-16	-15	-15	-14	-13
-17	-51	-51	-50	-49	-49	-48	-47	23	-17	-16	-15	-14	-14	-13	-12
-16	-50	-50	-49	-48	-48	-47	-46	24	-16	-15	-14	-14	-13	-12	-11
-15	-50	-49	-48	-48	-47	-46	-46	25	-15	-14	-13	-13	-12	-11	-10
-14	-49	-48	-47	-47	-46	-45	-45	26	-14	-13	-13	-12	-11	-10	-9
-13	-48	-47	-47	-46	-45	-45	-44	27	-13	-12	-12	-11	-10	-9	-9
-12	-47	-46	-46	-45	-44	-44	-43	28	-12	-12	-11	-10	-9	-8	-8
-11	-46	-45	-45	-44	-43	-43	-42	29	-12	-11	-10	-9	-8	-8	-7
-10	-45	-45	-44	-43	-43	-42	-41	30	-11	-10	-9	-8	-7	-7	-6
-9	-44	-44	-43	-42	-42	-41	-40	31	-10	-9	-8	-7	-7	-6	-5
-8	-44	-43	-42	-41	-41	-40	-39	32	-9	-8	-7	-7	-6	-5	-4
-7	-43	-42	-41	-41	-40	-39	-39	33	-8	-7	-6	-6	-5	-4	-3
-6	-42	-41	-40	-40	-39	-38	-38	34	-7	-6	-6	-5	-4	-3	-2

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(M) PROCEDURES

75-33-01

Deactivate IDG Air/Oil Heat Exchanger Valve Open as follows:

1. Pull the following circuit breaker on the P180 DC Power Distribution Panel for applicable engine and install DO–NOT–CLOSE identifier:

A/C 6301–6310	A/C 6311–6316
180C8 GCU 1	180M4 GCU1
180C9 GCU 2	180M5 GCU2
180C10 GCU 3	180M6 GCU3
180C11 GCU 4	180M7 GCU4

2. Open the right fan cowl panel (AMM 71–11–04/201).

WARNING: FAILURE TO DEACTIVATE THRUST REVERSER FOR GROUND MAINTENANCE COULD RESULT IN INADVERTENT THRUST REVERSER OPERATION WITH POSSIBLE INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.

3. Deactivate thrust reverser for ground maintenance (AMM 78–31–00/201).
4. Open right core panel (AMM 71–11–06/201).

WARNING: FAILURE TO FOLLOW 747–400 AMM 78–31–00/201 WHEN OPENING THE THRUST REVERSER COULD RESULT IN POSSIBLE INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.

5. Open right thrust reverser half (AMM 78–31–00/201).
6. Verify the valve is open using one of the following methods:
   a) Using a mirror, look through the fan exit liner opening at the 4 o'clock position of the intermediate case. Visually verify the valve is in the open position. If the valve is closed, **DISPATCH IS NOT ALLOWED**.
   b) Alternately, look at the valve position indicator:
      1) Remove fan exit liner segment at the 4 o'clock position of intermediate case (AMM 72–34–03).
      2) Visually verify valve is in the open position by looking at position indicator located on lower forward outboard area of valve. Dot should be pointing to open (O) position. If the dot is pointing to the closed (C) position, **DISPATCH IS NOT ALLOWED**.
7. Disconnect electrical connector DV350 from air/oil heat exchanger. Install protective closures and secure harness end.
8. Close right thrust reverser half (AMM 78–31–00/201).
9. Close the right core cowl panel (AMM 71–11–06/201).
10. Activate the thrust reverser (AMM 78–31–00/201).
11. Close the right fan cowl panel (AMM 71–11–04/201).
12. Close circuit breaker(s) opened in step (1) and remove DO NOT CLOSE identifier(s).

ATA 77 Contents

77-11-01 Engine Pressure Ratio Indicating Systems 77-2
77-12-02 Engine Speed Cards 77-4
77-31-01 Vibration Indicating Systems 77-5

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
77-11-01	Engine Pressure Ratio Indicating Systems **"DISP.APPR.REQ'D"**	**Y** 4	3	**C**	**(M)(O)** One may be inoperative provided: a) All EEC's are switched to ALTN mode, b) Anti–skid is operative, c) Full (TO) thrust is used for takeoff, d) N1, N2, and fuel flow indications on associated engine operate normally, e) All pack selectors are OFF for takeoff, f) Applicable performance limitations and decrements for the "EEC Normal Mode Inoperative" procedure in the ODM, Abnormal Section are applied, and g) Flight is not conducted on polar routes, h) Performance corrections are applied, and i) Autothrottles are deferred per MEL 22-31-01. CAT II/III – Polar Operations Not Authorized

MEL ITEM	TAB LOCATION	PLACARD TEXT
77-11-01	Adjacent To EEC Mode Switches On Pilot's P–5 Overhead Panel	___ EPR SYSTEM INOP. EEC NORMAL MODE INOP

(O) PROCEDURES

1. Reference the "EEC Normal Mode Inoperative" procedure in the ODM, Abnormal Section for performance limitations and decrements.
2. Do not operate on polar routes.
3. Do not use the autothrottles.

   NOTE : Autothrottles are not available in the alternate mode.
4. For takeoff, set all pack selectors OFF.
5. (PF) As the thrust is advanced during takeoff, press the TO/GA switch to initialize the FMC.
6. (PM) After takeoff, select one pack on passing 1,000 feet HAA. Select the remaining packs ON in conjunction with the After Takeoff procedure (refer to Operations Manual Volume 1, Supplementary Procedures, SP.2, Packs Off Takeoff).

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77-11-01	**Engine Pressure Ratio Indicating Systems**
Effectivity	**All**
Flight Planning Requirements	Increase BLOCK FUEL by 1.6%.
Notes	None
AWABS	Performance corrections have been applied.
Takeoff Performance Worksheet	**Manual WDR not permitted with MEL 77-11-01**

(M) PROCEDURES

1. Set all EEC mode switches to ALTN.
2. Defer Autothrottles inop per MEL item 22–31–01.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
77-12-02	Engine Speed Cards	**Y**	4	3	**C**	**(O)** One card may be inoperative provided: a) Associated engine is started last, b) Associated start switch is manually canceled when N2 reaches 50%, and c) CMC BITE tests for ATA 21 systems are not initiated after engine start.

MEL ITEM	TAB LOCATION	PLACARD TEXT
77-12-02	Adjacent To Auxiliary EICAS Display Unit	___ ENGINE SPEED CARD INOP

(O) PROCEDURES

1. Start associated engine last.
2. The associated Start Switch for the affected engine will not disengage the starter after the engine has started. Therefore, start the engine using the following exceptions:
   a) Manually pull and, if necessary, hold the Start Switch in the start position until N2 reaches 50%.
   b) When N2 reaches 50%, manually push the engine Start Switch in to the OFF position.
3. The ALTN mode of the EEC Mode Switch for the affected engine may not illuminate when the EEC fails to the alternate (N1) control mode. The EICAS advisory and status level ENG __ EEC MODE will display to indicate that a reversion to the alternate mode has occurred.
4. Do not initiate CMC BITE tests for MEL chapter 21 systems after engine start.
5. When operating in induction icing conditions, set a minimum of 70% N1 (55% N1 below 10,000 ft MSL) on associated engine.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
77-31-01	Vibration Indicating Systems	**Y**	4	2	**C**	**(M)** May be inoperative.

