U.S. Department of Transportation
Federal Aviation Administration
Washington, D.C.

Master Minimum Equipment List

Revision: 3
Date: 11/07/2014

Boeing 747

B-747-400 LCF

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Highlights of Change

EFFECTIVE ABOVE DATE, the Boeing 747-400 LCF Master Minimum Equipment List has been revised. The changes in this revision were made to increase flexibility and improve consistency. All changes are reflected in the highlights of change listed below and are indicated by revision bars with the exception of “FAR” changed to “14CFR”. For any changes affecting an ATA section, all pages in the associated ATA section are dated for the current revision.

ATA 21 AIR CONDITIONING

ITEM -31-3 Removed (O) requirement.

ITEM -51-2 Removed the word "secured" from the first proviso to align with B747-4 aircraft.

ATA 22 AUTO FLIGHT

ITEM -11-4 Revised sub 8) number installed to 7 to reflect number of switches.

ATA 23 COMMUNICATIONS

ITEM -11-1 Added sub b) for new relief for SATCOM.

ITEM -25-1 Added new item for SATCOM installation.

ITEM -31-1 Revised sub a) to add "O" to align with FAA Policy Letter 9 Revision 11, dated December 17, 2012. Revised sub 2)a) to add missing word "and" and capitalized "S" in system in proviso to align with B747-4 aircraft.

ITEM -51-02 Revised “missing” to “inoperative” to align with FAA Policy Letter 58

ITEM -70-1 Revised title adding "Main Deck".

ITEM -70-2 Added new item for Lower Lobe Cargo Camera System.

ATA 24 ELECTRICAL POWER

ITEM -22-2 Changed (M) to (O).

ATA 25 EQUIPMENT/FURNISHINGS

ITEM -11-2 Revised sub 2)c) to correct typo in title.

ITEM -11-3 Revised sub 1) to correct proviso list from a), a) to a), b).

ITEM - 28-1 Revised to align with FAA Policy Letter 104 Revision 6, dated December 17, 2012. Removed MMEL NOTE regarding overhead storage bins which are not installed on the LCF.

ITEM - 52-1 Reinstated due to lower lobe cargo compartment reactivation.

ITEM - 53-1 Revised relief.

ITEM - 54 -1 Revised requirement so that “associated” cargo compartment remains empty.

ITEM - 64-02 Revised sub 1) and added sub 2) and sub 3) to align with FAA Policy Letter 73 Revision 5, dated June 15, 2011.

ATA 26 FIRE PROTECTION

ITEM -11-2 Removed engine types from title.

ATA 27 FLIGHT CONTROLS

ITEM -51-2 Corrected typo.

ATA 28 FUEL

ITEM -31-1 Revised sub 4) to add before “each” departure.

ATA 29 HYDRAULIC POWER

ITEM -11-1 Revised b) to add period in place of comma at the end of the last proviso.

ITEM -11-1 Revised sub 2)a) to remove capitalization of "S" in Supply and add period at the end of the last proviso.

ATA 30 ICE AND RAIN PROTECTION

ITEM -42-1 Corrected typo, changed "mile" to "miles".

ATA 31 INDICATING/RECORDING SYSTEMS

ITEM -51-1-3 Deleted “caution” from “all discrete caution lights”.

ATA 32 LANDING GEAR

ITEM -41-1 Corrected c) typo, changed 'be' to 'by'.

ITEM -45-1 Added new item for Nose Wheel Snubber Pads.

ITEM -53-2 Corrected typo in title.

ITEM -61-1 Corrected typo in title.

ATA 34 NAVIGATION

ITEM -16-1 Revised sub 1) and sub 2) to corrected typo.

ITEM -21-2 Added new item for IRS ‘ON BAT’ Light.

ITEM -22-5 Added ***.

ITEM -33-1 Revised sub 1)c) Deleted (M). No Maintenance action required.

ATA 35 OXYGEN

ITEM- 31-2 Revised to align with FAA Policy Letter 43 Revision 2, dated December 18, 2011.

ATA 38 WATER/WASTE

ITEM– 30-01 Revised to align with FAA Policy Letter 83 Revision 7, dated January 24, 2013.

ATA 46 INFORMATION SYSTEMS

ITEM -20-1 Added lower deck cargo compartment requirements.

ATA 52 DOORS

ITEM -71-1 sub2) deleted “power shutoff”.

ITEM -71-1 sub 4 deleted (O) – There is no requirement for an Operations procedure.

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Definitions

The definitions are as published in FAA Policy Letter 25.

Preamble

The Preamble is as published in FAA Policy Letter 34.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-20-1	A/C Ozone Converters	D	-	0	As required by 14 CFR.
-22-1	Alternate Ventilation System (AVS)	C	1	0	(M) May be inoperative provided: a) Packs 1 and 3 operate normally, and b) AVS door is deactivated in the closed position.
1)	ALTERNATE VENTILATION Switch ON Light	C	1	0	(M) May be inoperative provided AVS door is verified to operate normally.
-26-5	ECS Misc Card	C	1	0	
-28-7	Cargo and Flight Deck Temperature Selector (s)	C	2	0	
-31-1	Outflow Valves	C	2	1	(M) One valve may be inoperative provided: a) Valve is deactivated closed, and b) Both automatic and manual controls operate normally on the remaining valve.
		C	2	0	(M)(O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Extended overwater flight is prohibited.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-31-2	Automatic Cabin Pressure Controllers (A and B)	C	2	1	One may be inoperative provided both outflow valves operate normally in manual mode.
		C	2	1	(M) One may be inoperative provided: a) If one outflow valve is inoperative in the manual mode, it must be deactivated closed, and b) Cabin altitude backup sensor system (CPCS BACKUP SENS) operates normally.
		C	2	0	(M)(O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Extended overwater flight is prohibited.
-31-3	Cabin Pressure Control Systems (Manual L and R)	C	2	1	(M) One may be inoperative provided associated outflow valve is deactivated closed.
		C	2	0	(M)(O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Extended overwater flight is prohibited.
-32-1	Positive Pressure Relief Valves	C	2	0	(M)(O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Extended overwater flight is prohibited.
-32-2	Landing Altitude (LDG ALT) Switch	C	1	0	(O) May be inoperative in automatic mode.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-33-1	Cabin RATE Indication	C	1	0	(O) May be inoperative provided all remaining components and functions of the pressurization system operate normally.
		C	1	0	(M)(O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Extended overwater flight is prohibited.
-33-2	Cabin Differential Pressure Indication	C	1	0	(O) May be inoperative provided: a) Cabin altitude indication operates normally, and b) A chart is provided for the flight crew to convert cabin altitude to differential pressure.
		C	1	0	(M)(O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Extended overwater flight is prohibited.
-33-3	CAB ALT Indication	C	1	0	(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.
		C	1	0	(M)(O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Extended overwater flight is prohibited.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-33-4	OUTFLOW VALVES Position Indicators (Overhead Panel)	C	2	0	May be inoperative provided all remaining components and functions of the pressurization system operate normally.
		C	2	0	(M)(O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Extended overwater flight is prohibited.
-33-5	Cabin Altitude Primary Sensors	C	2	1	One primary sensor may be inoperative provided the Cabin Altitude Backup Sensor (CPCS BACKUP SENS) system operates normally.
		C	2	0	(O) May be inoperative provided flight remains at or below 10,000 feet MSL.
-33-6	Cabin Altitude Backup Sensor (CPCS BACKUP SENS) System	C	1	0	May be inoperative provided both automatic cabin pressure controllers operate normally.
-42-1	Flight Crew Auxiliary Heat System (Foot and Shoulder)	C	1	0	May be inoperative OFF.
-42-2	Flight Deck Crew Rest Area Heat Control System	C	1	0	(M) May be inoperative deactivated.
1)	Temperature Control Functions (LOW/MED/HIGH)	C	-	0	
-45-1	Upper Deck Galley Area Heat System	C	1	0	(M) May be inoperative deactivated.
1)	Temperature Control Functions	C	-	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-51-1	Packs	C	3	2	(M)(O) One may be inoperative provided: a) Associated pack is selected OFF, b) Associated Pack Flow Control and Shutoff Valve is secured closed, c) Aft Trim Air Valve is verified to operate normally, d) Airplane is configured to monitor Aft Trim Air Valve and configuration is verified before each departure, and e) For Pack 1 or Pack 3 inoperative, airplane is limited to FL 250 or below.
-51-2	Pack Flow Control and Shutoff Valves	C	3	2	(M)(O) One may be inoperative closed provided: a) Associated pack is considered inoperative, and b) Associated Pack Flow Control and Shutoff Valve is secured closed.
1)	Normal Flow Mode	C	3	0	(M) May be inoperative provided valve(s) is verified to close when the associated pack is selected OFF.
-51-4	Air Cycle Machines (ACM)	C	3	2	(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.
		C	3	2	(M)(O) One may be inoperative provided: a) Associated pack is considered inoperative, and b) Associated Pack Flow Control and Shutoff Valve is secured closed.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-51-5	ACM Turbine Bypass Valves	C	3	2	(M)(O) One may be inoperative provided: a) Inoperative valve is secured open, b) Associated pack overheat protective system operates normally, and c) PACK RST Switch operates normally.
		C	3	2	(M)(O) One may be inoperative provided: a) Associated pack is considered inoperative, and b) Associated Pack Flow Control and Shutoff Valve is secured closed.
-51-6	Water Separators	C	3	2	(M)(O) May be operated with coalescer bag removed.
-51-7	Pack Overheat Switches	C	3	0	(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.
		C	3	2	(M)(O) One may be inoperative provided: a) Associated pack is considered inoperative, and b) Associated Pack Flow Control and Shutoff Valve secured closed.
-51-8	Compressor Overheat Switches	C	3	2	(M)(O) One may be inoperative provided associated pack is considered inoperative.
		C	3	0	(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.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-51-9	Compressor Temperature Bulbs	C	3	0	(M) May be inoperative provided the associated compressor overheat switch is verified to operate normally.
		C	3	2	(M)(O) One may be inoperative provided: a) Associated pack is considered inoperative, and b) Associated Pack Flow Control and Shutoff Valve is secured closed.
-52-1	Pack SYS FAULT Light	C	1	0	
-58-2	Equipment Cooling Inboard Exhaust Valve	C	1	0	(M)(O) May be inoperative deactivated closed provided: a) Equipment cooling system is operated with one fan deactivated, b) Remaining fan operates normally, c) OVRD function operates normally, and d) For operation on the ground above 85 degrees F OAT (29 degrees C) No. 1 or No. 3 pack is operating with all doors and hatches closed.
		C	1	0	(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) OVRD function operates normally.
-58-3	Equipment Cooling Bypass Valve	C	1	0	(M) May be inoperative deactivated closed provided: a) System is operated in NORMAL or STBY, b) Both equipment cooling fans operate normally, and c) OVRD function operates normally.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-58-4	Equipment Cooling Exhaust Fan	C	1	0	(M)(O) May be inoperative deactivated provided: a) Supply fan operates normally, b) OVRD function operates normally, and c) For operations on the ground above 85 degrees F OAT (29 degrees C) No. 1 or No. 3 pack is operating with all doors and hatches closed.
-58-5	Equipment Cooling Inboard Supply Valve	C	1	0	(M)(O) May be inoperative deactivated closed provided: a) Equipment cooling system is operated with one fan deactivated, b) Remaining fan operates normally, c) OVRD function operates normally, and d) For operations on the ground above 85 degrees F OAT (29 degrees C) No. 1 or No. 3 pack is operating with all doors and hatches closed.
-58-6	Equipment Cooling Supply Fan	C	1	0	(M)(O) May be inoperative deactivated provided: a) Exhaust fan operates normally, b) OVRD function operates normally, and c) For operations on the ground above 85 degrees F OAT (29 degrees C) No. 1 or No. 3 pack is operating with all doors and hatches closed.
-58-7	Equipment Cooling Ground Exhaust Drive Relay	C	1	0	
-58-8	E6/E9 Valve Drive Relay	C	1	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-61-1	Zone Temperature Control System	C	1	0	(M)(O) Control to individual zones may be inoperative provided associated zone operation in MAN mode is verified to operate normally.
		C	1	0	(M)(O) Control to individual zones may be inoperative provided associated zone trim air modulation valve(s) is secured in appropriate position.
		C	1	0	(M)(O) May be inoperative provided: a) Master Trim Air Valves are considered inoperative, and b) Cargo A/C is operated in MAN mode.
-61-3	Master Trim Air Valves	C	2	0	(M) May be inoperative secured closed provided all packs operate normally.
-61-4	Zone Trim Air Modulation Valves	C	7	0	(M) May be inoperative provided associated master trim air valve is considered inoperative.
1)	Forward	C	1	0	(M) May be inoperative provided it is verified that associated zone operation in MAN mode operates normally.
2)	Aft	C	6	1	(M) May be inoperative provided affected valve is secured closed.
-61-5	MAN Control Modes	C	2	0	May be inoperative provided affected MAN mode is not used.
-61-6	ZONE RST Switch	C	1	0	May be inoperative provided Flight Deck and Cargo Temperature Control system operates normally in AUTO.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-61-7	Duct Overheat Protective Systems	C	7	0	(M) 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	7	0	(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) is deactivated.
		C	7	0	(M) May be inoperative provided associated master trim air valve is considered inoperative.
-61-11	Zone Duct Temperature Sensors	C	7	6	
-61-12	Zone Temperature Sensors	C	10	9	
-62-1	Pack Temperature Control Systems	C	2	1	One pack temperature controller (A or B) may be inoperative for each operating pack.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21 AIR CONDITIONING					
-62-2	Pack Coolant (Inlet/Exit Doors) Systems	C	3	2	(M)(O) One may be inoperative for an inoperative pack provided associated exit door has greater open area than inlet door.
		C	3	2	(M)(O) One may be inoperative for an inoperative pack provided associated inlet and exit doors are secured closed.
1)	Inlet Doors	C	3	2	(M)(O) One inlet door may be inoperative secured 60% open to full open provided: a) Remaining two packs operate normally, b) Associated turbine bypass valve operates normally, and c) Associated exit door is secured at least 50% open.
2)	Exit Doors	C	3	0	(M)(O) Any exit doors may be inoperative secured at least 50% open.
-65-1	Flight Deck Temperature Indications (EICAS)	C	2	0	
-65-2	Zone SYS FAULT Light	C	1	0	

