

## **CAP 549**

# **Master Minimum Equipment Lists (MMEL) and Minimum Equipment Lists (MEL)**



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Enquiries regarding the content of this publication should be addressed to:  
Aircraft Certification Department, Safety Regulation Group, Civil Aviation Authority, Aviation House,  
Gatwick Airport South, West Sussex, RH6 0YR.

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## Revision History

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### **Edition 6**

**29 October 2010**

This edition comprises corrections to reflect the Air Navigation Order 2009 and the removal of the MEL Compliance Document (previously included as Appendix 5). Reference to the MEL Compliance Document is now made by inclusion of a link to the CAA website, thus ensuring reference is made to the latest version.

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## Abbreviations

ANO	Air Navigation Order (2009)
AOC	Air Operator Certificate
CAA	Civil Aviation Authority (UK)
CDL	Configuration Deviation List
EASA	European Aviation Safety Agency
FOD	Flight Operations Division (CAA)
FOI	Flight Operations Inspector/Inspectorate
FOI (GA)	Flight Operations Inspector/Inspectorate (General Aviation)
JAA	Joint Aviation Authorities
JOEB	Joint Operations Evaluation Board
MEL	Minimum Equipment List
MMEL	Master Minimum Equipment List or Master Minimum Equipment List Supplement
MTWA	Maximum Total Weight Authorised
NAA	National Aviation Authority
OEB	Operations Evaluation Board
RIE	Rectification Interval Extension
SRG	Safety Regulation Group (CAA)
TGL 26	JAA MEL Policy Document published in the JAA Administrative and Guidance Material, Section Four: Operations, Part Three: Temporary Guidance Leaflet 26

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## Foreword

- Under the provisions of Article 41 of the Air Navigation Order 2009 (ANO) no aircraft registered in the United Kingdom may commence a flight, if any of the equipment required by or under the Order is not carried or is not in a fit condition for use, unless a Permission to do so has been issued by the Civil Aviation Authority (CAA). The CAA carries out its obligations under the terms of this Article by authorising the use of Minimum Equipment Lists (MELs).

Similarly, EU-OPS 1.030/JAR-OPS 3.030 states that an operator shall establish for each aeroplane, an MEL approved by the CAA that will be based upon the relevant Master Minimum Equipment List (MMEL) (if one exists) accepted by the CAA. In addition, an operator shall not operate an aeroplane other than in accordance with the MEL unless permitted by the CAA. Any such permission or approval will in no circumstances permit operations outside the constraints of the MMEL.

- The purpose of this publication is to define and explain the policy of the CAA with regard to MELs and MMELs. It provides guidelines for aircraft manufacturers on the preparation of an MMEL and specifies the means for an operator to produce procedures and MELs, so that an aircraft with unserviceable equipment may be dispatched in accordance with Article 41 of the ANO or EU-OPS 1.030/JAR-OPS 3.030.

In the context of this document, the term 'MMEL' should be interpreted to mean MMEL or MMEL Supplement.