MEL ITEM	TAB LOCATION	PLACARD TEXT
77-31-01	Adjacent To Auxiliary EICAS Display Unit	___ ENGINE VIBRATION INDICATION INOP

(M) PROCEDURES

Deactivate the affected AVM as follows:

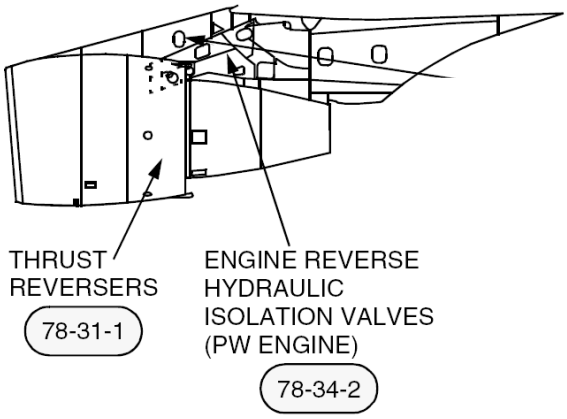
Pull and secure one of the following circuit breakers as appropriate. These circuit breakers are located on the P6 main power distribution panel.

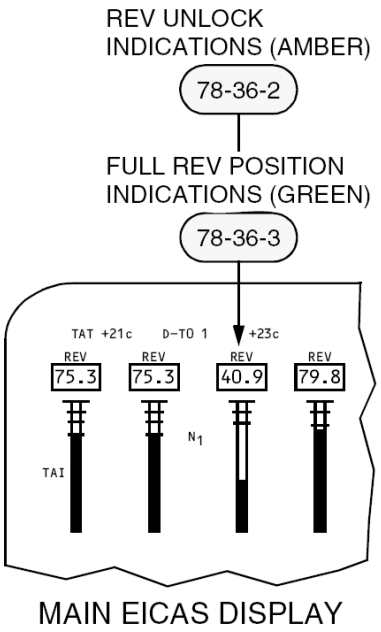
- 6H26 ENG 1 & 2 VIB AMP (Deactivates AVM for engines 1 & 2).
- 6H27 ENG 3 & 4 VIB AMP (Deactivates AVM for engines 3 & 4).

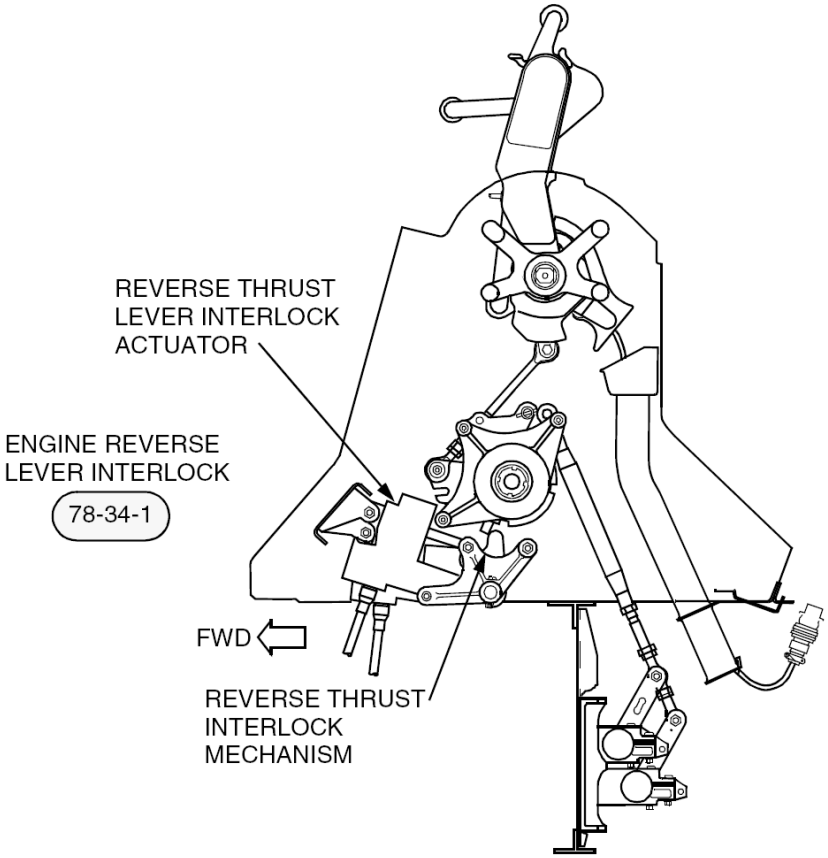
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ATA 78 Contents

78-31-01A Thrust Reverser Systems 78-3
78-34-01A Engine Reverse Lever Interlock (Extended) 78-8
78-34-01B Engine Reverse Lever Interlock (Retracted) 78-8
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THRUST REVERSERS
78-31-1
ENGINE REVERSE HYDRAULIC ISOLATION VALVES (PW ENGINE)
78-34-2


REV UNLOCK INDICATIONS (AMBER)
78-36-2
FULL REV POSITION INDICATIONS (GREEN)
78-36-3
TAT +21c
D-TO 1
+23c
REV
75.3
REV
75.3
REV
40.9
REV
79.8
N1
TAI
MAIN EICAS DISPLAY


REVERSE THRUST LEVER INTERLOCK ACTUATOR
ENGINE REVERSE LEVER INTERLOCK
78-34-1
FWD
REVERSE THRUST INTERLOCK MECHANISM

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
78-31-01A	Thrust Reverser Systems (Such as, but not limited to: engine reverse hydraulic isolation valves, thrust reverser air system, and REV unlock indications) **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Associated reverser is secured in the forward thrust position, and b) On associated engine, both T/R Control and T/R Indication circuit breakers are pulled and secured.
78-31-01B	Thrust Reverser Systems (Such as, but not limited to: engine reverse hydraulic isolation valves, thrust reverser air system, and REV unlock indications.) **"DISP.APPR.REQ'D"**	**N**	4	2	**A**	**(M)(O)** Two may be inoperative provided: a) Inoperative thrust reversers are on symmetrical engines only, b) Associated reversers are secured in the forward thrust position, c) On associated engine, both T/R Control and T/R Indication circuit breakers are pulled and secured, d) Anti–skid and auto spoiler systems operate normally, and e) Repairs are made within three flight days. NOTE: With two inoperative thrust reversers, dispatch with two brakes deactivated or with two anti–skid channels inop is allowed. However, with two inoperative thrust reversers, dispatch with the entire antiskid system inoperative is not allowed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
78-31-01A	Adjacent To Main EICAS Display Unit	___ THRUST REVERSER INOP – SECURED IN FWD THRUST POSITION
78-31-01B	Adjacent To Main EICAS Display Unit	___ THRUST REVERSER INOP – SECURED IN FWD THRUST POSITION

(O) PROCEDURES

78-31-01A, 78-31-01B

1. One thrust reverser is deactivated and cannot be used.
2. The REV amber indication and EICAS message ENG __ REVERSER may be displayed for the engine with the reverser deactivated.
3. Use symmetrical reverse thrust as required.

   NOTE: CAT III – All thrust reversers are required when the RVR is less than 600 or the braking action is less than GOOD.

Continued Next Page

(M) PROCEDURES

78-31-01A

1. Pull and secure circuit breakers for applicable engine on the P6 Main Power Distribution Panel:
   - 6F12 ENG 1 T/R IND and 6F13 ENG 1 T/R CONT
   - 6E12 ENG 2 T/R IND and 6E13 ENG 2 T/R CONT
   - 6D12 ENG 3 T/R IND and 6D13 ENG 3 T/R CONT
   - 6C12 ENG 4 T/R IND and 6C13 ENG 4 T/R CONT
2. Confirm thrust reverser sleeves are in the fully stowed and locked position.

   NOTE: If not fully closed, stow the reverser (AMM Ref. 78–31–00).
3. Confirm the thrust reverser position feedback sensors (LVDT) on both sleeves are properly installed and rigged as follows:
   a) Apply ground test power to the EEC from the pilot's overhead maintenance panel (P461), EEC MAINT module.
   b) Confirm the thrust reverser position on the EICAS EPCS page reads between -5% and+ 5%.
   c) Remove ground test power from the EEC.
4. Open fan cowl panels (AMM 71–11–04/201).
5. Open thrust reverser isolation valve access door (451 BL, 461 BL, 471 BL, 481 BL).
6. Perform the Thrust Reverser Sync Lock Integrity Test (AMM 78-34-13/501).
7. Push deactivation slide into housing if exposed and install a streamer pin to hold slide in deactivation position. Install hitch pin or lockwire the streamer pin.