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
22 AUTO FLIGHT					
-10-1	Autopilot Systems	C	3	2	(M)(O) One may be inoperative provided: a) Associated FCC SERVO circuit breaker is opened and collared, b) Autopilot Flight Director System is verified not in a single source configuration before each departure, and c) Approach minimums do not require its use.
		C	3	1	(M)(O) Two may be inoperative provided: a) At least two FCC power circuit breakers remain closed, b) Associated FCC SERVO circuit breakers are opened and collared, c) Autopilot Flight Director System is verified not in a single source configuration before each departure, and d) Approach minimums do not require their use.
		B	3	0	(M)(O) May be inoperative provided: a) At least one FCC power circuit breaker remains closed, b) All three FCC SERVO circuit breakers are opened and collared, c) Approach minimums do not require their use, d) Enroute operations do not require their use, and e) Flight crewmembers are limited to 5 flight hours per scheduled flight day.
-11-1	Control Wheel Autopilot Disengage Switches	C	2	1	One may be inoperative provided: a) No autopilot is used below 1,500 feet AGL, and b) Approach minimums do not require autopilot use.

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1. SYSTEM & SEQUENCE NUMBERS / ITEM			2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
22 AUTO FLIGHT					
-11-2	Mode Control Panel Windows				
1)	Airspeed (IAS/MACH)	C	1	0	May be inoperative provided selected airspeed indications on both PFDs operate normally.
2)	Heading (HDG)	C	1	0	May be inoperative provided selected heading indications on both PFDs operate normally.
3)	Vertical Speed (VERT SPD)	C	1	0	May be inoperative provided selected vertical speed indications on both PFDs operate normally.
4)	Altitude (ALT)	C	1	0	May be inoperative provided selected altitude indications on both PFDs operate normally.
-11-3	Mode Control Panel Selectors				
1)	VERT SPD Selector (DN & UP)	C	1	0	
2)	BANK LIMIT Selector (AUTO, 5, 10, 15, 20, 25)	C	1	0	
3)	Selector Push Functions				
a)	ALT	C	1	0	
b)	HDG SEL	C	1	0	
c)	IAS/MACH	C	1	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
22 AUTO FLIGHT					
-11-4	Mode Control Panel Switches				
1)	A/P Engage Switches (L CMD, C CMD, R CMD)	C	3	1	(M)(O) May be inoperative provided associated autopilot system is considered inoperative.
		B	3	0	(M)(O) May be inoperative provided all three autopilot systems are considered inoperative.
2)	A/T Arm Switch (A/T ARM)	C	1	0	May be inoperative ON provided autothrottle disconnect switches operate normally.
		C	1	0	May be inoperative OFF provided approach minimums do not require its use.
3)	A/T Speed Mode Engage Switch (SPD)	C	1	0	May be inoperative provided approach minimums do not require autothrottle use.
4)	Flight Director Switches (F/D)	C	2	0	May be inoperative OFF provided flight director displays are considered inoperative.
5)	IAS/MACH SEL (Reference) Switch	C	1	0	May be inoperative provided IAS is displayed in associated window.
6)	APP Switch	C	1	0	May be inoperative provided approach minimums do not require use of autopilot or flight director.
7)	LOC Engage Switch	C	1	0	May be inoperative provided localizer only approach is not used.
8)	THR, L NAV, V NAV, FL CH, HDG HOLD, V/S, and ALT HOLD Switches	C	7	0	May be inoperative provided enroute operations do not require their use. |

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
22 AUTO FLIGHT					
-11-5	Mode Control Panel Switch Lights				
1)	Autopilot Engage Switch Lights (CMD)	C	3	2	
2)	Mode Selector Switch Lights	C	-	0	
-13-1	Automatic Landing System (Autoland)	C	1	0	May be inoperative provided approach minimums do not require its use.
1)	Triple Channel Autoland (LAND 3)	C	1	0	May be inoperative provided approach minimums do not require its use.
2)	Automatic Rollout Control	C	1	0	May be inoperative provided approach minimums do not require its use.
-21-1	Yaw Dampers	C	2	1	(M) One may be inoperative provided: a) Remaining yaw damper is verified to operate normally, and b) Associated yaw damper switch remains OFF.
-21-2	Yaw Damper INOP Lights	C	2	0	
-31-1	Autothrottle System	C	1	0	May be inoperative provided approach minimums do not require its use.
-31-2	Autothrottle Disconnect Switches	C	2	1	One may be inoperative provided AUTOTHROTTLE ARM switch operates normally.
		C	2	0	May be inoperative provided: a) Autothrottles are not armed, and b) Approach minimums do not require use of autothrottles.

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1. SYSTEM & SEQUENCE NUMBERS / ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
22 AUTO FLIGHT				
-31-3 Takeoff/Go-Around (TO/GA) Switches	C	2	1	One may be inoperative provided: a) No autopilot is used below 1,500 feet AGL, and b) Approach minimums do not require autopilot use.
	C	2	0	May be inoperative provided: a) Thrust levers are operated manually for takeoff and go-around, and b) Autopilot and Flight Director are not used below 500 feet AGL or MDA whichever is higher. NOTE: Flight Director go-around and Windshear guidance are not available with both TO/GA switches inoperative.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
23 COMMUNICATIONS					
-11-1	High Frequency (HF) Communication System	D	-	-	Any in excess of those required by 14 CFR may be inoperative.
		C	-	1	May be inoperative while conducting operations that require two LRCS provided: a) SATCOM Voice or data link operates normally. b) Alternate procedures are established and used. c) SATCOM Voice coverage is available over the intended route of flight. d) If SATCOM Voice is to be used over the intended route of flight, SATCOM Voice short codes (INMARSAT) or direct dial commercial numbers (IRIDIUM) must be available. If not available, prior coordination with the appropriate ATS (FIR) facility is required. NOTE: SATCOM Voice is to be used only as a backup to normal HF communications.
-12-1	VHF Communications Systems	D	-	-	Any in excess of those required by 14 CFR may be inoperative provided it is not powered by the Emergency DC Bus, Battery Bus, Battery Direct Bus or the Transfer Bus and not required for emergency procedures.
-24-1	Radio Communication Panels	C	3	2	Center or right panel may be inoperative provided associated switch remains OFF.
25-1	Satellite Communication (SATCOM) Systems	C	-	0	(O) May be inoperative provided alternate procedures are established and used.
		D	-	0	May be inoperative provided procedures do not require its use. (Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
23 COMMUNICATIONS					
25-1	Satellite Communication (SATCOM) Systems (Cont'd)				
1)	SATCOM Voice Systems	C	-	0	(O) May be inoperative provided alternate procedures are established and used.
		D	-	0	May be inoperative provided procedures do not require its use.
-27-1	ACARS System	C	1	0	(O) May be inoperative provided alternate procedures are established and used.
		D	1	0	May be inoperative provided procedures do not require its use.
1)	Dual ACARS Management Units (MUs)	D	2	1	
-28-1	Selective Call (SELCAL) System	C	1	0	(O) May be inoperative provided alternate procedures are established and used.
		D	1	0	May be inoperative provided procedures do not require its use.
1)	Channels	C	-	0	(O) May be inoperative provided alternate procedures are established and used.
		D	-	0	May be inoperative provided procedures do not require its use.
-31-1	Personnel Address System	C	1	0	(O) May be inoperative provided alternate, normal and emergency procedures, and/or operating restrictions are established and used.
		D	1	0	May be inoperative provided procedures do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
23 COMMUNICATIONS					
-31-1	Personnel Address System (Cont'd)				
1)	Lavatory Speakers	C	1	0	(O) May be inoperative provided alternate procedures are established and used.
		D	1	0	May be inoperative provided procedures do not require its use.
2)	Upper Deck Area Speakers	C	2	1	(M) No crew accommodation seat may be occupied from which the Personnel Address System is not audible and intelligible or that seat must be blocked and placarded DO NOT OCCUPY. |
		D	2	0	May be inoperative provided procedures do not require its use.
-41-1	Service Interphone System				
1)	Nose Gear Jack	C	1	0	(O) Service interphone flight deck to ground/ground to flight deck function may be inoperative provided: a) Alternate procedures are established and used, and b) Nose gear/forward fuselage flight interphone jack operates normally.
		B	1	0	(O) May be inoperative provided alternate procedures are established and used.
2)	Other Than Nose Gear Jack	D	-	0	May be inoperative provided procedures do not require its use.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
23 COMMUNICATIONS					
-42-1	Crewmember Interphone Systems				
1)	Flight Deck to Ground/Ground to Flight Deck Function	C	1	0	(O) Flight interphone flight deck to ground/ground to flight deck function may be inoperative provided: a) Alternate procedures are established and used, and b) Nose gear/forward fuselage service interphone jack operates normally.
		C	1	0	(O) Service interphone flight deck to ground/ground to flight deck function may be inoperative provided: a) Alternate procedures are established and used, and b) Nose gear/forward fuselage flight interphone jack operates normally.
		B	1	0	(O) May be inoperative provided alternate procedures are established and used.
-42-2	Flight Deck Hand Microphones	C	-	-	May be inoperative or missing provided associated boom microphone operates normally.
		D	-	0	May be inoperative or missing provided procedures do not require their use.
-42-4	Alerting System (Audio/Visual)				
1)	Flight Deck Call Visual Alerting System (Lights and EICAS Messages)	B	1	0	May be inoperative provided the flight deck audio alerting system operates normally.
2)	Flight Deck Call System	D	1	0	(O) May be inoperative provided alternate procedures for contacting the flight deck are established and used.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
23 COMMUNICATIONS					
-43-1	Ground Crew Call System	C	1	0	(O) May be inoperative provided: a) EE Cooling System is continuously monitored during ground operations, and b) Alternate procedures are established and used.
-51-2	Headset/Boom Microphones	D	-	-	Any in excess of those required by 14 CFR may be inoperative.
1)	Headset Boom Microphones	A	-	0	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.
2)	Headset Earphones/ Headphones	C	-	1	Either the Captain's or First Officer's earphone/headphone may be inoperative provided associated Flight Deck Speaker operates normally.
-51-3	Flight Deck Speakers	C	2	0	May be inoperative provided: a) Procedures are not dependent upon their use, and b) Associated headset earphones or headphones are installed and operate normally.
-51-4	Audio Control Panels				
1)	Captain's Audio Control Panel	C	1	0	(O) May be inoperative provided First Observer's audio control panel operates normally.
2)	First Observer's Audio Control Panel	A	1	0	May be inoperative provided: a) Captain's audio control panel operates normally, and b) Repairs are made within two flight days.
3)	Second Observer's Audio Control Panel	D	1	0	

