CIVIL AVIATION PUBLICATION

OPS 02

MINIMUM EQUIPMENT LIST (MEL)

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CHAPTER 1

INTRODUCTION

1.1 General

If deviations from the requirements of the Authority in the certification of aircraft were not permitted, an aircraft could not be flown unless all systems and equipment were operable. Experience has proven that some unserviceability can be accepted in the short term when the remaining operative systems and equipment provide for continued safe operations.

The CAA-B indicates, through approval of a minimum equipment list (MEL), those systems and items of equipment that may be inoperative for certain flight conditions with the intent that no flight can be conducted with inoperative systems and equipment other than those specified.

A MEL, approved by the CAA-B, is therefore necessary for each aircraft, based on the Master Minimum Equipment List (MMEL) established for the aircraft type by the organization responsible for the type design in conjunction with the State of Design.

The CAA-B requires the operator to prepare a MEL designed to allow the operation of an aircraft with certain systems or equipment inoperative provided an acceptable level of safety is maintained.

The MEL is not intended to provide for operation of the aircraft for an indefinite period with inoperative systems or equipment. Its basic purpose is to permit the safe operation of an aircraft with inoperative systems or equipment within the framework of a controlled programme of repairs and parts replacement.

Operators are to ensure that no flight is commenced with multiple MEL items inoperative without determining that any interrelationship between inoperative systems or components will not result in an unacceptable degradation in the level of safety and/or undue increase in the flight crew workload.

The exposure to additional failures during continued operation with inoperative systems or equipment should also be considered in determining that an acceptable level of safety is being maintained. The MEL may not deviate from requirements of the flight manual limitations section, emergency procedures or other airworthiness requirements of the CAA-B unless the appropriate airworthiness authority or the flight manual provides otherwise.

Systems or equipment accepted as inoperative for a flight may need to be placarded where appropriate and all such items should be noted in the aircraft technical log to inform the flight crew and maintenance personnel of the inoperative system or equipment.

For a particular system or item of equipment to be accepted as inoperative, it may be necessary to establish a maintenance procedure, for completion prior to flight, to deactivate or isolate the system or equipment. It may similarly be necessary to prepare an appropriate flight crew operating procedure.

The pilot-in-command is responsible for accepting, or not, an aeroplane for operation with deficiencies in accordance with a MEL.

CAR OPS 1/3 and CAR OPS 2A require operators of Commercial Air Transportation aeroplanes and General Aviation aircraft respectively, registered in The Bahamas, to establish a MEL as part of the Operations Manual. Also where a MMEL is provided for Remotely Piloted Aircraft (RPA) CAR OPS 4 requires the operator to establish a MEL. The MEL must be approved by the CAA-B, and an approved MEL will permit the pilot-in-command to determine if the flight may be commenced or continued with the prevailing equipment deficiencies.

A CAA-B MEL approval will in no circumstances permit operations outside the constraints of the MMEL, if this exists. In the context of this document, the term 'MMEL' should be interpreted to mean MMEL or MMEL Supplement.

Where no MMEL exists for the aircraft type, or where an existing MMEL refers to regulations other than CAR OPS, aircraft operators should use this MEL CAP to produce a MEL specific to their aircraft. However, the material in this MEL CAP should not be used to overwrite the MMEL other than for the purpose(s) described.

1.2 Purpose

The purpose of this CAP is to define and explain the policy of the CAA-B in regard to MELs. It provides guidance and specifies the means for an operator to produce MELs and procedures, so that an aircraft with unserviceable equipment may be dispatched in accordance with the applicable requirements of CAR OPS.

A MEL Approval Process Flowchart is at Appendix 2.

CHAPTER 2

MEL/MMEL AND TYPE CERTIFICATE

2.1 General

While the MMEL is for an aircraft type, the MEL is tailored to a specific Bahamas-registered aircraft and its operating environment, and may be dependent upon the route structure, geographic location, and number of airports where spares and maintenance capability are available etc. The MMEL cannot address these individual variables, or standard terms such as "As required by Operational Requirements". It is for this reason that a MMEL cannot normally be accepted by the CAA-B as a substitute for the MEL. It is the responsibility of the aircraft operator to develop appropriate operational "(O)" and maintenance "(M)" procedures (see paragraph 3.2.8), or to use documents issued by the Type Certificate Holder, such as a Dispatch Deviations Guide, where these documents are available.

A MEL approval can only be issued if operation with specified unserviceable equipment meets the applicable requirements of CAR OPS, and the level of safety achieved is not less than the minimum standard either implied or specified by the aircraft certification basis (defined in the Type Certificate).

The basis of the procedures described in this CAP is that each aircraft type with a Maximum Total Mass Authorised (MTMA) exceeding 2730kgs will have a MMEL. The MMEL may be a stand-alone document, or may be a MMEL Supplement to be used in conjunction with a specific MMEL.

Note: Aircraft which are modified may have AFM supplements which also indicate additional MEL items to be included (especially navigation equipment)

The operator's MEL must be based on the applicable MMEL. For example;

(a) Transport Canada's for aircraft with a TC Type Certificate,

(b) EASA for an EASA Type Certificate,

(c) FAA for an FAA Type Certificate; or

(d) ANAC for an ANAC Type Certificate.

The easiest way to determine which MMEL is relevant is to verify what is listed on the current valid Certificate of Airworthiness. Where no MMEL exists for the type, or where an existing MMEL refers to regulations other than CAR OPS, operators should use this CAP to produce appropriate MEL material.

Operators should note that where no MMEL (or equivalent document) exists, the MEL may only include unserviceabilities expressly permitted by CAR OPS; or by special limitations and procedures in the approved Flight Manual; or by agreement with the CAA-B and in accordance with this CAP.

A MMEL is not an exhaustive list of all equipment items required by law to be carried. An operator may include in a MEL any additional items that are not required to be carried, where such entries clarify legal requirements: for example, an operator may choose to specifically identify those items of equipment that are required for RVSM operations, where there are similar items of equipment that are not required for RVSM, and for which an alleviation exists.

The MMEL will deal with items of equipment which may safely be permitted to be unserviceable under certain conditions. Those items which are essential for safety under all conditions will not necessarily be included. It follows that all items related to the continued airworthiness of the aircraft and not included in the MMEL are automatically required to be operative prior to flight.

In order to establish whether or not it is acceptable to dispatch with particular equipment unserviceable, it will be necessary for each operator to prepare and seek CAA-B approval of their own MEL. The MEL cannot be less restrictive than the appropriate MMEL, and may have to be more restrictive to reflect an individual operator's circumstances and capabilities.

Aircraft are generally fitted with equipment that is not required for safe operation under all operating conditions, e.g. instrument lighting in day VMC, and the MEL should show clearly under what conditions such equipment must be serviceable.

2.2 Purpose of MEL

The MEL is a joint operations and maintenance document prepared by an aircraft operator to:

(a) Identify the minimum equipment and conditions for an aircraft to maintain the Certificate of Airworthiness in force and to meet the operating rules for the intended flight;

(b) Define operational and maintenance procedures necessary to maintain an acceptable level of safety, and to deal with inoperative equipment.

