

Civil Aviation Authority

MASTER MINIMUM EQUIPMENT LIST

SIKORSKY S-61N, S-61NM

Revision 3a

20 September 2007

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Civil Aviation Authority
MASTER MINIMUM EQUIPMENT LIST
SIKORSKY S-61N, S-61NM

Revision 3a
20 September 2007

REVISION 3a

This Master Minimum Equipment List (MMEL) is issued by the Civil Aviation Authority at the above revision and is approved as the basis for the preparation and approval of individual operators' Minimum Equipment Lists (MELs) for aircraft of this Type.



.....
H A Fowler

For and on behalf of the
Civil Aviation Authority

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REVISION RECORD

REVISION No.	ISSUE DATE	INCORPORATED BY	DATE
Original	8 March 1993		
Revision 1	25 February 1994		
Revision 2	16 June 1995		
Revision 3	6 September 2005		
Revision 3a	20 September 2007		

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PREAMBLE

1. The CAA approved Master Minimum Equipment List (MMEL) provides owners/operators of United Kingdom registered aircraft, of the relevant type, with the basis for the preparation of their individual Minimum Equipment List (MELs). In the case of holders of Air Operators' Certificates the MEL will be included in that company's Operations Manual.
2. The approved MMEL represents a list of items of equipment which, under particular circumstances, can, to the satisfaction of the CAA, be unserviceable when the aircraft is dispatched, while still retaining the required level of safety.
3. The CAA recognises that in some respects the standard and scale of equipment provided in the aircraft may exceed the minimum required to satisfy airworthiness or Air Navigation Legislation requirements. Where necessary to achieve a satisfactory level of safety with an inoperative item, appropriate limitations are imposed or the function transferred to another component.
4. The MMEL does not include items such as wings, engines and landing gear that are always required, nor is reference made to equipment such as passenger convenience and entertainment items which when inoperative obviously do not affect airworthiness. It is important to note therefore that **ANY ITEM WHICH IS RELATED TO THE AIRWORTHINESS OF THE AIRCRAFT AND WHICH IS NOT INCLUDED IN THE MMEL IS ALWAYS REQUIRED TO BE OPERATIVE BEFORE A FLIGHT IS DISPATCHED.** Likewise, items which are required by Operating Requirements or Additional Certification Requirements as appropriate, which are not listed, must be operative.
5. The MMEL may not waive a limitation or an emergency procedure which is given in the Flight Manual (FM) or override an Airworthiness Directive (AD) / Mandatory Inspection unless the FM/AD provides otherwise. Similarly, any Additional Certification Requirements or other special provisions, as appropriate, which have been determined as necessary by the CAA shall not be waived unless otherwise agreed or varied by the CAA.
6. An Owner/Operator's MEL must receive CAA approval which thereby conveys the permission, required by the UK Air Navigation Order, to the Commander, for operation of the aircraft with specified items of equipment unserviceable.
7. The MEL may not be less restrictive than the MMEL, therefore the number of items required for dispatch shall not be less than the corresponding number in column 4 of the MMEL and any associated conditions shall be at least as severe as those specified in column 5.
8. The MMEL does not anticipate the effects of combinations of apparently unrelated unserviceabilities or allow for situations where systems are made inoperative for special purposes such as demonstration, test or crew training. Other provisions may apply to positioning or ferrying flights but these may not necessarily be included in the MMEL.
9. The MEL should indicate that a decision to operate the aircraft with multiple unserviceabilities should only be made after due consideration of possible interrelated or additive effects and, if necessary, following consultation with appropriate engineering specialists.

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PREAMBLE (Cont.)

10. It is not the purpose of the MMEL to allow defects of other than optional items to remain unrectified indefinitely. The operational flexibility provided under the MMEL policy is justified only within a framework of controlled and sound programmes of repairs, replacement and servicing. Defects should be rectified expeditiously thus retaining the intended overall level of safety and reducing the possibility of a subsequent failure necessitating the removal of the aircraft from service. With the introduction of Rectification Intervals, all items in the MMEL are subject to a limitation of flight hours, number of flights or consecutive calendar days, and these must be transferred into the MEL. Operators with established routes shall specify in the MEL at which stations, in addition to the main maintenance base, repair facilities exist.
11. This MMEL is based upon UK legislation and some of the alleviations it provides may not therefore necessarily comply with foreign legislation.

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NOTES AND DEFINITIONS

1. In this list, the items of equipment are classified in systems according to the ATA 100 specification. Individual items within a given ATA classification are numbered sequentially.

2. “Item” (Column 1): The equipment, system, components or function as listed in Column 1.

“(If Installed)”: Indicates the listed item of equipment is not applicable to all models or configurations. It does not imply that the aircraft may be operated in accordance with this MMEL with the item removed.

NOTE 1: Items annotated in UPPER CASE letters indicate the precise flight deck legend used.

3. “Rectification Intervals” (Column 2) : Inoperative items or components, deferred in accordance with the MEL, must be rectified at or prior to the rectification intervals established by the following letter designators given in the “Rectification Interval” column (2) of the MMEL.

Category A

No standard interval is specified, however, items in this category shall be rectified in accordance with the conditions stated in the Remarks column (5) of the MMEL.

Where a time period is specified it shall start at 00:01 on the calendar day following the day of discovery.

Category B

Items in this category shall be rectified within three (3) consecutive calendar days, excluding the day of discovery. For example, if it were recorded at 10 am on January 26th, the three day interval would begin at midnight on the 26th and end at midnight on the 29th.

Category C

Items in this category shall be rectified within ten (10) consecutive calendar days, excluding the day of discovery. For example, if it were recorded at 10 am on January 26th, the 10 day interval would begin at midnight on the 26th and end at midnight on February 5th.

Category D

Items in this category shall be rectified within one hundred and twenty (120) consecutive calendar days, excluding the day of discovery.

4. “Number Installed” (Column 3): The number of the specified items normally installed in the aircraft. This number identifies the aircraft configuration considered in developing the MMEL.

NOTE: The operator’s MEL should list the number installed in a particular aircraft.

5. “Number Required for Dispatch” (Column 4): The minimum number of the specified items required for operation provided the conditions defined in Column 5 are met.

