JOINT AVIATION AUTHORITIES

MASTER MINIMUM EQUIPMENT LIST (MMEL)

212, 412 SERIES HELICOPTER

REVISION: ORIGINAL

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8 May 2008

JOINT AVIATION AUTHORITIES

MASTER MINIMUM EQUIPMENT LIST

212, 412 SERIES HELICOPTER

This Master Minimum Equipment List (MMEL) is issued by the Joint Aviation Authorities (JAA) at the above revision and is recommended for approval as the basis of the preparation and approval of individual operators' Minimum Equipment Lists (MELs) for aircraft of this type as certified by the European Aviation Safety Agency and operated under the jurisdiction of JAA member states National Authorities.

Signed by

Evan Nielson
for and on behalf of the JAA

Correspondence concerning this document should be addressed to the office listed below:

European Aviation Safety Agency
Postfach 10 12 53
50452 Koln
Germany

Attention: Head of Certification Flight Standards

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REVISION RECORD / REASON					
Rev	**Date**	**By**	**Checked**	**Approved**	**Approved**
Section	**Description**				

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Acronym List

ADELT	Automatically Deployable Emergency Locator Transmitter
ADF	Automatic Direction Finder
AFCS	Automatic Flight Control System
AFM	Aircraft Flight Manual
ATA	Air Transport Association
ATC	Air Traffic Control
CAA	Civil Aviation Authority
CVR	Cockpit Voice Recorder
CWP	Caution Warning Panel
DME	Distance Measuring Equipment
EASA	European Aviation Safety Agency
ELT	Emergency Locator Transmitter
EMS	Emergency Medical System
FAA	Federal Aviation Administration
FAR	Federal Airworthiness Regulations
FDR	Flight Data Recorder
FM	Flight Manual
HEELS	Helicopter Emergency Egress Lighting System
HF	High Frequency
HUMS	Health Usage Monitoring System
ICS	Inter Communication System
IFR	Instrument Flight Rules
ILS	Instrument Landing System
JAA	Joint Aviation Authorities
JAROP's	Joint Airworthiness Regulation Operational Specification's
LED	Light Emitting Diode
ME	Manufacturing Engineer
MEL	Minimum Equipment List
MMEL	Master Minimum Equipment List
OAT	Outside Air Temperature
OEB	Operational Evaluation Board
PA	Public Address
RFM	Rotorcraft Flight Manual
RPM	Revolutions Per Minute
TCAD	Traffic Collision Alert Device
TCAS	Traffic Collision Alert System
TGL	Temporary Guidance Leaflet
UCT	Universal Coordinated Time
UHF	Ultra High Frequency
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOR	VHF Omni directional Range
VSI	Vertical Speed Indicator

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JOINT AVIATION AUTHORITIES
212, 412 SERIES Master Minimum Equipment List (MMEL)

PREAMBLE

The following is applicable for authorized certificate holders operating under Authorities Operating Requirements (JAR-OPS). The JAR require that all equipment installed on an aircraft in compliance with the Airworthiness Standards and the Operational Requirements must be operative. However, the requirements also permit the publication of a Minimum Equipment List (MEL) where compliance with certain equipment requirements is not necessary in the interest of safety under all operating conditions. Experience has shown that with the various levels of redundancy designed into aircraft, operation of every system installed or component may not be necessary when the remaining operative equipment can provide an acceptable level of safety.

The Master Minimum Equipment List (MMEL) is developed by the Type Certificate Holder and recommended for approval by the OEB to the JAA Member Authorities to improve aircraft utilization and thereby provide more convenient and economic air transportation for the public. The JAA MMEL includes those items of equipment related to airworthiness and Operational Requirements and other items of equipment which JAA finds may be inoperative and yet maintain an acceptable level of safety by appropriate conditions and limitations; it does not contain obviously required items such as rotor blades, stabilizer and engines.

The MMEL Is the basis for development of individual operator's MELs which take into consideration the operator's particular aircraft equipment configuration and operational conditions. An operator's MEL may differ in format from the MMEL, but cannot be less restrictive than the MMEL. The individual operator's MEL, when approved permits operation of the aircraft with inoperative equipment.

Equipment not required by the operation being conducted and equipment in excess of EASA requirements are included in the MEL with appropriate conditions and limitations. The ME must not deviate from Airworthiness Directives or any other Mandatory Requirement. It is important to remember that all equipment related to the airworthiness and the Operational Requirements of the aircraft not listed on the MMEL must be operative.

Suitable conditions and limitations in the form of placards, maintenance procedures, crew operating procedures and other restrictions as necessary are specified in the MEL to ensure that an acceptable level of safety is maintained.

The MEL is intended to permit operation with inoperative items of equipment for a period of time until rectification's can be accomplished. It is important that rectifications be accomplished at the earliest opportunity. In order to maintain an acceptable level of safety and reliability the MMEL establishes limitation on the duration of and conditions for operation with inoperative equipment. The MEL provides for release of the aircraft for flight with inoperative equipment.

When an item of equipment is discovered to be inoperative, it is reported by making an entry in the Aircraft Maintenance Record/Logbook as prescribed by JAR. The item is then either rectified or may be deferred per the MEL or other approval means acceptable to the competent Authority prior to further operation. MEL conditions and limitation do not relieve the operator from determining that the aircraft is in a condition for safe operation with items of equipment inoperative.

When these requirements are met, an Airworthiness Release, Aircraft Maintenance Record/Logbook entry,

or other approved documentation is issued as prescribed by JAR. Such documentation is required prior to operation with any item of equipment inoperative.

Operators are responsible for exercising the necessary operational control to ensure that an acceptable level of safety is maintained. The exposure to additional failures during continued operation with inoperative system or components must also be considered. Wherever possible account has been taken in this MMEL of multiple inoperative items. However, it is unlikely that all possible combinations of this nature have been accounted for. Therefore, when operating with multiple inoperative items, the inter-relationships between those items and the effect on aircraft operation and crew workload must be considered.

Operators are to establish a controlled and sound rectification program including the parts, personnel, facilities, procedures and schedules to ensure timely rectification. This program should identify the actions required for Maintenance discrepancy messages.

WHEN USING THE MEL, COMPLIANCE WITH THE STATED INTENT OF THE PREAMBLE, DEFINITIONS AND THE CONDITIONS AND LIMITATIONS SPECIFIED IN THE MEL IS REQUIRED.

DEFINITIONS AND EXPLANATORY NOTES

The definition(s) presented here are additional to any which are otherwise applicable:

System 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) means the equipment, system, component, or function listed in the "Item" column.

3) "(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.

4) Items annotated in UPPER CASE letters indicate the precise flight deck legend used.

5) "Rectification Intervals" (column 2): the following definitions are used throughout this document:
   Category A. Items in this category shall be rectified in accordance with the conditions stated in the Remarks column (5) of the MMEL.

   Category B. Items in this category shall be repaired within three (3) consecutive calendar days (72 hours); excluding the day the malfunction was recorded in the aircraft maintenance record/logbook. For example, if it were recorded at 10 a.m. on January 26th, the three day interval would begin at midnight the 26th and end at midnight the 29th.

   Category C. Items in this category shall be repaired within ten (10) consecutive calendar days (240 hours); excluding the day the malfunction was recorded in the aircraft maintenance record/logbook. For example, if it were recorded at 10 a.m. on January 26th, the 10 day interval would begin at midnight the 26th and end at midnight February 5th.

   Category D. Items in this category shall be repaired within one hundred and twenty (120) consecutive calendar days (2880 hours); excluding the day the malfunction was recorded in the aircraft maintenance log and/or record.

