



Guidance for the preparation of a Minimum Equipment List



Records of revisions

Reference	Revision no	Effective date
First issue	0	11. 12. 2014.

List of effective pages

Page no	Revision no	Effective date
1	0	11. 12. 2014.
2	0	11. 12. 2014.
3	0	11. 12. 2014.
4	0	11. 12. 2014.
5	0	11. 12. 2014.
6	0	11. 12. 2014.
7	0	11. 12. 2014.
8	0	11. 12. 2014.
9	0	11. 12. 2014.
10	0	11. 12. 2014.
11	0	11. 12. 2014.
12	0	11. 12. 2014.
13	0	11. 12. 2014.
14	0	11. 12. 2014.
15	0	11. 12. 2014.
16	0	11. 12. 2014.
17	0	11. 12. 2014.

Content

Records of revisions	2
List of effective pages.....	3
Content	4
Abbreviations.....	5
References	5
Foreword	6
1 Introduction	6
2 Preparation and Format of the MEL.....	6
3 Operational and Maintenance Procedures.....	7
4 Types of Operation.....	8
5 Rectification Interval.....	8
6 Rectification Interval Extension (RIE)	8
7 Operations Outside the Scope of the MEL.....	9
8 Appendices	9
Appendix 1 - Specimen of Preamble	9
Appendix 2 - Format and content of MEL.....	16
Appendix 3 - MEL approval application.....	17

Abbreviations

AOC	Air Operator Certificate
CCAA	Croatian Civil Aviation Agency (hereinafter referred to as the Agency)
CDL	Configuration Deviation List
EASA	European Aviation Safety Agency
FOD	Flight Operations Department
AWD	Airworthiness Department
MEL	Minimum Equipment List
MMEL	Master Minimum Equipment List
RIE	Rectification Interval Extension
CS-GEN-MMEL	Certification Specifications and guidance Material for Generic Master Minimum Equipment List
CS-MMEL	Certification Specifications and guidance Material for Master Minimum Equipment List

References

- Commission Regulation (EU) No 965/2012 of 05 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council and its amendments
- CS-MMEL / Initial Issue
- CS-GEN-MMEL / Initial Issue
- Federal Aviation Administration MMEL Policy Letter 25

Foreword

An MEL is required for each type or series of aircraft, which is to be operated within specified conditions. The MEL is a document that lists the equipment which may be temporarily inoperative, subject to certain conditions, at the commencement of flight. This document is prepared by the operator for his own particular aircraft taking account of the aircraft configuration, equipment and systems, type of operations (eg. MNPS, RNP, RVSM, RNAV, ETOPS) and the relevant operational and maintenance conditions and all associated regulations. It must comply with the Master Minimum Equipment List (MMEL) for the aircraft type approved by the EASA and must not be less restrictive than the MMEL. There are cases where for particular aircraft type EASA did not approved MMEL and in such a case MMEL which is approved by other Authority may be used.

Prior to commencing the MEL development process, the Agency strongly recommends that the operators consult the Agency on the correct MMEL to be utilised for a particular aircraft type.

The MEL requires approval by the State of the Operator and shall be available to flight crew, maintenance personnel and personnel responsible for operational control. The MEL is generally part of the Operations Manual Part B, however it may be compiled as a stand-alone document to which Operations Manual Part B makes reference.

1 Introduction

- 1.1 Commission Regulation (EU) No 965/2012 of 05 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council and its amendments requires that all equipment installed on an aircraft must be in compliance with Airworthiness Standards and Operating Requirements. However, Commission Regulation (EU) No 965/2012 of 05 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council and its amendments also permits the publication of an Operator's Minimum Equipment List (MEL), where the conditions for possible alleviation of these requirements are stipulated.
- 1.2 The MEL is based on a Master Minimum Equipment List (MMEL), established by the aircraft manufacturer and approved by the EASA as a part of Operational Suitability Data. Whereas the MMEL is type specific, the MEL will consider each individual operator's particular aircraft equipment and operational conditions.
- 1.3 For operators who intend to submit an MEL for approval, this Guidance Material lists the underlying Commission Regulation (EU) No 965/2012 of 05 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council and its amendments regulation.

