



AMC 024 – MEL requirements and guidelines

This AMC gives a summary and basic guidance of the guidelines and requirements for the Minimum Equipment List (MEL) submissions of Operators holding Aruban registration(s).

INTRODUCTION

DEFINITIONS.

The following definitions are used throughout this AMC:

Airplane Flight Manual (AFM)/Rotor-craft Flight Manual (RFM): The approved flight manual is the document approved by the DCA. The approved flight manual for the specific aircraft is listed on the applicable type certificate data sheet. The approved flight manual is the source document for operational limitations and performance parameters for an aircraft. The term, approved flight manual, can apply to either an AFM or an RFM.

Configuration Deviation List (CDL): Aircraft certified under the provisions of regulations EASA/CS or FAR Parts 23, 25, 27 or 29, and intended for use under AUA-OPS 1, JAR-OPS 3 for Aruba or AUA-OPS 2(A) may be approved for operations with missing secondary airframe and engine parts. The aircraft source document for such operations is the CDL.

DCA: Department of Civil Aviation

Inoperative: Inoperative means that a system or component has malfunctioned to the extent that it does not accomplish its intended purpose and/or is not consistently functioning normally within its approved operating limits or tolerances.

Maintenance Management Exposition (MME): The MME is the source document for aircraft maintenance procedures. The term MME can apply to either an airplane or a rotor-craft manual. Other abbreviations in use are MCM (Maintenance Control Manual) or CAME (Continuing Airworthiness Management Exposition).

Master Minimum Equipment List (MMEL): The MMEL is a list of equipment that the authority of the State of Type Certificate holder has determined may be inoperative under certain operational conditions and still provide an acceptable level of safety. The MMEL contains the conditions, limitations and procedures required for operating the aircraft with these items inoperative. The MMEL is used as a starting point in the development and review of an individual operator's customized MEL.

Minimum Equipment List (MEL): The MEL is derived from the MMEL and is applicable to an individual operator. The operator's MEL takes into consideration the operator's particular aircraft configuration, operational procedures and conditions. When approved and authorized for



use, the MEL permits operation of the aircraft under specified conditions with certain inoperative equipment.

MASTER MINIMUM EQUIPMENT LISTS (MMEL)

An MMEL (Master Minimum Equipment List) is a source document setting up the guidelines and standard to follow when an operator makes its own MEL. It is a generic document (not tailored to a specific aircraft) that shows what could “eventually” be deferred for dispatch if the operator, pilots and mechanics comply with the associated procedures (that must be developed by the operator himself and approved by the Authority). Therefore, an MMEL can NOT be approved as an operational document and can NOT be used as such. It will be “accepted” (as one of the source documents) in most cases by the Authority of registration or operation without any further formal modifications for the sole purpose of making an operator’s MEL. Usually authorities that are publishing an MMEL are States of manufacture of the aircraft involved. These MMELs are produced by a board (panel) that meet regularly and is composed of the State of manufacture Authority, major airlines and eventual other important Aviation Industry technical experts.

DISPATCH WITH INOPERATIVE EQUIPMENT

The MEL is an alleviating document. Its purpose is not, however, to encourage the operation of aircraft with inoperative equipment. It is never desirable that aircraft be dispatched with inoperative equipment and such operations are permitted only as a result of careful analysis of each item to ensure that the required level of safety, as intended in the applicable airworthiness and operational requirements is maintained. A fundamental consideration in permitting the dispatch of aircraft with inoperative equipment is that the continued operation of an aircraft in this condition should be minimized. The limitations governing repair intervals are discussed later in this document.

LEGAL PURPOSE OF THE MEL

AUA-OPS 2(A) 12.6.1, AUA-OPS 1.030 or JAR-OPS 3.030 for Aruba requires the operator to develop a MEL (Minimum Equipment List) Where a Master Minimum Equipment List has been approved for a particular type of aircraft by the authority of the country of manufacture of the aircraft, a Minimum Equipment List shall not be approved for that type of aircraft unless it complies with the minimum standards set out in that MMEL.



MMEL PHILOSOPHY

This chapter provides an insight into the criteria that govern the determination of an acceptable MMEL item and the methods of justification to be used in the development of a MMEL.