6) "Number Installed" (Column 3) is the number (quantity) of items normally installed in the aircraft. This number represents the aircraft configuration considered in developing this MMEL. Should the number be a variable (e.g., passenger cabin items) a number is not required.

7) "Number Required for Dispatch" (Column 4) is the minimum number (quantity) of items required for operation provided the conditions specified in Column 5 are met. Where the MMEL shows a variable number required for dispatch, the MEL must reflect the actual number required for dispatch or an alternate means of configuration control approved by the Administrator.

8) "Remarks or Exceptions" (Column 5): This column includes a statement either prohibiting 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 theses 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.

9) Dash "-" : This symbol in Column 3 and/or Column 4 indicates a variable number (quantity) of the item.

10) "Inoperative": A system and/or component malfunction to the extent that it does not accomplish its intended purpose and/or is not consistently functioning normally within its approved operating limit(s) or tolerance(s).

11) "(M)": The use of this symbol indicates a requirement for a specific maintenance procedure which must be accomplished prior to operation with the listed item inoperative. Normally these procedures are accomplished by maintenance personnel; however, other personnel may be qualified and authorized to perform certain functions. Procedures requiring specialized knowledge or skill, or requiring the use of tools or test equipment should be accomplished by maintenance personnel. The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the operator. Appropriate procedures are required to be published as part of the operator's manual or MEL.

12) "(O)" : The use of this symbol indicates a requirement for a specific operations procedure which must be accomplished in planning for and/or operating with the listed item inoperative. Normally these procedures are accomplished by the flight crew; however, other personnel may be qualified and authorized to perform certain functions. The satisfactory accomplishment of all procedures, regardless of who performs them, is the responsibility of the operator. Appropriate procedures required to be published as a part of the operator's manual or MEL.

13) "Rotorcraft Flight Manual" (RFM) is the document required for type certification and approval by EASA

14) As required by Operational Requirements: The associated item must comply with JAR-OPS 3 or any other legislation in force during the flight. Operators should refer to JAR-OPS 3 MEL Policy Document (Administrative and Guidance Material, Section Four: Operations, Part Three: Temporary Guidance Leaflet number 26) for suitable alleviations based upon the required equipment identified within JAR-OPS 3, subparts K and L.

15) Each inoperative item must be placarded to inform and remind the crewmembers and maintenance personnel of the equipment condition. To the extent practical, placards should be located adjacent to the control or indicator for the item affected; however, unless otherwise specified, placard wording and location will be determined by the operator.

16) "Deleted": When in the remarks column after a sequence item indicates that the item was previously listed but is now required to be operative if installed in the helicopter.

17) "Flight Day": A 24 hour period (from midnight to midnight) either Universal Coordinated Time (UCT) or local time, as established by the operator, during which at least one flight is initiated for the affected aircraft.

18) "Flight Hour": The time from the moment a helicopter leaves the surface of the earth until it touches it at the next point of landing.

19) "Flight": For the purpose of a MEL, a flight is the period of time between the moment when a helicopter begins to move by its own means, for the purpose of preparing for take-off, until the moment the helicopter comes to a complete stop on its parking area, after the subsequent landing (and no subsequent take-off).

20) "Icing Conditions": An atmospheric environment that may cause ice to form on the aircraft or in the engine(s).

21) Inoperative components of an inoperative system: Inoperative items which are components of a system which is inoperative are usually considered components directly associated with and having no other function than to support that system. (Warning/caution systems associated with the inoperative system must be operative unless relief is specifically authorized per the MMEL).

22) "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.

23) "Visual Flight Rules" (VFR): is as defined in the JARS. This precludes a pilot from filing an Instrument Flight Rules (IFR) flight plan.

24) Visual Meteorological Conditions" (VMC) are meteorological conditions in terms of visibility, distance from cloud, and ceiling, equal to or better than the minima specified in Appendix 1 to JAR-OPS 3.465. This definition does not include 'VFR-on-Top' or 'over-the-top'.

25) "Visible Moisture" means an atmospheric environment containing water in any form that can be seen in natural or artificial light; for example, clouds, fog, rain, sleet, hail, or snow.

26) "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.

27) Extended Over water Flight: Refer to JAR-OPS 3 Subpart K for definition.

28) "Passenger Convenience Items" means those items related to passenger convenience, comfort or entertainment such as, but not limited to, galley equipment, movie equipment, ash trays, stereo equipment, overhead reading lamps, etc.

29) "Excess Items" means those items that have been installed that are redundant to the requirements of the Operating Requirements.

30) "Authority": The competent regulatory authority according to the country of registry.

31) "Combustible (Material)": refers to material which is capable of catching fire and burning. In particular: if a MMEL item prohibits loading of combustible (or flammable or inflammable) material, no material may be loaded except the following:

1) Cargo handling equipment (unloaded, empty or with ballast);
2) Fly away kits (excluding e.g. cans of hydraulic fluid, cleaning solvents, batteries, capacitors, chemical generators, etc.); and
3) In-flight service material (return catering – only closed catering trolley/boxes, no newspapers, no alcohol or duty free goods).

32) "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.

33) "Dispatch": The point at which an aircraft first moves under its own power for the purpose of commencing a flight.

34) "Day of Discovery": is the calendar day an equipment/instrument malfunction was recorded in the helicopter maintenance log and or record. This day is excluded from the calendar days or flight days specified in the MMEL for the repair of an inoperative item of equipment. This provision is applicable to all MMEL items, i.e., categories "A, B, C and D."

35) "Considered Inoperative": as used in the provisions means than item must be treated for dispatch, taxi and flight purposes as though it were inoperative. The item shall not be used or operated until the original deferred item is repaired. Additional actions include: complying with all remarks, exceptions, and related MMEL provisions, including any (M) and (O) procedures and observing the repair category.

36) "(where required)": Indicates the equipment, system, component, or function listed in the "Item" column may not be required as defined by JAR-OPS.

37) The base documents used for the preparation of this MMEL are:
a) FAA approved MMEL Bell Helicopter 212, 412 Series Revision 7 dated 02/06/2006
b) CAA approved MMEL Bell Helicopter 212, 412 Revision 1 dated Rev 31/10/1995
c) JAA TGL 26 dated 01/06/2007
Note that the item numbering arrangement for the FAA MMEL was maintained for continuity.

38) "Not Used": An item number that appeared in the base document (e.g. FAA MMEL) that had been deleted.

212, 412 SERIES MMEL

Bell Helicopter 212, 412 Series			**Revision No. -** **Page:** **Date: 05/08/2008** **21-1**	
(1) System & Sequence Numbers **ATA 21 AIR CONDITIONING** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Cockpit Vent Blowers				
1) Single Pilot Operations	C	2	1	Co-Pilot's may be inoperative.
	C	2	0	Both may be inoperative provided Pilot's Heated Windshield (Item 30-4) is installed and operative.
	C	2	0	Both may be inoperative provided Bleed Air Heater (Item 21-2) is operative.
2) Two Pilot Operations	C	2	0	Both may be inoperative provided Heated Windshields (Item 30-4) are installed for both pilots and operative.
	C	2	0	Both may be inoperative provided Bleed Air Heater (item 21-2) is operative.
2. Bleed Air Heater				.
1) Single Pilot Operations	C	1	0	May be inoperative provided; (a) Heater switch is selected OFF, (b) Outside air temperature is above +5 degrees C and, (c) Pilot's cockpit vent blower (Item 21-1) is operative
	C	1	0	May be inoperative may be inoperative provided pilot's Heated Windshield (Item 30-4) is installed and operative.
3. Bleed Air Cooling System (if installed)	C	-	0	(M) May be inoperative provided system is deactivated and secured.
4. Freon Cooling System (if installed)	C	-	0	(M) May be inoperative provided system is deactivated and secured.