The MMEL and associated MEL are alleviating documents. Their purpose is not, however, to encourage the operation of aircraft with inoperative equipment. It is undesirable for aircraft to be dispatched with inoperative equipment, and such operations are permitted only as a result of careful analysis of each item to ensure that the acceptable level of safety is maintained. A fundamental consideration is that the continued operation of an aircraft in this condition should be minimised. The limitations governing rectification intervals are specified in paragraph 3.2.9.

The pilot-in-command retains the option to decline the use of MEL alleviations, and may elect not to operate the aircraft with any particular MEL item inoperative.

CHAPTER 3

PREPARATION OF THE MEL AND THE APPROVAL

3.1 Preparation of MEL

This CAP should be used in conjunction with the approved MMEL for the aircraft type. If no MMEL exists, the content of this CAP may be used to develop a MEL, subject to the approval of the CAA-B.

Aircraft operators should develop their MEL using the following principles:

(a) The provisions of the approved MMEL should be used as the basis for their MEL;

(b) The MEL may not be less restrictive than the MMEL;

(c) The content of the MEL should take into consideration the operator's aircraft equipment, configuration and operational conditions, routes being flown and the requirements of the CAA-B;

(d) The MEL may not deviate from any applicable Airworthiness Directive or any other Mandatory Requirement;

(e) The MEL and associated material should be designed to be easily used operationally by those personnel who will need to consult it. A MEL that is not clearly presented and easy to use will often result in inappropriate or incomplete application of the specified procedures, with a consequent reduction in safety levels.

The material provided in this CAP is intended to be generic and is not system- (equipment or installation) specific. Therefore the (O) and (M) references are also generic and are included as they may apply to certain cases. It is the responsibility of the aircraft operator to determine the applicability of (O) and (M) references when establishing their MEL. This principle is also applicable in the absence of (O) and/or (M) references.

The flow diagram in Appendix 3 below explains how to use the CAP when preparing a MEL.

3.1.1 MMEL Acquisition

The aircraft operator must ensure that they use the latest version of the appropriate MMEL to develop their MEL. The latest MMELs and any associated Supplements are often available for viewing or downloading from the website of a contracting state Regulatory Authority (usually that of the Type Certificating Authority). Alternatively, aircraft operators may obtain MMELs directly from the Type Certificate Holder, who can normally provide a MMEL, along with a revision service, on a commercial basis.

3.1.2 Operator MEL Development Process

The aircraft operator should develop their MEL, and all subsequent amendments, as a joint operations and maintenance project, based on the current MMEL revision.

3.1.3 Conformance with the MMEL

3.1.3.1 MEL Content

(a) An aircraft operator's MEL must reflect the current limitations in the applicable MMEL or associated Supplement. When a revision is issued to a MMEL or associated Supplement, the aircraft operator's MEL need not be revised if the change is less restrictive than the existing MEL;

(b) When the MMEL or MMEL Supplement is amended so as to become more restrictive, or when the CAA-B requires immediate amendment of the MEL, operators will be allowed 30 days from the date of notification of revision to amend their MEL.

(c) Except as noted above, the aircraft operator's MEL shall be amended to reflect the most recent approved version of the MMEL or MMEL Supplement within 90 days of notification of the latest revision or amendment.

3.1.3.2 Non-Safety-Related Equipment

Non-safety-related equipment includes those items related to the convenience, comfort, or entertainment of passengers. They may include items such as galley equipment, video equipment, ashtrays, stereo equipment, and overhead reading lamps.

Non-safety-related equipment must not have an effect on the continued airworthiness or safe operation of the aircraft. This equipment does not require a rectification interval and need not be listed in an operator's MEL if it is not addressed in the MMEL. If an aircraft operator chooses to list this equipment in the MEL, it may be given a 'D' Category rectification interval. The exceptions to this rule are:

(a) Where non-safety-related equipment serves a second function, such as video equipment being used for cabin safety briefings, aircraft operators must develop and include operational contingency procedures in the MEL in case of an equipment malfunction;

(b) Where non-safety-related equipment is part of another aircraft system, for example the electrical system, procedures must be developed and included in the MEL for deactivating and securing in case of malfunction.

In these cases, the item must be listed in the MEL, with compensating provisions and deactivation instructions if applicable. The rectification interval will be dependent on the secondary function of the item and the extent of its effect on other systems.

The *** symbol for optional equipment must be used in the MEL. The MEL must be tailored. Optional equipment must either be included in the MEL if fitted, or not mentioned if not fitted.

The CAA-B does not require a MEL to contain a Non-essential Equipment and Furnishings (NEF) list. Instead, the MMELs' Passenger Convenience items entry can be used.

3.2 MEL Development Procedures

3.2.1 MEL Format and Content

The format of the MEL should follow that of the MMEL, and the Preamble provided in Appendix 1 should be used. The logical sequence of the material in this CAP is based upon the use of the ATA 2200 classification.

3.2.2 MEL Basic Format

The MEL should include the following:

- a List of Effective Pages;
- a Table of Contents;
- the Preamble;
- Notes and Definitions;
- a section for each aircraft system; and
- an amendment record page.

The Preamble and Definitions shall be based upon, but no less restrictive than, the relevant MMEL. Aircraft operators must specify the revision status of the MMEL and MMEL Supplement, and any other documents such as a Dispatch Deviations Guide, used in the development of their MEL.

3.2.3 MEL Page Format

MEL format is at the discretion of the aircraft operator, provided that it is clear and unambiguous. It is recommended that the MEL page format follow the normal MMEL page format of five columns. The page numbering and individual MEL items should be in accordance with the ATA 2200 code system.

3.2.4 List of Effective Pages

A List of Effective Pages (LEP) will be used to ensure that each MEL is up-to-date. It must list the date of the last amendment for each page of the MEL. The date and revision status of each page of the MEL must correspond to that shown on the List of Effective Pages.

Note: The effective date of the MEL (or amendment) should be for a future date, which will allow the CAA-B adequate time to review and approve.

3.2.5 Table of Contents

The Table of Contents page should list the section for each aircraft system using the ATA 2200 listing as found in the MMEL.

This scheme should be adhered to in the MEL, even if the resulting list is not continuous. For example, if the MMEL contains ATA Items XX-1, XX-2, XX-3 and XX-4 and the operator does not have items XX-2 and XX-3, the second item in the MEL should still use the number XX-4.

The rule applies similarly to sub-items a), b) etc. Operators may use customised MEL item numbering schemes provided they adhere to the basic ATA chapter assignment (i.e., ATA 21 - Air Conditioning, ATA 22 – Auto Flight, etc.), and a unique number is assigned to MEL items and sub-items. Pages should be numbered with the ATA system number followed by the item number for that system (e.g., the page following 27-2-1 would be 27-2-2).