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NOTES AND DEFINITIONS (Cont.)

6. “Remarks or Exceptions” (Column 5): This column includes a statement prohibiting operation or permitting operation with a specific number of items inoperative, provisos (conditions and limitations) for such operation and appropriate notes.

A note in column 5 indicates additional information and references for crew and/or maintenance personnel consideration; they are not part of the provisos.

Where references are stated in column 5 these are to identify certain inter-relationships between the subject item and other MMEL items, AFM material etc. These references are intended to assist, but not relieve, an operator of the responsibility for determining such inter-relationships as stated in the Preamble.

7. Dash (-): This symbol indicates a variable quantity when used in Columns 3 or 4.

NOTE: The operator's MEL should list the numbers appropriate to his particular aircraft in Columns 3 and 4.

8. Placarding: Each inoperative item must be placarded to inform and remind the crew members and maintenance personnel of the equipment condition. To the extent practicable, placards should be located adjacent to the control or indicator for the item affected such that it is clear to the operating crew that it or its associated system is inoperative.

NOTE: The practice of specifying which items must be placarded, by means of an asterisk (*) has been discontinued.

9. “Inoperative”: A system or item of equipment is deemed inoperative if it malfunctions such that it does not accomplish its intended purpose and/or is not consistently functioning within its designed operating limit(s) or tolerance(s).

10. “(O)”: The use of this symbol in Column 5 indicates that an appropriate operating procedure (or change to an existing procedure) must be established, published and utilised to maintain the required level of safety while operating under the terms of the (M)MEL.

Normally, these procedures are accomplished by the flight crew. However, other personnel may be qualified and authorised to perform certain functions.

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NOTES AND DEFINITIONS (Cont.)

11. “(M)”: The use of this symbol in Column 5 indicates that an appropriate maintenance procedure must be established, published and utilised prior to the first flight undertaken following discovery of the defect and, if necessary, repeated at specified intervals during operation under the terms of the (M)MEL to maintain the required level of safety.

Normally, these procedures are accomplished by maintenance personnel. However, other personnel may be qualified and authorised to perform certain functions.

NOTE: Where an item is annotated (O)/(M), the “/” is defined as “and/or”, which shows that there may be different options available in respect of the MEL procedures.

12. “As required by Air Navigation Legislation / Operating Requirements”: The associated item must comply with legal provisions such as the Air Navigation Order or any other legislation (JAR-OPS 3) in force during the flight. Operators should refer to JAR-OPS 3 MEL Policy Document for suitable alleviations based upon the required equipment identified within JAR-OPS 3, subparts K and L (published in the JAA Administrative and Guidance Material, Section Four, Operations, Part Three, TGL 26).
13. “VMC” and “IMC”: The definitions of these terms are those used in Section 2 of the Air Navigation Order - Rules of the Air.
14. “Icing Conditions”: An atmospheric condition that may cause ice to form on the aircraft or in the engines.
15. “Visible Moisture”: An atmospheric environment containing water in any form that can be seen in natural or artificial light, i.e. clouds, fog, rain, sleet, hail, snow.
16. “Flight Hour”: The time from the moment an aircraft leaves the surface of the earth until it touches it at the next point of landing.

NOTE: The definition differs from that given in the Air Navigation Order.

17. “Flight day”: A 24 hour period (from midnight to midnight) during which at least one flight is scheduled for the affected aircraft.
18. “Calendar Day”: A period of 24 hours, commencing at midnight on the day of discovery and recording of a malfunction in the aircraft's maintenance record/log book and ending at midnight on the next day. For example, if it were recorded at 10 am on January 26th that a malfunction had occurred, and the MMEL allowed 3 calendar days for completion of repairs or replacements, the 3 day interval would commence at midnight on 26th January and end at midnight on 29th January.

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NOTES AND DEFINITIONS (Cont.)

19. “Authority”: The competent regulatory authority according to the country of registry; for aircraft registered in the U.K. this is the Civil Aviation Authority.
20. “Deleted”: When applied to an item number, indicates that the item was previously listed but is now required to be operative.
21. “System”: System means the group of directly related components which together perform a specified function, for example “RPM Indication System” would include the RPM Indicator, tachometer generator, circuit breaker and associated circuitry.
22. “Dispatch”: The point at which an aircraft first moves under its own power for the purpose of commencing a flight.

NOTE The definition above is in accordance with that given in Article 155(2)(a) of the ANO and it is at the point of dispatch that the provisions of the MMEL cease to apply. They come into effect again when the aircraft next comes to rest at the end of its flight. In the case of a helicopter which comes to rest without stopping rotors, it is deemed to have ended its flight and the provisions of the MMEL then apply until it is next dispatched.

23. “Combustible (Material)”: is defined as material which is capable of catching fire and burning.

When an MMEL item specifies the condition that only non-combustible materials are to be carried, it is the operator's responsibility to determine that all material (including containers, packing material and pallets etc) in the associated compartments is of a non-combustible nature.

If it cannot be determined whether any proposed cargo is non-combustible, it must not be loaded in compartments where combustible materials are prohibited.

24. “Adequate External Attitude Reference”: is defined as meteorological conditions and visual cues that permit the helicopter attitude and flight path to be determined without sole reference to instruments.
25. “Deactivated and secured”: means that the specified component must be put into an acceptable condition for safe flight. An acceptable method of securing or deactivating will be established by the operator.
26. “NOT USED”: An item which appeared in the base document (e.g. FAA MMEL) but which has not been included in the CAA MMEL. The base document item number is retained for continuity.

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NOTES AND DEFINITIONS (Cont.)

27. **Guidelines for Compliance with Vibration Health Monitoring Requirements.**

The Air Navigation Order (ANO) covers the requirement for the installation of an approved **Vibration Health Monitoring (VHM)** system in applicable helicopters identified within the **ANO**. **CAP 753** has been written and published to provide guidance to operators on how they can obtain compliance with the **ANO**. **The following guidelines also apply where certification requirements specify the need for vibration monitoring, or where a VHM system has been fitted but no requirement exists.** Due to the **VHM** system complexity and the helicopter's operational environment, it has been considered practicable for the operation of the **helicopter** with certain **VHM functions/capabilities** inoperative. Each operator should review the system fitted in each applicable helicopter type and propose suitable alleviations within their MEL(s) for the sub sections identified within the CAA MMEL entry (ATA 45), covering the vibration monitoring system installation and related infrastructure. **CAP 753** contains appropriate guidance information for use by operators in developing alleviations for their MEL(s), against the applicable sub sections within the CAA MMEL entry.