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# Chapter 1 MMELs and MELs

## 1 Introduction

- 1.1 Under the provisions of Article 41 of the ANO 2009 no aircraft registered in the United Kingdom may commence a flight if any of the equipment required by or under the Order is not carried or is not in a fit condition for use, unless a Permission to do so has been issued by the CAA (see Appendix 1). Similarly, EU-OPS 1.030/JAR-OPS 3.030 states that an operator shall establish for each aeroplane, an MEL approved by the CAA that will be based upon the relevant MMEL (if one exists) accepted by the CAA. In addition, an operator shall not operate an aeroplane other than in accordance with the MEL unless permitted by the CAA. Any such permission or approval will in no circumstances permit operations outside the constraints of the MMEL. The CAA carries out its obligations under the terms of Article 41 of the ANO, and EU-OPS 1.030/JAR-OPS 3.030, by authorising the use of Minimum Equipment Lists (MELs). Such arrangements can only be accepted if operation with specified unserviceable equipment meets the requirements of the ANO or EU-OPS/JAR-OPS (as appropriate) and the level of safety achieved is not less than the minimum standard either implied or specified by the certification basis (defined in the Type Certificate).
- 1.2 The basis of the procedures described in this CAP is that each aircraft type with a Maximum Total Weight Authorised (MTWA) exceeding 2730 kg will have a CAA approved Master Minimum Equipment List (MMEL) or a JAA or EASA MMEL. Where an approved MMEL has not been produced for a particular aircraft type, there may be an equivalent document acceptable to the CAA. The MMEL may be a standalone document or it may be an MMEL Supplement to be used in conjunction with a specific MMEL. In the absence of an approved MMEL (or equivalent document), the Minimum Equipment List (MEL) may only include unserviceabilities as expressly permitted by the ANO or by special limitations and procedures in the EASA approved Flight Manual or by agreement with the CAA.
- 1.3 An MMEL is not an exhaustive list of all equipment items required by law to be carried. An operator may include in an MEL any additional items that are required to be carried where such entries clarify legal requirements (e.g. an operator may choose to include an item concerning torches for Public Transport operations simply to establish the minimum numbers required for a particular type of aircraft). 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.
- 1.4 The MMEL is applicable to an aircraft type but does not take into account the operating circumstances of individual operators of that type; therefore, it cannot in itself be regarded as providing operational permission. 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 agreement to their own MEL. Such documents have been in regular use by many operators and have been referred to by a variety of names such as; Allowable Deficiency List (ADL), Dispatch Deviation Manual (DDM) etc. For the purpose of this CAP all such lists will be referred to as MELs.
- 1.5 The MEL cannot be less restrictive than the appropriate CAA approved MMEL and may have to be more restrictive to reflect an individual operator's circumstances and capabilities.

**NOTE:** Configuration Deviation Lists (CDL) or their equivalent, are not a part of the MMEL and are not dealt with in this CAP. CDLs are used to identify any external components of an aircraft type which may be missing for dispatch. Where necessary, they will provide any associated information on performance corrections for such cases (e.g. missing landing gear doors, flap actuator fairings, etc.). Where dispatch with such items missing is approved, the CDL may be published as part of the EASA approved Flight Manual.

1.6 References throughout this document to the CAA should, for administrative purposes, be taken to mean the Safety Regulation Group (SRG), Gatwick. Within SRG, responsibilities for MMELs and MELs are as follows:

- a) MEL approval and oversight for AOC operators:
  - i) Flight Operations Inspectorate, through an assigned Flight Operations Inspector (FOI);
  - ii) Survey Department, through an assigned Surveyor.
- b) MEL approval and oversight for non-AOC operators – managed by Flight Operations Inspectorate (General Aviation) (FOI(GA)), assisted by the nominated FOI and Surveyor;
- c) MEL Policy – Flight Operations Policy;
- d) MMEL Matters – Flight Manuals and MMEL Unit.

## 2 Approval and Amendment of the MMEL

### 2.1 General

2.1.1 Although production of an MMEL is not one of the conditions for Type Certification or for the issue of a Certificate of Airworthiness (C of A) it is strongly recommended that, for new aircraft types, the MMEL is prepared during the certification process and is completed before entry into service. It may not be possible for the CAA to approve an MEL in order to allow operation with items unserviceable unless an MMEL (or an equivalent document approved by the CAA or recommended for approval by EASA) exists.

2.1.2 The MMEL shall be provided with a relevant preamble, definitions and clarifying notes which shall adequately reflect the scope, extent and purpose of the MMEL. An example of an MMEL preamble is shown in Appendix 2.

### 2.2 UK manufactured and certificated aircraft

**NOTE:** For new certifications post 28 September 2003, refer to paragraph 2.5.

2.2.1 The manufacturer should produce an initial draft of the proposed MMEL. This draft will then be reviewed by the CAA, involving consultation with the specialist departments within the CAA. Foreign aviation authorities and operators with a legitimate interest may also be invited to comment.

2.2.2 After the requested changes have been made by the manufacturer, the MMEL should be forwarded to the CAA for approval. The CAA approved MMEL will be published and distributed by the manufacturer, bearing the CAA approval statement.

