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Master Minimum Equipment List

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BOEING

BOEING 747-100/200/300/SP SERIES

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(BOEING B-747-100/200/300/SP SERIES)

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HIGHLIGHTS OF CHANGE

EFFECTIVE ABOVE DATE, the Boeing 747 Master Minimum Equipment List has been revised. Please replace pages of previous lists with Revision 34a for a complete up-to-date MMEL. Retain this sheet with your MMEL until the next revision is issued. All changes are reflected in the highlights of change listed below.

ATA 34 NAVIGATION

Item 52 Added STC ST01893CH for the Universal UNS-1F Flight Management System.

Item 63 New relief adding STC ST02653NY-D for the Universal UNS-1Fw Flight Management System (FMS) / Global Positioning System (GPS) with Wide Area Augmentation System (WAAS)

DEFINITIONS

For the Master Minimum Equipment List, Definitions addendum, refer to the current FAA MMEL Policy Letter PL-25, Policy Concerning MMEL Definitions as found on the Flight as well as, the current Standards Information Management System (FSIMS) website.

FSIMS - Publications - MMEL Policy Letters

PREAMBLE

For the Master Minimum Equipment List, Preamble addendum as used for operations under 14 CFR Parts 121, 125, 129, and 135, refer to the current FAA Policy Letter PL-34, *MMEL and MEL Preamble*, as found on the Flight Standards Information Management System (FSIMS) website,.

FSIMS – Publications - MMEL and MEL Preamble

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
1. Packs				
1) Passenger Configuration	C	-	2	(M) May be inoperative provided two packs operate normally in full flow position.
a) Full Flow Mode	C	3	1	May be inoperative provided: a) One pack operates normally in full flow position, and b) Two packs operate normally in the ½ flow position.
2) Cargo Configuration (Pressurized)				
a) 8-10 Main Entry Doors Installed	C	-	1	(M) (O) Operations may be conducted with one pack operating provided: a) Ram air vent operates normally, and b) If equipment cooling is operated in SMOKE mode, the airplane remains at or below FL 180.
	C	-	1	(M) (O) Operations may be conducted with one pack operating provided: a) Ram air vent remains open, and b) If equipment cooling is operated in NORM mode, the airplane remains at or below FL 200.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
1. Packs (Cont'd)				
2) Cargo Configuration (Pressurized) (Cont'd)				
a) 8-10 Main Entry Doors Installed (Cont'd)	C	-	1	(M) (O) Operations may be conducted with one pack operating provided: a) Ram air vent remains open, and b) If equipment cooling is operated in SMOKE mode, the airplane remains at or below FL 180.
b) 2 Main Entry Doors Installed	C	-	1	(M) (O) Operations may be conducted with one pack operating provided: a) Ram air vent operates normally, and b) If equipment cooling is operated in SMOKE mode, the airplane remains at or below FL 250.
	C	-	1	(M) (O) Operations may be conducted with one pack operating provided: a) Ram air vent remains open, and b) If equipment cooling is operated in NORM mode, the airplane remains at or below FL 310.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
1. Packs (Cont'd)				
2) Cargo Configuration (Pressurized) (Cont'd)				
b) 2 Main Entry Doors Installed (Cont'd)	C	-	1	(M) (O) Operations may be conducted with one pack operating provided: a) Ram air vent remains open, and b) If equipment cooling is operated in SMOKE mode, the airplane remains at or below FL 250.
*** c) Three Pack Configuration	D	3	2	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
1. Packs (Cont'd)				
3) Cargo Configuration (Unpressurized)	C	-	0	(M) (O) May be inoperative in an unpressurized configuration provided: a) All equipment cooling blowers operate normally, b) Equipment cooling must be in the DITCH mode, c) Ram air vent valve operates normally, or remains open, d) Procedures are established and used to ensure the lower cargo compartments and Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits, and e) Extended overwater flight is prohibited. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
2. Pack Flow Control and Shutoff Valve				
1) Three Pack Airplanes	C	3	-	(M) (O) May be inoperative for associated inoperative pack(s).
*** a) Half Flow Valve Position	C	-	0	
b) Cargo Configuration	D	3	2	(M) (O) May be inoperative for associated inoperative pack.
*** c) Cargo Configuration Half Flow Position	D	3	2	
2) Two Pack Airplanes (Cargo Configuration)	C	2	1	(M) (O) May be inoperative for associated inoperative pack.
*** a) Half Flow Valve Position	C	-	-	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21	AIR CONDITIONING				
3.	Air Cycle Machine (ACM)	C	-	1	(M) (O) May be inoperative provided, if auto control is used, associated bypass valve(s) is secured in the full heat (open) position.
		C	-	1	(M) (O) May be inoperative provided, if manual control is used, associated bypass valve(s) remains in the full heat (open) position.
		C	-	-	(M) (O) May be inoperative provided, associated pack(s) is inoperative.
	1) Cargo Configuration Three Pack Airplanes	D	3	2	(M) (O) One may be inoperative provided, if auto control is used, associated bypass valve is secured in the full heat (open) position.
		D	3	2	(M) (O) One may be inoperative provided, if manual control is used, associated bypass valve remains in the full heat (open) position.
		D	3	2	(M) (O) One may be inoperative provided associated pack is inoperative.
4.	Pack Coolant (Inlet/Exit Door) Systems	C	3	2	(M) (O) On three pack airplanes, one inlet door may be inoperative in the full open to 40% from full open position (with associated exit door inoperative) provided: a) Associated pack is operated in auto mode only, b) Remaining two packs operate normally, and c) Associated exit door is deactivated at least 50% open.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
4. Pack Coolant (Inlet/Exit Door) Systems (Cont'd)	C	-	0	(M) (O) Inlet doors may be inoperative in the full open to 40% from full open position provided: a) Associated exit door(s) operates normally, b) Associated pack(s) is operated in the manual mode, and c) All associated pack indications operate normally.
	C	-	0	(M) (O) Inlet doors may be inoperative in the full open to 40% from full open position provided: a) Associated exit door(s) is deactivated and secured full open, b) Associated pack(s) is operated in the manual mode, and c) All associated pack indications operate normally.
	C	-	0	(M) (O) Inlet and exit doors may be inoperative in any position for an inoperative pack provided associated exit door is open more than the inlet door on airplanes with line number 242 and subsequent, and on airplanes with S/B 21-2194 or production equivalent incorporated.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM 1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
4. Pack Coolant (Inlet/Exit Door) Systems (Cont'd)	C	-	0	(M) (O) Inlet and exit doors may be inoperative in any position for an inoperative pack provided associated exit door is deactivated and secured at least 50% open on airplanes before line number 242, or without S/B 21-2194 incorporated.
	C	-	0	(M) (O) Exit doors may be inoperative provided they remain in the full open to ½ open position.
1) Cargo Configuration Three Pack Airplanes	D	3	2	(M) (O) One inlet door may be inoperative in the full open position to 40% from full open (with associated exit door inoperative) provided: a) Associated pack is operated in auto mode only, and b) Associated exit door is deactivated at least 50% open.
	D	3	2	(M) One inlet door may be inoperative in the full open position to 40% from full open (with associated exit door inoperative) provided associated pack is not used.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
5. ACM Bypass Valves	C	-	1	(M) (O) May be inoperative provided valves are deactivated open before departure.
	C	-	-	(O) May be inoperative provided associated pack is not used.
1) Cargo Configuration Three Pack Airplanes	D	3	2	(M) (O) One may be inoperative provided valve is deactivated open before departure.
	D	3	2	One may be inoperative provided associated pack is not used.
6. Pack Control (Auto or Manual)	C	-	-	Either Automatic or Manual feature may be inoperative for each operating pack.
1) Cargo Configuration Three Pack Airplanes	D	3	2	Either Automatic or Manual feature may be inoperative.
7. Pack Cooling Door/ACM Bypass Position Indicators	C	-	0	(O) Indications may be inoperative provided associated pack ACM OUTLET/COMP DISCH temperature indicators operate normally.
	C	-	-	(M) (O) Indications may be inoperative provided associated pack is not used.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
7. Pack Cooling Door/ACM Bypass Position Indicators (Cont'd)				
1) Cargo Configuration Three Pack Airplanes	D	3	2	(M) (O) One may be inoperative provided Pack Coolant Inlet/Exit Door is considered inoperative.
	D	3	2	(M) (O) One may be inoperative provided ACM Bypass valve is considered inoperative.
	D	3	2	One may be inoperative provided associated pack is not used.
8. Pack Overheat Trip System	C	-	-	(O) One may be inoperative provided ACM OUTLET/COMP DISCH temperature indications of the associated pack operate normally.
	C	-	-	(M) (O) May be inoperative provided associated pack is not used.
1) Cargo Configuration Three Pack Airplanes	D	3	2	(O) One may be inoperative provided ACM OUTLET/COMP DISCH temperature indications of the associated pack operate normally.
	D	3	2	One may be inoperative provided associated pack is not used.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING					
9.	Pack Trip Lights	C	-	-	(O) One may be inoperative provided associated pack airflow indicator operates normally.
		C	-	-	(O) One may be inoperative provided associated duct pressure indicator operates normally.
		C	-	-	(M) (O) May be inoperative provided associated pack is not used.
	1) Cargo Configuration Three Pack Airplanes	D	3	2	(O) One may be inoperative provided associated pack airflow indicator operates normally.
		D	3	2	(O) One may be inoperative provided associated duct pressure indicator operates normally.
		D	3	2	One may be inoperative provided associated pack is not used.
10.	Pack Temperature Indication Systems	C	-	0	
11. ***	Pack Airflow Indication Systems	D	-	0	
12. ***	Duct Low Pressure Indication Systems	D	-	0	
13.	Water Separator Coalescer Bags	C	-	0	May be operated with coalescer bags removed.
	1) Cargo Configuration Three Pack Airplanes	D	3	2	One pack may be operated with coalescer bag removed.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
14. Zone Temperature Control System, Automatic/Manual (Flight Deck, Cabin Zones, Upper Deck with Trim Air Systems)	C	-	-	(O) Either Automatic or Manual controls may be inoperative.
	C	-	-	(O) Automatic and Manual controls may be inoperative provided Master Trim Air Shutoff Valve remains closed.
1) Trim Air Source Downstream of Pack Flow Control and Shutoff Valve				
a) Zone 1 Trim Air Modulating Valves	C	1	0	(M) (O) Automatic and Manual controls may be inoperative provided Zone 1 Trim Air Modulating Valve remains in the full cool (closed) position.
b) All Other Zone Trim Air Modulating Valves	C	-	-	(M) (O) Automatic and Manual controls may be inoperative provided associated Zone Trim Air Modulating Valve(s) is deactivated in the full cool (closed) to 1/3 open position.
2) Trim Air Source Upstream of Pack Flow Control and Shutoff Valve (Trim Air Check Valve deletion)	C	-	-	(M) (O) Automatic and Manual controls may be inoperative provided associated Zone Trim Air Modulating Valve(s) is deactivated in the full cool (closed) position.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
15. Master Trim Air Valve (Passenger and Crew Compartments)	C	1	0	(M) (O) May be inoperative closed.
1) Trim Air Source Downstream of Pack Flow Control and Shutoff Valve	C	1	0	(M) (O) May be inoperative open provided: a) Zone 1 Trim Air Modulating Valve remains in the full cool (closed) position, and b) Zone Trim Air Modulating Valves for other zones operate normally in Manual Mode, or are deactivated in the full cool (closed) to 1/3 open position.
2) Trim Air Source Upstream of Pack Flow Control and Shutoff Valve (Trim Air Check Valve deletion)	C	1	0	(M) (O) May be inoperative open provided: a) Zone 1 Trim Air Modulating Valve remains in the full cool (closed) position, and b) Zone Trim Air Modulating Valves for other zones operate normally in Manual Mode, or are deactivated in the full cool (closed) position.
3) Cargo Configuration	D	1	0	(M) (O) May be inoperative closed.
4) Pressure Regulating Function	C	1	0	(M) May be operated with the pressure regulating function inoperative or deactivated.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21	AIR CONDITIONING				
16.	Trim Air Modulating Valve Position Indicators (Passenger and Crew Systems)	C	-	0	
17.	COMP Temperature Indicators (Passenger and Crew Systems)	C	-	0	
18.	DUCT Temperature Indicators (Passenger and Crew Systems)				
	1) Compartments Using Trim Air	C	-	0	May be inoperative provided associated zone duct overheat protective system operates normally.
		C	-	0	May be inoperative provided associated trim air modulation valve remains in the cool (closed) position.
		C	-	0	May be inoperative provided trim air shutoff valve remains closed.
***	2) Upper Deck With Electric Heaters	C	-	0	May be inoperative provided associated duct overheat protection system operates normally.
		C	-	0	May be inoperative provided associated heater switches remain OFF.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING					
18. DUCT Temperature Indicators (Passenger and Crew Systems) (Cont'd)					
	3) Zone A With Electric Heaters	C	-	0	(M) May be inoperative provided associated heater is deactivated.
		C	-	0	May be inoperative provided associated zone duct overheat protection system operates normally.
19. Duct Overheat Protective Systems (Passenger and Crew Systems)					
	1) Compartments Using Trim Air	C	-	0	May be inoperative provided associated zone supply duct temperature indicator operates normally.
		C	-	0	May be inoperative provided associated trim air modulation valve remains in the cool (closed) position.
		C	-	0	May be inoperative provided trim air shutoff valve remains closed.
***	2) Upper Deck With Electric Heaters	C	-	0	May be inoperative provided associated heater switches remain OFF.
	3) Zone A With Electric Heaters	C	-	0	(M) May be inoperative provided associated heater is deactivated.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
20. Recirculating Fans *** (or Flight Deck Fan)	C	-	0	
21. Gasper Fans ***	D	-	0	
22. Cabin Pressure Control System (Automatic)				
1) Outflow Valves Manual Close Priority Control (PRR 73278 or Production Equivalent Incorporated)	C	1	0	(M) (O) Automatic Control to both outflow valves may be inoperative.
2) PRR 73278 or Production Equivalent Not Incorporated	C	1	0	(M) (O) Automatic Control to one outflow valve may be inoperative provided: a) Associated outflow valve remains closed above 15,000 ft. MSL., and b) A maximum of two packs are used for takeoff and landing when one outflow valve is closed.
	C	1	0	(M) (O) Automatic Control to both outflow valves may be inoperative at or below 15,000 ft. MSL. NOTE: “Automatic Control” includes Baro Set, Altitude Select and Rate Control.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
23. Cabin Pressure Control Systems (Manual)				
1) Manual Positions	C	3	1	(O) Two manual positions (MAN, MAN L, or MAN R) may be inoperative provided both outflow valves operate normally in both the manual and automatic control mode.
	C	3	1	(O) Two manual positions (MAN, MAN L, or MAN R) may be inoperative provided: a) Both outflow valves can be operated in manual control, and b) Limitations (if any) associated with automatic control inoperative are followed.
	C	3	1	(M) (O) Two manual positions (MAN, MAN L, or MAN R) may be inoperative provided: a) One outflow valve operates normally in manual and automatic control, b) Remaining outflow valve is deactivated closed, and c) A maximum of two packs are used for takeoff and landing when one outflow valve is closed.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
23. Cabin Pressure Control Systems (Manual) (Cont'd)				
1) Manual Positions (Cont'd)	C	3	0	(M) (O) Manual control to both outflow valves may be inoperative for unpressurized flight provided: a) Procedures are established and used to ensure the lower cargo compartments and Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits, b) All equipment cooling blowers operate normally, c) Equipment cooling is operated in the DITCH mode, d) One outflow valve is deactivated closed, e) One outflow valve remains full open, and f) Automatic control is available to the open outflow valve. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
23. Cabin Pressure Control Systems (Manual) (Cont'd)				
1) Manual Positions (Cont'd)	C	3	0	(M) (O) Manual control to both outflow valves may be inoperative for unpressurized flight provided: a) Procedures are established and used to ensure the lower cargo compartments and Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits, b) All equipment cooling blowers operate normally, c) Equipment cooling is operated in the DITCH mode, d) One outflow valve is deactivated full open, and e) Extended overwater flight is prohibited. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
24. Outflow Valves	C	2	1	(M) (O) One valve may be inoperative closed provided: a) Both manual and automatic controls operate normally on the remaining valve, and b) A maximum of two packs are used for takeoff and landing.
	C	2	0	(M) (O) May be inoperative for unpressurized flight provided: a) At least one valve remains fully open, b) Procedures are established and used to ensure the lower cargo compartments and Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits, c) All equipment cooling blowers operate normally, d) Equipment cooling is operated in the DITCH mode, and e) Extended overwater flight is prohibited. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
25. Positive Pressure Relief Valves	C	2	1	(M) One may be inoperative provided: a) Remaining valve operates normally, and b) For airplanes on which trim air is taken from the pneumatic manifold upstream of the pack flow control and shutoff valve (trim air check valve deletion) installed: Auto shutdown of #2 pack is verified when remaining relief valve is tested.
	C	2	1	One may be inoperative provided: a) Remaining valve operates normally, and b) For airplanes on which trim air is taken from the pneumatic manifold upstream of the pack flow control and shutoff valve (trim air check valve deletion) installed: Operation is limited to a maximum of two packs.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM 1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
25. Positive Pressure Relief Valves (Cont'd)	C	2	1	One may be inoperative provided: a) Remaining valve operates normally, and b) For airplanes on which trim air is taken from the pneumatic manifold upstream of the pack flow control and shutoff valve (trim air check valve deletion) installed: Airplane is operated with master trim air valve closed.
	C	2	0	(M) (O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Procedures are established and used to ensure the lower cargo compartments and Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
26. PRESS RELIEF Valve Open Lights	C	2	0	
27. AUTO FAIL/RATE LIMIT Light	C	1	0	

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
28. Outflow Valve Position Indication Systems	C	2	0	(O) 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) Procedures are established and used to ensure the lower cargo compartments and Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
29. CABIN V/S Vertical Speed Indication System	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) Procedures are established and used to ensure the lower cargo compartments and Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
30. Cabin Altitude Indication System	C	1	0	(O) May be inoperative provided: a) Cabin differential pressure indicator operates normally, and b) A chart is provided the flight crew to convert differential pressure to cabin altitude.
	C	1	0	(M) (O) May be inoperative provided: a) Flight is conducted in an unpressurized configuration, and b) Procedures are established and used to ensure the lower cargo compartments and Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
31. Cabin DIFF PRESS Indication System	C	1	0	(O) May be inoperative provided: a) Cabin altitude indicator operates normally, and b) A chart is provided 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) Procedures are established and used to ensure the lower cargo compartments and Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
32. Cabin Altitude Warning System	C	1	0	(M) May be inoperative provided flight remains at or below 10,000 ft. MSL.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
33. Equipment Cooling Blowers				
1) Main Equipment Center Cooling Blowers	C	2	1	(M) (O) One may be inoperative provided: a) Both flow control valve and Upper Deck overboard dump valve operate normally in the SMOKE mode, and b) Flight is conducted in a pressurized configuration.
2) Upper Deck Equipment Cooling Blower	C	1	0	(M) (O) May be inoperative provided: a) Upper Deck overboard dump valve operates normally, and b) Flight is conducted in a pressurized configuration.
34. INS (IRS) Blowers	C	-	0	May be inoperative provided both main equipment blowers operate normally.
	C	-	-	May be inoperative provided, if one main equipment blower is inoperative, an INS (IRS) blower functions normally for each operating INS (IRS).
35. Main Equipment Cooling Cargo Compartment Shutoff Valve	C	1	0	(M) (O) May be inoperative closed provided: a) Equipment cooling system is operated in the SMOKE mode, b) Flow control valve and upper deck equipment cooling overboard dump valve are verified in the open (SMOKE mode) position, and c) Flight is conducted in a pressurized configuration.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
36. Equipment Cooling NO AIRFLOW Indicating System	C	2	0	(M) (O) May be inoperative provided: a) Equipment cooling system is operated in SMOKE mode, b) Flow control and upper deck equipment cooling overboard dump valves are verified in the open (SMOKE mode) position, and c) Flight is conducted in a pressurized configuration.
37. Main Equipment Center Cooling Flow Control Valve	C	1	0	(M) (O) May be inoperative in the open (SMOKE mode) position provided: a) Flight is conducted in a pressurized configuration, and b) Extended overwater flight is prohibited.
38. Upper Deck Equipment Cooling Overboard Dump Valve	C	1	0	(M) (O) May be inoperative open provided: a) Equipment cooling system is operated in the SMOKE mode, b) Flight is conducted in a pressurized configuration, and c) Extended overwater flight is prohibited.
39. *** Main Equipment Center Cooling Bypass Valve System	C	-	0	(M) May be inoperative in the non-bypass position.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
40. Equipment Cooling Smoke Detector	C	1	0	(M) (O) May be inoperative provided: a) Equipment cooling system is operated in the SMOKE mode, b) Flow control and upper deck equipment cooling overboard dump valves are verified in the open (SMOKE mode) position, and c) Flight is conducted in a pressurized configuration.
41. Lower Cargo Heating System				
1) Aft System				
a) Two Valve Installation	D	1	0	(M) May be inoperative provided one valve remains closed.
b) Three Valve Installation	D	1	0	(M) May be inoperative provided either the override valve, or both bulk control valve and container control valves remain closed.
2) Forward System (Cargo Configuration) (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	D	1	0	(M) May be inoperative provided one valve remains closed.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING					
42. Lower Cargo Heating Indicating System					
	1) Aft System	C	-	0	(M) May be inoperative (including the test function) provided it is verified that all valves and the overheat protective system operate normally.
		D	-	0	(O) May be inoperative (including test function) provided associated heating system is not used.
	2) Forward System (Cargo Configuration) (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	1	0	(M) May be inoperative (including the test function) provided it is verified that all valves and the overheat protective system operate normally.
		D	1	0	(O) May be inoperative (including test function) provided associated heating system is not used.
43. Wall Heat System ***		C	1	0	Moved to ATA 21-58, Rev. 28.
44. *** Upper Deck Heater System		C	-	0	(M) May be inoperative provided heater(s) is deactivated.
	1) OVERHEAT Light	C	1	0	(O) May be inoperative (and upper deck heat used) provided overheat protection and associated supply duct temperature indication operate normally.
	2) Cargo Configuration	D	2	1	(M) One may be inoperative for all cargo operations provided associated heater is deactivated.

SYSTEM & SEQUENCE NUMBERS	ITEM 1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
45. Galley Overboard *** Vent Valve (Manual or Electric)				
1) Main Deck and Upper Deck Galleys Installed	C	1	0	May be inoperative in the low flow or closed position.
	C	1	0	May be inoperative in the high flow or open position provided three packs operate normally.
	C	1	0	May be inoperative in the high flow or open position provided: a) Two packs operate normally, and b) Airplane remains at or below FL 310.
2) Lower Lobe Galley(s) Installed	C	1	0	(M) May be inoperative (and lower lobe galley used) provided: a) Valve is secured CLOSED, and b) Galley/Lav Fan operates continuously.
	C	1	0	(M) May be inoperative OPEN provided: a) Lower lobe galley power is OFF, b) Lower lobe galleys are not occupied, and c) Three packs operate normally.
	C	1	0	(M) May be inoperative OPEN provided: a) Two packs operate normally, and b) Airplane remains at or below FL 310.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
46. Galley/Lavatory Fan ***				
1) Lower Lobe Galley(s) Installed	C	-	0	(M) (O) May be inoperative provided, if galleys are serviced with dry ice, AFM limitations (for galley/lavatory fan not operating) are observed.
	C	-	0	(M) (O) May be inoperative provided galleys are not serviced with dry ice.
a) ATC TD9614LA-T Not Installed	C	-	0	(M) (O) May be inoperative provided altitude limitations are observed.
b) ATC TD9614LA-T Installed	C	-	0	(M) (O) May be inoperative provided: a) Altitude limitations are observed, b) Operations do not require the use of SATCOM, and c) SATCOM System(s) is deactivated.
47. Galley Supply Shutoff Valve (Lower Lobe Galley)	C	1	0	(M) (O) May be inoperative provided integral fire extinguisher system is not relied upon. NOTE: See requirements for Lower Lobe Galley fire extinguisher system.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
48. Heater Systems *** (Lower Lobe Galley)	C	-	0	
1) OVERHEAT Light	C	-	0	(M) May be inoperative (and systems used) provided: a) Overheat protection system operates normally, and b) Associated supply duct temperature indications operate normally.
49. NO AIRFLOW *** Indicating System (Lower Lobe Galley)	C	2	1	(O) One light (on either main deck or galley deck) may be inoperative provided the remaining light is closely monitored.
	C	2	0	(M) (O) Lights may be inoperative provided associated galley is not serviced with dry ice.
	C	2	0	(O) Lights may be inoperative provided associated galley is not occupied.
50. Disinsection System ***	D	1	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
51. Ram Air Vent Valve ***				
1) Passenger Configuration	D	1	0	May be inoperative in any position.
3) Cargo Configuration (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	1	0	(M) May be inoperative open provided two packs operate normally.
	C	1	0	(M) May be inoperative open, with single pack operating, provided: a) Altitude remains at or below FL 200 (with 8 or more main deck entry doors installed), and b) Equipment cooling is operated in NORM
	C	1	0	(M) May be inoperative open, with single pack operating, provided: a) Altitude remains at or below FL 180 (with 8 or more main deck entry doors installed), and b) Equipment cooling is operated in SMOKE mode.
	C	1	0	(M) May be inoperative open, with single pack operating, provided: a) Altitude remains at or below FL 310 (with 1 or 2 main deck entry doors installed), and b) Equipment cooling is operated in NORM.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
51. Ram Air Vent Valve *** (Cont'd)				
2) Cargo Configuration (Including Israel Aircraft Industry Special Freighter, STC ST00358LA) (Cont'd)	C	1	0	(M) May be inoperative open, with single pack operating, provided: a) Altitude remains at or below FL 250 (with 1 or 2 main deck entry doors installed), and b) Equipment cooling is operated in SMOKE mode.
52. Ram Air Vent Heater *** System (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	1	0	(M) (O) May be inoperative provided: a) Alternate procedures are established and used to assure reasonable crew comfort, and b) Heater is deactivated.
53. Aft Cargo Air *** Conditioning System Controls and Valves				
1) Auto or Manual Controls	D	2	0	(M) (O) May be inoperative provided both conditioned air shutoff valve and aft cargo trim air shutoff valve operate normally.
2) Conditioned Air Shutoff Valve and Aft Cargo Trim Air Shutoff Valve	D	2	0	(O) May be inoperative closed.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
53. Aft Cargo Air *** Conditioning System Controls and Valves (Cont'd)				
3) Aft Cargo Trim Air Valve	D	1	0	(O) May be inoperative open, the system used, and the compartment loaded provided the trim air modulating valve is deactivated closed.
4) Conditioned Air Shutoff Valve	D	1	0	(O) May be inoperative open provided procedures are established and used to ensure the aft cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
5) Trim Air Modulating Valve	D	1	0	(O) May be inoperative closed.
	D	1	0	(O) May be inoperative open, the system used, and the compartment loaded provided the Aft Cargo Trim Air Shutoff Valve is deactivated closed.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21	AIR CONDITIONING				
54. ***	Aft Cargo Compartment Air Conditioning Trim Air Modulating Valve Position Indication System	D	1	0	
55. ***	Aft Cargo Compartment Air Conditioning System Compartment/Duct Temperature Indication System	D	1	0	(O) May be inoperative provided duct overheat protective system operates normally.
		D	1	0	(O) May be inoperative provided trim air modulation valve remains in the cool (closed) position.
56. ***	Aft Cargo Compartment Air Conditioning Overheat Protection System	D	-	0	(O) May be inoperative provided: a) Supply duct temperature indicator operates normally, and b) Trim air modulating valve remains in the cool (closed) position.
57. ***	Pack Flow Control and Shutoff Valve PACK VALVE CLOSED Lights	D	3	0	
58. ***	Side Cargo Door Heat	D	1	0	(M) May be inoperative provided system is deactivated.
59. ***	Air Conditioning Exhaust Valve (Lower 41)	D	1	0	(M) May be inoperative closed.
60. ***	Supplemental Vent Fans	C	-	0	May be inoperative provided packs are not operated in ½ flow position.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING				
61. Pack Air Flow Indicator ***				Deleted prior to Rev. 21.
62. Ozone Converter ***	D	3	0	(O) As required by FAR.
63. Crew Rest Area Air *** Distribution System	C	1	0	(M) (O) May be inoperative provided heater is deactivated. NOTE: Ventilation and temperature control will be inoperative.
1) Temperature Control	C	1	0	(M) (O) May be inoperative provided heater is deactivated.
2) Ventilation	C	1	0	(M) (O) May be inoperative provided: a) Heater is deactivated, and b) CRA (Crew Rest Area) air supply fan is deactivated.
3) Temperature Indicator	D	1	0	
64. Humidifier Systems ***	D	-	0	
65. Zone 2A *** Heater System	C	1	0	(M) (O) May be inoperative provided heater is deactivated.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
21 AIR CONDITIONING					
100 Lower Cargo Heating System (Super Tanker) (STC ST01219LA)					
1) Aft System					
a) Two Valve Installation					
1) Super Tanker (STC ST01912LA)		D	1	0	(M) May be inoperative provided Super Tanker operations are conducted in an ambient temperature above 0 degrees C.
b) Three Valve Installation					
1) Super Tanker (STC ST01912LA)		D	1	0	(M) May be inoperative provided Super Tanker operations are conducted in an ambient temperature above 0 degrees C.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
22 AUTO FLIGHT				
1. Autopilot Systems	C	-	1	(O) May be inoperative provided approach minimums do not require their use. NOTE: Any mode which functions normally may be used.
	B	-	0	(O) May be inoperative provided: a) Approach minimums do not require their use, and b) Enroute operations do not require their use. NOTE: Any mode which functions normally may be used.
1) Control Wheel Disengage Switches	C	2	1	(O) One may be inoperative provided: a) Autopilot(s) is not used below 1,500 feet AGL, and b) Approach minimums do not require their use.
2) Pitch Selector Modes				
a) ALT SEL	C	-	0	Except where enroute operations require its use, may be inoperative provided altitude alert or altitude hold operate normally.
b) ALTITUDE HOLD	C	-	0	Except when enroute operations require its use, may be inoperative provided altitude alert operates normally.
c) IAS	C	-	0	
*** d) V/S	D	-	0	

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
22 AUTO FLIGHT				
1. Autopilot Systems (Cont'd)				
2) Pitch Selector Modes (Cont'd)				
e) TURB	C	-	0	
*** f) PMS	D	-	0	May be inoperative provided procedures do not require its use.
*** g) VNAV	D	-	0	May be inoperative provided procedures do not require its use.
3) Nav Selector Modes				
a) HDG	C	-	0	
b) VOR/LOC	C	-	0	May be inoperative provided approach minimums do not require its use.
c) ILS	C	-	0	May be inoperative provided approach minimums do not require its use.
*** d) INS	C	-	0	
*** e) LNAV	C	-	0	
f) LAND	C	-	0	May be inoperative provided approach minimums do not require its use.
*** g) GPS	C	-	0	

(Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
22 AUTO FLIGHT				
1. Autopilot Systems (Cont'd)				
*** 4) Back Beam Selector	D	-	0	
*** 5) Course Transfer Switch	D	-	0	May be inoperative provided separate course information is available to each pilot.
*** 6) Altitude Rate Unit (Computer)	C	1	0	May be inoperative provided approach minimums do not require its use.
2. Autopilot Disengaged Lights	B	-	0	May be inoperative provided autopilots are not used.
1) Triple Channel Installation	C	6	-	One light per channel may be inoperative and the associated autopilot used, except during autoland operations
2) Dual Channel Installation	C	2	1	One may be inoperative and autopilot(s) used, except for autoland operations.
3. Yaw Damper	C	2	1	One may be inoperative provided associated yaw damper switch remains OFF.
4. Autothrottle System	C	1	0	May be inoperative provided approach minimums do not require its use. NOTE: Any mode which functions normally may be used.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
22	AUTO FLIGHT				
5. ***	Airspeed Command Bugs	C	2	1	Copilot's bug may be inoperative.
		C	2	1	Pilot's may be inoperative provided autothrottle function requiring the bug is not used.
		C	2	0	May be inoperative provided procedures do not require their use.
6. ***	Gust Response Suppression (Beta and/or MSAS)	D	1	0	
7. ***	Autoland Bias Actuator	C	1	0	May be inoperative with autoland used below 50 ft. AGL provided, for B-747SP, dual channel autoland operations are not conducted.
		C	1	0	May be inoperative with autoland used below 50 ft. AGL provided, for B-747-100/200/300 airplanes configured with autoland couplers (LCLUs or LRCUs), dual channel autoland operations at gross weights above 630,000 lb. (285,766 kg) are not conducted.
		C	1	0	May be inoperative with autoland used below 50 ft. AGL provided, for all other configurations, observe autoland placards in the cockpit, if any, per AD 82-26-01, (S/B 747-22-2127 and S/B 747-22-2130 or production equivalent).

