KINGDOM OF BAHRAIN
Ministry of Transportation
and Telecommunications

مملكة البحرين
وزارة المواصلات والاتصالات

CIVIL AVIATION PUBLICATION

CAP 32

MEL
POLICY AND PROCEDURES
MANUAL

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CIVIL AVIATION PUBLICATIONS

CAP 32

MEL POLICY AND PROCEDURES MANUAL

INDEX

APPENDICES

Bahrain CAA Publication Revisions Highlight Sheet

☒ CAP: 32 ☐TPM: ____

The following pages have been amended to status Revision 03, dated 15 February 2024

Item	Paragraph Number	Page(s)	Reason
1	Revision Highlights	iii	To indicate the current revision highlights
2	LEP	v	To indicate the current revision status
3	Revision Record	vi	Addition of revision record
4	Foreword	1	Amendment to the document reference
5	Abbreviation	2	To add the Abbreviation for NEF
6	1.1	3	Amendment to the document reference
7	2	5-6	Introduction of a policy to address the NEF programme and control
8	2.3	6	Amendment to the authorising authority
9	2.5	7	Amendment to the conditions for operating outside of the MEL
10	2.8.2	8	Amendment for additional requirement during the application
11	2.8.5	9	Amendment for additional requirement of NEF items
12	2.9.4	10	Introduction of types of revisions and its identification Amended to requirement of items related to STCs.
13	2.9.5	11	Clarification to the description of column

14	2.10.1	11	To add designation of revision
15	2.10.3	11	To address the NEF requirement
16	2.11.5	13	Editorial correction
17	2.11.7	13	Amendment to the description of column
18	2.11.8	14	Amended to iterate the responsibility of the operator on the (M) &(O) procedures
19	2.12	15	Added to clarify the rectification intervals
20	2.13.1	15	To specify the extension period & to remove the anomaly on grant of extension.
21	2.13.2	15	To align the notification periods with the regulation. And deletion of non-realistic pre-authorisation rights
22	2.14	18	Amended to include the CAMO exposition
23	2.16	19	Redefining the dispatch
24	Appendix 1	APP(1-1) to APP (1-6)	Amendment to the definitions in accordance with the ICAO SARPs / FAA / EASA regarding MEL
25	Appendix 4	APP (4-1) to ((4-2)	Amendment to incorporate the intent of ICAO SARPs / FAA / EASA regarding Preamble to the MEL
26	Appendix 5	APP (5-2)	Amendment to indicate the specific place of reference by crew.

List of Effective Pages

CAP 32

End

REVISION RECORD

CAP 32 MEL POLICY AND PROCEDURES MANUAL

Revision No.	Date of Issue
Initial Issue	30 June 2016
Revision 01	10 March 2022
Revision 02	01 February 2023
Revision 03	15 February 2024

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Foreword

1. The Bahrain Civil Aviation Affairs (BCAA), known in these publications as the "Authority" has implemented CAP- 32 MEL based on the ICAO Standards & Recommended with a view to harmonizing legislation and to regulate commercial air transport and private operations of aeroplanes.

2. This Manual is an advisory material provided as guidance and demonstration and contains all the relevant information with respect to the concept, development and approval of the Minimum Equipment List (MEL) for the use and guidance of Industry personnel.

3. On its own, this Manual does not change, create, amend or permit deviations from regulatory requirements, nor does it establish minimum standards.

4. It may describe an example of an acceptable means, but not necessarily the only means, of compliance with regulations and standards.