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(1) System & Sequence Numbers **ATA 22 AUTOPILOT**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
1. Automatic Flight Control Systems (AFCS) (JAR-OPS 3.655)				
(1) Single pilot operations	C	-	0	One or more may be inoperative provided the flight is conducted under day VMC
	D	-	1	Any in excess of one may be inoperative.
2. Flight Director (if installed)	C	-	0	(O) May be wholly or partially inoperative provided precision navigation or approach minima do not require their use.

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(1) System & Sequence Numbers **ATA 23 COMMUNICATIONS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Radio Communications Systems (FM, HF, UHF, VHF, etc.) (JAR-OPS 3.860/865)	C	-	1	When flying VFR over routes navigated by reference to visual landmarks: Any in excess of one, and not power by an emergency bus, may be inoperative.
	A	-	1	(O) When flying IFR, or VFR over routes not navigated by reference to visual landmarks: Any one of the two required Radio Communication Systems not powered by the emergency bus may be inoperative provided: (a) The helicopter has not made more than one flight since the item was last serviceable, and (b) The commander has satisfied himself that, taking into account the latest information available as to the route/are and heliport to be used (including any planned diversion) and the weather conditions likely to be encountered , the flight can be made safely and in accordance with any relevant requirements of the appropriate air traffic control unit.
2. (1) Cockpit Voice Recorder (CVR) (212, 412, 412SP) (if installed)	D	1	0	May be inoperative.

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(1) System & Sequence Numbers **ATA 23 COMMUNICATIONS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
2. (2) Cockpit Voice Recorder (CVR) (412 HP, 412EP) (JAR-OPS 3.705)	A	1	0	May be inoperative provided: a) The helicopter does not exceed 8 further flights with the CVR inoperative. b) A maximum of 72 hours have elapsed since the CVR was found to be inoperative, and, c) Any Flight Data Recorder (FDR) required to be carried is operative, Note: This alleviation is not applicable to combined CVR/FDRs. For those combined systems, refer to item 31-6.
3. Flight Data Recorder (FDR)				See ATA 31.
4. Cabin Public Address System (JAR-OPS 3.695)				
1) Passenger config. (Including Pre-recorded Passenger Announcement System)	B	-	0	(O) May be inoperative provided: (a) Alternate normal and emergency procedures and/or operating restrictions are established and used. (b) The flight crew compartment / cabin interphone system is operative
2) Cargo Configuration	D	-	0	(O) May be inoperative provided alternate normal and emergency procedures and/or operating restrictions are established and used.

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(1) System & Sequence Numbers **ATA 23 COMMUNICATIONS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
5. Intercom System (ICS)				
1) Flight Crew ICS (JAR-OPS 3.685)	D	-	-	Any system in excess of those required may be inoperative.
2) Cabin ICS - (if installed) (JAR-OPS 3.690)	C	-	0	(O) May be inoperative provided: (a) Alternate normal and emergency procedures are established and used, and (b) The PA system is operative Note: Any station that is operative may be used.
6. Floor Mounted Intercom System Radio Switches	C	2	0	May be inoperative

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(1) System & Sequence Numbers **ATA 24 ELECTRICAL POWER** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Not Used				
2. Starter/Generator		2	2	Both must be operative
3. and 4. Not Used				
5. Inverters				
1) Model 212 SN 30 504 thru 30 553	B	2	1	One may be inoperative if operations are conducted with adequate external attitude reference.
2) Model 212 SN 30 554 and subsequent	B	3	2	One may be inoperative if operations are conducted with adequate external attitude reference.
3) Model 412	B	2	1	One may be inoperative if operations are conducted with adequate external attitude reference.

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(1) System & Sequence Numbers **ATA 25** **EQUIPMENT/FURNISHINGS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. thru 3. Not Used				
4. Emergency Floatation Equipment (if installed) (JAR-OPS 3.843)				
(1) Helicopters in Performance Class 1	D	-	0	May be inoperative for flights overland.
	C	-	0	May be inoperative for flights over water which are at a distance which is less than 10 minutes flying time from land, at normal cruise speed.
(2) Helicopters in Performance Class 2				
(a) En-route	D	-	0	May be inoperative for flights overland.
	C	-	0	May be inoperative for flights over water which are at a distance which is less than 10 minutes flying time from land, at normal cruise speed
(b) Take-off & Landing over water	-	-	1	Must be operative.
(3) Helicopters in Performance Class 3				
(a) En-route	D	-	0	May be inoperative for flights overland.
(b) Take-off & Landing over water	-	-	1	Must be operative.

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(1) System & Sequence Numbers **ATA 25** **EQUIPMENT/FURNISHINGS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
5. Passenger Seats (JAR-OPS 3.730)	D	-	-	(M) One or more may be inoperative provided the inoperative seat: (a) Does not block an emergency exit, (b) Does not restrict any passenger from access to the main aircraft aisle, and (c) Is blocked and placarded "DO NOT OCCUPY" Note: A seat with an inoperative or missing seat belt or harness is considered inoperative.
6. Flight Crew Seats				
(1) Crewmember Shoulder Harness				
(a) Single Pilot Operation	B	2	1	The left crew seat harness may be inoperative provided that seat is not used.
(b) Two Pilot Operation	B	2	0	One or both flight crew shoulder harness inertia reels may be inoperative provided the affected harness is adjusted and locked by an approved means to suit the requirements of the occupant.
7. Not Used				
8. Cargo Suspension System (if installed)	C	-	0	May be inoperative.
9. Hoist System (if installed)	C	-	0	May be inoperative.
10. Emergency Locator Transmitter (ELT) (JAR-OPS 3.820)	A	-	0	May be inoperative provided: (a) The helicopter shall not fly for more than 6 hours after the ELT becomes unserviceable and (b) Not more than 24 hours have elapsed since the ELT became unserviceable.

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(1) System & Sequence Numbers **ATA 25** **EQUIPMENT/FURNISHINGS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
11. Emergency Medical System (EMS) Equipment (if installed)	C	-	0	(M) and/or (O) May be inoperative provided system is deactivated and secured.
12. Passenger Convenience Item(s)	D	-	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, etc. Items addressed elsewhere in this document shall not be included. (M) and (O) procedures may be required and included in the air carrier's appropriate document.
13. Passenger Steps (Electrically Actuated) (if installed)	C	-	0	(M) May be inoperative provided: (a) Steps are in the stowed (down) position, AND (b) System is deactivated and secured.
14. Automatically Deployable Emergency Locator Transmitter (ADELT) (if installed) (JAR-OPS 3.820)				.
(a) Flight not over water and over water flights not beyond 10 minutes flying time from land.	C	-	-	May be inoperative
(b) Over water flights beyond 10 minutes flying time from land at normal cruise speed	A	-	-	May be inoperative provided: (a) The helicopter shall not fly for more than 6 hours after the ADELT was found to be inoperative, and (b) A maximum of 24 hours have elapsed since the ADELT was found to be inoperative.