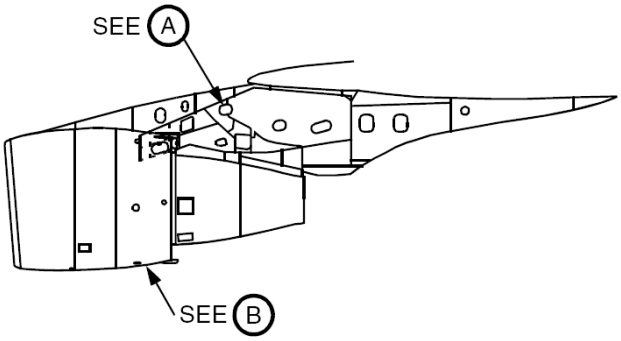
CAUTION: ALL THRUST REVERSER SYSTEM HYDRAULIC LINES MUST REMAIN FULLY INSTALLED AND SECURE. REMOVAL AND PLUGGING OF HYDRAULIC LINES MAY CAUSE AN UNCOMMANDED DEPLOYMENT.

8. Close thrust reverser isolation valve access door.
9. Remove red deactivation pins from torque box located just below the lower non–locking actuator.

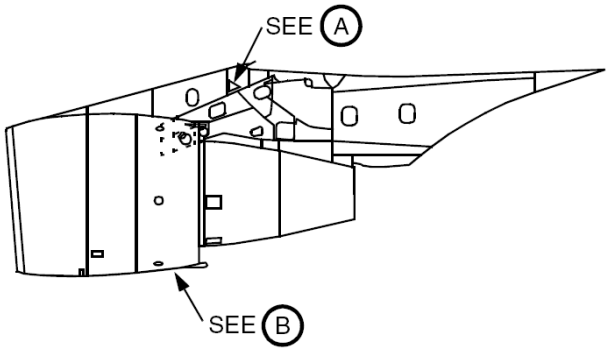
   NOTE: The following translating sleeve deactivation steps must be accomplished on both the left hand and right hand sleeve halves.
10. Remove plug from outer sleeve located near center locking hydraulic actuator access panel.
11. Install plug on torque box, where the deactivation pin was removed from in step 7.
12. Install red sleeve deactivation pin through sleeve into underlying structure.

    NOTE: Ensure deactivation pin is seated against reverser sleeve. If pin cannot be inserted, the reverser is not fully stowed. Stow per MM 78–31–00.
13. Close fan cowl panels (Ref. MM 71–11–01/201).
14. Install INOP identifier on the appropriate reverse thrust lever.

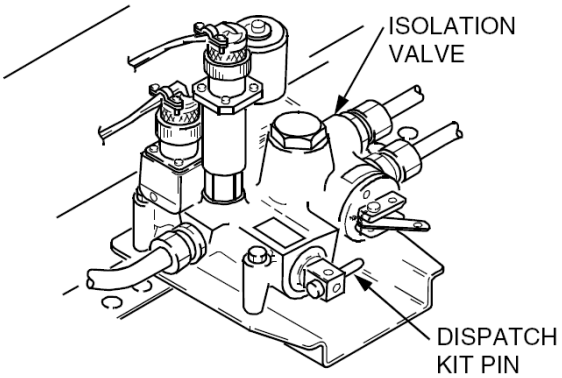
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INBOARD INSTALLATION

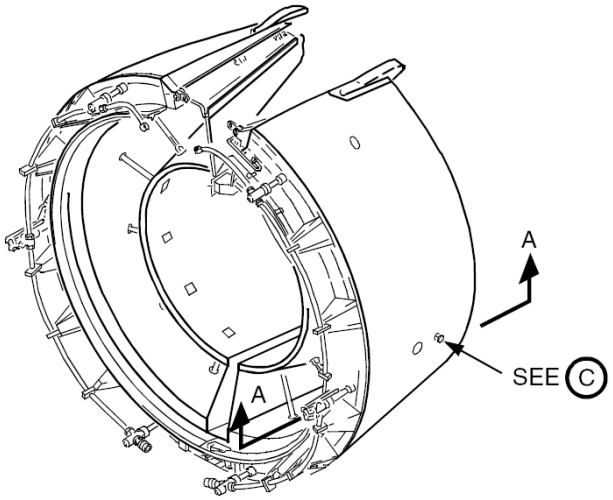


OUTBOARD INSTALLATION

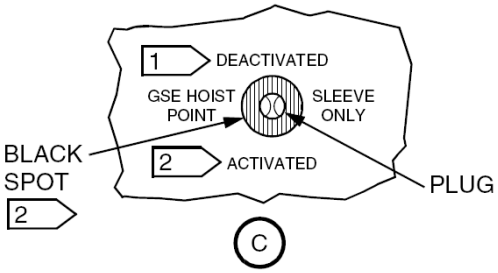


OUTBOARD STRUT INSTALLATION
(INBOARD SIMILAR)

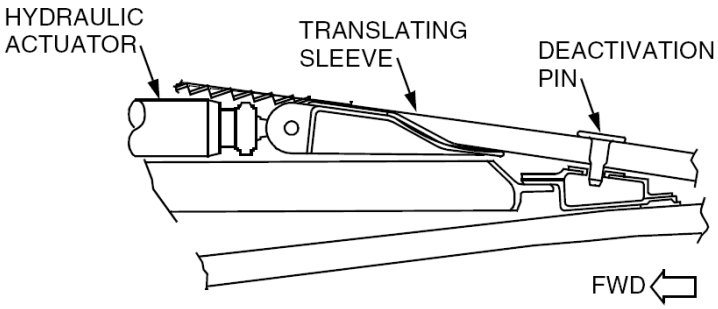
A



B



C



1 RED LETTERS MATCH DEACTIVATION PIN HEAD COLOR WHEN INSTALLED TO DEACTIVATE THRUST REVERSER

2 BLACK LETTERS MATCH SPOT, INDICATES THAT DEACTIVATION PIN NOT INSTALLED

Continued Next Page

78-31-01B

NOTE: With two inop thrust reversers, dispatch with 2 brakes deactivated or with 2 anti–skid channels inop is allowed. However, with two inop thrust reversers, dispatch with the entire antiskid system inoperative is NOT allowed.

1. Pull and secure circuit breakers for applicable engine on the P6 Main Power Distribution Panel:
   - 6F12 ENG 1 T/R IND and 6F13 ENG 1 T/R CONT
   - 6E12 ENG 2 T/R IND and 6E13 ENG 2 T/R CONT
   - 6D12 ENG 3 T/R IND and 6D13 ENG 3 T/R CONT
   - 6C12 ENG 4 T/R IND and 6C13 ENG 4 T/R CONT
2. Confirm thrust reverser sleeves are in the fully stowed and locked position.

   NOTE: If not fully closed, stow the reverser (AMM Ref. 78–31–00).
3. Confirm the thrust reverser position feedback sensors (LVDT) on both sleeves are properly installed and rigged as follows:
   a) Apply ground test power to the EEC from the pilot's overhead maintenance panel (P461), EEC MAINT module.
   b) Confirm the thrust reverser position on the EICAS EPCS page reads between -5% and+ 5%.
   c) Remove ground test power from the EEC.
4. Open fan cowl panels (AMM 71–11–04/201).
5. Open thrust reverser isolation valve access door (451 BL, 461 BL, 471 BL, 481 BL).
6. Perform the Thrust Reverser Sync Lock Integrity Test (AMM 78-34-13/501).
7. Push deactivation slide into housing if exposed and install a streamer pin to hold slide in deactivation position. Install hitch pin or lockwire the streamer pin.