3.2.6 MEL Preamble

The purpose of the MEL Preamble is to provide direction on the philosophy and use of the MEL. An example MEL Preamble for use by an aircraft operator is shown in Appendix 1. Aircraft operators may develop their own Preamble, but it should contain at least the information described in Appendix 1.

Unless specifically permitted, an inoperative item may not be removed from the aircraft, and the Preamble should prohibit unauthorised removal.

Note: *The Preamble, Notes and Definitions in a MEL should not contradict the applicable sections in the MMEL. Appendix 1 is shown as an example only, and should not be used to overwrite provisions of the MMEL.*

3.2.7 Notes and Definitions

Notes and Definitions are required to allow the user to interpret the MEL properly. An example of Notes and Definitions can be found in Appendix 1. Additions and deletions to the Notes and Definitions may be applied to the aircraft operator's MEL as required.

3.2.8 Operational and Maintenance Procedures

(a) Dispatch with inoperative items is often acceptable only in accordance with special operational or maintenance procedures. Where the MMEL indicates that this is the case, the aircraft operator must establish appropriate procedures.

Aircraft operators, when comparing their MEL against the MMEL, should ensure that where the (O) or (M) symbols appear in the MMEL, an operational or maintenance procedure has been developed that provides clear direction to crewmembers and maintenance personnel of the action to be taken. This procedure should be included in the MEL.

Alternatively, when the procedure is already contained in another document that is routinely available; e.g. elsewhere in the Operator's Manuals for "(O)" procedures or the Maintenance Manual for "(M)" procedures, the MEL may refer to a section of the appropriate document;

(b) Other than the example in (a) it is not acceptable to only make reference to other documents, as these may not be carried on board the aircraft and could be subject to misinterpretation.

The objective is to provide personnel with clear, concise direction on how they are to proceed. Where the MMEL column 5 states, "as required by Operating Requirements" or “as per National Regulations”, this wording must not appear in the MEL; instead the content should be developed in consideration of the equipment requirements of CAR OPS;

(c) Procedures recommended by the Type Certificate Holder may in most cases be adopted for this purpose, but the ultimate responsibility for providing acceptable (O) and (M) procedures for the MEL rests with the aircraft operator. These procedures will ensure that an acceptable level of safety will be maintained. The Type Certificate Holder is required to produce operational and maintenance procedures such as Dispatch Deviation Guides, for use by aircraft operators. Dispatch Deviation Guides, such as those produced by Boeing, Bombardier, Gulfstream and others, may not be used as stand-alone unedited documents in order to avoid including (O) and (M) information in the MEL. The same applies to the (O) and (M) chapters of an Airbus MMEL;

(d) The manufacturer’s procedures (DDG, DDPG, DDPM, MPM, etc.) may be inserted into the appropriate MEL pages, and submitted by the aircraft operator to form part of the MEL. Dispatch Deviation Guides, and other similar documents are not approved by the CAA-B, nor can they replace the MEL. If the Type Certificate Holder has not published operational or maintenance procedures, the aircraft operator should develop appropriate procedures and, if requested, submit them to the CAA-B. Transport Canada’s MMELs use a (M#) symbol to highlight those items that can only be accomplished by a certified Aircraft Technician. These types of items should carry over to the operator’s MEL in some format;

(e) DDG entries such as "in accordance with regulations" and "a procedure must be in place" and "alternate procedures must be established and used" must be fully explained, or, if covered in another manual carried on the aircraft, fully referenced. The CAA-B's MEL reviewer will require sight of the reference document;

(f) The manufacturer’s (O) and (M) procedures are not necessarily exhaustive. The operator must add his own procedures if the manufacturers are vague or incomplete. For example, with an inoperative Anti-Skid system an entry such as “Airplane Flight Manual corrections must be made” is of little use if the crew has no access to the AFM’s performance graphs.

An acceptable entry in the Operational Procedures column would be e.g. “Anti-skid inoperative runway analysis must be obtained from the performance provider” or “Use FCOM Vol 1 Take-off – Performance In-flight (PI) section – Antiskid Inoperative.”

3.2.9 Rectification Interval Categories

The operator shall take account of the Rectification Interval (i.e. the maximum time an aircraft may be operated between the deferral of an inoperative item and its rectification) given in the MMEL when preparing a MEL. Also called Repair Intervals in the USA.

The Rectification Interval in the MEL shall not be less restrictive than the corresponding Rectification Interval in the MMEL.

Non-safety-related equipment such as reading lights and entertainment units need not be listed. However, if they are listed, they must include a rectification interval category. These items may be given a 'D' Category rectification interval provided any applicable (M) procedure (in the case of electrically supplied items) is applied.

The Rectification Interval Categories are defined as follows:

Category A

No standard interval is specified, however, items in this category shall be rectified in accordance with the conditions stated in the MEL. Whenever the time interval is specified in calendar days, it shall start at 00:01 on the 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.

Category C

Items in this category shall be rectified within ten (10) consecutive calendar days, excluding the day of discovery.

Category D

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

3.2.10 Equipment Requirement Specification

Operators must replace MMEL cross-references to regulations other than CAR OPS with numeric required quantities in the MEL. Dashes in the MMEL's "Number Installed" and "Number Required for Dispatch" must be converted to the actual quantities installed and required on the aircraft. If the MEL covers more than one aircraft of the same type on which the numbers of equipment items installed differ, the aircraft registrations must be entered alongside the applicable quantities.

3.2.11 Aircraft Configuration

The operator's MEL must reflect the actual aircraft configuration where the available relief differs depending upon modification status, service bulletin accomplishment, aircraft model/series or serial number applicability. The relief must either be included in the MEL, if applicable; or not mentioned if not applicable.

3.2.12 Operational Approvals

Operations Specifications/Navigation Approvals usually require that the MEL contain the relevant dispatch conditions. The appropriate entry must be written in the Number Installed, Number Required and the Remarks or Exceptions column; or a reference made to the appropriate manual where the dispatch requirements may be found.

3.2.13 Inoperative Exits

Where provided in the MMEL, relief for inoperative main entry or service doors/slides may be included in the operator's MEL only if blocked seating layouts and alternate evacuation procedures are developed and submitted to the CAA-B for review.

3.2.14 Equipment Removal

Unserviceable equipment must not be removed from the aircraft unless specifically permitted by the MEL or associated (M) procedures. Unserviceable items, such as portable oxygen bottles, must be retained in their equipment stowages and not placed, for example, in overhead lockers.

3.2.15 Electronic MEL

Paperless cockpit operators may present tailored electronic MEL's for approval, but the CAA-B must be given a text version. The same "rules" apply to electronic MEL's in respect of optional equipment, references to regulations and ATA alpha-numerics as to paper-based MEL's.