2.2.3 Proposals to amend the MMEL may be initiated by the CAA, the manufacturer or by operator(s). Proposals from an operator should be channelled, in the first instance, through the manufacturer. If the manufacturer supports the change, a formal proposal should be made by the manufacturer to the CAA Flight Manuals and MMEL Unit for approval. Amendment proposals initiated by manufacturers or operators must be accompanied by a technical justification which should include any changes to the associated operational and/or maintenance procedures.

- 2.2.4 Applicants for approval of modifications to aircraft shall, at the time application is made, consider the effects of the proposed modification upon the information and instructions contained in the MMEL for the type, and shall inform the CAA of any revisions likely to be required as a consequence of the incorporation of the modification.
- 2.2.5 The manufacturer will be consulted and informed before an amendment is approved. Where the CAA considers it necessary, the consultation process may be extended to other interested parties.

## 2.3 **Foreign manufactured, UK certificated aircraft**

**NOTE:** For new certifications post 28 September 2003, refer to paragraph 2.5.

- 2.3.1 Normally an MMEL is issued by the manufacturer and approved by the National Aviation Authority (NAA) of the State of manufacture. Where such an MMEL already exists, the CAA will take due account of this and will normally restrict any differences to those items affected by UK legislation or those for which the CAA applies a different policy. These changes may be more (or less) restrictive depending on the particular legislation or policy.
- 2.3.2 The CAA will produce an MMEL or MMEL Supplement based on the MMEL approved by the foreign aviation authority. If the CAA elects to produce an MMEL, this will be a standalone document to be used in isolation. However, the preferred option is to produce a CAA MMEL Supplement which addresses only the differences from the manufacturer's MMEL. A CAA MMEL Supplement must be used in conjunction with the specific revision of the MMEL upon which it is based – the two documents together constitute the 'CAA approved MMEL'.

**NOTE:** All items in a CAA MMEL Supplement overwrite and supersede any entry in the MMEL upon which the Supplement is based. In any case, CAA MMELs and Supplements take priority over any other MMEL.

- 2.3.3 During the production of the CAA MMEL (or MMEL Supplement), the manufacturer and other interested parties (e.g. foreign aviation authorities, operators) may be consulted. For new aircraft of foreign manufacture where an MMEL has not been issued, the CAA will, where possible, take part in the preparatory work leading up to the production of the MMEL during the period of CAA evaluation for Type Certification.
- 2.3.4 The final agreed MMEL will be approved and published by the CAA.
- 2.3.5 Proposals to amend the MMEL may be initiated by the manufacturer through a change to the appropriate MMEL, as approved by the foreign aviation authority. Changes in legislation and CAA policy may also necessitate amendment of the CAA MMEL. Operators may request a change to a CAA MMEL by application to the CAA MMEL Section. Amendment proposals initiated by manufacturers or operators must be accompanied by a technical justification which should include any changes to the associated operational and/or maintenance procedures.
- 2.3.6 Applicants for approval of modifications to aircraft shall, at the time application is made, consider the effects of the proposed modification upon the information and instructions contained in the MMEL for the type, and shall inform the CAA of any revisions likely to be required as a consequence of the incorporation of the modification.

## 2.4 **Aircraft certificated or validated by JAA**

**NOTE:** For new certifications post 28 September 2003, refer to paragraph 2.5.

- 2.4.1 The Type Certification/Validation process for new aircraft which are jointly certificated by the JAA usually involves the establishment of a Joint Operations Evaluation Board (JOEB). The JOEB consists of representatives of the JAA and may also include representatives of the aircraft manufacturer and other interested parties such as foreign aviation authorities and operators.
- 2.4.2 Normally, during the Type Certification/Validation process, the manufacturer will prepare a draft MMEL. The JOEB will organise a review of the draft MMEL by the appropriate specialists. Once the final content of the MMEL has been agreed, the MMEL will be recommended by the JAA for approval by the NAAs.
- 2.4.3 It is not necessary for a JAA MMEL to be produced as part of the Type Certification/Validation process. It is possible that a JOEB will be established after Type Certification/Validation, to validate an existing MMEL produced by the manufacturer (approved by a foreign aviation authority). The JOEB would review the existing MMEL and follow a similar process to that outlined in paragraph 2.4.2, albeit that a JAA MMEL Supplement is produced instead of a JAA MMEL. The JAA MMEL Supplement will contain the differences from the base MMEL, due to JAA requirements or policy. A JAA MMEL Supplement must be used in conjunction with the specific revision of the MMEL upon which it is based – the two documents together constitute the ‘JAA approved MMEL’.