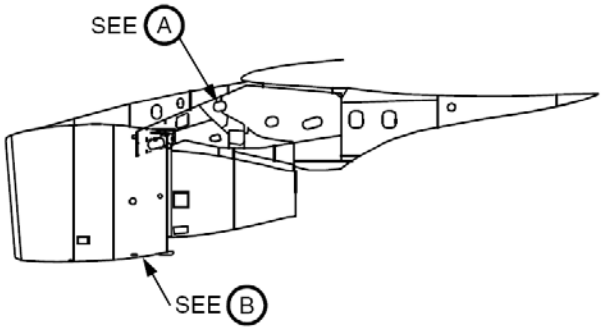
CAUTION: ALL THRUST REVERSER SYSTEM HYDRAULIC LINES MUST REMAIN FULLY INSTALLED AND SECURE. REMOVAL AND PLUGGING OF HYDRAULIC LINES MAY CAUSE AN UNCOMMANDED DEPLOYMENT.

8. Close thrust reverser isolation valve access door.
9. Remove red deactivation pins from torque box located just below the lower non–locking actuator.

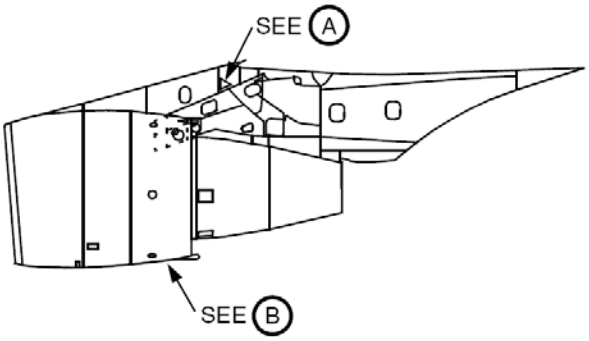
   NOTE: The following translating sleeve deactivation steps must be accomplished on both the left hand and right hand sleeve halves.
10. Remove plug from outer sleeve located near center locking hydraulic actuator access panel.
11. Install plug on torque box, where the deactivation pin was removed from in step 7.
12. Install red sleeve deactivation pin through sleeve into underlying structure.

    NOTE: Ensure deactivation pin is seated against reverser sleeve. If pin cannot be inserted, the reverser is not fully stowed. Stow per MM 78–31–00.
13. Close fan cowl panels (Ref. MM 71–11–01/201).
14. Install INOP identifier on the appropriate reverse thrust lever.

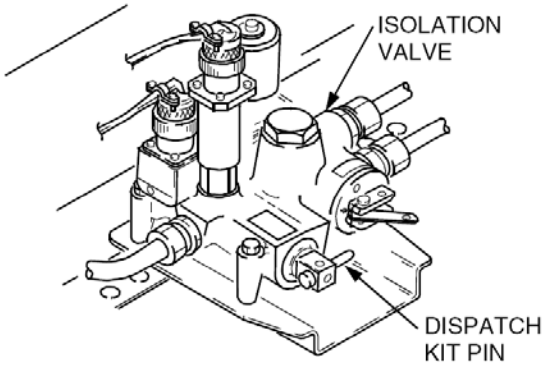
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INBOARD INSTALLATION

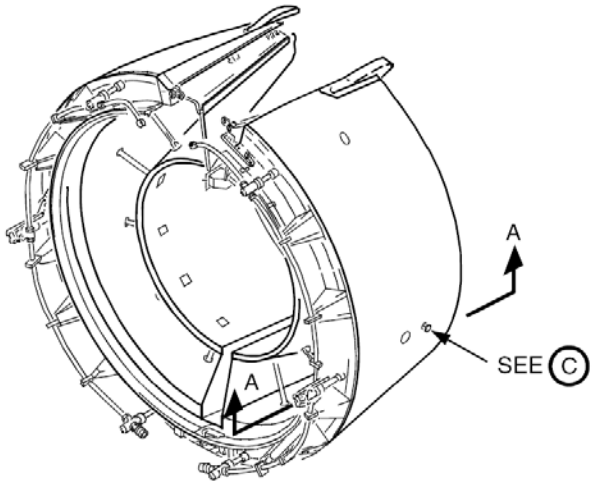


OUTBOARD INSTALLATION

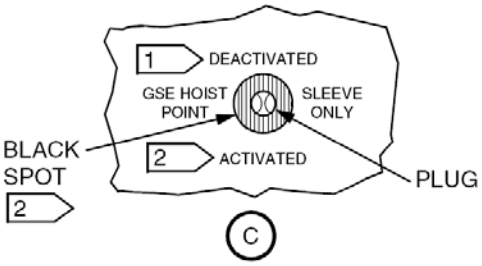


OUTBOARD STRUT INSTALLATION
(INBOARD SIMILAR)

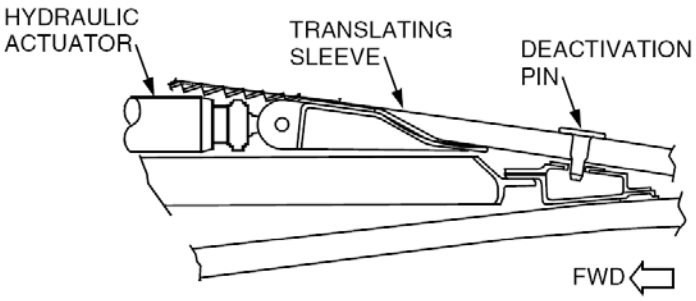
A



B



C



1 RED LETTERS MATCH DEACTIVATION PIN HEAD COLOR WHEN INSTALLED TO DEACTIVATE THRUST REVERSER

2 BLACK LETTERS MATCH SPOT, INDICATES THAT DEACTIVATION PIN NOT INSTALLED

NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO. NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
78-34-01A Engine Reverse Lever Interlock	**Y**	4	3	**C**	**(O)** May be inoperative released.
78-34-01B Engine Reverse Lever Interlock **"DISP.APPR.REQ'D"**	**Y**	4	3	**C**	**(O)** May be inoperative not released. NOTE: Associated thrust reverser will operate at idle reverse only.

MEL ITEM	TAB LOCATION	PLACARD TEXT
78-34-01A	Adjacent To The Lower L/H Corner Of The Auxiliary EICAS Display Unit	___ ENG REV LEVER INTERLOCK INOP
78-34-01B	Adjacent To The Lower L/H Corner Of The Auxiliary EICAS Display Unit	___ ENG REV LEVER INTERLOCK INOP

(O) PROCEDURES

78-34-01A

Inoperative Released:

When selecting reverse thrust, pull all reverse levers up to the normal interlock position and apply reverse thrust as required when the operative interlocks release.

NOTE: When interlock is inoperative released, there will be no physical stop for that reverse thrust lever when it is pulled up to the interlock position. The EEC will still protect the engine by not letting reverse thrust increase above idle until the thrust reverser sleeves are sufficiently deployed.

78-34-01B

Inoperative Not Released:

1. When selecting reverse thrust, pull all reverse levers up to the interlock position. When the reverse interlocks release, apply symmetrical reverse thrust as needed for stopping requirements. Full reverse thrust on three engines is available if conditions require it.

   NOTE: When interlock is inoperative not released, it will not be physically possible to move the reverse thrust lever beyond reverse idle, even when the reverser sleeves are fully deployed.