2 Preparation and Format of the MEL

- 2.1 The MEL shall be established according to the following documents using the most recent amendment:
 - a) Master Minimum Equipment List (MMEL)

- b) Commission Regulation (EU) No 965/2012 of 05 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council and its amendments
 - c) CS-MMEL / Initial Issue
 - d) CS-GEN-MMEL / Initial Issue
 - e) Federal Aviation Administration (FAA) MMEL Policy Letter 25.
- 2.2 The MEL shall include a Preamble and should be established in accordance with provision ORO.MLR.105 (d) (1).
- 2.3 The Preamble shall contain guidance and definitions for flight crews and maintenance personnel using the MEL.
- 2.4 The MEL shall contain the revision status of the MMEL upon which the MEL is based, the revision status of the MEL and the scope, extent and purpose of the MEL.
- 2.5 As far as practicable, MEL items should be traceable to the corresponding MMEL item. The numbering system should therefore be identical.
- 2.6 Where the MMEL refers to local regulations (“as required by national regulations”, etc.), the corresponding alleviation according CS-MMEL / CS-GEN-MMEL has to be adopted. This applies also for any alterations regarding text or numbers of the original MMEL entry.
- 2.7 Revisions to the MEL shall be marked as defined in Operations Manual Part A.
- 2.8 The MEL is generally part of the Operations Manual Part B, however it may be compiled as a stand-alone document to which Operations Manual Part B makes reference.
- 2.9 For initial approval, the MEL and accompanying Procedures shall be submitted at least 60 days before planned operation.
- 2.10 When a MMEL revision is issued, an operator will have 90 days from the effective date specified in the approved change to the MMEL. Reduced timescales for the implementation of safety-related amendments may be required if the EASA and/or the Agency consider it necessary.
- 2.11 Temporary Revisions (TR): A copy of the TR shall be sent to the Agency confirming that the operator’s MEL is amended accordingly. The TR, if still valid, has to be incorporated into the MEL in the course of the subsequent normal revision.
- 2.12 MELs and MEL Revisions shall be submitted to the following address:
Flight Operations Department
Croatian Civil Aviation Agency
Ulica grada Vukovara 284
Zagreb

3 Operational and Maintenance Procedures

- 3.1 Operators shall take Operational (O) and Maintenance (M) Procedures referred to in the MMEL or in the CS-MMEL / CS-GEN-MMEL into account when preparing the MEL. These procedures will be reviewed for completeness by the Agency during the approval process. They shall be integrated into the MEL.

4 Types of Operation

- 4.1 The MEL covers the commercial air transport and other commercial operations other than commercial air transport and may include crew training, positioning flights and demonstration flights.
- 4.2 For flights conducted in accordance with special approvals as shown on the AOC (ETOPS, RVSM, AWO, MNPS, RNAV etc.), the relevant dispatch conditions must be contained in the MEL.

5 Rectification Interval

- 5.1 The Rectification Interval in the MEL shall not be less than the corresponding Rectification Interval in the MMEL.
- 5.2 Dispatch of the aircraft is not permitted after expiry of the Rectification Interval specified in the MEL, unless the defect has been rectified or the interval is extended in accordance with an operators approved procedure based on ORO.MLR.105 (f).

6 Rectification Interval Extension (RIE)

6.1 Principles of RIEs

- 6.1.1 Subject to approval of the Agency, the operator may use a procedure for the one time extension of category B, C and D rectification intervals (B and C for FAA MMEL), provided that:
 - a) The extension of the rectification interval is within the scope of the MMEL for the aircraft type;
 - b) The extension of the rectification interval is, as a maximum, of the same duration as the rectification interval specified in the MEL;
 - c) The rectification interval extension is not used as a normal means of conducting MEL item rectification and is used only when events beyond the control of the operator have precluded rectification;
 - d) A description of specific duties and responsibilities for controlling extensions is established by the operator;
 - e) The Agency is notified within 1 month of any extension of the applicable rectification interval or within the appropriated timescales specified by the approved procedure for the RIE; and
 - f) A plan to accomplish the rectification at the earliest opportunity is established.