3.3 Exceptions

There are permissible exceptions to some of the above procedures:

(a) If CAR OPS does not provide sufficient information, CARs must be used for a TC-based MMEL, EASA Ops (Commission Regulation (EC) No.965/2012) and JAA TGL 26 for an EASA-based MMEL, and FARs and MEL Policy Letters for an FAA-based MMEL. As a last resort, if a dispatch condition cannot be found from TC, FAA or ANAC sources for MMELs issued by these authorities, TGL 26 may be used;

(b) The dash (-) symbol may be retained where it would be impractical to specify the Number Required, for example in the number of lights in the cabin required for cabin crew to perform their duties, or where the Number Required is subject to conditions specific to the event; for example the Number of Fasten Seat Belt signs required to be visible to passengers when other signs or placards are inoperative. However, the exceptions should be few;

(c) CAR OPS and CAR OPS 2A require that the MEL be included in the Operations Manual. For convenience, the MEL may be a stand-alone separate manual (or an electronic document) so long as an appropriate entry is displayed in the Operations Manual identifying the MEL as part of the Operations Manual suite;

3.4 MEL Approval

In order to use a MEL an operator must apply on Form OPS 06 to obtain an approval from the CAA-B, in accordance with CAR OPS. The CAA-B will accept a MEL once satisfied that the submitted MEL is not in conflict with the applicable MMEL or equivalent document and conforms with this CAP. The applicant must declare this on the application form as well as confirming every item in the MEL has been checked against the MMEL and “O” and “M” procedures have been developed where appropriate.

The charge for the Approval will be in accordance with the current Scheme of Charges.

CHAPTER 4

AMENDMENT OF MEL

4.1 Amendment Timescales

When the MMEL or MMEL Supplement is amended so as to become more restrictive, or when the CAA-B requires immediate amendment of the MEL, operators will be allowed 30 days from the date of notification of revision to amend their MEL.

In all other cases, when a MMEL or MMEL Supplement revision is issued, operators will be allowed 90 days from the date of notification to amend their MEL.

The MEL shall be appropriately amended, as and when applicable (O) or (M) procedures as referenced in the MMEL are revised.

Every item in the MEL must be checked against the amended items in the MMEL and new “O” and “M” procedures must be developed where appropriate.

The operator's MEL need not be amended if the change to the MMEL, MMEL Supplement or (O) or (M) procedures is less restrictive than the existing MEL provisions.

4.2 Voluntary Amendment

Voluntary amendment of the MEL may be carried out as required by the operator, provided the proposed change is no less restrictive than the MMEL. In this case, the CAA-B must still approve the MEL amendment prior to its use.

Note: The effective date of the amendment should be for a future date, which will allow the CAA-B adequate time to review and approve.

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CHAPTER 5

OPERATIONAL USE OF THE MEL

5.1 Deferral of Items

Procedures for the deferral and management of MEL items should be included in the aircraft operator's Technical Log or equivalent document. Personnel training requirements may be included in Part D of the Operations Manual. The aircraft operator should ensure these procedures are referenced in the MEL.

5.1.1 Requirements

These procedures comprise a method for:

(a) Recording deferral, transfer and/or rectification of inoperative equipment;

(b) Placarding requirements as per the MEL;

(c) Dispatching of an aircraft with deferred MEL item(s);

(d) Using a remote deferral system *(if applicable)*;

(e) Controlling compliance with categorised rectification interval time limits; and

(f) Training of personnel who are responsible for MEL compliance procedures.

5.1.2 Review of Deferred Items

The operator of an aircraft registered in The Bahamas should ensure that any deferred items are periodically reviewed to ensure that any accumulation of deferred defects neither conflict with each other nor create an unacceptable increase in pilot workload. Notwithstanding the categorisation of item rectification intervals, it should be the aim of aircraft operators to ensure that inoperative items are repaired as quickly as possible. It is the policy of the CAA-B that optional inoperative equipment should be rectified or removed from an aircraft.

5.2 Placarding

Inoperative items should be placarded to inform crewmembers of equipment condition as appropriate. When they are accessible to the crew in flight, the control(s), and/or indicator(s) related to inoperative unit(s) or component(s) should be clearly placarded. Though the MEL for some items may require specific wording, the majority of items leave the placard wording and location to be determined by the aircraft operator.

The aircraft operator shall provide the capability and instructions to the pilot-in-command to ensure that the placard is in place prior to the aircraft being dispatched.

Note: Some MMELs indicate the need for a placard through the use of an asterisk (*). However, the lack of an asterisk in a MMEL does not preclude the requirement for placarding.

5.2.1 Requirements to Placard/Placard Control

Placarding should be carried out in accordance with the placarding procedures established and set out in the aircraft operator's technical log or equivalent document. The method of placarding should ensure that all inoperative items are placarded and that placards are removed and accounted for when the defect is cleared.

The defective equipment/system shall be placarded so as to inform the pilot-in-command of the inoperative condition(s) of the item. To the extent practicable, placards must be located as indicated in the MEL, or adjacent to the control or indicator affected.

5.2.2 Placard Criteria

Where possible, placards should be self-adhesive and contain sufficient information about the defect to permit the pilot-in-command to clearly understand the effect of the defect on the aircraft's continued safe operation.

5.2.3 Multiple Placards

If more than one placard is required for a MEL item, aircraft operators should ensure that all placards are removed when the defect is cleared.

5.2.4 Temporary Placards

The pilot-in-command may install a temporary placard as required by the MEL, thereby enabling the aircraft to continue to a location where the defect may be rectified or be re-deferred in accordance with the deferral system.

5.3 Dispatch

"Dispatch" for the purpose of the MEL/MMEL refers to the commencement of flight, which is defined as "the point when an aircraft begins to move under its own power for the purpose of preparing for take-off." In the case of a helicopter, dispatch refers to the moment the helicopter commences air or ground taxi.

The MEL is approved on the basis that equipment will be operative for flight unless the appropriate MEL procedures have been carried out.

Discrepancies may occur between the point of dispatch and take-off brake release. If the operations manual contains procedures for handling that discrepancy, and if the PIC deems that the discrepancy does not affect the safety of flight, the flight may continue. The discrepancy must be addressed prior to subsequent dispatch.

5.4 Operational and Maintenance Items

Any item of equipment in the MEL which, when inoperative, would require an operational or maintenance procedure to ensure an acceptable level of safety will be so identified in the "remarks" or "exceptions" column of the MEL.

This will normally be "(O)" for an operational procedure, or "(M)" for a maintenance procedure. “(O)(M)” means both operational and maintenance procedures are required.

(a) (O) Items

(1) Aircraft with inoperative equipment requiring an operational procedure may continue in service following completion of the required MEL procedure for deferral;

(2) Operational (O) procedures shall 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 authorised to perform certain functions. The satisfactory accomplishment of all procedures, regardless of who performs them, is the responsibility of the operator;

(b) (M) Items

(1) Aircraft with inoperative equipment requiring a maintenance procedure may continue in service following completion of the required MEL procedure for deferral;

(2) Maintenance (M) procedures shall be accomplished prior to operating with the listed item inoperative. Normally these procedures are accomplished by maintenance personnel; however, other personnel may be qualified and authorised to perform certain functions. The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the operator.