Depending upon the system installation, if the data analysis (or failure indication system) indicates a malfunction of any system or sensor, e.g. accelerometer, then the maximum period that the item or system can be deemed to be unserviceable prior to accomplishment of repairs/replacements should be as follows :

- (1) 25 flying hours

However, if the specific item has previously been under investigation due to an adverse trend identified by the **VHM** system, then the maximum period of unserviceability should be reduced to :

- (2) 10 flying hours

The rectification interval for the alleviation covering the Main and Tail Rotor Track & Balance diagnostics prior to accomplishment of repairs/replacements is recommended at a maximum of :

- (3) 100 flying hours

However, vibration data from any airframe mounted Rotor Track and Balance accelerometer should be considered as vital for monitoring rotor serviceability and therefore should be subject to the limitation identified in (1) above. Although the above text provides guidance for the maximum rectification periods that certain components or systems can be inoperative, operators should ensure that defects are rectified expeditiously, thus retaining the overall level of safety of the helicopter.

Alternative rectification intervals for any of the above items may be considered but would require the agreement of the Civil Aviation Authority (Propulsion and MMEL sections) prior to inclusion within the operator's MEL.

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NOTES AND DEFINITIONS (Cont.)

28. “It is not reasonably practical to repair or replace before the commencement of flight / It is not reasonably practicable for repairs or replacements to be made”: These statements are intended to cover situations where there is a lack of a replacement part(s), inadequate engineering resources or manpower to enable the defect to be rectified.

Note: The intention of either of these statements in an MMEL is that the aircraft may be dispatched if there are inadequate available spares or if there are no qualified and authorised personnel on base to perform the task. The definition is not dependent on whether there is enough time available to complete the task before the next flight. If the aircraft is at a maintenance base or any other airport, but the spare(s) or manpower are not available, then the aircraft may be dispatched. As soon as the aircraft lands at an airport where the spares are available and there are qualified and authorised personnel on base, the defect must be rectified.

29. “The aircraft may depart on the flight or series of flights for the purpose of returning directly to a base where repairs or replacements can be made / The aircraft may continue the flight or series of flights but shall not depart an airport where repairs or replacements can be made”: These statements are intended to allow the aircraft to be flown, using the most direct route, to the nearest maintenance base where arrangements for repairs or replacements can be made.

Note: Once the aircraft lands at the maintenance base, the aircraft shall not be dispatched until the defect has been rectified.

30. Base documents used for the preparation of this MMEL are:
- (a) CAA MMEL for Sikorsky Helicopter S-61N, S-61NM, **Revision 3, dated 6 September 2005.**
 - (b) FAA approved MMEL Sikorsky S-61 **Revision 11a, dated 17 September 2007.**
 - (c) CAA MMEL Policy Items, as at **20 September 2007.**
 - (d) JAR-OPS 1/3 MEL Policy Document, JAA Administrative and Guidance Material, Section Four: Operations, Part Three: TGL 26, **Revision 8, dated 1 June 2007.**

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HIGHLIGHTS OF REVISION 3

- General** The CAA MMEL has been amended to take into account changes to the FAA MMEL at Revision 11 and changes to CAA MEL policy.
Temporary Revision Record deleted.
Rectification intervals added (at column 2). Columns re-numbered to suit.
References to “Air Navigation Legislation” replaced with “Operating Requirements”
- Notes and Definitions** Definition and explanatory notes for Rectification Intervals added at Item 3.
Further / revised notes and definitions at Items 6, 8, 12, 28 & 29.
Guidelines for compliance with AAD 001-0599 (HUMS) added at Item 27.
Updated references to source documents.
Remaining items re-numbered to suit.
- 22 Auto Flight**
1. Automatic Flight Control System Updated in line with current CAA MMEL Policy.
- 23 Communications**
3. Cockpit Voice Recorder Exception re practicality of repair before next flight removed.
10. Hoist Operator ICS New item in line with FAA MMEL.
- 24 Electrical Power**
7. Alternate Battery New item in line with FAA MMEL.
- 25 Equipment / Furnishings**
1. Passenger Seat Belts Updated in line with current CAA MMEL Policy.
9. ADEL T Amended to read “As required by Operating Requirements”.
11. Cabin Crew Seat and Harnesses Updated in line with current CAA MMEL Policy.
13. Flight Crew Member Shoulder Harness Added “Flight” to item title. Removed reference to (M) procedure.
21. Sonic Locator New item in line with FAA MMEL.
- 26 Fire Protection**
2. Hand Held Fire Extinguishers Updated in line with JAA Policy.

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HIGHLIGHTS OF REVISION 3 (Cont.)

30 Ice and Rain Protection

- | | | |
|----|---|---|
| 2. | Pitot Heating System | Updated in line with current CAA MMEL Policy. |
| 3. | Engine Bellmouth Anti-Icing System | Remarks simplified. Separate relief for one system inoperative removed. |
| 4. | Engine Inlet Guide Vane Anti-Icing System | Remarks simplified. Separate relief for one system inoperative removed. |
| 7. | Hot Rod Ice Detector System | Amended to read "As required by Operating Requirements". |

31 Indicating / Recording Systems

- | | | |
|-----|-------------------------------|---|
| 10. | Blade Integrity Monitor (BIM) | MMEL relief removed. Relief only allowed for CBIM (Section 65). |
|-----|-------------------------------|---|

32 Landing Gear

- | | | |
|----|-------------------|---|
| 1. | Retraction System | Updated in line with other CAA MMELs and for consistency with FAA MMEL. |
| 2. | Warning System | New item in line with FAA MMEL. |

33 Lights

- | | | |
|-----|--------------------------------|---|
| 3. | Engine Instrument Light System | Remark (c) added. (In line with Flight Instrument Light System) |
| 5. | Navigation Lights | Updated in line with JAA Policy. |
| 7. | Landing Lights | Updated in line with JAA Policy. |
| 8. | Passenger Notice System | Updated in line with JAA Policy. |
| 9. | EXIS Lighting | Reference to CAA Airworthiness Notice 27 removed (in line with JAA Policy). |
| 12. | Cabin Lighting System | Updated in line with other CAA MMELs. |
| 13. | High Visibility Pulse Light | New item in line with FAA MMEL. |

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HIGHLIGHTS OF REVISION 3 (Cont.)