6.2 Application for the use of RIEs

- 6.2.1 The operator shall incorporate a procedure for the use of RIEs in their Minimum Equipment List (MEL) or Continuing Airworthiness Management Exposition (CAME). The procedure should detail the name and position of the nominated personnel responsible for the control of the operator's rectification interval extension (RIE) procedure and details of the specific duties and responsibilities established by the operator to control the use of RIEs

7 Operations Outside the Scope of the MEL

The CCAA 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.

8 Appendices

Appendix 1 - Specimen of Preamble

PREAMBLE

Introduction

This Minimum Equipment List (MEL) is based on the (Certificating Authority) Master Minimum Equipment List (MMEL) (Number of Revision (if applicable) and Date of Revision).

This MEL takes into consideration (the operator's) particular aircraft equipment, configuration and operational conditions, routes being flown and requirements set by EASA, AIR OPS and Croatian Civil Aviation Agency.

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 specified period of time until rectifications can be accomplished.

Rectifications are to be accomplished at the earliest opportunity, but not later than within the timeframe specified in the MEL.

MEL Conditions and Limitations do not relieve the Commander from determining that the aircraft is in a fit condition for safe operation with specified unserviceable items or systems allowed by the MEL.

The provisions of the MEL are applicable until the aircraft commences the flight, i.e. the point when an aeroplane begins to move under its own power for the purpose of preparing for take-off or in the case of a helicopter, from the moment its rotor blades start turning.

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 Agency permits dispatch of the aircraft for revenue, ferry or training flights 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 (if applicable): For dispatch with airframe or engine parts missing, refer to the CONFIGURATION DEVIATION LIST (CDL).

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.

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 insured that any interface or inter-relationship between inoperative items will not result in degradation of 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.

Maintenance Action

Every effort shall be made by Maintenance to correct all technical defects as early as practicable and that the aircraft being released from a maintenance station is 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 is required:

- 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.
- 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**.
NOTE: To the extent practicable, placards should be located adjacent to the control or indicator for the item affected.
- If inadvertent operation could produce a hazard such equipment must be rendered inoperative (physically) as given in the appropriate Maintenance Procedure.
- The relevant Operational and Maintenance Procedures are contained in (identify the particular Manual, Section, Chapter or Part etc.).

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 (2) in 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 or Exceptions column (5) of the MEL. Where a time period is specified it shall start at 00:01 on the calendar day following the day of discovery.
- **Category B** – Items in this category shall be rectified within three (3) consecutive calendar days, excluding the day of discovery.
- **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 Extension (RIEs)

Subject to the approval of the Agency, the operator may use a procedure for a one time extension of the applicable Rectification Intervals B, C or D (B or C for FAA MMEL), for the same duration as specified in the MEL. Approval of such extension is based on (operator’s description of specific duties and responsibilities for controlling extensions). The operator will keep all extensions conceded on file for review by the Agency.

Definitions

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

1. **‘Airplane/Rotorcraft Flight Manual’ (AFM/RFM)** means the document required for type certification and approved by the Agency. The AFM/RFM for the specific aircraft is listed on the applicable Type Certificate Data Sheet.
2. **‘Alternate procedures are established and used’** or similar statement, means that alternate procedures (if applicable), to the affected process, must be drawn up by the operator as part of the MEL approval process, so that they have been established before the MEL document has been approved. Such alternate procedures are normally included in the associated operations (O) procedure.
3. **‘Any in excess of those required by regulations’** means that the listed item is required by applicable legislation (e.g. Part OPS, Single European Sky legislation or the applicable airspace requirements) must be operative and only excess items may be inoperative. When the item is not required, it may be inoperative for the time specified by its rectification interval category. Whenever this condition is used in the MEL, the applicable regulations for the intended flight routes and the resulting dispatch restrictions need to be clarified at the MEL level.

4. **'Calendar Day'** means a 24-hour period from midnight to midnight based on either UTC or local time, as selected by the operator. All calendar days are considered to run consecutively.