LEVEL OF SAFETY

The MMEL identifies the equipment which may be inoperative while maintaining the level of safety of the aircraft type dictated by the minimum standards specified for the design in the type basis and operation by the State of manufacture. It should be noted that although the airworthiness standards, require that aircraft be designed with certain systems and components, the MMEL will permit the operation, for short periods, of that aircraft with such items of equipment inoperative if the required level of safety can be maintained. To establish the equipment for any given operating condition, the authority must consider various factors relating to safe operation when such equipment is inoperative. These include the consequence to the aircraft and its occupants of further failures, change in crew workload and/or degradation in crew efficiency and degradation in crew capability to cope with adverse environmental conditions.

MAINTAINING THE LEVEL OF SAFETY

- a) The authority will base its decision, as to whether a particular proposal for a MMEL is to be approved, on the criterion that the level of safety required by the standards specified for the design and operation of the aircraft type can be maintained. This finding will be based on the substantiated ability to maintain the required level of safety with an item of equipment inoperative.
- b) This substantiation will be achieved by one or more of the following means:
 - 1. the adjustment of operating limitations;
 - 2. transfer of the function to an operating component;
 - 3. reference to other instruments or components performing the required function or providing the required information;
 - 4. change in operating procedures; and
 - 5. change in maintenance procedures.



MEL PURPOSE, POLICY AND PROCEDURES

The MEL is a joint operations and maintenance document prepared for or by an operator for their own particular aircraft taking account of their aircraft configuration 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 type of operation;
- b) define operational procedures necessary to maintain the required level of safety and to deal with inoperative equipment; and
- c) define maintenance procedures necessary to maintain the required level of safety and procedures necessary to secure any inoperative equipment.

Through the use of appropriate conditions or limitations, the MEL provides for improved scheduled reliability and aircraft utilization with an equivalent level of safety. This process is possible because of the installation of additional and redundant instruments, equipment and/or systems in present transport aircraft. Without an approved MEL, inoperative equipment would ground the airplane until repair or replacement of the nonfunctioning equipment. An MEL is approved for a specific make, serial number and model of aircraft and the use of it is authorized by special approval.

Unlike the MMEL that addresses a vast range of aircraft type variants (and some times more than one specific series, the MEL must be specific to the aircraft used. I.e. it must reflect accurately the quantity of components in each system installed and the exact configuration of the particular aircraft. Also, items not installed should be clearly marked as such to avoid any confusion to the crew and mechanics. Quantity of items installed marked as “-” (variable quantity) should be avoided by all means unless impossible otherwise.

Wherever an MMEL specifies an “O” (operation) or “M” (Maintenance) symbol in the remark column, the corresponding MEL must describe accurately (with references) the associated operation or maintenance procedure(s). These procedures must be developed by the operator based on existing approved documentation (AFM, FCOM/AOM, manufacturer “accepted” procedure manual, maintenance manuals etc.).

Generally, the MEL must be designed having in mind that it is an operational document that often must be used under some time restriction situations (in the cockpit or on the field when a problem has been discovered and the aircraft is expected to depart soon). So the document must be “user-friendly” and incorporate all information required to carry-out the operation and maintenance procedures and their limitations. It must however follow the sequence and (ATA) numbering (“System and Sequence Number” column), the exact text used (“Remarks and Exceptions” column), the category items and the quantities required for dispatch of the MMEL.



OPERATOR MEL DEVELOPMENT

a) Development

The operator will develop their MEL and all subsequent amendments, as a joint operations and maintenance document; based on the current MMEL revision. The operator's MEL shall be approved by at least one senior company official from each respective department (Operations and Maintenance) prior to the MEL request cover sheet being submitted to DCA Aruba.

b) Substantiation

The operator must provide adequate substantiating documents to support their MEL submissions to the DCA. These documents will provide additional information relating to the operator's MEL program. Any additional MEL items which do not appear in the MMEL will require substantiation for consideration, and must be accompanied by a description of the appropriate Operational or Maintenance procedures.

ITEMS LISTED ON THE MEL.