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
22	AUTO FLIGHT				
8.	Auto Stabilizer Trim Systems	C	2	1	One system may be inoperative provided approach minimums or procedures do not require multiple channel autopilot use.
		B	2	0	May be inoperative provided autopilots are not used.
9. ***	Automatic Rollout Control Systems	D	3	0	May be inoperative provided: a) Approach minimums or procedures do not require its use, and b) Associated autopilot channel is not engaged in the land mode.
10. ***	Rudder PEDAL STEERING Light	D	1	0	(O) May be inoperative provided automatic rollout control is not used.
		D	1	0	(O) May be inoperative and automatic rollout control used provided: a) Rudder pedal steering Roll Out Control Light is operating normally, and b) It is closely monitored during rollout.
11. ***	Rudder Pedal Steering ROLL OUT CONTROL Light	D	1	0	(O) May be inoperative provided automatic rollout control is not used.
		D	1	0	(O) May be inoperative and automatic rollout control used provided the Rudder Pedal Steering Light operates normally.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
1. Flight Deck Speakers	D	2	0	May be inoperative provided: a) Procedures do not require their use, and b) Headsets are installed and operating normally.
2. Passenger Address System				
1) Passenger Configuration	B	1	0	(O) May be inoperative provided: a) Alternate, normal, and emergency procedures, and/or operating restrictions are established and used, and b) Flight attendant alerting system (audio and visual) operates normally. NOTE: Any station function(s) that operates normally may be used.
a) Flight Deck PA Microphone	B	-	O	(O) May be inoperative provided: a) Alternate, normal, and emergency procedures, and/or operating restrictions are established and used, and b) Flight Deck/Cabin Interphone Function (two-way) operates normally.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
2. Passenger Address System (Cont'd)				
1) Passenger Configuration (Cont'd)				
b) Cabin Attendant Stations				
1) Handsets, PA Function	B	-	-	May be inoperative provided: a) Flight Deck to Cabin PA function operates normally, and b) PA override function at Doors 1L and 4L operates normally.
*** 2) Door 1L or 4L Panel PA Function	B	-	-	May be inoperative provided: a) Flight Deck to Cabin PA function operates normally, and b) PA override function on handsets at Doors 1L and 4L operates normally.
*** c) Cabin Attendant Station PA Microphone	B	-	-	May be inoperative provided: a) Flight Deck to Cabin PA function operates normally, and b) PA override function on handsets at Doors 1L and 4L operates normally.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
2. Passenger Address System (Cont'd)				
1) Passenger Configuration (Cont'd)				
d) Lavatory Speakers	C	-	-	(O) May be inoperative provided alternate, normal, and emergency procedures, and/or operating restrictions are established and used.
2) Cargo Configuration (Courier/ Supernumerary 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.
a) 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.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
3. Communication Systems (VHF, HF, UHF)	D	-	-	Any in excess of those required by FAR may be inoperative provided it is not powered by a Standby Bus and is not required for emergency or abnormal procedures.
1) VHF Comm Control Panels				
*** a) Frequency Transfer Indication	C	-	0	
*** b) Frequency Transfer Switch	C	-	0	
c) Frequency Selectors	C	-	2	
d) Frequency Indicators	C	-	2	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
3. Communication Systems (VHF, HF, UHF) (Cont'd)				
2) High Frequency (HF) Communication Systems	D	-	-	Any in excess of those required by FAR may be inoperative.
	C	-	1	(O) 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 coverage is available over the intended route of flight, and d) If Inmarsat Codes are not available while using SATCOM voice, prior coordination with the appropriate ATS facilities is required. NOTE: SATCOM is to be used only as a backup to normal HF communications unless otherwise authorized by the appropriate ATS facilities.
4. Flight Deck Interphone System				
1) Flight Deck Intercom				Deleted by Rev. 26. Relief incorporated into ATA 25-23.
2) Flight Deck to Ground				Deleted by Rev. 31. Relief incorporated into ATA 23-7.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
5. Audio Selector Panels				Deleted by Rev. 26. Relief incorporated into ATA 25-23.
6. Service Interphone System	D	1	0	(O) May be inoperative provided normal communication with ground can be established by use of the flight deck interphone system.
7. Crewmember Interphone System				
1) Passenger Configuration				
a) Flight Deck to Cabin, Cabin to Flight Deck Functions	B	-	-	(O) May be inoperative provided: a) Flight Deck to cabin and cabin to flight deck interphone functions operate normally on at least fifty percent of the cabin handsets, and b) Alternate communications procedures between the affected flight attendant's station(s) are established and used. NOTE: Any station function(s) that operates normally may be used.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
7. Crewmember Interphone System (Cont'd)				
1) Passenger Configuration (Cont'd)				
b) Cabin to Cabin Function	B	-	-	(O) May be inoperative provided: a) Cabin to Cabin interphone functions operate normally on at least fifty percent of the cabin handsets, and b) Alternate communications procedures between the affected flight attendant's station(s) are established and used. NOTE: Any station function(s) that operates normally may be used. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
7. Crewmember Interphone System (Cont'd)				
1) Passenger Configuration (Cont'd)				
c) Flight Deck to Ground 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	-	0	(O) May be inoperative provided alternate procedures are established and used.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
7. Crewmember Interphone System (Cont'd)				
1) Passenger Configuration (Cont'd)				
d) Flight Deck Handsets	C	-	0	(O) May be inoperative provided: a) Flight Deck to cabin communication operates normally, and b) Alternate procedures are established and used.
	D	-	0	May be inoperative provided procedures do not require its use.
e) Cabin Handsets	B	-	-	(O) May be inoperative provided: a) Fifty percent of cabin handsets operate normally, b) One handset must operate normally at each pair of exit doors, and c) Alternate communications procedures between the affected flight attendant's station(s) are established and used. NOTE 1: An operative handset at an inoperative flight attendant seat shall not be counted to satisfy the fifty percent requirement. NOTE 2: Any handsets(s) function(s) that operates normally may be used.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
7. Crewmember Interphone System (Cont'd)				
2) Cargo Configuration				
a) Flight Deck to Cabin, Cabin to Flight Deck Functions	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.
b) Cabin to Cabin Function	D	1	0	
c) Flight Deck to Ground 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.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS					
7. Crewmember Interphone System (Cont'd)					
2) Cargo Configuration (Cont'd)					
c) Flight Deck to Ground Function (Cont'd)		B	-	0	(O) May be inoperative provided alternate procedures are established and used.
d) Flight Deck Handsets		C	-	0	May be inoperative provided flight deck to courier/supernumerary communication operates normally.
		D	-	0	May be inoperative provided procedures do not require its use.
e) Courier/ Supernumerary Handsets		D	-	1	
		D	-	0	May be inoperative provided courier/supernumerary compartment remains unoccupied.
8. Selective Call Systems (SELCAL)		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.
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.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23	COMMUNICATIONS				
9. ***	Pre-recorded Passenger Announcement System	C	1	0	(O) May be inoperative provided alternate procedures are established and used.
		D	1	0	(O) May be inoperative provided procedures do not require its use.
10. ***	Emergency Evacuation Signal System				Moved to ATA 25-18, Rev. 20.
11.	Alerting System (Audio / Visual)				
	1) Passenger Configuration				
	a) Flight Deck Visual Alerting System (Call Light)	B	-	0	May be inoperative provided the flight deck audio alerting system operates normally. NOTE: The flight deck audio alerting system must always be operative.

(Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
11. Alerting System (Audio / Visual) (Cont'd)				
1) Passenger Configuration (Cont'd)				
b) Flight Attendant Visual Alerting System (Call Light)	B	-	0	(O) May be inoperative provided: a) PA system operates normally, b) If affected visual alerting system is used for lavatory smoke detector alerting, an alternate lavatory smoke detector alert (audio or visual) is installed and operates normally, and c) Alternate procedures for contacting flight attendants are established and used. NOTE 1: Passenger to Attendant Call System is considered a passenger convenience item. NOTE 2: Any visual alerting system function(s) that operates normally may be used. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
11. Alerting System (Audio / Visual) (Cont'd)				
1) Passenger Configuration (Cont'd)				
c) Flight Attendant Audio Alerting System (Chime)	B	-	0	(O) May be inoperative provided: a) PA system operates normally, b) If affected audio alerting system is used for lavatory smoke detector alerting, an alternate lavatory smoke detector alert (visual or audio) is installed and operates normally, and c) Alternate procedures for contacting flight attendants are established and used. NOTE 1: Passenger to Attendant Call System is considered a passenger convenience item. NOTE 2: Any audio alerting system function(s) that operates normally may be used. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
11. Alerting System (Audio / Visual) (Cont'd)				
2) Cargo Configuration				
a) Flight Deck Visual Alerting System (Call Light)	B	1	0	May be inoperative provided the flight deck audio alerting system operates normally.
b) Flight Deck Audio/Visual Alerting System (Call Light/Chime)	D	1	0	May be inoperative provided courier/supernumerary compartment remains unoccupied.
c) Courier/ Supernumerary Visual Alerting System (Call Light)	B	1	0	(O) May be inoperative provided: a) Courier/Supernumerary address system operates normally, and b) Alternate procedures are established and used.
	D	1	0	May be inoperative provided courier/supernumerary compartment remains unoccupied. NOTE: Any visual alerting system function(s) that operates normally may be used.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
11. Alerting System (Audio / Visual) (Cont'd)				
2) Cargo Configuration (Cont'd)				
d) Courier/ Supernumerary Audio Alerting System (Chime)	B	1	0	(O) May be inoperative provided: a) Courier/Supernumerary address system operates normally, and b) Alternate procedures are established and used.
	D	-	0	May be inoperative provided courier/supernumerary compartment remains unoccupied. NOTE: Any audio alerting system function(s) that operates normally may be used.
12. Cockpit Voice Recorder (CVR) System	A	1	0	May be inoperative provided: a) Flight Data Recorder (FDR) operates normally, and b) Repairs are made within three flight days.
13. HF Communications System				Moved to ATA 23-3, Rev. 20.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
14. *** ARINC Communication Addressing and Reporting System (ACARS)	D	-	0	May be inoperative provided procedures do not require its use.
	C	-	0	May be inoperative provided alternate procedures are established and used. NOTE: Any mode which functions normally may be used.
1) Printer System	D	-	0	
2) DATA Mode	D	-	0	May be inoperative provided procedures do not require its use.
3) VOICE Mode	D	-	0	May be inoperative provided procedures do not require its use.
4) SELCAL Mode	D	-	0	May be inoperative provided procedures do not require its use.
15. *** 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 their use.
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 their use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
15. *** Satellite Communication (SATCOM) Systems (Cont'd)				
2) HF/SAT XFER Switches	D	2	0	(M) (O) May be inoperative provided procedures do not require their use.
3) SATCOM Lights	D	2	0	(O) May be inoperative provided associated chime function operates normally.
4) SATCOM Select Switches	D	2	0	(O) May be inoperative provided procedures do not require their use.
16. Headsets/Boom Microphones	D	-	-	Any in excess of those required for each person on flight deck duty may be inoperative.
1) Headset Earphones				
a) Captain / First Officer Position	C	2	1	One may be inoperative provided associated flight deck speaker operates normally.
b) F/E Position	C	1	0	May be inoperative provided both flight deck speakers operate normally.
2) Boom Microphones				
a) Cockpit Voice Recorder Equipped To Record Boom Microphone Per FAR	A	-	0	May be inoperative provided: a) Flight Date Recorder (FDR) operates normally, and b) Repairs are made within three flight days.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
16. Headsets/Boom Microphones (Cont'd)				
2) Boom Microphones (Cont'd)				
*** b) Cockpit Voice Recorder Not Equipped To Record Boom Microphone	D	-	0	Any in excess of those required by FAR may be inoperative.
*** c) Boom/Mask Selector Switch	C	-	0	(M) May be inoperative provided mask position is verified to operate normally.
17. Flight Deck Hand Microphones (or Equivalent)	C	-	0	May be inoperative or missing provided associated headset/boom microphone operates normally.
	D	-	0	May be inoperative or missing provided procedures do not require their use.
18. Ground Crew Call System	C	1	0	(M) May be inoperative provided: a) Equipment Cooling and Electrical Power Systems are continuously monitored during ground operations, and b) Alternate procedures are established and used.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
23 COMMUNICATIONS				
19. Push-To-Talk (PTT) Switches				
1) Control Wheel PTT Switches	C	2	1	(M) One may be inoperative provided: a) Auxiliary Panel PTT Switches operate normally, and b) Affected switch is deactivated open.
2) Flight Crew Auxiliary Panel PTT Switches	C	2	1	(M) One may be inoperative provided: a) Control Wheel PTT Switches operate normally, and b) Affected switch is verified failed open or is deactivated open.
20. Flight Deck Entry *** Door/Cabin Video Surveillance Systems	C	-	0	(O) May be inoperative and components may be missing provided alternate procedures are established and used. NOTE: Any portion of the system which operates normally may be used.
	D	-	0	May be inoperative provided procedures do not require its use.
21. Flight Tracker System ***	D	1	0	May be inoperative provided procedures do not require its use.
100 FM Radios (STC ST01912LA)	D	2	0	May be inoperative provided procedures do not require its use.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
24 ELECTRICAL POWER				
1. Generator Systems				
1) Engine Driven Generator (Generator, Load Controller, CSD, GCU, GCB)	B	4	3	(M) (O) One may be inoperative provided: a) All AC buses are powered, b) Split System Breaker operates normally, and c) KW indicators for all remaining channels operate normally. NOTE: See AFM for generator requirements when using water injection for takeoff.
a) Cargo Configuration	C	4	3	(M) (O) One may be inoperative provided: a) All AC buses are powered, b) Split System Breaker operates normally, and c) KW indicators for all remaining channels operate normally. NOTE: See AFM for generator requirements when using water injection for takeoff.
2) APU Driven Generator (Generator, Generator Control Portion of Bus Power Control Unit)	C	2	0	(M) May be inoperative provided associated APU generator remains OFF.
	C	2	1	(M) One APU generator may be inoperative and removed.
	C	2	0	(M) APU generators may be inoperative and removed provided APU is deactivated.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
24 ELECTRICAL POWER				
2. CSD Oil Low PRESS Lights (or CSD OIL Light)	C	4	0	May be inoperative provided CSD oil temperature, frequency and KW indications operate normally on the associated generator(s).
3. CSD Oil Temperature/ Temperature Rise Indicators	C	4	0	(O) CSD Oil Temperature may be inoperative provided CSD Temperature Rise, CSD oil low PRESS light, and KW indications operate normally on the associated generator(s).
	C	4	0	CSD Oil Temperature Rise may be inoperative provided CSD Oil Temperature, CSD oil low PRESS light and KW indications operate normally on the associated generator(s).
	C	4	0	May be inoperative provided CSD OIL light and KW indications operate normally on the associated generator (s).
	B	4	3	(M) (O) One may be inoperative provided: a) Associated CSD/IDG is deactivated, b) All AC buses are powered, c) Split System Breaker operates normally, and d) KW indications for all remaining generator(s) operate normally.
4. GEN BRG FAILURE *** Lights	C	4	0	
5. APU (Generator) BRG *** FAILURE Lights	C	2	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
24	ELECTRICAL POWER				
6.	APU GEN OPEN Lights	C	-	0	May be inoperative (and APU generator used) provided associated AC AMPS indication(s) operate normally.
7.	APU FIELD OFF Lights	C	-	0	May be inoperative (and APU generator used) provided associated APU generator AC VOLTS or frequency indication operates normally.
8.	Transformer Rectifiers (TR) (Main)	B	4	3	(M) (O) No. 1 TR only (with PRR 71659 installed) or either No. 1 or No. 3 TR (if PRR 71659 is not installed) may be inoperative provided flight deck cooling NO AIRFLOW detector and overboard dump valve operate normally.
		B	4	3	(M) (O) No. 1 TR only (with PRR 71659 installed) or either No. 1 or No. 3 TR (if PRR 71659 is not installed) may be inoperative provided: a) Equipment cooling system is operated in the SMOKE mode with flow control valve and overboard dump valve verified in the open (SMOKE mode) position, and b) Flight is conducted in a pressurized configuration.
	1) Cargo Configuration	C	4	3	(M) (O) No. 1 TR only (with PRR 71659 installed) or either No. 1 or No. 3 TR (if PRR 71659 is not installed) may be inoperative provided flight deck cooling NO AIRFLOW detector and overboard dump valve operate normally.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
24	ELECTRICAL POWER				
8.	Transformer Rectifiers (TR) (Main) (Cont'd)				
	1) Cargo Configuration (Cont'd)	B	4	3	(M) (O) No. 1 TR only (with PRR 71659 installed) or either No. 1 or No. 3 TR (if PRR 71659 is not installed) may be inoperative provided: a) Equipment cooling system is operated in the SMOKE mode with flow control valve and overboard dump valve verified in the open (SMOKE mode) position, and b) Flight is conducted in a pressurized configuration.
9.	Automatic Generator Paralleling System	C	1	0	(O) May be inoperative provided random paralleling procedures are use.
10. ***	Split System Breaker (SSB)	C	1	0	(O) May be inoperative OPEN provided: a) All engine driven generators operate normally, and b) Water injection is not used for takeoff.
11. ***	SSB Open Light	C	1	0	(M) (O) May be inoperative provided procedures are established to verify position of SSB.
12.	DC Bus Isolation Relays	C	4	3	No. 1 may be inoperative closed.
		C	4	2	No. 1 may be inoperative closed and No. 3 may be inoperative open.
		C	-	-	No. 3 may be inoperative open.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
24 ELECTRICAL POWER				
13. DC Bus Isolation Relay OPEN Lights	C	-	0	(M) May be inoperative provided TR amperage indications operate normally.
14. KW/KVAR Meters	C	4	3	
	C	4	2	(O) Two may be inoperative provided: a) They are not on the same side of the SSB, b) SSB operates normally, and c) Electrical loads on each side of the SSB are limited to not more than 27 KW.
1) KVAR Functions	C	4	0	May be inoperative on all meters.
15. AC Meters Indications System				
1) Volts	C	-	-	AC volts indication may be inoperative for an inoperative generator.
2) Frequency/CSD RPM	C	-	-	Frequency and CSD RPM indication may be inoperative for an inoperative main generator, or frequency or CSD RPM indication may be inoperative for an operating main generator.
3) APU Frequency	C	-	0	May be inoperative provided all remaining functions of the APU operate normally.
	C	-	0	May be inoperative provided APU generator(s) is not used.
4) External Power Indications	C	-	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
24 ELECTRICAL POWER				
15. AC Meters Indications System (Cont'd)				
5) PMG Indications	C	-	0	(O) May be inoperative provided FIELD OFF lights operate normally.
16. DC Meters Indications				
1) TR Indications				
a) Volts	C	4	0	May be inoperative for any TR provided associated AMPS indication operates normally.
b) AMPS	C	4	3	May be inoperative for one TR provided: a) Associated VOLTS indication operates normally, and b) With one TR inoperative, remaining TR AMPS indications operate normally.
2) APU BATT Indications	C	2	-	May be inoperative provided SB 21-2004 or production equivalent is incorporated or if SB 21-2004 or production equivalent is not incorporated either VOLTS or AMPS indication may be inoperative.
17. APU/External Power Ammeters	C	2	0	
18. Generator System Maintenance Annunciator Panel	D	1	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
24 ELECTRICAL POWER				
19. Electrical Load *** Control Unit (Galley Power/Engine Water Pump Protection)	C	4	0	May be inoperative provided: a) Associated galley or water injection systems are not used, and b) Associated galley power switch(es) remain OFF.
20. Galley Power 3- *** Generator Mode System	C	1	0	(O) May be inoperative provided generator loads are monitored.
21. Galley Power Trip Off *** Lights	C	4	0	(O) May be inoperative provided associated galley power is not used.
	C	4	0	(M) May be inoperative provided fault is verified in the light circuit.
22. External Power System	C	-	0	
1) AC CONN Light	C	-	0	May be inoperative provided all remaining external power indications operate normally.
23. APU Battery(s)	C	-	-	May be inoperative provided that if PRR 73054 is not incorporated, at least one APU battery operates normally.
1) Battery Heater	C	-	-	May be inoperative provided that if PRR 73054 is not incorporated, at least one APU battery operates normally.
24. APU Battery Charger	C	1	0	(M) May be inoperative provided PRR 73054 has been incorporated.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
24 ELECTRICAL POWER				
25. Lightning Protectors	C	6	3	One of each phase may be inoperative provided all AC buses are paralleled.
26. Essential AC Bus Selector Switch Positions (Gen 1, Gen 2, Gen 3, Normal)	C	4	3	(M) The NORMAL or one GEN position of the Essential AC Bus Selector may be inoperative provided: a) Essential AC power is checked and verified normal in the remaining positions, and b) “ESS AC BUS” c/b for the inoperative position is opened and collared.
27. APU Generator Cooling Air System	C	-	0	May be inoperative provided associated APU generator is not used.
28. *** APU Generator Cooling Air Loss Generator Trip System	C	-	0	
29. *** APU Generator NO GEN COOLING Light	C	-	0	
30. ESS BUS OFF Lights (Airplanes with Automatic STANDBY POWER Transfer Only)	C	2	0	May be inoperative provided: a) Essential AC and Standby AC buses are powered normally, b) Standby Power automatic transfer mode and Manual mode operate normally, and c) Standby Power ON light operates normally.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
24 ELECTRICAL POWER				
31. Standby Power ON Light	C	1	0	May be inoperative provided: a) Standby Power system operates normally in both normal and manual modes, and b) ESS BUS OFF lights operate normally.
32. GEN OPEN Light	C	-	-	May be inoperative for an associated inoperative generator.
33. GEN FIELD OFF Light	C	-	-	May be inoperative for an associated inoperative generator.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
1. Main Deck Cart *** Tiedowns	C	-	0	May be inoperative provided they are not required for storage of lower lobe galley carts on the main deck.
2. Flight Deck Door Lock Solenoid				Moved to 52-19, Rev. 20.
3. Megaphones	D	-	-	Any in excess of those required by FAR may be inoperative or missing provided: a) Inoperative megaphone is removed from passenger cabin, and b) Required distribution is maintained. NOTE: Not required for flights conducted in a cargo configuration.
4. Crewmember Shoulder Harness (Flight Deck)				Deleted by Revision 26, See ATA 25-23 for applicable relief.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
5. Flight Attendant Seat Assemblies (Single or Dual Position)				
1) Required Flight Attendant Seats	B	-	-	(M) (O) One seat position or assembly (dual position) may be inoperative provided: a) Affected seat position or seat assembly is not occupied, b) Flight attendant(s) displaced by inoperative seat(s) occupies either an adjacent flight attendant seat or the passenger seat which is most accessible to the inoperative seat(s), so as to most effectively perform assigned duties, c) Alternate procedures are established and used as published in crewmember manuals, d) Folding type seat stows automatically or is secured in the retracted position, and e) Passenger seat assigned to flight attendant is placarded: FOR FLIGHT ATTENDANT USE ONLY. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS			
5.	Flight Attendant Seat Assemblies (Single or Dual Position) (Cont'd)			
	1) Required Flight Attendant Seats (Cont'd)			NOTE 1: An automatic folding seat that will not stow automatically is considered inoperative. NOTE 2: A seat position with an inoperative or missing restraint system is considered inoperative. NOTE 3: Individual operators, when operating with inoperative seats, will consider the locations and combinations of seats to ensure that proximity to exits and distribution requirements of the applicable FAR are met. NOTE 4: If one side of a dual seat assembly is inoperative and a flight attendant is displaced to the adjacent seat, the adjacent seat must operate normally. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
5. Flight Attendant Seat Assemblies (Single or Dual Position) (Cont'd)				
2) Excess Flight Attendant Seats	C	-	-	(M) May be inoperative provided: a) Affected seat position or seat assembly is not occupied, and b) Folding type seat stows automatically or is secured in the retracted position. NOTE 1: An automatic folding seat that will not stow automatically is considered inoperative. NOTE 2: A seat position with an inoperative or missing restraint system is considered inoperative.
3) Cargo Configuration	D	-	-	May be inoperative provided affected seat position or seat assembly is not occupied.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
6. *** Personnel Lift System (LLG Airplanes Only)	C	-	0	May be inoperative provided associated galley is not used.
1) Electrical Interlock Override per AAL-ECO-Y0438 Installed				
a) Door Mechanical Interlock System	C	-	0	(O) May be inoperative (and lift used) provided: a) Electrical interlock system operates normally, and b) Alternate procedures found in B-747 Flight Attendant's Manual are followed.
b) Electrical Interlock System	C	-	0	(O) May be inoperative (and lift used) provided: a) Mechanical interlock system operates normally, b) Electrical override system, including lift master power cutoff switch is installed and operating normally, c) Alternate procedures found in B-747 Flight Attendant's Manual are followed, and d) If personnel lift should become inoperative enroute, associated LLG is secured, and not used further.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS					
6. *** Personnel Lift System (LLG Airplanes Only) (Cont'd)					
	2) Electrical Interlock Override per AAL-ECO-Y0438 Not Installed	C	-	0	May be inoperative provided associated galley is not used.
	a) Door Mechanical Interlock System	C	-	0	May be inoperative (and associated LLG used) provided: a) Electrical interlock system operates normally, and b) Alternate procedures found in B-747 Flight Attendant's Manual are followed.
	b) Upper Door Electrical Interlock System	C	-	0	May be inoperative in the closed (powered) position (and lift used) provided: a) Mechanical interlock and lower door electrical interlock operate normally, and b) Alternate procedures found in B-747 Flight Attendant's manual are followed.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
6. *** Personnel Lift System (LLG Airplanes Only) (Cont'd)				
2) Electrical Interlock Override per AAL-ECO-Y0438 Not Installed (Cont'd)				
c) Lower Door Electrical Interlock System	C	-	0	(O) May be inoperative in the closed (powered) position (and lift used) provided: a) Mechanical interlock and upper door electrical interlock operate normally, b) PRR 74644-4 or equivalent is incorporated, c) Upper deck controls are rendered inoperative (per Maintenance Manual), and d) Alternate procedures found in B-747 Flight Attendant's Manual are followed.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
7. ***	Cart Lift (LLG Airplanes Only)				
	1) Electrical Interlock Override per AAL-ECO-Y0438 Installed	C	-	0	(O) May be inoperative in full down position (and associated galley(s) used) provided: a) Personnel lift operates normally in normal mode, and b) Number of serving carts removed from associated galley is limited to number of main deck tiedowns permitted to be used for takeoff and landing, plus the number of available stowage spaces in other operating galleys.
		C	-	0	(O) May be inoperative in any position provided: a) Personnel lift in associated LLG operates normally in normal mode, b) Electrical override system including lift master power cutoff switch is installed and operates normally, c) Number of serving carts removed from associated galley is limited as described above, and d) If personnel lift should become inoperative enroute, respective LLG is secured and not used further. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
7. Cart Lift *** (LLG Airplanes Only) (Cont'd)				
1) Electrical Interlock Override per AAL-ECO-Y0438 Installed (Cont'd)				
a) Mechanical Interlock System	C	-	0	(O) May be inoperative (and associated LLG used) provided: a) Electrical interlock system operates normally, and b) Alternate procedures found in B-747 Flight Attendant's Manual are followed.
b) Electrical Interlock System	C	-	0	May be inoperative (and associated LLG used) provided: a) Mechanical interlock system operates normally, b) Electrical override system, including lift master power cutoff switch is installed and operates normally, and c) Alternate procedures found in B-747 Flight Attendant's Manual are followed. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
7. *** Cart Lift (LLG Airplanes Only) (Cont'd)				
2) Electrical Interlock Override per AAL-ECO Y0438 Not Installed	C	-	0	(O) May be inoperative in full down position (and respective galley(s) used) provided: a) Personnel lift operates normally in normal mode, and b) Number of serving carts removed from respective galley is limited to the number of main deck tiedowns permitted to be used for takeoff and landing, plus number of available stowage spaces in other operating galleys.
a) Mechanical Interlock System	C	-	0	(O) May be inoperative (and associated LLG used) provided: a) Electrical interlock system operates normally, and b) Alternate procedures found in B-747 Flight Attendant's Manual are followed.
b) Electrical Interlock System (On Upper Deck)	C	-	0	(O) May be inoperative (and lift used) provided: a) Mechanical interlock system operates normally, and b) Alternate procedures found in B-747 Flight Attendant's Manual are followed.
8. *** Manual Egress Provisions (LLG Airplanes Only)	C	-	0	May be inoperative if associated lower lobe galley is not occupied.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
9. *** Flexible Smoke Barrier (Passenger and Combi Airplanes)	C	1	0	May be inoperative provided not more than eight passengers occupy the upper deck during takeoff or landing.
10. Main Cabin Door/Slide (Or Door)				
1) Passenger Configuration	B	-	-	(M) (O) One may be inoperative (or slide missing) provided: a) All remaining main cabin doors are fully operational, b) Associated door is not used for passenger loading, c) A conspicuous barrier strap or rope, and a placard stating that the door is inoperative are placed across the inoperative door, d) Emergency exit sign or light associated with the inoperative exit is covered to obscure the sign, e) Passengers are advised not to use the associated door, f) Crew is advised that evacuation procedures must not include associated door, although opposite door may be used, (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
10. Main Cabin Door/Slide (Or Door) (Cont'd)				
1) Passenger Configuration (Cont'd)				g) Persons (other than assigned cabin attendants) are not permitted to be seated in blocked areas when the associated door is as indicated below: Door L-1 or R-1: From forward cabin end to a line midway between L-1/R-1 and L-2/R-2. NOTE: (All except B-747-300) Upper Deck may not be occupied during taxi, takeoff, or landing. Door L-2 or R-2: Halfway to next exits in both directions from the associated door. Door L-3 or R-3: Halfway to next exits in both directions from the associated door. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
10. Main Cabin Door/Slide (Or Door) (Cont'd)				
1) Passenger Configuration (Cont'd)				Door L-4 or R-4: (All except B-747SP) Halfway to next exits in both directions from the associated door. Door L-4 or R-4: (B-747 SP) From a line midway between L-3/R-3 and L-4/R-4 to aft cabin end. Door L-5 or R-5: From a line midway between L-4/R-4 and L-5/R-5 to aft cabin end. NOTE 1: Restriction extends across entire cabin, and those seats located on designated boundaries will be blocked. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
10. Main Cabin Door/Slide (Or Door) (Cont'd)				
1) Passenger Configuration (Cont'd)				h) Tapes or ropes of conspicuous, contrasting colors shall be installed to block access to unusable seats before boarding of passengers, i) Conspicuous signs and placards shall be placed in appropriate locations to identify seats not to be occupied by passengers, j) Main passenger aisles, cross aisles and exit access areas must not be blocked, k) Seating capacity must not exceed rated capacity of remaining pairs of exits, l) For extended overwater operations, occupancy shall not exceed the normal rated capacity of the remaining slide/rafts, or the rated overload capacity of the slide/rafts remaining after loss of one additional slide/raft of greatest capacity, whichever is less, (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
10. Main Cabin Door/Slide (Or Door) (Cont'd)				
1) Passenger Configuration (Cont'd)				m) Blocked seating layouts and evacuation procedures must be developed and accepted by the FAA certificate holding office for inclusion in the operator's manual, and n) Weight and Balance Manifest is revised as necessary to verify that proper loading limits are observed. NOTE 2: Cabin attendant(s) may be stationed in the vicinity of each door within blocked areas.
2) Cargo and Combi Configuration	B	-	-	Main entry doors/slides located in the cargo area may be inoperative with no restrictions.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
11. Upper Deck Escape Slide Inflation System (Or Door)				
1) Passenger, Combi or Cargo Configuration (One Door)	C	1	0	(M) (O) May be inoperative provided: a) Upper deck occupancy is limited to those flight crewmembers essential to the flight (including official observer in forward observer seat) during takeoff or landing, and b) Inertial escape reels are installed and operate normally for upper deck occupants.
2) Passenger or Combi Configuration (Two Door)				
a) Circular Stair	C	2	1	(M) (O) One may be inoperative provided upper deck occupancy is limited to sixteen passengers.
b) Straight Stair	C	2	1	(M) (O) One may be inoperative provided: a) Upper deck occupancy is limited to 24 passengers, and b) Aircraft capacity is limited to 550 passengers.
c) Straight or Circular Stair	C	2	0	(M) (O)May be inoperative provided: a) Upper deck occupancy is limited to those flight crewmembers essential to the flight (including official observer in forward observer seat) during takeoff or landing, and b) Inertial escape reels are installed and operate normally for upper deck occupants. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
11. Upper Deck Escape Slide Inflation System (Or Door) (Cont'd)				
3) Cargo Configuration, or Cargo With Upper Deck Occupants (Two Door)	C	2	1	(M) (O) May be inoperative provided: a) Upper deck occupancy is limited to those flight crewmembers and supernumeraries identified by the AFM and essential to the flight (including official observer in forward observer seat) during takeoff or landing, and b) Inertial escape reels and escape harnesses are installed (as required) and operate normally for upper deck occupants.
	C	2	0	(M) (O)May be inoperative provided: a) Upper deck occupancy is limited to those flight crewmembers essential to the flight (including official observer in forward observer seat) during takeoff or landing, and b) Inertial escape reels are installed and operate normally for upper deck occupants.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
12. Flight Crew Seats				
*** 1) Power Adjustment System(s)	D	-	0	May be inoperative provided manual adjustment operates normally.
2) Manual Adjustment System(s)				
a) Recline System(s)	A	-	0	(M) May be inoperative provided: a) Seat(s) is secured in an upright position acceptable to the affected crewmember(s), and b) Repairs are made within two flight days.
b) Armrest(s)	B	-	0	(M) May be inoperative provided: a) Affected armrest(s) is stowed in the retracted position or removed, and b) Seat(s) is acceptable to affected crewmember(s).
c) Headrest(s)	C	-	0	May be inoperative or removed provided seat(s) is acceptable to the affected crewmember(s).
d) Lumbar Support(s)	C	-	0	May be inoperative provided seat(s) is acceptable to the affected crewmembers(s).
e) Thigh Support(s)	C	-	0	May be inoperative provided seat(s) is acceptable to the affected crewmember(s).