**NOTE:** All items in a JAA MMEL Supplement overwrite and supersede any entry in the MMEL upon which the Supplement is based.

- 2.4.4 MMEL amendment proposals shall only be made to the JOEB Chairman, by the manufacturer, the JOEB, a Supplemental Type Certificate holder or a NAA. Any operator originated proposals for MMEL amendment shall be made through the manufacturer.
- 2.4.5 The CAA will normally adopt a JAA MMEL in its entirety. However, the CAA may need to publish supplementary MMEL material in addition to the JAA MMEL to meet UK legislative requirements and CAA policies.

## 2.5 **Aircraft certificated or validated by EASA**

The process for approval and amendment of MMELs follows a similar process to that described in paragraph 2.4 (JAA), except that the manufacturer would normally produce a full MMEL rather than a supplement to the MMEL approved by the manufacturer's NAA. These documents will continue, for an interim period, to be recommended for approval by EASA and formally approved by the NAAs. This process will convert to formal approval by EASA from a date to be advised by EASA. Under EASA, the JOEB is replaced by an OEB (Operations Evaluation Board).

## 2.6 **Amendments which lead to a more restrictive MMEL**

In those cases where amendments are approved which lead to the MMEL becoming more restrictive, and which will consequently require operators' MELs to be amended accordingly, notification of the changes required will be issued by the CAA, using the medium most appropriate to the circumstances.

## 2.7 **Obtaining CAA approved MMELs**

All MMELs that are approved by the CAA are listed on the CAA website at [www.caa.co.uk/mmel](http://www.caa.co.uk/mmel).

### 3 Production of the MEL and the Permission

#### 3.1 Preparation of MEL

3.1.1 An MEL shall be no less restrictive than the MMEL on which it is based. The MEL should indicate the revision status of the MMEL upon which it is based.

3.1.2 The MEL should contain rectification interval(s) in line with the definitions in JAR-MMEL/MEL. The MEL should contain a relevant preamble, definitions and clarifying notes which shall adequately reflect the scope, extent and purpose of the MEL. The preamble should contain procedures for the guidance of flight crews using the MEL. An example of an MEL preamble is shown in Appendix 3.

**NOTE:** The preamble, notes and definitions in an MEL should not contradict the applicable sections in the MMEL. Appendix 3 is shown as an example only, and should not be used to overwrite definitions in the MMEL.

3.1.3 An operator who wishes to use the aircraft with unserviceable equipment in accordance with the provisions of Article 41 of the ANO or EU-OPS 1.030/JAR-OPS 3.030 (as applicable), must use an MEL compiled on the basis of the approved MMEL.

3.1.4 If an MMEL has not been approved by the CAA for a particular aircraft type then the operator may use an MEL based on an MMEL approved by a foreign airworthiness authority (e.g. FAA) or a manufacturer, in agreement with the CAA. In exceptional cases where no suitable MMEL exists an operator may, with the agreement of the CAA, use an MEL. Any such agreement would depend upon the operator providing the appropriate technical or operational justification for the proposed alleviations.

3.1.5 Operators shall take operational and maintenance procedures referenced in the MMEL into account when preparing an MEL. These procedures, which are subject to approval, shall be identified to the CAA during the MEL approval process. The procedures themselves, or symbols to indicate them, are required in the operator's MEL. The MEL shall be appropriately amended, as and when applicable operational or maintenance procedures as referenced in the MMEL are revised. Unless specifically permitted, an inoperative item may not be removed from the aircraft.

- a) Operational 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) Maintenance 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.