2. Use symmetrical reverse thrust as required.

   NOTE: CAT III – All thrust reversers are required when the RVR is less than 600 or the braking action is less than GOOD.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
78-36-01A	Reverser Position Sensing System **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative provided: a) Associated reverser is secured in the forward thrust position and deferred per MEL 78-31-01A., and b) On associated engine, both T/R Control and T/R Indication circuit breakers are opened and pulled.
78-36-01B	Reverser Position Sensing System **"DISP.APPR.REQ'D"**	**N**	4	2	**A**	**(M)(O)** Two may be inoperative provided: a) Inoperative thrust reversers are on symmetrical engines only, b) Associated reversers are secured in the forward thrust position and deferred per MEL 78-31-01B c) On associated engine, both T/R Control and T/R Indication circuit breakers are pulled and secured, d) Anti-skid and auto spoiler systems operate normally, and e) Repairs are made within three flight days. NOTE: With two inoperative thrust reversers, dispatch with two brakes deactivated or with two anti–skid channels inop is allowed. However, with two inoperative thrust reversers, dispatch with the entire antiskid system inoperative is not allowed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
78-36-01A	Adjacent To Applicable EICAS Display Unit	___ ENGINE REVERSER POSITION SENSING SYSTEM INOP
78-36-01B	Adjacent To Applicable EICAS Display Unit	___ ENGINE REVERSER POSITION SENSING SYSTEM INOP

(O) PROCEDURES

78-36-01A

1. One thrust reverser is deactivated and cannot be used.
2. The REV amber indication and EICAS message ENG __ REVERSER may be displayed for the engine with the reverser deactivated.
3. Use symmetrical reverse thrust as required.

   NOTE: CAT III – All thrust reversers are required when the RVR is less than 600 or the braking action is less than GOOD.

Continued Next Page

78-36-01B

1. Affected thrust reversers are deactivated and cannot be used.
2. The REV amber indication and EICAS message ENG __ REVERSER may be displayed for the engines with the reverser deactivated.
3. Use symmetrical reverse thrust as required.

   NOTE: CAT III – All thrust reversers are required when the RVR is less than 600 or the braking action is less than GOOD.

(M) PROCEDURES

78-36-01A

Defer associated thrust reversers per MEL Item 78-31-01A.

78-36-01B

Defer associated thrust reversers per MEL Item 78-31-01B.

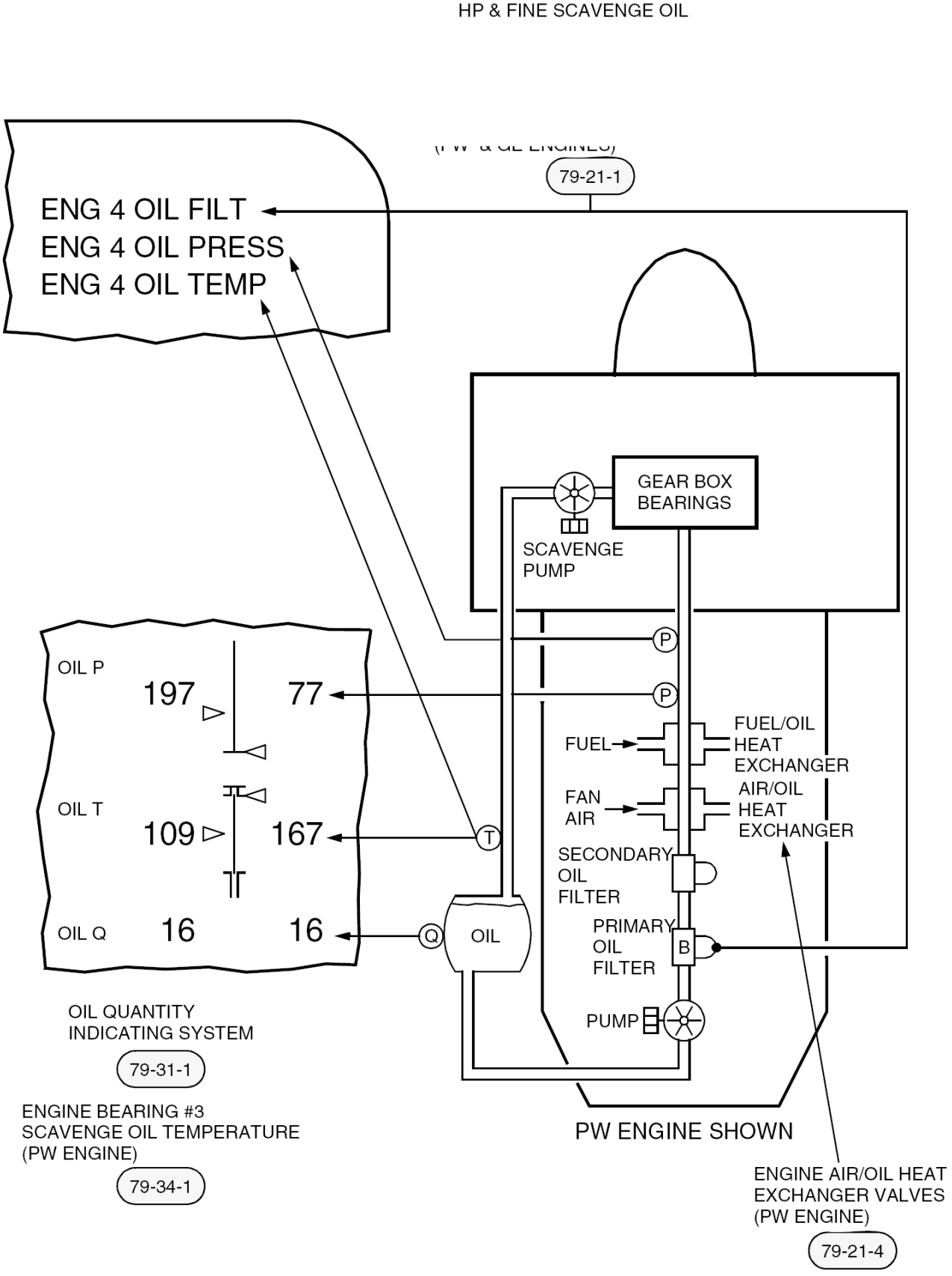
NUMBER INSTALLED			NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD			REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION				REMARKS OR EXCEPTIONS
78-36-03	Full REV Position Indications (Green)	**Y**	4	3	**C**	One may be inoperative provided associated REV unlock indication (Amber) operates normally. NOTE: Not required for an inoperative thrust reverser.

MEL ITEM	TAB LOCATION	PLACARD TEXT
78-36-03	Adjacent To The Lower L/H Corner Of The Auxiliary EICAS Display Unit	ENG NO ___ FULL REV POSITION INDICATION (GREEN) INOP

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ATA 79 Contents

79-21-01 Engine Oil Filter Warning Indications (Impending Bypass) 79-3
79-21-04A Engine Air/Oil Heat Exchanger Valves 79-4
79-21-05 Engine Oil Tank Flapper Valves 79-10
79-31-01 Oil Quantity Indicating Systems 79-11
ENGINE BEARING #3 SCAVENGE OIL TEMPERATURE 79-12
79-34-01A ENG_SCAV TEMP1 79-12
79-34-01B ENG_SCAV TEMP2 79-12


HP & FINE SCAVENGE OIL
79-21-1
ENG 4 OIL FILT
ENG 4 OIL PRESS
ENG 4 OIL TEMP
GEAR BOX BEARINGS
SCAVENGE PUMP
OIL P
197
77
OIL T
109
167
OIL Q
16
16
P
P
T
Q
OIL
FUEL
FUEL/OIL HEAT EXCHANGER
FAN AIR
AIR/OIL HEAT EXCHANGER
SECONDARY OIL FILTER
PRIMARY OIL FILTER
B
PUMP
OIL QUANTITY INDICATING SYSTEM
79-31-1
ENGINE BEARING #3 SCAVENGE OIL TEMPERATURE (PW ENGINE)
79-34-1
PW ENGINE SHOWN
ENGINE AIR/OIL HEAT EXCHANGER VALVES (PW ENGINE)
79-21-4

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
79-21-01	Engine Oil Filter Warning Indications (Impending Bypass) **"Contact MCC"**	**N**	4	2	**C**	**(M)** Two may be inoperative provided: a) It is verified that the malfunction is in the alerting system, and b) Associated Master Chip Detector is checked for contaminants PRIOR TO EACH DEPARTURE **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
79-21-01	Adjacent To MAIN EICAS DISPLAY UNIT	ENG(S) ___ OIL FILTER BYPASS WARNING INDICATION INOP

(M) PROCEDURES

1. Verify the malfunction is in the alerting system by one of the following methods:
   a) For ENG _ OIL FILT advisory message displayed longer than one minute after engine shutdown, the engine oil filter bypass warning indication is faulty.