5.5 Non-Standard Operations

Aircraft are often flown for purposes other than those associated with their most common use. Such non-standard uses may well allow less stringent minimum equipment requirements.

Examples of non-standard use may be:

(a) Demonstration Flights;

(b) Test Flights – after maintenance;

(c) Training Flights;

(d) Ferry Flights – carrying neither passengers nor freight, to return the aircraft to a place where it can be repaired.

Any reference to a reduction in minimum equipment requirements in a MEL must be clearly identified as such, together with the type of non-standard flight applicable.

Note: Such non-standard flights may only be undertaken if the aircraft’s Flight Manual contains the appropriate procedures and are authorised by the CAA-B.

5.6 Operations with Multiple Unserviceabilities

In most cases multiple unserviceabilities of unrelated aircraft systems cannot be addressed by the MMEL, or consequently by the MEL. The decision as to whether or not to dispatch with multiple unserviceabilities, which individually would be allowed by the MEL, will ultimately rest with the pilot-in-command, taking into consideration advice from the Type Certificate Holder's MMEL where available.

5.7 Rectification Intervals

The operator is responsible for establishing an effective rectification programme that includes tracking of the inoperative items and co-ordinating parts, personnel, facilities and procedures necessary to ensure timely rectification. Dispatch of the aircraft is not allowed after expiry of the Rectification Interval specified in the MEL unless the defect has been rectified.

Where the applicable MMEL or MMEL Supplement does not contain Rectification Intervals, all entries included within the MMEL shall be classified with a Rectification Interval category 'C' (relating to 10 calendar days) in the MEL, except where there is an existing repair limit stated within the proviso for a particular MMEL entry. The stated limit will remain in force, and the entry should be identified as a category 'A' Rectification Interval in the MEL.

Once the applicable MMEL has been revised to include Rectification Intervals, this will supersede the guidance given in the paragraph above, and operators will need to reflect the Rectification Intervals in their MEL.

5.8 Rectification Interval Extensions (RIEs) for AOC Holders

5.8.1 Principles of RIEs

Subject to the approval of the CAA-B, operators may be granted approval to utilise RIEs,

5.8.1.1 AOC Holders

AOC holders may apply using Form OPS 022 for permission to use their procedures for the extension of the applicable Rectification Intervals B, C, and D, for the same duration as specified in the MEL, provided;

(a) a description of specific duties and responsibilities and procedures used for controlling extensions must be established by the operator and detailed in the operators' MEL and approved by the CAA-B;

(b) the operator only grants a one-time extension of the applicable Rectification Interval;

(c) the CAA-B is notified of the application of any extension within 10 days; and

(d) Rectification is accomplished at the earliest opportunity within the period of the extension.

The operator should ensure that rectifications are accomplished at the earliest opportunity. RIEs are introduced to allow operators to continue to operate an aircraft after the Rectification Interval has expired if rectification has not been possible. An operator who utilises RIEs is required to report all such uses, together with the appropriate justification, to the CAA-B. The CAA-B is ultimately responsible for the oversight of RIEs.

5.8.1.2 GA Operators

GA Operators may apply for a one-off permission to extend a Rectification Interval but they must apply to the CAA-B on each occasion an RIE is required using Form OPS 022. GA Operators may not extend a Rectification Interval without explicit prior permission from the CAA-B.

Note: The extension of items covered by Rectification Interval "A" is not permitted.

5.8.2 Application for the use of RIEs

The operator shall make an application on Form OPS 022 to the CAA-B for authorisation to be able to use RIEs. The operator should provide the CAA-B with details of the name and position of the nominated person responsible for the control of the company RIE procedure and details of the specific duties and responsibilities established by the operator to control the use of RIEs. Authorising Managers, who must be senior with experience in technical and operations management are to be listed by appointment and name.

The CAA-B will consider the engineering competence of the operator and the acceptability of the Authorising Managers. Where an operator uses contracted-out maintenance facilities, the CAA-B will judge whether the relationship between an operator and an independent maintenance contractor is adequate for the purposes of RIEs.

5.8.3 RIE Procedure

An RIE procedure must be defined by the operator, detailed in their MEL and approved by CAA-B and shall consist of:

(a) Consultation between the operational and technical staff of the operator as to the requirement for the RIE and the recommendation of the proposal.

(b) Decision, made by the Authorising Manager, to accept or reject the proposal based on consultation.

(c) Authorisation, a formal authorisation to inform the pilot-in-command of the use of the RIE.

(d) RIE Report on an operator form (Refer to Appendix 5), made to the CAA-B within 10 days of the extension being authorised.

A system of consultation must be listed. Authorising Managers who must be senior with experience in technical and operations management are to be listed by appointment and name.

5.8.4 Authorisation

The operator form at Appendix 5 is the Authorising and Reporting form. It is to be completed (all boxes filled in) when the RIE is authorised and must contain the authorising Manager's name.

The CAA-B requires that the operator form is sent to the CAA-B within 10 days of being authorised. The form will be used to check that the RIE was properly authorised and that the extension was granted for appropriate reasons.

The operator form for RIE should be in the format as specified in Appendix 5. Modifications, other than box size, are unacceptable although operators are free to include additional boxes where required and by agreement with the CAA-B.

5.8.5 Use of RIEs

Operators are reminded that they must ensure that rectification is accomplished at the earliest opportunity. This is applicable for both the standard Rectification Interval and for the RIE.

The RIE permits an operator to continue to dispatch an aircraft with particular equipment unserviceable after the standard rectification interval has expired if, in the opinion of the Authorising Manager, it is not reasonably practicable for the repair to be made within that rectification interval. It is not intended that RIEs should be used purely to double the standard rectification interval.

It is most important that the agreed procedures for the use of RIEs are followed. In the event that operators do not comply with the laid down conditions, the CAA-B will take action by means of warning letters and ultimately (normally a second incident) by removal of the authorisation to utilise RIEs on a temporary or permanent basis.

Note: Unwillingness on the part of the operator to obtain parts or equipment to rectify the defect in the timeliest manner possible will be grounds for review and could result in the withdrawal of the operator's privilege to use Rectification interval extensions.

5.9 Operations outside the Scope of the MEL

The CAA-B may exempt an operator from compliance with the appropriate MEL on an individual case-by-case basis, provided such exemption complies with applicable limitations in the MMEL.

CHAPTER 6

TRAINING

6.1 General

The operator must develop a MEL training program for maintenance personnel, flight crew and dispatch personnel, which must be in place prior to an operator commencing operations with a MEL.

6.1.1 The operator, when required, should conduct recurrent training, or put in place a controlled method to alert staff to any changes in MEL procedures, to ensure company personnel remain current with those procedures.

6.1.2 Training Programme —Ground Personnel

Operators must develop a MEL training programme for ground personnel where they are authorised to carry out dispatch or maintenance functions. This training should include;

(a) the use of, and compliance with the MEL;

(b) placarding of inoperative equipment (maintenance only);

(c) return to service of an aircraft (maintenance only);

(d) dispatching an aircraft; and

(e) any other MEL related procedures.