34 Navigation

- | | | |
|-----|----------------------------------|--|
| 1. | Airspeed Indicators | Updated in line with current CAA MMEL Policy. |
| 3. | Attitude Indicators | Updated in line with current CAA MMEL Policy. This also combines the previously separate items for Main and Standby Attitude Indicators into one item. |
| 4. | Gyroscopic Direction Indicator | Updated in line with current CAA MMEL Policy. |
| 5. | Vertical Speed Indicator | Updated in line with JAA Policy. |
| 7. | Slip and Skid Indicator | Updated in line with JAA Policy. |
| 12. | Radio Altimeter System | Updated in line with JAA Policy. |
| 15. | Altitude Encoding System | Updated in line with other CAA MMELs. |
| 23. | Supplemental Navigation Displays | New item in line with FAA MMEL. |

45 Central Maintenance System

- | | | |
|----|------------------------------------|---------------------------------------|
| 1. | Health and Usage Monitoring System | Updated in line with other CAA MMELs. |
|----|------------------------------------|---------------------------------------|

65 Rotors

- | | | |
|----|---------------------------|---------------------------------|
| 1. | Cockpit BIM (CBIM) System | New item in line with FAA MMEL. |
|----|---------------------------|---------------------------------|

73 Engine Fuel and Control

- | | | |
|----|-------------------------------|-----------------------|
| 2. | Fuel Flow / Monitoring System | Item moved to ATA 77. |
|----|-------------------------------|-----------------------|

77 Engine Indicating

- | | | |
|----|-------------------------------|--------------------------------------|
| 2. | Fuel Flow / Monitoring System | Item previously listed under ATA 73. |
|----|-------------------------------|--------------------------------------|

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HIGHLIGHTS OF REVISION 3a

General

The CAA MMEL has been amended to update guidelines for Vibration Health Monitoring, to update Item 34-11 in line with JAA Policy and to reflect the FAA MMEL at Revision 11a as a source document. Revised MMEL relief for Engine Bellmouth and Engine Inlet Guide Vanes anti-icing.

Notes and Definitions

Item No. 22	ANO reference updated.
Item No. 27	Guidelines for compliance with Vibration Health Monitoring (previously Health and Usage Monitoring System) requirements updated to reflect the ANO as the requirement source (previously AAD 001-05-99).

Updated references to source documents.

30 Ice and Rain Protection

- | | | |
|----|--|-----------------|
| 3. | Engine Bellmouth
Anti-Icing System | Revised relief. |
| 4. | Engine Inlet Guide Vane
Anti-Icing System | Revised relief. |

34 Navigation

- | | | |
|-----|-----------------|----------------------------------|
| 11. | Flight Director | Amended in line with JAA Policy. |
|-----|-----------------|----------------------------------|

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				(3) Number installed	
				(4) Number required for dispatch	
				(5) Remarks or Exceptions	
21	AIR CONDITIONING				
1.	Blower, Fresh Air (Aux Vent)	C	-	0	May be inoperative.
2.	Blower (Cabin Heater)	C	1	0	May be inoperative provided: (a) Heated air is not needed to assure defogging or defrosting. OR (b) Heated Windshield Panels (item 30-5) are operative. <u>Note:</u> Consideration must be given to crew efficiency and passenger comfort. Factors which affect this include stage length, weather, type of clothing worn etc.
3.	Air Conditioning System	C	-	0	(M) May be inoperative provided system is deactivated and secured.

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				(5) Remarks or Exceptions	
22	AUTO FLIGHT				
1.	Automatic Flight Control System (AFCS)				
	(1) Public Transport Operations	C	1	0	May be inoperative provided operations are conducted in accordance with the Flight Manual.
	(2) Non-Public Transport Operations	D	-	-	As required by Operating Requirements. Any in excess of those required may be inoperative.
2.	Stick Trim (Beep Trim Switch)	A	1	0	May be inoperative provided: (a) The spring feel system (other than the Beep Trim Switch) is operating normally, and (b) Repairs or replacements are carried out within 3 calendar days.

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23	COMMUNICATIONS				
1.	Communication Systems (FM, HF, UHF, VHF etc)	-	-	-	As required by Operating Requirements.
2.	Cabin Public Address System	C	1	0	(O) May be inoperative provided appropriate alternative normal and emergency procedures are established and utilised.
		D	1	0	May be inoperative for non-passenger carrying operations.
3.	Cockpit Voice Recorder	-	-	0	As required by Operating Requirements.
4.	Flitephone (If installed)	D	-	-	May be inoperative.
5.	Third Pilot's Intercommunication System (If installed)	D	1	0	May be inoperative.
6.	External Intercommunications System (If installed)	D	1	0	May be inoperative.
7.	Flight Crew Intercommunication System	-	-	-	As required by Operating Requirements.
8.	Headsets	-	-	-	As required by Operating Requirements.
9.	Hand Held Microphones	D	-	-	Any or all may be inoperative.
10.	Hoist Operator ICS	D	-	0	May be inoperative provided hoist operations are not conducted.

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24	ELECTRICAL POWER				
1.	Voltmeter AC	A	-	0	May be inoperative, not to exceed one flight day, provided the AC and DC generator systems are operating normally.
2.	Ground Inverter	A	1	0	May be inoperative provided: (a) External AC power is utilised for starting and shut-down, (b) Both AC generators are kept on line at en-route stops, (c) Both AC Generator Systems are operating normally, and (d) Repairs or replacements are carried out within 3 calendar days.
3.	Transformer Rectifier Unit (TRU)				Deleted.
4.	AC Generators				Deleted.
5.	DC Generator				Deleted.
6.	Ammeter	A	1	0	(O) May be inoperative not to exceed one flight day provided: (a) The intended flight is carried out with adequate external attitude reference, (b) Both AC generators are operating normally, (c) The DC generator is operating normally, and (d) Aircraft batteries are not used to start engines.