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(1) System & Sequence Numbers **ATA 25 EQUIPMENT/FURNISHINGS**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
15. First Aid Kits (JAR-OPS 3.745)	A	-	-	May be incomplete for a maximum of 1 calendar day.
	D	-	1	Any in excess of one may be incomplete or missing.
16. Torches (JAR-OPS 3.640)	C	-	-	One or more may be inoperative provided each required crew member assigned to affected position has an operative torch.
17. Lifejackets (JAR-OPS 3.825)	D	-	-	(M) any in excess of the minimum required may be missing or inoperative, provided: a. Inoperative lifejacket is placarded inoperative, removed from the installed location and placed out of sight so it cannot be mistaken for a functional unit, and b. Required distribution of serviceable lifejackets is maintained.
18. Survival Equipment (JAR-OPS 3.835)	D	-	-	(M) Any in excess of the minimum required may be missing or inoperative provided, the inoperative equipment is placarded inoperative, removed from the installed location and placed out of sight so it cannot be mistaken for a functional unit.
19. Life-rafts and Contents (JAR-OPS 3.830)	D	-	-	(M) Any in excess of the minimum required may be missing or inoperative provided, the inoperative equipment is placarded inoperative, removed from the installed location and placed out of sight so it cannot be mistaken for a functional unit.
20. Underwater Sonar Locating Device (if installed)	D	-	-	As required by Operating Requirements

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(1) System & Sequence Numbers **ATA 26 FIRE PROTECTION** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Baggage Compartment Smoke Detector System	A	1	0	May be inoperative provided: (a) Only non-combustible items are carried, and (b) Repairs or replacements are carried out within 3 calendar days
2. Not Used				
3. Not Used				
4. Not Used				
5. Hand Held Fire Extinguishers	D	-	-	(M) Any in excess of those required may be inoperative or missing provided: (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 (b) Required distribution is maintained.

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(1) System & Sequence Numbers **ATA 27 FLIGHT CONTROLS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Force Trim System				
(1) Single Pilot Operations	C	1	0	May be inoperative, provided operations are conducted with adequate external attitude reference.
(2) Two Pilot Operations	C	1	0	May be inoperative
2. Cyclic Stick Centering Indicator	B	2	0	Refer to RFM for limitations.
3. Hydraulic Control System Temperature Gauge	A	2	1	One may be inoperative provided: (a) The hydraulic pressure gauge and combined temp/press CWP caution of the associated system are both operative, (b) The hydraulic pressure gauge of the associated system is monitored throughout the flight, and (c) All 3 indications of the other hydraulic control system are operative, and (d) Repairs or replacements are carried out within 3 calendar days
4. Hydraulic Control System Pressure Gauge	A	2	1	One may be inoperative provided: (a) The hydraulic temperature gauge and combined temp/press CWP caution of the associated system are both operative, (b) The hydraulic temperature gauge of the associated system is monitored throughout the flight, and (c) All 3 indications of the other hydraulic control system are operative, and (d) Repairs or replacements are carried out within 3 calendar days

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(1) System & Sequence Numbers **ATA 28 FUEL** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Not Used				
2. Multiple Indicator Fuel Quantity Gauge	A	1	1	(M)/(O) One indication may be inoperative provided: (a) The other two level indications operate normally, (b) Both fuel low level lights operate normally, (c) Departure is made with both fuel tank groups full (d) Expected flight time is less than half the aircraft endurance on full tanks, and (e) Aircraft may depart on a flight or series of flights for the purpose of returning directly to a base where repairs or replacement can be made.
3. Fuel Pressure Gauge	B	2	1	One may be inoperative provided: (a) The other gauge is operative and (b) Both fuel boost pumps are operative.
4. "FUEL LOW" CWP	A	2	1	One may be inoperative provided: (a) Fuel carried is sufficient to supply both engines, at normal twin engine cruise, to the destination including reserves plus 15 minutes, (b) Fuel quantity Indication System is operative, (c) 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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(1) System & Sequence Numbers **ATA 28 FUEL**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
5. Auxiliary Fuel System (if installed)	D	-	0	May be inoperative provided: (a) Flight is not predicated on the use of the system, AND (b) Any fuel in the Auxiliary Fuel System is calculated in the weight and balance.
	D	-	0	(M) Insure Auxiliary Fuel System valve(s) are closed and insure there are no fuel leaks. OR Auxiliary Fuel System is empty.

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(1) System & Sequence Numbers **ATA 30 ICE AND RAIN PROTECTION**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
1. Pitot Heating Systems (JAR-OPS 3.650/652)				
(1) Day VFR Operation	C	2	0	One or more may be inoperative provided the helicopter is not operated at any time in known or forecast icing conditions of visible moisture or precipitation, when the OAT is less than +5 C.
(2) IFR or Night operations	C	2	1	(O)/(M) Any in excess of one pitot heater may be inoperative provided: (a) The remaining pitot heater is verified to be operative prior to each flight. (b) The pitot heat failure indication (if installed) for the remaining pitot heater is verified to be operative prior to each flight. (c) Flight is conducted under VMC in sight of the surface in sight , and (d) The helicopter is not operated at any time in known or forecast icing conditions of visible moisture or precipitation, when the OAT is less than +5 C.
2. Windshield Wipers (JAR-OPS 3.675)	C	2	-	One or both may be inoperative provided the aircraft is not operated in known or forecast precipitation that requires their use.
3. Static Port Heaters (JAR-OPS 3.675)				
(1) Day VFR operation	D	4	0	One or more may be inoperative provided the helicopter is not operated at any time in known or forecast icing conditions of visible moisture or precipitation, when the OAT is less than +5 C. (continued)

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(1) System & Sequence Numbers **ATA 30 ICE AND RAIN PROTECTION**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
3. Static Port Heaters (continued)				
(2) IFR or Night operations	B	4	1	(O)/(M) Any in excess of one static heater may be inoperative provided: (a) Flight is conducted under VMC with the surface in sight. (b) The helicopter is not operated at any time in known or forecast conditions of visible moisture or precipitation, when the OAT is less than +5 C, and (c) The remaining static heating system and all connected flight instruments are verified to be operative prior to each flight.
4. Heated Windshield (if installed)	C	2	1	Copilots may be inoperative for single pilot operations.
	C	2	1	One may be inoperative provided the Bleed Air Heater (21-2) operates normally.
	C	2	0	Both may be inoperative provided: (a) Heater/defog system operates normally, and (b) The aircraft is not operated in icing conditions. OR Both may be inoperative provided: (a) Both cockpit vent blowers (Item 21-1) operate normally, and (b) Ambient temperatures are above +5° C (41° F) for the duration of the flight (continued)

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(1) System & Sequence Numbers **ATA 30 ICE AND RAIN PROTECTION**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
5. Pitot Heating Failure Indication System (JAR-OPS 3.650/652)				
(1) Day VFR operation	D	-	0	May be inoperative
(2) IFR or Night operations	C	-	1	(O)/(M) Any in excess of one may be inoperative provided: (a) The associated pitot heater is verified to be operative prior to each flight, (b) Flight is conducted under VMC with the surface insight, and (c) The helicopter is not operated at any time in known or forecast conditions of visible moisture or precipitation, when the OAT is less than +5 C.