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
23 COMMUNICATIONS					
-51-7	Cargo Intercom System	C	1	0	(O) May be inoperative provided alternate procedures are established and used. NOTE: Any function that operates normally can be used.
-51-8	Captain/First Officer Push-to-Talk (PTT) Switches				
1)	Control Wheel PTT Switches	C	2	1	(M) One may be inoperative provided: a) Associated audio control panel PTT switch operates normally, and b) Affected switch is deactivated open.
2)	Flight Crew Audio Control Panel PTT Switches	C	2	1	(M) One may be inoperative provided: a) Associated control wheel PTT switch operates normally, and b) Affected switch is verified inoperative open.
-70-1	Cargo Camera System – Main Deck	C	1	0	(O) May be inoperative provided procedures are established and used to verify main deck cargo compartment remains empty or contains empty Shipping Mechanical Equipment (SME) per the Boeing LCF Allowable Cargo document. |
1)	Cameras	C	10	5	May be inoperative provided: a) Fifty percent of cameras in each viewing area operate normally, and b) One camera on each side in the Mid viewing area operate normally.
2)	Illuminators	C	26	13	May be inoperative provided: a) Fifty percent of illuminators in each viewing area operate normally, and b) Inoperative illuminators are not adjacent.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
23 COMMUNICATIONS					
-70-2	Cargo Camera System - Lower Lobe	C	1	0	(O) May be inoperative provided procedures are established and used to verify Lower Lobe cargo compartment remains empty or contains empty pallets.
1)	Forward Cargo Compartment				
a)	Cameras	C	3	2	May be inoperative provided Forward Left and Aft Right cameras operate normally.
b)	Illuminators	C	7	4	May be inoperative provided illuminators are not adjacent.
2)	Aft Cargo Compartment				
a)	Cameras	C	3	2	May be inoperative provided Forward Right and Aft Left cameras operate normally.
b)	Illuminators	C	7	4	May be inoperative provided inoperative illuminators are not adjacent.
-71-1	Cockpit Voice Recorder System (CVR)	A	1	0	May be inoperative provided: a) Flight Data Recorder (FDR) operates normally, and b) Repairs are made within three flight days.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
24 ELECTRICAL POWER					
-11-1	Engine Driven Generator Systems (IDG, GCU, GCB)	C	4	3	(M) 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 or removed.
		C	4	3	(M) One may be inoperative provided: a) Generator Control Breaker (GCB), if inoperative, remains open, b) If engine Air Oil Cooler (AOC) is inoperative open, fuel tank temperature remains above -30 degrees C throughout the flight, and c) IDG is disconnected or removed.
-11-2	Generator DRIVE Lights	C	4	3	
-21-1	Lightning Protectors	C	12	9	One of each phase may be inoperative provided all AC buses are paralleled. NOTE: For triple channel autoland at least two of the three generators used must have lighting protection on all three phases.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
24 ELECTRICAL POWER					
-22-1	Bus Tie Breakers (BTB)				
1)	No. 1, 2, and 3	C	3	2	(O) One may be inoperative closed provided: a) No. 4 operates normally, and b) Approach minimums do not require its use. NOTE: If No. 1, 2 or 3 BTB is inoperative, triple channel autoland will not be available.
2)	No. 4	C	1	0	(M) May be inoperative verified closed provided No. 1, 2, and 3 operate normally.
-22-2	Split System Breaker (SSB)	C	1	0	(O) May be inoperative closed provided all BTB's operate normally. |
-23-3	AC Bus ISLN Lights	C	4	3	(M) One indication may be inoperative provided associated BTB is verified to operate normally.
-23-4	Engine Generator FIELD OFF Lights (Overhead Maintenance Panel)	C	4	0	
-23-5	Split System Breaker OPEN Light (Overhead Maintenance Panel)	C	1	0	
-23-6	GEN CONT Lights	C	4	0	
-32-1	Transformer Rectifier Units (TRU)				
1)	Main	C	4	3	

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1. SYSTEM & SEQUENCE NUMBERS / ITEM			2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
24 ELECTRICAL POWER					
-32-2	DC Bus Isolation Relays				
1)	No. 1, 2, and 3	C	3	2	One may be inoperative closed provided: a) No. 4 operates normally, and b) Approach minimums do not require its use. NOTE: If No. 1, 2, or 3 DC Isolation Relay is inoperative, triple channel autoland will not be available.
2)	No. 4	C	1	0	May be inoperative closed provided No. 1, 2, and 3 operate normally.
-41-1	External Power Systems	C	2	1	
-56-1	Electrical Load Control Units (ELCU)				
1)	Utility Power ELCUs	C	4	3	(M)(O) One may be inoperative provided: a) Dispatch limitations for affected utility bus equipment are observed, and b) Utility bus No. 4 ELCU operates normally.
-56-2	Utility Power OFF Lights	C	2	0	

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
25 EQUIPMENT/FURNISHINGS					
-11-2	Flight Crew Seats				
1)	Power Adjustment System	D	2	0	
2)	Manual Adjustment System				
a)	Recline Systems	A	2	0	(M) May be inoperative provided: a) Affected seat is secured in an upright position, b) Seat is acceptable to affected crewmember, and c) Repairs are made within two flight days.
b)	Armrests	B	4	0	(M) May be inoperative provided: a) Affected armrest is stowed in the retracted position or removed, and b) Seat is acceptable to affected crewmember.
c)	Lumbar/Thigh Supports	C	4	0	May be inoperative provided seat is acceptable to the affected crewmember. |
d)	Headrests	C	2	0	May be inoperative provided seat is acceptable to the affected crewmember.
e)	Vertical Adjustment	A	2	0	(M) May be inoperative provided: a) Seat is acceptable to the affected crewmember, and b) Repairs are made within two flight days.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
25 EQUIPMENT/FURNISHINGS					
-11-3	Observer Seat(s)				
1)	Primary Observer Seat (Including associated equipment)	A	-	-	May be inoperative provided: a) Secondary observer's seat is available to the FAA inspector for the performance of official duties, and b) Repairs are made within two flight days.
		A	-	-	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 seats 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 authorized to occupy any observer's seat(s).
2)	Additional Observer's Seat (Including Associated Equipment)	D	-	0	NOTE: The pilot in command will determine if the minimum safety equipment is functional for other persons authorized to occupy any observer's seat(s).
-19-1	Flight Crew Rest Seats or Bunk	C	-	0	As required by 14 CFR. NOTE: Flight Crew rest area is not to be occupied during takeoff and landing.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
25 EQUIPMENT/FURNISHINGS					
-20-1	Non-Essential Equipment and Furnishings (NEF)		-	0	May be inoperative, damaged or missing provided that the item(s) is deferred in accordance with the operator's NEF deferral program. The NEF program, procedures and processes are outlined in the operator's (insert name) manual. (M) and (O) procedures, if required, must be available to the flight crew and included in the operator's appropriate document. NOTE: Exterior lavatory door ashtrays are not considered NEF items.
-28-1	Storage Bins/Cabin, Galley and Lavatory Storage Compartments/ Closets	C	-	-	(M) May be inoperative provided: a) Procedures are established to secure the affected bin, compartment or closet in the closed position, b) Any emergency equipment located in affected compartment is considered inoperative, c) Affected bin, compartment or closet is not used for storage of any items except for those permanently affixed, and d) Affected bin, compartment or closet is prominently placarded: "DO NOT USE".
1)	Multi Latch/Quarter Turn Lug Installations	C	-	-	One latch/lug per component may be inoperative provided: a) Remaining latch(es)/lug(s) on affected compartments operates normally, and b) If affected compartment is used for a galley cart, the cart remains empty.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
25 EQUIPMENT/FURNISHINGS					
-30-1	Galley Waste Receptacle Access Doors/Covers	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 waste receptacles are available to accommodate all waste that may be generated on a flight.
-40-1	Exterior Lavatory Door Ashtray	A	1	0	May be missing provided it is replaced within 3 calendar days.
-40-2	Lavatory Waste Receptacle Access Doors/Covers	C	-	-	(M) May be inoperative provided: a) Associated waste container is empty, and b) Receptacle access is secured to prevent waste introduction into the receptacle.
-52-1	Lower Cargo Compartment Lining Panels	C	-	0	(O) May be damaged or missing provided procedures are established and used to verify the associated cargo compartment remains empty or contains only ballast.
-53-1	Cargo Handling System(s)	D	-	0	NOTE: Any portion of system(s) that operates normally may be used.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
25 EQUIPMENT/FURNISHINGS					
-54-1	Cargo Restraint Systems	A	-	-	(M) May be inoperative or missing provided: a) Acceptable cargo loading limits from an approved source, i.e., an Approved Cargo Loading Manual, or Weight and Balance Document are observed, and b) Repairs are made prior to the completion of the next heavy maintenance visit.
		C	-	-	(M) May be inoperative or missing provided associated cargo compartment remains empty. |
-61-1	Flight Crew/Escape Devices				
1)	Inertial Escape Reels	C	-	-	(M) May be inoperative or missing provided: a) The number of crewmembers is limited to the number of operative escape reels, and b) Inoperative escape reels are removed.
2)	Door 1R Escape Rope	C	-	-	May be inoperative or missing provided Door 1L/Slide operates normally.
-62-1	Flotation Equipment	D	-	-	Any in excess of that required by 14 CFR may be inoperative or missing.
-62-2	Ten Man Life Raft	B	-	-	May be inoperative or raft missing provided that for extended overwater operations, Door 1L/Slide operates normally.
-63-3	Fasten Seat Belt While Seated Placards	C	-	-	One or more signs or placards may be illegible or missing provided a legible sign or placard is readable from each occupied crew rest seat.
-63-4	Cabin Emergency Flashlight Holders/Flashlights	C	-	-	May be inoperative or missing provided crewmember has a flashlight of equivalent characteristics readily available.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
25 EQUIPMENT/FURNISHINGS					
-63-5	Emergency Locator Transmitter (ELT)				
1) ***	Survival Type ELTs	D	-	-	Any in excess of those required by 14 CFR may be inoperative or missing.
2) ***	Fixed ELTs	A	-	0	(M) May be inoperative provided: a) System is deactivated, and b) Repairs are made within 90 days.
		A	-	0	May be missing provided repairs are made within 90 days.
		D	-	-	(M) Any in excess of those required by 14 CFR may be inoperative provided system is deactivated.
		D	-	0	Any in excess of those required by 14 CFR may be missing.
-64-2	Emergency Medical Equipment				
1)	First Aid Kit (FAK) and/or Associated Equipment	A	-	-	(O) If more than one is required by 14 CFR, only one of the required FAKs may be incomplete, missing, or inoperative provided: a) FAK is resealed in a manner that will identify it as a unit that cannot be mistaken for a fully serviceable unit. b) Repairs or replacements are made within 1 flight.
		D	-	-	Any in excess of those required by 14 CFR may be incomplete, missing or inoperative.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
25 EQUIPMENT/FURNISHINGS					
-64-2	Emergency Medical Equipment (Cont'd)				
2) ***	Automatic External Defibrillators (AED) and/or Associated Equipment	A	-	0	(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. b) Repairs or replacements are made within 1 flight.
		D	-	-	Any in excess of those required by 14 CFR may be incomplete, missing or inoperative
3) ***	Emergency Medical Kit (EMK) and/or Associated Equipment	A	-	0	(O) May be incomplete, missing, or inoperative provided: a) EMK is resealed in a manner that will identify it as a unit that cannot be mistaken for a fully serviceable unit. b) Repairs or replacements are made within 1 flight.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
26 FIRE PROTECTION					
-11-1	Engine Fire Detector Systems				
1)	Detection Loop	C	8	4	One loop per engine may be inoperative.
2)	Flight Deck Test System	C	1	0	(M) May be inoperative provided an alternate procedure is established to assure system integrity.
-11-2	Engine Overheat Detection System				
1)	Detection Loop	C	8	4	One loop per engine may be inoperative.
2)	Flight Deck Test System	C	1	0	(M) May be inoperative provided an alternate procedure is established to assure system integrity.
-11-4	Fuel Control Switch Fire Light	A	4	3	One may be inoperative provided flight does not exceed three flight days before repairs are made.
-13-1	Lavatory Smoke Detection Systems	D	1	0	
-17-1	Wheel Well Fire Detection System	C	1	0	(M)(O) May be inoperative deactivated provided brakes are verified cool to the touch before engine start.
		C	1	0	(M)(O) May be inoperative deactivated provided brakes are verified cool by monitoring brake temperature indications before engine start.
1)	Flight Deck Test System	C	1	0	(M) May be inoperative provided an alternate procedure is established to ensure integrity of the system.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
26 FIRE PROTECTION					
-18-1	Wing Leading Edge Overheat Detection System				
1)	Dual Loop System				
a)	Loops	C	4	2	One loop in each wing may be inoperative provided the remaining loop(s) operate normally.
2)	Flight Deck Test System	C	1	0	(M) May be inoperative provided an alternate procedure is established to ensure integrity of the system.
-18-2	Center Duct Leak Detection Systems	C	1	0	(O) May be inoperative provided alternate procedures are established and used.
1)	Dual Loop System				
a)	Loops	C	2	1	
2)	Flight Deck Test System	C	1	0	(M) May be inoperative provided an alternate procedure is established to ensure integrity of the system.
-20-1	Fire Bottle Pressure Indication Systems	C	-	0	(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.
-21-1	Engine Fire Extinguisher Squib Test	C	1	0	(M) May be inoperative provided it is verified that the failure is in the light circuit.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
26 FIRE PROTECTION					
-24-2	Lavatory Fire Extinguisher Systems	D	1	0	
		C	1	0	May be inoperative provided lavatory waste receptacle is empty.
-26-1	Portable Fire Extinguishers	D	-	-	(M) Any in excess off the those required by 14 CFR may be inoperative or missing provided: a) The inoperative fire extinguisher is tagged inoperative, removed from the installed location, and placed out of sight so it can not be mistaken for a functional unit, and b) Required distribution is maintained.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
27 FLIGHT CONTROLS					
-11-1	Aileron Trim System	C	1	0	(M) May be inoperative provided aileron trim system is verified to be centered
-11-2	Outboard Aileron Lockout System	C	1	0	(M)(O) May be inoperative unlocked provided maximum airspeed limit is 225 KIAS or 0.73 MACH, whichever is less.
1)	Indication System	C	1	0	(M) May be inoperative provided the aileron lockout system is verified to operate normally before each departure.
-18-1	Aileron Position Indicating System	C	1	0	(M) May be inoperative provided visual confirmation of proper aileron movement is made before each departure.
-21-1	Rudder Trim System				
1) ***	Trim Switch Speed Positions	C	2	1	
2) ***	Trim Centering Switch	C	1	0	
-23-1	Flight Control Shutoff Switch Lights	C	8	6	(M) One per axis may be inoperative provided the associated valve position is verified open before each departure.
-23-2	Hydraulic Flight Controls Valves	C	8	0	(M) May be inoperative open.
-28-1	Rudder Position Indicating System	C	1	0	(M) May be inoperative provided visual confirmation of proper rudder movement is made before each departure.
-28-2	Rudder Trim Indicator	C	1	0	(O) May be inoperative provided rudder trim is verified centered before each departure.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
27 FLIGHT CONTROLS					
-32-1	Stall Warning Systems	C	2	1	(M) One may be inoperative provided remaining system is verified to operate normally before each departure.
1)	Stick Shakers	C	2	1	
-38-1	Elevator Position indicating System	C	1	0	(M) May be inoperative provided visual confirmation of proper elevator movement is made before each departure.
-41-1	Stabilizer Trim/Rudder Ratio Changer Modules (SRM)				
1)	Stabilizer Trim Control	C	2	1	(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. NOTE: If Stabilizer Trim control in the other SRM fails, autopilot will not be available.
-42-2	Control Wheel Stabilizer Trim Switches	C	2	1	(O) One may be inoperative provided Alternate Stabilizer Trim System is verified to operate normally before each departure.
48-1	Stabilizer Trim Indicators	C	2	1	(M) One may be inoperative (including multiple greenband indication) provided faulty indicator is not visible.
-48-2	Nose Gear Pressure Switch	C	1	0	(O) May be inoperative provided stabilizer trim position is properly set before each departure for the actual airplane weight, center of gravity and takeoff thrust setting.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
27 FLIGHT CONTROLS					
-51-1	Flap Control Units (FCU)	C	3	2	(M)(O) One may be inoperative or removed provided: a) It is verified that flap position RVDT sensors operate normally before each departure, b) If right FCU is inoperative or removed, No.1 demand pump is selected ON during takeoff and landing, and c) If left FCU is inoperative or removed, No. 4 demand pump is selected ON during takeoff and landing. NOTE: If S/B 747-34-2349 or production equivalent has not been incorporated and center FCU is inoperative or removed, MODE 4 of the ground proximity warning system is considered inoperative.
-51-2	TE Flap Drive System				
1)	No-Coast Drag Brake	A	1	0	(M) May be inoperative provided: a) Flap Drive Torque Tube and No-Coast Drag Brake support bracket are verified to be undamaged before each departure, 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.
-62-1	Auto Spoilers System	C	1	0	(M)(O) May be inoperative provided: a) System is deactivated, and b) AFM performance decrements are applied.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
27 FLIGHT CONTROLS					
-62-2	Speed Brake Solenoid	C	1	0	(M)(O) May be inoperative in the GROUND position provided speed brake lever is not moved beyond the FLIGHT position during flight.
-68-1	Spoiler Position Indicating System	C	1	0	(M) May be inoperative provided visual confirmation or proper spoiler movement is made before each departure.
-81-1	Leading Edge Flaps Drives (Pneumatic)	C	8	7	(M)(O) One may be inoperative provided: a) All electric drives are verified to operate normally, and b) Takeoff obstacle clearance is not required upon retraction of flaps from takeoff position.
-81-2	Leading Edge Flaps Drives (Electric)	C	8	7	(M) One may be inoperative provided: a) All pneumatic drives operates normally, and b) Associated electric drive is deactivated.
-81-3	Leading Edge Flaps Retraction System (Reverser Actuated)	C	1	0	
-88-1	Leading Edge Flaps System Position Monitor	C	1	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-11-1	Fuel Sump Drain Valves	C	10	0	(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.
-15-1	Fuel Scavenge Pump (Electric)	C	1	0	(M) May be inoperative deactivated provided center tank remains empty.
		C	1	0	(M) May be inoperative deactivated provided the first 3000 lb (1360 kg) of center tank fuel is included as part of Zero Fuel Weight and is considered unusable.
-16-1	Reserve 2 and 3 Fuel Transfer Valves	C	4	2	(M)(O) One per tank may be inoperative deactivated closed (with reserve tanks fueled) provided: a) Zero Fuel Weight CG limit is 1% MAC forward of the Aft Limit, and b) If fuel in reserve tanks 2 or 3 does not transfer, observe 325 KCAS/0.85M speed limitation for remainder of flight.
		C	4	0	(O) May be inoperative provided: a) Reserve tanks 2 and 3 remain empty, and b) Maximum Takeoff Weight is limited to 740,000 lb (335,664 kg).
-21-1	Pressure Fueling System	C	1	0	(M) May be inoperative provided alternate procedures are used for refueling. 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. (Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-21-1	Pressure Fueling System (Cont'd)				
1)	Refuel Valves	C	8	0	(M) May be inoperative closed provided alternate procedures are used for refueling of associated fuel tank.
		C	8	3	(M)(O) May be inoperative open provided: a) Number of inoperative open refuel valves associated with Main tanks 1 and 4 and Reserve tanks 2 and 3, is limited to a total of one refuel valve, b) Fuel jettison system is considered inoperative, c) Alternate procedures are used for refueling, and d) Appropriate performance adjustments are applied. NOTE: Up to four refuel valves associated with Main tanks 2 and 3 and Center tank can be inoperative open.
2)	Volumetric Top-Off (VTO) Feature	C	1	0	(M) May be inoperative provided alternate procedures are used for refueling.
3)	Preselect Feature	C	-	0	(M) May be inoperative provided alternate procedures are used for refueling associated fuel tank.
4)	Fueling Power Control Switch (Fueling Panel)	C	1	0	(M) May be inoperative provided fueling panel is deactivated before each departure.
		C	1	0	(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.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-21-1	Pressure Fueling System (Cont'd)				
5)	Reserve Tanks 2 and 3 Secondary Refuel Shutoff System	C	2	0	(M) May be inoperative provided alternate procedures are used for refueling associated fuel tank.
6)	Main Tanks 1 and 4 Secondary Refuel Shutoff System	C	2	0	(M) May be inoperative provided alternate procedures are used for refueling associated fuel tank.
-21-4	Fueling Receptacle Caps	C	4	0	May be inoperative (missing) provided no leakage can be detected after refueling is complete.
-22-1	Main Tank Boost Pumps				