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
13. ***	Flight Attendant Flashlight/Holder Assembly	C	-	-	May be inoperative or missing provided crewmember assigned to the associated seat has a flashlight of equivalent characteristics readily available.
14.	"Fasten Seat Belt While Seated" Signs or Placards	C	-	-	One or more signs or placards may be illegible or missing provided a legible sign or placard is readable from each occupied passenger seat.
15. ***	UPR DK DR FLT LOCK Light (F/E Panel) (Extended Upper Deck)				Moved to ATA 52-28, Rev. 26.
16. ***	DOOR GND MODE Light (Above Door) (Extended Upper Deck)				Moved to ATA 52-29, Rev. 26.
17. ***	Flight Lock Actuator (Extended Upper Deck)				Moved to ATA 52-30, Rev. 26.
18. ***	Emergency Evacuation Signal System	C	1	0	(O) May be inoperative provided alternate procedures are established to initiate an emergency evacuation.
19.	Cargo Compartment Restraint Components	D	-	-	(M) May be inoperative or missing provided acceptable cargo loading limits from an approved source, i.e., an approved Cargo Loading Manual, Cargo Handling Manual, or Weight and Balance Manual are observed.
		D	-	-	(M) May be inoperative or missing provided associated cargo compartment remains empty.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
20. Lower Cargo Compartment Lining and Decompression Venting Belt Panels				
1) Passenger Configuration or Class “B” Cargo	C	-	0	(O) May be missing in the cargo compartment provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
2) Cargo Configuration Class “E” Cargo	D	-	0	May be missing.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
21. Passenger Convenience/NEF Items				
*** 1) Passenger Convenience Items		-	0	Passenger Convenience items, as expressed in this MMEL, are those related to passenger convenience, comfort, or entertainment such as, but not limited to, galley equipment, movie equipment, ashtrays, stereo equipment, overhead reading lamps. Items addressed elsewhere in this document shall not be included. (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 passenger convenience items.
*** 2) Non-Essential Equipment & 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 passenger NEF items.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
22. Passenger Seats	D	-	-	(M) May be inoperative provided: a) Seat does not block an Emergency Exit, b) Seat does not restrict any passenger from access to the main aircraft aisle, c) The affected seat(s) is blocked and placarded: DO NOT OCCUPY. NOTE 1: A seat with an inoperative seat belt is considered inoperative. NOTE 2: Inoperative seats do not affect the required number of Flight Attendants. NOTE 3: Affected seat(s) may include the seat(s) behind and/or adjacent outboard seats.
1) Recline Mechanism	D	-	-	(M) May be inoperative and seat occupied provided seat is secured in the full up-right position.
	C	-	-	(M) May be inoperative and seat occupied provided seat back is immoveable in the full up-right position.
2) Underseat Baggage Restraining Bars	C	-	-	(O) May be inoperative provided: a) Baggage is not stowed under seat with inoperative restraining bar, b) Associated seat is placarded: DO NOT STOW BAGGAGE UNDER THIS SEAT, and c) Procedures are established to alert Cabin Crew of inoperative restraining bar.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
22. Passenger Seats (Cont'd)				
3) Armrests	C	-	-	(M) May be inoperative or missing and seat occupied provided: a) Armrest does not block an Emergency Exit, b) Armrest does not restrict any passenger from access to the main aircraft aisle, and c) For an armrest with a recline mechanism, seat is secured in the upright position.
23. Observer Seat(s)				
1) Primary Observer Seat (Including Associated Equipment)	A	-	-	May be inoperative provided: a) A passenger seat in the passenger cabin is made available to an FAA inspector for the performance of official duties, and b) Repairs are made within two (2) flight days.
	A	-	-	May be inoperative provided: a) Second observer's seat is available, and acceptable to an FAA inspector for the performance of official duties, and b) Repairs are made within two (2) flight days.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
23. Observer Seat(s) (Cont'd)				
1) Primary Observer Seat (Including Associated Equipment) (Cont'd)	A	-	-	May be inoperative provided: a) Primary observer's seat is available with the required minimum safety equipment (safety belt and oxygen) and acceptable to an FAA inspector for the performance of official duties, and b) Repairs are made within two (2) 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 (oxygen and safety belt) 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 seat(s). (Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
23.	Observer Seat(s) (Cont'd)				
***	2) Additional Observer Seat(s) (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 seat(s).
24. ***	Cart Lift System (Between Main and Upper Deck Galleys)	C	1	0	(M) May be inoperative deactivated.
	1) Normal Mode	C	1	0	(O) May be inoperative provided: a) Override Mode operates normally, and b) Alternate procedures are established and used.
	2) Override Mode	C	1	0	(O) May be inoperative provided: a) Normal Mode operates normally, and b) Alternate procedures are established and used.
	3) Actuator Motors	C	2	1	(M) (O) One may be inoperative provided: a) Associated motor is deactivated, b) Cart lift operates in Normal Mode, and c) Alternate procedures are established and used.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
25. Emergency Medical Equipment				
1) First Aid Kit and/or Associated Equipment	D	-	-	Any in excess of those required by FAR may be incomplete, missing, or inoperative. The number of kits required by the FARs must contain the minimum content as required by FARs.
2) Emergency Medical Kit and/or Associated Equipment	D	-	-	Any in excess of those required by FAR may be incomplete, missing, or inoperative provided that at least one kit contains the minimum content required by the FARs.
3) Automated External Defibrillator (AED) and/or Associated Equipment	D	-	-	Any in excess of those required by FAR may be incomplete, missing, or inoperative provided that at least one kit contains the minimum content required by the FARs.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
26. Galley/Lavatory Waste Receptacle Access Doors/Covers				
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/lavatory waste receptacles are available to accommodate all waste that may be generated on a flight.
2) Lavatory Waste Receptacle Access Doors/Covers	C	-	-	(M) May be inoperative provided: a) Associated waste container is empty, b) Receptacle access is secured to prevent waste introduction into the receptacle, c) Lavatory is used only by crewmembers, and d) Associated lavatory entrance door is locked closed and placarded: INOPERATIVE-DO NOT ENTER. NOTE: These provisions are not intended to prohibit lavatory use or inspection by crewmembers.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
27. Exterior Lavatory Door Ashtrays				
1) Airplanes with more than one exterior lavatory door ashtray installed	A	-	-	One may be missing provided it is replaced within ten calendar days.
2) Airplanes with only one exterior lavatory door ashtray installed	A	1	0	May be missing provided it is replaced within three calendar days.
28. Overhead Storage Bin(s)/Cabin and Galley Storage Compartments/ Closets	C	-	-	(M) May be inoperative provided: a) Procedures are established to secure affected bin or compartment / closets CLOSED, b) Affected bin or compartment / closets is not used for storage of any item(s) except for those permanently affixed, c) Any emergency equipment located in affected bin or compartment / closets is considered inoperative, and d) Affected bin or compartment / closet is prominently placarded: DO NOT USE. NOTE: If no partitions are installed, the entire overhead storage compartment is considered one bin or compartment / closets.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
28. Overhead Storage Bin(s)/Cabin and Galley Storage Compartments/ Closets (Cont'd)				
	C	-	-	(M) (O) May be inoperative provided: a) Affected door(s) is removed, b) Affected bin or compartment / closet is not used for storage of any item(s) except for those permanently affixed, c) Affected bin or compartment / closet is prominently placarded: DO NOT USE, d) Procedures are established and used to alert crewmembers and passenger of inoperative bins or compartments / closet, and e) Passengers are briefed that affected bin or compartment / closet is not used. NOTE 1: If no partitions are installed, the entire overhead storage compartment is considered one bin or compartment / closet. NOTE 2: Any emergency equipment located in the affected bin or compartment / closet (permanently affixed) is available for use.
*** 1) Storage Compartment Key Locks	D	-	0	(M) May be inoperative in the unlocked position provided door(s) can be secured by other means.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
29. ***	Emergency Locator Transmitter (ELT)				
	1) Survival Type ELTs	D	-	-	Any in excess of those required by FAR 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 FAR may be inoperative provided system is deactivated.
		D	-	-	(M) Any in excess of those required by FAR may be inoperative or missing.
30.	Floatation Equipment (Crew and Passenger)	D	-	-	Any in excess of that required by FAR may be inoperative or missing.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
31. Flight Crew/Supernumerary Escape Devices				
1) Inertial Escape Reels	C	-	-	(M) May be inoperative or missing provided: a) The number of flight crewmembers plus supernumeraries is limited to the number of operative escape reels, and b) Inoperative escape reels are removed.
*** 2) Escape Harnesses	C	-	0	(M) May be inoperative or missing provided: a) The number of supernumeraries is limited to the number of operative escape reels / harnesses, and b) Inoperative escape harnesses are removed.
32. Cargo Loading System(s)	D	-	0	NOTE: Any portion of system(s) that operates normally may be used.

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25 EQUIPMENT/ FURNISHINGS				
33. *** Upper Deck Crew Rest Installation STC ST01174SE				
1) Smoke Detectors				
a) Common Area and/or Upper Bunk	C	2	1	
	C	2	0	(M) May be inoperative provided crew rest area is locked closed and placarded: DO NOT USE NOTE: This proviso is not intended to prohibit crew rest area inspections by crewmembers.
b) Lower Bunk	C	1	0	(M) May be inoperative provided crew rest area is locked closed and placarded: DO NOT USE. NOTE: This proviso is not intended to prohibit crew rest area inspections by crewmembers.
2) Smoke Evacuation Valve	C	1	0	(M) May be inoperative open provided: a) Valve is blocked closed, and b) Crew rest area is locked closed and placarded: DO NOT USE. NOTE: These provisos are not intended to prohibit crew rest area inspections by crewmembers.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
33. *** Upper Deck Crew Rest Installation STC ST01174SE (Cont'd)				
2) Smoke Evacuation Valve (Cont'd)	C	1	0	(M) May be inoperative closed provided crew rest area is locked closed and placarded: DO NOT USE. NOTE: This proviso is not intended to prohibit crew rest area inspections by crewmembers.
3) No Smoking/Fasten Seat Belt Sign	C	1	0	(O) May be inoperative provided alternate procedures are established and used.
	C	1	0	(M) May be inoperative provided crew rest area is locked closed and placarded: DO NOT USE. NOTE: This proviso is not intended to prohibit crew rest area inspections by crewmembers.
4) Lighted Exit Sign	C	1	0	(M) May be inoperative provided crew rest area is locked closed and placarded: DO NOT USE. NOTE: This proviso is not intended to prohibit crew rest area inspections by crewmembers.
5) PSUs (Oxygen Boxes)	C	-	0	(M) May be inoperative provided associated bunk(s) are placarded: DO NOT OCCUPY.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
100	Supertanker System (Left and Right) (STC ST01912LA)	D	2	1	(M) (O) One may be inoperative provided: a) Associated system is deactivated, and b) Associated agent tanks are verified empty.
		D	2	0	May be inoperative for non-tanker operation.
101	Tanker System Power Switches (Left and Right) (STC ST01912LA)	D	2	0	(M) (O) May be inoperative provided: a) Associated system is deactivated, and b) Associated agent tanks are verified empty.
102	Drop Valve Power Switches (Left and Right) (STC ST01912LA)	B	2	1	(M) (O) One switch may be inoperative provided procedures do not require its use.
		D	2	0	(M) (O) May be inoperative for non-tanker operation.
103	Drop Valve Arming Select Switches (Left and Right) (STC ST01912LA)	D	4	2	(M) (O) One switch per system may be inoperative provided procedures do not require its use.
		D	4	0	(M) (O) May be inoperative for non-tanker operation.
104	Drop Enable Switch (STC ST01912LA)	D	1	0	(M) (O) May be inoperative for non-tanker operation.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
105	Drop Time Preset Display (STC ST01912LA)	D	1	0	May be inoperative provided procedures do not require its use.
106	Pressure Regulating Valves (PRV) (Left and Right) (STC ST01912LA)	D	2	1	(M) (O) One may be inoperative provided: a) PRV valve is verified closed, and b) One drop valve must operate normally on operating system.
		D	2	0	(M) (O) May be inoperative provided procedures do not require its use.
107	Drop Valves (Left and Right) (STC ST01912LA)	B	4	2	(M) (O) One per side may be inoperative provided procedures do not require its use. NOTE: One valve per side must operate normally for tanker operation.
108	Tanker Pressure System (Left and Right) (STC ST01912LA)	D	2	0	(M) (O) May be inoperative provided procedures do not require its use.
109	Compressed Air Tanks (Left and Right) (STC ST01912LA)	D	8	0	(M) (O) May be inoperative provided procedures do not require its use.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25 EQUIPMENT/ FURNISHINGS				
110 Tanker System Pressure Indication (Left and Right) (STC ST01912LA)				
1) Regulator Set Pressure Indication (Left and Right) (STC ST01912LA)	D	2	1	(M) (O) May be inoperative provided procedures do not require its use. NOTE: Operate the associated system normally if either the digital or bar segment indicators operate normally.
2) Agent System Pressure Indication (Left and Right) (STC ST01912LA)	D	2	1	(M) (O) May be inoperative provided procedures do not require its use. NOTE: Operate the associated system normally if either the digital or bar segment indicators operate normally.
3) Air System Pressure Indication (Left and Right) (STC ST01912LA)	D	2	1	(O) May be inoperative provided system pressure can be verified by alternate means. NOTE: Operate the associated system normally if either the digital or bar segment indicators operate normally.
4) Regulator Pressure Preset (Left and Right) (STC ST01912LA)	D	2	1	(M) (O) 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 AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
111	Precharge Valves And Controls (Left and Right) (STC ST01912LA)	D	2	1	(M) (O) May be inoperative provided procedures do not require its use.
112	High Pressure Relief Valves (Left and Right) (STC ST01912LA)	D	2	1	(M) (O) One may be inoperative provided associated high pressure air system is deactivated. NOTE: If system has a high pressure air charge associated valve must operate normally.
		D	2	0	(M) (O) May be inoperative for non-tanker operation.
113	High Pressure Rupture Disks (Left and Right) (STC ST01912LA)	D	2	1	(M) (O) One may be inoperative provided associated high pressure air system is deactivated. NOTE: If system has a high pressure air charge associated valve must operate normally.
		D	2	0	(M) (O) May be inoperative for non-tanker operation.
114	Low Pressure Rupture Disks (Left and Right) (STC ST01912LA)	D	4	2	(M) (O) May be inoperative provided: a) Associated system is deactivated, and b) Associated agent tanks are verified empty.
		D	4	0	(M) (O) May be inoperative for non-tanker operation.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
115	Negative Pressure Relief Valves (Left and Right) (STC ST01912LA)	D	4	0	(M) (O) May be inoperative provided: a) Associated system is deactivated, and b) Associated agent tanks are verified empty.
116	Agent Storage Tanks (Left and Right) (STC ST01912LA)	D	10	5	(M) (O) Either system (Left or Right) may be inoperative provided: a) Associated system is deactivated, and b) Associated agent tanks are verified empty.
		D	10	0	(M) (O) May be inoperative for non-tanker operation.
117	Agent Tank Level Indication System (Left and Right) (STC ST01912LA)	D	10	0	(O) May be inoperative provided: a) Quantity is verified by an alternate means, and b) For Takeoff, landing and segmented drops, agent Quantity Must be considered full for performance calculations.
	1) Agent Tank Level Indicators (Left and Right) (STC ST01912LA)	D	20	0	(O) Both indicators for any one tank may be inoperative provided: a) Quantity is verified by an alternate means, and b) For Takeoff, landing and segmented drops, agent quantity must be considered full for performance calculations. NOTE: Operate the associated system normally if either the digital or bar segment indicators operate normally.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
118	High Pressure Fluid Relief Valves (Left and Right) (STC ST01912LA)	D	2	0	(M) (O) May be inoperative provided: a) All systems are deactivated, and b) All agent tanks are verified empty.
119	Tanker Leak Detection System (Left A and B) (Right A and B) (STC ST01912LA)	D	4	2	(M) (O) One system PER SIDE (A or B) may be inoperative.
		D	4	0	(M) (O) May be inoperative provided: a) All systems are deactivated, and b) All agent tanks are verified empty.
	1) Tanker Leak Detectors	D	8	4	(M) (O) One loop per system (A or B) on inboard or outboard side may be inoperative.
		D	8	0	(M) (O) May be inoperative provided all agent tanks are verified empty.
120	Tanker Emergency Dump System (Left and Right) (STC ST01912LA)	D	2	0	(M) (O) May be inoperative provided: a) Associated system(s) is deactivated and b) Associated agent tanks are verified empty.
121	ECADS Barrier System (STC ST01912LA)	D	1	0	(M) (O) May be inoperative provided: a) System is deactivated and b) ALL agent tanks are verified empty. NOTE: Must operate normally for tanker operation.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
25	EQUIPMENT/ FURNISHINGS				
122	ECADS Dump Valves (STC ST01912LA)	D	4	3	(O) One may be inoperative provided remaining valves are verified to operate normally before each departure.
		D	4	0	(M) (O) May be inoperative for non-tanker operations.
123	Timer Bypass Switch (NORM / BYPASS) (STC ST01912LA)	D	1	0	(O) NORM function may be inoperative provided BYPASS function operates normally.
		D	1	0	(O) BYPASS function may be Inoperative provided NORM function operates normally.
124	SAFEMON (STC ST01912LA)	A	1	0	(M) (O) May be inoperative provided: a) Flight Data Recorder (FDR) operates normally, and b) Must be repaired within 5 Sequential Tanker flights.
125	G-Meter (STC ST01912LA)	D	1	0	(O) May be inoperative provided SAFEMON operates normally.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
1. Engine Fire Detection System	C	8	4	(O) One loop per engine may be inoperative.
2. Nacelle Temperature Indication Systems				
1) JT9D Engines	C	8	0	
2) CF6-50E Engines	C	8	0	(M) May be inoperative provided there is no fuel nozzle pad burn-through repair on the associated engine.
3) RB211 Engines	C	8	0	
3. Fire Bottle Discharge Lights Engine, APU and Lower Cargo	C	-	0	May be inoperative provided squib test is used to verify squib integrity.
	C	-	-	May be inoperative for an inoperative APU, or lower cargo extinguisher system.
4. Engine & APU Fire Extinguisher Thermal Discharge Discs	C	-	0	(M) May be missing provided thermal discharge diaphragm integrity is verified by an accepted procedure.
	C	-	-	May be inoperative for an inoperative APU fire extinguisher system.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION					
5.	Portable Fire Extinguisher	D	-	-	(M) Any in excess of those required by FAR 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.
6.	Wheel Well Fire Detection System	C	1	0	(O) May be inoperative provided brakes are verified cool by monitoring brake temperature indicators before engine start.
		C	1	0	(M) (O) May be inoperative provided brakes are verified cool to the touch before engine start.
7.	APU Fire Detection System	C	2	1	(M) (O) One may be inoperative.
		C	2	0	(M) (O) May be inoperative provided: a) APU is not used, and b) APU fuel valve is deactivated closed.
	1) Flight Deck Test Feature	C	2	1	(M) (O) One may be inoperative.
		C	2	0	(M) (O) May be inoperative provided: a) APU is not used, and b) APU fuel valve is deactivated closed.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION					
8.	APU Fire Extinguisher	C	1	0	(M) May be inoperative provided: a) APU is not used, and b) APU fuel valve is deactivated closed.
9.	Forward Lower Cargo Compartment Smoke Detector(s) (Single or Dual Loop System, All Models)	C	-	1	(M) (O) All except one may be inoperative if the associated cargo compartment is to be loaded.
		C	-	0	(O) May be inoperative provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
	1) Flight Deck Test Feature	C	1	0	(M) May be inoperative provided an alternate procedure verifies system integrity.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
10. Aft Lower Cargo Compartment Smoke Detectors				
1) Single Loop System, SB 26-2070 Not Incorporated (All Except 747SP)				
a) Container Compartment Detectors	C	3	2	(M) (O) Any one detector may be inoperative for pressurized flight.
	C	3	2	(M) (O) One of the forward two detectors may be inoperative for unpressurized flight.
	C	3	2	(M) (O) Aft detector may be inoperative for unpressurized flight provided procedures are established and used to ensure Bulk compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
10. Aft Lower Cargo Compartment Smoke Detectors (Cont'd)				
1) Single Loop System, SB 26-2070 Not Incorporated (All Except 747SP) (Cont'd)				
a) Container Compartment Detectors (Cont'd)	C	3	1	(M) (O) The two forward detectors may be inoperative provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
10. Aft Lower Cargo Compartment Smoke Detectors (Cont'd)				
1) Single Loop System, SB 26-2070 Not Incorporated (All Except 747SP) (Cont'd)				
a) Container Compartment Detectors (Cont'd)	C	3	0	(O) May be inoperative provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
10. Aft Lower Cargo Compartment Smoke Detectors (Cont'd)				
1) Single Loop System, SB 26-2070 Not Incorporated (All Except 747SP) (Cont'd)				
b) Bulk Compartment Detector	C	1	0	(M) (O) May be inoperative provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
c) Flight Deck Test Feature	C	1	0	(M) May be inoperative provided an alternate procedure verifies system integrity.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
10. Aft Lower Cargo Compartment Smoke Detectors (Cont'd)				
2) Single Loop System, SB 26-2070 Incorporated				
a) Container Compartment Detectors	C	2	1	
	C	2	0	May be inoperative provided one bulk compartment detector operates normally.
	C	2	0	(O) May be inoperative provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
10. Aft Lower Cargo Compartment Smoke Detectors (Cont'd)				
2) Single Loop System, SB 26-2070 Incorporated (Cont'd)				
b) Bulk Compartment Detectors	C	2	1	
	C	2	0	May be inoperative provided one container compartment detector operates normally.
	C	2	0	(O) May be inoperative provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
c) Flight Deck Test Feature	C	1	0	(M) May be inoperative provided an alternate procedure verifies system integrity.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
10. Aft Lower Cargo Compartment Smoke Detectors (Cont'd)				
3) Dual Loop System				
a) Container Compartment Detectors	C	2	1	
	C	2	0	(O) May be inoperative provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
10. After Lower Cargo Compartment Smoke Detectors (Cont'd)				
3) Dual Loop System (Cont'd)				
b) Bulk Compartment Detectors	C	2	1	
	C	2	0	(O) May be inoperative provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
c) Flight Deck Test Feature	C	1	0	(M) May be inoperative provided an alternate procedure verifies system integrity.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
10. Aft Lower Cargo Compartment Smoke Detectors (Cont'd)				
4) 747SP	C	2	1	
	C	2	0	(O) May be inoperative provided procedures are established and used to ensure the associated cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
a) Flight Deck Test Feature	C	1	0	(M) May be inoperative provided an alternate procedure verifies system integrity.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26	FIRE PROTECTION				
11. ***	Main Deck Cargo Smoke Detector System (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	-	-	One detector per zone may be inoperative.
		C	-	0	(O) May be inoperative provided procedures are established and used to ensure the associated cargo zones remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
	1) Passenger Compartment Smoke Detection Annunciator Panels (Combi)	C	2	1	
12. ***	Main Deck Cargo Smoke Detector Flight Deck Test System (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	1	0	(M) May be inoperative provided: a) Smoke Detector system integrity is verified before each departure, and b) NO AIRFLOW indicating system operates normally

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION					
13. ***	Main Deck Cargo Smoke Detector NO AIRFLOW Indicating System (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	D	1	0	(M) May be inoperative provided: a) Smoke Detector system integrity is verified before each departure, and b) Main Deck Cargo Smoke Detector Flight Deck Test System operates normally.
14. ***	Lower Cargo Compartment Fire Extinguisher System	C	1	0	(O) May be inoperative provided procedures are established and used to ensure the lower cargo compartments remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
	1) Extinguisher Bottle No. 2, All Operations except Combi configurations with Main Deck Fire Extinguishing System installed	C	1	0	(M) (O) Extinguisher bottle No. 2 and associated indications may be inoperative (and lower cargo compartments used) provided: a) Airplane is pressurized, and b) Flight remains within 60 minutes of a suitable landing field.
	2) Cargo Configuration (Class “E” Cargo)	D	1	0	(O) May be inoperative and Class E operations conducted provided appropriate emergency procedures listed in the AFM are used.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26	FIRE PROTECTION				
15.	Engine Fire Detector Fault Indication	C	2	1	Either the Flight Engineer's FAULT light or the Pilot's FIRE DETECTION light may be inoperative.
16. ***	Surge Tank Flame Suppression (STP) System	D	2	0	
17. ***	Fire Extinguisher Squib Test Function (Engine, APU and Lower Cargo)	C	-	0	(M) Test function(s) may be inoperative provided it is verified that: a) Failure is in the light circuit only, and b) In the event of a fire, the bottle would discharge.
		C	-	0	Test function(s) may be inoperative for an inoperative APU and/or lower cargo fire extinguisher system.
18. ***	Lower Lobe Galley Fire Extinguisher System	C	1	0	(M) (O) May be inoperative provided: a) Electrical power to the galley remains OFF, and b) Galley is not used.
		C	1	0	(M) (O) May be inoperative, and galley used, provided: a) Power to the associated galley remains OFF when galley is not in use, b) A minimum of two portable fire extinguishers are available in each galley, and c) A full face smoke mask supplied by a portable oxygen bottle is available for one attendant in each galley.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26	FIRE PROTECTION				
19. ***	Lower Lobe Galley Fire Extinguisher Squib Test Function	C	1	0	(M) Test function may be inoperative provided it is verified that: a) Failure is in the light circuit only, and b) In the event of a fire, the bottle would discharge.
		C	1	0	Test function may be inoperative provided fire extinguisher system is not required to operate.
20. ***	Lower Lobe Galley Smoke Detectors (Two Per Galley)	C	-	-	Ceiling detector may be inoperative provided exhaust duct detector for associated galley operates normally.
		C	-	0	(O) May be inoperative (both ceiling and exhaust duct) provided associated galley(s) is monitored in flight by an accepted procedure.
21. ***	Lower Lobe Galley Portable Fire Extinguisher	D	-	-	Any in excess of those required by FAR may be inoperative. NOTE: At least two per galley are required if Lower Lobe Galley Fire Extinguisher System is not installed, or is not operating normally.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION					
22. Wing Leading Edge Overheat Warning System					
1) Single Loop System					
	a) Pylons	C	8	0	The two detectors in each pylon, if installed by SB 26-2006 (or production equivalent), may be inoperative.
	b) Wing Detectors	C	38	18	The ten detectors in each wing which can be removed by SB 26-2049 or production equivalent may be inoperative provided the remaining system operates normally.
2) Flight Deck Test Feature		C	1	0	(M) May be inoperative provided an alternate procedure verifies system integrity each flight day.
3) Dual Loop System					
	a) Loops	C	4	2	One loop in each wing may be inoperative provided the remaining loop(s) operates normally.
23. Master Fire Warning Light (Forward Glare Shield)		B	2	1	(M) One may be inoperative provided all remaining visual and aural fire warning devices operate normally.
24. *** Lower Cargo Compartment Smoke Detector NO AIRFLOW Light		C	1	0	(M) May be inoperative provided Smoke Detector system operation is verified before each departure.

SYSTEM & SEQUENCE NUMBERS	ITEM 1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
25. Lavatory Fire Extinguisher Systems	C	-	-	For each lavatory, the lavatory fire extinguisher system may be inoperative provided associated lavatory smoke detector system operates normally.
	C	-	-	(M) (O) For each lavatory, the lavatory fire extinguisher system may be inoperative provided: a) Lavatory waste receptacle is empty, b) Associated lavatory door is locked closed and placarded: INOPERATIVE – DO NOT ENTER, and c) Lavatory is used only by crewmembers. NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers.
	D	-	0	May be inoperative for flights conducted in a cargo configuration.
26. Fire Bell Reset Switch	B	3	2	(O) One may be inoperative provided remaining switches operate normally.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26	FIRE PROTECTION				
27.	Lavatory Smoke Detection Systems	C	-	-	(M) (O) For each lavatory, the lavatory smoke detection system may be inoperative provided: a) Lavatory waste receptacle is empty, b) Associated lavatory door is locked closed and placarded: INOPERATIVE – DO NOT ENTER, and c) Lavatory is used only by crewmembers. NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers.
		D	-	0	May be inoperative for flights conducted in a cargo configuration.
28. ***	Crew Rest Area Smoke Detection System	C	1	0	(M) (O) May be inoperative (including one or both smoke detectors) provided: a) Crew rest area remains empty, b) Crew rest area door is locked and placarded: INOPERATIVE – DO NOT ENTER, and c) Crew rest area is not used for any purpose. NOTE: These provisos are not intended to prohibit crew rest area inspections by crewmembers.

SYSTEM & SEQUENCE NUMBERS	ITEM 1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
29. Strut Overheat Warning Systems RB211 Engines				
1) Dual Loops	C	8	4	(O) One loop per engine may be inoperative.
2) Flight Deck Test Feature	C	1	0	(M) May be inoperative provided an alternate procedure verifies system integrity each flight day.
3) Overheat Detectors	C	-	8	Two overheat detectors added by SB 747-54-2121 or production equivalent may be inoperative.
30. *** Main Deck Cargo Compartment Fire Extinguisher System (Combi Airplanes)	C	1	0	(O) May be inoperative provided procedures are established and used to ensure the main deck cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
30. *** Main Deck Cargo Compartment Fire Extinguisher System (Combi Airplanes) (Cont'd)				
1) Main Deck Metered Halon Bottles	C	8	7	(M) (O) One may be inoperative with material carried in the main deck cargo compartment provided: a) Airplane is pressurized, b) Main Deck Halon Dump System and associated bottles #1 through #4 operate normally, c) Inoperative bottles and associated flex tubing and squib wiring are disconnected, capped, and d) Alternate procedures are established for the crew member assigned fire fighting responsibility to enter the cargo compartment, at the captain's direction, within 75 minutes, with proper equipment to extinguish any remaining fire. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
30. *** Main Deck Cargo Compartment Fire Extinguisher System (Combi Airplanes) (Cont'd)				
1) Main Deck Metered Halon Bottles (Cont'd)	A	8	5	(M) (O) Three may be inoperative with material carried in the main deck cargo compartment provided: a) Airplane is pressurized, b) Main Deck Halon Dump System and associated bottles #1 through #4 operate normally, c) Inoperative bottles and associated flex tubing and squib wiring are disconnected, capped, d) Alternate procedures are established for the crew member assigned fire fighting responsibility to enter the cargo compartment, at the captain's direction, within 60 minutes, with proper equipment to extinguish any remaining fire, and e) Repairs are made within three flight days. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE EXTINGUISHER				
30. Main Deck Cargo *** Compartment Fire Extinguisher System (Combi Airplanes) (Cont'd)				
2) Main Deck Cargo Squib Test Module	C	1	0	(O) May be inoperative provided procedures are established and used to ensure the main deck cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
	C	1	0	(M) (O) May be inoperative provided: a) It is verified that the failure is in the light circuit, and b) In the event of a fire, the bottle would discharge. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
26 FIRE PROTECTION				
30. *** Main Deck Cargo Compartment Fire Extinguisher System (Combi Airplanes) (Cont'd)				
3) Main Deck Cargo Bottle Discharge Module Lights (Located in the Aft Lower Cargo Compartment)	C	10	0	(O) May be inoperative provided procedures are established and used to ensure the main deck cargo compartment remains empty or is verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits. NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
	C	10	0	(M) (O) May be inoperative provided: a) Squib Test is used to verify squib integrity, and b) Procedure is used to verify that associated bottle is full.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
27 FLIGHT CONTROLS				
1. Control Surface Position Indicating System	C	1	0	(O) May be inoperative provided visual inspection of associated surface verifies proper movement before each departure.
2. Leading Edge Flap Position Light Systems				
1) LE FLAPS	C	2	1	(M) (O) Green light may be inoperative provided: a) Flap position module at the Flight Engineer panel operates normally, and b) Leading edge flaps module operation to position “0”, “1”, or “5” is monitored by observing operative lights.
2) Leading Edge Flap Lights (F/E Panel)	C	16	8	(O) One amber or green light for each indicating segment on the flap position module may be inoperative provided: a) Both LE FLAPS position lights on the pilots’ center panel operate normally, and b) Leading edge flaps module operation to position “0”, “1”, or “5” is monitored by observing operative lights.
3. Takeoff Warning Horn System				Deleted, Rev. 20.
4. Hydraulic Power VALVE CLOSED Lights	C	8	6	(M) One per axis may be inoperative provided the associated valve position is verified open before each departure.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
27 FLIGHT CONTROLS					
5.	Hydraulic Power Valves	C	8	0	(M) May be inoperative open.
6.	Stabilizer BRAKE REL Lights	C	2	0	
7.	Lateral Trim System	C	1	0	(M) May be inoperative provided: a) One autopilot operates normally, and b) Lateral trim system is centered.
8.	Stall Warning System(s)				
	1) Airplanes with Engines Other Than JT9D-7R4G2	C	2	1	(M) May be inoperative provided system is deactivated.
		B	-	0	(M) (O) May be inoperative provided training in stall recognition and recovery has been conducted with the stall warning system deactivated.
	2) Airplanes with JT9D-7R4G2 Engines	C	2	1	(M) May be inoperative provided system is deactivated.
		B	-	0	(M) (O) May be inoperative provided: a) Training in stall recognition and recovery has been conducted with the stall warning system deactivated, and b) Thrust setting of 1.62 EPR is not exceeded.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
27 FLIGHT CONTROLS				
9. Auto Spoilers System ***	C	1	0	(M) (O) May be inoperative provided it is deactivated. NOTE: If landing performance requires use of auto spoilers, see AFM for performance adjustments.
10. Flap Load Relief (Automatic Flap Retraction) System	C	1	0	(M) May be inoperative or deactivated in the fully extended position provided the following weight restrictions are applied:
1) All except 747SP, Single or Two-Stage Retractor, or Modulated Retractor	C	1	0	Flaps 30 retractor may be inoperative provided flaps 30 not used above in-flight gross weight 480,000 lb. (218,000 kg).
2) Two-Stage Retractor, or Modulated Retractor	C	1	0	Flaps 25 retractor may be inoperative provided flaps 25 not used above in-flight gross weight of 585,000 lb. (265,350 kg).
3) 747SP Only	C	1	0	Flaps retractor may be inoperative provided flaps 30 not used above in-flight gross weight of 450,000 lb. (204,000 kg).
11. FLAP LD RELIEF Light ***	C	1	0	(M) May be inoperative provided it is verified that the malfunction is in the light circuit, and that the automatic flap retraction system otherwise operates normally.
	C	1	0	May be inoperative for an inoperative automatic flap retraction system.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
27 FLIGHT CONTROLS				
12. *** Over-rotation Warning System				
1) 747-100/200/300 except those powered by JT9D-7/7A/7F/7J Engines	D	1	0	
2) 747-100/200/300 powered by JT9D-7/7A/7F/7J Engines	D	1	0	(O) May be inoperative except for operations that require use of the AFM Alternate Forward C.G. Takeoff Performance Appendix.
3) 747SP	C	1	0	(O) May be inoperative provided the following performance adjustments are made: a) Reduce AFM takeoff field length limited gross weight and obstacle clearance limited gross weight by 28,000 lb. (12,700 kg), b) Reduce AFM tire speed limited gross weight by 46,000 lb. (20,865 kg), c) Increase AFM normal takeoff speeds (for actual takeoff weight) by: V1------7 KIAS VR----10 KIAS V2------9 KIAS d) If V1 exceeds VMBE, reduce takeoff weight 1,500 lb. (680 kg) per knot of excess, and e) Use normal flap retraction speeds (without 9 KIAS V2 increase).