   OR

   b) For ENG _ OIL FILT advisory message not displayed more than one minute after engine shutdown, perform the oil filter bypass warning system test (AMM 79–35–00/501).
2. Deactivate the associated oil filter bypass warning system as follows:
   a) Open the following circuit breakers on the P7 panel:
      - EIU L location F09.
      - EIU C location F10.
      - EIU R location F15.

   b) Disconnect, cap and stow electrical connector DS1583 (at the Engine Oil Filter Differential Pressure Switch, S1583).
   c) Close the C/Bs opened in step 2 a) above.
   d) Confirm ENG _ OIL FILT advisory message is not displayed.
3. Install a new main oil filter (AMM 79–21–05/401).
4. PRIOR TO EACH DEPARTURE CHECK:
   a) Check the Master Chip Detector for contaminants (AMM 79–21–10/601).
   b) Accomplish required logbook entry.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
79-21-04A	Engine Air/Oil Heat Exchanger Valves **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** May be inoperative provided: a) Valve is deactivated open, b) Fuel tank temperature remains above –34°C (–30°C if IDG is disconnected) throughout the flight, and c) Performance corrections are applied.
79-21-04B	Engine Air/Oil Heat Exchanger Valves **"DISP.APPR.REQ'D"**	**N**	4	2	**C**	**(M)(O)** May be inoperativeprovided: a) Valves are deactivated open, b) Fuel tank temperature remains above –34°C (–30°C if I DG is disconnected) throughout the flight, and c) Performance corrections are applied.
79-21-04C	Engine Air/Oil Heat Exchanger Valves **"DISP.APPR.REQ'D"**	**N**	4	1	**C**	**(M)(O)** May be inoperative provided: a) Valves are deactivated open, b) Fuel tank temperature remains above –34°C (–30°C if I DG is disconnected) throughout the flight, and c) Performance corrections are applied.
79-21-04D	Engine Air/Oil Heat Exchanger Valves **"DISP.APPR.REQ'D"**	**N**	4	0	**C**	**(M)(O)** May be inoperative provided: a) Valves are deactivated open, b) Fuel tank temperature remains above –34°C (–30°C if I DG is disconnected) throughout the flight, and c) Performance corrections are applied.

MEL ITEM	TAB LOCATION	PLACARD TEXT
79-21-04A	Adjacent To Applicable EICAS Display Unit	ENG ___ AIR/OIL HEAT EXCHANGER VALVES INOP, DEACTIVATED OPEN
79-21-04B	Adjacent To Applicable EICAS Display Unit	ENG ___ AIR/OIL HEAT EXCHANGER VALVES INOP, DEACTIVATED OPEN
79-21-04C	Adjacent To Applicable EICAS Display Unit	ENG ___ AIR/OIL HEAT EXCHANGER VALVES INOP, DEACTIVATED OPEN
79-21-04D	Adjacent To Applicable EICAS Display Unit	ENG ___ AIR/OIL HEAT EXCHANGER VALVES INOP, DEACTIVATED OPEN

Continued Next Page

(O) PROCEDURES

79-21-04A

1. Observe minimum fuel tank temperatures for the conditions specified.

2. Fuel burn penalty is 0.5%.

NOTE: Fuel tank temperature will approximate TAT on long range flights. Use TAT–to–SAT conversion chart below to ensure that forecasted SAT will result in a TAT above the required temperature.

TAT	SAT per Mach (deg C)							TAT	SAT per Mach (deg C)						
deg C	0.88	0.87	0.86	0.85	0.84	0.83	0.82	deg C	0.88	0.87	0.86	0.85	0.84	0.83	0.82
-45	-76	-75	-74	-74	-73	-73	-72	-5	-41	-40	-40	-39	-38	-37	-37
-44	-75	-74	-74	-73	-72	-72	-71	-4	-40	-39	-39	-38	-37	-37	-36
-43	-74	-73	-73	-72	-71	-71	-70	-3	-39	-39	-38	-37	-36	-36	-35
-42	-73	-72	-72	-71	-71	-70	-69	-2	-38	-38	-37	-36	-36	-35	-34
-41	-72	-72	-71	-70	-70	-69	-69	-1	-37	-37	-36	-35	-35	-34	-33
-40	-71	-71	-70	-69	-69	-68	-68	0	-37	-36	-35	-34	-34	-33	-32
-39	-70	-70	-69	-69	-68	-67	-67	1	-36	-35	-34	-34	-33	-32	-31
-38	-70	-69	-68	-68	-67	-66	-66	2	-35	-34	-33	-33	-32	-31	-31
-37	-69	-68	-67	-67	-66	-66	-65	3	-34	-33	-33	-32	-31	-30	-30
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-32	-64	-64	-63	-62	-62	-61	-61	8	-30	-29	-28	-27	-27	-26	-25
-31	-63	-63	-62	-62	-61	-60	-60	9	-29	-28	-27	-27	-26	-25	-24
-30	-63	-62	-61	-61	-60	-59	-59	10	-28	-27	-26	-26	-25	-24	-24
-29	-62	-61	-60	-60	-59	-59	-58	11	-27	-26	-26	-25	-24	-23	-23
-28	-61	-60	-60	-59	-58	-58	-57	12	-26	-25	-25	-24	-23	-23	-22
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-23	-57	-56	-55	-55	-54	-53	-53	17	-22	-21	-20	-20	-19	-18	-17
-22	-56	-55	-54	-54	-53	-52	-52	18	-21	-20	-20	-19	-18	-17	-17
-21	-55	-54	-53	-53	-52	-52	-51	19	-20	-19	-19	-18	-17	-16	-16
-20	-54	-53	-53	-52	-51	-51	-50	20	-19	-19	-18	-17	-16	-15	-15
-19	-53	-52	-52	-51	-50	-50	-49	21	-18	-18	-17	-16	-15	-15	-14
-18	-52	-52	-51	-50	-50	-49	-48	22	-18	-17	-16	-15	-15	-14	-13
-17	-51	-51	-50	-49	-49	-48	-47	23	-17	-16	-15	-14	-14	-13	-12
-16	-50	-50	-49	-48	-48	-47	-46	24	-16	-15	-14	-14	-13	-12	-11
-15	-50	-49	-48	-48	-47	-46	-46	25	-15	-14	-13	-13	-12	-11	-10
-14	-49	-48	-47	-47	-46	-45	-45	26	-14	-13	-13	-12	-11	-10	-9
-13	-48	-47	-47	-46	-45	-45	-44	27	-13	-12	-12	-11	-10	-9	-9
-12	-47	-46	-46	-45	-44	-44	-43	28	-12	-12	-11	-10	-9	-8	-8
-11	-46	-45	-45	-44	-43	-43	-42	29	-12	-11	-10	-9	-8	-8	-7
-10	-45	-45	-44	-43	-43	-42	-41	30	-11	-10	-9	-8	-7	-7	-6
-9	-44	-44	-43	-42	-42	-41	-40	31	-10	-9	-8	-7	-7	-6	-5
-8	-44	-43	-42	-41	-41	-40	-39	32	-9	-8	-7	-7	-6	-5	-4
-7	-43	-42	-41	-41	-40	-39	-39	33	-8	-7	-6	-6	-5	-4	-3
-6	-42	-41	-40	-40	-39	-38	-38	34	-7	-6	-6	-5	-4	-3	-2

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79-21-04A	ENGINE AIR/OIL HEAT EXCHANGER VALVES
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 2,000 lbs. 2. Increase BLOCK FUEL by 0.5%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 1,400 lbs. 2. Reduce T/O CLIMB LIMIT by 1,400 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 1,400 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 1,400 lbs.