SYSTEM & SEQUENCE NUMBERS / ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL				
-22-1 Main Tank Boost Pumps (Cont'd)				
1) Main Tank 1 and 4 Boost Pumps	C	4	3	(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) For dispatch, 1 and 4 main tanks are fueled to capacity, and e) For landing, main tanks 1 and 4 have a minimum of 4,690 lb (2,127 kg).
	C	4	3	(M)(O) One may be inoperative provided: a) Prior to engine start, a minimum of 17,000 lb (7,711 kg) fuel is loaded in the center wing tank and all center wing tank fuel is included as part of Zero Fuel Weight, 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 tank 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 center wing tank, and g) A minimum fuel quantity of 4,690 lb (2,127 kg) is retained in the associated tank for takeoff and landing (normal fuel loading balance and usage requirements still apply). (Continued)

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-22-1	Main Tank Boost Pumps (Cont'd)				
2)	Main Tank 2 and 3 Boost Pumps	C	4	3	(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 tank remains empty or fuel is included as part of Zero Fuel Weight, and g) The following minimum fuel quantities are retained in the associated tank for the flight conditions shown (normal fuel loading, balance and usage requirements still apply): LANDING: 8,610 lb (3,905 kg) (Continued)

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1. SYSTEM & SEQUENCE NUMBERS / ITEM			2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-22-1	Main Tank Boost Pumps (Cont'd)				
2)	Main Tank 2 and 3 Boost Pumps (Cont'd)				
a)	Aft Boost Pumps	C	2	1	(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, and d) The following minimum fuel quantities are retained in the associated tank for the flight conditions shown (normal fuel loading, balance and usage requirements still apply): TAKEOFF: 78,390 lb (35,557 kg) LANDING: 8,610 lb (3,905 kg) (Continued)

1. SYSTEM & SEQUENCE NUMBERS / ITEM			2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-22-1	Main Tank Boost Pumps (Cont'd)				
2)	Main Tank 2 and 3 Boost Pumps (Cont'd)				
a)	Aft Boost Pumps (Cont'd)	C	2	1	(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 driven generator systems operate normally, and d) The following minimum fuel quantities are retained in the associated tank for the flight conditions shown (normal fuel loading, balance and usage requirements still apply): TAKEOFF: 78,390 lb (35,557 kg) LANDING: 8,610 lb (3,905 kg)
b)	Fwd Boost Pumps	C	2	1	(M)(O) One fwd 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, and c) The following minimum fuel quantities are retained in the associated tank for the flight conditions shown (normal fuel loading, balance and usage requirements still apply): TAKEOFF: 24,254 lb (11,002 kg) LANDING: 8,610 lb (3,905 kg)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-22-2	Fuel Management Systems (FSMC A/FSMC B)	C	2	1	(M)(O) One card may be inoperative with reserve tanks 2 and 3 fueled provided: a) Zero Fuel Weight CG limit is 2% MAC forward of the Aft Limit, b) If fuel in reserve tanks 2 or 3 does not transfer, observe 325 KCAS/0.85M speed limitation for remainder of flight, and c) Main tanks 2 and 3 fuel quantity indicating systems operate normally.
		C	2	1	(M)(O) One card may be inoperative with reserve tanks 2 and 3 empty provided a maximum takeoff weight is limited to 740,000 lb (335,664 kg).
-22-3	Fuel Crossfeed VALVE Lights	C	4	3	(M) One may be inoperative provided associated valve is verified to operate normally.
-22-5	Fuel Crossfeed Valves				
1)	Fuel Crossfeed Valves 1 and 4	C	2	1	(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.
2)	Fuel Crossfeed Valves 2 and 3	C	2	1	(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 tank remains empty or fuel is included as part Zero Fuel Weight.
-26-1	Manually Operated Defuel Valves	C	2	0	(M) May be inoperative secured closed.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-31-1	Fuel Jettison System	C	1	0	(M)(O) All components may be inoperative provided: a) Airplane performance requirements are satisfied, including Approach Climb and Landing Climb capability, b) Jettison nozzle valves are secured closed, and c) Main tanks 1 and 4 transfer valves are secured closed, and d) All main tank 1 and 4 boost pumps operate normally.
1)	Center Wing Tank Jettison/Transfer Valves	C	2	0	(M)(O) May be inoperative provided: a) Valve(s) is secured open, b) Both jettison nozzle valves operate normally.
		C	2	0	(M) May be inoperative secured closed provided associated inboard main tank jettison/transfer valve(s) operates normally.
2)	Main Tanks 2 and 3 Jettison/Transfer Valves	C	2	0	(M) May be inoperative secured closed provided associated center wing tank jettison/transfer valve(s) operates normally.
		C	2	0	(M) May be inoperative provided: a) Valve(s) is secured open, b) Both jettison nozzle valves operate normally.
3)	Main Tanks 1 and 4 Transfer Valves	C	2	0	(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.
4)	Fuel Jettison Control Cards	C	2	1	(M) One may be inoperative provided the remaining FJCC is verified to operate normally before each departure. |