6.1.3 Training Programme — Flight Crew

Operators must also provide flight crew personnel with MEL training, which should be included as part of their LIFUS training. The details of such a training programme must be stated in the operator's Operations Manual. The flight crew training should include, but not be limited to, the following;

(a) the purpose and use of a MEL;

(b) instruction on operator's procedures for the use and guidance of flight crew; and

(c) the PICs responsibility with respect to the above procedures

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APPENDIX 1

EXAMPLE MEL PREAMBLE

(OPERATOR'S NAME)
MINIMUM EQUIPMENT LIST
(AIRCRAFT TYPE)
PREAMBLE

Note: *This specimen Preamble is intended only as an example of what is required, and operators may, with the approval of the CAA-B, vary the format and content of their MEL Preambles to suit their own needs and requirements.*

1 Introduction

The Minimum Equipment List (MEL) is based on the **(Certificating Authority)** Master Minimum Equipment List (MMEL) **(Revision, dated).**

This MEL takes into consideration **(the operator's)** particular aircraft equipment, configuration and operational conditions, routes being flown and requirements set by the CAA-B.

This MEL will not deviate from any applicable Airworthiness Directive or any other Mandatory Requirement, and will be no less restrictive than the MMEL.

The MEL is intended to permit operations with inoperative items of equipment for a period of time until rectification can be accomplished.

Rectification is to be accomplished at the earliest opportunity.

MEL Conditions and Limitations do not relieve the pilot-in-command from determining that the aircraft is in a fit condition for safe operation with specified unserviceabilities allowed by the MEL.

The provisions of the MEL are applicable until the aircraft commences the flight, i.e. begins to move under its own power for the purpose of preparing for take-off.

Any decision to continue a flight following a failure or unserviceability which becomes apparent after the commencement of a flight must be the subject of pilot judgement and good airmanship.

The pilot-in-command may continue to make reference to and use of the MEL as appropriate.

By approval of the MEL, the CAA-B permits dispatch of the aircraft for flight with certain items or components inoperative, provided an acceptable level of safety is maintained by use of appropriate operational or maintenance procedures, by transfer of the function to another operating component, or by reference to other instruments or components providing the required information.

2 Contents of MEL

The MEL contains only those items required by operating regulations or those items of airworthiness significance which may be inoperative prior to dispatch, provided that appropriate limitations and procedures are observed. Equipment obviously basic to aircraft airworthiness such as wings, rudders, flaps, engines, landing gear, etc. are not listed and must be operative for all flights.

It is important to note that:

ALL ITEMS WHICH ARE RELATED TO THE AIRWORTHINESS OF THE AIRCRAFT AND ARE NOT INCLUDED IN THE LIST ARE **AUTOMATICALLY REQUIRED TO BE OPERATIVE.**

3 Criteria for Dispatch

The decision of the pilot-in-command of the flight to have allowable inoperative items corrected prior to flight will take precedence over the provisions contained in the MEL. The pilot-in-command may request requirements above the minimum listed whenever in his judgement such added equipment is essential to the safety of a particular flight under the particular conditions prevailing at the time.

The MEL cannot take into account all multiple unserviceabilities. Therefore, before dispatching an aircraft with multiple MEL items inoperative, it must be assured that any interaction or interrelationship between inoperative items will not result in degradation in the level of safety and/or an undue increase in crew workload. It is particularly in this area of multiple deficiencies (and especially deficiencies in related systems) that good judgement – based on the circumstances of the case, including climatic and en-route conditions – must be used.

4 Maintenance Action

Every effort shall be made by the maintenance organisation to correct all technical defects as early as practicable, and to ensure that the aircraft is released from a maintenance station in fully operational condition. The pilot-in-command must be informed by maintenance as soon as practicable should it be impossible to rectify the inoperative item prior to departure.

Whenever an aircraft is released by Maintenance for dispatch with items inoperative, the following is required:

(a) The log book, or equivalent, aboard the aircraft must contain a detailed description of the inoperative item(s), special advice to the flight crew, if necessary, and information about corrective action taken;

(b) When they are accessible to the crew in flight, the control(s), and/or indicator(s) related to inoperative unit(s) or component(s) **must be clearly placarded**;

(c) If inadvertent operation could produce a hazard such equipment must be rendered inoperative (physically) as given in the appropriate maintenance procedure;

(d) The relevant operational (O) and maintenance (M) procedures are contained in **(identify the particular Manual, Section, Chapter or Part etc.)** and must be performed;

(e) Unserviceable equipment must not be removed from the aircraft unless specifically permitted by the MEL or associated (M) procedures.

5 Rectification Intervals

Inoperative items or components, deferred in accordance with the MEL, must be rectified at or prior to the expiry of the Rectification Intervals established by the following letter designators given in the 'Rectification Interval Category' column of the MEL. AOC holders may be eligible for Rectification Interval Extension (RIE) – Refer to paragraph 5.8 of this CAP.

Category A

Items in this category shall be rectified within the limitations specified in the MEL entry, commencing at 00:01 on the day following discovery for those items specified in calendar days.

Category B

Items in this category shall be rectified within three (3) consecutive calendar days, excluding the day of discovery.

Category C

Items in this category shall be rectified within ten (10) consecutive calendar days, excluding the day of discovery.

Category D

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

6 Definitions

For the purpose of this MEL the following definitions shall apply:

'Combustible Material' is material which is capable of catching fire and burning.

'Commencement of flight' is the point when an aircraft begins to move under its own power for the purpose of preparing for take-off.

'Dash' (-) in columns 3 and 4 indicates a variable quantity.

'Day operation' is any flight conducted from the point of take-off to landing between 30 minutes before sunrise and 30 minutes after sunset.

'Icing Condition' is the atmospheric environment that is such that ice can form on the aircraft or engine(s).

'Inoperative' means that the equipment does not accomplish its intended purpose or is not consistently functioning within its design operating limits or tolerances. Some systems have been designed to be fault-tolerant and are monitored by digital computers which transmit fault messages to a centralised computer for the purpose of maintenance. The presence of this category of message does not mean that the system is inoperative.

'Visual Meteorological Conditions' (VMC) means weather permitting flight in accordance with the Visual Flight Rules, as defined in the Rules of the Air.

Note: This is not an exhaustive list, and operators should include in their MELs any definition which is considered to be relevant.

7 Centralised Message Systems *(if appropriate)*

The aircraft is equipped with a system (such as ECAM/EICAS) which provides different levels of systems information messages (Warning, Caution, Advisory, Status, Maintenance etc.). Any aircraft discrepancy message that affects dispatch will normally be at status message level or higher. Therefore, system conditions that result only in a Maintenance Message are not normally addressed in the MEL as they, in themselves, do not prohibit dispatch of the aircraft. However, maintenance discrepancy messages must be recorded and corrected in accordance with the approved maintenance programme.