There are four categories of items that may be contained in the operator's MEL:

- * MMEL items
- * MEL supplement due to Supplemental Type Certificate (STC)
- * Passenger convenience items
- * Administrative control items

A. MMEL Items: The MEL will list all of the items for which the operator seeks relief and that are appropriate for its operation. The operator, by not listing at its discretion certain items in its MEL, may be more restrictive than permitted by the MMEL.

B. MEL supplement due to Supplemental Type Certificate (STC): These are additional items specific to the operator aircraft that were installed due to an STC. Based on this STC there is an MEL supplement affecting the serviceability of the STC items.

C. Passenger Convenience Items: The passenger convenience items, as contained in the operator's approved MEL, are those related to passenger convenience, comfort, or entertainment, such as, but not limited to, galley equipment, movie equipment, in flight phones, ashtrays, stereo equipment, and overhead reading lamps. It is incumbent on the operator and the POI to develop procedures to ensure that those inoperative passenger convenience items are not used. Passenger convenience items do not have fixed repair intervals. Items addressed elsewhere in the MMEL shall not be authorized relief as a passenger convenience item. "M" and "O" procedures may be required and should be developed by the operator, approved by the POI and PMI, and included in the air carrier's appropriate document.



D. Administrative Control Items. An operator may use an MEL as a comprehensive document to control items for administrative purposes. In such cases, the operator's MEL may include items not listed in the MMEL; however, relief may not be granted for these items unless conditions and limitations are contained in approved documents other than the MMEL. Examples of items considered to be administrative control items would be cockpit procedure cards, medical kits, delaminated windshields, and life vests.

TIMELY REPAIR OF ITEMS THAT ARE INOPERATIVE.

The MEL is intended to permit the operation of an aircraft with certain inoperative items for a limited period of time until repairs can be accomplished. The operator is responsible for establishing a controlled and effective repair program.

A. Repair Interval. Operators must make repairs within the time period specified by the MEL. Although the MEL might permit multiple days of operation with certain inoperative equipment, operators must repair the affected item as soon as possible.

a. Repair Interval Categories

- i. The maximum time an aircraft may be operated between the discovery of an inoperative item and its repair will be specified in the MMEL. Passenger convenience items such as reading lights may have no specified repair interval (no category).
- ii. The category of all other inoperative items will be determined according to the time intervals specified below.

Category A

Items in this category shall be repaired within the time interval specified in the "Remarks or Exceptions" column of the operator's approved MEL. Whenever the proviso in the "Remarks or Exceptions" column of the MMEL states cycles or flight time, the time interval begins with the next flight. Whenever the time interval is listed as flight days, the time interval begins on the flight day following the day of discovery.

Category B

Items in this category shall be repaired within 3 consecutive calendar days excluding the day of discovery.

Category C

Items in this category shall be repaired within 10 consecutive calendar days, excluding the day of discovery.

Category D

Items in this category shall be repaired within 120 consecutive calendar days, excluding the day of discovery. To be considered for placement in Category D, the item must be of an optional nature, or excess equipment



which an operator may, at his/her discretion, deactivate, remove from or install on an aircraft.

To be approved for Category D, the item must meet the following criteria:

1. the absence of the item does not affect crew workload;
2. the pilots do not rely on the function of that item on a routine or continuous basis; and,
3. the pilot's training, subsequent habit patterns and procedures do not rely on the use of that item.

B. Day of Discovery. The day of discovery is the calendar day an equipment malfunction was recorded in the aircraft maintenance log or record. This day is excluded from the calendar days or flight days specified in the MMEL for the repair of an inoperative item of equipment. This provision is applicable to all MMEL items, such as categories "A," "B," "C," and "D." The operator and the POI must establish a reference time in which the calendar day or flight day begins and ends 24 hours later. This reference time is established to ensure compliance with timely repair of equipment and items.

C. Continuing Authorizations. Approval of an MEL does not authorize an operator to extend the maximum repair time for any category items, unless there is a continuing authorisation procedure established in the MME, MCM or CAME and approved by the Unit Airworthiness of DCA.

RECORDKEEPING.