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-31-2	Main Tanks 2 and 3 Override/Jettison Pumps	C	4	3	(M) One forward or aft override/jettison pump may be inoperative deactivated provided, for an aft override/jettison pump, all engine driven generator systems operate normally.
		C	4	3	(M) One forward or aft override/jettison pump may be inoperative deactivated provided, for an aft override/jettison pump, both associated main tank boost pumps operate normally.
		C	4	2	(M) One forward or aft override/jettison pump per tank may be inoperative deactivated provided: a) For an inoperative aft override/jettison pump, all engine driven generator systems operate normally, and b) All Main Tanks 2 and 3 boost pumps operate normally.
-31-4	Center Tank Override Jettison Pumps	C	2	1	(M)(O) May be inoperative deactivated provided: a) 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, b) Center tank fuel is included as part of Zero Fuel Weight, and c) Center tank quantity indication operates normally.
		C	2	0	(M)(O) May be inoperative deactivated provided: a) Center tank fuel is included as part of Zero Fuel Weight, and b) Center tank fuel is considered unusable.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-41-1	Main Tank Fuel Quantity Indicating Systems (Flight Deck)	C	4	3	(M)(O) 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) Tank is emptied and serviced with a known quantity of fuel, or measuring stick readings are taken to verify fuel quantity in tank with inoperative indicator after each refueling, 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, g) Remaining individual tank quantity indications are available, and h) Appropriate procedures are used enroute to identify engine fuel leaks if suspected or confirmed.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-41-2	Single Point Sensor Systems				
1)	Main Tanks 2 and 3 Sensors (Reserve Transfer)	C	2	1	One may be inoperative provided main tanks 2 and 3 fuel quantity indicating systems operate normally.
		C	2	0	(O) May be inoperative with reserve tanks 2 and 3 fueled provided: a) Main tanks 2 and 3 fuel quantity indicating systems operate normally, b) Zero Fuel Weight CG limit is 2% MAC forward of the Aft Limit, and c) If fuel in reserve tanks 2 or 3 does not transfer, observe 325 KCAS/0.85M speed limitation for remainder of flight.
		C	2	0	(O) May be inoperative with reserve tanks 2 and 3 empty provided maximum takeoff weight is limited to 740,000 lb (335,664 kg).
2)	Main Tanks 2 and 3 Sensors (Main 1 and 4 Jettison Transfer)	C	2	1	One may be inoperative provided main tanks 2 and 3 fuel quantity indicating systems operate normally.
-41-3	Total Fuel Quantity Indication	C	1	0	(M)(O) 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.
-41-4	Center Tank Fuel Quantity Indicating System (Flight Deck)	C	1	0	(O) May be inoperative provided: a) Center tank remains empty, and b) FMC is initialized with the known total fuel quantity.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
-41-5	Reserve Tank Fuel Quantity Indicating Systems (Flight Deck)	C	2	0	(M)(O) 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, d) Remaining individual tank quantity indications are available.
		C	2	0	(O) May be inoperative with reserve tanks 2 and 3 empty provided: a) Takeoff weight is limited to a maximum of 740,000 lb (336,664 kg), and b) Remaining individual tank quantity indications are available.
-41-6	Wing Fueling Station Quantity Indicating System	C	1	0	(M) May be inoperative provided preselect refueling is not used.
-42-1	Fuel Pump Low PRESS Lights	C	14	7	
-43-1	Fuel Temperature Indication (Main Tank #1)	C	-	1	
		C	-	0	May be inoperative provided Total Air Temperature (TAT) or Static Air Temperature (SAT) to (TAT) conversion is substituted as an indication of fuel temperature.
-44-1	Measuring Sticks	C	-	0	May be inoperative provided fuel quantity is verified by other means.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
29 HYDRAULIC POWER					
-11-1	Engine Driven Hydraulic Pump Systems	C	4	3	(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.
		C	4	3	(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 deactivated. |
		C	4	3	(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.
1)	Pump Depressurization Function	C	4	3	One pump depressurization function may be inoperative.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
29 HYDRAULIC POWER					
-11-1	Engine Driven Hydraulic Pump Systems (Cont'd)				
2)	Supply Shutoff Valves	C	4	3	(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 deactivated.
		C	4	3	(M)(O) One supply shutoff valve may be inoperative closed provided: a) All Demand pumps operative normally, b) Demand pump for the associated hydraulic system remains ON, and c) Associated pump is removed and a cover plate installed.
-11-2	Demand Hydraulic Pumps				
1)	No. 1 or No. 4 Demand Pump Systems	C	2	1	(M)(O) One may be inoperative deactivated provided: a) VMCG is increased by 5 kts, b) Takeoff performance must be in accordance with the AFM appendix for landing gear extended, c) Takeoff obstacle clearance must be dependent upon flaps remaining in the takeoff position, and d) Demand pumps 2 and 3 operate normally.
2)	No. 2 or No. 3 Demand Pump Systems	C	2	1	(M) One may be inoperative deactivated provided demand pumps 1 and 4 operate normally.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
29 HYDRAULIC POWER					
-11-3	Demand Pump Selector				
1)	AUTO Position	C	4	0	(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.
		C	4	3	One may be inoperative provided associated demand pump is inoperative.
2)	ON Position	C	4	2	(M) Two may be inoperative provided: a) Verify AUTO and OFF function of the associated demand pump are verified to operate normally, and b) Associated EDP operates normally.
		C	4	3	One may be inoperative provided associated demand pump is inoperative.
-18-1	Reservoir Servicing Gauge	D	1	0	
-21-1	Auxiliary Pump (AC Motor Pump) System(s)	C	-	0	(M)(O) May be inoperative provided Demand Pump Selector is properly positioned.
-31-1	HYD RSVR PRESS Messages	C	4	0	(M) May be inoperative provided associated reservoir pressurization is verified to operate normally once each flight day.
-32-1	Hydraulic System Temperature Indications	C	4	3	(M) One may be inoperative provided the following indications are verified to operate normally: a) Associated System Pressure Indication, and b) Associated Hydraulic Quantity Indication.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
29 HYDRAULIC POWER					
-32-1	Hydraulic System Temperature Indications (Cont'd)	C	4	3	(M) One may be inoperative provided the following indications are verified to operate normally: a) Associated system pressure indication, and b) Associated hydraulic SYS FAULT light.
-33-1	Hydraulic Quantity Indications	C	4	2	(M) May be inoperative provided: a) Associated reservoir level is verified normal before each departure, b) Associated system pressure indication is verified to operate normally, and c) Associated hydraulic temperature indication is verified to operate normally.
		C	4	2	(M) May be inoperative provided: a) Associated reservoir level is verified normal before each departure, b) Associated system pressure indication is verified to operate normally, and c) Associated hydraulic SYS FAULT light is verified to operate normally.
		B	4	0	(M) May be inoperative provided: a) Associated reservoir level is verified normal before each departure, b) Associated system pressure indication is verified to operate normally, and c) Associated hydraulic temperature indication is verified to operate normally.
		B	4	0	(M) May be inoperative provided: a) Associated reservoir level is verified normal before each departure, b) Associated system pressure indication is verified to operate normally, and c) Associated hydraulic SYS FAULT light is verified to operate normally.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
29 HYDRAULIC POWER					
-34-1	Pump Low Pressure Indication Systems				
1)	Pump Low PRESS Lights	C	8	4	(M) One light per hydraulic system may be inoperative provided: a) Associated system pressure indication operates normally, and b) Associated pump is verified to operate normally before each departure.
2)	Engine Driven Pump Pressure Switches	C	4	3	(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 is verified to operate normally before each departure, and d) Associated demand pump indication system operates normally.
3)	Demand Pump Pressure Switches	C	4	3	(M) One may be inoperative provided: a) Associated system pressure indication operates normally, b) Associated pump is verified to operate normally before each departure, and c) Associated engine driven pump indication system operates normally.
-34-2	Hydraulic SYS FAULT Lights	C	4	3	(M) One may be inoperative provided the following indications are verified to operate normally: a) Associated System Pressure Indication, and b) Associated Hydraulic Quantity Indication.
		C	4	3	(M) One may be inoperative provided the following indications are verified to operate normally: a) Associated System Pressure Indication, and b) Associated System Temperature Indication.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
30 ICE AND RAIN PROTECTION					
-00-1	Windshield Air (Defog) System Controls	C	2	0	(M) May be inoperative provided defogging valve(s) is secured ON.
-11-1	Wing Anti-Ice Valves	C	2	0	(M) May be inoperative secured closed provided airplane is not operated in known or forecast icing conditions.
-11-2 ***	Wing Anti-Ice VALVE Light or WAI Indications	C	-	0	(M) May be inoperative provided associated valve is verified to operate normally before departure in known or forecast icing conditions.
		C	-	0	May be inoperative provided the associated wing anti-ice valve is inoperative.
-21-1	Nacelle Anti-Ice Valves	C	4	3	(M) One may be inoperative secured closed provided airplane is not operated in known or forecast icing conditions.
		C	4	3	(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 above 10,000 ft. MSL, or 55% N1 is maintained below 10,000 ft. MSL on the associated engine while in icing conditions, g) Associated PRV operates normally, and h) Appropriate performance adjustments are applied.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
30 ICE AND RAIN PROTECTION					
-21-2	Nacelle Anti-Ice VALVE Lights or NAI Indications	C	4	3	(M) One may be inoperative provided associated valve is verified to operate normally before departure in known or forecast icing conditions.
		C	4	3	One may be inoperative provided the associated nacelle anti-ice valve is inoperative.
-31-1	Pitot-Static Probe Heater Systems	B	4	3	Heater elements in one probe may be inoperative provided airplane is not operated in visible moisture or in known or forecast icing conditions. NOTE: For probe heat to be considered operative, both heater elements in that probe must operate normally.
-31-2	Angle of Attack Sensor Heater Systems	C	2	1	One may be inoperative provided airplane is not operated in known or forecast icing conditions.
-31-3	Temperature Probe Heater Systems	C	2	1	
-41-1	Window Heat INOP Lights	C	2	1	One may be inoperative provided associated heater operates normally.
-41-2	Flight Deck Window Heater Systems (No. 1 & No. 2)	C	4	3	(O) For inoperative No.1 or No.2 window heater, AFM limitations must be applied.
-41-3	Flight Deck Window Heater Systems (No. 3)	C	2	0	(M) May be inoperative provided affected No. 3 window heat circuit is deactivated.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
30 ICE AND RAIN PROTECTION					
-42-1	Windshield Wipers	C	2	0	May be inoperative provided the airplane is not operated in know or forecast precipitation within 5 statute miles of the airport of departure or intended landing. |
1)	Low Speed	C	2	0	May be inoperative provided associated high speed function operates normally.
2)	High Speed	C	2	1	One may be inoperative provided associated low speed function operates normally.
		C	2	0	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.
-44-1	Windshield Washer Systems	C	2	0	
-81-1 ***	Ice Detection System	C	1	0	(M)(O) May be inoperative deactivated provided nacelle and wing anti-ice systems are operated manually.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
31	INDICATING/RECORDING SYSTEMS				
-21-1	Inclinometers	C	2	0	(M) May be inoperative provided alternate procedures are used.
-25-1	Clock	C	2	1	One may be inoperative at either pilot's or copilot's station.
-31-1	Flight Data Recorder (FDR) System	C	-	-	Any in excess of those required by 14 CFR may be inoperative.
		A	-	0	May be inoperative provided: a) Cockpit Voice Recorder (CVR) operates normally, b) Airplane is not dispatched from a designated airport as listed in the operator's MEL 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 designated airport where repair must be accomplished prior to dispatch, and d) Repairs are made within three flight days.
1)	FDR Recording Parameters required by 14 CFR	A	-	-	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.
2)	FDR Recording Parameters not required by 14 CFR	A	-	-	May be inoperative provided repairs are made prior to the completion of the next heavy maintenance visit.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
31	INDICATING/RECORDING SYSTEMS				
-31-2 ***	Quick Access Recorder (QAR) System	D	1	0	
-35-1 ***	Aircraft Condition Monitoring System (ACMS)	D	1	0	
-51-1	Master Caution Warning Systems				
1)	Master Warning Lights (Pilot's Glare Shield)	C	2	1	One may be inoperative provided master warning aural systems and all discrete warning lights operate normally.
2)	Master Caution Lights (Pilot's Glare Shield)	C	2	1	One may inoperative provided master caution aural systems and all discrete caution lights operate normally.
3)	Aural Warning Speaker Systems	C	2	1	One may inoperative provided Master Warning, Master Caution and all discrete lights operate normally. |
-51-2	MAWEA ID Card	C	1	0	NOTE: ACARS will be inoperative.
-61-1	EICAS Lower Integrated Display Unit (IDU)	C	1	0	(M) May be inoperative provided it is verified that EICAS can be switched to an alternate IDU (in case of enroute failure of the EICAS Upper IDU).