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(1) System & Sequence Numbers **ATA 31 INDICATION / RECORDING SYSTEMS**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
1. Clocks (JAR-OPS 3.650/652)	C	-	0	May be inoperative providing an accurate time piece is operative on the flight deck indicating the time in hours, minutes and seconds. Note 1: The above is applicable only to those aircraft where the clock has no implication on other equipment e.g. FDR, otherwise the effects on such other systems must be considered. Note 2: On the basis that the timepiece required does not need to be approved, an accurate pilot's wristwatch which indicates hours, minutes and seconds, would be acceptable.
2. Elapsed Timer	C	-	0	May be inoperative.
3. Hour Meter	C	-	0	May be inoperative.
4. Aircraft/Engine Monitoring System (where required)	C	-	0	As required by Operating Requirements
5. Cockpit Voice Recorder				Moved to ATA 23 Item 2.
6. Flight Data Recorder (FDR)				
(1) Individual FDR Unit (if installed) (JAR-OPS 3.715/3.720)	A	-	0	May be inoperative provided: (a) The helicopter does not exceed 8 further consecutive flights with the FDR inoperative. (b) A Maximum of 72 hours have elapsed since the FDR was found to be inoperative, and (c) Any Cockpit Voice Recorder required to be carried is operative. (continued)

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(1) System & Sequence Numbers **ATA 31 INDICATION / RECORDING SYSTEMS**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch
ITEM			(5) Remarks or Exceptions
(2) Individual FDR Unit (if installed) (JAR-OPS 3.715/3.720) (continued)	A	-	0

Note 1: This alleviation is not applicable to combined CVR/FDRs. For those combined systems, refer to item 31-6 (2).

Note 2: The flight data recorder is considered to be inoperative when any of the following conditions exist:

i. Loss of the flight recording function is evident to the flight crew during the pre-flight check e.g. by means of a system status monitor, or

ii. The need for maintenance has been identified by the system monitors, where available, with the setting of an indicator and the cause of that setting has not been determined, or

iii. Analyses of recorded data or maintenance actions have shown that more than 5% of the total number of individual parameters (variable and discrete) required to be recorded for the particular aircraft, are not being recorded properly.

Note 3: Where improper recording affects 5% of the parameters or less, timely corrective action will need to be taken by the aero plane operator in accordance with approved maintenance procedures.

(continued)

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(1) System & Sequence Numbers **ATA 31 INDICATION / RECORDING SYSTEMS**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
(3) Combined Unit (FDR/CVR) (if installed) (JAR-OPS 3.715/3.720	A	-	0	If one combination recorder is installed, the flight data recorder or the cockpit voice recorder function may be inoperative provided: (a) The other function, where required is operative. (b) The helicopter does not exceed 8 further flights with the inoperative function, and (c) A maximum of 72 hours have elapsed since the inoperative function was found.
7. HUMS				Moved to ATA 45 Item 1
8. Not Used				
9. Rotor RPM Audio Warning	A	1	0	May be inoperative provided: (a) Rotor RPM warning light is operative, (b) Both triple tachometers are operative, (c) Associated dual torque indicators are operative, 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 may be made.

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(1) System & Sequence Numbers **ATA 33 LIGHTS**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
1. Navigation / Position Lights	C	-	0	One or more may be inoperative for daylight operation
	C	-	-	Any in excess of the minimum required may be inoperative for night operations.
	A	-	-	.(O) One or more may be inoperative for a single night flight when departing from an offshore or remote installation provided: (a) The appropriate ATC unit has been informed before departure. (b) The anti-collision light system is operative, and (c) The landing light system is operative.
2. Anti-Collision Light Systems (JAR-OPS 3.640)				
(1) Anti-Collision Light (Beacon or Strobe Type)				
(a) Daylight Operations	B	-	0	(O) One or more may be inoperative.
	C	-	1	Any in excess of one may be inoperative.
(b) Night operations	C	-	1	Any in excess of one may be inoperative.
(c) Offshore and remote operations	A	-	0	(O) One or more may be inoperative for a single night flight when departing an off-shore or remote installation provided: (a) The appropriate ATC unit has been informed before departure, (b) The navigation light system is operative, and (c) The landing light system is operative.
(2) White Strobe Light (if installed)	C	-	0	May be inoperative.

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(1) System & Sequence Numbers **ATA 33 LIGHTS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
3. Landing Lights	C	-	0	One or more may be inoperative for daylight operations.
	C	-	1	Any in excess of one adjustable landing light may be inoperative for night operations. Note that search light may be used for landing.
4. Search Light	C	1	0	May be inoperative for daylight operations only.
5. Cockpit Instrument Lighting System	B	1	0	One or more may be inoperative for daylight operations.
	C	-	-	(O) 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 operative, and, c) Lighting configuration at dispatch is acceptable to the flight crew. d)
	C	-	-	Co-pilot's station instrument lights may be inoperative for single pilot operations, provided no co-pilot's station instrument is required to be used by the pilot.
6. Cabin Emergency Lights (JAR-OPS 3.815)				
(1) Cabin Emergency Lighting System (where installed)	-	-	-	May be inoperative provided in accordance with arrangements agreed with the National Authority.

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(1) System & Sequence Numbers **ATA 33 LIGHTS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
6. Cabin Emergency Lights (Continued)				
(2) EXIS Lighting (HEELS) (if installed)	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 1 – For standard length (24 LEDs) a maximum of 3 failed LEDs with no more than 2 failed LED's adjacent. ➢ = For half length (12 LEDs) a maximum of 1 failed LED ➢ = For one third length (8LEDs) 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 no more than 1 failed LED per band along any side.
7. Cabin Lighting System	D	-	0	May be inoperative for daylight operations only.
	C	-	0	May be inoperative provided passengers are not carried
	C	-	-	Individual lights may be inoperative provided: (a) Inoperative lights do not exceed fifty (50) percent 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
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(1) System & Sequence Numbers **ATA 33 LIGHTS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
8. Passenger Notice System (Fasten Seat Belt-No Smoking)	C	-	-	(M)(O) "No Smoking/Fasten Seat Belt" signs may be inoperative and the affected passenger seat(s) bay 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	-	-	May be inoperative provided passengers are not carried.
9. Not Used				
10. External Utility Light(s) (if installed)	C	1	0	May be inoperative.
11. Supplemental Lighting System (if installed)	C	1	0	May be inoperative.
12. Secondary Instrument Light System	C	1	0	May be inoperative for daylight operations. OR
	A	1	0	May be inoperative at night provided: (a) All normal instrument lights are operative, (b) Repairs or replacements are carried out within 3 calendar days

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(1) System & Sequence Numbers **ATA 34 NAVIGATION** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Airspeed Indicator (JAR-OPS 3.650/652)				
(1) Single pilot operation	D	2	1	Any in excess of one may be inoperative provided the operative airspeed indicator is on the handling pilot's side.
(2) Two pilot operation	B	2	1	Any in excess of one may be inoperative provided: (a) The operative instrument is on the handling pilot's side, and (b) Flight is conducted by day under VMC conditions when navigating with reference to visual landmarks.
(3) Helicopters equipped with EFIS displays				
(a) Standby airspeed indicator	B	-	0	May be inoperative provided: (a) Both the commander's and co-pilot's airspeed indicator systems are operative, and (b) Flight is conducted by day under VFR over routes navigated by day under VFR over routes navigated by reference to visual landmarks. <u>Note:</u> For helicopters with EFIS type displays, the airspeed display (tape must be operative.
2. Sensitive Altimeter Adjustable for Barometric Pressure (JAR-OPS 3.650/652)				
(1) Day VFR operations	C	-	1 -	Any in excess of one may be inoperative provided: (a) Flight is conducted with reference to visual landmarks, and (b) The operative altimeter is on the handling pilot's side.