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
27 FLIGHT CONTROLS					
13. Rudder Ratio System					Deleted, Rev. 27.
14. 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 in flight.
15. Reverser Actuated *** Leading Edge Flaps Retraction System					
	1) With Turbine Reversers Installed	C	1	0	(M) (O) May be inoperative provided: a) Normal operation of leading edge flaps is not affected, and b) Leading edge flaps and adjacent wing skin panels are visually inspected for heat damage after each use of reverse thrust.
	2) With Turbine Reversers de-activated by SB JT9D-747-78-2053, or SB CF6-747-78-2067, or system is not installed	C	1	0	May be inoperative provided normal operation of leading edge flaps is not affected.
16. Stabilizer Motion Mechanical Sound System		C	1	0	Sound level may be degraded provided stabilizer brake release lights operate normally.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
27 FLIGHT CONTROLS				
17. Leading Edge Flap Drives (Electric)	C	8	7	(M) One may be inoperative provided all pneumatic drives operate normally.
18. Leading Edge Flap Drives (Pneumatic)	B	8	7	(M) (O) One may be inoperative provided: a) Drive is deactivated in accordance with an accepted procedure, b) All electric drives operate normally, c) Takeoff obstacle clearance is not dependent upon retraction of flaps from takeoff position, and d) For airplanes with any turbine reversers active, leading edge flaps and adjacent wing skin panels are visually inspected for heat damage after each use of reverse thrust. NOTE: A maximum of one drive unit on each side may fail to reach fully extended position provided normal indications can be achieved within five seconds when using alternate system.
19. *** Rudder Pedal Actuated Body Gear Steering Cutout System	C	1	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
27	FLIGHT CONTROLS				
20.	Elevator Feel Light	C	1	0	(M) May be inoperative provided an accepted procedure is used to verify that both elevator feel systems operate normally before each departure.
21.	Control Wheel Trim Switch System	B	2	1	Copilots may be inoperative provided stabilizer trim system (including pilot's control wheel trim switch) operates normally.
22. ***	Multiple Position Greenband System				
	1) Amber Lights	C	2	1	One of the two amber lights may be inoperative.
		C	2	0	Amber lights may be inoperative provided greenband selection and stabilizer trim setting are verified to be properly set for the existing gross weight and center of gravity location.
	2) Greenband Indicator Lights (Stabilizer Trim Scale Greenband Indicators)	C	2	0	
	3) Greenband Aural Warning Feature	C	1	0	May be inoperative for two greenbands not in use provided that under these conditions the aural warning feature, and at least one amber light operate normally for the greenband appropriate to the existing gross weight and center of gravity location.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
27 FLIGHT CONTROLS				
23. Elevator Trim Indicator ***	D	1	0	
24. Trailing Edge Flap Position Indicators (747SP ONLY)	C	2	1	Position “Up”, “1”, and “5” may be inoperative provided the Leading Edge Flap position lights operate normally at both pilots’ and flight engineer’s panels. NOTE: Stall Warning System may be inoperative.
25. Stabilizer Trim Standby *** Power System	C	1	0	
26. Horizontal Stabilizer Trim Systems (Electronic Trim Function)	C	2	1	(M) One may be inoperative provided: a) Horizontal Stabilizer Trim is verified to operate normally through use of manual trim levers, and b) No arm or control solenoid valves are failed in the energized position.
27. M-14 Flaps Asymmetry *** Detector System (All Except 747SP)	C	1	0	(M) May be inoperative provided: a) Inboard flap position indicator operates normally, and b) M-14 asymmetry detector is disconnected.
28. Outboard Aileron Lockout Systems	C	2	0	(M) May be inoperative unlocked provided airspeed is limited to 270 KIAS/.73 Mach, whichever is lower.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
27 FLIGHT CONTROLS				
29. Trailing Edge Flap Drive System				
1) No-Coast Drag Brake	A	1	0	(M) (O) 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) ALT FLAPS Trailing Edge Arm Switch remains OFF during ground operations in the terminal area, and c) Repairs are made within three flight days.
30. Flap Lever Frangible *** Gate (Witness Wire)	A	1	0	(M) (O) May be inoperative (gate not lock wired in stowed position) provided: a) The proper replacement lock wire not available and cannot be installed at the current airport. b) Use of Flaps 30 for landing is prohibited except on an emergency situation, and c) Repairs are made within one flight day.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28	FUEL				
1.	Main Tank Boost Pumps	C	8	7	(M) (O) One may be inoperative provided operations are conducted in compliance with AFM.
2.	Center Tank Override Jettison Pumps	C	2	1	(M) (O) One may be inoperative provided operations are conducted in compliance with AFM.
		C	2	0	May be inoperative provided Center Tank fuel is carried in lieu of payload.
		C	2	0	May be inoperative provided tank is not fueled.
3.	Fuel Pressure Warning Lights	C	-	-	(O) May be inoperative provided associated pump is not operated.
		C	-	-	(M) (O) May be inoperative provided associated pump is deactivated.
		C	-	-	May be inoperative provided associated tank is not fueled.
		B	-	-	(M) One light per tank may be inoperative provided it is verified that the associated pump operates normally.
		B	-	0	May be inoperative provided associated fuel pressure indicator operates normally.
	1) Fuel Mismanagement Alert (Flashing Function)	C	1	0	
4. ***	Fuel Pressure Indicators	D	-	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
5. Fuel Crossfeed Valves	C	4	3	(M) (O) One may be inoperative deactivated open provided: a) All main tank quantity indicators operate normally, b) For takeoff with outboard engines feeding from the center tank, inboard crossfeed valves operate normally, and c) Operations are conducted in accordance with AFM limitations.
6. Fuel CROSSFEED VALVE Lights	C	4	3	One may be inoperative provided associated crossfeed valve operates normally.
	C	4	3	One may be inoperative provided associated crossfeed valve is inoperative.
7. Engine Fuel Shutoff Valve Transit/Position Lights	C	4	3	(M) One may be inoperative provided proper valve operation is verified before each departure.
8. Reserve Fuel Transfer Valves	C	-	0	(M) (O) May be inoperative provided: a) AFM procedures for fuel loading and management are complied with, and b) Fuel in reserve tanks is considered unusable and unjettisonable.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
9. Fuel RES VALVE Lights	C	-	0	(M) (O) May be inoperative provided: a) Valve(s) are verified to operate normally, and b) Either the associated main tank or reserve tank quantity indicator operates normally.
	C	-	0	(M) (O) May be inoperative provided associated reserve fuel transfer valve(s) is considered inoperative.
	C	-	0	(M) (O) May be inoperative provided reserve tank fuel is not used.
10. Total Fuel Quantity/Gross Weight Indicators	C	-	0	
11. Main Tank Fuel Quantity Indicating Systems (F/E Panel)	C	4	3	(M) (O) One may be inoperative provided: a) Fuel Flow Meter or Fuel Used Indicator for each engine operates normally, b) All boost pumps for the associated tank operate normally, c) Tank is emptied and serviced with a known quantity of fuel or measuring stick readings are taken to verify fuel quantity in associated tank after each refueling, and d) For associated indicator in tank 2 or 3, the following must apply: SB 28-2042 or production equivalent must be incorporated. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
11. Main Tank Fuel Quantity Indicating Systems (F/E Panel) (Cont'd)	C	4	3	(M) (O) One may be inoperative provided: a) Fuel Flow Meter or Fuel Used Indicator for each engine operates normally, b) All boost pumps for the associated tank operate normally, c) Tank is emptied and serviced with a known quantity of fuel or measuring stick readings are taken to verify fuel quantity in associated tank after each refueling, and d) For associated indicator in tank 2 or 3, the following must apply: Fuel is loaded so that quantity in each outboard main plus reserve tank equals the fuel in each inboard main tank. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
11. Main Tank Fuel Quantity Indicating Systems (F/E Panel) (Cont'd)	C	4	3	(M) (O) One may be inoperative provided: a) Fuel Flow Meter or Fuel Used Indicator for each engine operates normally, b) All boost pumps for the associated tank operate normally, c) Tank is emptied and serviced with a known quantity of fuel or measuring stick readings are taken to verify fuel quantity in associated tank after each refueling, and d) For associated indicator in tank 2 or 3, the following must apply: Each Fuel Used Indicator must be operating normally with a continuous fuel record maintained, so that at any given time the fuel remaining in the associated tank can be accurately verified.
1) Smiths Digital Fuel Indicator Fuel Configuration Light				Moved to ATA 28-38, Rev. 24.
12. Center Tank Fuel Quantity Indicating System (F/E Panel)	C	1	0	May be inoperative provided tank remains empty.
	C	1	0	(M) (O)May be inoperative provided: a) All fuel used indicators operate normally, b) All main tank fuel quantity indicators operate normally, and c) Center wing tank fuel quantity is verified by an acceptable procedure.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
13. Reserve Tank Fuel Quantity Indicating System (F/E Panel)	C	-	0	(M) (O) May be inoperative provided reserve tank fuel is not required.
	C	-	0	(M) (O) May be inoperative provided: a) Associated reserve tank quantity is verified by an acceptable procedure, and b) Either the associated main tank quantity indicator operates normally or the associated reserve tank transfer valve light operates normally.
14. Fueling Bay Quantity Indicating System	C	1	0	(M) May be inoperative provided fuel is loaded using an alternate procedure.
15. Measuring Sticks	C	15	0	(M) May be inoperative provided fuel quantity is verified by an alternate procedure.
16. APU Fuel Valve	C	1	0	(M) May be inoperative closed.
17. APU FUEL VALVE Light	C	1	0	(M) (O) May be inoperative (and APU used) provided the APU fuel valve is verified closed before departure.
18. APU Fuel (DC) Pump	C	1	0	(M)May be inoperative provided the pump is deactivated. NOTE: Boost pump may be used to supply fuel to APU.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
19. APU DC PUMP ON Light	C	1	0	
20. Pressure Fueling System	C	1	0	(M) May be inoperative provided: a) Alternate refueling procedures are established and used, and b) All refueling valves are closed. NOTE: Any function of the Pressure Fueling System that operates normally may be used.
1) Volumetric Shutoff	C	1	0	(M) (O) May be inoperative provided: a) Fuel quantity indicators on refueling panel operate normally, and b) Indicators are monitored during refueling.
	C	1	0	(M) (O) May be inoperative provided: a) Fuel quantity indicators on Flight Engineer's panel operate normally, b) Communications procedures are established between the flight deck and the person refueling, and c) Fuel quantity is monitored from the flight deck during refueling.
	A	1	0	(M) (O) May be inoperative provided: a) An alternate means to determine fuel quantity during the refueling process is used, and b) Operations are limited to not more than three flight days before repairs are made.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
20. Pressure Fueling System (Cont'd)				
2) Main Tank 1 and 4 Refueling Valves	C	2	0	(M) May be inoperative open provided: a) Takeoff weight is limited to the maximum zero fuel weight (See AFM), and b) Fuel Jettison system is considered inoperative.
3) Main Tank 2 and 3 Refueling Valves	C	4	0	(M) May be inoperative open provided: a) Fuel Jettison system is considered inoperative, and b) For 747SP, takeoff weight is limited to 657,000 lb. (298,000 kg).
4) Center Tank Refueling Valves	C	2	0	(M) May be inoperative open provided Fuel Jettison system is considered inoperative.
5) Reserve Tank 1 and 4 Refueling Valves	C	2	0	(M) May be inoperative open provided: a) Takeoff weight is limited to the maximum fuel transfer weight (See AFM), and b) Fuel Jettison system is considered inoperative
6) Reserve Tank 2 and 3 Refueling Valves	C	2	0	(M) May be inoperative open provided: a) Fuel Jettison system is considered inoperative, and b) For 747SP, takeoff weight is limited to 657,000 lb. (298,000kg).
*** 7) Preselect Feature (Simmonds Precision Products, Inc. STC No. ST20BO)	C	-	0	

SYSTEM & SEQUENCE NUMBERS	ITEM 1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
21. Jettison System	C	1	0	(M) (O) May be inoperative provided: a) Airplane performance requirements (including Approach Climb and Landing Climb capability) are met, b) Jettison nozzle valves remain closed, and c) No. 1 and No. 4 main tank jettison transfer valves remain closed.
1) Center Wing Jettison Valves	C	2	0	May be inoperative open provided: a) Both jettison nozzle valves operate normally and are closed, and b) All refueling valves operate normally.
	C	2	0	May be inoperative closed provided: a) Center tank fuel is considered as payload, and b) All boost pumps in main tanks 2 and 3 operate normally.
2) No. 1 and/or No. 4 Main Tank Jettison Transfer Valves	C	2	0	May be inoperative closed provided fuel required to be jettisoned does not deplete inboard main tank below the quantity in the outboard main tanks plus the quantity in the outboard main tanks plus the quantity in No. 1 and No. 4 reserve tanks
22. Fuel Scavenge Pump	C	1	0	(M) (O) May be inoperative provided the first 3000 lb. (1360 kg) of center tank fuel is considered as payload and unusable.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
23. Fuel Scavenge Pump Low Pressure Light	C	1	0	(O) May be inoperative provided alternate procedures are established to verify fuel depletion.
24. Fuel Temperature Indicating System (Main Tank No. 1)	C	1	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.
25. Manually Operated Defuel Valve Systems	C	2	0	(M) May be inoperative secured closed.
26. Jettison Pumps Low Pressure Warning Lights	C	4	2	(M) One may be inoperative in each tank provided associated jettison pumps operate normally.
	C	4	0	May be inoperative provided Jettison System is inoperative.
27. *** Reserve Tank 2 and 3 Float Switches	C	2	1	(O) One float switch may be inoperative in either reserve tank 2 or 3, and that tank used provided: a) Fuel quantity indicators for both reserve tanks 2 and 3, and main tanks 2 and 3 operate normally, b) Reserve Fuel VMO Selector System operates normally, and its lower speed limit is observed until reserve tanks 2 and 3 are emptied, and c) After reserve fuel is drained in flight, reserve tank transfer valves remain open until landing. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
27. Reserve Tank 2 and 3 *** Float Switches (Cont'd)	C	2	0	(M) (O) Float Switches may be inoperative provided: a) Reserve tanks 2 and 3 are verified empty (sump drained) after airplane refueling, and b) Reserve tanks 2 and 3 transfer valves remain open for the duration of the flight. NOTE: Refer to Chapter 34 "Mach/Airspeed Warning System."
	C	2	0	(M) (O) Float switches may be inoperative (and reserve tanks 2 and 3 used) provided: a) Fuel quantity indicators for both reserve tanks 2 and 3, and main tanks 2 and 3 operate normally, b) After reserve fuel is drained in flight, reserve tank transfer valves remain open until landing, c) Time delay module M2030 or M2031 is modified by an accepted procedure, and d) Flight deck AUX FUEL MACH A/S WARN test switch activates the mach/airspeed aural warning.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28	FUEL				
28.	Fuel Sump Drain Valves				
	1) Without Water Scavenge (Ejector) Pump Systems Installed	A	-	-	(M) One may be inoperative provided: a) There is no evidence of leakage, b) Refueling service equipment is checked for moisture accumulation before and after each fuel service, and c) Valve is repaired or replaced within 25 flight hours.
	2) With Water Scavenge (Ejector) Pump Systems Installed	C	-	0	(M) May be inoperative provided: a) There is no evidence of leakage, and b) Alternate procedures are established and used to prevent water accumulation in associated tank.
29. ***	Center Auxiliary Tank Fuel Quantity Indicating System	D	1	0	May be inoperative provided center auxiliary tank remains empty.
		C	1	0	(M) (O) May be inoperative provided the tank is serviced with a known quantity of fuel by an accepted procedure.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28	FUEL				
30. ***	Center Auxiliary Tank Transfer Pumps	D	2	0	May be inoperative provided center auxiliary tank remains empty.
		C	2	1	One may be inoperative provided: a) Fuel quantity in remaining tanks is adequate to reach an alternate destination if the remaining pump fails at any time, and b) Fuel in tank is included as part of the maximum zero fuel weight.
31. ***	Center Auxiliary Tank Isolation Valve	D	1	0	May be inoperative closed provided center auxiliary tank remains empty.
32. ***	Center Auxiliary Tank Isolation Valve Light	D	1	0	May be inoperative provided center auxiliary tank remains empty.
		C	1	0	(M) (O) May be inoperative provided isolation valve operation is verified manually.
33. ***	Center Auxiliary Tank Transfer Shutoff Valve	D	1	0	May be inoperative provided center auxiliary tank remains empty.
34. ***	Center Auxiliary Tank Transfer Shutoff Valve Closed Light	D	1	0	May be inoperative provided center auxiliary tank remains empty.
35. ***	Center Auxiliary Tank Transfer Shutoff Valve Test System	D	1	0	May be inoperative provided center auxiliary tank remains empty.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
36. Center Tank Left Fueling Valve	C	1	0	May be inoperative closed provided center auxiliary tank remains empty.
37. Center Tank Left Fueling Valve Light (F/E Panel)	C	1	0	May be inoperative provided center auxiliary tank remains empty.
38. *** Fuel Configuration Light	C	1	0	
39. Fuel Receptacle Cap	C	4	0	May be inoperative or missing provided no leakage can be detected after refueling is complete.
40. *** Simmonds Digital Fuel Quantity Indicating System ACC.5 ERROR CODE STC No. ST20BO	D	-	0	NOTE: Fuel quantity is still considered operative with an Acc.5 error code displayed on fuel quantity indicator(s). ACC.5 displayed indicates that the accuracy of the tank quantity is reduced but still within system limits.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
28 FUEL				
41. Fuel Quantity Test Switches				
*** 1) Digital System	C	-	0	
*** 2) Analog System				
a) Flight Deck	C	1	0	(M) May be inoperative provided associated fuel quantity indicators are verified to operate normally once each flight day.
b) Fueling Panel	C	-	0	(M) May be inoperative provided fuel quantity is verified by an acceptable procedure.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
1. Engine Driven Hydraulic Pump Systems	B	4	3	(M) (O) One may be inoperative (including the pump and/or associated plumbing) provided: a) All ADP's operate normally, b) ADP for associated hydraulic system operates in CONTINUOUS for takeoff and landing, c) At least one air conditioning pack is OFF for takeoff, with airplane performance based upon the assumption that the pack is operating normally, d) DC bus remains paralleled at all times, and e) Failed pump is removed and an appropriate cover plate installed.
	B	4	3	(M) (O) One may be inoperative (including the pump and/or associated plumbing) provided: a) All ADP's operate normally, b) ADP for associated hydraulic system operates in CONTINUOUS for takeoff and landing, c) At least one air conditioning pack is OFF for takeoff, with airplane performance based upon the assumption that the pack is operating normally, (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
1. Engine Driven Hydraulic Pump Systems (Cont'd)				d) AC and DC busses may be isolated (and triple-channel approaches conducted) provided: 1) Generators 3 and 4, and TRs No. 3 and Essential operate normally, and 2) SB 29-2031 has been incorporated, and e) Failed pump is removed and an appropriate cover plate installed.
	B	4	3	(M) (O) One may be inoperative (including the pump and/or associated plumbing) provided: a) All ADP's operate normally, b) ADP for associated hydraulic system operates in CONTINUOUS for takeoff and landing, c) At least one air conditioning pack is OFF for takeoff, with airplane performance based upon the assumption that the pack is operating normally, d) DC bus remains paralleled at all times, and e) When the pump case does not leak, the pump is removed, the drive shaft is removed from the pump, lines capped, and the pump reinstalled, using an appropriate gasket. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
1. Engine Driven Hydraulic Pump Systems (Cont'd)	B	4	3	(M) (O) One may be inoperative (including the pump and/or associated plumbing) provided: a) All ADP's operate normally, b) ADP for associated hydraulic system operates in CONTINUOUS for takeoff and landing, c) At least one air conditioning pack is OFF for takeoff, with airplane performance based upon the assumption that the pack is operating normally, d) AC and DC busses may be isolated (and triple-channel approaches conducted) provided: 1) Generators 3 and 4, and TRs No. 3 and Essential operate normally, and 2) SB 29-2031 has been incorporated, and e) When the pump case does not leak, the pump is removed, the drive shaft is removed from the pump, lines capped, and the pump reinstalled, using an appropriate gasket. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
1. Engine Driven Hydraulic Pump Systems (Cont'd)	B	4	3	(M) (O) One may be inoperative (including the pump and/or associated plumping) provided: a) All ADP's operate normally, b) ADP for associated hydraulic system operates in CONTINUOUS for takeoff and landing, c) At least one air conditioning pack is OFF for takeoff, with airplane performance based upon the assumption that the pack is operating normally, d) DC bus remains paralleled at all times, and e) If the pump has not failed but an engine driven hydraulic pump shutoff valve is inoperative closed, the associated pump is removed, and an acceptable cover plate is installed. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
1. Engine Driven Hydraulic Pump Systems (Cont'd)	B	4	3	(M) (O) One may be inoperative (including the pump and/or associated plumbing) provided: a) All ADP's operate normally, b) ADP for associated hydraulic system operates in CONTINUOUS for takeoff and landing, c) At least one air conditioning pack is OFF for takeoff, with airplane performance based upon the assumption that the pack is operating normally, d) AC and DC busses may be isolated (and triple-channel approaches conducted) provided: 1) Generators 3 and 4, and TRs No. 3 and Essential operate normally, and 2) SB 29-2031 has been incorporated, and e) If the pump has not failed but an engine driven hydraulic pump shutoff valve is inoperative closed, the associated pump is removed, and an acceptable cover plate is installed. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
1. Engine Driven Hydraulic Pump Systems (Cont'd)	B	4	3	(O) One may be inoperative (including the pump and/or associated plumping) provided: a) All ADP's operate normally, b) ADP for associated hydraulic system operates in CONTINUOUS for takeoff and landing, c) At least one air conditioning pack is OFF for takeoff, with airplane performance based upon the assumption that the pack is operating normally, d) DC bus remains paralleled at all times, and e) An installed pump is inoperative in the depressurized mode with the fluid supply, pump case return and associated plumbing functioning normally. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
1. Engine Driven Hydraulic Pump Systems (Cont'd)	B	4	3	(O) One may be inoperative (including pump and/or associated plumbing) provided: a) All ADP's operate normally, b) ADP for associated hydraulic system operates in CONTINUOUS for takeoff and landing, c) At least one air conditioning pack is OFF for takeoff, with airplane performance based upon the assumption that the pack is operating normally, d) AC and DC busses may be isolated (and triple-channel approaches conducted) provided: 1) Generators 3 and 4, and TRs No. 3 and Essential operate normally, and 2) SB 29-2031 has been incorporated, and e) An installed pump is inoperative in the depressurized mode with the fluid supply, pump case return and associated plumbing functioning normally.
1) Depressurization Function	C	4	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
2. Air Driven Pumps (ADP)	C	4	3	(M) Either No. 2 or No. 3 pump (including the pump and/or associated plumbing) may be inoperative provided the pump is deactivated.
	C	4	3	(M) (O) Either No. 1 or No. 4 pump (including the pump and/or associated plumbing) may be inoperative provided: a) Pump is deactivated, b) Takeoff performance is in accordance with the AFM appendix for landing gear extended, c) Takeoff obstacle clearance is dependent upon flaps remaining in the takeoff position, d) For operation at JT9D-7F Wet, JT9D-7J or CF6-45/45A thrust ratings, takeoff performance is based upon Vmcg increase of 5 KIAS, and e) For CF6-50/-50E/-50E-1/-50E-2/-80C2 and JT9D-70A/-7Q/-7R4G2 and RB211-524B2/C2/D4 or D4X thrust ratings, takeoff performance is based upon Vmcg increase of 9 KIAS.
3. AC Hydraulic Pump Systems	C	-	0	(M) (O) May be inoperative (including the pump and/or associated plumping) provided pump and/or associated plumbing is deactivated.
	C	-	0	(M) (O) Pump(s) may be inoperative provided pump switch(es) remains OFF.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
4. ADP Auto Controls	C	2	0	(O) No. 2 and/or No. 3 may be inoperative provided OFF position operates normally.
	C	2	0	(O) No. 1 and/or No. 4 may be inoperative provided: a) Associated pump operates continuously during takeoff and landing, b) One air conditioning pack remains OFF for takeoff and landing, with performance based on the assumption that the pack is operating, and c) OFF position operates normally.
	C	4	3	One may be inoperative provided associated ADP is inoperative.
5. ADP Continuous Run Controls	C	4	2	Two may be inoperative provided: a) AUTO and OFF functions of associated ADP operate normally, and b) Associated EDP operates normally.
	C	4	3	One may be inoperative provided associated ADP is inoperative.
*** 1) Flaps Actuated Control for ADPs 2, 3, and 4	C	3	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
6. ADP Run Lights	C	4	3	One may be inoperative provided associated system pressure indicator operates normally.
	C	4	0	May be inoperative provided: a) Associated system pressure indicator operates normally, and b) Associated ADP and EDP low pressure lights operate normally.
	C	4	3	One may be inoperative provided associated ADP is inoperative.
7. Pump Low Pressure Lights	C	8	4	(M)(O) Four may be inoperative provided: a) Associated system pressure indicators operate normally, b) Associated ADP run light operates normally, c) No two lights are in the same hydraulic system, d) Normal operation of associated pump is verified before departure, and e) For all airplanes equipped with auto spoilers, if light(s) are in hydraulic system 1 or 4, and the associated hydraulic system subsequently fails in flight, verify that auto speedbrake c/b is opened.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29	HYDRAULIC POWER				
8.	Hydraulic System Low Pressure Lights (Pilots' Panel)	C	4	2	(O) Two may be inoperative provided, for all airplanes equipped with auto spoilers, if light(s) are in hydraulic system 1 or 4, and the associated hydraulic system subsequently fails, verify that auto speedbrake c/b is opened.
		C	4	0	(O) May be inoperative provided; a) Associated ADP and EDP pressure lights on the flight engineer's panel operate normally, and b) For all airplanes equipped with auto spoilers, if lights are in hydraulic system 1 or 4, and the associated hydraulic system subsequently fails, verify that auto speedbrake c/b is opened.
9.	System Pressure Indicators	C	4	3	One indicator may be inoperative provided associated low pressure warning lights operate normally.
10.	Systems Overheat Lights and / or Temperature Indicator	C	4	0	
***	1) Temperature Indicator	D	4	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
11. Flight Deck Hydraulic Brake Pressure Indicator	C	1	0	(M) (O) May be inoperative provided: a) Hydraulic system 1 and 4 pressure indicators operate normally, b) Pilot's Brake Source Low Pressure Light is checked before each departure, and c) Brake accumulator air charge is normal (checked on wheel well indicator).
12. Brake Source Low Pressure Hydraulic Light (F/E Panel)	C	1	0	(M) (O) May be inoperative provided: a) Systems 1 and 4 pressure indicators operate normally, and b) Pilot's Brake Source Low Pressure Light is checked before each departure.
13. Brake Accumulator(s)	A	-	0	(M) (O) May be inoperative provided: a) Before each departure, brake pressure can be maintained at a minimum of 2,500 PSI for at least five minutes after pressure source is removed, b) Required AFM takeoff distance and landing field length is increased by 230 feet, and c) Repairs are made within 25 flight hours.
14. Brake Accumulator Pressure Indicator (In Wheel Well)	D	1	0	May be inoperative provided associated flight deck indicator operates normally.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
29 HYDRAULIC POWER				
15. Hydraulic Quantity Indicators (F/E Panel)	C	4	2	(M) Two may be inoperative provided: a) Associated system pressure indicator and pump low pressure lights operate normally, and b) Reservoir level is checked before each departure.
16. Hydraulic Low Quantity Lights (F/E Panel)	C	4	2	
17. Reservoir Servicing Indicator	D	1	0	
18. Reservoir Low *** Pressure Lights	D	4	0	

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
1. Nacelle Anti-Ice Valves				
1) JT9D Engines	C	4	3	(M) (O) One may be inoperative closed provided the airplane is not operated in known or forecast icing conditions.
	C	4	3	(M) (O) One may be inoperative in the intermediate open position provided: a) Associated NAC TAI VALVE light is deactivated, b) Maximum ambient temperature at takeoff and landing fields is 90 degrees F (32 degrees C), c) On the four engines, no more than two different EPR settings may be used for takeoff, d) Associated high stage bleed valve and light operate normally, and e) On the remaining three engines, all nacelle anti-ice valves operate normally. NOTE: When operating in icing conditions between 16,000 ft. MSL and FL 230, maintain a minimum of 60% N1 on the associated engine. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30	ICE AND RAIN PROTECTION			
1.	Nacelle Anti-Ice Valves (Cont'd)			
1)	JT9D Engines (Cont'd)			f) EPR limits and performance limited gross weights are reduced as follows: Above 50 degrees F (10 degrees C): (Values in brackets are in kg)

	T/O Wt Field Length Limit	T/O & Final Climb	Appr. Landing Climb	Enrt Climb All Temp
	-----	-----	-----	-----
	EPR	EPR	EPR	EPR
a) -3A/-7, -7A/-7F, -7J Engines	6,000 lb	17,000 lb	13,000 lb	34,000 lb
	(2,722)	(7,711)	(5,897)	(15,422)
	.02	.02	.02	.02
b) -70A Engines	10,000 lb	34,000 lb	21,000 lb	52,000 lb
	(4,536)	(15,422)	(9,526)	(23,587)
	.03	.03	.03	.03
c) -7Q Engines	10,000 lb	34,000 lb	21,000 lb	52,000 lb
	(4,536)	(15,422)	(9,526)	(23,587)
	.02	.02	.02	.03

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
1. Nacelle Anti-Ice Valves (Cont'd)				
1) JT9D Engines (Cont'd)				Above 50 degrees F (10 degrees C): (Values in brackets are in kg)

	T/O Wt Field Length Limit	T/O & Final Climb	Appr. Landing Climb	Enrt Climb All Temp
	-----	-----	-----	-----
	EPR	EPR	EPR	EPR
c) -7A/-7F/-7J Engines (747SP)	4,000 lb	11,000 lb	8,000 lb	22,000 lb
	(1,814)	(4,990)	(3,629)	(9,979)
	.02	.02	.02	.02
e) -7R4G2 Engines	4,000 lb	22,000 lb	8,000 lb	32,000 lb
	(1,814)	(9,979)	(3,629)	(14,515)
	.03	.03	.03	.03

At or below 50 degrees F (10 degrees C):

No penalty for Takeoff Weight Field Length, Takeoff and Final Climb, Approach and Landing Climb limits.

2) CF6 Engines	C	4	3	(M) (O) One may be inoperative closed provided the airplane is not operated in known or forecast icing conditions.
3) RB211 Engines	C	4	3	(M) (O) One may be inoperative closed provided the airplane is not operated in known or forecast icing conditions.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
1. Nacelle Anti-Ice Valves (Cont'd)				
3) RB211 Engines (Cont'd)	C	4	3	(M) (O) One may be inoperative in the open position provided: a) Associated NAC TAI VALVE light is deactivated, b) Maximum ambient temperature at takeoff and landing fields is 90 degrees F (32 degrees C), c) Associated High Stage bleed air shutoff valve is secured closed, d) Cowl pressure relief valve operates normally, e) EPR limits and performance limited gross weights are reduced as follows: Above 50 degrees F (10 degrees C): Takeoff and Landing limit: 12,000 lb (5,444 kg) EPR: .02 All Temperatures Enroute limit: 10,000 lb (4,536 kg) EPR: .01 At or below 50 degrees F (10 degrees C): No penalty. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
1. Nacelle Anti-Ice Valves (Cont'd)				
3) RB211 Engines (Cont'd)				f) On the four engines no more than two EPR settings are to be used for takeoff, and g) When operating in icing conditions maintain minimum 60% N1 RPM on the associated engine. NOTE: If the N1 RPM on the associated engine is inoperative, a minimum of 80% N3 will provide equivalent protection.
2. NAC TAI VALVE Lights (F/E Panel)				
1) JT9D Engines	C	4	3	(M) (O) One may be inoperative with associated valve closed provided airplane is not operated in known or forecast icing conditions. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
2. NAC TAI VALVE Lights (F/E Panel) (Cont'd)				
1) JT9D Engines (Cont'd)	C	4	3	(M) (O) One may be inoperative with associated anti-ice valve remaining in the intermediate open position provided: a) Maximum ambient temperature at takeoff and landing fields is 90 degrees F (32 degrees C), b) On the four engines, no more than two different EPR settings may be used for takeoff, c) Associated high stage bleed valve and light must operate normally, and d) On remaining three engines, all nacelle anti-ice valves operate normally. NOTE: When operating in icing conditions between 16,000 ft. and FL 230, maintain a minimum of 60% N1 EPR on the associated engine. e) EPR limits and performance limited gross weights are reduced by: (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
2. NAC TAI VALVE Lights (F/E Panel) (Cont'd)				
1) JT9D Engines (Cont'd)				Above 50 degrees F (10 degrees C): (Values in brackets are in kg)

	T/O Wt Field Length Limit	T/O & Final Climb	Appr. Lndg Climb	Enrt Climb All Temp
	---	---	---	---
	EPR	EPR	EPR	EPR
a) -3A/-7, -7A/-7F, -7J Engines	6,000 lb	17,000 lb	13,000 lb	34,000 lb
	(2,722)	(7,711)	(5,897)	(15,422)
	.02	.02	.02	.02
b) -70A Engines	10,000 lb	34,000 lb	21,000 lb	52,000 lb
	(4,536)	(15,422)	(9,526)	(23,587)
	.03	.03	.03	.03
c) -7Q Engines	10,000 lb	34,000 lb	21,000 lb	52,000 lb
	(4,536)	(15,422)	(9,526)	(23,587)
	.02	.02	.02	.03
d) -7A/-7F/-7J Engines (747SP)	4,000 lb	11,000 lb	8,000 lb	22,000 lb
	(1,814)	(4,990)	(3,629)	(9,979)
	.02	.02	.02	.02

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
2. NAC TAI VALVE Lights (F/E Panel) (Cont'd)				
1) JT9D Engines (Cont'd)				
e) -7R4G2 Engines				
2) CF6 Engines	C	4	3	(M)(O) One may be inoperative with associated valve closed provided airplane is not operated in known or forecast icing conditions.