3.1.6 Appropriate operational and maintenance procedures are required to be published as a part of the operator's manual(s) or MEL. Operators' manuals may include the Operations Manual, the Maintenance Manual or other documents acceptable to the CAA.

#### 3.2 MEL Permission or Approval

3.2.1 In order to use an MEL an operator must obtain a Permission from the CAA, in accordance with Article 41 of the ANO or an Approval in accordance with EU-OPS 1.030/JAR-OPS 3.030. The CAA will accept an MEL once the assigned FOI has been satisfied that it is in agreement with the applicable MMEL or equivalent document. For the MEL Permission/Approval process flowchart, refer to Appendix 4.

3.2.1.1 **Aircraft operated under an Air Operator's Certificate (AOC).** Operators are required to complete a compliance document when submitting an initial MEL, or an amendment to the MEL, to the CAA (FOI). This compliance document shall be submitted, together with the MEL, or the amendment, to the assigned FOI for approval. The inclusion of references to source material and justification for MEL items will facilitate the efficient processing of draft MEL documents or amendments. The MEL Compliance Document is available on the CAA website at [www.caa.co.uk/mmel](http://www.caa.co.uk/mmel).

3.2.1.2 When the CAA is satisfied that the MEL or the amendment to the MEL is acceptable, the assigned FOI will countersign the form and return it to the operator for their records. At this point the MEL may be issued.

- a) Permissions should be of a standard format and copied from master documents maintained by the administration units and should be signed by the FOI or his Regional Manager. The MEL against which the Permission has been granted will form part of the Operations Manual.
- b) For EU-OPS or JAR-OPS AOC, MEL Approval is contained in the Operations Approval Document and such operators are exempt from the ANO Article 41 requirement for a Permission to use an MEL.

3.2.2 **Aircraft not operated under an AOC.** Operators who wish to use MELs in accordance with Article 41 of the ANO, must obtain a Permission from the CAA. Applications should be made to the FOI (GA), which will manage the process in accordance with the appropriate parts of sub-paragraphs 3.2.1.1 and 3.2.1.2 above.

## 4 Amendments to the MEL

### 4.1 Amendment Timescales

- 4.1.1 When an MMEL approved by the CAA first becomes available, operators of the particular aircraft type concerned will be allowed 120 days from the date of publication of the MMEL to amend their MELs to conform with the new MMEL.
- 4.1.2 When the MMEL is amended so as to become more restrictive, or when the CAA requires immediate amendment of the MEL, operators will be allowed 30 days from the date of notification to amend their MEL.
- 4.1.3 In all other cases, when an MMEL revision is issued, operators will be allowed 90 days from the date of notification to amend their MEL.
- 4.1.4 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.
- 4.1.5 An operator shall supply the CAA with any amendment to the Operations Manual (including any MEL amendment), which is to be approved in accordance with EU-OPS/JAR-OPS 3, at least 28 days in advance of the effective date of the amendment.

### 4.2 Amendment Procedures

- 4.2.1 Any amendment to an MEL necessitates consultation with CAA FOI or FOI (GA), as appropriate. An operator may, however, incorporate voluntary amendments to an MEL as they wish, subject to the basic condition that the amendment shall not be less restrictive than the MMEL upon which it is based.
- 4.2.2 An operator must advise the assigned FOI or FOI (GA), as appropriate, before or within 2 days of inclusion of the details of a voluntary amendment to an MEL. The assigned FOI, their section or FOI (GA) will issue an acknowledgement of the amendment.
- 4.2.3 Approvals/Permissions will be reviewed on an annual basis.

## 5 Non-Standard Operations

5.1 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) Positioning Flights - defined for the purpose of CAP 549 as flights carrying neither passengers nor freight for valuable consideration, operated purely to position aircraft for further revenue service;
- e) Ferry Flights - defined as for positioning flights, except that such flights are flown only to return the aircraft to a place where it can be repaired.

5.2 Minimum equipment requirements may only be reduced by agreement with the CAA and normally an operator would have to provide evidence that such flights change the category of use in accordance with the provisions of Articles 259 to 270 (Public Transport and Aerial Work) of the ANO.

5.3 Any reference to a reduction in minimum equipment requirements in an MEL must be clearly labelled 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 agreed to by the CAA.