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(1) System & Sequence Numbers **ATA 34 NAVIGATION** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
2. Sensitive Altimeter Adjustable for Barometric Pressure (Continued)				
(2) IFR or Night operations	C	-	1	Any in excess of one may be inoperative provided: (a) Flight is conducted over routes navigated by reference to visual landmarks. (b) The radio altimeter (where required) is operative, and (c) The operative altimeter in on the handling pilot's side. Note: For helicopters with EFIS type displays, the altimeter display (tape) must be operative.
3. Standby Magnetic Compass / Magnetic Direction Indicator (JAR-OPS 3.650/652)	B	2	0	May be inoperative provided: (a) Flight is conducted by day under VFR when navigating with reference to visual landmarks, and (b) When operationally required, the helicopter's main Magnetic Direction Indicator System (ATA 34 Item 6) is operative.
4. Slip-Skid Indicator ((JAR-OPS 3.650/652)				
(1) Single pilot operation	B	2	0	May be inoperative when flight is conducted under VFR over routes navigated by reference to visual landmarks.
(2) Two pilot operation	C	2	1	Any in excess of one may be inoperative provided the operative slip indicator is on the handling pilot's side.
	B	2	0	May be inoperative when flight is conducted under VFR over routes navigated by reference to visual landmarks.

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(1) System & Sequence Numbers **ATA 34 NAVIGATION** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
5. Attitude Indicators (JAR-OPS 3.650/652)				
(1) Main Attitude Indicators / Gyroscopic Bank and Pitch Indicator				
(a) Day VFR operation				
i. Single Pilot Operation	D	-	1	Any in excess of one may be inoperative provided the operative attitude indicator is on the handling pilot's side.
ii. Two Pilot Operation	D	-	2	Any in excess of two may be inoperative provided the operative attitude indicators are at each pilot's station.
	B	-	1	One may be inoperative provided flight is conducted under day VFR with a visual horizon.
(b) IFR or Night Operations				
i. Single Pilot Operation	B	-	1	Any in excess of one may be inoperative.
ii. Two pilot operation	B	-	1	Any in excess of one may be inoperative provided the operative slip indicator is on the handling pilot's side.
(2) Standby Attitude Indicator (if installed)				
(a) Day VFR	C	-	0	May be inoperative provided all other required attitude indicators are operative
(b) IFR or Night operations	B	-	1	Any in excess of one may be inoperative.

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(1) System & Sequence Numbers **ATA 34 NAVIGATION** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
6. Stabilized Direction Indicators / Gyroscopic Direction Indicator / Gyroscopic Compasses (JAR-OPS 3.650/652)				
(1) Day VFR Operation	D	-	1	Any in excess of one may be inoperative provided the operative stabilized director is on the handling pilot's side.
	A	-	0	May be inoperative provided: (a) The standby magnetic compass is operating normally (b) Flight is conducted overland 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. (d)
(2) IFR or Night Operations				
(a) Two Pilot Operations	C	-	1	Any in excess of one may be inoperative provided: (a) The operative stabilized direction indicator is on the handling pilot's side, and (b) The standby magnetic compass is operative.
7. Vertical Speed Indicator (VSI) (JAR-OPS 3.650/652)				
(1) Single Pilot Operation	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 over routes navigated by reference to visual landmarks.

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(1) System & Sequence Numbers **ATA 34 NAVIGATION** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
7. Vertical Speed Indicator (VSI) (Continued)				
(2) Two Pilot Operation	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 over routes navigated by reference to visual landmarks.
8. Gyroscopic Rate-of-Turn Indicator	B	2	0	One or both may be inoperative provided a standby attitude indicator is installed and operative on the instrument panel for the pilot flying the aircraft.
9. OAT/Free Air Temperature Indicator (JAR-OPS 3.650/652)	C	1	0	May be inoperative provided another air temperature indication is operative that is convertible to OAT.
10. Not Used				(see 34 Item 5(2) for Standby Indicator)
11. Navigation Systems (VOR, ILS, ADF, Long Range, etc.) ((JAR-OPS 3.865)	A	-	-	(O) No more than one of the navigation equipment systems carried in accordance with the requirements of JAR-OPS 3.865, may be inoperative provided: (a) The helicopter has not made more than one flight since the item was last serviceable, and (b) The commander has satisfied himself that, taking into account the latest information available as to the route/area and heliport to be used (including any planned diversion) and the weather conditions likely to be encountered, the flight can be made safely and in accordance with any relevant requirements of the appropriate air traffic control unit.

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(1) System & Sequence Numbers **ATA 34 NAVIGATION** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
11. Navigation Systems (Continued)				
	D	-	-	Any in excess of those required may be inoperative
12. ATC Transponders and Automatic Reporting Systems (JAR-OPS 3.860/865)	A	-	0	(O) May be inoperative provided agreement can be obtained from all ATC authorities along the route or any planned diversion, to a place where repairs can be made.
	D	-	-	Any transponder in excess of those required for the route to be flown may be inoperative.
13. DME	D	-	-	As required by Operating Requirements.
14. Radio/Radar Altimeter System				
(1) Without Audio Voice Warning (if installed)	D	-	0	May be inoperative provided procedures do not require its use.

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(1) System & Sequence Numbers **ATA 34 NAVIGATION**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
14. Radio/Radar Altimeter System (Continued)				
(2) With Audio Voice Warning (if installed) (JAR-OPS 3.660) (JAR-OPS 3.440)	D	-	0	(O) May be inoperative provided: (a) Over water operations are not conducted, and, (b) Procedures do not require its use.
	A	-	0	(O) May be inoperative provided: (a) No more than 6 hours shall be flown over water since the radio altimeter was found to be inoperative, (b) A maximum of 24 hours have elapsed since the radio altimeter was found to be inoperative, (c) The aircraft shall not fly over water at an altitude of less than 500 feet except for take-off and landing, and (d) The helicopter shall not descend below 500 feet on approach to landing over water unless the landing site is clearly visible to the pilot.

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(1) System & Sequence Numbers **ATA 34 NAVIGATION** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
15. Weather Radar / Thunderstorm Detection System (if installed) (JAR-OPS 3.670)	D	-	1	Any system in excess of one may be inoperative provided procedures do not require use of inoperative system
	C	-	0	May be inoperative provided the weather reports or forecasts available to the commander indicate that cumulonimbus clouds or other potentially hazardous weather conditions, which could be detected by the systems when in working order, are unlikely to be encountered on the intended route or any planned diversion there from and not required under JAR 3.295 with regard to coastal heliports to offshore alternates
16. Flight Director				See ATA 22-2
17. Marker Beacon	C	-	0	May be inoperative provided approach procedures do not require its use.
18. Alternate Source of Static Pressure for Altimeter, A/S and Vertical Speed	A	-	0	May be inoperative provided: (a) Operations are conducted with adequate external attitude reference, and (b) Repairs or replacements are carried out within 3 calendar days
19. Traffic Collision Alert Systems (i.e., TCAS, TCAD, etc.) (if installed)	C	-	0	(M) (0) May be inoperative provided: a) Not required by operational requirements, b) System is deactivated and secured, and en route or approach procedures do not require its use.
20. Altitude Encoding System	C	1	0	As required by Operating Requirements

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(1) System & Sequence Numbers **ATA 35 OXYGEN**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
1. Oxygen System and Masks (Crew and Passengers) (if installed) (JAR-OPS 3.775)				
(1) Flight Deck	C	-	-	One or more may be inoperative provided the aircraft is not operated above a pressure altitude of 10,000 feet.
(2) Cabin Compartment	C	-	-	Any in excess of that required may be inoperative.
	C	-	-	One or more may be operative provided the aircraft is not operated above a pressure altitude of 10,000 ft.

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(1) System & Sequence Numbers **ATA 45 CENTRAL MAINTENANCE SYSTEM**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
1. Health Usage Monitoring System (HUMS) (JAR-OPS 3.517) (If installed)	B	1	0	System / components may be inoperative for periods agreed by the Authority.