T/O Wt Field Length Limit	T/O & Final Climb	Appr. Lndg Climb	Enrt Climb All Temp
-----	-----	------	-----
EPR	EPR	EPR	EPR
4,000 lb	22,000 lb	8,000 lb	32,000 lb
(1,814)	(9,979)	(3,629)	(14,515)
.03	.03	.03	.03

At or below 50 degrees F (10 degrees C):

No penalty for Takeoff Weight Field Length, Takeoff and Final Climb, Approach and Landing Climb limits.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
3. Stator Anti-Ice Valves ***	D	4	0	(M) May be inoperative closed.
1) JT9D Engines	C	4	3	(M)(O) One may be inoperative open provided: a) On four engines, no more than two EPR settings may be used for takeoff, b) Nacelle anti-ice valve on associated engine operates normally, c) On remaining engines, all nacelle anti-ice valves operate normally, and d) EPR limits and performance limited gross weights are reduced as follows: Above 50 degrees F (10 degrees C): (Values in brackets are in kg)

a) -3A/-7, -7A/-7F, -7J Engines

T/O Wt Field Length Climb	T/O & Final Climb	Appr. Lndg Climb	Enrt Climb All Temp
---	---	---	---
EPR	EPR	EPR	EPR
12,000 lb	34,000 lb	25,000 lb	52,000 lb
(5,443)	(15,422)	(11,340)	(23,587)
See Note	See Note	See Note	See Note

b) -70A Engines

16,000 lb	59,000 lb	35,000 lb	92,000 lb
(7,258)	(26,762)	(15,876)	(41,731)
.06	.06	.06	.06

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
3. *** Stator Anti-Ice Valves (Cont'd)				Above 50 degrees F (10 degrees C):
1) JT9D Engines (Cont'd)				(Values in brackets are in kg)

	T/O Wt Field Length Climb	T/O & Final Climb	Appr. Lndg Climb	Enrt Climb All Temp
	-----	-----	-----	-----
	EPR	EPR	EPR	EPR
c) -7Q Engines	16,000 lb	59,000 lb	35,000 lb	92,000 lb
	(7,258)	(26,762)	(15,876)	(41,731)
	.06	.06	.06	.06
e) -7A/-7F/-7J Engines (747SP)	9,000 lb	29,000 lb	19,000 lb	43,000 lb
	(4,082)	(13,154)	(8,618)	(19,505)
	.04	.04	.04	.04
e) -7R4G2 Engines (With Stator Valves)	15,000 lb	36,000 lb	30,000 lb	50,000 lb
	(6,804)	(16,330)	(13,608)	(22,680)
	.06	.05	.06	.05

NOTE: -3A ----- .03 EPR.
-7/-7A/-7F/-7J ----- .04 EPR

At or below 50 degrees F (10 degrees C):

No penalty for Takeoff Weight Field Length, Takeoff and Final Climb, Approach and Landing Climb limits.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30	ICE AND RAIN PROTECTION				
4.	Anti-Ice NACELLE VALVE OPEN Lights				
	1) JT9D Engines (Including STATOR VALVE OPEN Lights)	C	-	0	(M) May be inoperative provided normal valve operation is verified before operating in known or forecast icing conditions.
		C	-	-	May be inoperative provided associated anti-ice valve is inoperative.
	2) CF6 Engines	C	4	0	(M) May be inoperative provided normal valve operation is verified before operating in known or forecast icing conditions.
		C	4	3	May be inoperative provided associated anti-ice valve is inoperative.
	3) RB211 Engines	C	4	0	(M) May be inoperative provided normal valve operation is verified before operating in known or forecast icing conditions.
		C	4	3	May be inoperative provided associated anti-ice valve is inoperative.
5.	Pitot-Static Probe Heater System	B	4	3	(M) (O) Heater elements in one probe may be inoperative provided the 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.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30	ICE AND RAIN PROTECTION				
6.	Temperature Probe Heaters	C	2	1	
7.	Probe Heater Ammeter or Light Indication Systems (Pilots' Overhead Panel)	C	2	1	(M) One may be inoperative provided associated heaters are verified to be operating normally before departure.
		C	2	1	One may be inoperative provided associated heater is inoperative.
8.	Wing Anti-Ice Valves	C	2	0	(M) May be inoperative closed provided flight is not operated in known or forecast icing conditions.
9.	Wing Anti-Ice Valve Intransit Lights	C	2	0	(M) May be inoperative provided normal valve operation is verified before departure if flight is to be operated in known or forecast icing conditions.
10.	Wing Anti-Ice Overheat Protection System	C	1	0	NOTE: Placing Wing Anti-Ice Switch in GRD TEST position (when on the ground) for more than a brief time may cause wing overheat.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
11. Flight Deck Window Heating Systems				
1) No. 1 Windows (Except SIERRACIN No. 1 with 0.050" outer thin glass pane)	C	2	1	(O) One may be inoperative provided: a) AFM limitations are applied, and b) Both No.2 window heaters operate normally.
a) Window Heating Time Delay Relay	C	2	0	May be inoperative open provided associated window heat switch is: a) Placed in OVRD during ground operations, and b) Placed in ON during flight operations.
2) SIERRACIN No. 1 Windows (with 0.050" outer thin glass pane)	C	2	1	(M) (O) One may be inoperative provided: a) Both No.2 window heaters operate normally, b) Entire outer glass layer is removed from associated window, c) Visibility through associated window is acceptable to the captain, and d) AFM limitations are applied.
a) Window Heating Time Delay Relay	C	2	0	May be inoperative open provided associated window heat switch is: a) Placed in OVRD during ground operations, and b) Placed in ON during flight operations.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30	ICE AND RAIN PROTECTION				
11.	Flight Deck Window Heating Systems (Cont'd)				
	3) No. 2 Windows	C	2	1	(O) One may be inoperative provided: a) AFM limitations are applied, and b) Both No. 1 window heaters operate normally.
	4) No. 3 Windows	C	2	0	(M) May be inoperative provided No. 3 Window Heat circuit is deactivated.
12. ***	No. 1 Window Heat OVERRIDE Function	C	2	0	
13.	Window Heat POWER Lights				
	1) No. 1 and/or No. 2 Windows	C	4	0	(M) May be inoperative provided window heat operates normally before each departure.
		C	4	3	One may be inoperative provided associated No. 1 or No. 2 window heater is inoperative.
	2) No. 3 Windows	C	2	0	(M) May be inoperative provided window heat operates normally before each departure.
		C	2	0	May be inoperative provided associated No. 3 window heater is inoperative.
14.	Window Heat OVHT Test Feature	C	1	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30	ICE AND RAIN PROTECTION				
15. ***	Rain Repellent Systems	D	2	0	
16.	Windshield Wipers	C	2	0	May be inoperative provided airplane is not operated in precipitation within 5 statute miles of the airport of departure or intended landing.
	1) High Speed	C	2	1	One may be inoperative provided: a) Associated low speed function operates normally, and b) Approach minimums do not require its use.
		C	2	0	May be inoperative provided: a) Associated low speed function(s) operate(s) normally, b) Approach minimums do not require its use, and c) 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.
	2) Low Speed	C	2	0	May be inoperative provided the associated high speed function(s) operate(s) normally.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30 ICE AND RAIN PROTECTION				
17. Windshield Washer Systems	C	1	0	
18. Windshield Air (Defog) System	C	2	0	(M) May be inoperative provided defogging valve(s) is secured in defog position.
19. Pitot Heat Indicating “Probe Heat” System (Pilots’ Center Panel)	C	-	0	(M) May be inoperative provided: a) Probe heater light indication system (pilots’ overhead panel) operates normally, and b) Pitot-static probe heater system is verified to operate normally.
	C	-	0	May be inoperative provided airplane is not operated in known or forecast icing conditions.
20. Low N1 Light				Moved to ATA 77-14, Rev. 26.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30	ICE AND RAIN PROTECTON				
21.	Waste Water Drain Heater System(s)	C	-	0	(M) May be inoperative provided: a) Water supply to associated lavatory, galley and service center basin(s) is secured off, and b) Associated lavatory, galley and service center basin(s) is not used.
		C	-	0	(M) May be inoperative provided: a) Water supply to associated galley and service center basin(s) is secured off, b) Associated lavatory, galley and service center basin(s) is not used, c) Associated lavatory door is locked closed and placarded: INOPERATIVE – DO NOT ENTER, and d) Lavatory is used only by crewmembers. NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers.
22. ***	PT2 Probe Heater Systems	C	4	3	(M) (O) One may be inoperative provided: a) Associated Engine Pressure Ratio System is considered inoperative, b) Remaining PT2 probes operate normally, and c) Autothrottles are not used in icing conditions. (Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
30	ICE AND RAIN PROTECTION				
22. ***	PT2 Probe Heater Systems (Cont'd)	C	4	2	(O) Two may be inoperative provided airplane is not operated in known or forecast icing conditions.
23.	Nacelle Anti-Ice COWL OVHT Lights (RB211 Engines)	C	4	3	(O) One may be inoperative provided: a) Nacelle anti-ice control valve is kept in the closed position, and b) Airplane is not operated in known or forecast icing conditions.
		C	4	3	(M) (O) One may be inoperative and nacelle anti-ice used, provided: a) Associated high stage bleed air valve is secured closed, b) Associated nacelle anti-ice control valve operates normally, c) A minimum of 60% N1 RPM is maintained when operating in icing conditions, and d) Associated Cowl Overheat Detection Card is removed from the Engine System Accessory Box. NOTE: If the N1 RPM on the associated engine is inoperative, a minimum of 80% N3 will provided equivalent protection.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
31 INDICATING/ RECORDING SYSTEMS				
1. Clock	C	-	1	May be inoperative provided at least one operates normally at either the pilot's or copilot's station.
2. Flight Data Recorder (FDR) System	C	-	-	Any in excess of those required by FAR 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. (Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
31	INDICATING/ RECORDING SYSTEMS				
2.	Flight Data Recorder (FDR) System (Cont'd)				
	1) FDR Recording Parameters required by FAR	A	-	-	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 FAR	A	-	-	May be inoperative provided repairs are made prior to the completion of the next heavy maintenance visit.
3. ***	Weight and Balance Indicator System	D	1	0	
4. ***	AIDS/ACMS Maintenance Recorder System	D	1	0	May be inoperative provided alternate procedures are established and used.
		D	1	0	May be inoperative provided Maintenance procedures do not require its use.
	1) Digital Flight Data Management Unit (DFDMU)	D	1	0	May be inoperative provided alternate procedures are established and used.
		D	1	0	May be inoperative provided Maintenance procedures do not require its use.
5. ***	Quick Access Recorder (QAR) System	D	1	0	

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
31 INDICATING/ RECORDING SYSTEMS				
6. *** Multifunction Printer System	C	1	0	(O) May be inoperative provided alternate procedures are established and used. NOTE: Any function that operates normally may be used.
	D	1	0	May be inoperative provided procedures do not require its use. NOTE: Any function that operates normally may be used.
7. *** Astronautics EFIS Navigation Displays (STC ST01916NY)	A	2	1	(O) One inboard Navigation Display may be inoperative provided: a) All standby instruments operate normally, b) Operations are conducted in day VMC only, c) Operations are not conducted into known or forecast over-the-top conditions. d) Alternate procedures are established and used, and e) Repairs are made within one flight day.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32 LANDING GEAR				
1. Anti-Skid System				
1) Normal Anti-Skid System	C	1	0	(M) (O) May be inoperative provided: a) Thrust reversers operate normally, and b) Operations are conducted in compliance with AFM Anti-Skid Inoperative performance data.
a) Control Channels	C	16	14	(M) (O) One or two control channels may be inoperative provided: a) Associated brakes are deactivated using the special brake disconnect tool, and b) Operations are conducted in compliance with AFM Two Brakes Deactivated performance data.
	C	16	14	(M) (O) One or two control channels may be inoperative provided: a) Associated brakes are deactivated by capping off brake lines, b) Gear is left down for two minutes after takeoff to permit wheel(s) to stop turning, then retracted (due to lack of inflight braking), and c) Operations are conducted in compliance with AFM performance data for both Gear Down dispatch and Two Brakes Deactivated.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32 LANDING GEAR				
1. Anti-Skid System (Cont'd)				
1) Normal Anti-Skid System (Cont'd)				
a) Control Channels (Cont'd)	C	16	14	(M) (O) One or two control channels may be inoperative provided: a) Associated brake(s) is not deactivated, b) Locked wheel protection is verified to be available, and c) Operations are conducted in compliance with AFM Anti-Skid Inoperative performance data.
2) Reserve Anti-Skid System	C	1	0	(M) (O) May be inoperative provided manual braking capability on reserve brake system is verified on associated wheels.
2. Anti-Skid System Lights	C	17	16	Light on forward panel may be inoperative provided each Normal Anti-Skid channel has a normally operating light on the flight engineer's panel.
1) Normal Anti-Skid Lights	C	17	0	May be inoperative provided Normal Anti-Skid system is inoperative.
2) Reserve Valve Lights (F/E Panel)	C	4	3	One may be inoperative, or ON continuously.
	C	4	0	May be inoperative provided Reserve Anti-Skid system is inoperative.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32 LANDING GEAR				
3. ANTI-SKID HYD Light	C	1	0	(M) (O) May be inoperative provided: a) Parking brake valve is verified to operate normally before each departure, and b) Operations are conducted in compliance with AFM Anti-Skid Inoperative performance data and procedures (but with Anti-Skid switch ON).
4. *** ANTI-SKID LANDING (GEAR) TILT INPUTS Light(s) or Test System	C	-	0	(O) May be inoperative provided Anti-Skid switch remains OFF for all operations below 30 knots.
5. Wheel Brakes	C	16	14	(M) (O) One or two brakes may be deactivated with the special brake disconnect tool provided operations are conducted in compliance with AFM Two Brakes Deactivated performance data.
	C	16	14	(M) (O) One or two brakes may be deactivated by capping off brake lines, or two brakes may be removed and the lines capped provided: a) Operations are in compliance with AFM performance data for both Gear Down dispatch and Two Brakes Deactivated, b) Gear is left down for two minutes after takeoff to permit wheel(s) to stop turning, then retracted (due to lack of inflight braking), and (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32 LANDING GEAR				
5. Wheel Brakes (Cont'd)				c) If brakes are removed to assure truck will tilt to the retract position, one forward and one aft brake on the same side must be removed to maintain a balanced truck (relocate brakes as situation requires), or, if the inoperative brake(s) is (are) on wheel(s) No. 1, 2, 13, or 14, one brake only on the associated truck(s) may be removed, up to a total of two brakes.
6. Parking Brake				Deleted, Rev. 20.
7. Parking Brake Valve (Anti-Skid Return Line Valve)	B	1	0	(M) (O) May be inoperative closed provided: a) Valve is verified fully closed before departure, b) Anti-Skid system is deactivated, and c) Operation is conducted in compliance with AFM procedures with Anti-Skid OFF.
8. Parking Brake Light	C	1	0	
9. Reserve Brake Valve OPEN Light	C	1	0	(M) May be inoperative provided normal valve operation is verified before departure.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32	LANDING GEAR				
10. ***	Wheel Brake Temperature Indication System	C	1	0	(O) May be inoperative provided AFM Maximum Quick Turnaround Weight limitations are observed.
11.	Gear DOWN Indication Systems (F/E Panel)	C	2	1	(M) (O) One system (primary or alternate) may be inoperative provided: a) With a nose gear indication inoperative, access to the lower nose compartment is readily available, b) Each inoperative main gear indication has a normally operating primary and alternate DOOR OPEN indication, and c) GEAR DOWN and DOOR OPEN lights on pilots' panel operate normally.
		C	2	0	(M) (O) May be inoperative for Gear Down dispatch in accordance with the AFM.
12.	Gear DOOR OPEN Indication Systems (F/E Panel)	C	2	1	(M) (O) One system (primary or alternate) may be inoperative.
13.	Gear TILT Indication Systems (F/E Panel)	C	2	1	(M) (O) One system (primary or alternate) may be inoperative provided fuel jettison system operates normally.
		C	2	1	(M) (O) One system (primary or alternate) may be inoperative provided fuel jettison system is considered inoperative.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32 LANDING GEAR				
14. Body Gear Steering Indication System With PRR 73919 or Service Bulletin 32-2052 Incorporated	C	1	0	(M) May be inoperative provided: a) Body gear steering actuators are verified locked, b) Body gear steering is deactivated, c) Body gear steering display module connector (DX342) is disconnected, and d) Body gear steering actuator integrity must be verified before each takeoff.
1) Primary UNLOCKED Indications	C	2	1	(M) (O) One primary UNLOCKED indication may be inoperative and the body gear steering system used provided: a) PRESS indication operates normally, and b) All other UNLOCKED indications operate normally.
2) Alternate UNLOCKED Indications	C	2	1	(M) (O) One alternate UNLOCKED indication may be inoperative and the body gear steering system used provided: a) PRESS indication operates normally, and b) All other UNLOCKED indications operate normally. NOTE: On 747SP see AFM limits.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32 LANDING GEAR				
15. Pilots' Panel Indication System (GEAR, GEAR DOWN, and DOOR OPEN Lights)	C	1	0	(M) (O) May be inoperative provided an alternate procedure is established and used.
16. Landing Gear Latch Solenoid	A	1	0	(M) (O) May be inoperative provided: a) Override mechanism operates normally, and b) Repairs are made within seven flight days.
17. 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. NOTE: On 747SP see AFM limits.
18. Rudder Pedal Nose Wheel Steering System	C	1	0	(M) (O) May be inoperative provided it does not impair remaining systems on airplane.
19. *** Selector Valves (Alternate Hydraulic Gear Selector System)	C	2	0	(M) May be inoperative in the normal position (position 1) provided: a) Associated motor-operated shutoff valves(s) are verified in the closed position (position 1), and b) Circuit breaker is pulled and collared.
20. *** Motor-Operated Shutoff Valves (Alternate Hydraulic Gear Selector System)	C	2	0	(M) May be inoperative in the closed position (position 1) provided circuit breaker is pulled and collared.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32 LANDING GEAR				
21. Main Gear Emergency *** Extension Air Bottles	C	2	0	Bottles may be discharged provided remaining functions of gear extension systems operate normally.
22. Body Gear Steering Switch (Overhead Panel)	C	1	0	May be inoperative provided BODY GEAR STEERING ARM & IND circuit breaker is pulled and collared to deactivate the Body Gear Steering system.
	C	1	0	May be inoperative for an inoperative body gear steering system.
23. AUTOBRAKE System ***	C	1	0	(M) May be inoperative provided the AUTOBRAKE light does not illuminate with the AUTOBRAKE system switch in the OFF position.
	C	1	0	(M) May be inoperative and the AUTOBRAKE light illuminated with the AUTOBRAKE system switch in the OFF position provided the AUTOBRAKE system solenoid is verified CLOSED.
	C	1	0	(M) May be inoperative and the AUTOBRAKE light illuminated with the AUTOBRAKE system switch in the OFF position provided the system pressure line to the Autobrake Pressure Control Module is capped.
	C	1	0	(M) May be inoperative and the AUTOBRAKE light illuminated with the AUTOBRAKE system switch in the OFF position provided the Autobrake Pressure Control module is removed.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32 LANDING GEAR				
23. AUTOBRAKE System (Cont'd)				
1) AUTOBRAKE Valve Module	C	1	0	(M) May be inoperative provided: a) Pressure line to the valve module is capped, and b) Control pressure line to shuttle valves is connected to valve module system return line.
2) Rejected Takeoff Mode	C	1	0	May be inoperative provided autobrake system is not used.
24. *** Landing Gear Strut Pressure Gauge	D	4	0	
25. Inflight Wheel Braking System	C	1	0	(O) May be inoperative in the NOT APPLIED mode provided: a) Performance is in compliance with Gear Down dispatch, and b) After takeoff, gear remains extended for two minutes (to permit wheel(s) to stop tuning before retracting gear).
26. Landing Gear Retracting System	C	1	0	(M) (O) May be partially or completely inoperative provided: a) Inoperative components are properly secured by an accepted procedure, and b) Airplane is operated in accordance with the appropriate AFM Gear Down Appendix.
27. *** Rudder Pedal Steering Light				Moved to ATA 22-10, Rev. 20.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
32 LANDING GEAR				
28. Wheel Tiebolts (Wing Gear or Body Gear)	A	#1	#2	#1- Number Installed: 288 #2- No. Required for Dispatch: 272 (M) One per wheel may be broken or missing provided: a) Associated wheel is removed and inspected for broken parts or damage of wheel or brake assembly, and the wheel or assembly is replaced if damage is found, b) After each landing the associated wheel(s) are inspected for additional broken or missing tiebolts, and c) Operations are limited to a maximum of five departures.
29. Wing/Body Gear Uplock Bungee Springs	B	8	7	(M) (O) One may be broken or missing provided the gear handle remains UP following gear retraction.
30. *** Main Gear AIR/GRD Mode Lights (PRI and ALT)	C	2	0	
31. Nose Wheel Snubber Pads	C	2	0	
32. *** Tire Pressure Indication System	C	1	0	May be inoperative provided alternate procedures are established and used.
	D	1	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 AND EXCEPTIONS
32	LANDING GEAR				
33. ***	Remote Brake Indicator Light System	C	1	0	(M) (O) May be inoperative provided alternate procedures are established and used.
		D	1	0	(M) (O) May be inoperative provided procedures do not require its use.
34. ***	Nose Gear N/SQUAT GND MODE Light Systems (PRI and ALT)	C	2	0	(M) (O) May be inoperative provided procedures do not require its use.
35. ***	Brake Cooling Fan Systems	C	16	14	(M) May be inoperative provided: a) Associated wheel brake(s) is deactivated, and b) Performance is in compliance with the AFM for Brake(s) Deactivated.
		D	16	0	(M) May be inoperative provided cooling fan wheel mounted shroud assembly is deactivated (removed) from the associated wheel.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
1. Flight Deck 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 they are provided, b) Positioned so that direct rays are shielded from flight crewmembers' eyes, and c) Lighting configuration and intensity is acceptable to the flight crew.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
2. Passenger Lighted Information Signs	C	-	-	(M) May be inoperative provided: a) Associated passenger seat or lavatory is not occupied from which passenger lighted information sign is not readily legible, and b) Associated seat or lavatory must be blocked and placarded – **DO NOT OCCUPY**. NOTE: These provisos are not intended to prohibit lavatory use or inspections by crewmembers.
	C	-	-	(O) May be inoperative, and associated passenger seat or lavatory may be occupied provided: a) Passenger Address System operates normally, and b) PA system is used to notify passengers associated sign(s) are placed on or off.
1) All Cargo, Supernumerary/Courier Area Lighted Information Signs	C	-	-	(O) May be inoperative provided alternate procedures are established and used to notify couriers/supernumeraries when associated sign(s) are placed on or off.
3. Normal (28-Volt) *** Exit Lights	D	-	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
4. Cabin Interior Illumination System				
1) Passenger and Combi Configurations With Incandescent Floor Proximity Emergency Escape Path Marking System	C	1	-	Individual lights may be inoperative provided remaining lighting is sufficient for cabin attendants/cargo couriers to perform their duties.
a) Cargo Configuration (Class “B” Compartments)	C	1	-	Individual lights may be inoperative provided remaining lighting is sufficient for crewmembers/cargo couriers to perform their duties.
b) Cargo Configuration (Class “E” Compartments) (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	1	0	

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
4. Cabin Interior Illumination System (Cont'd)				
2) Passenger and Combi Configurations With Photoluminescent Floor Proximity Emergency Escape Path Marking System	C	1	-	Individual lights may be inoperative provided: a) Remaining lighting is sufficient for cabin attendants/cargo couriers to perform their duties, and b) Remaining lighting is sufficient to charge the Photoluminescent Floor Proximity Emergency Escape Path Marking System by complying with approved minimum acceptable lighting levels as specified in one of the following documents: 1. FAA engineering approval letter, 2. FAA approved report of the Type Design holder, 3. Limitations and Conditions section of the applicable Supplemental Type Certificate (STC), or 4. An FAA approved report incorporated in the Master Drawing List for the applicable STC. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
4. Cabin Interior Illumination System (Cont'd)				
2) Passenger and Combi Configurations With Photoluminescent Floor Proximity Emergency Escape Path Marking System (Cont'd)				
a) Cargo Configuration (Class "B" Compartments)	C	1	-	Individual lights may be inoperative provided remaining lighting is sufficient for crewmembers/cargo couriers to perform their duties.
b) Cargo Configuration (Class "E" Compartments) (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	1	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
4. Cabin Interior Illumination System (Cont'd)				
3) Cargo Configuration				
a) Class "B" Compartments	C	1	-	Individual lights may be inoperative provided remaining lighting is sufficient for crewmembers/cargo couriers to perform their duties.
b) Class "E" Compartments (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	1	0	
5. Wheel Well, Lower Cargo Compartment and Servicing Lights System	D	1	0	
6. Lower Forward Electronic Compartment Lighting (For Manual Nose Gear Extension)	C	1	0	May be inoperative provided an alternate means of illumination is available.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33	LIGHTS				
7.	Runway Turn Off Lights	C	2	0	May be inoperative provided both landing lights operate normally on the side of the airplane with the inoperative Runway Turn Off Light(s).
		C	2	0	May be inoperative for day operations.
8.	Landing Lights	C	4	2	Two may be inoperative for night operations.
		C	4	0	May be inoperative for day operations.
9.	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 or the white Upper and Lower Fuselage 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 or the white Upper and Lower Fuselage Strobe Lights operate normally.
***	3) White Upper and Lower Fuselage Strobe Lights	D	2	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
10. Wing Illumination Lights	C	2	0	(O) May be inoperative provided ground deicing procedures do not require their use.
11. Position Lights (Wing Tips & Tail)	C	4	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 light assembly.
	C	4	0	May be inoperative for day operations.
12. Exterior Emergency Lighting System	B	1	0	May be inoperative for an inoperative or deactivated upper or lower cabin door, or for main entry door(s) located in the main deck cargo area of cargo and combi airplane configurations.
	C	1	0	May be inoperative for day operations.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
13. Interior Emergency Lighting System (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	1	-	(M) A random 25% of lights may be inoperative provided: a) Inoperative lights are not adjacent, b) At least two of the three lights at each entry door operate normally, c) Flight deck light and one upper deck door light for an operative door/slide operate normally, and d) Inoperative lights are replaced in accordance with the existing operator's Maintenance Program.
	C	1	-	May be inoperative for an inoperative or deactivated door(s).
14. LOGO Light System ***	D	1	0	
15. Door Emergency EXIT Sign	C	-	-	(M) (O) Emergency EXIT sign associated with one door may be inoperative provided the associated door is considered inoperative.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
16. Floor Proximity Emergency Escape Path Marking System				
1) Passenger and Combi Configurations				
a) Incandescent Marking System	C	1	-	Individual lights may be inoperative provided FAA approved minimum acceptable lighting levels specified in one of the following documents are complied with: a) FAA engineering approval letter, b) FAA approved report of the Type Design holder, c) Limitations and Conditions section of the applicable Supplemental Type Certificate (STC), or d) An FAA approved report incorporated in the Master Drawing List for the applicable STC. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
16. Floor Proximity Emergency Escape Path Marking System (Cont'd)				
1) Passenger and Combi Configurations (Cont'd)				
b) Photo-luminescent Marking System	C	1	-	Components may be inoperative provided FAA approved minimum acceptable lighting levels specified in one of the following documents are complied with: a) FAA engineering approval letter, b) FAA approved report of the Type Design holder, c) Limitations and Conditions section of the applicable Supplemental Type Certificate (STC), or d) An FAA approved report incorporated in the Master Drawing List for the applicable STC.
*** 2) Cargo Configuration	D	1	0	
17. Sterile Cockpit Light *** System	D	1	0	(O) May be inoperative provided alternate procedures are established and used.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
33 LIGHTS				
18. 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.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
1. Standby Airspeed Indicator ***	C	1	0	May be inoperative unless all-electric airspeed indicators are installed.
2. Mach/Airspeed Indicators				
1) Mach Indicators	C	2	1	(O) One may be inoperative provided airplane remains at or below FL 290 if failure of the second indicator occurs during flight.
	C	2	0	(O) May be inoperative provided: a) Airplane remains at or below FL 290, and b) A placard which sets forth this limitation is affixed to the instrument panel.
2) External Airspeed Markers (Bugs)	C	-	0	(O) May be inoperative or missing provided alternate procedures are established and used.
3. Mach/Airspeed Warning System				
1) Aural (Clacker) Warning	C	1	0	May be inoperative provided: a) A fifth pod, Gear Down or Aux Fuel airspeed warning system is installed and operates normally, and b) Speed at which the substitute warning sounds is observed as limit airspeed.
2) Barber Pole Indicators	C	2	1	One MACH/AS indicator (Barber Pole) may be inoperative provided aural warning system (clacker) operates normally.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
4. Altimeters *** (Servo-Pneumatic)				
1) Servo Mode	C	-	0	(M) Except where enroute operations require its use, may be inoperative provided: a) Altimeter remains in the pneumatic mode, and b) AFM altimeter correction charts are used.
5. Altimeters (Electric)				Deleted, Rev. 20.
6. Standby Pneumatic *** Altimeters	C	-	0	May be inoperative except for those airplanes equipped with all-electric altimeters.
7. Altimeter Vibrators				
1) Servo-Pneumatic Altimeters	C	2	1	One may be inoperative provided associated air data computer operates normally.
2) Pneumatic Altimeters	C	2	1	One may be inoperative provided VMC conditions exist at departure and arrival airports.
3) Standby Altimeter (with Electric Altimeters installed)	C	1	0	May be inoperative provided VMC conditions exist at departure and arrival airports.
	C	1	0	May be inoperative provided aircraft is equipped with normally functioning dual radio altimeters.
4) Standby Altimeter (with Servo-Pneumatic Altimeters installed)	C	-	0	May be inoperative except for those airplanes equipped with all-electric altimeters.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34	NAVIGATION				
8. ***	Static Air Temperature Indication	D	1	0	May be inoperative provided Total Air Temperature (TAT), TAT/EPRL, or TAT/N1 Limit TAT indication operates normally.
9. ***	Total Air Temperature Indicator	C	1	0	(O) May be inoperative provided Static Air Temperature (SAT) indication operates normally.
		C	1	0	(O) May be inoperative provided TAT/EPRL or TAT/N1 Limit TAT indication operates normally.
10.	Bank-and-Pitch Indicators (Horizon Indicators)				Deleted, Rev. 20.
11.	Standby Attitude Indicator	C	-	0	May be inoperative provided not required by FAR.
		B	-	0	May be inoperative provided: a) A third switchable source of attitude reference is available, b) Operations are conducted in Day VMC only, and c) Operations are not conducted into known or forecast over-the-top conditions.
12.	Flight Director Systems	C	-	0	May be inoperative provided approach minimums do not require their use.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
13. Turn and Bank Indicators				
1) Rate of Turn Indicators	C	2	1	Turn function of one instrument may be inoperative for VMC flight.
	C	2	0	May be inoperative provided Standby Horizon indicator operates normally.
14. ADI Test ***	C	2	0	
15. Slow-Fast Indicators	C	2	0	
16. Stabilized Heading Indication Systems				Deleted, Rev. 20.
17. Standby Magnetic Compass (Non-Stabilized)	C	1	0	(O) May be inoperative provided any combination of three gyro or INS (IRU/IRS) stabilized compass systems operate normally.
	C	1	0	(O) May be inoperative provided: a) Any combination of two gyro or INS (IRS) stabilized compass systems operate normally, and b) Airplane is operated with dual independent navigational capability, and under positive radar control by ATC on the enroute portion of the flight.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
17. Standby Magnetic Compass (Non-Stabilized) (Cont'd)	C	1	0	(O) May be inoperative for flights that are entirely within areas of magnetic unreliability provided at least two stabilized directional gyro systems are installed, operate normally, and are used in conjunction with free gyro navigation techniques.
18. Central Instrument Warning System	C	1	0	May be inoperative provided approach minimums do not require its use.
1) TEST Switch(es)	C	-	1	
	C	-	0	May be inoperative provided CIWS is considered inoperative.
*** 2) CIWS Horns	C	2	1	
	C	2	0	May be inoperative provided CIWS is considered inoperative.
19. Flight Mode Annunciator System	C	1	0	May be inoperative provided approach minimums do not require its use.
20. Central Air Data Computer (CADC) Systems	C	2	0	May be inoperative provided dispatch deviations for associated equipment are observed, and listed in this column of the operator's MEL.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION					
21. VHF Navigation Systems (VOR/ILS)		D	-	-	Any in excess of those required by FAR may be inoperative provided: a) System or component is not powered by a Standby Bus, and b) System or component is not required to accomplish an emergency procedure.
	1) Self-Test Feature	C	2	0	
	2) Expanded Localizer Indicator (In ADI)	C	-	-	May be inoperative provided approach minimums do not require its use.
	3) Glide Slope Pointer (In ADI)	C	-	-	May be inoperative provided approach minimums do not require its use.
	4) Glide Slope Pointer (In HSI)	C	-	-	May be inoperative provided approach minimums do not require its use.
	5) Course Pointer and Course Bar Pair (In HSI)	B	2	1	One pair may be inoperative provided: a) Indication of VOR radial operates normally in the associated RDDMI, RDMI, or RMI, and b) Approach minimums do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
21. VHF Navigation Systems (VOR/ILS) (Cont'd)				
6) ILS Antenna Switching				
a) Glide Slope	C	-	0	May be inoperative provided approach minimums do not require use of associated ILS glide slope receiver. NOTE: If ILS 1 and 2 Glide Slope switching is inoperative, GPWS Mode 5 is considered inoperative.
b) Localizer	C	-	0	May be inoperative provided approach minimums do not require use of associated ILS receiver.
22. Distance Measuring Equipment	D	-	-	Any in excess of those required by FAR may be inoperative.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
23. Weather Radar System	C	-	0	May be inoperative provided weather radar is not required by FAR.
	D	-	1	May be inoperative provided one weather radar system operates normally.
1) Display	C	-	1	Any in excess of those required by FAR may be inoperative.
2) Contour	C	-	0	May be inoperative provided manual gain control operates normally.
3) Map	C	-	0	
4) Test	C	-	0	(M) May be inoperative provided alternate procedures are established and used before each departure to verify normal weather mode operation.
5) Automatic Gain Control	C	-	0	May be inoperative provided radar gain can be manually tuned to receive satisfactory radar returns.
6) Stabilization	C	-	0	(M) May be inoperative provided: a) Tilt Control operates normally, and b) Antenna is verified to scan in a horizontal plane with the tilt at zero degrees.
*** 7) Turbulence Detection Mode	C	1	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
23. Weather Radar System (Cont'd)				
*** 8) Predictive Windshear	B	-	0	(O) May be inoperative provided alternate procedures are established and used. NOTE: Operator's alternate procedures should include reviewing windshear avoidance and windshear recovery procedures.
	C	-	0	(O) May be inoperative provided: a) Alternate procedures are established and used, and b) Ground Proximity Warning System Windshear Warning (Mode 7) or Windshear Detection and Guidance System operates normally.
24. Radio Compass System (ADF)	D	-	-	Any in excess of those required by FAR may be inoperative.
25. Marker Beacon System	C	-	0	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 AND EXCEPTIONS
34 NAVIGATION					
26.	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 FAR may be inoperative.
***	1) Elementary and Enhanced Downlink Aircraft Reportable Parameters Not Required By FAR	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.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
27. Inertial Navigation Systems (INS)				
*** 1) All INS Systems Except Litton LTN92				
a) Navigational Information	D	-	-	Any in excess of those required by FAR may be inoperative.
b) Attitude/ Heading Information	C	-	2	A third switchable source of attitude information may be inoperative provided a self-contained bank and pitch indicator is available.
	C	-	1	May be inoperative provided an installed Attitude Heading Sensing Unit, AHSU, operates normally and is used.
*** c) Navigation Databases	C	-	-	(O) May be out of currency provided: a) Current Aeronautical Charts are used to verify Navigation Fixes before 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.
d) Wind Indication	C	-	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
27. Inertial Navigation Systems (INS) (Cont'd)				
*** 2) Litton LTN92				
a) INS Navigation System	D	-	-	Any in excess of those required by FAR may be inoperative.
b) Attitude/Heading Information	C	-	2	A third switchable source of attitude information may be inoperative provided a self-contained bank and pitch indicator is available.
c) Navigational Information (excessive drift rates or residual ground speed) When INS is primary Attitude and/or Heading Source	C	-	-	(O) May be inoperative and system used for attitude and/or heading source provided: a) System is aligned and operated in the NAV mode (not ATT REF), b) No INS warning annunciations or instrument flags are displayed, c) Both pilots' pitch, roll and heading indications agree within AFM limits, and d) System is not used for navigation. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
27. Inertial Navigation Systems (INS) (Cont'd)				
*** 2) Litton LTN92 (Cont'd)				
d) Functions Reference By "Delayed Maintenance Action/ Malfunction" Messages	C	-	-	May be inoperative provided systems which receive INS data associated with the message(s) are considered inoperative.
*** e) INS Update/ No Update Annunciators	D	-	0	May be inoperative provided: a) RNAV approach procedures are not used, and b) Update status is verified on CDU.
f) CDU WARN Light	C	-	-	May be inoperative provided Status page is monitored periodically (ten minute intervals) for failure messages.
g) CDU Offset Light	C	-	-	May be inoperative provided associated INS is not used in crosstrack offset unless a remote offset light is installed and operates normally.
h) CDU Alert Light	C	-	-	May be inoperative provided associated CDU is monitored for distance and time to next way point (Flight Plan page) or a remote Alert light is installed and operative.
i) CDU Edge Light	C	-	-	May be inoperative provided area lighting of the CDU is acceptable to the flight crew.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
27. Inertial Navigation Systems (INS) (Cont'd)				
*** 2) Litton LTN92 (Cont'd)				
j) CDU Dimming	C	-	-	May be inoperative provided display is legible and acceptable to flight crew.
k) CDU Display Segments	C	-	-	May be inoperative provided corresponding segment on other CDU operates normally.
l) MSU Align Light	C	-	-	Verify align countdown on CDU Status page ALIGN changes to NAV.
m) MSU Detent to NAV	C	-	-	(M) May be inoperative provided switch is secure in NAV position.
n) MSU Edge Light	C	-	-	May be inoperative provided area lighting of MSU is acceptable to flight crew.
o) INS Crossfill	C	-	-	May be inoperative provided flight data is entered into each INS.
p) Wind Display	C	-	-	
q) Navigation Databases (Catalogs)	C	-	-	(O) May be out of currency provided: a) Current Aeronautical Charts are used to verify Navigation Fixes before 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.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
27. Inertial Navigation Systems (INS) (Cont'd)				
*** 2) Litton LTN92 (Cont'd)				
*** r) RNAV	D	-	-	May be inoperative provided enroute operations do not require its use.
*** s) GPS Updating	D	-	-	May be inoperative provided enroute operations do not require its use.
*** t) Triple Mix	D	-	-	May be inoperative provided enroute operations do not require its use.
u) CDU Message CHECK ADC (from ADC to INS)	C	-	-	NOTE: Wind and RNAV may be inoperative without ADC data.
v) Approach Mode	C	-	-	May be inoperative provided approach minimums do not require its use.
w) Autopilot Coupling	C	-	-	May be inoperative provided approach minimums do not require its use.
28. Altitude Alerting System	A	-	0	(O) Except where enroute operations require its use, may be inoperative provided: a) Autopilot with altitude hold operates normally, and b) Repairs are made within three flight days.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION					
29. Low Range Radio Altimeter System					
	1) Indicators	C	-	0	May be inoperative provided approach minimums or operating procedures do not require their use.
	2) Receiver/Transmitter (R/T) Unit(s)	A	-	0	May be inoperative provided: a) Dispatch deviation for GPWS inoperative is observed, b) Approach minimums or operating procedures do not require their use, and c) Operations are limited to not more than two flight days before repairs are made.
		C	-	1	May be inoperative provided: a) Failed R/T Unit, by design, does not provide inputs to the GPWS, and b) Approach minimums or operating procedures do not require its use.
30. *** ADI Supplementary Indications (In ADI)					
	1) Radio Altimeter Altitude Display	D	-	0	May be inoperative provided approach minimums do not require its use.
	2) DH Light	C	-	0	May be inoperative provided approach minimums do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
30. *** ADI Supplementary Indications (In ADI) (Cont'd)				
3) Rising Runway	C	-	0	May be inoperative provided approach minimums do not require its use.
4) Rate of Turn Indicator	C	2	0	May be inoperative provided Standby Attitude Indicator operates normally.
5) Decrab Pointer	C	-	0	May be inoperative provided approach minimums do not require its use.
6) Flight Director Lights	C	-	0	May be inoperative provided approach minimums do not require its use.
31. *** Glide Slope Antenna Annunciators	C	-	0	(O) May be inoperative provided associated glide slope receiver is not required for approach minimums.
32. Ground Proximity Warning System	A	1	0	(O) May be inoperative provided: a) Alternate procedures are established and used, and b) Repairs are made within two flight days.
1) Terrain Avoidance Warning (Modes 1 thru 4)	A	4	0	(O) May be inoperative provided: a) Alternate procedures are established and used, and b) Repairs are made within two flight days.
2) Test Mode Function	A	1	0	May be inoperative provided: a) GPWS is considered inoperative, and b) Repairs are made within two flight days.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
32. Ground Proximity Warning System (Cont'd)				
3) Glide Slope Deviation (Mode 5)	C	-	1	
	B	-	0	
4) 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 FAR, and b) Alternate procedures are established and used.
*** 5) Windshear Warning (Reactive) (Mode 7)	B	-	0	(O) May be inoperative provided alternate procedures are established and used. NOTE: Operator's alternate procedures should include reviewing windshear avoidance and windshear recovery procedures.
	C	-	0	(O) May be inoperative provided: a) Alternate procedures are established and used, and b) Weather Radar System Predictive Windshear Detection and Guidance System operates normally.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
32. Ground Proximity Warning System (Cont'd)				
6) Terrain Awareness and Warning System (TAWS)				
a) 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.
b) Terrain Display Functions	C	-	1	
	B	-	0	
*** 7) Runway Awareness & Advisory System (RAAS)	C	1	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
33. Auxiliary or Reserve Fuel Vmo Selector ***	C	2	1	One may be inoperative (or one B-747 airspeed indicator without a selector may be substituted) provided: a) A suitable overlay is installed to identify the applicable Vmo, and b) When these fuel tanks are loaded, the airplane remains at or below FL 350 when limited to Vmo of 310 KIAS, or FL 300 when limited to Vmo of 342 KIAS.
	C	2	0	May be inoperative provided reserve fuel tanks 2 and 3, or auxiliary fuel tanks 1 and 4 remain empty.
34. VLF Navigation System ***	D	-	-	Any in excess of those required by FAR may be inoperative.
35. Instrument Panel *** Navigation Switching				
1) VHF/NAV Systems	C	-	-	May be inoperative provided the associated systems are operating normally, with independent indications for each pilot's instruments.
*** 2) INS Systems	C	-	-	May be inoperative provided the associated systems are operating normally, with independent indications for each pilot's instruments.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
35. Instrument Panel *** Navigation Switching (Cont'd)				
*** 3) FMS Systems	C	-	-	May be inoperative provided the associated systems are operating normally, with independent indications for each pilot's instruments.
*** 4) FD Systems (STC ST01020SE)	C	2	0	May be inoperative provided approach minimums do not require its use.
36. ATT/COMP *** Stabilization Switching	C	1	0	May be inoperative provided: a) It is verified that two platforms (INS, ASHU, or IRS) are each independently providing heading and attitude information to the respective Captain's and F/O's instruments, and b) Standby Horizon operates normally.
37. RDDMI, RDMI or RMI	C	2	1	One may be inoperative provided associated HSI and the remaining RDDMI, RDMI or RMI operates normally.
38. Performance *** Management System (PMS)	D	1	0	NOTE: Any function which operates normally may be used.
39. Instrument Panel *** Navigation Switching Annunciator Lights	C	-	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
40. Traffic Collision and Avoidance System (TCAS)	B	-	0	(M) May be inoperative provided: a) System is deactivated and secured, and b) Enroute or approach procedures do not require its use.
	C	-	0	(M) May be inoperative provided: a) Not required by FAR, b) System is deactivated and secured, and c) Enroute or approach procedures do not require its use.
*** 1) Combined Traffic Alert (TA) and Resolution Advisory (RA) Dual Display	C	2	1	One may be inoperative on the non-flying pilot side provided: a) TA and RA visual display operates normally on the flying pilot side, and b) TA and RA audio function operates normally on the flying side.
2) Resolution Advisory (RA) Display Systems(s)	C	2	1	One may be inoperative on non-flying pilot side.
	C	-	0	(O) May be inoperative provided: a) Traffic Alert (TA) visual display and audio functions operate normally, 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	-	0	(O) May be inoperative provided: a) RA visual display and audio functions operate normally, and b) Enroute or approach procedures do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34	NAVIGATION				
40.	Traffic Collision and Avoidance System (TCAS) (Cont'd)				
	4) Audio Functions	B	1	0	May be inoperative provided enroute or approach procedures do not require use of TCAS.
***	5) Airspace Selection Function	C	-	0	
41. ***	Metric Altimeter	D	-	0	
42.	True or Calibrated Airspeed Indicator	C	1	0	
43.	Airspeed Vibrator	C	2	0	
44. ***	Microwave Landing Systems	D	-	0	
45. ***	Windshear Detection and Guidance System	B	-	0	(O) May be inoperative provided alternate procedures are established and used. NOTE: Operator's alternate procedures should include reviewing windshear avoidance and windshear recovery procedures.
		C	-	0	(O) May be inoperative provided: a) Alternate procedures are established and used, and b) Weather Radar System Predictive Windshear or Ground Proximity Warning System Windshear Warning (Mode 7) operates normally.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
46. Radio/INS (Radio/FMS) Switches (Glareshield)	C	2	0	(M) May be inoperative provided: a) VOR/ILS function is verified to operate normally and is available on the HSI, b) Navigation is not predicated on the use of the INS (FMS), and c) Switch is not moved in flight.
	A	2	1	(M) (O) May be inoperative provided: a) VOR/ILS function is verified to operate normally and is available on the HSI, b) INS (FMS) navigation information display on associated Control Display Unit (CDU) (Multifunction Control Display Unit (MCDU)) operates normally, c) Autopilot(s) operates normally, d) Switch is not moved in flight, and e) Repairs are made within three flight days.
	D	2	1	(M) May be inoperative provided: a) Associated radio function operates normally, and b) Navigation is not predicated on the use of the INS (FMS).
47. Pilots' Performance *** System (PPS)	C	1	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
48. *** Global Positioning System/Global Navigation Satellite Systems (GPS/GNSS)	D	-	0	May be inoperative provided procedures or navigation is not dependent upon its use.
1) TAS	C	-	0	(O) May be inoperative provided procedures are developed to enter TAS manually.
2) Heading	C	-	0	(O) May be inoperative provided procedures are developed to enter heading manually.
3) Course Deviation (HSI)	B	-	1	(O) May be inoperative provided: a) Course deviation is monitored on GPS CDU, b) Associated A/P GPS Nav Select Mode, and panel message light are operable, and c) CDU is located forward of the pilots' control stand (P9) panel.
4) Flight Plan Cross Load	C	-	0	(O) May be inoperative provided procedures are developed to enter flight plans manually.
5) Navigation Data Base	C	-	0	(O May be out of currency provided: a) Current Aeronautical Charts are used to verify Navigation Fixes before 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. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
48. *** Global Positioning System/Global Navigation Satellite Systems (GPS/GNSS) (Cont'd)				
6) Wind Direction and Speed	C	-	0	(O) May be inoperative provided procedures are developed to enter wind direction and speed manually.
7) Panel Message	C	-	0	(O) May be inoperative provided: a) Procedures are developed to monitor the associated operable CDU message annunciator, and b) CDU(s) is located forward of the pilots' control stand (P9) panel.
49. *** Digital Distance and Ground Speed Indicators	C	2	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
50. TAT/EPRL or TAT/N1 *** Limit Indication System	C	1	0	(O) May be inoperative provided: a) SAT or TAT indicator operates normally, and b) Neither EPR/N1 computer nor full flight regime autothrottle system are used, except in the speed reversion mode for holding, approach and landing.
1) TAT Indication (Counter)	C	1	0	(M) (O) May be inoperative provided: a) SAT or TAT indicator operates normally, and b) EPRL or N1 Limit indication is verified to operate normally.
	C	1	0	(M) (O) May be inoperative provided: a) SAT or TAT indicator operates normally, and b) Neither EPR/N1 computer nor full flight regime autothrottle system are used, except in the speed reversion mode for holding, approach and landing.
2) EPRL or N1 Limit Indication	C	1	0	(O) May be inoperative provided neither EPR/N1 computer nor full flight regime autothrottle system are used, except in the speed reversion mode for holding, approach and landing.
3) EPRL or N1 Limit Computer	C	1	0	(O) May be inoperative provided neither EPR/N1 limit indication nor full flight regime autothrottle system are used, except in the speed reversion mode for holding, approach and landing.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
51. Attitude Heading *** Sensing Unit (AHSU)	C	-	2	May be inoperative provided two independent attitude sources operate normally. NOTE: This could be satisfied by any combination of INS and AHSU systems.
52. Flight Management *** Computer Systems (FMC) (Includes STC ST01893CH)	C	-	2	One may be inoperative provided enroute operations do not require its use.
1) Navigation Databases	C	-	-	(O) May be out of currency provided: a) Current Aeronautical Charts are used to verify Navigation Fixes before 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.
2) GPS Updating	D	-	-	May be inoperative provided enroute operations do not require its use. NOTE: Any mode which functions normally may be used.
53. Control Display Units *** (MCDU)	C	-	2	MCDU 3 (Center) may be inoperative. NOTE: Any mode which functions normally may be used.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
54. EFIS Control Panel				
*** Map Switches				
1) POS	C	2	1	
2) NAV AID	C	2	1	
3) ARPT	C	2	1	
4) RTE DATA	C	2	1	
55. Servo Altimeter				
*** Alerter System (Kollsman STC ST00111BO)				
1) 100 Series Display Codes	C	-	-	(O) May be displayed provided alternate procedures are established and used.
2) 200 Series Display Codes	C	-	-	(O) May be displayed provided: a) Alternate procedures are established and used, and b) Enroute operations do not require its use.
56. Horizontal Situation Indicators (HSI)				
*** 1) Miles/Distance Readout	C	-	0	(O) May be inoperative provided alternate procedures are established and used.
*** 2) Ground Speed Readout	C	-	0	(O) May be inoperative provided alternate procedures are established and used.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION					
57. ***	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	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal Display *** (LCD), EHSI and EADI				
*** 1) Rockwell-Collins EHSI FPI-920 (STC ST00989LA-D)				
a) DME Distance Readout	C	2	0	May be inoperative provided procedures do not require its use.
	C	2	0	(O) May be inoperative provided alternate procedures are established and used.
b) INS Distance Readout	C	2	0	
c) GSPD Readout	C	2	0	
d) TKE Readout	C	2	0	
e) TTG Readout	C	2	0	
f) Wind Readout	C	2	0	
g) XTRK (Cross Track) Distance Readout	C	2	0	
h) Bearing Pointers	C	4	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal Display *** (LCD), EHSI and EADI (Cont'd)				
*** 1) Rockwell-Collins EHSI FPI-920 (STC ST00989LA-D) (Cont'd)				
i) Terrain (TERR) Displays (TAWS)	C	2	0	
1) Auto Pop-up Terrain Alert Display Functions	C	2	0	
j) Range Markings	C	2	0	NOTE: No terrain displayed if set to 2.5 or 640 NM.
k) ARC Mode	C	2	1	One may be inoperative provided: a) Procedures do not require its use, and b) EHSIs are operative in HSI mode. NOTE: No terrain displayed if set to HSI mode.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal Display *** (LCD), EHSI and EADI (Cont'd)				
*** 1) Rockwell-Collins EHSI FPI-920 (STC ST00989LA-D) (Cont'd)				
l) MAP Mode	C	2	0	May be inoperative provided: a) Procedures do not require its use, and b) EHSIs are operative in HSI mode. NOTE: No terrain displayed if set to HSI mode.
m) PLAN Mode	C	2	0	May be inoperative provided: a) Procedures do not require its use, and b) EHSIs are operative in HSI mode. NOTE: No terrain displayed if set to HSI mode.
n) Cross-side Data Bus	C	2	0	May be inoperative provided the associated systems are operative with independent indications for each pilot's instruments.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal Display *** (LCD), EHSI and EADI (Cont'd)				
*** 2) Rockwell-Collins EHSI FPI-930 (ATC TD10321LA-T)				
a) DME Distance Readout	C	2	0	May be inoperative provided procedures do not require its use.
	C	2	0	(O) May be inoperative provided alternate procedures are established and used.
b) FMS Distance Readout	C	2	0	
c) ETA Readout	C	2	0	
d) TTG Readout	C	2	0	
e) TAS Readout	C	2	0	
f) TKE Readout	C	2	0	
g) GSPD Readout	C	2	0	
h) Wind Readout	C	2	0	
i) XTRK (Cross Track) Distance Readout	C	2	0	
j) Bearing Pointers	C	4	0	

Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal Display *** (LCD), EHSI and EADI (Cont'd)				
*** 2) Rockwell-Collins EHSI FPI-930 (ATC TD10321LA-T) (Cont'd)				
k) Track Indicators	C	2	0	
l) Terrain (TERR) Displays (TAWS)	C	2	0	
1) Auto Pop-up Terrain Alert Display Functions	C	2	0	
m) Range Markings	C	2	0	NOTE: No terrain displayed if set to 640 NM.
n) ARC Mode	C	2	1	One may be inoperative provided: a) Procedures do not require its use, and b) EHSIs are operative in HSI mode. NOTE: No terrain displayed if set to HSI mode.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal Display *** (LCD), EHSI and EADI (Cont'd)				
*** 2) Rockwell-Collins EHSI FPI-930 (ATC TD10321LA-T) (Cont'd)				
o) MAP Mode	C	2	0	May be inoperative provided: a) Procedures do not require it use, and b) EHSIs are operative in HSI mode. NOTE: No terrain displayed if set to HSI mode.
p) PLAN Mode	C	2	0	May be inoperative provided: a) Procedures do not require its use, and b) EHSI are operative in HSI mode. NOTE: No terrain displayed if set to HSI mode.
q) Cross-side Data Bus	C	2	0	May be inoperative provided the associated systems are operative with independent indications for each pilot's instruments.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal Display *** (LCD), EHSI and EADI (Cont'd)				
*** 3) Astronautics EHSI and EADI (STC ST00425CH)	A	4	3	(O) First Officer's lower LCD may be inoperative provided: a) First Officer's RMI operates normally, b) Combined ADI (CADI) Mode is selected on First Officer's upper LCD, c) Approach minimums do not require its use, and d) Repairs are made within two flight days.
a) ARC Mode	C	2	1	One may be inoperative provided: a) Procedures do not require its use, and b) EHSIs are operated in HSI mode.
b) MAP Mode	C	2	0	May be inoperative provided: a) Procedures do not require its use, and b) EHSIs are operated in HSI mode.
c) PLN Mode	C	2	0	May be inoperative provided procedures do not require its use.
d) Groundspeed Displays	C	2	0	
e) True Airspeed Displays	C	2	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal Display *** (LCD), EHSI and EADI (Cont'd)				
*** 3) Astronautics EHSI and EADI (STC ST00425CH) (Cont'd)				
f) Wind Displays	C	2	0	
g) Distance to Active Waypoint Displays	C	2	0	
h) Waypoint Data	C	2	0	
i) Airport Data	C	2	0	
j) Radio Altitude Displays	C	2	0	May be inoperative provided approach minimums or operating procedures do not require its use.
k) Rising Runway Symbols	C	2	0	May be inoperative provided approach minimums do not require its use.
l) Decision Height Alert	C	2	0	May be inoperative provided approach minimums do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58 Liquid Crystal *** Display (LCD), EHSI and EADI (Cont'd)				
*** 4) Smith Industries EHSI and EADI (STC ST01020SE)	A	4	3	(O) First Officer's lower LCD may be inoperative provided: a) First Officer's RMI operates normally, b) Combined ADI (CADI) Mode is selected on First Officer's upper LCD, c) Approach minimums do not require its use, and d) Repairs are made within two flight days.
a) ARC (or Expanded) Mode	C	2	1	One may be inoperative provided: a) Procedures do not require its use, and b) EHSIs are operated in HSI (or CTR) mode.
b) MAP Mode	C	2	0	May be inoperative provided: a) Procedures do not require its use, and b) EHSIs are operated in HSI (or CTR) mode.
c) HSI (or Centered) Mode	C	2	1	One may be inoperative provided: a) Procedures do not require its use, and b) EHSIs are operated in ARC (or Expanded) mode.
d) PLAN Mode	C	2	0	May be inoperative provided procedures do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58 *** Liquid Crystal Display (LCD), EHSI and EADI (Cont'd)				
*** 4) Smith Industries EHSI and EADI (STC ST01020SE) (Cont'd)				
e) Groundspeed Displays	C	2	0	
f) True Airspeed Displays	C	2	O	
g) Wind Displays	C	2	0	
h) Active Waypoint Identifiers	C	2	0	May be inoperative provided procedures do not require its use.
i) ETA to Active Waypoint Displays	C	2	0	May be inoperative provided procedures do not require its use.
j) Distance to Active Way-point Displays	C	2	0	May be inoperative provided procedures do not require its use.
k) Lateral Track Pointers and Deviation Bars	C	2	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 AND EXCEPTIONS
34 NAVIGATION					
58. *** Liquid Crystal Display (LCD), EHSI and EADI (Cont'd)					
*** 4) Smith Industries EHSI and EADI (STC ST01020SE) (Cont'd)					
	l) VNAV Pointers	C	2	0	May be inoperative provided procedures do not require its use.
	m) Glideslope Pointers (In EHSI)	C	2	0	May be inoperative provided approach minimums do not require its use.
	n) Course Pointer and Deviation Bar Pair (VOR/LOC) (In EHSI)	B	2	1	One pair may be inoperative provided: a) Indication of VOR radial operates normally in the associated RDDMI, RDMI, or RMI, and b) Approach minimums do not require its use.
	o) Navigation Advisory Messages	C	2	0	May be inoperative provided procedures do not require its use.
	p) ADF Bearing Pointers	D	4	0	Any in excess of those required by FAR may be inoperative.
	q) DME Distance Displays (In EADI)	D	4	0	Any in excess of those required by FAR may be inoperative.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal *** Display (LCD), EHSI and EADI (Cont'd)				
*** 4) Smith Industries EHSI and EADI (STC ST01020SE) (Cont'd)				
r) Glideslope Pointers (In EADI)	C	3	0	May be inoperative provided approach minimums do not require its use.
s) Expanded Localizer Indicators (In EADI)	C	3	0	May be inoperative provided approach minimums do not require its use.
t) PMS Speed Deviation Pointers	C	2	0	May be inoperative provided procedures do not require its use.
u) Flight Director Command Bars	C	2	0	May be inoperative provided approach minimums or operating procedures do not require its use.
v) Radio Altimeter Attitude Displays	D	3	0	May be inoperative provided approach minimums or operating procedures do not require its use.
w) Rising Runway Symbols	C	2	0	May be inoperative provided approach minimums do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
58. Liquid Crystal *** Display (LCD), EHSI and EADI (Cont'd				
*** 4) Smith Industries EHSI and EADI (STC ST01020SE) (Cont'd)				
x) Decision Height Displays	C	2	0	May be inoperative provided approach minimums do not require its use.
y) Decision Height Alert	C	2	0	May be inoperative provided approach minimums do not require its use.
z) Dimming Functions (BRT/DIM)	C	5	0	(O)May be inoperative provided display brightness is acceptable to the flight crew.
aa) Rate of Turn Indicators	C	2	0	May be inoperative provided Standby Attitude Indicator (EADI #3) operates normally.
ab) Slip Indicators	C	3	0	
ac) Standby Attitude Indicator (EADI #3)	C	1	0	May be inoperative provided not required by FAR.
	B	1	0	May be inoperative provided: a) A third switchable source of attitude reference is available, b) Operations are conducted in Day VMC only, and c) Operations are not conducted into known or forecast over-the-top conditions.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
59. EHSI/EADI Display *** Control Panel (DCP)				
*** 1) Rockwell-Collins EHSI FPI-920 (STC ST00989LA-D)				
a) Dimming Selectors (BRT)	C	2	0	May be inoperative provided display brightness is acceptable to the flight crew.
b) Bearing Selectors (BRG 1, BRG 2)	C	4	0	Any in excess of those required by FAR may be inoperative.
c) DATA SEL Buttons	C	2	0	May be inoperative provided procedures do not require its use.
d) TERR Buttons	C	2	0	NOTE: If failed in TERR mode, the pop-up mode will be inhibited on opposite EHSI.
e) MODE Selector (HSI, ARC positions)	C	4	3	May be inoperative provided: a) EHSIs are operative in HSI mode, and b) One EHSI is operative in ARC mode.
f) MODE Selector (MAP, PLAN positions)	C	4	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
59. EHSI/EADI Display *** Control Panel (DCP) (Cont'd)				
*** 2) Rockwell-Collins EHSI FPI-930 (ATC TD10321LA-T)				
a) Dimming Selectors (BRT)	C	2	0	May be inoperative provided display brightness is acceptable to the flight crew.
b) Bearing Selectors (BRG 1, BRG 2)	C	4	0	Any in excess of those required by FAR may be inoperative.
c) NAV DATA SEL Buttons	C	2	0	May be inoperative provided procedures do not require its use.
d) TERR Buttons	C	2	0	NOTE: If failed in TERR mode, the pop-up mode will be inhibited on opposite EHSI.
e) MODE Selector (HSI, ARC positions)	C	4	3	May be inoperative provided: a) EHSIs are operative in HSI mode, and b) One EHSI is operative in ARC mode.
f) MODE Selector (MAP, PLAN positions)	C	4	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
59. EHSI/EADI Display *** Control Panel (DCP) (Cont'd)				
*** 2) Rockwell-Collins EHSI FPI-930 (ATC TD10321LA-T) (Cont'd)				
g) STA Map Data Buttons	C	2	0	
h) WPT Map Data Buttons	C	2	0	
i) ARPT Map Data Buttons	C	2	0	
j) RTE DATA Map Data Buttons	C	2	0	
k) RA Test Buttons	C	2	0	May be inoperative provided approach minimums or operating procedures do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
59. EHSI/EADI Display Control Panel (DCP) (Cont'd)				
*** 3) Astronautics EHSI and EADI (STC ST00425CH)				
a) MODE Selectors				
1) CADI	C	2	1	(M) (O) One may be inoperative provided: a) Procedures are established and used to verify automatic switching of the associated EADI to Combined mode, and b) Automatic switching is verified prior to each flight.
2) CHSI	C	2	1	(M) (O) One may be inoperative provided: a) Procedures are established and used to verify automatic switching of the associated EHSI to Combined mode, and b) Automatic switching is verified prior to each flight.
3) VOR/ILS	C	2	1	(O) One may be inoperative provided associated EHSI is operated in FMS mode.
4) FMS	C	2	1	(O) One may be inoperative provided associated EHSI is operated in MAP mode.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
59. EHSI/EADI Display *** Control Panel (DCP) (Cont'd)				
*** 3) Astronautics EHSI and EADI (STC ST00425CH) (Cont'd)				
a) MODE Selectors (Cont'd)				
5) MAP	C	2	1	(O) One may be inoperative provided associated EHSI is operated in FMS mode.
6) PLN	C	2	0	
7) CTR Buttons	C	2	0	NOTE: Operation in ARC mode is not required.
b) RANGE Selectors	C	2	1	(O) One may be inoperative provided associated EHSI is operated in VOR/ILS or FMS mode.
1) TFC Buttons	C	2	0	May be inoperative provided a secondary TCAS display on the affected side operates normally.
	C	2	0	(M) (O) May be inoperative provided: a) Procedures are established and used to verify TCAS "Pop-Up" function, and b) TCAS "Pop-Up" function is verified prior to each flight.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
59. EHSI/EADI Display *** Control Panel (DCP) (Cont'd)				
*** 3) Astronautics EHSI and EADI (STC ST00425CH) (Cont'd)				
c) MAP Overlay Buttons				
1) WXR	C	2	1	
2) NAV AID	C	2	1	
3) WYPT	C	2	1	
4) ARPT	C	2	1	
5) RTE DATA	C	2	1	
6) TERR	C	2	0	
d) DH Selectors	C	2	0	May be inoperative provided approach minimums or operating procedures do not require its use.
e) VOR/ADF Bearing Pointer Display Switches	C	2	1	One 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 AND EXCEPTIONS
34 NAVIGATION					
59 EHSI/EADI Display					
*** Control Panel (DCP) (Cont'd)					
*** 4) Smith Industries EHSI and EADI (STC ST01020SE)					
a) MODE Selectors					
1) CADI		A	2	1	(O) One may be inoperative provided: a) Associated EADI and EHSI operate normally, and b) Repairs are made within two flight days.
2) CHSI		A	2	1	(O) One may be inoperative provided: a) Associated EADI and EHSI operate normally, and b) Repairs are made within two flight days.
3) VOR/ILS		C	2	1	One may be inoperative provided approach minimums and operating procedures do not require its use.
4) MAP		C	2	1	One may be inoperative provided procedures do not require its use.
5) PLN		C	2	0	
6) CTR Buttons		C	2	0	
b) RANGE Functions (10-640)		C	2	1	One may be inoperative provided procedures do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
59. EHSI/EADI Display *** Control Panel (DCP) (Cont'd)				
*** 4) Smith Industries EHSI and EADI (STC ST01020SE) (Cont'd)				
c) MAP Overlay Buttons				
1) NAV AID	C	2	1	
2) ARPT	C	2	1	
3) RTE DATA	C	2	1	
d) DH Selectors	C	2	0	May be inoperative provided approach minimums or operating procedures do not require its use.
60. Inertial Reference *** Systems (IRS)				
1) Inertial Reference Systems (HG2050AC50)				
a) Navigational Information	D	-	-	Any in excess of those required by FAR may be inoperative.
b) Attitude/ Heading Information	C	-	2	A third switchable source of attitude information may be inoperative provided a self-contained bank and pitch indicator is available.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
61. *** CMA-900 Flight Management Systems (FMS) (ATC TD9614LA-T, ATC TD10321LA-T, STC ST00425CH, and STC ST00698SE)	C	3	2	One may be inoperative provided enroute operations do not require its use.
1) CMA-900 Flight Management Units (FMU)				
a) Two Autopilot Channels Installed	C	3	2	(M) FMU 3 may be inoperative.
	C	2	1	(M) (O) One FMU May be inoperative provided: a) Enroute operations do not require its use, and b) FMS steering of the associated autopilot is not used.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
61. CMA-900 Flight *** Management Systems (FMS) (ATC TD9614LA-T, ATC TD10321LA-T, STC ST00425CH, and STC ST00698SE) (Cont'd)				
1) CMA-900 Flight Management Units (FMU) (Cont'd)				
b) Three Autopilot Channels Installed	C	3	2	(M) One FMU may be inoperative provided enroute operations do not require its use.
	C	2	1	(M) (O) One FMU may be inoperative provided: a) Enroute operations do not require its use, and b) FMS steering of the associated autopilot is not used.
c) Navigation Databases	C	-	-	(O) May be out of currency provided: a) Current Aeronautical Charts are used to verify Navigation Fixes before 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.
d) GPS Updating	C	3	0	May be inoperative provided enroute operations do not require its use.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
61. CMA-900 Flight *** Management Systems (FMS) (ATC TD9614LA-T, ATC TD10321LA-T, STC ST00425CH, and STC ST00698SE) (Cont'd)				
2) Custom Interface Units (CIU)				
*** a) Interface with PMS	D	3	0	(M) (O) May be inoperative provided enroute operations do not require its use.
*** b) Interface with Inertial Navigation System	C	3	2	(M) (O) One may be inoperative provided remaining two CIU and associated Inertial Navigation Units operate normally.
*** 3) Digital Discrete Adapters (DDA)	C	3	2	(M) (O) One may be inoperative provided: a) Associated FMU is not selected as an instrument source, and b) FMS synchronized mode operates normally.
4) Air Data Converter Unit 2 (ADCU 2)	C	1	0	(M) (O) May be inoperative provided FMS synchronized mode operates normally.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34. NAVIGATION				
61. CMA-900 Flight *** Management Systems (FMS) (ATC TD9614LA-T, ATC TD10321LA-T, STC ST00425CH, and STC ST00698SE) (Cont'd)				
*** 5) Pilots' Panel Lights				
a) FMS APPR Lights	C	2	1	(O) One may be inoperative provided FMS synchronized mode operates normally.
b) UNABLE RNP Lights	C	2	1	(O) One may be inoperative provided FMS synchronized mode operates normally.
c) OFST Lights	C	2	1	(O) One may be inoperative provided FMS synchronized mode operates normally.
d) ATC Lights	C	2	1	One may be inoperative provided ATC HI-LO chime operates normally.
*** 6) Pilots' Control Stand - VNAV AVAIL Lights	C	2	0	
62. Airborne *** Dataloader	C	-	0	(O) May be inoperative provided the dataloader selector switch remains in the OFF position.
1) Dataloader Selector Panel	C	-	0	(O) May be inoperative provided the dataloader selector switch remains In the OFF position.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
63 SatelliteBased *** Augumentation (SBAS) with WAAS				
1) Universal Avionics UNS-1Fw (STC ST02653NY-D)	C	3	2	One may be inoperative provided it is in the center (No. 3) position or approach procedures do not require its use.
a) TAS	C	-	0	(O) May be inoperative provided procedures are established and used to enter TAS manually.
b) Heading	C	-	0	(O) May be inoperative provided procedures are established and used to enter heading manually.
c) Course Deviation (HSI)	B	-	1	(O) May be inoperative provided: a) Course deviation is monitored on GPS CDU, and b) Associated A/P GPS Nav Select Mode, and panel message light are operable.
d) Flight Plan Cross Load	C	-	0	(O) May be inoperative provided procedures are established and used to enter flight plans manually.
e) Navigation Data Base	C	-	0	(O May be out of currency provided: a) Current Aeronautical Charts are used to verify Navigation Fixes before 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.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
34 NAVIGATION				
63 *** SatelliteBased Augumentation (SBAS) with WAAS (Cont'd)				
1) Universal Avionics UNS-1Fw (STC ST02653NY-D) (Cont'd)				
f) Wind Speed and Direction	C	-	0	(O) May be inoperative provided procedures are established and used to enter wind direction and speed manually.
g) LOS,LPV,LNAV and VNAV Annunciators	C	2	0	(O) May be inoperative provided approach is not predicated on use of the SBAS system.
h) Panel Message Annunciators (MSG, FMS, HDG, FMS, APPR, SATX, GPS and INTEG)	C	2	0	(O) May be inoperative provided procedures are established and used to monitor the associated operable CDU message annunciator.
i) FMS Recording	D	3	0	May be inoperative.
j) Control Display (CDU)	C	3	2	One may be inoperative provided it is in the center (No. 3) position or approach procedures do not require its use.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
35 OXYGEN				
1. Passenger Oxygen Systems	B	1	0	(O) May be inoperative provided: a) Flight is not conducted where the minimum altitude enroute is above 14,000 feet MSL, b) All air conditioning packs operate normally, c) All other components of the pressurization system operate normally, d) Flight remains at or below FL 250, e) Portable Oxygen units are provided for 10% of the passengers, and f) Passengers are appropriately briefed.
	C	1	0	May be inoperative provided flight is conducted at or below 10,000 feet MSL.
1) Automatic Deployment	C	1	0	(M) (O) May be inoperative provided: a) Manual deployment system operates normally, and b) Flight remains at or below FL 250.
2) Passenger Service Unit (PSU)	C	-	-	(M) (O) May be inoperative without flight altitude restriction provided: a) Associated seats are blocked and placarded to prevent occupancy, and b) Units operate normally for all usable lavatories and flight attendant locations.