8 Operations outside the Scope of the MEL

In exceptional circumstances, the CAA-B may exempt **operator's name** from compliance with the MEL on an individual case-by-case basis, provided such exemption complies with the applicable limitations in the MMEL.

9 Non-standard Operations

Ferry flights are flights carrying neither passengers nor freight, for the purpose of returning the aircraft to a place where it can be repaired. These flights may be dispatched with less than the equipment specified in the MEL, provided all the equipment expected to be utilised in flight is operable and any relevant Sections of the Flight Manual are applied. Permission for such a flight, however, must be granted by the CAA-B before the flight takes place.

Other non-standard operations include Demonstration Flights, Test Flights (after maintenance) and Training Flights. Similar provisions apply to these flights, but the Operations Manual must include specific guidance on their conduct, and such flights must not take place without general or specific permission from the CAA-B.

10. MEL Amendments & Timescales

This MEL will be amended to ensure that it remains no less restrictive than the MMEL upon which it is based.

When the MMEL or MMEL Supplement is amended to become more restrictive than the MEL, the MEL will be correspondingly amended as soon as possible, and in any case within 30 days of notification of the MMEL or Supplement revision.

The MEL will not necessarily be amended when the MMEL or MMEL Supplement is amended to be less restrictive. Applicable changes to the MMEL that require amendment of the MEL include;

(a) a reduction of the rectification interval; or

(b) a change of an equipment item, only when the change is applicable to the aircraft or type of operations and is more restrictive.

The MEL will also be amended as soon as possible, and in any case within 30 days of a requirement by the CAA-B to amend the MEL.

In other cases, including those amendments instigated by **operator name** to reflect changes to equipment or operations, the MEL will be amended as soon as convenient, and in any case within 90 days of the change that prompted the amendment.

Changes to other documents, such as the aircraft manufacturer's (O) and (M) procedures, that affect the content of the MEL will also be reflected in the MEL within 90 days of notification of the relevant revision, except where the amendment is clearly more restrictive than the current procedures in the MEL. In this case, the procedures will be amended as soon as possible, and in any case within 30 days of notification of the amendment.

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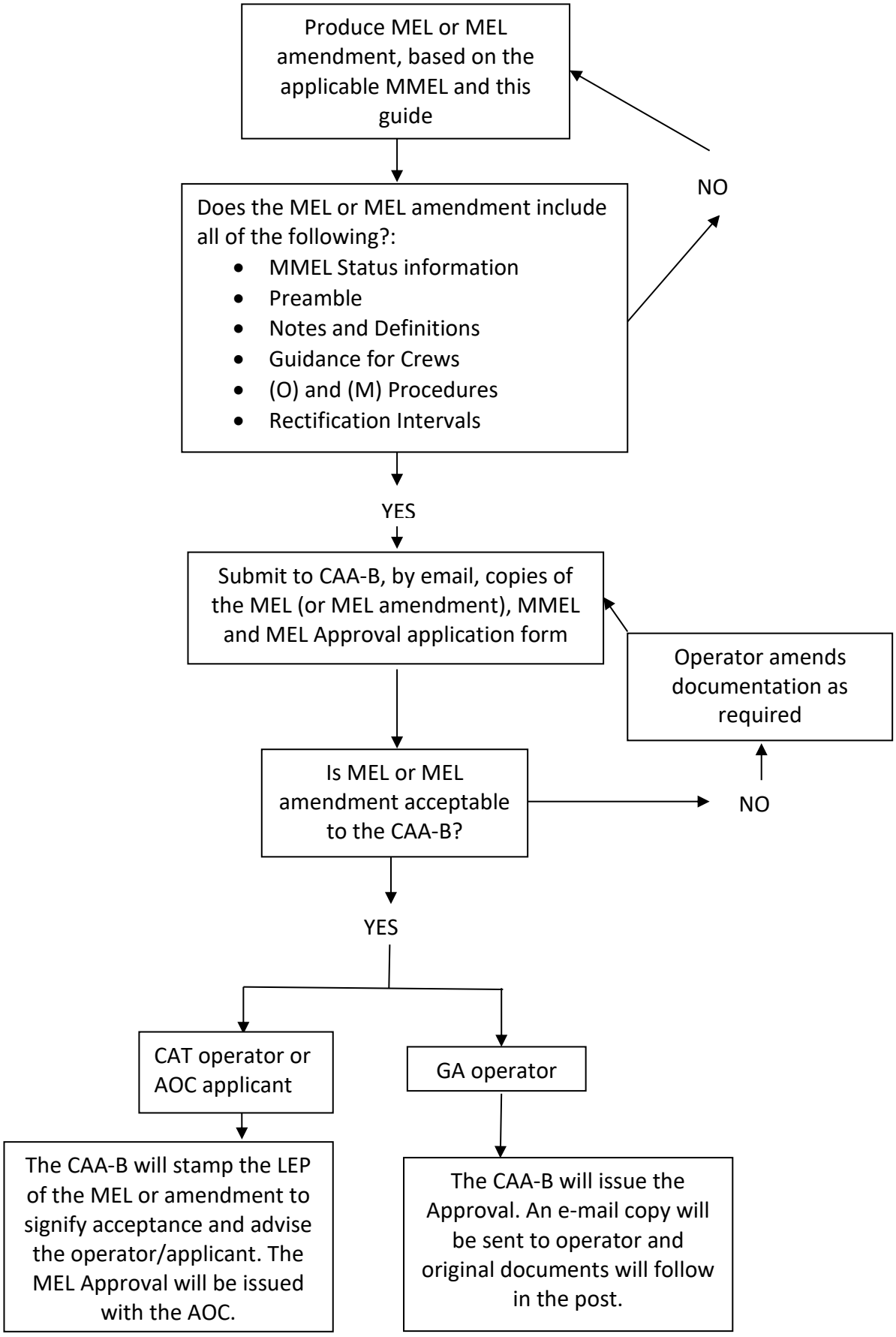
APPENDIX 2