79-21-04B

1. Observe minimum fuel tank temperatures for the conditions specified.
2. Fuel burn penalty is 1.0%.

NOTE: Fuel tank temperature will approximate TAT on long range flights. Use TAT–TO–SAT conversion chart in MEL item 79-21-04A to ensure that forecasted SAT will result in a TAT above the required temperature.

79-21-04B	ENGINE AIR/OIL HEAT EXCHANGER VALVES
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 4,000 lbs. 2. Increase BLOCK FUEL by 1.0%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 2,800 lbs. 2. Reduce T/O CLIMB LIMIT by 2,800 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 2,800 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 2,800 lbs.

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79-21-04C

1. Observe minimum fuel tank temperatures for the conditions specified.
2. Fuel burn penalty is 1.5%.

   NOTE: Fuel tank temperature will approximate TAT on long range flights. Use TAT–TO–SAT conversion chart in MEL item 79-21-04A to ensure that forecasted SAT will result in a TAT above the required temperature.

79-21-04C	**ENGINE AIR/OIL HEAT EXCHANGER VALVES**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 6,000 lbs. 2. Increase BLOCK FUEL by 1.5%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 4,200 lbs. 2. Reduce T/O CLIMB LIMIT by 4,200 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 4,200 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 4,200 lbs.

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79-21-04D

1. Observe minimum fuel tank temperatures for the conditions specified.
2. Fuel burn penalty is 2.0%.

   NOTE: Fuel tank temperature will approximate TAT on long range flights. Use TAT–TO–SAT conversion chart in MEL item 79-21-04A to ensure that forecasted SAT will result in a TAT above the required temperature.

79-21-04D	**ENGINE AIR/OIL HEAT EXCHANGER VALVES**
EFFECTIVITY	**All**
FLIGHT PLANNING REQUIREMENTS	1. Reduce ENROUTE LIMIT WT by 8,000 lbs. 2. Increase BLOCK FUEL by 2.0%.
NOTES	None
AWABS	Performance corrections have been applied.
TAKEOFF PERFORMANCE WORKSHEET	**TAKEOFF** 1. Reduce RATOW by 5,600 lbs. 2. Reduce T/O CLIMB LIMIT by 5,600 lbs. **LANDING** 1. Reduce RWY ALLOWABLE LANDING WT by 5,600 lbs. 2. Reduce LANDING CLIMB LIMIT WT by 5,600 lbs.

(M) PROCEDURES

To deactivate the Engine Air/Oil Heat Exchanger Valve in the open position:

1. Open the left fan cowl panel (AMM 71–11–04/201).

WARNING: FAILURE TO DEACTIVATE THRUST REVERSER FOR GROUND MAINTENANCE COULD RESULT IN INADVERTENT THRUST REVERSER OPERATION WITH POSSIBLE INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.

2. Deactivate thrust reverser for ground maintenance (AMM 78–31–00/201).
3. Open left core panel (AMM 71–11–06/201).

WARNING: FAILURE TO FOLLOW 747–400 AMM 78–31–00/201 WHEN OPENING THE THRUST REVERSER COULD RESULT IN POSSIBLE INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.

4. Open left thrust reverser half (AMM 78–31–00/201).

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5. Verify the valve is open using one of the following methods:
   a) Using a mirror, look through the fan exit liner opening at the 8 o'clock position of the intermediate case. Visually verify the valve is in the open position. If the valve is closed, **DISPATCH IS NOT ALLOWED**.
   b) Alternately, look at the valve position indicator:
      1) Remove the fan exit liner segment at 8 o'clock position of intermediate case (AMM 72–34–03).
      2) Visually verify valve is in the open position by looking at position indicator located on lower forward outboard area of valve. Dot should be pointing to 'O' (OPEN) position. If the dot is pointing to the 'C' (CLOSE) position, **DISPATCH IS NOT ALLOWED**.
6. Disconnect electrical connector from air/oil heat exchanger. Install protective closures and secure harness end.
7. Close left thrust reverser half (AMM 78–31–00/201).
8. Close the left core cowl panel (AMM 71–11–06/201).
9. Activate the thrust reverser (AMM 78–31–00/201).
10. Close the left fan cowl panel (AMM 71–11–04/201).

NUMBER INSTALLED				NUMBER REQUIRED FOR DISPATCH		
FLIGHT CREW MAY PLACARD				REPAIR CATEGORY		
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
79-21-05	Engine Oil Tank Flapper Valves **"Contact MCC"**	**N**	4	0	**C**	**(M)** May be inoperative provided associated oil tank filler cap is secured closed AFTER EACH OIL SERVICING **(Log Book Entry Required).** **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
79-21-05	Adjacent To Applicable EICAS Display Unit	ENG NO ___ OIL TANK FLAPPER VALVE(S) INOP

(M) PROCEDURES

AFTER USE CHECK (After Oil Servicing):

1. Verify that the filler cap is secured closed.
2. Accomplish required logbook entry.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
79-31-01	Oil Quantity Indicating Systems **"Contact MCC"**	**N**	4	3	**B**	**(M)** One may be inoperative provided: a) It is verified PRIOR TO EACH DEPARTURE that the oil tank is filled to the recommended capacity **(Log Book Entry Required),** b) There is no evidence of above normal oil consumption or leakage, and c) Associated oil temperature and pressure indications operate normally. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
79-31-01	Adjacent To Auxiliary EICAS Display Unit	ENG NO ___ OIL QUANTITY INDICATION INOP

(M) PROCEDURES

1. Contact Maintenance Control to verify that engine oil consumption is not excessive. Oil consumption limits can be found in AMM 71-00-00/201.
2. Inspect engine exterior, including fan stream area, for evidence of oil leakage.
3. PRIOR TO EACH DEPARTURE CHECK:
   a) Fill associated oil tank (AMM 12–13–03).
   b) Confirm that oil consumption is not excessive (AMM 71-00-00/201).
   c) Inspect engine exterior, including fan stream area, for evidence of oil leakage.
   d) Accomplish required logbook entry.

ITEM NO. NAME / DESCRIPTION	NUMBER INSTALLED FLIGHT CREW MAY PLACARD		NUMBER REQUIRED FOR DISPATCH REPAIR CATEGORY		REMARKS OR EXCEPTIONS
ENGINE BEARING #3 SCAVENGE OIL TEMPERATURE 79-34-01A ENG_SCAV TEMP1 **"Contact MCC"**	**Y**	4	3	**A**	**(M)** May be dispatched with this message displayed provided repairs are made within 3 flight days. NOTE: The condition stated above is for when EICAS message ENG__SCAV TEMP 1 is displayed.
79-34-01B ENG_SCAV TEMP2 **"Contact MCC"**	**Y**	4	3	**A**	**(M)** May be dispatched with this message displayed provided repairs are made within 10 flight days NOTE: The condition stated above is for when EICAS message ENG__SCAV TEMP 2 is displayed.

MEL ITEM	TAB LOCATION	PLACARD TEXT
79-34-01A	Adjacent To Applicable EICAS Display Unit	ENG ___ BEARING #3 SCAVENGE OIL TEMP - HOT
79-34-01B	Adjacent To Applicable EICAS Display Unit	ENG ___ BEARING #3 SCAVENGE OIL TEMP - WARM

(M) PROCEDURES

79-34-01A

EICAS message ENG ___ SCAV TEMP1:

If the Status level EICAS message ENG___SCAV TEMP 1 is displayed, the differential oil temperature across the No. 3 engine bearing is 'Hot'. Repairs should be made within 3 days.