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
35 OXYGEN					
1. Passenger Oxygen Systems (Cont'd)					
3) Cargo Configuration		C	1	0	May be inoperative provided passenger seats are considered inoperative and not occupied.
a) Passenger Service Unit (PSU)		C	-	-	(M) (O) May be inoperative without flight altitude restrictions provided: a) Associated seats are blocked and placarded to prevent occupancy, and b) Units operate normally for all usable lavatories and flight attendant locations.
2. Portable Oxygen Dispensing Units (Bottle and Mask)		D	-	-	(M) Any in excess of those required by FAR 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.
3. Dual Pressure Indicator on Fill Panel and/or F/E Station		D	-	-	(M) May be inoperative provided all cylinder indications are checked to verify that pressure is above the required amount.
4. Remote Fill Station ***		D	-	-	(M) May be inoperative provided leak-tight integrity of supply system is not affected.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
35 OXYGEN					
5.	Passenger Oxygen Mask Access Door Latch	C	-	-	(M) (O) Automatic opening feature and/or the door latch(es) may be inoperative in the unlatched position and taped closed provided: a) PSU oxygen system operates normally, b) Airplane remains at or below FL 250, and c) Passenger(s) occupying the seat(s) with the inoperative door latch are briefed on oxygen mask access.
		C	-	-	(M) (O) Automatic opening feature and/or the door latch(es) may be inoperative in the unlatched position and taped closed for operations without flight altitude restrictions provided associated seat(s) are blocked and placarded to prevent occupancy.
6.	PBE Smoke Hoods	D	-	-	Any in excess of those required by FAR may be inoperative.
7.	Oxygen Overboard Discharge Indicator	C	1	0	(O) May be damaged or missing.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				NOTE: Item 2 (Except CF6-80C2 Engine), Item 3 (CF-6 Engine Only), and Items 5, 6, 7, and15 may not simultaneously affect more than one engine, and on the remaining engines, starter valves must operate normally.
1. High Stage Bleed Valve Systems				
1) JT9D Engines (Except JT9D-70A)	C	4	3	(M) (O) One may be inoperative secured closed provided a minimum of 70% N1 RPM is maintained while in icing conditions.
2) JT9D-70A Engines	C	4	3	(M) One may be inoperative secured closed.
3) CF6-45/50 Engines				
a) Without Pt 5.4 Pressure Switch Installed	C	4	3	(M) (O) One may be inoperative secured closed provided a minimum of 70% N1 RPM is maintained while in icing conditions.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
1. High Stage Bleed Valve Systems (Cont'd)				
3) CF6-45/50 Engines (Cont'd)				
b) With Pt 5.4 Pressure Switch Installed	C	4	3	(M) (O) If Pt 5.4 switch is determined to operate normally, one may be inoperative secured closed provided a minimum of 70% N1 RPM is maintained while in icing conditions.
	C	4	0	(M)(O) May be operated normally if: a) Pt 5.4 switch (es) is determined to be inoperative, b) Pt 5.4 switch (es) is deactivated, and c) No other bleed air system abnormality exists.
4) High Pressure Shutoff Valve Systems (CF6-80C2 Engines)	C	4	3	(M) (O) One may be inoperative secured closed provided: a) A minimum of 70% N1 (55% N1 below 10,000 feet MSL) is maintained on the associated engine while in icing conditions, and b) Duct isolation valve switches remain open for takeoff and all flap operations. NOTE: The thrust reverser on the associated engine will be inoperative.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
1. High Stage Bleed Valve Systems (Cont'd)				
5) RB211 Engines	C	4	3	(M) (O) One may be inoperative provided: a) Valve is secured closed, and b) A minimum of 60% N1 is maintained while in icing conditions. NOTE: If the N1 RPM on the associated engine is inoperative, a minimum of 75% N3 will provide equivalent protection.
2. Precooler Control Systems				
1) JT9D Engines (Except -70A)	C	4	3	(M) (O) One may be inoperative provided: a) Associated bleed air valve switch remains closed except for engine start, b) Associated nacelle anti-ice switch remains OFF, c) Duct isolation valve switches remain open for takeoff and all flap operations with any engine installation, and d) Airplane is not operated in known or forecast icing conditions.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
2. Precooler Control Systems (Cont'd)				
2) JT9D-70A Engines	C	4	3	(M) (O) One may be inoperative provided: a) Associated bleed air valve switch remains closed except for engine start, and b) Duct isolation valve switches remain open for takeoff and all flap operations with any engine installation.
3) CF6-45/50 Engines	C	4	3	(M) (O) One may be inoperative provided: a) A minimum of 70% N1 is maintained while in icing conditions, b) Associated bleed air valve switch remains closed except for engine start, and c) Duct isolation valve switches remain open for takeoff and all flap operations with any engine installation.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
2. Precooler Control Systems (Cont'd)				
4) CF6-80C2 Engines	C	4	3	(M) (O) One may be inoperative provided the associated fan air modulating valve(s) remains in the intermediate open position.
	C	4	2	(M) (O) One on the left side and one on the right side of the airplane may be inoperative provided: a) Associated fan air modulating valve(s) remains open, b) Airplane is not operated in known or forecast icing conditions, and c) For each inoperative system, performance limited weights are reduced by: Takeoff/ Approach/ Lndg Climb — 2,100 lb. (953 kg) Enroute — 3,800 lb. (1,724 kg) (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
2. Precooler Control Systems (Cont'd)				
5) RB211 Engines	C	4	3	(M) (O) One may be inoperative provided: a) Associated Bleed Air Valve switch remains OFF except for engine start, b) Duct isolation valve switches remain OPEN for takeoff and all flap operations, and c) A minimum of 60% N1 is maintained while in icing conditions. NOTE: If the N1 RPM on the associated engine is inoperative, a minimum of 75% N3 will provide equivalent protection.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
3. Engine Bleed Pressure Relief Valves				
1) JT9D Engines	C	4	3	(M) (O) One may be inoperative closed provided associated High Stage Bleed Valve is secured closed.
2) CF6-45/50 Engines	C	4	3	(M) (O) One may be inoperative closed provided: a) Associated bleed air pressure regulating valve is secured closed, b) Duct isolation valve switches remain open for takeoff and all flap operations, and c) Airplane is not operated in known or forecast icing conditions.
3) CF6-50E2 Engines	A	4	3	(M) (O) One may be inoperative open and removed provided: a) Associated bleed air pressure regulating valve is secured closed, b) Duct isolation valve switches remain open for takeoff and all flap operations, c) Airplane is not operated in known or forecast icing conditions, d) Blanking plate, P/N 312U7830-2, is installed, and e) Repairs are made within 5 flight days. (Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC					
3. Engine Bleed Pressure Relief Valves (Cont'd)					
	4) RB211 Engines	C	4	3	(M) (O) One may be inoperative in the closed position provided the related high stage bleed valve is secured shut.
		C	4	3	(M) (O) One may be inoperative open and removed provided: a) Precooler Inlet Duct, P/N 65B89931-16, is installed, b) Related high stage bleed valve is secured shut, and c) Blanking plate, P/N 312U7830-2, is installed.
4. ***	Engine Bleed PRESS RELIEF Lights	D	4	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
5. Engine Pylon Bleed Air Valves				
1) JT9D and CF6-45/50 Engines	C	4	3	(M) (O) Except for engine start, one may be inoperative secured closed provided duct isolation valve switches remain open for takeoff and all flap operations.
2) CF6-80C2 Engines	C	4	3	(M) (O) Except for engine start, one may be inoperative secured closed provided: a) For each inoperative system, performance limited weights are reduced by: Takeoff/ Approach/ Lndg Climb — 2,100 lb. (953 kg) Enroute — 3,800 lb. (1,724 kg) b) Pneumatic duct isolation valve switches remain open for takeoff and all flap operations. NOTE: The thrust reverser on the associated engine will be inoperative unless Service Bulletin 747-36-2086 has been installed.
3) RB211 Engines	C	4	3	(M) (O) Except for engine start, one may be inoperative secured closed provided duct isolation valve switches remain open for takeoff and all flap operations.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
6. Low Pressure Bleed Check Valves				
1) JT9D Engines	C	4	3	(M) (O) One may be inoperative provided: a) Associated High Stage Bleed Valve is secured closed, b) Associated engine pylon bleed air valve is secured closed, except for engine start, c) Except for -70A engines, the airplane is not operated in known or forecast icing conditions, d) Low pressure bleed duct is blocked by an acceptable tool, and e) Duct isolation valve switches remain open for takeoff and all flap operations.
2) CF6-45/50 Engines	C	4	3	(M) (O) One may be inoperative provided: a) Associated High Stage Bleed Valve is secured closed, b) Associated bleed air pressure regulating valve is secured closed, c) Airplane is not operated in known or forecast icing conditions, and d) Duct isolation valve switches remain open for takeoff and all flap operations.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
6. Low Pressure Bleed Check Valves (Cont'd)				
3) CF6-80C2 Engines Intermediate Pressure Check Valves	C	4	3	(M)(O) One may be inoperative open provided: a) Associated high pressure shutoff valve is secured closed, b) A minimum of 70% N1 (55% N1 below 10,000 feet MSL) is maintained on the associated engine while in icing conditions, and c) Duct isolation valve switches remain open for takeoff and all flap operations. NOTE: The thrust reverser on the associated engine will be inoperative. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
6. Low Pressure Bleed Check Valves (Cont'd)				
4) RB211 Engines	C	4	3	(M) (O) One may be inoperative provided: a) Associated High Stage Bleed Valve is secured closed, b) Associated engine pylon bleed air valve is secured closed, except for engine start, c) Low pressure bleed duct must be blocked by an acceptable tool, d) Airplane is not operated in known or forecast icing conditions, and e) Duct isolation valve switches remain open for takeoff and all flap operations.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
7. Bleed Air Systems				
1) JT9D Engines	C	4	3	(M) (O) One precooler core and the pneumatic ducting connecting the low pressure bleed check valve to the engine bleed air valve may be inoperative damaged provided: a) Associated High Stage Bleed Valve is secured closed, b) Associated engine pylon bleed air valve is secured closed, except for engine start, c) Low pressure bleed duct is blocked by an acceptable tool, d) Except for -70A engines, the airplane is not operated in known or forecast icing conditions, and e) Duct isolation valve switches remain open for takeoff and all flap operations. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
7. Bleed Air Systems (Cont'd)				
2) CF6-45/50 Engines	C	4	3	(M) (O) One precooler core and the pneumatic ducting connecting the bleed air pressure regulating valve to the pylon bleed air valve may be inoperative damaged provided: a) Associated bleed air pressure regulating valve is secured closed, b) Associated engine pylon bleed air valve is secured closed, except for engine start, c) Airplane is not operated in known or forecast icing conditions, and d) Duct isolation valve switches remain open for takeoff and all flap operations. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
7. Bleed Air Systems (Cont'd)				
3) CF6-80C2 Engines	C	4	3	(M) (O) One precooler core and the pneumatic ducting connecting the bleed air pressure regulating valve to the pylon bleed air valve may be inoperative damaged provided: a) Associated bleed air pressure regulating valve is secured closed, b) Associated engine pressure regulating and shutoff valve is secured closed, except for engine start, c) Airplane is not operated in known or forecast icing conditions, d) Duct isolation valve switches remain open for takeoff and all flap operations, and e) For each inoperative system, performance limited weights are reduced by: Takeoff/ Approach/ Lndg Climb — 2,100 lb. (953 kg) Enroute — 3,800 lb. (1,724 kg) NOTE: The thrust reverser on the associated engine will be inoperative. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
7. Bleed Air Systems (Cont'd)				
4) RB211 Engines	C	4	3	(M) (O) One precooler core and the pneumatic ducting connecting the low pressure bleed check valve to the engine bleed air valve may be inoperative damaged provided: a) Associated High Stage Bleed Valve is secured closed, b) Associated engine pylon bleed air valve is secured closed, except for engine start, c) Low pressure bleed duct must be blocked by an accepted tool, d) Airplane is not operated in known or forecast icing conditions, and e) Duct isolation valve switches remain open for takeoff and all flap operations.
8. Engine Bleed Air OVERHEAT Lights	C	4	3	One may be inoperative for an associated inoperative bleed air valve.
9. Engine Bleed Air VALVE CLOSED Lights	C	4	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
10. Engine Bleed HIGH STAGE Lights				
1) JT9D Engines (All Except –70A and CF6-45/50 Engines)	C	4	3	One may be inoperative provided 70% N1 is maintained on the associated engine while in icing conditions.
2) JT9D-70A Engines	C	4	0	
3) CF6-80C2 Engines	C	4	3	One may be inoperative provided a minimum of 70% N1 (55% N1 below 10,000 feet MSL) is maintained on the associated engine while in icing conditions.
4) RB211 Engines	C	4	0	May be inoperative provided 60% N1 is maintained on the associated engine while in icing conditions. NOTE: If the N1 RPM on the associated engine is inoperative, a minimum of 75% N3 will provide equivalent protection.
11. Pneumatic Pressure Indicating Systems	C	2	1	(M) (O) One may be inoperative provided both wing isolation valves operate normally.
12. APU Bleed Air Valve	C	1	0	(M) (O) May be inoperative provided valve is closed before departure.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
13. Engine Start Solenoid (In Engine Bleed Air Valves)	C	4	3	(M) (O) One may be inoperative provided: a) Bleed air valve operates normally, and b) Engine start valves on remaining engines operate normally.
14. Wing Isolation Valves	C	2	1	(M) (O) One may be inoperative open.
15. Bleed Air Pressure Regulating Valve Systems				
1) CF6-45/50 Engines	C	4	3	(M) (O) One may be inoperative provided: a) Associated bleed air pressure regulating valve is secured closed, b) Duct isolation valve switches remain open for takeoff and all flap operations, and c) Airplane is not operated in known or forecast icing conditions.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
15. Bleed Air Pressure Regulating Valve Systems (Cont'd)				
2) CF6-80C2 Engines	C	4	3	(M) (O) One may be inoperative provided: a) Associated bleed air pressure regulating valve is secured closed, b) Duct isolation valve switches remain open for takeoff and all flap operations, c) Airplane is not operated in known or forecast icing conditions, and d) For each inoperative system, performance limited weights are reduced by: Takeoff/ Approach/ Lndg Climb — 2,100 lb. (953 kg) Enroute — 3,800 lb. (1,724 kg) NOTE: The thrust reverser on the associated engine will be inoperative.
16. APU Pneumatic Duct	C	1	0	(M) (O) May be inoperative (leaking) provided: a) APU check valve operates normally, and b) If APU is used for electrical power, the APU Bleed Air valve is deactivated closed.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
36 PNEUMATIC				
17. APU Check Valve	C	1	0	(O) May be inoperative provided the APU bleed air valve remains closed after the first engine is started.
18. High Stage Check Valves (RB211 Engines)	C	4	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
38 WATER / WASTE				
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 and used to ensure that system is not serviced.
1) Potable Water Indication System	D	-	-	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
38 WATER / WASTE				
2. 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) For the upper deck lavatory inoperative, the Pilot-in-Command will determine if flight duration is acceptable, and c) Associated lavatory door(s) is locked closed and placarded: INOPERATIVE - DO NOT ENTER. NOTE: These provisions are not intended to prohibit inspections by crewmembers.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
49	AIRBORNE AUXILIARY POWER				
1.	Auxiliary Power Unit (APU)	C	1	0	May be inoperative provided: a) APU Master switch remains OFF, and b) Procedures do not require its use.
1)	Pneumatic Function	C	1	0	(M) May be inoperative and APU used for electrical power provided APU Bleed Air valve is deactivated closed.
2.	APU FAULT Light	C	1	0	(O) May be inoperative provided a qualified operator remains in the vicinity of the APU controls.
		C	1	0	May be inoperative provided APU is not used.
3.	APU Oil Quantity Indication System	C	1	0	(M) May be inoperative (and APU used) provided: a) APU oil quantity is verified filled to capacity once each flight day, b) There is no evidence of above normal oil consumption or leakage, and c) The APU auto-shutdown system operates normally.
		C	1	0	(M) May be inoperative provided APU is not used.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
49 AIRBORNE AUXILIARY POWER				
4. APU RPM Indication System	C	1	0	May be inoperative provided: a) At least one APU generator frequency indication operates normally, and b) EGT is monitored during APU acceleration.
	C	1	0	May be inoperative provided APU is not used.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
49 AIRBORNE AUXILIARY POWER				
5. APU Inlet Door	C	1	0	(M) May be inoperative secured closed provided APU is not used.
	C	1	0	(M) May be inoperative open or partially open provided: a) If APU is used in flight or on the ground, door is in the proper position, b) Time limitations are adhered to, and c) The following gross weight penalties are applied: <u>Takeoff and Landing</u>: Old inlet door - 2,910 lb. (1,320 kg) (Maximum of 50 flight hours) Scoop inlet door – 800 lb. (363 kg) (No time limitation) Enroute Climb (1 or 2 engines out): Old inlet door – 7,760 lb. (3,520 kg) (Maximum of 50 flight hours) Scoop inlet door – 2,140 lb. (971 kg) (No time limitation) NOTE: With scoop removed in accordance with Service Bulletin 747-49-2046, use penalties and limitations for “Old inlet Door”.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
49 AIRBORNE AUXILIARY POWER				
6. APU External Control System	C	1	0	(O) May be inoperative provided a qualified operator remains in the vicinity of the APU controls.
	C	1	0	May be inoperative provided APU is not used.
7. APU Auto-Shutdown System	C	1	0	(O) May be inoperative provided: a) APU is used only for engine start, and b) Control panel is closely monitored.
	C	1	0	May be inoperative provided APU is not used.
8. APU Battery *** Cooling Fan	D	1	0	
9. APU Cockpit *** Hourmeter	D	1	0	
10. APU Starter *** Counter Meter	D	1	0	
11. APU Anti-Ice Valve	C	1	0	

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
1. Door and Fillet Warning and Indicating Lights				
1) Main Entry, Upper Deck, Main and Center Electronics Bay Access, Bulk Cargo, and Fillet Door Warning Lights	C	-	0	(M) May be inoperative provided the door(s) is (are) closed, locked and visually verified secured in accordance with the manufacturer's recommended procedure. In addition to the above visual verification for the Bulk Cargo Door and the Main and Center Electronics Bay Access Doors, they must also be pushed.
2) Forward and Aft Lower Lobe and Main Deck Side Cargo Door Warning Lights (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	-	-	(M) One light on the F/E panel may be inoperative provided the CARGO DOORS Light on the pilots' panel is verified to operate normally.
a) CARGO DOORS Light (Pilots' Panel)	A	1	0	(M) May be inoperative provided: a) Associated cargo door lights on the F/E panel operate normally, b) Associated cargo door(s) is (are) closed, locked, and visually verified secured in accordance with the manufacturer's recommended procedure, and c) Repairs are made within three flight days.

(Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
1. Door and Fillet Warning and Indicating Lights (Cont'd)				
3) Door Indicator Lights (Door Operator's Control Panel)	C	-	0	(M) May be inoperative provided the door(s) is (are) closed, locked, pushed, and visually verified secured in accordance with the manufacturer's recommended procedure.
2. Nose Cargo Door *** Warning Light (F/E and Pilots' Panels)				
1) Cargo Configuration	A	-	0	(M) (O) May be inoperative provided: a) It is visually verified that latches are fully extended before each departure, b) Accepted procedures are followed, c) An inoperative light which will not extinguish is deactivated, and d) Repairs are made within 30 flight hours.
a) Flight Deck Test Feature	C	1	0	(M) May be inoperative provided: a) Latches are visually verified fully extended before each departure, and b) Latches are deactivated by an accepted procedure.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
2. Nose Cargo Door *** Warning Light (F/E and Pilots' Panels) (Cont'd)				
2) Passenger Configuration	A	-	0	(M) (O) Lights and/or test feature may be inoperative provided: a) Door is deactivated in accordance with maintenance manual procedures, and b) Repairs are made within 30 flight hours.
3. Main Lower Lobe Cargo *** Doors and/or Main Deck Side Cargo Door (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	-	-	(M) (O) One latch or hinge section per door may be missing or inoperative provided: a) It is visually verified before departure that there is no damage to other hinge sections or latches on the associated door, b) Flight is conducted in an unpressurized configuration, and c) For passenger or mixed passenger/cargo operations only, procedures are established and used to ensure the lower cargo compartments and the Combi main deck cargo compartment remain empty or are verified to contain only empty cargo handling equipment, ballast (ballast may be loaded in ULDs), or Fly Away Kits.

(Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
3. *** Main Lower Lobe Cargo Doors and/ or Main Deck Side Cargo Door (Including Israel Aircraft Industry Special Freighter, STC ST00358LA) (Cont'd)				NOTE: Operator MELs must define which items are approved for inclusion in the Fly Away Kits and which materials can be used as ballast.
4. *** Nose Cargo Door Power Drive (Lift) System	C	1	0	(M) May be inoperative provided accepted maintenance manual procedures are established and used.
5. *** Nose Cargo Door Cam System	C	1	0	(M) May be inoperative provided accepted maintenance manual procedures are established and used.
6. *** Nose Cargo Door Power Latch System	C	1	0	(M) May be inoperative provided: a) Associated latches are extended manually by accepted maintenance manual procedures, and b) Latches are visually confirmed fully extended.
1) Power Latches	C	16	15	One may be inoperative in the unlatched position or missing provided remaining latches are visually confirmed to be fully extended.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52	DOORS				
7. ***	Nose Cargo Door Indication Systems, (Nose Gear Wheel Well and Loadmaster Station)	C	1	0	(M) May be inoperative with both LATCHES CLOSED indications inoperative provided latches are visually verified closed.
		C	1	0	(M) May be inoperative with both LATCHES UNLOCKED installations inoperative provided all latches are visually verified locked.
		C	1	0	May be inoperative with both LATCHES UNLOCKED installations inoperative provided two lights at pilots' P10 panel are used to confirm that the latches are locked.
	1) Nose Cargo Door Indication, Loadmaster Station with Annunciator Module	C	1	0	(M) May be inoperative provided latches are verified closed by visual inspection of latches.
		C	1	0	May be inoperative provided latches are confirmed closed by visual inspection of latch annunciator lights.
		C	1	0	May be inoperative provided latches are confirmed closed by visual inspection of Flight Engineer panel indicator lights.
8.	Main Entry Door Mode Selector **OR** Upper Deck Type "A" Door Mode Selector				Deleted, Rev. 20.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
9. 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 10 fittings per airplane) may be missing or inoperative provided: a) There are no visible defects on other fitting assemblies for associated door(s), b) Auto controller operates normally, and c) Maximum cabin differential pressure is limited to 5.2 psi.
10. Pressure Stop Fitting Assemblies, Upper Deck Door(s)	C	-	-	(M) (O) One forward fitting assembly and/or one aft fitting assembly per door may be missing or inoperative provided: a) There are no visible defects on other fitting assemblies for associated door(s), b) Auto controller operates normally, and c) Maximum cabin differential pressure is limited to: All Except Extended Upper Deck: ---------- 6.1 psi. Extended Upper Deck: 3.0 psi.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52	DOORS				
11. ***	Cargo Door Stop Pins or Stop Pin Fitting Assemblies (Main Lower Lobe or Main Deck Side Cargo Doors) (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	D	-	0	May be inoperative or missing provided there is no evidence of adjacent structural damage.
12. ***	Nose Cargo Door Latch Lock System	A	1	0	(M) (O) May be inoperative provided: a) Accepted maintenance manual procedures are established and used, and b) Repairs are made within 30 flight hours. NOTE: Nose Cargo Door Warning Lights will also be inoperative.
13.	Main Entry Door Hold-Open Latch	C	-	-	May be inoperative provided the door is considered inoperative.
		D	-	-	May be inoperative in a cargo configuration.
	1) Latch Release Lever	C	-	0	
	2) Latch Release Lever (Cargo Configuration)	D	-	0	

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
14. Nose Cargo Door Latch Annunciator ***	A	1	0	May be inoperative in a cargo configuration provided: a) Nose Cargo Door Warning Lights (flight deck) operate normally, and b) Repairs are made with 30 flight hours.
	A	1	0	(M) May be inoperative in a cargo configuration provided: a) Proper latch engagement is visually verified, and b) Repairs are made within 30 flight hours.
15. Crew Compartment Overhead Hatch Latch Pin	C	4	3	(M) One may be removed provided hatch operates normally.
16. Main Deck Side Cargo Door Latch System (Electrical Function) (Including Israel Aircraft Industry Special Freighter, STC ST00358LA) ***	C	1	0	(M) May be inoperative provided: a) Manual function operates normally, b) There is no damage to latch mechanism, c) There is no damage to master latch lock mechanism, d) Door is closed and locked using an accepted maintenance procedure, and e) All cam latches and lock sectors are verified in the closed/locked position.
17. Door MANUAL Light ***	C	1	0	(O) May be inoperative provided alternate procedures are established and used.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
18. Upper Deck Type "A" *** Emergency Exit Door Actuator(s)	C	2	0	Electrical operation feature of doors may be inoperative.
19. Flight Deck Door *** Lock System (Not Far 25.795 Compliant)	C	1	0	(M) May be inoperative provided: a) Passengers do not occupy upper deck during taxi, takeoff or landing on airplanes with upper deck door escape provisions forward of the flight deck door, b) Door can be locked and unlocked manually, and c) Solenoid is deactivated in the retracted position.
	C	1	0	May be inoperative provided supplemental flight deck door security device is installed and operates normally.
	C	1	0	May be inoperative provided flight is conducted in a cargo configuration.
20. Cargo Door Hook Systems (Main Lower Lobe Cargo Doors and Main Deck Side Cargo Door) (Electrical Function) (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	-	0	(M) May be inoperative provided: a) Manual function operates normally, b) There is no damage to hook mechanism, and c) Doors are closed and locked using an accepted maintenance manual procedure.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
21. Extended Upper Deck Door BATTERY OK Lights ***	C	2	1	(M) One press-to-test system may be inoperative provided: a) Associated battery is adequately charged, and b) Charge adequacy is verified at the beginning of each flight day.
22. 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 latch mechanism, c) There is no damage to 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 verified to be in the closed position.
23. Cargo Door Lift Systems (Main Lower Lobe Cargo Doors and Main Deck Side Cargo Door) (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	-	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.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
24. Bulk Cargo Door Balance Mechanism	C	1	0	(M) May be inoperative provided a safety hold open device is used when door is in open position.
25. Cargo Door Electrical *** Hydraulic Pump (Hayes STC)	C	1	0	(M) May be inoperative provided: a) Manual hand pump operates normally, b) Hydraulic pressure is sufficient to operate the door normally, and c) An acceptable procedure for use of the manual hand pump is established and used.
26. Main Deck Side Cargo *** Door Indicating System (Hayes STC)	C	1	0	(M) May be inoperative provided: a) All latches operate normally and are verified locked before each departure, and b) Cargo door latches are pinned using an acceptable procedure.
27. Pressure Stop Fitting Assemblies, Bulk Cargo Door	C	-	-	(M) (O) One forward fitting assembly or one aft fitting assembly may be missing or inoperative provided: a) There are no visible defects on remaining fitting assemblies for associated door, b) Auto controller operates normally, and c) Maximum cabin differential pressure is limited to 5.2 psi.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52	DOORS				
28. ***	UPR DK DR FLT LOCK Light (F/E Panel) (Extended Upper Deck)	C	1	0	(M) May be inoperative provided: a) Each upper deck Type “A” door is verified to be capable of being unlatched before each departure, and b) DOOR GRD MODE Light above each upper deck Type “A” door operates normally.
		C	1	0	(M) (O) May be inoperative provided: a) Each upper deck Type “A” door is verified to be capable of being unlatched before each departure, and b) A cabin attendant monitors door handle(s), when cabin pressure differential is less than 3.0 psi, to prevent inadvertent door operation.
29. ***	DOOR GND MODE Light (Above Door) (Extended Upper Deck)	C	2	0	(M) May be inoperative provided: a) Each upper deck Type “A” door is verified to be capable of being unlatched before each departure, and b) UPR DK DR FLT LOCK Light on F/E panel operates normally.
		C	2	0	(M) (O) May be inoperative provided: a) Each upper deck Type “A” door is verified to be capable of being unlatched before each departure, and b) A cabin attendant monitors door handle(s), when cabin pressure differential is less than 3.0 psi, to prevent inadvertent door operation.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
30. Flight Lock Actuator *** (Extended Upper Deck)	C	2	0	(M) (O) May be inoperative or missing provided: a) Each upper deck Type “A” door is verified to be capable of being unlatched before each departure, and b) A cabin attendant monitors door handle(s), when cabin pressure differential is less than 3.0 psi, to prevent inadvertent door operation.
31. Main (Forward) Electronic Bay External Access Door Latch Pins	C	4	3	(M) May be damaged or missing provided the door operates normally.
	C	4	3	(M) May be inoperative provided: a) Integrity of remaining pins is verified, b) Remaining pins are verified to be fully engaged before departure, and c) Door remains closed.
32. Main Deck Side Cargo *** Door Latch Lock System (Interior Master Latch Lock Handle Shear Pin) (Including Israel Aircraft Industry Special Freighter, STC ST00358LA)	C	1	0	(M) Shear pin may be inoperative or missing provided: a) Exterior master latch lock handle operates normally, b) There is no damage to the master latch mechanism, and c) Door is locked using the exterior master latch lock handle.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
33. Boeing Enhanced Flight *** Deck Security Door Automatic Locking System (FAR 25.795 Compliant)	A	1	0	(M) (O) May be inoperative provided: a) Automatic locking system is deactivated, b) Door dead bolt operates normally and is used to lock the door, c) Alternate procedures are established and used for locking and unlocking the door using the dead bolt, and d) Repairs are made within two flight days.
1) Flight Deck Access Panel System (Keypad, Door Chime)	B	1	0	(M) (O) May be inoperative provided: a) Keypad is deactivated, and b) Alternate procedures are established and used.
a) LEDs	C	-	0	(O) May be inoperative provided alternate procedures are established and used.
*** b) Door Bell Mode	C	1	0	(O) May be inoperative provided alternate procedures are established and used.
2) Flight Deck Door LOCK FAIL Light	B	1	0	(M) May be inoperative provided automatic lock controls are verified to operate normally.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
52 DOORS				
33. *** Boeing Enhanced Flight Deck Security Door Automatic Locking System (FAR 25.795 Compliant) (Cont'd)				
3) Flight Deck Door AUTO UNLK Light	B	1	0	(M) May be inoperative provided: a) Automatic lock controls are verified to operate normally, and b) Door chime operates normally.
4) Flight Deck Door Lock Control Selector	B	1	0	(M) (O) May be inoperative provided: a) Keypad is deactivated, b) Automatic lock is verified to operate normally, and c) Alternate procedures are established and used.
5) Pressure Rate-Of-Change Sensing Module	A	1	0	(M) May be inoperative provided: a) Pressure sensing module is deactivated, and b) Repairs are made within two flight days.
34. *** Boeing Enhanced Flight Deck Security Door Dead Bolt (FAR 25.795 Compliant)	C	1	0	May be inoperative provided automatic lock controls operate normally.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
53 FUSELAGE				
1. Cargo Liner Belt Panels				Moved to ATA 25-20, Rev 20.
2. Sidewall Vents				
1) Passenger Configuration	D	-	-	(M) Two sidewall vents on each side of each zone may be open or missing provided the adjacent passenger seat is considered inoperative and not occupied.
2) Cargo Configuration	D	-	0	May be missing.
3. Floor Vents				
1) Passenger Configuration	C	-	-	Two in each zone may be open or missing.
2) Cargo Configuration	D	-	0	May be missing.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
56 WINDOWS				
1. Windshields, Windows	-	-	-	Relief Deleted with Revision 34a Note: Refer to aircraft maintenance Manual (AMM) or structural repair manual (SRM)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
73	ENGINE FUEL & CONTROL				
1.	Fuel Filter Heater System (JT9D Engines)	C	4	0	(M) (O) May be inoperative provided: a) Associated fuel temperature indication operates normally, b) Airplane is not operated with the associated engine fuel temperature at or below +5 degrees C, and c) Inoperative heater valve remains closed.
	1) Automatic Function	D	1	0	
2. ***	Fuel Heater Valve Lights	D	4	0	
3.	Engine Fuel Temperature Indicating Systems				
	1) JT9D Engines	C	4	0	(O) May be inoperative provided fuel heater operation is verified by a drop in EPR and a rise in engine oil temperature.
***	2) CF6 Engines	D	4	0	
	3) RB211 Engines	C	4	3	(O) One may be inoperative provided: a) Associated engine's fuel pressure warning system operates normally, and b) No.1 fuel tank temperature indication system operates normally.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
73	ENGINE FUEL & CONTROL				
4.	Fuel Filter ICING Lights (Differential Pressure Warning System) (JT9D Engines)	C	4	2	(O) Two may be inoperative provided: a) Associated engine fuel temperature indicator operates normally, and b) If airplane is operated with engine fuel temperature at or below +5 degrees C, associated fuel heater is operated for one minute every 30 minutes.
5.	Fuel Filter Bypass Lights (CF6 Engines)	C	4	3	
6. ***	Fuel Condition Actuator Lights	D	4	0	
7.	Fuel Used Indicators	C	4	0	May be inoperative provided the associated main tank quantity indicator or an associated Fuel Flow indicator operates normally.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
73	ENGINE FUEL & CONTROL				
8.	Fuel Flow Indicators				
	1) Pratt Whitney / General Electric Engines	C	-	3	(O) One may be inoperative provided an addition Fuel Flow or Fuel Used indicator is used as a substitute.
		C	4	3	One may be inoperative provided: a) Associated N1, N2 (and EPR for PW) indicators operate normally, and b) Associated main tank quantity indicating system operates normally.
	2) RB211 Engines	C	-	3	(O) One may be inoperative provided an additional Fuel Flow or Fuel Used indicator is used as a substitute.
		C	4	3	(O) May be inoperative provided: a) Associated N1, N2, N3, and EPR indicators and the engine limit control system operate normally, and b) Associated main tank quantity indicating system operates normally.
***	3) Digital Fuel Flow Readout, All Engines	D	4	0	

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
73 ENGINE FUEL & CONTROL				
9. Electronic Engine Control (EEC) Systems (CF6-80C2 Engines)	C	4	0	(O) May be inoperative provided all EEC controls remain OFF.
10. Electronic Engine Control (EEC) Lights (CF6-80C2 Engines)	C	4	0	(O) May be inoperative provided all EEC controls remain OFF.
11. Propulsion Interface and Monitor Units (CF6-80C2 Engines)	C	2	0	(O) May be inoperative provided: a) All EEC controls remain OFF, and b) Autothrottle system is not used.
12. Propulsion Interface and Monitor Unit Lights (CF6-80C2 Engines)	C	2	0	(O) May be inoperative provided: a) All EEC controls remain OFF, and b) Autothrottle system is not used.
13. Start Enrichment Control Systems RB211 Engines	C	4	0	(O) May be inoperative provided alternate procedures are established and used.
14. Start Control Units RB211 Engines	C	4	3	(O) One may be inoperative provided the associated engine start enrichment control system operates normally.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
73 ENGINE FUEL & CONTROL				
15. Fuel Pressure Warning Systems RB211 Engines	A	4	2	Two may be inoperative provided: a) Associated engine fuel temperature indication system operates normally, and b) Airplane is limited to 10 flights before repairs are made.
16. Engine Limit Control Systems RB211 Engines	A	4	3	(O) One may be inoperative provided: a) N1, N2, N3, and the fuel flow indicators on the associated engine operate normally, b) Associated engine limit control switch is in OVERRIDE, and c) Airplane is limited to 10 flights before repairs are made.
17. Air Control Valves RB211 Engines				
1) RB211-524B2/C2 Engines	C	4	0	(M) (O) May be inoperative provided the air control valve is deactivated per RR SB 73-5364.
2) RB211-524D4 Engines	C	4	0	(M) (O) May be inoperative provided the air control valve is deactivated per RR SB 73-8108.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
74 IGNITION				
1. Ignition Systems	C	8	4	One per engine may be inoperative provided the nacelle anti-ice systems operate normally on associated engine(s).
2. IGN ON *** Light (F/E Panel)	D	1	0	