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		(5) Remarks or Exceptions	
24	ELECTRICAL POWER (Contd)		
7.	Alternate Battery (If installed)	C - 0	(M)May be inoperative provided: (a) Battery is disconnected and secured, and (b) Battery remains installed. OR (c) Battery is removed and appropriate ballast is added. OR (d) If battery is removed, weight and balance is revised.

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		(5) Remarks or Exceptions		
25	EQUIPMENT/FURNISHINGS			
1.	Passenger Seat Belts	C	-	- One fully operational belt/harness is required for each occupied seat. If belt/harness is inoperative, the associated seat(s) shall be blocked and placarded to prevent occupancy.
2.	Emergency Locator Transmitter (ELT)	-	-	- As required by Operating Requirements.
3.	Passenger Convenience Item(s)			Refer to Preamble item 4.
4.	Cargo Suspension System (If installed)	D	-	0 May be inoperative.
5.	Hoist System (If installed)	D	-	0 May be inoperative.
6.	EMS Equipment (if installed)	D	-	0 May be inoperative provided system is deactivated and secured.
7.	Lifejackets	-	-	- As required by Operating Requirements.
8.	Liferafts and Survival Equipment	-	-	- As required by Operating Requirements.
9.	Automatically Deployable Emergency Locator Transmitter (ADELT)	-	-	- As required by Operating Requirements.
10.	Sea Anchor (If installed)	-	-	- As required by Operating Requirements.
11.	Cabin Crew Seat and Harnesses	D	-	- (M) (O) Any Cabin Crew member seat, other than those required by Operating Requirements to be occupied, may be inoperative.
		B	-	- (M) (O) One required Cabin Crew member seat may be inoperative provided: (a) The inoperative seat is not occupied, (b) The Cabin Crew member displaced by the inoperative seat occupies the passenger aisle seat nearest to the inoperative crew seat,

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25	EQUIPMENT/FURNISHINGS (Contd)		
11.	Cabin Crew Seat and Harnesses Contd.		<p>(c) Alternative procedures are established / approved for the displaced Cabin Crew member,</p> <p>(d) Folding type seat is stowed or secured in the retracted position,</p> <p>(e) The passenger seat assigned to the Cabin Crew member is placarded "FOR CABIN CREW USE ONLY", and</p> <p>(f) If the aircraft is subject to direct view requirements, direct view of the passenger cabin by the Cabin Crew must not be impaired.</p> <p>Note 1: A seat with an inoperative or missing seat belt or harness is considered inoperative.</p> <p>Note 2: This requirement does not preclude use of passenger seats by Cabin Crew members carried in excess of the required Cabin Crew complement.</p> <p>Note 3: A fully automatic folding seat that will not stow automatically or remain stowed is considered to be inoperative and shall be secured in the retracted position or removed. An exception should only be made where cabin layout is such that emergency egress is not in any way compromised by a seat in the deployed position.</p>
12.	Emergency Flotation Equipment (If installed)	-	-
		-	As required by Operating Requirements.

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25	EQUIPMENT/FURNISHINGS (Contd)			
13.	Flight Crew Member Shoulder Harness			
	(1) Inertia Reels	A	-	May be inoperative provided:
				(a) The affected harness is adjusted and locked by an approved means to suit the requirements of the individual flight crew member, and
				(b) Repairs or replacement are carried out within 3 calendar days.
14.	First Aid Kits	-	-	As required by Operating Requirements.
15.	Torches	-	-	As required by Operating Requirements.
16.	Survival Suits	-	-	As required by Operating Requirements.
17.	Megaphones	-	-	As required by Operating Requirements.
18.	Underwater Sonar Location Devices	-	-	As required by Operating Requirements.
19.	Flight Deck Observer Seat & Harness	D	-	May be inoperative provided the seat is not required and is correctly stowed.

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25	EQUIPMENT/FURNISHINGS (Contd)				
20.	Passenger Seats (Including Seat Backs)	D	-	0	(M) May be inoperative secured in the upright position.
		D	-	0	(M) One or more may be inoperative provided: (a) Affected seat(s) does not block an emergency exit, (b) Affected seat(s) is blocked and placarded "DO NOT OCCUPY". <u>Note 1:</u> A seat with an inoperative seat lap belt is considered to be inoperative. <u>Note 2:</u> A seat with an inoperative recline mechanism is considered to be inoperative if the seat cannot be secured upright. <u>Note 3:</u> Inoperative seats do not affect the number of Cabin Crew required by Operating Requirements.
21.	Sonic Locator (If installed)	C	-	0	

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		(5) Remarks or Exceptions			
26	FIRE PROTECTION				
1.	Heater Overheat Light	C	1	0	May be inoperative provided the heater is considered inoperative and not used.
2.	Hand Held Fire Extinguishers	D	-	-	<p>One portable fire extinguisher must be operative for each enclosed passenger and crew compartment, one of which shall be convenient to a member of the flight crew.</p> <p>(M) Any in excess of those required may be inoperative or missing provided:</p> <p>(a) The inoperative fire extinguisher is placarded inoperative, removed from the installed location and placed out of sight so it cannot be mistaken for a functional unit, and</p> <p>(b) Required distribution is maintained.</p>

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28	FUEL				
1.	Fuel Boost Pumps	C	4	2	(O) One pump may be inoperative in each tank provided Flight Manual Limitations are observed.
2.	Fuel Quantity Gauges				
	(1) Fore and Aft Tank Gauges	A	2	1	One may be inoperative provided: (a) The tank associated with the inoperative gauge is filled to capacity, (b) Refuelling is by gravity, (c) Fuel loaded in each tank must be sufficient to supply its associated engine, at normal twin engine cruise power, to the destination including reserves, allowing for an additional 15 minutes at single engine consumption in the ungauged tank, (d) The fuel low level light must be operative, and (e) The aircraft may depart on a flight or series of flights for the purpose of returning directly to a base where repairs or replacements can be made.
	(2) Centre Tank Gauge (if centre tank installed)	A	1	0	May be inoperative provided: (a) The centre tank is filled to capacity, (b) Refuelling is by gravity, (c) The fuel quantity gauges (fore & aft) are operating normally, and (d) The aircraft may depart on a flight or series of flights for the purpose of returning directly to a base where repairs or replacements can be made.