When an item of equipment becomes inoperative, the operator must report it by making an entry in the aircraft maintenance record, as prescribed by AUA-OPS 1, JAR-OPS 3 for Aruba or AUA-OPS 2(A) and in the aircraft Technical Log.

MULTIPLE ITEMS THAT ARE INOPERATIVE.

Individual MEL requirements are designed to provide coverage for single failures enroute. When operating with multiple inoperative items, the operator shall consider the interrelationships between those items and the effect on aircraft operation and crew workload, including consideration of a single additional failure occurring enroute.



FLEET APPROVAL.

An operator who has a single MEL for multiple aircraft may reflect equipment in its MEL that is not installed on all aircraft in its fleet. In this case, the item's title in the operator's MEL need not reference any specific airplane identification (usually registration number) unless the operator determines that there is a need to do so.

ACCESS TO MEL.

AUA-OPS 1.130, JAR-OPS 3.130 for Aruba or AUA-OPS2(A) 12.6. require that the MEL be carried aboard the aircraft or that the flightcrew have direct access to the MEL information prior to flight. Other means of direct access require approval.

- 1- The operator may refer to CS-MMEL or CS-GENMMEL guidance material, as applicable, to develop the relevant MEL. Alternatively, upon special authorization, the equivalent FAA guidelines could be used.

Details:

Details explaining how to create an operator MEL and what needs to be included, can be found in CS-MMEL/MEL or in the “Definitions” and “Preamble” sections of the MMEL and its corresponding FOEB “policy letters”.

The MMEL(s) and policy letters are usually available free of charge from the manufacturer or the State of manufacture Authority.

The Minimum Equipment List shall contain at least the following:

- (a) Applicable aircraft (type/model, registration, serial number)
- (b) Name and address of the holder
- (c) Identification (number) of the MEL
- (d) Date of issue, list of effective pages, record of revisions
- (e) Statement signed by the holder to the effect that the specified aircraft will be operated to the MEL and that the MEL will be reviewed and updated
- (f) Deferral procedures
- (g) Preamble , including guidance and definitions for flight crews and maintenance personnel using the MEL;
- (h) Notes and definitions
- (i) Despatch deviation operation and maintenance procedures



MEL [initial] submission to the DCA-Aruba:

- 1- Only MEL(s) will be accepted for approval requests. As stated above, MMEL(s) cannot be approved for operational use.
- 2- MEL(s) sent for approval must be accompanied by the following documents:
 - a. Letter of request for approval from the operator responsible for the operation, including the name of the Company, the type of operation, the name of the authorized representative, the registration number(s) of the aircraft to be considered and serial number(s).
 - b. Copies of any document or publication that the MEL refers to, such as: AFM, Manufacturer Procedure Manual, FCOM/AOM, relevant portion(s) of the maintenance manual(s) etc.,
 - c. Copy of the basic (up-to-date) equipment list or manufacturer “packing list” (revised) that describe the last known and approved list of components installed in the aircraft considered (including modifications post-factory). (The list must include at least all the systems and components addressed by the relevant MMEL).
 - d. MMEL latest revision

The MEL will be returned to the operator either approved (stamped on the list of effective pages), or with a list of discrepancies to correct.

If the MEL was returned to the operator for correction, the entire [original] document must be sent back to the DCA for approval.

Once the MEL is approved and returned to the operator, a copy of the newly approved document will be sent to the DCA for its own library.

MEL revision submissions:

As MMEL(s) are regularly revised by the State of manufacture or because of modifications made to the aircraft by its (their) owner/operator, the operator’s MEL must be revised accordingly. The MEL should also be reviewed by the operator at least annually to ensure that it incorporates any changes to the operation, aircraft or to the Aruban Regulations. The MEL development, processing and approval procedures should be reviewed as part of the operator's quality assurance program.

These revisions must be submitted for approval in a timely manner.

If a revision is refused and needs correction, it will be returned to the operator for further modifications.

The approved pages will be sent back together with the effective list of pages (stamped for approval) to the operator.

The operator will consider the DCA’s copy (MEL) as part of the controlled operator’s library; therefore copies of the revision will also be sent back to the DCA. The DCA will incorporate these revisions in its own [library] MEL.