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
75	BLEED AIR				
1. ***	15th Stage Surge Prevention/ Recovery Bleed Valves (JT9D Engines)	C	8	7	(M) (O) One may be inoperative closed provided: a) EPR indicator for the associated engine operates normally, and b) If the inoperative valve is a “B” valve, associated reverser is rendered inoperative by an accepted procedure.
		C	8	7	(M) (O) One may be inoperative closed provided: a) EPR indicator for the associated engine operates normally, and b) If the inoperative valve is a “B” valve, Non-RABs reversing procedure is used on all engines.
2. ***	Turbine Case Cooling Air Flow Systems	C	4	0	(M) May be inoperative provided inoperative system is deactivated if due to a leak in the turbine cooling air ducts or manifold.
3. ***	Turbine Case Cooling Indicating Systems	C	4	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
75	BLEED AIR				
4.	Three Way Solenoid Directional Control Valve (JT9D Engines)				
	1) Engines Prior to JT9D-7Q	C	4	2	Two may be inoperative in the ground mode.
		C	4	3	One may be inoperative in the flight mode provided: a) Associated engine reverser is not used, and b) All remaining reversers operate normally.
	2) JT9D-7Q Engines	C	4	3	(M) One may be inoperative provided: a) Associated engine reverser is deactivated, and b) All remaining reversers operate normally.
5.	3.5 Bleed Air Valves (JT9D Engines)	C	-	-	(M) (O) One (per airplane) may be inoperative secured closed.
6.	Surge Prevention System (JT9D-7R4G2 Engines Only)	C	4	0	(O) May be inoperative provided a thrust setting of 1.62 EPR is not exceed on the associated engines(s).
7. ***	IDG Air/Oil Heat Exchanger Valve (CF6-80C2 Engines)	C	4	0	(M) May be inoperative open.
8. ***	Core Compartment Cooling Valve (CF6-80C2 Engines)	C	4	0	(M) May be inoperative open.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
75	BLEED AIR				
9. ***	Turbine Clearance Control Systems (CF6-80C2 Engines)	C	4	0	(M) May be inoperative provided associated turbine clearance control valves remain closed.
10.	Surge Recovery Bleed System (JR9D-7R4G2 Engines Only)	C	4	0	(O) May be inoperative provided a thrust setting of 1.62 EPR is not exceeded on the associated engine(s).
11.	Five Way Solenoid Valve (JT9D-7R4G2 Engines Only)				
	1) 3.5 Bleed Valve Function	C	4	3	(M) One may be inoperative provided: a) Associated engine reverser is deactivated, b) All remaining reversers operate normally, and c) Thrust setting of 1.62 EPR is not exceeded on the associated engine.
		A	4	2	(M) Two may be inoperative provided: a) Associated engine reversers are deactivated, b) No damage exists which would impair structural integrity of associated reversers, c) Inoperative reversers are on symmetrical engines only, d) All remaining reversers operate normally, e) Anti-skid and auto spoilers systems operate normally, f) Thrust setting of 1.62 EPR is not exceeded on the associated engines, and g) Repairs are made within three flight days.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
76	ENGINE CONTROLS				
1.	Throttle Bar Light (JT9D Engines)	C	1	0	(O) May be inoperative for operation above FL 350 (or FL 290 with any engine bleed air valve turned off) provided a procedure is established to ensure throttle bar is placed in the high altitude thrust lever idle stop position.
2. ***	Ground Idle Light				
	1) JT9D Engines	C	1	0	May be inoperative provided: a) Flight idle function operates normally, and b) A minimum of 55% N1 is maintained on approach.
		C	1	0	May be inoperative provided Flight idle system is inoperative.
	2) CF6-45/50 Engines	C	1	0	May be inoperative provided: a) Flight idle function operates normally, and b) A minimum of 45% N1 is maintained on approach.
		C	1	0	May be inoperative provided Flight idle system is inoperative.
	3) CF6-80C2 Engines	C	1	0	May be inoperative provided: a) Flight idle function operates normally, and b) A minimum of 45% N1 is maintained on approach, and in icing conditions.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
76 ENGINE CONTROLS				
2. *** Ground Idle Light (Cont'd)				
4) RB211 Engines	C	1	0	May be inoperative provided: a) Flight idle function operates normally, and b) A minimum of 40% N1 is maintained on approach.
3. *** Flight Idle System				
1) JT9D -7, -7A, -7F, -7J Engines	C	1	0	(O) May be inoperative in ground mode provided the following field elevation/landing gross weight reductions are applied for each associated engine: (Values in parentheses are in kg). Elevation — Landing Climb Limited Gross Weight Reduction Sea Level-1,800ft — None 1,801ft-4,000ft — 10,000 lb (4,536) 4,001ft-6,000ft — 15,000 lb (6,804) 6,001ft-8,000ft — 18,750 lb (8,505) 8,001ft-10,000ft — 21,250 lb (9,639) NOTE: System not required for JT9D-3A Engines. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
76 ENGINE CONTROLS				
3 *** Flight Idle System (Cont'd)				
2) JT9D-7Q, -7R4G2 Engines	C	1	0	(O) May be inoperative in ground mode provided the following field elevation/landing gross weight reductions are applied for each associated engine: (Values in parentheses are in kg.) Elevation — Landing Climb Limited Gross Weight Reduction Sea Level-1,800ft — None 1,801ft-4,000ft — 11,250 lb (5,103) 4,001ft-6,000ft — 20,000 lb (9,057) 6,001ft-8,000ft — 26,250 lb (11,907) 8,001ft-10,000ft — 31,250 lb (14,175) NOTE: System not required for JT9D-3A Engines.
3) JT9D Engines	C	1	0	(O) May be inoperative in flight mode provided the following takeoff/landing gross weight limit reductions are applied for each associated engine: Takeoff Field Length Limit: 25,000 lb. (11,340 kg) Landing Field Length Limit: 15,000 lb. (6,804 kg)

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
76 ENGINE CONTROLS				
3. *** Flight Idle System (Cont'd)				
4) CF6-45/50 Engines	C	1	0	(O) May be inoperative in flight mode provided the following takeoff/landing gross weight limit reductions are applied for each associated engine: Takeoff Field Length Limit: 15,700 lb. (7,121 kg) Landing Field Length Limit: 9,300 lb. (4,218 kg)
5) RB211-524 Engines	C	1	0	(O) May be inoperative in flight mode provided the following takeoff/landing gross weight limit reductions are applied for each associated engine: Takeoff Field Length Limit: 3,000 lb. (1,361 kg) Landing Field Length Limit: 15,000 lb. (6,804 kg)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77	ENGINE INDICATING				
1.	N1 Tachometer System				
1)	JT9D Engines	B	4	3	(O) One may be inoperative provided: a) EPR, N2 and Fuel Flow indicators on the associated engine operate normally, and b) Low N1 warning system operates normally.
		B	4	3	(O) One may be inoperative provided: a) EPR, N2 and Fuel Flow indicators on the associated engine operate normally, and b) Airplane is not operated in known or forecast icing conditions.
2)	CF6-45/50 Engines	A	4	3	(M) (O) One may be inoperative provided: a) Before loss of the N1 indicator, all associated engine indications were normal, b) Low N1 warning system operates normally, c) Before each departure, a visual check of the engine with the inoperative N1 indicator is made, d) N2 and Fuel Flow indicators on the associated engine operate normally, e) Appropriate N2 power setting curves are available to the crew, (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77 ENGINE INDICATING				
1. N1 Tachometer System (Cont'd)				
2) CF6-45/50 Engines (Cont'd)				f) Performance limited gross weights from the AFM are reduced as follows: Takeoff Field Length — 21,000 lb. (9,526 kg) Takeoff Climb — 50,000 lb. (22,680 kg) Enroute Climb — 7,000 lb. (3,175 kg) Approach, Landing Climb — 34,000 lb. (15,422 kg) g) Not more than one takeoff N1 setting may be used on remaining three engines, and h) Repairs are made within 40 flight hours.
	A	4	3	(M) (O) One may be inoperative provided: a) Aircraft is not operated in known or forecast icing conditions, b) Before loss of the N1 indicator, all associated engine indications were normal, c) Before each departure, a visual check of the engine with the inoperative N1 indicator is made, d) N2 and Fuel Flow indicators on the associated engine operate normally. (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77 ENGINE INDICATING				
1. N1 Tachometer System (Cont'd)				
2) CF6-45/50 Engines (Cont'd)				e) Appropriate N2 power setting curves are available to the crew, f) Performance limited gross weights from the AFM are reduced as follows: Takeoff Field Length: 21,000 lb. (9,526 kg) Takeoff Climb: 50,000 lb. (22,680 kg) Enroute Climb: 7,000 lb. (3,175 kg) Approach, Landing Climb: 34,000 lb. (15,422 kg) g) Not more than one takeoff N1 setting may be used on remaining three engines, and h) Repairs are made within 40 flight hours.
*** a) Fan Speed Modifier Unit (FSMU) CF6-50E2 Engines, SB 747-77-2093	D	4	0	May be inoperative provided associated N1 indicator operates normally.
	A	4	3	(M) (O) May be inoperative provided: a) Associated N1 indicator is considered inoperative, and b) Repairs are made within 40 flight hours.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77 ENGINE INDICATING				
1. N1 Tachometer System (Cont'd)				
3) CF6-80C2 Engines	C	4	3	(M) (O) One may be inoperative provided: a) Before loss of the N1 indicator, all associated engine indications were normal, b) Before each departure, a visual check of the engine with the inoperative N1 indicator is made, c) N2 and Fuel Flow indicators on the associated engine operate normally, d) All EECs must operate normally and be ON, e) All packs must be OFF for takeoff or go-around (or APU used for No. 2 pack), f) Derated takeoffs or go-arounds, or reduced thrust takeoffs are not permitted, g) Thrust setting procedures are established and used for takeoff, go-around , and maximum continuous thrust, and h) The same thrust setting is used on all engines. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77 ENGINE INDICATING				
1. N1 Tachometer System (Cont'd)				
4) RB211 Engines	A	4	3	(O) One may be inoperative provided: a) N2, N3, and Fuel Flow indicators and the engine limit control system on the associated engine operate normally, and b) Airplane is limited to 10 flights before repairs are made.
*** 5) Digital N1 Readout, All Engines	D	4	0	

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77	ENGINE INDICATING				
2.	N2 Tachometer System				
	1) JT9D Engines	B	4	3	(O) One may be inoperative provided the EPR, N1, and Fuel Flow indicators on the associated engine operate normally.
	2) CF6 Engines	B	4	3	(O) One may be inoperative provided the N1 and Fuel Flow indicators on the associated engine operate normally.
	3) RB211 Engines	A	4	3	(O) One may be inoperative provided: a) N1, N3, and Fuel Flow indicators and engine limit control system on the associated engine operate normally, and b) Airplane is limited to 10 flights before repairs are made.
***	4.) Digital N2 Readout, All Engines	D	4	0	
3.	Fuel Flow Meter				Moved to ATA 73-8, Rev. 18a. Retitled to: “Indicator”, Rev. 26.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77 ENGINE INDICATING				
4. Engine Pressure Ratio System				
1) JT9D Engines	A	4	3	(M) (O) One may be inoperative provided: a) Before loss of EPR indicator, all associated engine indications were normal, b) N1, N2, and Fuel Flow indicators on the associated engine operate normally, c) Appropriate N1 curves are available to the crew, d) Not more than one takeoff EPR setting is used for the remaining three engines, e) Reduced thrust operation is prohibited, f) Repairs are made within 40 flight hours, and g) Performance limited gross weights from AFM are reduced as follows: (Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS	1.
77	ENGINE INDICATING				
4.	Engine Pressure Ratio System (Cont'd)				
	1) JT9D Engines (Cont'd)			747-100/200/300:	

Engine	Takeoff, Approach & Landing Climb	Enroute
JT9D-3A	12,000 lb. (5,443 kg)	12,000 lb. (5,443 kg)
JT9D-7/7A	7,000 lb. (3,175 kg)	7,000 lb. 3,175 kg)
JT9D-7F/7J	6,000 lb. (2,721 kg)	6,000 lb. (2,721 kg)
JT9D-7Q	8,000 lb. (3,629 kg)	10,000 lb. (4,536 kg)
JT9D-70A	4,000 lb. (1,814 kg)	5,000 lb. (2,268 kg)
JT9D-7R4G2	27,000 lb. (12,247 kg)	20,000 lb. (9,072 kg)

747SP:

Engine	Takeoff, Approach & Landing Climb	Enroute
JT9D-7/7A /7F/7J	5,500 lb. (2,495 kg)	7,350 lb. (3,334 kg)

Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77 ENGINE INDICATING				
4. Engine Pressure Ratio System (Cont'd)				
2) RB211 Engines	A	4	3	(M) (O) One may be inoperative provided: a) Before loss of EPR indicator, all associated engine indications were normal, b) N1, N2, N3, and Fuel Flow indicators and engine limit control system on the associated engine operate normally, c) Appropriate N1 curves are available to the crew, d) Not more than one takeoff EPR setting is used for the remaining three engines, e) Reduced thrust operation is prohibited, f) Airplane is limited to 10 flights before repairs are made, and g) Performance limited gross weights from AFM are reduced as follows: (Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77 ENGINE INDICATING				
4. Engine Pressure Ratio System (Cont'd)				
2) RB211 Engines (Cont'd)				747-100/200:
				Engine / Takeoff, Approach & Landing Climb / Enroute
				RB211-524B2/C2 / 14,000 lb. (6,350 kg)
				1) Airport Temperature up to 80 degrees F (27 degrees C) 24,000 lb. (10,886 kg)
				2) Airport Temperature above 80 degrees F (27 degrees C) 30,000 lb. (13,608 kg)
				747-100/200/300:
				Engine / Takeoff, Approach & Landing Climb / Enroute
				RB211-524D4/D4X / 12,000 lb. (5,443 kg) / 14,000 lb. (6,350 kg)
				(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77 ENGINE INDICATING				
4. Engine Pressure Ratio System Cont'd)				
2) RB211 Engines (Cont'd)				747SP: Takeoff, Approach & Landing Climb / Enroute Engine RB211-524B2/C2 — 13,500 lb. (6,124 kg) 1) Airport Temperature up to 80 degrees F (27 degrees C) — 20,000 lb. (9,072 kg) 2) Airport Temperature above 80 degrees F (27 degrees C) — 25,000 lb. (11,340 kg) RB211-524D4/D4X — 10,000 lb. (4,536 kg) / 13,500 lb. (6,124 kg)
*** 3) Digital Engine Pressure Ratio Readout, JT9D and RB211 Engines	D	4	0	

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77	ENGINE INDICATING				
5.	Vibration Indication Systems				
***	1) Pratt Whitney/ General Electric Engines	D	4	0	May be inoperative unless required by maintenance procedures.
	2) Vibration Signal Channels - All RB211 Engines	C	8	4	One channel per engine may be inoperative, as required by Airworthiness Directive T81-22-51, unless required by maintenance procedures.
		C	8	4	(M) Channel “A” or “B” NORM selection may be inoperative provided: a) Operative channel is the same on all engines b) Oil filter differential pressure indicating system operates normally on the associated engine(s), c) Low oil pressure indicating system operates normally on the associated engine(s), and d) Operative channel remains selected.
	a) Rotor Vibration Selector Switch Positions	C	4	1	N1, N2, and N3 selection positions may be inoperative provided NORM selection position operates normally.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77	ENGINE INDICATING				
6.	Fuel Used Indicators				Moved to ATA 73-7, Rev 18a.
7.	Maximum Indication Lights, Pointers or Systems (N1, N2, EGT)	C	12	0	
8. ***	EGT Overtemperature Lights	C	4	0	
9. ***	EGT or N1 Limit Computer				Moved to ATA 34-50, Rev 28.
10.	EGT Indicators (Digital Indications)	C	4	0	May be inoperative provided associated pointer indication operates normally.
11. ***	Pt 5.4 Indicators (CF6 Engines)	D	4	0	
12. ***	TAT Counter (EPR/N1 Computer)				Moved to ATA 34-50, Rev 28.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77 ENGINE INDICATING				
13. *** Controlled Differential Transformer (CDX) (JT9D Engines)	A	4	3	(M) (O) Positive or negative class may be inoperative provided: a) Associated EPR system is considered inoperative, and b) Repairs are made within 40 flight hours.
1) JT9D Engines Except for JT9D-7Q and JT9D-7R4G2	C	4	0	(M) Positive class only may be bypassed and associated EPR system used.
2) JTD-7Q only				
a) Positive class 5 thru 10	C	4	0	(M) May be bypassed and associated EPR system used provided runway pressure altitude is less than 6,000 feet and OAT is less than ISA +22 degrees F, or runway pressure altitude is less than 2.000 feet and OAT is less than ISA +51 degrees F.
3) JT9D-7R4G2 only				
a) Positive class 5 thru 9	C	4	0	(M) May be bypassed and associated EPR system used provided runway pressure altitude is less than 7,000 feet. NOTE: Negative Class may not be bypassed.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77	ENGINE INDICATING				
14.	Low N1 Light	B	1	0	May be inoperative provided airplane is not operated in known or forecast icing conditions.
15.	N3 Tachometer System (RB211 Engines)	C	4	3	(O) One may be inoperative provided N1, N2, and Fuel Flow indicators and engine limit control system on the associated engine operate normally.
***	1) Digital N3 Readout	D	4	0	
16.	Turbine Cooling Overheat Warning Systems (RB211 Engines)				
	1) Dual loop	C	8	4	(O) One loop per engine may be inoperative.
17. ***	Engine Instrument Display System Model 94002 (EIDS) STC ST00483WI				
	1) ACARS & 615 Transmit Chip	C	2	0	
	2) Exceedance & EXD Snapshot Memory	C	2	0	
	3) Aircraft Power Bus	C	2	1	
	4) ACMS Transmit Chip	C	2	0	

(Continued)

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
77	ENGINE INDICATING				
17. ***	Engine Instrument Display System Model 94002 (EIDS) STC ST00483WI (Cont'd)				
	5) Backlight Module Fans	C	4	2	May be inoperative provided one fan operates normally in each display unit.
	6) Avionics Adapter Rack (AAR) Fan	B	2	1	
	7) Generator Output Discrete	C	4	0	(O) May be inoperative provided affected engine start switch(es) can be operated manually.
	8) RPM Microcontroller	C	-	-	(M) (O) May be inoperative provided associated N1 or N2 indication(s) is not used.
	9) Command EPR/N1 Switch	C	1	0	May be inoperative provided: a) Failure is indicated in the MAN Mode, b) Mode annunciation at bottom of N1 or EPR indication is blank, c) CMD SWITCH remains in MAN position , and d) Engine intermix does not exist.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
1. Thrust Reversers				
1) JT9D Engines (With Fan and Turbine Reversers)	C	8	4	(M) (O) May be inoperative provided: a) No damage exists which would impair structural integrity of associated reverser, b) An accepted procedure is established to verify that inoperative thrust reversers are locked in the forward thrust position, and c) Four fan reversers operate normally.
	C	8	4	(M) (O) May be inoperative provided: a) No damage exists which would impair structural integrity of associated reverser, b) An accepted procedure is established to verify that inoperative thrust reversers are locked in the forward thrust position, and c) Both fan and turbine reversers operate normally on engines 2 and 3.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
1. Thrust Reversers (Cont'd)				
1) JT9D Engines (With Fan and Turbine Reversers) (Cont'd)	C	8	4	(M) (O) May be inoperative provided: a) No damage exists which would impair structural integrity of associated reverser, b) An accepted procedure is established to verify that inoperative thrust reversers are locked in the forward thrust position, and c) Both fan and turbine reversers operate normally on engines 1 and 4, and with both the fan and turbine reversers inoperative on engines 2 and 3, if SB 747-32-2141 or production equivalent has not been incorporated, failure of ground safety relay in the flight position requires landing field length increases of: Dry Runway - 150 ft. Wet Runway - 500 ft.
2) JT9D Engines (Without Turbine Reversers)	C	4	3	(M) One may be inoperative provided: a) Anti-skid and auto spoilers systems operate normally, b) No damage exists which would impair structural integrity of associated reverser, and c) An accepted procedure is established to verify that inoperative thrust reverser is locked in the forward thrust position.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
1. Thrust Reversers (Cont'd)				
2) JT9D Engines (Without Turbine Reversers) (Cont'd)	A	4	2	(M) Two may be inoperative provided: a) Inoperative reversers are on symmetrical engines only, b) Anti-skid and auto spoilers systems operate normally, c) No damage exists which would impair structural integrity of associated reversers, d) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and e) Repairs are made within three flight days.
3) JT9D Engines Reverser Blocker Doors				Moved to ATA 78-9, Rev. 24.
4) CF6 Engines (With Fan and Turbine Reversers)	C	8	4	(M) (O) May be inoperative provided: a) No damage exists which would impair structural integrity of associated reverser, b) An accepted procedure is established to verify that the inoperative thrust reverser is locked in the forward thrust position, and c) Four fan reversers operate normally.

(Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
1. Thrust Reversers (Cont'd)				
4) CF6 Engines (With Fan and Turbine Reversers) (Cont'd)	C	8	4	(M) (O) May be inoperative provided: a) No damage exists which would impair structural integrity of associated reverser, b) An accepted procedure is established to verify that the inoperative thrust reverser is locked in the forward thrust position, and c) Both fan and turbine reversers operate normally on engines 1 and 4.
	C	8	4	(M) (O) May be inoperative provided: a) No damage exists which would impair structural integrity of associated reverser, b) An accepted procedure is established to verify that the inoperative thrust reverser is locked in the forward thrust position, and c) Both fan and turbine reversers operate normally on engines 2 and 3.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
1. Thrust Reversers (Cont'd)				
5) CF6 Engines (Without Turbine Reversers)	C	4	3	(M) One may be inoperative provided: a) Anti-skid and auto spoilers systems operate normally, b) No damage exists which would impair structural integrity of associated reverser, and c) An accepted procedure is established to verify that the inoperative thrust reverser is locked in the forward thrust position.
	A	4	2	(M) Two may be inoperative provided: a) Inoperative reversers are on symmetrical engines only, b) Anti-skid and auto spoilers systems operate normally, c) No damage exists which would impair structural integrity of associated reversers, d) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and e) Repairs are made within three flight days.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
1. Thrust Reversers (Cont'd)				
6) RB211 Engines	C	4	3	(M) One maybe inoperative provided: a) Anti-skid and auto spoilers systems operate normally, b) No damage exists which would impair structural integrity of associated reverser, and c) An accepted procedure is established to verify that the inoperative thrust reverser is locked in the forward thrust position.
	A	4	2	(M) Two may be inoperative provided: a) Inoperative reversers are on symmetrical engines only, b) Anti-skid and auto spoilers systems operate normally, c) No damage exists which would impair structural integrity of associated reversers, d) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and e) Repairs are made within three flight days.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
2. Reverse Thrust Position Indicating System (JT9D Engines Except –70A)	C	4	3	(M) One reverser unstow indication may be inoperative (and reverse used) provided: a) No damage exists which would impair structural integrity of associated reverser, b) Fan reverser brake indicating mechanism is verified fully retracted before departure (following each reverser activation), and c) For engines with pneumatic shutoff valve installed in lieu of TRSM (SB 747-78-2052 or production equivalent), valve is verified closed before each departure.
	C	4	-	(M) Reverser Unstow Indications may be inoperative for associated inoperative reverser(s) provided associated reverser(s) is locked in forward thrust position.
	C	4	-	Reverse thrust position indications, except reverser unstow indications, may be inoperative.

(Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
2. Reverse Thrust Position Indicating System (JT9D Engines Except –70A) (Cont'd)				
1) Without Turbine Reversers	A	4	2	(M) Two may be inoperative provided: a) Associated reversers are considered inoperative, b) Inoperative reversers are on symmetrical engines only, c) Anti-skid and auto spoilers systems operate normally, d) No damage exists which would impair structural integrity of associated reversers, e) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and f) Repairs are made within three flight days.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
3. Thrust Reverser Unstow Indicating System				
1) CF6 and JT9D-70A Engines	C	4	3	(M) (O) One may be inoperative (and the reverser used) provided that, before each departure, it is verified that: a) No damage exists which would impair structural or operational integrity of the systems or components, b) Reverser sleeves are fully and properly stowed, c) Reverse thrust (full reverse) position indicating system operates normally, and d) Thrust reverser valve indicating system (CF6 engines) operates normally.
	C	4	3	(M) (O) One may be inoperative (and the reverser used) provided that, before each departure, it is verified that: a) No damage exists which would impair structural or operational integrity of the systems or components, b) Reverser sleeves are fully and properly stowed, c) Reverse thrust (full reverse) position indicating system operates normally, and d) Thrust reverser armed indicating system (JT9D-70A engines) operates normally.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
3. Thrust Reverser Unstow Indicating System (Cont'd)				
1) CF6 and JT9D-70A Engines (Cont'd)	C	4	-	(M) May be inoperative for inoperative reversers provided associated reversers are locked in the forward thrust position.
a) Without Turbine Reversers	A	4	2	(M) Two may be inoperative provided: a) Associated reversers are considered inoperative, b) Inoperative reversers are on symmetrical engines only, c) Anti-skid and auto spoilers systems operate normally, d) No damage exists which would impair structural integrity of associated reversers, e) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and f) Repairs are made within three flight days.

(Continued)

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
3. Thrust Reverser Unstow Indicating System (Cont'd)				
2) RB211 Engines	C	4	3	(M) (O) One reverser unstow indication may be inoperative provided associated reverser is locked in forward thrust position.
	A	4	2	(M) Two may be inoperative provided: a) Associated reversers are considered inoperative, b) Inoperative reversers are on symmetrical engines only, c) Anti-skid and auto spoilers systems operate normally, d) No damage exists which would impair structural integrity of associated reversers, e) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and f) Repairs are made within three flight days.

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
4. Reverse Thrust (Full Reverse) Position Indicating System				
1) JT9D-70A Engines	C	4	0	(M) May be inoperative (and reverser(s) used) provided the Unstow Position Indicating System and Thrust Reverser Armed Indicating System for associated engine(s) operates normally.
2) CF6 Engines	C	4	0	(M) May be inoperative (and reverser(s) used) provided the Unstow Position Indicating System and Thrust Reverser Valve Indicating System for associated engine(s) operates normally.
3) RB211 Engines	C	4	0	(M) May be inoperative (and the reverser used) provided: a) Associated unstow position indicating system operates normally, and b) Associated thrust reverser unlock indicating system operates normally.

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SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST					
5. Thrust Reverser Valve Indicating System (CF-6 Engines)					
	1) CF-6 Engines With Fan and Turbine Reversers	C	4	2	May be inoperative for associated inoperative reverser(s).
	2) CF-6 Engines Without Turbine Reversers	C	4	3	One may be inoperative for associated inoperative reverser.
		A	4	2	(M) Two may be inoperative provided: a) Associated reversers are considered inoperative, b) Inoperative reversers are on symmetrical engines only, c) Anti-skid and auto spoilers systems operate normally, d) No damage exists which would impair structural integrity of associated reversers, e) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and f) Repairs are made within three flight days.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST					
	6. Thrust Reverser Armed Indicating System (JT9D-70A Engines)	C	4	3	(M) One may be inoperative provided that on the associated engine: a) Thrust reverser unstow indicating system operates normally, and b) Stow latch on each reverser cowl half, and latch operating arm on the reverser air motor are verified in the latched position before each departure.
		C	4	3	(M) One may be inoperative provided that on the associated engine: a) Thrust reverser is considered inoperative, and b) An accepted procedure is established to verify that inoperative thrust reverser is locked in the forward thrust position.
		A	4	2	(M) Two may be inoperative provided: a) Associated reversers are considered inoperative, b) Inoperative reversers are on symmetrical engines only, c) Anti-skid and auto spoilers systems operate normally, d) No damage exists which would impair structural integrity of associated reversers, e) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and f) Repairs are made within three flight days.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
7. *** Reverse Actuated Bleed System (RABS)	C	4	-	(M) Electric control system may be inoperative provided associated engine reversing system is deactivated.
1) Without Turbine Reversers	A	4	2	(M) Two may be inoperative provided: a) Associated reversers are considered inoperative, b) Inoperative reversers are on symmetrical engines only, c) Anti-skid and auto spoilers systems operate normally, d) No damage exists which would impair structural integrity of associated reversers, e) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and f) Repairs are made within three flight days.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST					
8. ***	Reverse Thrust Limiter Valve (CF6-45/50 Engines)	C	4	3	(M) One may be inoperative provided: a) Vent in the valve is blocked, and b) Fan reverser on the associated engine is deactivated.
	1) Without Turbine Reversers	A	4	2	(M) Two may be inoperative provided: a) Vent in the valve(s) is blocked, b) Associated reversers are considered inoperative, c) Inoperative reversers are on symmetrical engines only, d) Anti-skid and auto spoilers systems operate normally, e) No damage exists which would impair structural integrity of associated reversers, f) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and g) Repairs are made within three flight days.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST				
9. Reverser Blocker Doors (JT9D Engines)				
1) All Except JT9D-70A Engines	C	-	-	Two fan reverser blocker doors (excluding the upper two on right side of the engine for 747-100 airplanes and excluding upper door on right side of the engine for 747-200/300 airplanes), and two turbine reverser blocker doors per engine, may be inoperative (with reverser(s) considered to operate normally).
2) JT9D-70A Engines	C	-	-	One fan reverser blocker door per engine may be inoperative (with reverser(s) considered to operate normally).

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
78 ENGINE EXHAUST					
10.	Thrust Reverser Unlock Indicating System (RB211 Engines)	C	4	3	(M) One may be inoperative provided associated reverser is locked in forward thrust position.
		A	4	2	(M) Two may be inoperative provided: a) Associated reversers are considered inoperative, b) Inoperative reversers are on symmetrical engines only, c) Anti-skid and auto spoilers systems operate normally, d) No damage exists which would impair structural integrity of associated reversers, e) An accepted procedure is established to verify that the inoperative thrust reversers are locked in the forward thrust position, and f) Repairs are made within three flight days.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
79 ENGINE OIL				
1. Oil Quality Indicating Systems	C	4	3	(M) (O) One may be inoperative provided: a) It is verified before each departure that the oil tank is filled to the maximum recommended capacity, b) There is no evidence of above normal oil consumption or leakage, and c) Associated oil pressure indicating, oil pressure warning, and temperature indicating systems operate normally and are monitored.
2. Oil Pressure Warning Light Systems				
1) CF6 and JT9D Engines	C	4	3	(O) One may be inoperative provided associated oil pressure, temperature, and quantity indicators operate normally, and are monitored. (Continued)

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SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
79 ENGINE OIL				
2. Oil Pressure Warning Light Systems (Cont'd)				
2) RB211 Engines	C	4	3	(M) (O) Except as required by Airworthiness Directive T81-22-51, one may be inoperative provided: a) Associated oil pressure indicator operates normally, b) Associated differential oil pressure indicator operates normally, c) Associated oil temperature indicator operates normally, d) Associated oil quantity indicator operates normally, e) All operating oil system indications are monitored, f) HP oil filters without a differential pressure indication are checked once each flight day, and g) RR SB 72-78-36 or production equivalent is installed.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
79 ENGINE OIL				
3. Oil Filter Bypass Warning Light Systems	C	4	0	(M) May be inoperative provided: a) It is verified that the malfunction is in the warning system, and b) At intervals not to exceed 30 hours time in service, the main oil screen is inspected for the presence of contaminants.
	C	4	0	(O) May be inoperative provided associated oil filter pressure indicators operate normally, and are monitored.
4. *** Oil Filter Pressure Indicators	C	4	0	May be inoperative provided associated FILTER BYPASS lights operate normally.
	C	4	0	(M) May be inoperative provided: a) It is verified that the malfunction is in the indication system, and b) At intervals not to exceed 30 hours time in service, the main oil screen is inspected for the presence of contaminants.
5. *** Engine Breather Indicators (Pressure or Temperature) (JT9D Engines)	C	4	0	
6. Oil Temperature Indications				Deleted, Rev. 20.
7. Oil Pressure Indications				Deleted, Rev. 20.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
79 ENGINE OIL				
8. Combined Filter and Differential Pressure Indicating Systems RB211 Engines	C	4	0	(M) Except as required by Airworthiness Directive T81-22-51 may be inoperative provided RR SB 72-78-36 or production equivalent is installed.
9. Fine Scavenge Oil Differential Pressure (“FILT DELTA P” Gage) Indicating System RB211 Engines	C	4	3	(M) (O) Except as required by Airworthiness Directive T81-22-51 one may be inoperative provided: a) Associated oil pressure indicator operates normally, b) Associated oil pressure warning light operates normally, c) Associated oil temperature indicator operates normally, d) Associated oil quantity indicator operates normally, e) All operating oil system indications are monitored, f) Scavenge oil filter is checked once each flight day, and g) RR SB 72-78-36 or production equivalent is installed.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
79 ENGINE OIL				
10. High Pressure Oil Differential Pressure (“FILT DELTA P” Gage) Indicating System RB211 Engines	C	4	3	(M) (O) Except as required by Airworthiness Directive T81-22-51 one may be inoperative provided: a) Associated oil pressure indicator operates normally, b) Associated oil pressure warning light operates normally, c) Associated oil temperature indicator operates normally, d) Associated oil quantity indicator operates normally, e) All operating oil system indications are monitored, f) HP oil filter is checked once each flight day, and g) RR SB 72-78-36 or production equivalent is installed.
11. Oil Tank Flapper Valves ***	C	4	0	(M) May be inoperative provided associated oil tank filler cap is secured closed after each servicing.

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
80 STARTING				
1. STARTER VALVE OPEN Lights				
1) Single Light System	C	4	3	(M) (O) One may be inoperative provided it is verified after engine start that the associated valve is closed.
2) Dual Light System	C	8	6	(M) (O) Two lights on one engine may be inoperative provided it is verified after engine start that the associated valve is closed.
	C	8	4	(O) One light on each engine may be inoperative.
2. Engine Start Valve	C	4	3	(M) (O) One may be inoperative closed provided: a) Pylon bleed air shutoff valves on remaining engines operate normally, and b) Accepted alternate starting procedures are established and used.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
82	WATER INJECTION				
1. ***	Water Drain System (JT9D Engines)	C	1	0	(M) May be inoperative provided valve remains closed (-200 only).
2.	Water Flow Lights (JT9D Engines)	C	4	3	One may be inoperative provided the N1, N2 and Fuel Flow indicators, and associated PRESS light operate normally.
		C	4	3	May be inoperative on engines with inoperative water injection systems.
3.	Water Pressure Lights (JT9D Engines)	C	4	0	May be inoperative provided N1, N2 and Fuel Flow indicators, and water flow systems on associated engine(s) operate normally.
		C	4	0	May be inoperative on engines with inoperative water injection systems.
4.	Water LOW PRESS Light (Pilot's and/or F/E Panel) (JT9D Engines)	C	-	0	

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
82 WATER INJECTION					
5.	Water Injection Shutoff Valve (JT9D Engines)	C	4	0	(M) (O) May be inoperative closed.
		C	4	0	(M) May be inoperative open provided an acceptable blocker plate is installed in water line (to prevent bleed air back-pressuring).
		C	4	0	(O) May be inoperative open provided: a) Water regulator check valve function operates normally, b) Water pumps are not turned on until an EPR of 1.2 is attained, and c) Associated N1 and N2 indicators, WATER FLOW and water PRESS lights operate normally.
6.	Water Injection System (JT9D Engines)	C	4	0	(M) May be inoperative with associated engine(s) operated at dry thrust rating provided: a) Associated water pump(s) is deactivated, and b) Operation (including performance) complies with AFM.

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS AND EXCEPTIONS
82	WATER INJECTION				
7.	Water Quantity Indicators (JT9D Engines)	C	2	0	(M) (O) May be inoperative provided: a) Tank is filled to standpipe level, b) A visual check is made to verify that there are no water tank leaks, and c) Antisiphon valves (PRR 73562-1) are installed and operating normally.
		C	2	0	(M) May be inoperative provided: a) Tank is filled to standpipe level, b) A visual check is made to verify that there are no water tank leaks, and c) A procedure is established to verify water pumps are not turned on until immediately before takeoff.
		C	2	0	May be inoperative provided water injection is not used.
8.	Antisiphon valve (JT9D Engines)	C	1	0	(M) May be inoperative provided: a) Vent line for antisiphon valve, if failed open, is capped, and b) Water injection pumps are not turned off (after starting) until all required water has been used.
		C	1	0	May be inoperative provided water injection is not used.