5. **'Combustible Material'** means the material which is capable of catching fire and burning. In particular: if a MEL item prohibits loading of combustible (or flammable or inflammable) material, no material may be loaded except the following:

- 1) Cargo handling equipment (unloaded, empty or with ballast);
- 2) Fly away kits (excluding e.g. cans of hydraulic fluid, cleaning solvents, batteries, capacitors, chemical generators, etc.);

Note: If serviceable tyres are included, they should only be inflated to a minimum pressure that preserves their serviceability; and

3) Inflight service material (return catering — only closed catering trolleys/boxes, no newspapers, no alcohol or duty free goods).

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

7. **'Considered Inoperative'** as used in the dispatch conditions, means that item must be treated for dispatch, taxiing and flight purposes as though it were inoperative. The item shall not be used or operated until the original deferred item is repaired. Additional actions include: documenting the item on the dispatch release (if applicable), placarding, and complying with all remarks, exceptions, and related MEL provisions, including any (M) and (O) procedures and observing the rectification interval.

8. **'Daylight'** means the period between the beginning of morning civil twilight and the end of evening civil twilight relevant to the local aeronautical airspace; or such other period, as may be prescribed by the appropriate authority.

9. **'Day of discovery'** means the calendar day that a malfunction was recorded in the aircraft maintenance record/log book.

10. **'Flight'** for the purposes of this MEL, means the period of time between the moment when an aircraft begins to move under its own power, for the purpose of preparing for take-off, until the moment the aircraft comes to a complete stop on its parking area, after the first landing.

11. **'Flight Day'**, a 24-hour period from midnight to midnight based on either UTC or local time, as selected by the operator, during which at least one flight is initiated for the affected aircraft. **'ETOPS'** or **'ER operations'** refers to extended range operations of a two-engine airplane as defined by Part-SPA.

12. **'Icing Conditions'** means an atmospheric environment that may cause ice to form on the aircraft or in the engine(s) as defined in the AFM/RFM.

13. **'Inoperative'** means that the item does not accomplish its intended purpose or is not consistently functioning within its approved operating limits or tolerances.
14. **'Is not used'** in the provisions, remarks or exceptions for an MEL item may specify that another item relieved in the MEL 'is not used'. In such cases, crew members should not activate, actuate, or otherwise utilise that item under normal operations. It is not necessary for the operators to accomplish the (M) procedures associated with the item. However, operations-related provisions, (O) procedures must be complied with. An additional placard must be affixed, to the extent practical, adjacent to the control or indicator for the item that is not used to inform crew members that an item is not to be used under normal operations.
15. **'Intended flight route'** corresponds to any point on the route including diversions to reach alternate aerodromes required to be selected by the operational rules.
16. **'Item'** means component, instrument, equipment, system or function.
17. **'(M)'** indicates a requirement for a specific maintenance procedure which must be accomplished prior to operation with the listed item inoperative. Normally these procedures are accomplished by maintenance personnel, however, other personnel may be qualified and authorised to perform certain functions. The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the operator. Appropriate procedures are required to be published as part of the Operator's Manual or MEL.
18. **'Master Minimum Equipment List'** means a document approved by the Agency that establishes the aircraft equipment allowed to be inoperative under conditions specified therein for a specific type of aircraft.
19. **'Maximum distance from an adequate aerodrome for two-engine aeroplanes'** as defined in SPA.ETOPS and CAT.OP.AH.140.
20. **'Minimum Equipment List'** means a document established as specified under 8.a.3. of Annex IV to Regulation (EC) No 216/2008 and approved by the Agency, in accordance with ORO.MLR.105, that authorises an operator to dispatch an aircraft with aircraft equipment inoperative as per CAT.IDE.A/H.105 (if applicable) (must be defined A. or H.) or NCC.IDE.A/H.105 (if applicable) (must be defined A. or H.) under the conditions specified therein.
21. **"Night"** means the hours between the end of evening civil twilight and the beginning of morning civil twilight, or such other period between sunset and sunrise as may be specified by the appropriate authority. In or over the State, "night" shall be deemed to be, during the period beginning on the 1st day of April, and ending on the 30th day of September, the time between half an hour after sunset and half an hour before sunrise, and during the remainder of the year, the time between sunset and sunrise, and for the purpose of this definition sunset shall be determined at surface level

22. **'Notes'** provide additional information for flight crew or maintenance consideration. Notes are used to identify applicable material which is intended to assist with compliance, but do not relieve the operator of the responsibility for compliance with all applicable requirements. Notes are not a part of the dispatch conditions.