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
31 INDICATING/RECORDING SYSTEMS					
-61-2	EFIS Control Panels	C	2	1	(M)(O) One may be inoperative deactivated provided left and right CDU EFIS control functions are verified to operate normally.
-61-3	EICAS Display Select Panel	C	1	0	(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.
-61-4	EICAS Status Message	C	-	0	(M)(O) May be inoperative provided an acceptable procedure is used before each flight to verify that associated equipment operates normally.
		C	-	0	May be inoperative provided associated equipment is considered inoperative.
-61-5	EICAS Synoptic Displays	C	6	0	May be inoperative provided individual fuel quantity indications required for dispatch operate normally.
-61-6	EFIS/EICAS Interface Units (EIU)	B	3	2	(M) 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.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
32 LANDING GEAR					
-10-1	Main Gear Wheel Tiebolts	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, and d) Operations are limited to five departures before repairs are made.
-11-1	Landing Gear Strut Pressure Indicators	D	-	0	(M) May be inoperative provided landing gear strut is checked for proper inflation and extension.
-30-1	Landing Gear Retracting System	C	1	0	(M)(O) May be partially or completely inoperative provided: a) Inoperative components are properly secured, and b) Airplane is operated in accordance with the appropriate AFM gear down appendix.
-31-1	Landing Gear Latch Solenoid	C	1	0	(M)(O) May be inoperative provided: a) Solenoid is in the latched position, and b) Override mechanism operates normally.
-32-1	Wing Gear Unlock Bungee Springs	B	4	3	(M)(O) One may be broken or missing provided gear handle remains UP after gear retraction.
-33-1	Body Gear Uplock Bungee Springs	B	4	3	(M)(O) One may be broken or missing provided gear handle remains UP after gear retraction.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
32 LANDING GEAR					
-41-1	Wheel Brakes	C	16	14	(M)(O) One or two brakes may be deactivated with a deactivation tool provided performance complies with AFM for two brakes deactivated.
		C	16	14	(M)(O) One or two brakes may be deactivated by capping the brake line provided: a) Takeoff and landing performance complies with AFM, both for Gear Down dispatch and for two brakes deactivated, and b) After takeoff, gear remains down for two minutes before retraction.
		C	16	14	(M)(O) One or two brakes may be deactivated by removing the brake(s) and capping the lines provided: a) Takeoff and landing performance complies with AFM, both for Gear Down dispatch and for two brakes deactivated, b) After takeoff, gear remains down for two minutes before retraction, and c) 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.
-41-2	Brake Accumulator Pressure Indicator (In Wheel Well)	C	1	0	May be inoperative provided flight deck indication operates normally.
-41-3	HYD BRAKE PRESS Indicator (Flight Deck)	C	1	0	(M) May be inoperative provided: a) Brake accumulator charge is verified normal once each flight day, and b) Brake source discrete light operates normally.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
32 LANDING GEAR					
-41-4	Inflight Wheel Braking System	C	1	0	(O) May be inoperative provided: a) Takeoff performance is based on landing gear extended, and b) After takeoff, landing gear remains extended for a minimum of two minutes before retraction.
-41-5	BRAKE SOURCE Light	C	1	0	
-42-1	Antiskid System	C	1	0	(M)(O) May be inoperative provided operations comply with AFM antiskid inoperative procedures and performance data.
1)	Control Channels	C	16	14	(M)(O) Antiskid control channels for one or two brakes may be inoperative provided: a) The affected brakes are deactivated, and b) AFM performance decrements are applied for the selected procedure.
2)	Wheelspeed Transducers	C	16	14	(M)(O) One transducer in a locked-wheel protection pair (fore & aft wheels) may be inoperative provided performance complies with AFM for two brakes deactivated.
		C	16	14	(M)(O) May be inoperative provided: a) The affected brakes are deactivated, and b) AFM performance decrements are applied for the selected procedure.
-42-2	Alternate Antiskid Valves	C	8	7	(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 b) AFM performance decrements are applied.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
32 LANDING GEAR					
-42-3	Autobrake System	C	1	0	(M) 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.
		C	1	0	(M) 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.
-42-4	Torque Limiter System				
1)	Torque Limiter Control	C	16	14	(M)(O) Torque limiter control for two brakes on one truck may be inoperative provided: a) Associated brakes are considered inoperative, b) Appropriate performance adjustments are applied, and c) BRAKE LIMITER indication is not displayed.
		C	16	10	(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 c) Appropriate performance adjustments are applied.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
32 LANDING GEAR					
-44-2 ***	Brakes Status Light(s) (On Nose Gear)	C	-	0	(O) May be inoperative provided alternate procedures are established and used.
		D	-	0	May be inoperative provided procedures do not require their use.
-45-1	Nose Wheel Snubber Pads	C	2	0	
-46-1	Brake Temperature Monitoring System (BTMS)	C	1	0	(O) May be inoperative provided AFM Maximum Quick Turnaround Weight limitations are observed.
-51-1	Rudder Pedal Nose Wheel Steering System	C	1	0	(M)(O) May be inoperative provided: a) Other systems are not impaired, and b) Landing approach minimums do not require automatic rollout guidance system.
-53-1	Body Gear Steering System	C	1	0	(M)(O) May be inoperative provided: a) Body gear steering actuators are verified locked, and b) Body gear steering is deactivated.
-53-2	Body Gear Steering Indication System	C	1	0	(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 before each departure.
-61-1	Body and Wing Landing Gear Uplock Position Sensors	B	8	7	(M)(O) One may be inoperative provided the associated Primary and Alternate Landing Gear Door Warning Sensors are verified to operate normally.
		B	8	0	(M)(O) May be inoperative provided: a) Associated landing gear and its symmetric pair are secured in the down and locked position, and b) Dispatch is in accordance with appropriate AFM Gear Down appendix.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
32 LANDING GEAR					
-61-2	Landing Gear Door Warning Sensors	C	10	5	(M)(O) One per door may be inoperative provided the associated operative sensor is verified to function correctly.
-61-3	Wing Landing Gear Downlock Position Sensors	B	4	0	(M)(O) May be inoperative provided: a) Both wing landing gear are secured in the down and locked position, and b) Dispatch is in accordance with appropriate AFM Gear Down appendix.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
33 LIGHTS					
-11-1	Flight Compartment and Instrument Lighting System	C	-	-	Individual lights may be inoperative provided remaining lights are: a) Sufficient to clearly illuminate all required instruments, controls, and other devices for which it is provided, b) Position so that direct rays are shielded from flight crewmembers eyes, and c) Lighting configuration and intensity is acceptable to the flight crew.
-12-1	Storm Override Switch	C	1	0	May be inoperative provided associated lights operate normally.
-18-1	Master Dim and Test System	B	1	0	Dim function may be inoperative provided: a) Test and Bright functions operate normally, and b) Light intensity is acceptable to the flight crew.
		B	1	0	Test function of individual light may be inoperative provided: a) Dim or Bright function operates normally, and b) Light intensity is acceptable to the flight crew.
-21-1	Cabin Interior Illumination System	D	-	-	Individual lights may be inoperative provided remaining lighting is sufficient for flight crew to perform their duties.
-24-1	All Cargo Supernumerary/ Courier Area Information Signs	C	-	-	(O) May be inoperative provided alternate procedures are established and used to notify supernumeraries/couriers when associated signs(s) are placed on or off.
1)	Aural Tone System	C	1	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
33 LIGHTS					
-24-1	All Cargo Supernumerary/ Courier Area Information Signs (Cont'd)				
2)	Flight Deck Automatic Function	C	-	0	(O) Automatic function may be inoperative provided: a) Manual Control function operates normally, and b) Procedures for its use are established and used.
-31-1	Wheel Well, Cargo Compartment, Servicing, Exterior Cargo Loading Area, and Electrical Equipment Center Lights Systems	C	-	0	
-41-1	Wing Illumination Lights	C	2	0	(O) May be inoperative provided ground de-icing procedures do not require their use.
-42-1	Taxi Lights	C	2	0	
-42-2	Landing Lights	C	4	2	One light per side may be inoperative.
		C	4	0	May be inoperative for day operations.
1)	Dim Position	C	4	0	
-42-3	Runway Turn-Off Lights	C	2	0	May be inoperative provided both landing lights on the same side of airplane as inoperative turn-off light(s) operate normally.
		C	2	0	May be inoperative for day operations.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
33 LIGHTS					
-43-1	Position Lights (Wing Tips and Tail)	C	6	3	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.
		C	6	0	May be inoperative for day operations.
-44-1	Anti-Collision Light Systems	C	-	0	May be inoperative for day operations.
1)	Red Upper and Lower Fuselage Beacon Lights	C	2	0	May be inoperative for night operations provided the White Tail and Wing Tip Strobe lights operate normally.
2)	White Tail and Wing Tip Strobe Lights	C	3	0	May be inoperative for night operations provided the Red Upper and Lower Fuselage Beacon lights operate normally.
-45-1	LOGO Light System	D	1	0	
-51-1	Interior Emergency Lighting System	C	1	-	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 operates normally. NOTE: Not required for an inoperative or deactivated main entry door.
-51-2	Exterior Emergency Lighting System	B	1	0	May be inoperative for associated inoperative or deactivated main entry door.
		B	1	0	May be inoperative for day operations.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-00-1	Instrument Source Select Switches (FLT DIR, NAV, EIU, IRS, AIR DATA)	C	10	-	(M)(O) May inoperative provided: a) Associated instruments operate from isolated sources, and b) Inoperative switches are not moved in flight.
1)	Auto-Select Feature	C	-	0	(M) May be inoperative provided source in verified.
-00-2 ***	PFD/ND Standby Power Switching	C	2	1	
-11-1	Static Air Temperature (SAT) Indications	D	-	0	
-11-2	Pitot/Static Probe Source Select Valves	C	-	0	May be inoperative provided left and right ADCs operate normally.
-12-1	Air Data Computer System (ADC)	C	-	2	(O) May be inoperative provided at least the left, and one other ADC operate normally.
-12-2	Total Air Temperature Indication	C	1	0	May be inoperative provided Static Air Temperature (SAT) indication is available.
1)	Total Air Temperature Probes	C	2	1	
-13-1	Mach Indications	C	2	1	One may be inoperative provided flight descends to FL 290 or below if failure of the second indication occurs in flight.
		C	2	0	May be inoperative provided flight remains at or below FL 290.
-13-2	Mach/Airspeed Warning Systems	B	2	1	One (Captain’s or F/O’s) may be inoperative.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-13-3	Standby Altimeter Vibrator	C	1	0	May be inoperative provided VMC conditions exist at departure and arrival airports.
-13-4	True Airspeed Indications	C	-	0	
-16-1	Altitude Alerting System	A	-	0	(O) May be inoperative provided: a) Autopilot with altitude hold and altitude capture operates normally, b) Enroute operations, i.e. RVSM, do not require its use, c) Airplane does not depart from a designated airport (as listed in the operators MEL) where repair or replacement can be made, and d) Repairs are made within three flight days.
		C	-	1	
1)	Aural Alert	C	-	0	May be inoperative provided: a) Visual alert operates normally, and b) Autopilot with altitude hold and altitude capture operates normally. |
2)	Visual Alert	C	-	0	May be inoperative provided: a) Aural alert operates normally, and b) Autopilot with altitude hold and altitude capture operates normally. |
-21-1	Inertial Reference Units (IRUs)	C	3	2	Center IRU may be inoperative provided approach minimums do not require its use.
		C	3	2	Right IRU may be inoperative provided: a) Approach minimums do not require its use, and b) Standby power to the Captain's ND is installed and available.
-21-2	IRS 'ON BAT' Light	C	1	0	(M) May be inoperative provided the ground crew call horn is verified to operate normally. |

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-22-1	Non-Stabilized Magnetic Compass (Standby)	B	1	0	(O) May be inoperative provided three IRUs operate normally.
		B	1	0	(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.
		C	1	0	(O) May be inoperative for flights that are entirely within areas of magnetic unreliability provided at least two IRUs operate normally.
-22-2 ***	Standby Radio Magnetic Indicator (RMI)	C	-	0	May be inoperative provided standby power to Captain's ND is installed and available.
-22-3	Flight Director Displays	C	2	0	May be inoperative provided approach minimums do not require their use.
-22-4	Standby Attitude/ILS Indicator				
1)	Attitude	C	1	0	May be inoperative provided not required by 14 CFR.
		B	1	0	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.
2) ***	ILS	C	1	0	May be inoperative provided VMC conditions exist at departure and arrival airports.
		C	1	0	May be inoperative provided Standby power to Captain's PFD/ND is installed and available.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-22-5 ***	Integrated Standby Flight Display (ISFD) System				
1)	Attitude Display	B	1	0	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.
2)	Approach Mode	C	1	0	
3)	Heading Display	C	1	0	
4)	Dedicated Battery/Charger System	C	1	0	
-31-1	Instrument Landing System (ILS)	D	3	2	Any in excess of those required by 14 CFR may be inoperative provided approach minimums do not require their use.
		C	3	2	May be inoperative provided approach minimums do not require their use.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-31-2	ILS Antenna Switching				
1)	Glide Slope	D	3	2	(O) Any in excess of those required by 14 CFR may be inoperative provided approach minimums do not require use of the associated ILS Glide Slope receiver.
		C	3	0	(O) May be inoperative provided approach minimums do not require use of the associated ILS Glide Slope receiver. NOTE: If Left Glide Slope switching is inoperative, GPWS Mode 5 is considered inoperative.
2)	Localizer	D	3	2	(O) Any in excess of those required by 14 CFR may be inoperative provided approach minimums do not require use of the associated ILS Localizer receiver.
		C	3	0	(O) May be inoperative provided approach minimums do not require use of the associated ILS Localizer receiver.
-32-1	Navigation Systems (Marker Beacon)	C	-	-	May be inoperative provided approach minimums do not require its use.