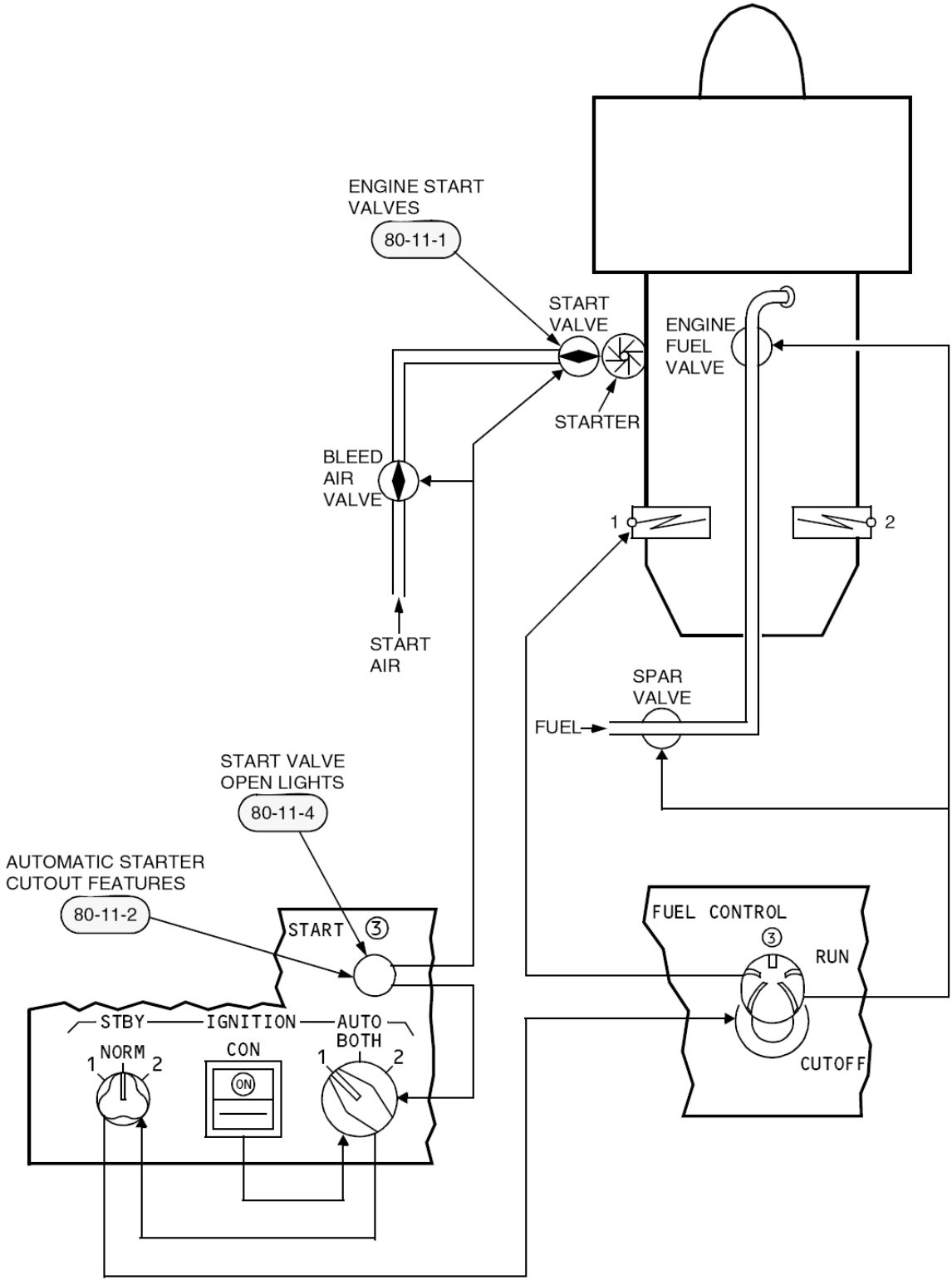
79-34-01B

EICAS message ENG ___ SCAV TEMP2:

If the Status level EICAS message ENG SCAV TEMP2 is displayed, the differential oil temperature across the No. 3 engine bearing is 'Warm'. Repairs should be made within 10 days.

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STARTER
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③
RUN
CUTOFF
STBY
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AUTO BOTH
NORM
CON
ON

ITEM NO.	NAME / DESCRIPTION	NUMBER INSTALLED	NUMBER REQUIRED FOR DISPATCH		REPAIR CATEGORY	REMARKS OR EXCEPTIONS
		FLIGHT CREW MAY PLACARD				
80-11-01	Engine Start Valves **"DISP.APPR.REQ'D"**	**N**	4	3	**C**	**(M)(O)** One may be inoperative closed provided: a) Alternate starting procedures are established and used, and b) Associated Start Valve Open Light operates normally. **Repetitive Check Required (Yellow Placard)**

MEL ITEM	TAB LOCATION	PLACARD TEXT
80-11-01	Adjacent To The Affected Engine Start Switch On Pilot's Overhead Panel (P–5)	___ START VALVE INOP. USE WINDMILL RESTART

(O) PROCEDURES

1. GROUND START: Reference OM Volume I, Supplementary Section.
2. AIR START: If inflight restart becomes necessary, starter assist will not be available. Ensure airspeed is sufficient for a windmilling start. Reference QRH, Section 7, "Engine In-flight Start".

(M) PROCEDURES

1. If the start valve will not open because of an electrical malfunction, it is possible to manually activate the solenoid in the starter valve and open the valve using a 3/8 inch square drive, as follows:

   a) Establish interphone communications with flight deck.

WARNING: DO NOT USE ENGINE NACELLE SERVICE INTERPHONE JACK ON ENGINE WHICH IS TO BE STARTED OR IS IN OPERATION. PERSONNEL COULD ENTER HAZARD AREA RESULTING IN SERIOUS INJURY OR LOSS OF LIFE.

WARNING: WHEN MANUALLY OPERATING START VALVE, HAND AND ARM COVERS MUST BE WORN, HEAT AND AIR BLASTS FROM STARTER COULD RESULT IN INJURY TO PERSONNEL.

CAUTION: MANUAL OPENING OF THE START VALVE WITHOUT AIR PRESSURE IN START DUCT MAY DAMAGE VALVE.

   b) Insert a 3/8 inch square drive with a 40 inch extension through start valve override port on the IDG access door, located on left core cowl panel at approximately 6 o'clock position. Engage square drive with valve override receptacle.

   c) Upon command from flight deck, position start valve in OPEN position by rotating square drive 90 degrees clockwise.

   d) After engine has started and upon command from the flight deck, close valve by rotating square drive 90 degrees to the CLOSED position.

   e) Remove square drive from start valve override access port.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
80-11-02	Starter Switch Systems (Automatic Cutout inoperative) **"Contact MCC"**	**Y**	4	0	**C**	**(O)** May be inoperative provided alternate start procedures are used.

MEL ITEM	TAB LOCATION	PLACARD TEXT
80-11-02	Adjacent To The Affected Engine Start Switch(S) On Pilot's Overhead Panel (P–5)	___ STARTER SWITCH ACO INOP. USE ALTERNATE START PROCEDURES

(O) PROCEDURES

Perform the Manual Engine Start Procedure with the following exceptions:

1. Manually pull and, if necessary, hold the START switch in the start position until N2 reaches 50%.
2. Observe initial EGT rise and that limits are not exceeded.
3. When N2 reaches 50%, manually push the engine START switch into the off position.

		NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH		
		FLIGHT CREW MAY PLACARD			REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION					REMARKS OR EXCEPTIONS
80-11-04	Start Valve Open Lights **"Contact MCC"**	**Y**	4	3	**C**	**(O)** One may be inoperative provided it is verified after engine start that the associated start valve is CLOSED.

MEL ITEM	TAB LOCATION	PLACARD TEXT
80-11-04	Engine Ignition And Start Control Panel (P–5) Near Affected Light	___ START VALVE OPEN LIGHT INOP

(O) PROCEDURES

Verify STARTER CUTOUT caution message is not displayed after engine speed reaches 52% N2.

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A

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