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(1) System & Sequence Numbers **ATA 52 DOORS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Door Warning System	C	1	0	(M) or (O) May be inoperative provided all doors and hatches are confirmed by visual inspection to be closed and locked by a crew member prior to each departure
2. Not Used				

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(1) System & Sequence Numbers **ATA 65 ROTORS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Rotor Brake System	C	-	0	(M) May be inoperative provided: a) It is determined by visual inspection that pucks are fully retracted, and b) System is inspected, deactivated and secured by an approved procedure, and c) Operational and weather conditions permit shut down, and
2. Rotor Brake Warning Lights	C	-	0	May be inoperative provided: (a) Rotor brake system is deactivated and secured by an approved procedure, (b) It is determined by visual inspection that pucks are fully retracted, and (c) Operational and weather conditions permit shut down.
3. thru 6. Not Used				
7. Transmission Oil Temperature Indicating System	A	1	0	May be inoperative provided: a) Transmission Oil Temperature Warning Light System (Item 65-9) is operative, b) Transmission Oil Pressure Indicating System (Item 65-8) is operative and c) Transmission Oil Pressure Warning Light System (Item 65-10) is operative, and Repairs or replacements are carried out within 3 calendar days.
8. Transmission Oil Pressure Indicating System	A	1	0	May be inoperative provided: (a) Transmission Oil Pressure Warning Light System (Item 65-10) is operative, (b) Transmission Oil Temperature Indicating System (Item 65-7) is operative, and (c) Transmission Oil Temperature Warning Light System (Item 65-9) is operative, and (d) Repairs or replacements are carried out within 3 calendar days.

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(1) System & Sequence Numbers **ATA 65 ROTORS** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
9. Transmission Oil Temperature Warning Light System	A	1	0	May be inoperative provided: a) Transmission Oil Temperature Indicating System (Item 65-7) is operative, b) Transmission Oil Pressure Warning Light System (Item 65-10) is operative, and c) Transmission Oil Pressure Indication System (Item 65-8) is operative, and d) Repairs or replacements are carried out within 3 calendar days.
10. Transmission Oil Pressure Warning Light System	A	1	0	May be inoperative provided: a) Transmission Oil Pressure Indicating System (Item 65-8) is operative, b) Transmission Oil Temperature Warning Light System (Item 65-9) is operative, and c) Transmission Oil Temperature Indicating System (Item 65-7) is operative, and d) Repairs or replacements are carried out within 3 calendar days.

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(1) System & Sequence Numbers **ATA 73 ENGINE FUEL AND CONTROL**	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
ITEM				
1. Engine Fuel Control (Automatic Mode)		2	2	Both must be operative

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(1) System & Sequence Numbers **ATA 77 ENGINE INDICATING** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Tachometer, Triple Indicating	A	-	1	(O) One may be inoperative provided: (a) Operative instrument is on the handling pilot's instrument panel and (b) Associated Dual Torque Indicator operates normally, and (c) Repairs or replacements are carried out within 3 calendar days
2. Dual Torque Indicator	A	-	1	(O) One may be inoperative provided: (a) Operative instrument is on the handling pilot's instrument panel and (b) Associated Triple Tachometer Indicator operates normally, and (c) Repairs or replacements are carried out within 3 calendar days
3. and 4. Not Used				
5. Engine Out Warning System	A	2	1	(O) One may be inoperative provided: (a) Alternate procedures are established and utilized for engine failure identification, and (b) Repairs or replacements are carried out within 3 calendar days

Bell Helicopter 212, 412 Series			**Revision No. -** **Page:** **Date: 05/08/2008** **79-1**	
(1) System & Sequence Numbers **ATA 79 ENGINE OIL** ITEM	(2) Rectification Interval	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions
1. Engine Oil Pressure Gauge	A	2	1	One may be inoperative provided: (a) The associated engine Oil Press CWP caption is operative (b) The associated engine Oil Temp gauge is operative and monitored throughout the flight. (c) All indications of the other engine oil system are operative, and (d) Repairs or replacements are carried out within 3 calendar days
2. Engine Oil Pressure Caution CWP	A	2	1	One may be inoperative provided: (a) The associated engine Oil Press and Oil temp gauges are operative and monitored throughout the flight, (b) All indications of the other engine oil system are operative. (c) Repairs or replacements are carried out within 3 calendar days

APENDIX A

Guidelines for (O) & (M) Procedures

Guidelines for (O) Procedures

The MMEL has identified the need for certain procedures to provide an adequate level of safety while providing relief for some items. Examples of appropriate procedures are identified below as a guideline for the operator to establish his own MEL procedures.

In addition to the instructions provided herein, the operator is responsible to assure all appropriate inspections and checklists have been accomplished prior to the next flight.

ATA 22 – Autopilot – Item 2 – Flight Director (O)

The pilot is responsible for ensuring that the aircraft is operated in accordance with instrument flight procedures that do not require use of the flight director.

ATA 23 – Communications – Item 1 – Communications Systems (O)

The pilot is responsible for reviewing prior to flight the communications requirements of the proposed route and heliports to be used during the flight and ensuring that safe communications can be maintained throughout the entire planned flight.

ATA 23 – Communications – Item 4 – Cabin Public Address System (O)

Passenger briefing can be provided orally (without using Passenger Address System) by the pilot or by using the cabin ICS system. It is the pilot's responsibility to ensure appropriate alternate normal and emergency procedures for communications with the cabin are established. It is the pilot's responsibility to ensure all the passengers can hear the briefing and understand their responsibility during emergencies.

ATA 23 – Communications – Item 5 – Intercom System (O)

Passenger briefing can be provided orally (without using Intercom System) by the pilot or by using the cabin PA system. It is the pilot's responsibility to ensure appropriate alternate normal and emergency procedures for communications with the cabin are established. It is the pilot responsibility to ensure all the passengers can hear the briefing and understand their responsibility during emergencies.

ATA 25 – Equipment and Furnishings – Item 11 – EMS Equipment (O)

The pilot is responsible for ensuring that the deactivated and secured EMS equipment does not adversely affect the safety of flight.

ATA 28 – Fuel – Item 2 – Multiple Indicator Fuel Quantity Gauge (O)

Prior to start, the pilot is responsible for verifying that both fuel tank groups are full.

ATA 30 – Ice and Rain Protection – Item 1 – Pitot Heating Systems (O)

Prior to flight the pilot is responsible for ensuring the remaining pitot heater is operative in accordance with the following procedure:

With the pitot tube covers removed, momentarily move PITOT STATIC HEATERS switch ON and confirm heat on pitot tube.

Prior to flight the pilot is also responsible for ensuring the pitot heater failure indicator pitot heater is operative by moving the Caution Panel TEST switch to LT and observing the status of the PITOT STATIC HEATER Caution light.

ATA 30 – Ice and Rain Protection – Item 3 – Static Port Heaters (O)

Prior to flight the pilot is responsible for ensuring the remaining static port heater is operative in accordance with the following procedure:

With the pitot tube covers removed, momentarily move PITOT STATIC HEATERS switch ON and confirm heat on static ports.

ATA 30 – Ice and Rain Protection – Item 5 – Pitot Heating Failure Indication (O)

Prior to flight the pilot is responsible for ensuring the remaining pitot heater is operative in accordance with the following procedure:

With the pitot tube covers removed, momentarily move PITOT STATIC HEATERS switch ON and confirm heat on pitot tube.

ATA 33 – Lights – Item 1 – Navigation / Position Lights (O)

The pilot is responsible for ensuring the appropriate air traffic control unit is contacted prior to flight.

ATA 33 – Lights – Item 2 – Anti-Collision Lights (O)

Daylight Operations: The pilot is responsible for complying with Operational Requirements for daylight operations.