## 6 Operations with Multiple Unserviceabilities

In most cases, multiple unserviceabilities of unrelated aircraft systems cannot be addressed by the MMEL nor 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 Aircraft Commander, taking into consideration advice from the operator's specialists where available.

## 7 Rectification Intervals

7.1 The operator shall take account of the Rectification Interval given in the MMEL when preparing an MEL. The Rectification Interval in the MEL shall not be less restrictive than the corresponding Rectification Interval in the MMEL.

7.2 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.

7.3 Operation of the aircraft is not allowed after expiry of the Rectification Interval specified in the MEL, unless:

- a) the defect has been rectified; or
- b) the Rectification Interval is extended in accordance with paragraph 8 below.

7.4 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 of "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 but the entry should be identified as a category "A" Rectification Interval (i.e. non-extendable) in the MEL.

7.5 Once the applicable MMEL has been revised to include Rectification Intervals, this will supersede the guidance given in paragraph 7.4, and operators will need to reflect the revised rectification intervals in their MEL.

## **8 Rectification Interval Extensions (RIEs)**

### **8.1 Principles of RIEs**

8.1.1 Subject to the approval of the CAA, the operator may use a procedure 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 for controlling extensions is established by the operator and accepted by the CAA;
- b) the operator only grants a one time extension of the applicable Rectification Interval;
- c) the CAA 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.

8.1.2 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. The CAA is ultimately responsible for the oversight of RIEs.

### **8.2 Application for the use of RIEs**

8.2.1 The operator shall make an application to the CAA (FOI) for authorisation to be able to use RIEs. The operator should provide the CAA 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 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 will judge whether the relationship between an operator and an independent maintenance contractor is adequate for the purposes of RIEs.

### **8.3 RIE Procedure**

8.3.1 An RIE procedure must be defined by the operator and agreed with the CAA, 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 - formal authorisation to inform the aircraft commander of the use of the RIE.
- d) RIE Report - made to the CAA within 10 days of the extension being authorised.

8.3.2 A chain or 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.

#### 8.4 **Authorisation**

8.4.1 Form RIE 1 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.

8.4.2 The CAA requires that Form RIE 1 is sent to the assigned CAA FOI 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.

| 8.4.3 Form RIE 1 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.

#### 8.5 **Use of RIEs**

8.5.1 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.

8.5.2 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.

8.5.3 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 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.

### 9 **Operations Outside the Scope of the MEL**

The CAA 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.

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## Appendix 1 Air Navigation Order (2009) Permission

### ARTICLE 41 – MINIMUM EQUIPMENT REQUIREMENTS

- (1) Subject to paragraph (2), this Article applies to any aircraft registered in the United Kingdom.
- (2) This Article does not apply to an EU-OPS aeroplane where the intended flight is for the purpose of commercial air transport.
- (3) The CAA may permit an aircraft or class of aircraft to which this Article applies to commence a flight in specified circumstances even though a specified item of equipment which must by or under this Order be carried in the circumstances of the intended flight is not carried or is not in a fit condition for use.
- (4) An aircraft must not commence a private flight, an aerial work flight or a public transport flight if any of the equipment which must by or under this Order be carried in the circumstances of the intended flight is not carried or is not in a fit condition for use unless:
  - a) the aircraft does so under and in accordance with the terms of a permission granted under paragraph (3) to the operator; and
  - b) in the case of an aircraft to which Article 83 or 84 applies, the applicable operations manual or police operations manual contains information about that permission.

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## Appendix 2 Example MMEL Preamble

### MASTER MINIMUM EQUIPMENT LIST

#### (AIRCRAFT TYPE)

#### PREAMBLE

A Master Minimum Equipment List (MMEL) is developed by the Type Certificate holder and approved by the CAA to improve aircraft utilisation and thereby provide more convenient and economic air transportation for the public. The MMEL includes those items of equipment related to airworthiness and operating requirements and other items of equipment which the CAA 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 wings, flaps, and rudders.