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1. SYSTEM & SEQUENCE NUMBERS / ITEM			2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-33-1	Radio Altimeters (RA)				
1)	Single Source Datalink to GPWS				
a)	Center RA	C	1	0	(O) May be inoperative provided approach minimums or operating procedures do not require its use.
b)	Right RA	C	1	0	(O) May be inoperative provided: a) Approach minimums or operating procedures do not require its use, and b) Left RA operates normally.
c)	Left RA	A	1	0	(O) May be inoperative provided: a) Dispatch deviation for GPWS inoperative is observed, b) Approach minimums or operating procedures do not require its use, c) Right RA operates normally, d) Boeing Service Bulletin 747-31-2410 or production equivalent is incorporated, and e) Repairs are made within two flight days.
2)	Multi-Source Datalink to GPWS	C	3	1	(M)(O) Two may be inoperative provided: a) GPWS is supplied with Radio altitude data, and b) Approach minimums or operating procedures do not require their use.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-43-1	Weather Radar System	C	2	0	(O) May be inoperative provided: a) Weather radar is not required by 14 CFR, and b) Reactive windshear alert (GPWS Mode 7) operates normally.
		B	2	0	(O) May be inoperative provided: a) Weather radar is not required by 14 CFR, and b) Alternate procedures are established and used. NOTE: Operator's alternate procedures should include reviewing windshear avoidance and windshear recovery procedures.
		D	2	1	
1) ***	Windshear Alert Mode (Predictive)	B	1	0	(O) May be inoperative provided alternate procedures are established and used. NOTE: Operator's alternate procedures should include reviewing windshear avoidance and windshear recovery procedures.
		C	1	0	(O) May be inoperative provided: a) Alternate procedures are established and used, and b) GPWS Windshear Alert Mode (Reactive) (Mode 7) operates normally.
2) ***	Auto Tilt Function	C	1	0	May be inoperative provided manual tilt function operates normally.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-45-1	Traffic Collision and Avoidance System (TCAS)	B	1	0	(M) May be inoperative provided: a) System is deactivated and secured, and b) Enroute or approach procedures do not require its use.
1) ***	Combined Traffic Alert (TA) and Resolution Advisory (RA) Dual Display System(s)	C	2	1	May be inoperative on the non-flying pilot side provided: a) TA and RA visual display is operative on the flying pilot side, and b) TA and RA audio function is operative on the flying pilot side.
2)	Resolution Advisory (RA) Display System(s)	C	2	1	One may be inoperative on the non-flying pilot side.
		C	2	0	(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) Enroute or approach procedures do not require its use.
3)	Traffic Alert (TA) Display System(s)	C	2	0	(O) May be inoperative provided: a) RA visual display and audio functions are operative, and b) Enroute or approach procedures do not require its use.
4)	Audio Functions	B	1	0	May be inoperative provided enroute or approach procedures do not require its use.
5) ***	Airspace Selection Function	C	-	0	

1. SYSTEM & SEQUENCE NUMBERS / ITEM			2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-46-1	Ground Proximity Warning System (GPWS)				
1)	GPWS	A	1	0	(O) May be inoperative provided: a) Airplane is configured with SB 747-31-2410 or equivalent installed, b) Alternate procedures are established and used, and c) Repairs are made within two flight days.
a)	Modes 1 – 4 (SB 747-31-2410 or Equivalent Installed)	A	4	0	(O) May be inoperative provided: a) Alternate procedures are established and used, and b) Repairs are made within two flight days.
b)	Glideslope Deviation(s) (Mode 5)	C	-	1	
		B	-	0	
c)	Advisory Callouts (Mode 6)	B	-	0	(O) May be inoperative provided alternate procedures are established and used.
		C	-	0	(O) May be inoperative provided: a) Advisory callout not required by 14 CFR, and b) Alternate procedures are established and used.
2)	Windshear Alert Mode (Reactive) (Mode 7)	B	1	0	(O) May be inoperative provided alternate procedures are established and used. NOTE: Operator's alternate procedures should include reviewing windshear avoidance and windshear recovery procedures.

(Continued)

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-46-1	Ground Proximity Warning System (GPWS) (Cont'd)				
2)	Windshear Alert Mode (Reactive) (Mode 7) (Cont'd)	C	1	0	(O) May be inoperative provided: a) Alternate procedures are established and used, and b) Weather Radar System Windshear Alert Mode (Predictive) operates normally.
3)	Forward Looking Terrain Avoidance (FLTA) and Premature Descent Alert (PDA) Functions	B	1	0	(O) May be inoperative provided alternate procedures are established and used.
4)	Terrain Display Functions	C	2	1	
		B	2	0	
-51-1	Navigation Systems (VOR)	D	-	-	Any in excess of those required by 14 CFR may be inoperative.
-51-2	VOR Mode Selection Switching	C	2	1	

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-53-1	ATC Transponders and Automatic Altitude Reporting Systems	B	-	0	May be inoperative provided: a) Operations do not require its use, and b) Prior to flight, approval is obtained from ATC facilities having jurisdiction over planned route of flight.
		D	-	1	Any in excess of those required by 14 CFR may be inoperative.
1)	Elementary and Enhanced Downlink Aircraft Reportable Parameters not Required by 14 CFR	A	-	0	May be inoperative provided: a) Operations do not require its use, and b) Repairs are made prior to completion of the next heavy maintenance visit.
2)	ADS-B Squitter Transmissions	A	-	0	May be inoperative provided: a) Operations do not require its use, and b) Repairs are made prior to completion of the next heavy maintenance visit.
-55-1	Distance Measuring Equipment (DME)	D	-	-	Any in excess of those required by 14 CFR may be inoperative.
-57-1	Navigation Systems (ADF)	D	-	-	Any in excess of those required by 14 CFR may be inoperative.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-57-2 ***	Automatic Dependent Surveillance Broadcast (ADS-B) System	D	-	0	May be inoperative provided it is not required by 14 CFR. NOTE: If ADS-B is installed in lieu of or as a replacement for 14 CFR required equipment, the repair category in the operator's MEL will be the same as that of the 14 CFR equipment.
1)	Cockpit Display and Traffic Information (CDTI)	D	-	0	NOTE: Cockpit Display and Traffic Information (CDTI) display of data from other aircraft systems may be used.
2)	CDTI Control Panel	D	-	0	May be inoperative provided: a) Flight ID can be set, and b) Screen display is acceptable to the flight crew.
3)	Data Link Transmitter(s)	D	-	0	NOTE: In some aircraft the Data Link Transmission is an integral part of the transponder and relief is provided in that section.
4)	Data Link Receiver(s)	D	-	0	
5)	ADS-B Applications	D	-	0	
-58-1	Global Positioning Systems (GPS)	D	-	-	May be inoperative provided procedures or navigation is not dependent upon its use.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34 NAVIGATION					
-61-1	Flight Management Computer Systems (FMCS includes thrust management function)	C	2	1	One may be inoperative provided enroute operations do not require its use. NOTE: Any mode which functions normally may be used.
1)	Navigation Databases	C	-	-	(O) May be out of currency provided: a) Current Aeronautical Charts are used to verify Navigation Fixes prior to dispatch, b) Procedures are established and used to verify status and suitability of Navigation Facilities used to define route of flight, and c) Approach Navigation Radios are manually tuned and identified.
-61-2	Control Display Units (CDU)				
1)	Center CDU	C	1	0	May be inoperative provided left and right IRUs operate normally.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
35 OXYGEN					
-11-2	Crew Oxygen Pressure Indication System	C	1	0	(M) May be inoperative provided an accepted procedure is used to ensure that oxygen supply is above the minimum required for flight.
-11-3	Oxygen Overboard Discharge Indicator	C	1	0	(O) May be damaged or missing provided Crew and Crew Accommodation Oxygen Systems are verified to operate normally before each departure.
-21-1	Crew Accommodation Oxygen System	B	1	0	(O) May be inoperative provided crew accommodation area is not occupied.
		B	1	0	(O) May be inoperative: a) Flight altitude remains at or below FL 250, b) Fully functional observer's seat(s) is available for all upper deck occupants, and c) Appropriate upper deck occupancy procedures are incorporated.
1)	Automatic Presentation	C	1	0	(O) May be inoperative provide: a) Manual deployment system operates normally, and b) Flight remains at or below FL 300.
-21-2	Crew Accommodation Oxygen Pressure Indication System	C	1	0	(M) May be inoperative provided an accepted procedure is used to ensure that oxygen supply is above minimum required for flight.
-31-1	Portable Oxygen Dispensing Units (Bottle and Mask)	D	-	-	(M) Any in excess of those required by 14 CFR 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.
-31-2	Protective Breathing Equipment (PBE)	D	-	-	Any in excess of those required by 14 CFR may be inoperative or removed provided location placarding is removed or obscured.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
36 PNEUMATIC					
-11-1	Engine Bleed Pressure Regulating and Shutoff Valves (PRSOV)	C	4	3	(M)(O) One may be inoperative provided: a) Associated PRSOV is secured closed except for engine start, b) L and R ISLN valves are open for takeoff, and when flaps are operated, c) Bleed systems on remaining engines operate normally, and d) Start valves on remaining engines operate normally.
-11-2	Engine Bleed PRSOV Start Solenoids	C	4	3	(M)(O) One may be inoperative provided: a) Bleed valve otherwise functions normally, and b) Start valves on remaining engines operate normally.
-11-3	Engine High Pressure Bleed Systems	C	4	3	(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 icing conditions, and c) Bleed systems on remaining engines operate normally.
-11-4	Wing Isolation Valves (Left and Right)	C	2	1	(M)(O) One may be inoperative deactivated open provided the pack on the same side as operative valve operates normally.
-11-7	Left and Right Wing Isolation VALVE Lights	C	2	1	(O) One may be inoperative provided associated duct pressure indication is available.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
36 PNEUMATIC					
-11-8	Bleed Air Pressure Regulating Valve (PRV) Systems	C	4	3	(M)(O) One may be inoperative with associated PRV secured closed provided: a) Airplane is not operated in known or forecast 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 adjustments are applied.
		C	4	3	(M)(O) One may be inoperative with associated PRV secured closed provided: a) Associated fan air valve is secured in the intermediate open position, b) Airplane is not operated in known or forecast 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 adjustments are applied. (Continued)

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
36 PNEUMATIC					
-11-8	Bleed Air Pressure Regulating Valve (PRV) Systems (Cont'd)	C	4	3	(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 icing conditions.
-11-11	Intermediate Bleed Check Valves	C	4	3	(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 the icing conditions, b) Associated HPSOV is secured closed, and c) Bleed systems on remaining engines operate normally.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
36 PNEUMATIC					
-12-1	Precoolers	C	4	3	(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 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 adjustments are applied.
		C	4	3	(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 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 g) Appropriate performance adjustments are applied. NOTE: Airplane may be dispatched with damage to the precooler (including core damage) provided engine start is not precluded.
-12-2	Fan Air (Precooler) Control Systems	C	4	2	(M) O) One control system per side may be inoperative provided: a) Associated Fan Air valve(s) is secured in the intermediate open position, and b) For each inoperative system, the appropriate performance adjustments are applied.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
36 PNEUMATIC					
-12-2	Fan Air (Precooler) Control Systems (Cont'd)	C	4	0	(M)(O) May be inoperative provided: a) Associated Fan Air valve(s) is secured full open, b) Airplane is not operated in known or forecast icing conditions, and c) For each inoperative system, the appropriate performance adjustments are applied.
-21-1	DUCT PRESS Indication Systems	C	2	1	(M) One may be inoperative provided L and R ISLN valves are verified to operate normally.
		C	2	0	(M) May be inoperative provided: a) Crossover duct leak detection is installed and operates normally, and b) L and R ISLN valves are verified to operate normally.
-21-2	ENGINE BLEED OFF Lights	C	4	0	
-21-3	Engine Bleed Pressure Sensor	C	4	0	
-21-4	Engine Bleed Overpressure Switch	C	4	3	(M)(O) One may be inoperative deactivated provided: a) Associated 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 icing conditions, and d) Bleed systems on remaining engines operate normally.
-22-1	Bleed Air SYS FAULT Lights	C	4	0	
-22-3	Engine Bleed Temperature Sensor	C	4	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
38 WATER/WASTE					
-10-1	Potable Water Systems	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 system which operates normally may be used.
		C	-	-	(M) May be inoperative provided: a) System is drained, and b) Procedures are established to ensure that system is not serviced.
-30-1	Lavatory Waste Systems (Including Wheelchair Accessible Lavatories)	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 system which operates normally may be used.
		C	-	-	(M) Associated lavatory system(s) may be inoperative provided: a) Associated components are deactivated or isolated to prevent leaks, b) The Pilot-in-Command will determine if flight duration is acceptable with an Upper Deck lavatory unusable, and c) Associated lavatory door(s) is secured closed and placarded INOPERATIVE - DO NOT ENTER. NOTE: These provisions are not intended to prohibit inspections by crewmembers.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
45 CENTRAL MAINTENANCE COMPUTER					
-45-1	Central Maintenance Computers	C	2	1	
-45-2	Ground Test Enable Switches	C	2	0	(M) May be inoperative provided switches are deactivated.
-45-3	Multiple-Input Printer	C	1	0	(O) May be inoperative provided alternate procedures are established and used.
		D	1	0	May be inoperative provided procedures do not require its use.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
46 INFORMATION SYSTEMS					
-20-1	Boeing/Jeppesen Electronic Flight Bag (EFB) Systems (Class 3)	C	2	1	(O) One may be inoperative provided: a) An alternate source for the associated information required for the flight is available to the flight crew, and b) Cargo compartment viewing from one EFB display operates normally when cargo is carried. NOTE: Any function which operates normally may be used.
		C	2	0	(O) May be inoperative provided: a) Procedures are established and used to verify main deck cargo compartment (MDCC) remains empty, or b) MDCC contains empty Shipping Mechanical Equipment (SME) per Boeing LCF Allowable Cargo document and lower deck cargo compartments are empty, or contain only empty pallets.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
47 INERT GAS SYSTEMS					
-11-1 ***	Nitrogen Generation System (NGS)	A	1	0	(M) May be inoperative provided: a) NGS shutoff valve is deactivated closed, and b) Repairs are made within ten flight days.
1)	Nitrogen Generation Performance	C	1	0	