23. **'Number Installed'** is the number (quantity) of items normally installed in the aircraft. This number represents the aircraft configuration considered in developing this MMEL. Should the number be a variable (e.g. passenger cabin items), or not applicable, a number is not required; a '-' is then inserted. Note: Where the MMEL shows a variable number installed, the MEL should reflect the actual number installed, as far as practical.

24. **'Number required for dispatch'** is the minimum number (quantity) of items required for operation provided the conditions specified are met. Should the number be a variable (e.g. passenger cabin items) or not applicable, a number is not required; a '-' is then inserted.

Note: Where the MMEL shows a variable number required for dispatch, the MEL should reflect the actual number required for dispatch, as far as practical, or an alternate means of configuration control approved by the competent authority.

25. '-' in the Number Installed Column (respectively Number Required for Dispatch Column) indicates a variable number (quantity) of the item installed (respectively item required) or not applicable.

Note: Where the MMEL shows a variable number installed, the MEL should reflect the actual number installed, as far as practical.

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

Note: The (M) and (O) symbols are required in the operator's MEL.

27. **'Operating minima'** means the set of requirements associated to operations requiring a specific approval (refer to Part-SPA).

28. **'Placarding'** Each inoperative item must be placarded, as applicable, to inform and remind the crew members and maintenance personnel of the item's condition.

Note: To the extent practical, placards should be located adjacent to the control or indicator for the item affected; however, unless otherwise specified, placard wording and location will be determined by the operator.

29. **'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:

Category A

No standard interval is specified. However, items in this category shall be rectified in accordance with the conditions stated in the MMEL.

- (i) Where a time period is specified in calendar days or flight days, the interval excludes the day of discovery.
- (ii) Where a time period is specified other than in calendar days or flight days, it shall start at the point when the defect is deferred in accordance with the operator's approved MEL.

Category B

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

Category C

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

Category D

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

30. '**Remarks or Exceptions**' include statements either prohibiting or allowing operation with a specific number of items inoperative, provisos (conditions and limitations), notes, (M) and/or (O) symbols, as appropriate for such operation.

31. '**Required Cabin Crew Seat**' is a seat in the aircraft cabin which meets the following conditions:

- 1) Where the certification of the cabin requires this seat to be occupied by a qualified cabin crew member as specified in the Operations Manual;
- 2) This seat is a part of the station to which a qualified cabin crew member is assigned for the flight; and
- 3) The qualified cabin crew member assigned to the station is a member of the minimum cabin crew designated for the flight.

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

Centralised Message Systems (if applicable)

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, systems conditions that result only in a Maintenance Message are not normally addressed in the MEL as they in themselves may not prohibit dispatch of the aircraft. However, maintenance discrepancy messages must be reviewed to ensure they do not affect the MEL requirements and must be recorded and corrected in accordance with the appropriate approved technical documentation.

Appendix 2 - Format and content of MEL

AIRCRAFT:		REVISION No:		PAGE:
		DATE:		
(1) Systems & Sequence Numbers ITEM		(2) Rectification Interval Category		
		(3) Number Installed		
		(4) Number Required for Dispatch		
		(5) Remarks or Exceptions		

Appendix 3 - MEL approval application

Documents required by the CCAA:

FOD-FRM-031 MEL approval application. Complete all applicable sections of the form.

Electronic copy of the prepared MEL.

Electronic copy of the MMEL.

Administration tax.

Statement of Compliance Form with Instruments, Data, Equipment for Aeroplane/Helicopter (only for Initial Issue of AOC and any other approved equipment modification).

Statement of Compliance with JAR 26 for Additional Airworthiness Specifications for Operations (only for Initial Issue of AOC and any other approved equipment modification) (applicable for large aeroplane).

Operational and maintenance procedure manual.

Documentation of all approved equipment modifications.