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28	FUEL (Contd)				
3.	Pressure Fuelling (If installed)	C	1	0	May be inoperative.
4.	AC and DC Prime Pumps	C	-	0	May be inoperative.

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				(5) Remarks or Exceptions	
30	ICE AND RAIN PROTECTION				
1.	Windshield Wipers	C	2	0	One or both may be inoperative provided the aircraft is not operated in known or forecast precipitation which requires their use.
		C	2	2	Slow and variable wiper speeds may be inoperative provided fast speed operates normally.
2.	Pitot Heating System	B	2	1	(O)/(M) Any in excess of one may be inoperative for IFR or night operations provided: (a) Flight is conducted under VMC and in sight of the surface. (b) Operations are not conducted into known or forecast icing conditions, and (c) The remaining Pitot Heating System and all connected flight instruments are verified to be operative prior to each flight.
		B	2	0	One or more may be inoperative for day VFR provided the helicopter is not operated at any time in visible moisture or precipitation when OAT is less than +5 °C
		D	2	-	Any in excess of those required may be inoperative. <u>Note:</u> Refer to RFM for definition of icing conditions, which may differ from the above relief.
3.	Engine Bellmouth Anti-Icing System	B	2	1	One may be inoperative provided: (a) The aircraft is not operated in known or forecast icing conditions, (b) The aircraft is not operated in Flight Manual conditions requiring its use, and

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30	ICE AND RAIN PROTECTION (Contd)			
3.	Engine Bellmouth Anti-Icing System (Contd)			(c) Engine Bellmouth and Inlet Guide Vane anti-icing systems operate normally on the other engine.
		B	2	0 Both may be inoperative provided the known and forecast ambient temperature for the flight is not less than +10 °C.
4.	Engine Inlet Guide Vane Anti-Icing System			One may be inoperative provided:
		B	2	1
				(a) The aircraft is not operated in known or forecast icing conditions, (b) The aircraft is not operated in Flight Manual conditions requiring its use, (c) Engine Bellmouth and Inlet Guide Vane anti-icing systems operate normally on the other engine, and (d) Appropriate "Anti-Icing On" performance charts are utilised.
		B	2	0 Both may be inoperative provided:
				(a) The known and forecast ambient temperature for the flight is not less than +10 °C, and (b) Appropriate "Anti-Icing On" performance charts are utilised.
5.	Windshield Heat			(O) One or both may be inoperative provided:
		C	2	0
				(a) Cabin Heater (Item 21-2) is operative, OR (b) The aircraft is not operated in visible moisture when the OAT is less than +5°C.

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		(5) Remarks or Exceptions			
30	ICE AND RAIN PROTECTION (Contd)				
6.	Windshield Washers	D	2	0	One or both may be inoperative provided operations do not require their use.
7.	Hot Rod Ice Detector System	-	-	-	As required by Operating Requirements.

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				(5) Remarks or Exceptions	
31	INDICATING/RECORDING SYSTEMS				
1.	Clock	-	-	-	As required by Operating Requirements.
2.	Elapsed Timer (If installed)	D	-	0	May be inoperative.
3.	Hours Meter (If installed)	D	-	0	May be inoperative.
4.	Aircraft/Engine Monitoring System (If installed)				Item deleted, see ATA 45.
5.	Cockpit Voice Recorder				Refer to item 23-3.
6.	Flight Data Recorder (FDR)	-	-	-	As required by Operating Requirements.
7.	Centre Warning Panels		2	2	Individual warning captions may be inoperative provided they are associated only with systems, equipment or components which are individually permitted to be inoperative by this list.
8.	NOT USED				
9.	Advisory Panel		1	1	Individual advisory captions may be inoperative provided they are associated only with systems, equipment or components which are individually permitted to be inoperative by this list.

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32	LANDING GEAR				
1.	Retraction System	C	1	0	(M) May be inoperative provided: (a) Gear is secured down and locked, and (b) Control lever is covered and placarded. <u>NOTE</u> Landings may be performed on water in this condition.
2.	Warning System	C	1	0	(M) May be inoperative provided: (a) Gear is secured down and locked, and (b) Control lever is covered and placarded.
3.	Tail Wheel Lock				
	(1) Flights not over water	C	1	0	May be inoperative
	(2) Flights over water	A	1	0	May be inoperative in accordance with arrangements agreed by the Authority.

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33	LIGHTS				
1.	Cockpit Dome Light	C	1	0	May be inoperative provided both Pilot Map Lights are operative.
2.	Flight Instrument Light System	C	1	0	May be inoperative for daylight operations.
		C	1	1	Individual lights may be inoperative provided: (a) Sufficient lighting is operative to make each required instrument, control, and other device for which it is provided easily readable, (b) Sufficient flight deck emergency lighting is verified operative, and (c) Lighting configuration at dispatch is acceptable to the flight crew.
3.	Engine Instrument Light System	C	1	0	May be inoperative for daylight operations.
		C	1	1	Individual lights may be inoperative provided: (a) Sufficient lighting is operative to make each required instrument, control, and other device for which it is provided easily readable, (b) Sufficient flight deck emergency lighting is verified operative, and (c) Lighting configuration at dispatch is acceptable to the flight crew.
4.	Pilot Map Lights	C	2	1	One may be inoperative provided Cockpit Dome Light is operative.