References

1. ICAO DOC 9760.
2. EASA Operational Suitable Data (OSD).
3. ANTR-OPS 1.030.
4. Operator's Operations Manual OMA, Chapter 8.
5. FAA MMEL and FAA Policy Letters PL-25 (Definitions) & PL-34 (MEL Preamble)

Abbreviation

AFM:	Aircraft Flight Manual
AMO:	Approved Maintenance Organization
ANTRs:	Air Navigation Technical Regulations
AOI:	Aircraft operations inspector
AWM:	Airworthiness Manual
AI:	Airworthiness Inspector
CDL:	Configuration Deviation List
DDG:	Dispatch Deviation Guide
DDPG:	Dispatch Deviation Procedures Guide
ETOPS:	Extended Range Twin Operations
EDTO:	Extended Diversion Time Operation
IFR:	Instrument Flight Rules
IMC:	Instrument Meteorological Conditions
MME:	Maintenance Management Exposition
MOE :	Maintenance Organization Exposition
MEL:	Minimum Equipment List
MMEL:	Master Minimum Equipment List
NEF:	Non-essential Equipment and furnishing
OPI:	Office of Principal Interest
Seq:	Sequence number
VFR:	Visual Flight Rules
VMC:	Visual Meteorological Conditions

Introduction

1.1 Definitions

The definitions of specific words and phrases used in this manual are found at APPENDIX 1 APPENDIX 1 DEFINITIONS.

See FAA Policy Letter (PL-25) for Boeing Aircraft.

See EASA OSD Documents held by TC/STC holder for Airbus Aircraft

See the applicable state of design definitions / policies relevant to the MEL under scrutiny

1.2 The Master Minimum Equipment List

A Master Minimum Equipment List (MMEL) is an approved document created by an aircraft manufacturer and approved by an authority of the State of Design / Manufacture specifically to regulate the dispatch of an aircraft type with inoperative equipment. It establishes the aircraft equipment allowed to be inoperative under certain conditions for a specific type of aircraft 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 forms the basis for development and review of an individual operator's Minimum Equipment List (MEL).

A Bahraini operator will frame its MEL based on the MMEL duly approved by the authority of the State of Manufacture/Design of the aircraft.

The MMEL published from the FAA and EASA or any other state of design authority are very different in format and philosophy. The BCAA must ensure the operator uses the State of Design MMEL for each specific aircraft. For example, Boeing aircraft shall use the FAA MMEL and Airbus will use the EASA MMEL which is now the OSD.

1.3 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 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.

1.4 Legal Basis

Bahrain Air Navigation Technical Regulations (ANTRs) provides that the operation of an aircraft with equipment and/or instruments inoperative may be approved through the use of a Minimum Equipment List for that specific aircraft/aircraft type.

Where a Master Minimum Equipment List has been approved for a particular type of aircraft by the authority of the State of Manufacture/Design 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.

1.5 Installed Equipment

Most large transport aircraft are designed and certified with a significant amount of redundancy in their systems, such that the minimum standards of airworthiness are satisfied by a substantial margin.

Many of these aircraft also have installed instruments and equipment that are not required for safe operation under all operating conditions, e.g., instrument lighting in day VMC. Other equipment, such as entertainment systems or galley equipment may be installed for passenger convenience.

1.6 Equipment Included in the MMEL

The MMEL lists those items of equipment - including optional equipment - which may be inoperative for the dispatch of a flight e.g. entertainment items which, when inoperative, do not affect airworthiness.

It is important to note that any item related to the airworthiness of the aircraft, and not included in the MMEL, must be operative prior to flight. Items required by the ANTRs (and which are not listed in the MMEL,) are required to be operative for dispatch.

2 MEL Policy and Procedures

General

The MMEL is a document that lists the equipment which may be temporarily inoperative, subject to certain conditions, while maintaining an acceptable level of safety as intended in the applicable State of Design regulations. Each MMEL is specific to an aircraft type.

All items related to the airworthiness of the aircraft and not included in the list are automatically required to be operative. Non-safety related equipment such as galley equipment and passenger convenience items need not be listed. Non-safety related equipment refers to equipment that is not required for airworthiness or operational reasons. In order for inoperative installed equipment to be considered non-safety, the following criteria should be considered:

(a) The operation of the aircraft is not adversely affected such that standard operating procedures related to ground personnel, in-flight personnel and/or flight personnel are impeded.

(b) The condition of the aircraft is not adversely affected such that the safety of passengers and/or personnel is jeopardised.

(c) The condition of the aircraft is configured to minimise the probability of a subsequent failure that may cause injury to passengers/personnel and/or cause damage to the aircraft.