MEL APPROVAL PROCESS FLOWCHART



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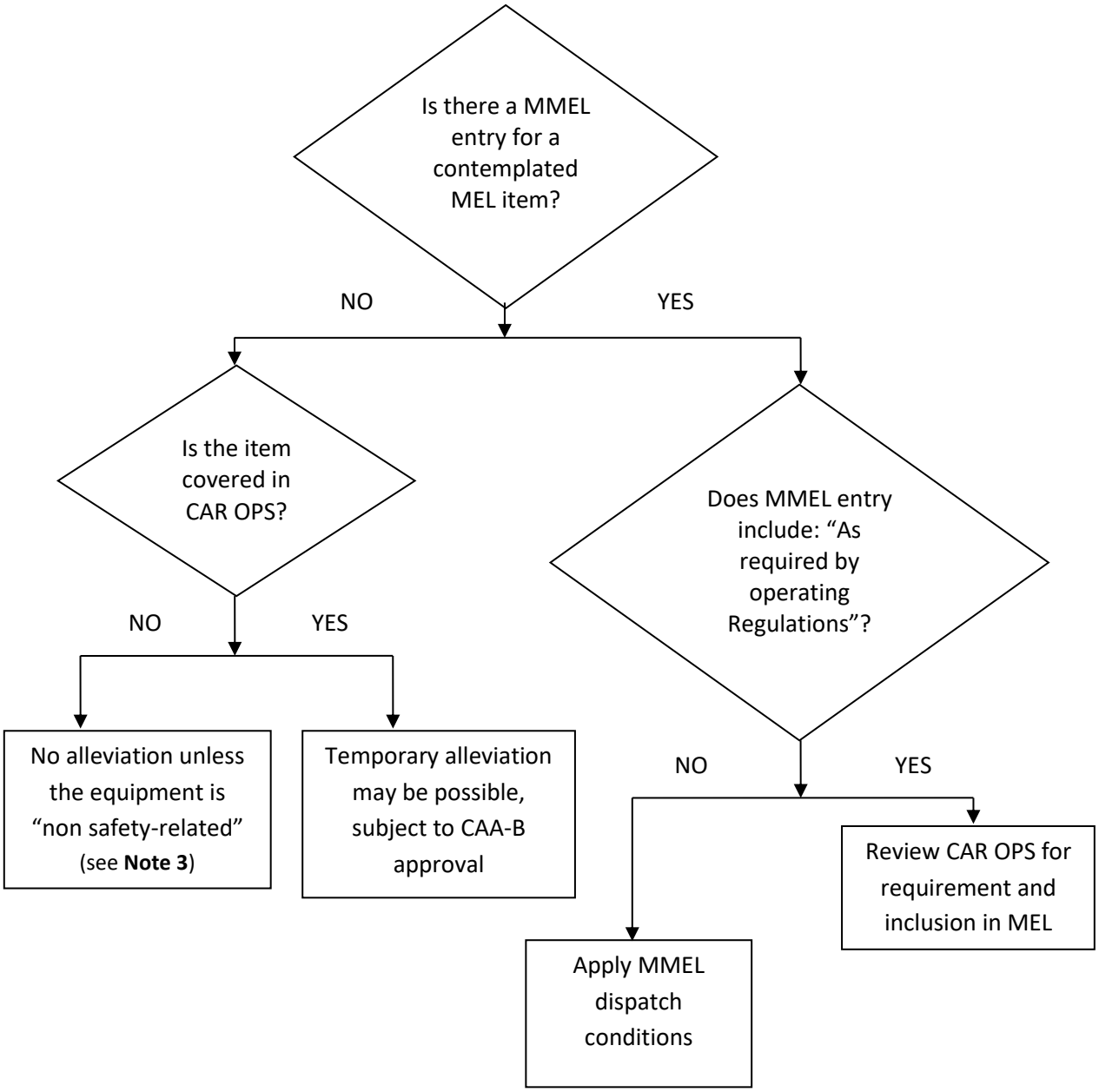
APPENDIX 3

FLOWCHART FOR THE USE OF CAP OPS 02 WHEN PREPARING A MEL



***Note 1**:* *All items related to the airworthiness of the aircraft and not included in the list, are required to be operative.*

***Note 2**:* *All other items must be operative unless alleviation is provided in the MMEL or this CAP.*

***Note 3**:* *Equipment obviously not required for the continued safe operation of the aircraft may not be listed. Aircraft operators should establish an effective decision-making process for failures that are not listed to determine if they are related to airworthiness and required for safe operation.*

Note 4: *Reference to operating requirements, regardless of the regulatory system quoted, should be read as those requirements specified in CAR OPS.*

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APPENDIX 4

LIST OF CAR OPS 1 REQUIREMENTS & GUIDANCE RELATING TO MELs

All Operators			
	Requirement/Guidance	**Title**	**Summary**
1	1.030	Minimum Equipment Lists – Operator's Responsibilities	Operator to establish MEL.
2	1.085 (f)(11)	Crew Responsibilities	Commander's responsibility to decide on MEL unserviceabilities
3	1.290 (b)(4)	Flight Preparation	Instruments and equipment to be operable except as provided for by MEL.
4	1.630 (a)(2)	Instruments and Equipment – General Introduction	Instruments and equipment to be operable for the planned operation except as provided for by MEL.
5	1.845 (a)(3)	Communication and Navigation Equipment - General Introduction	Instruments and equipment to be operable for the planned operation except as provided for by MEL.
6	App.1 to 1.1045, B 9	Operations Manual Contents	Operations Manual must include a MEL taking account of the aeroplane types and variants operated and the type(s)/area(s) of operation, including the navigational equipment and taking into account the required navigation performance for the route and area of operation.
7	AMC OPS 1.035, 4.6.1 o.	Quality System	The Quality System must monitor compliance with procedures for the use of the MEL.
8	AMC OPS 1.890 (a)(2)	Maintenance Responsibility	Operator must have a system to ensure that defects are rectified within the time limits specified in the MEL.

LIST OF CAR OPS 1 REQUIREMENTS & GUIDANCE RELATING TO MELs (continued)

Operators Approved in Accordance with CAR 145			
	Requirement/Guidance	**Title**	**Summary**
1	App.1 to AMC OPS 1.905 (a)	Maintenance Management Exposition for an Operator who is Approved in Accordance with CAR 145	MME to include use of Technical Log and application of MEL procedures.

Operators also intending to carry out EDTO			
	Requirement/Guidance	**Title**	**Summary**
1	OPS 1.246 (b)	Extended Diversion Time Operations (EDTO)	Diversion time may be limited by MEL serviceability constraints.

Operators intending to conduct IFR operations without ADF			
	Requirement/Guidance	**Title**	**Summary**
1	AMC OPS 1.865 (d)(1)(i)	IFR Operations Without ADF System	The MEL must be amended to take account of lack of ADF.

Operators also intending to carry out SEIMC operations			
	Requirement/Guidance	**Title**	**Summary**
1	AMC OPS 1.526, 4. d.	S/E Operations at Night or in IMC	The MEL must be modified to address the equipment and systems necessary for operations at night and/or in IMC.

APPENDIX 5

EXAMPLE OF RECTIFICATION INTERVAL EXTENSION REPORT FORM

(Operator logo & form number)

RECTIFICATION INTERVAL EXTENSION REPORT FORM

Part 1 MEL Defect

1. Operator	2. Date of Defect	3. Aircraft Registration	4. Aircraft Type	5. RIE Number
6. Detail of Defect				
7. Reason for not rectifying				
8. Rectification Interval Category		9. Expiry date of Rectification Interval		10. MEL Reference

Part 2 RIE Application

11. Name of Applicant	12. Position	
13. Reason RIE is Required		
14. Name of Authorising Engineering Manager	15. Position	16. Date

Part 3 Authorisation

17. Duration of RIE Authorised	18. Latest date the defect is due for rectification	
19 Comments of Authorising Manager		
20. Name of Authorising Flight Ops Manager	21. Position	22. Date

Note: Form must be sent to the CAA-B within 10 days of authorisation.