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33	LIGHTS (Contd)				
5.	Navigation Lights				
	(1) Daylight Operations	C	3	0	May be inoperative for daylight operations.
	(2) Night Operations	C	-	-	Any in excess of the minimum required for night operations may be inoperative.
		A	3	2	One navigation light may be inoperative for a single night flight when departing an offshore installation provided:- (a) The appropriate air traffic control unit has been informed before departure. (b) The anti-collision light system is operative. (c) Any strobe light system, if fitted, is operative and, (d) The landing light system is operative.
6.	Anti-Collision Lights	B	2	0	May be inoperative for daylight operations. <u>NOTE</u> Daylight operations with inoperative anti-collision lights are limited to flights within UK FIR only.
		A	2	0	May be inoperative for a single night flight when departing an off-shore installation provided:- (a) The appropriate air traffic control unit has been informed before departure. (b) The navigation light system is operative. (c) Any strobe light system, if fitted, is operative and, (d) The landing light system is operative.

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33	LIGHTS (Contd)				
7.	Landing Lights	C	-	0	All may be inoperative for daylight operations.
		C	-	1	Any in excess of one adjustable landing light may be inoperative for night operations.
8.	Passenger Notice System (Fasten Seat Belt – No Smoking)	C	1	0	(M)(O) “No Smoking / Fasten Seat Belt” signs may be inoperative and the affected passenger seat(s), cabin attendant seat(s) may be occupied provided: (a) The PA system is operative and can be clearly heard throughout the cabin during flight, and (b) A procedure is used to notify passengers when the seat belts must be fastened and smoking is prohibited.
		C	1	0	May be inoperative provided passengers are not carried.
9.	Emergency Exit Perimeter (EXIS) Lighting	B	-	0	May be inoperative overland, or for over-water operations within 10 minutes flying time of land. For other over-water operations, maximum permissible LED failures: (a) EXIS I – For standard length (24 LEDs maximum of 3 failed LEDs with no more than 2 failed LEDs adjacent. = For half length (12 LEDs) a maximum of 1 failed LED. = For one third length (8 LEDs) a maximum of 1 failed LED. (b) EXIS II – A maximum of 2 failed LEDs per corner strip, one in each arm. (c) EXIS III – A maximum of 4 failed LEDs per light assembly, with not more than 1 failed LED per band along any side.

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33	LIGHTS (Contd)				
10.	Storm Lighting	C	1	0	May be inoperative provided: (a) All normal flight deck lights are operative, and (b) Flight in cloud types likely to generate lightning is avoided.
11.	Cabin Emergency Lights	D	1	0	May be inoperative for daylight operations.
		D	1	0	May be inoperative provided passengers are not carried.
		C	1	1	Individual lights may be inoperative provided inoperative lights do not exceed fifty (50) per cent of the total installed. <u>Note:</u> This does not include EXIS lighting.
12.	Cabin Lighting System	D	1	0	May be inoperative for daylight operations.
		C	1	0	May be inoperative provided passengers are not carried.
		C	1	1	Individual lights may be inoperative provided: (a) Inoperative lights do not exceed fifty (50) per cent of the total installed. (b) Cabin emergency lighting is operative, and (c) Lighting is acceptable for the crew located in the cabin to perform their required duties.
13.	High Visibility Pulse Light (If installed)	C	-	0	

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34	NAVIGATION			
1.	Airspeed Indicators			
	(1) Public Transport Operations	C	2	1
				One may be inoperative provided:
				(a) The operative instrument is on the handling pilot's instrument panel, and
				(b) Flight is conducted under day VMC conditions in sight of the surface and with adequate external attitude reference.
	(2) Non-Public Transport Operations	D	-	-
				Any in excess of those required may be inoperative.
2.	Altimeters			
	(1) Public Transport (Day) Operations	C	2	1
				One may be inoperative provided:
				(a) The operative instrument is on the handling pilot's instrument panel, and
				(b) Flight is conducted under VMC conditions in sight of the surface and with adequate external attitude reference.
	(2) Public Transport (Night) Operations	C	2	1
				One may be inoperative provided:
				(a) The operative instrument is on the handling pilot's instrument panel,
				(b) The Radio Altimeter is operative, and
				(c) The flight is conducted in sight of the surface with adequate external attitude reference.
	(3) Non Public Transport Operations	-	-	-
				As required by Operating Requirements.

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34	NAVIGATION (Contd)				
3.	Attitude Indicators				
	(1) Day VFR	B	2	1	One may be inoperative provided flight is conducted with a visual horizon.
	(a) Standby Attitude Indicator	C	1	0	May be inoperative provided all other required attitude indicators are operative.
	(2) IFR or Night Operations	B	2	1	Any in excess of one may be inoperative provided the operative attitude indicator is on the handling pilot's side.
	(a) Standby Attitude Indicator	-	1	1	Must be operative.
4.	Gyroscopic Direction Indicator				
	(1) Day VFR	A	2	0	May be inoperative provided: (a) The standby magnetic compass is operating normally, (b) Flight is conducted over land under day VFR when navigating with reference to visual landmarks, and (c) The helicopter may depart on a flight or series of flights for the purpose of returning to a base where repairs or replacements can be made.
		C	-	1	Any in excess of one may be inoperative provided the operative Gyroscopic Direction Indicator is on the handling pilot's side.
	(2) IFR or Night Operations	C	2	1	Any in excess of one may be inoperative provided: (a) The operative Gyroscopic Direction Indicator is on the handling pilot's side, and (b) The standby magnetic compass is operative.

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		(3) Number installed		(4) Number required for dispatch	
				(5) Remarks or Exceptions	
34	NAVIGATION (Contd)				
5.	Vertical Speed Indicator	C	2	1	Any in excess of one may be inoperative provided the operative VSI is on the handling pilot's side.
		B	2	0	May be inoperative provided the flight is conducted by day under VFR when navigating with reference to visual landmarks.
6.	Gyroscopic Rate of Turn Indicator (If installed)	C	-	0	Any or all may be inoperative.
7.	Slip and Skid Indicator	C	2	1	Any in excess of one may be inoperative provided the operative slip and skid indicator is on the handling pilot's side.
		B	2	0	May be inoperative when flight is conducted under VFR when navigating with reference to visual landmarks.
8.	Navigation Systems (VOR, ILS, ADF, Long Range, etc)	-	-	-	As required by Operating Requirements.
9.	Marker Beacon	-	-	-	As required by Operating Requirements.
10.	ATC Transponder	-	-	-	As required by Operating Requirements.
11.	Flight Director	C	-	0	(O) May be inoperative provided precision navigation or approach minima are not dependent on their use