Offshore and Remote Operations: The pilot is responsible for ensuring the appropriate air traffic control unit is contacted prior to flight.

ATA 33 – Lights – Item 5 – Cockpit Instrument Lighting System (O)

It is the pilot's responsibility to check prior to flight that:

a) remaining lights are sufficient to clearly illuminate all required instruments, controls, and other devices for which it is provided,

b) remaining lights are positioned so that the direct rays are shielded from flight crew members eyes, and

c) lighting configuration and intensity is acceptable to the flight crew.

ATA 33 – Lights – Item 8 – Passenger Notice System (O)

The pilot is responsible for notifying passengers when seat belts shall be fastened and when smoking is prohibited. This briefing may be provided orally, and it is the pilot's responsibility to ensure the passengers can hear the notification.

ATA 34 – Navigation – Item 11 – Navigation Systems (O)

The pilot is responsible for ensuring that the functioning navigation systems comply with Operational Requirements.

ATA 34 – Navigation – Item 12 – ATC Transponders (O)

The pilot is responsible for ensuring the appropriate air traffic control unit is contacted prior to flight.

ATA 34 – Navigation – Item 14 – Radar Altimeter System (O)

The pilot is responsible for ensuring that the Radar Altimeter is not required for local or en-route procedural requirements.

ATA 34 – Navigation – Item 19– Traffic Collision Avoidance Systems (O)

The pilot is responsible for ensuring that the TCAS is not required for local or en-route procedural requirements.

ATA 52 – Doors – Item 1 – Door Warning System (O)

The pilot is responsible for ensuring that all doors and hatches are closed and locked and verified by a visual check prior to take-off.

ATA 77 – Engine Indicating – Item 1 – Tachometer, Triple Indicating (O)

The pilot is responsible for ensuring that the aircraft is flown with the handling pilot flying the helicopter from the station with the operating instrument on the instrument panel.

ATA 77 – Engine Indicating – Item 2 – Dual Torque Indicator (O)

The pilot is responsible for ensuring that the aircraft is flown with the handling pilot flying the helicopter from the station with the operating instrument on the instrument panel.

ATA 77 – Engine Indicating – Item 5 – Engine Out Warning System (O)

The pilot is responsible for monitoring engine parameters as an alternate means of identification of engine failure as presented in the emergency procedures section of the approved Flight Manual:

N_I below 53% and decreasing

N_{II} below 85% and decreasing

ITT below 400° and decreasing

No. 1 or No. 2 OIL PRESS, DC GEN, and PART SEP OFF caution lights illuminated

Normal engine N_{II} drops to 97%

Guidelines for (M) Procedures

The MMEL has identified the need for certain procedures to provide an adequate level of safety while providing relief for some items. Examples of appropriate procedures are identified below as a guideline for the operator to establish his own MEL procedures.

In addition to the instructions provided herein, the operator is responsible to assure all appropriate inspections and checklists have been accomplished prior to the next flight. The below annexed procedures are not included in the Maintenance Manual because they are driven by the MMEL process. Refer to Maintenance Manual for standard procedures.

General Procedure

Referring to all the procedures listed below, when it is prescribed to lock a circuit breaker use lock ring S4933959-501 or equivalent.

ATA 21 – Air Conditioning – Item 3 – Bleed Air Cooling System (M)

Deactivate the system by pulling the appropriate circuit breaker(s) in accordance with the Flight Manual. Secure the system by locking all the deactivated circuit breakers and tag accordingly.

ATA 21 – Air Conditioning – Item 4 - Freon Cooling System (M)

Deactivate the system by pulling the appropriate circuit breaker(s) in accordance with the Flight Manual. Secure the system by locking all the deactivated circuit breakers and tag accordingly.

ATA 25 – Equipment/Furnishings – Item 5 – Passenger Seats (M)

Refer to MM section 25-14. Secure passenger seat in the upright position and placard “DO NOT OCCUPY”. Make sure the placard is clearly visible and firmly secured.

ATA 25 – Equipment/Furnishings – Item 11 – EMS Equipment (M)

Refer to EMS equipment manufactures maintenance procedures for the proper deactivation of the installed EMS equipment.

ATA 25 – Equipment/Furnishings – Item 13 - Passenger Steps (M)

Deactivate the system by pulling breaker STEP on the overhead circuit breaker. Secure the system by locking the deactivated circuit breakers and tag accordingly.

ATA 25 – Equipment/Furnishings – Item 17 – Lifejackets (M)

The inoperative lifejacket(s) must be placarded inoperative, removed from installed location and placed out of sight so it cannot be mistaken for functional unit. Prior to take-off the pilot must inform the passengers that the equipment is not operative.

ATA 25 – Equipment/Furnishings – Item 18 – Survival Equipment (M)

The inoperative equipment must be placarded inoperative, or removed from installed location and placed out of sight so it cannot be mistaken for functional unit. Prior to take-off the pilot must inform the passengers that the equipment is not operative.

ATA 25 – Equipment/Furnishings – Item 19 - Life-rafts and Contents (M)

The inoperative equipment must be placarded inoperative, or removed from installed location and placed out of sight so it cannot be mistaken for functional unit. Prior to take-off the pilot must inform the passengers that the equipment is not operative.

ATA 26 – Fire Equipment – Item 5 (M)

Refer to MM section 26-18. The inoperative fire extinguisher(s) must be placarded inoperative, removed from installed location and placed out of sight so it cannot be mistaken for functional unit. Prior to take-off the pilot must inform the passengers that the equipment is not operative.

ATA 28 – Fuel – Item 2 - Multiple Indicator Fuel Quantity Gauge (M)

Placard the indicator “INOPERATIVE”.

ATA 28 – Fuel – Item 5 - Auxiliary Fuel System (M)

Refer to Service Instruction for the appropriate system installed (412-SI-51, 32.6 Gal; 412-SI-14, 40 Gal; 412-SI-4, 163.4 Gal). Placard the indicator “INOPERATIVE”.

ATA 30 – Ice and Rain Protection – Item 1 – Pitot Heating Systems (M)

Placard the annunciation “INOPERATIVE”.

ATA 30 – Ice and Rain Protection – Item 3 – Static Port Heaters (M)

Refer to kit Installation Drawing 412-705-006-101. Placard the annunciation “INOPERATIVE”.

ATA 30 – Ice and Rain Protection – Item 5 – Pitot Heating Failure Indication (M)

Refer to Aeronautical Accessories STC TBD [DAS Project #ST0054RC-RD] Instructions for Continued Airworthiness for system inspections and maintenance. Placard the annunciation “INOPERATIVE”.

ATA 33 – Lights – Item 8 - Fasten Seat Belt and No Smoking (M)

Placard the annunciation “INOPERATIVE”. Check that at least one operative annunciation is visible from each occupied passenger seat or an alternate means for the pilot to communicate to each passenger accordingly.

ATA 34 – Navigation – Item 19 - Traffic Collision Alert Systems (M)

Deactivate the system by pulling the appropriate circuit breaker(s) in accordance with the Flight Manual. Secure the system by locking all the deactivated circuit breakers and tag accordingly.

ATA 52 – Doors – Item 1 – Door Warning System (M)

Deactivate the system by pulling the appropriate circuit breaker(s) in accordance with the Flight Manual. Secure the system by locking all the deactivated circuit breakers and tag accordingly.

ATA 65 – Rotors – Item 1 – Rotor Brake (M)

Disable rotor brake by securing the handle in the locked-off position. Verify by inspection the rotors disks are disengaged from the rotor disk and the rotor system is free to rotate. Placard the Rotor Brake as "INOPERATIVE".