(d) The condition does not include the use of required emergency equipment and does not impact emergency procedures such that personnel could not perform them.

(e) Non-essential equipment & furnishing (NEF) are those items installed on the aircraft as part of the original certification, supplemental type certificate, or engineering order that have no effect on the safe operation of flight and would not be required by the applicable certification rules or operational rules. They are those items that if inoperative, damaged or missing have no effect on the aircraft's ability to be operated safely under all operational conditions. NEF items may be installed in areas including, but not limited to, the passenger compartment, flight deck area, service areas, cargo areas, crew rest areas, lavatories, and galley areas. NEF items are not items already identified in the MEL or CDL of the applicable aircraft. They do not include items that are functionally required to meet the certification rule or for compliance with any operational rule. An operator's NEF process shall not provide for deferral of items within serviceable limits identified in the manufacture's maintenance manual or operator's approved maintenance program such as wear limits, fuel/hydraulic leak rates, oil consumption, etc. Cosmetic items that are fully serviceable but worn or soiled may be deferred under an operator's NEF process.

(i) An Operator is required to establish the NEF Programme and its subsequent amendments acceptable to BCAA.

(ii) The NEF Programme shall contain the following elements as a minimum:

(a) NEF Policy & Procedures in Operations Manual

(b) Method of tracking NEF items

(c) Procedure for tracking NEF deferrals

(d) (M) & (O) Procedures

(e) Follow-Up Maintenance

(f) Repair Intervals

(g) Procedures for amendment of the NEF programme and / or any variation to NEF list.

(h) A probable List of NEF items that may be inoperative for which the NEF programme assessment has been carried out. (The list may be extended based on the operator's experience)

(iii) The NEF Programme assessment shall contain the following elements as a minimum:

(a) Requirement of Operational Rules

(b) Applicable Certification Requirements

(c) Does this item create Fire / Smoke or other Hazardous conditions?

(d) Does this item's condition affect the safety of Passengers, Crew or other Service Personnel?

(e) Will the item's condition have any adverse effect on other required systems / components?

(f) Will the item's condition have any negative impact on Normal or Abnormal procedures?

(g) Does the item create an additional workload for the crew at critical times of flight or flight preparation?

(h) Do crewmembers need to evaluate the deferred NEF item on a flight-by-flight basis?

(f) This policy applies to all aircraft with an established MMEL.

Operators shall establish an effective decision-making process for failures that are not listed to determine if they are related to airworthiness and required for safe operation. The MEL may contain additional advisory material or modified operational and maintenance procedures.

2.1 MEL Purpose

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

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

2.2 MEL Definition

While the MMEL is for an aircraft type, the MEL is tailored to the operator's specific aircraft and operating environment and may be dependent upon the route structure, geographic location, and number of airports where spares and maintenance capability are available etc. The MMEL cannot address these individual variables, nor standard terms such as "As required by Regulations". It is for these reasons that a MMEL cannot be approved for use as a MEL. It falls on the operator to develop Operations "O" and Maintenance "M" procedures, or to use a DDPG or DDG, where these documents are available.

Note: Air operators currently using an approved company MEL or in the process of amending or developing a new MEL must ensure that all regulatory references are in accordance with the ANTRs.

2.2.1 Equipment Required by Operating Regulation

When an item of equipment is required to be installed and operative under particular circumstances by the ANTRs, and / or declared as essential by BCAA, such equipment may be defined in the remarks column of the MEL by a description of the relevant regulation rather than the words "As required by Regulation" [see also paragraph 2.11.7(e)].

2.3 MEL Intent

Except as authorized by the BCAA under the rules, operation of an aircraft with aircraft equipment inoperative or removed is prohibited, unless an operator does so in compliance with an approved MEL.

2.4 MEL Limitation

The content of an operator's approved MEL cannot be less restrictive than the content of the source MMEL for that aircraft type.

2.5 Operation outside MEL

Under certain circumstances, the commander may take immediate action to fly with inoperative equipment if he/she believes that leaving the aircraft on the ground will likely impose more imminent dangerous conditions due to events such as war, riots, attacks, impending severe weather forecast etc.