The MMEL is the basis for development of individual operators' 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 operational requirements are included in the MEL with appropriate conditions and limitations. The MEL 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 operating requirements of the aircraft not listed in 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 rectifications 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 limitations 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. The item is then either rectified or may be deferred per the MEL or other approval means acceptable to the CAA prior to further operation. MEL conditions and limitations 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. 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 systems 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 programme including the parts, personnel, facilities, procedures and schedules to ensure timely rectification. This programme 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**

In addition to a Preamble arranged and worded along the lines of this Specimen, the MMEL should contain, as part of the Preamble, sufficient Definitions and Explanatory Notes to provide the user (this is primarily the operator when compiling the MEL) with a full and proper understanding of the intent and purpose of the items it contains.

While many of the Definitions used will be common to all MMELs, others will be specific to particular or individual aircraft types. Type Certificate holders should, when preparing the MMEL, ensure that all relevant Definitions are included. Likewise Explanatory Notes should be provided in sufficient detail wherever the intent and purpose of a term or phrase or abbreviation etc. is necessary or advisable.

The Type Certificate holder shall provide the following Definitions for Rectification Interval categories in the MMELs they prepare.

#### **Category A**

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

Where a time period is specified in calendar days or flight days, the period shall start at 00:01 on the calendar day following the day of discovery.

#### **Category B**

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

#### **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.

#### **Rectification Interval Extensions (RIE)**

Subject to the approval of the CAA, the operator may use a procedure for the extension of the applicable Rectification Intervals B, C and D, for the same duration as specified in the MEL in accordance with CAP 549/JAR-MMEL/MEL.

## Appendix 3 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 agreement of the CAA, vary the format and content of their MEL Preambles to suit their own needs and requirements.

### 1 Introduction

This 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.

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 Commander 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.

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 Commander may continue to make reference to and use of the MEL as appropriate.

By approval of the MEL, the CAA 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.

**NOTE:** For dispatch with airframe or engine parts missing, refer to the CONFIGURATION DEVIATION LIST (CDL).

## 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 NOT INCLUDED ON THE LIST ARE AUTOMATICALLY REQUIRED TO BE OPERATIVE.**

## 3 Criteria for Dispatch

The decision of the Commander of the flight to have allowable inoperative items corrected prior to flight will take precedence over the provisions contained in the MEL. The Commander 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 special 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 interface or inter-relationship between inoperative items will not result in a degradation in the level of safety and/or an undue increase in crew workload. It is particularly in this area of multiple discrepancies and especially discrepancies 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 Maintenance to correct all technical defects as early as practicable and that the aircraft be released from a maintenance station in fully operational condition. The Commander 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 are required:

- a) The technical log book 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 and maintenance procedures are contained in (identify the particular Manual, Section, Chapter or Part etc. authorised by the CAA).

## 5 Rectification Intervals

Inoperative items or components, deferred in accordance with the MEL, must be rectified at or prior to the Rectification Intervals established by the following letter designators given in the "Rectification Interval Category" column of the MEL.

### **Category A**

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

Where a time period is specified in calendar days or flight days, the period shall start at 00:01 on the calendar day following the day of discovery.

### **Category B**

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

### **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.

### **Rectification Interval Extensions (RIEs)**

Subject to the approval of the CAA, the operator may use a procedure for the extension of the applicable Rectification Intervals B, C and D, for the same duration as specified in the MEL in accordance with CAP 549/JAR MMEL/MEL.

## 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" 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" the atmospheric environment is such that ice can form on the aircraft or in the 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 ANO 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)**

This 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.