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				(3) Number installed	
				(4) Number required for dispatch	
				(5) Remarks or Exceptions	
34	NAVIGATION (Contd)				
12.	Radio Altimeter System	A	-	0	<p>If required may be inoperative provided:</p> <p>(a) Not more than 6 hours shall be flown over water since the radio altimeter became unserviceable,</p> <p>(b) Not more than 24 hours have elapsed since the radio altimeter became unserviceable,</p> <p>(c) The aircraft shall not fly over water at an altitude of less than 500 feet except for take-off and landing,</p> <p>(d) The aircraft shall not descend below 500 feet on approach to landing over water unless the landing site is clearly visible to the pilot.</p>
13.	Weather Radar System	-	-	-	As required by Operating Requirements.
14.	Thunderstorm Detection System	D	-	0	May be inoperative.
15.	Altitude Encoding System	D	-	0	Any in excess of those required may be inoperative.
16.	DME	-	-	-	As required by Operating Requirements.
17.	Gyro Compass	-	1	-	As required by Operating Requirements.
18.	Standby Magnetic Compass	D	2	1	One may be inoperative.
		B	2	0	Both may be inoperative provided at least two independent stabilised compass systems are installed and operative.
19.	Homer Equipment (VHF/UHF) (If Installed)	D	-	0	May be inoperative.
20.	Area Navigation System (If installed)	C	-	0	May be inoperative.
21.	Outside Air Temperature Indicator	-	-	-	As required by Operating Requirements.

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				(5) Remarks or Exceptions	
34	NAVIGATION (Contd)				
22.	TCAS I System (If installed)	D	1	0	(M) May be inoperative provided the system is deactivated and secured.
23.	Supplemental Navigation Displays (If installed) (e.g. moving map, radar graphic)	C	-	0	May be inoperative provided navigation is not predicated on its use.

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		(5) Remarks or Exceptions	
45	CENTRAL MAINTENANCE SYSTEM		
1.	Health and Usage Monitoring System (HUMS) (if installed)	A	-
			-
			The maximum permitted intervals between successful data downloads are agreed by the Authority.
			Note: The document reference for these procedures shall be included in the MEL.

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		(3) Number installed		(4) Number required for dispatch	
		(5) Remarks or Exceptions			
52	DOORS				
1.	Door Warning Light System	C	1	0	May be inoperative provided it is confirmed by visual inspection that the doors are closed and latched immediately prior to each departure.
2.	Airstair Strap and Reel	C	-	0	May be inoperative.
3.	Freight Door	C	1	0	May be inoperative provided: (a) Intended operation does not involve over-water flight, except when the door is locked open, OR (b) The door is physically checked to confirm that it is closed and locked prior to departure on an overland flight

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		(5) Remarks or Exceptions		
65	ROTORS			
1.	NOT USED			
2.	Automatic Flight Control System (AFCS)			Refer to item 22-1.
3.	Rotor Brake	A	1 0	(M)(O) May be inoperative for departing on a flight or series of flights for the purpose of returning directly to a base where repairs or replacements can be made provided: (a) A check is carried out to ensure the rotor disc is free, (b) An approved procedure is used to deactivate the system, and (c) Rotor engagement and shut down should be accomplished with the aircraft into wind only in accordance with the Flight Manual.
4.	Emergency Lubrication System		1 1	Must be operative for over-water operations.
		C	1 0	May be inoperative for overland operations provided flight is conducted with adequate external attitude reference and in sight of the surface.
5	Cockpit BIM (CBIM) System	B	- 0	(O) May be inoperative provided a visual check is made of the Visual BIM (VBIM) System in accordance with the Flight Manual.

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		(3) Number installed		(4) Number required for dispatch	
		(5) Remarks or Exceptions			
73	ENGINE FUEL AND CONTROL				
1.	Low Fuel Pressure Indicator Lights	C	2	0	One or both may be inoperative provided: (a) Aircraft is operated below 5,000 feet pressure altitude, and (b) Respective engine fuel boost system is operative and is selected ON.
2.	Fuel Flow/Monitoring System (If installed)				Refer to Item 77-2
3.	Fuel Pressure Gauges	C	2	0	One or both may be inoperative provided: (a) both fuel low pressure warning lights are operating normally, and (b) the fuel boost pumps are operating normally.

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		(3) Number installed		(4) Number required for dispatch	
				(5) Remarks or Exceptions	
77	ENGINE INDICATING				
1.	Gas Generator Tachometer System (Ng)	A	2	1	One may be inoperative provided: (a) Engine start is not required, and (b) Repairs or replacements are carried out before next engine start.
2.	Fuel Flow/Monitoring System (If installed)	A	-	0	May be inoperative provided repairs or replacements are carried out within 3 calendar days.
3.	Triple Indicating Tachometer	A	2	1	Either engine Nf indicator system may be inoperative provided: (a) Associated Ng, Torque and T5 indications are operating normally, and (b) Repairs or replacements are carried out within 3 calendar days.

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		(3) Number installed		(4) Number required for dispatch	
				(5) Remarks or Exceptions	
79	ENGINE OIL				
1.	Pressure Warning Lights	C	2	0	One or both may be inoperative provided engine pressure and temperature gauges are operative.
2.	Emergency Lubrication System				Refer to item 65-4.
3.	Engine Oil Pressure Gauges	A	2	1	One may be inoperative provided: (a) The associated CWP caption and temperature gauge are operating normally, (b) The fault has been positively identified to be in the indicating system, and (c) Repairs or replacements are carried out within 3 calendar days.
4.	Engine Oil Pressure Captions	A	2	1	One may be inoperative provided: (a) The associated pressure and temperature gauges are operative, and (b) Repairs and replacements are carried out within 3 calendar days.

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		(4) Number required for dispatch	
		(5) Remarks or Exceptions	
80	STARTING		
1.	Starter Warning Lights	A 2	0 (O) One or both may be inoperative provided: (a) Procedures are established and used to ensure that the affected starter(s) engage(s) and disengages, (b) The Commander monitors engagement and disengagement during the starting cycle, and (c) Repairs or replacements are carried out within 3 calendar days.

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