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1. SYSTEM & SEQUENCE NUMBERS / ITEM			2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
52 DOORS					
-11-1	Main Entry Door/Slides				
1)	Door 1L/Slide	B	1	0	(M)(O) May be inoperative or slide missing provided: a) Door 1R operates normally and is used for boarding, b) For extended overwater operations, the ten man life raft is installed and operates normally, 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) Crew shall be advised that evacuation procedures must not include Door 1L, and f) Alternate procedures are established and used.
2)	Door 1R	B	1	0	(M)(O) May be inoperative provided: a) Door 1L/Slide operates normally, b) A conspicuous barrier strap or rope and a placard stating the door is inoperative shall be placed across the inoperative door, c) Emergency exit sign or light associated with the inoperative exit must be covered to obscure the sign, d) Crew shall be advised that evacuation procedures must not include Door 1R, and e) Alternate procedures are established and used.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
52 DOORS					
-11-2	Pressure Stop Fitting Assemblies (Main Entry Doors)	C	-	-	(M)(O) One forward fitting assembly and/or one aft fitting assembly per door (with a total of 2 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.
-11-3	Main Entry Door Hold-Open Latch	D	1	0	May be inoperative for all-cargo operations only.
		B	1	0	May be inoperative provided the associated door is considered inoperative.
1)	Latch Release Lever	C	1	0	
-21-1	Crew Compartment Overhead Hatch Latch Pins	C	4	3	(M) One may be removed provided hatch operates normally.
-32-4	Lower Lobe Cargo Door Lift System	B	-	0	(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.
-32-5	Lower Lobe Cargo Door Hook System (Electrical Function)	C	-	0	(M) May be inoperative provided: a) Manual function operates normally, b) There is no damage to the hook mechanism, and c) Doors are closed and locked using an accepted maintenance manual procedure.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
52 DOORS					
-34-1	Lower Lobe Cargo Doors (Hinge Sections or Latches)	C	36	34	(M) One latch or hinge section per door may be missing or inoperative provided before each departure, verify that there is no damage to remaining hinge sections or latches on the associated door.
-34-2	Main Lower Lobe Cargo Door Latch Systems (Electrical Function)	C	2	0	(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.
-37-1	Swing Tail Latch/Lock Control and Indication Panel				
1)	Latch/Lock System Control Switches	C	3	1	(M) May be inoperative provided: a) At least one switch operates normally, and b) Alternate procedures are established and used.
2)	Lamp Test Switch	C	1	0	(M) May be inoperative provided alternate procedures are established and used.
3)	Individual Lights	C	5	0	(M) May be inoperative provided the function associated with the affected light is verified to operate normally during swing tail operation.
4)	Main Deck Cargo Light Switch	C	1	0	May be inoperative provided other light sources are available and sufficient for the operation being conducted.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
52 DOORS					
-37-1	Swing Tail Latch/Lock Control and Indication Panel (Cont'd)				
5)	Swing Tail In-Range Limit Switches	C	2	0	(M) May be inoperative provided alternate procedures are established and used.
6)	Swing Tail Release Limit Switches	C	2	0	(M) May be inoperative provided alternate procedures are established and used.
7)	Swing Tail Pulled-In Limit Switches	C	2	0	(M) May be inoperative provided alternate procedures are established and used.
8)	Swing Tail Latch/Lock System Status Panel	C	1	0	May be inoperative provided procedures do not require it's use. NOTE: Any function that operates normally can be used.
-37-2	Swing Tail Hydraulic Power And Control Assembly				
1)	Manual Hand Pump Handle	C	1	0	May be missing.
-48-1	Main (Forward) Electronic Bay External Access Door Latch Pins	C	4	3	(M) One may be damaged or removed provided door operates normally.
		C	4	3	(M) 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.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
52 DOORS					
-71-1	Swing Tail Latch/Lock Indication System				
1)	Swing Tail All Latches Unlatched Relay	B	1	0	(M) May be inoperative provided: a) Before swing tail is opened or closed, all 21 latch pins are verified to be fully retracted, and b) Latch pins and interfacing structure are inspected for damage.
2)	Over-Rotation Switches	B	3	2	One may be inoperative provided: a) No SWING TL OV ROTATE message is present, and b) An over-rotate condition did not exist. |
3)	Latch/Lock A and/or B System Limit Switches	B	12	9	(M) One latch/lock limit switch per lock train may be inoperative provided: a) For B System limit switches, it is verified to be failed in the latched/locked position, b) Prior to each departure, swing tail is verified closed, and c) Prior to each departure, all 21 latch pins are verified to be latched and locked.
4)	Latch/Lock A System Limit Switches	B	6	0	(M) Two latch/lock limit switches per lock train may be inoperative provided: | a) All B System latch/lock limit switches on associated lock train operate normally, b) Prior to each departure, swing tail is verified closed, and c) Prior to each departure, all 21 latch pins are verified to be latched and locked. (Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
52 DOORS					
-71-1	Swing Tail Latch/Lock Indication System (Cont'd)				
5)	Closed/Latched Limit Switches	B	3	1	(M) May be inoperative without SWING TAIL message displayed provided: a) Prior to each departure, swing tail is verified closed, and b) Prior to each departure, latch pins 9, 11 and 13 are verified to be latched and locked.
		B	3	1	(M) May be inoperative with SWING TAIL message displayed provided: a) All B System latch/lock limit switches operate normally, b) Prior to each departure, swing tail is verified closed, and c) Prior to each departure, all 21 latch pins are verified to be latched and locked.
6)	Unlatch Limit Switches	B	21	0	(M) May be inoperative provided: a) Associated latch pin(s) and interfacing structure is inspected for damage, b) Affected switch(es) and associated wiring is inspected for damage, and c) Before swing tail is opened or closed, all latch pins are verified to be fully retracted.
-73-1	Door Indication	C	1	0	(M)(O) May be inoperative provided door(s) is verified closed and locked by an alternate procedure.
1)	Auto/Man EICAS Indications	C	-	0	(O) May be inoperative provided door(s) is verified in Auto or Man as appropriated by an alternate procedure.
		D	-	0	May be inoperative provided procedures do not require its use.

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1. SYSTEM & SEQUENCE NUMBERS / ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
56 WINDOWS			
-11-1 Windshields			
1) TRIPLEX (.118") and PPG			Deleted in Revision # 1. NOTE: Refer to Aircraft Maintenance Manual (AMM) or Structural Repair Manual (SRM).
2) TRIPLEX (.050")			Deleted in Revision # 1. NOTE: Refer to Aircraft Maintenance Manual (AMM) or Structural Repair Manual (SRM).

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1. SYSTEM & SEQUENCE NUMBERS / ITEM			2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
73 ENGINE FUEL & CONTROL					
-21-1	Minimum Idle/Approach Idle Selection Systems				
1)	Ground Minimum Idle Selection Systems	C	4	0	(O) May be inoperative provided: a) Antiskid operates normally, and b) Appropriate performance adjustments are applied.
2)	Continuous Ignition Selected Approach Idle	C	4	0	(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.
-21-2	Electronic Engine Control Systems (EEC)				
1)	ENG_EEC Mode	C	4	3	(O) One may be inoperative provided: a) All engines are operated in the alternate (ALTN) mode, and b) Appropriate procedures, AFM limitations and performance decrements are applied.
2)	ENG_EEC C1	A	4	0	May be inoperative with C1 faults provided repairs are made in accordance with times established by PWA engine Type Certificate Data Sheet number E24NE note 19.
-21-5	Engine Supplemental Control Unit	C	4	0	(M)(O) May be inoperative provided: a) Associated Auto Start switch remains OFF, b) Associated unit(s) is deactivated, and c) Alternate start procedures are used.

1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
73 ENGINE FUEL & CONTROL					
-31-1	Fuel Flow Indications	B	4	3	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.
-31-2	Fuel Control ENG FUEL VLV Indications	C	4	3	(M)(O) One may be inoperative provided: a) Associated Engine Fuel Valve is verified to operate normally, and b) Associated EICAS message is deactivated.
-34-1	Fuel Filter Bypass Warning Systems	C	4	3	(M) One may be inoperative provided: a) It is verified that the malfunction is in the fuel filter bypass warning system, and b) Associated fuel filter is checked for the presence of contaminants before each departure.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
74 IGNITION					
-00-1	Ignition Systems	C	8	4	(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 flight.
-00-2	Continuous Ignition Selection System				
1)	Flap Actuated	C	1	0	(O) May be inoperative provided continuous ignition is manually selected ON when required.
2)	Nacelle Anti-Ice Actuated	C	4	0	(O) May be inoperative provided continuous ignition is manually selected ON when required.
3)	Switch Actuated	C	1	0	(O) May be inoperative provided standby ignition system is used to provide continuous ignition when required.

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1. SYSTEM & SEQUENCE NUMBERS / ITEM			2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
75 ENGINE BLEED AIR					
-23-1	Nacelle Cooling Systems				
1)	Nacelle Zone Ventilation Valves	C	4	0	(M)(O) May be inoperative provided: a) Associated valve remains open, and b) Appropriate performance adjustments are applied.
-24-1	Turbine Case Cooling Air Flow Systems	C	4	0	(M)(O) May be inoperative provided associated turbine case cooling valve remains closed.
-24-2	Turbine Cooling Air Systems	C	4	0	(M)(O) May be inoperative provided associated turbine cooling valve remains open.
-33-1	IDG Air/Oil Cooler (AOC) Valves	C	4	0	(M)(O) May be inoperative provided: a) Valves are inoperative open, b) Fuel tank temperature remains above -42 degrees C (-36 degrees C if IDG is disconnected) throughout the flight, and c) Appropriate performance adjustments are applied.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
77 ENGINE INDICATING					
-11-1	Engine Pressure Ratio Indicating Systems	C	4	3	(O) One may be inoperative provided: a) All EEC's are switched to ALTN mode, b) Appropriate AFM procedures, limitations, and performance decrements are applied, and c) N1, N2 and Fuel Flow indication on associated engine operate normally.
-12-2	Engine Speed Cards	C	4	3	(O) One card may be inoperative provided: a) Associated engine is started last, b) Associated start switch is manually cancelled when N2 reaches 50%, and c) CMC BITE tests for ATA 21 systems are not initiated after engine start.
-31-1	Vibration Indicating Systems	C	4	2	(M) Two may be inoperative unless required by a maintenance program.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
78 ENGINE EXHAUST					
-31-1	Thrust Reverser Systems	C	4	3	(M)(O) One may be inoperative provided: a) Associated reverser is deactivated in the forward thrust position, and b) Appropriate performance penalties are applied.
		A	4	2	(M)(O) Two may be inoperative provided: a) Inoperative thrust reversers are on symmetrical engines only, b) Associated reverser is deactivated in the forward thrust position, c) Anti-skid and auto spoiler systems operate normally, d) Appropriate performance penalties are applied, and e) Repairs are made within three flight days.
-34-1	Engine Reverse Lever Interlock	C	4	3	(O) May be inoperative extended or retracted. NOTE: Associated Reverse thrust is limited to idle when inoperative retracted.
-36-3	Full REV Position Indications (Green)	C	4	3	One may be inoperative provided associated REV unlock indication (Amber) operates normally. NOTE: Not required for an inoperative thrust reverser.

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1. SYSTEM & SEQUENCE NUMBERS	ITEM		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
79 ENGINE OIL					
-21-1	Engine Oil Filter Warning Indications (Impending Bypass)	C	4	2	(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 before each departure.
-21-4	Engine Air/Oil Heat Exchanger Valves	C	4	0	(M)(O) May be inoperative provided: a) Valves are deactivated open, b) Fuel tank temperature remains above -34 degrees C (-30 degrees C if IDG is disconnected) throughout the flight, and c) For each inoperative valve, the appropriate performance adjustments are applied.
-31-1	Oil Quantity Indicating Systems	B	4	3	(M) One may be inoperative provided: a) It is verified before each departure that the oil tank is filled to the recommended capacity, b) There is no evidence of above normal oil consumption or leakage, and c) Associated oil temperature and pressure indications operate normally.
-34-1	Engine Bearing #3 Scavenge Oil Temperature				
1)	ENG_SCAV TEMP1	A	4	3	(M) May be dispatched with this message displayed provided repairs are made within 3 flight days.
2)	ENG_SCAV TEMP2	A	4	3	(M) May be dispatched with this message provided repairs are made within 10 flight days.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
80 STARTING					
-11-1	Engine Start Valves	C	4	3	(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.
-11-2	Starter Switch Systems	C	4	0	(O) May be inoperative provided alternate start procedures are used.
-11-3	Auto Start Systems	C	4	0	(O) May be inoperative provided Manual Start System operates normally.
-11-4	Start Valve Open Lights	C	4	3	(O) One may be inoperative provided it is verified after engine start that the associated start valve is closed.