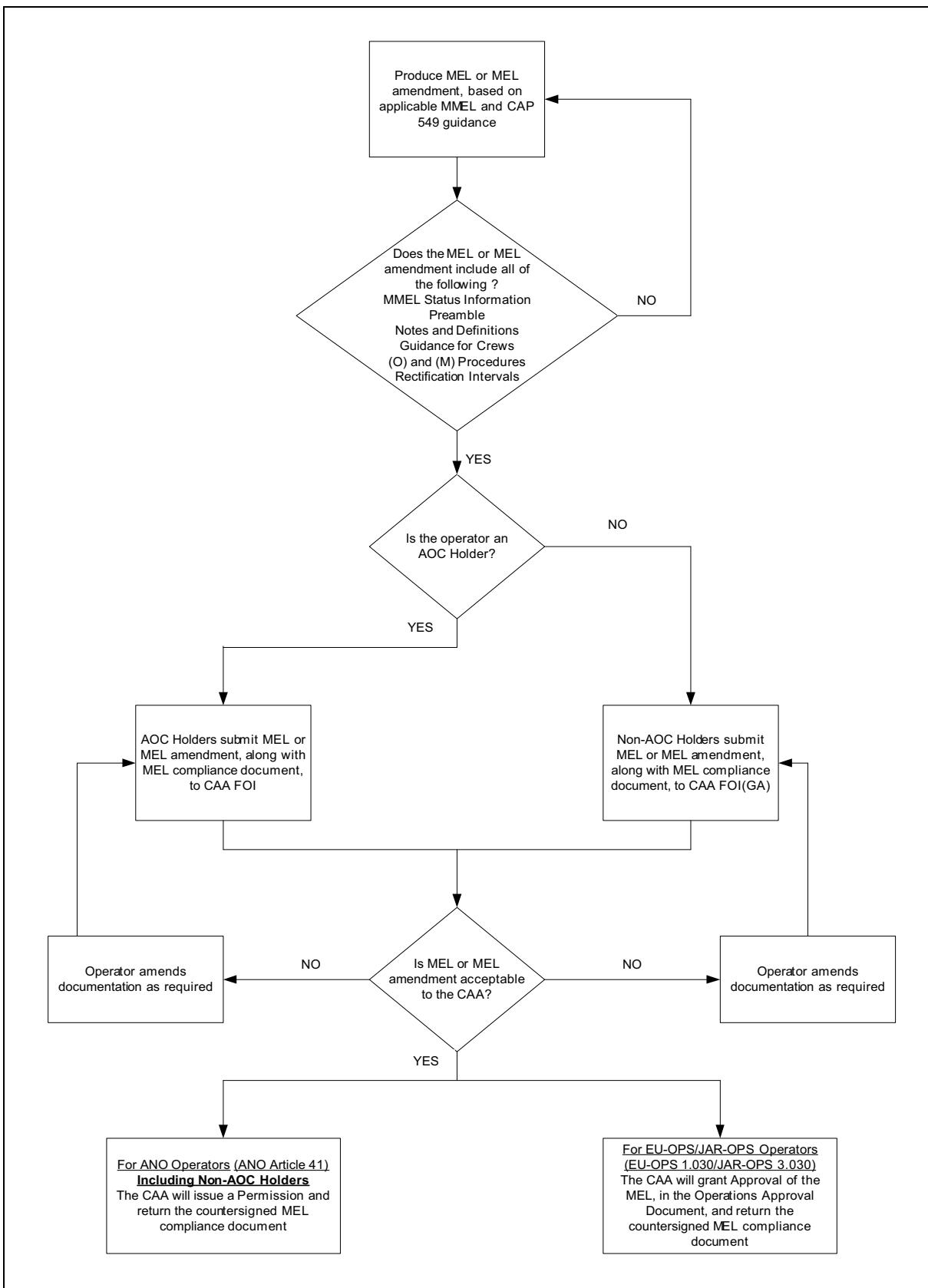
## **8 Operations Outside the Scope of the MEL**

In exceptional circumstances, the CAA 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 Ferry Flights**

Ferry flights are flights carrying neither passengers nor freight for valuable consideration, 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 this 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 before the flight takes place.

## Appendix 4 MEL Permission/Approval Process Flowchart



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## Appendix 5 Form RIE 1 - Rectification Interval Extension (RIE) 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 Number	

### Part 2 - RIE Application

11. Name of Applicant	12. Position
13. Why an RIE is Required	

### Part 3 - Authorisation

14. Duration of RIE Authorised	15. Latest date that defect is due for rectification	
16. Comments of Authorising Manager (To include history of previous RIE use for this item where appropriate)		
17. Name of Authorising Manager	18. Position	19. Date

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