2.6 Audit of Operator MELs

The BCAA will audit the operator's conformance to MEL requirements on an ongoing basis, and as part of any company audit. Significant non-conformances may result in the MEL approval being withdrawn under the rules.

2.7 Applicability

2.7.1 Legal Basis

a) A MEL stipulates that the BCAA may approve a MEL for each type of aircraft, in accordance with the MEL Policy and Procedures Manual. Where a source MMEL has been accepted, the BCAA shall approve a Minimum Equipment List in respect of each operator of that type of aircraft, provided that the requirements set out in the MEL Policy and Procedures Manual are met.

Note: If the operator intends to maintain one single MEL for the whole fleet consisting of same type, each of the MEL items require information on the applicability to specific serial number of the aircraft. Further, the MEL is required to revised and approved by BCAA, as and when configuration changes, to any of its type fleet and / or new aircraft of the same type inducted.

b) A MEL stipulates that a MEL is mandatory for aircraft with a weight above 5700 kg that is registered and used in Bahrain.

c) A MEL states that where a MEL has been approved with respect to the operator of an aircraft, no person shall conduct a take-off in that aircraft with equipment that is unserviceable or removed unless the aircraft is operated in accordance with the conditions or limitations specified in the Minimum Equipment List. The one exception specified recognizes the superiority of an Airworthiness Directive (AD) over the conditions or limitations specified in the MEL.

2.8 Administrative Procedures

2.8.1 Approval Authority

In accordance with the BCAA, the authority and responsibility for MEL approval rests with BCAA Aeronautical Licensing Directorate.

The Chief Aircraft Operations (CAO) and Chief Airworthiness Inspection (CAI) will evaluate and approve the MEL for the applicable aircraft type. The primary source of the MEL shall be the MMEL that has been approved by the authority of the State of Manufacture/Design of the aircraft.

2.8.2 Initial Application Information

An audit of the MEL should be conducted by the Operator's Quality Manager before the presentation of the MEL to BCAA approval. This must be indicated by the signature of the Quality Manager on top of the List of Effective Page

When an operator expresses the intent to operate an aircraft eligible to use MEL, the Airworthiness section will provide them with the following information:

a) the current requirements of the ANTRs & CAPs.

b) the information necessary, where applicable, for developing their own MEL.

2.8.3 MMEL Status

The operator must ensure that they use the latest version of the source MMEL to develop their MEL.

2.8.4 MMEL Acquisition

Approved MMELs may be acquired from the foreign Civil Aviation Authority. Alternatively, operators may obtain MMELs directly from the manufacturer which has been approved by the applicable major Civil Aviation Authority (e.g. EASA/FAA). The manufacturer normally provides MMELs along with a revision service. It is the responsibility of the operator to provide a complete set of source MMEL documents to the BCAA and also ensure a proper revision service.

2.8.5 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. An audit of the MEL should be conducted by the Operator's Quality Manager before the presentation of the MEL to BCAA approval.The operator's MEL shall be approved by at least one senior company official from each respective department (Operations and Maintenance) and certified by the Continuing Airworthiness Manager / Quality Manager in consultation with the post holder of operations' department prior to the MEL request cover sheet being submitted to the BCAA.

The MEL items related to modification / STCs, may be covered under MEL. Such items shall be in accordance with the MMEL, incorporating such modifications / STCs of the State of Design or as per the documented relief policy of the said State of Design.

b) Substantiation

The operator must provide BCAA adequate substantiating documents to support their MEL submissions. These documents will provide additional information relating to the operator's MEL programme.

c) Copies

The operator must submit a copy of the joint operations/maintenance MEL document to the BCAA.

The MEL shall also include list of NEF items covered under the MEL 25-10 and controlled and monitored (invoked / revoked) through a NEF programme in accordance with the policy given in Paragraph 2(e).

2.9 BCAA Inspector Responsibility

2.9.1 BCAA MEL Approval Time

Provided that the operator submits a MEL that complies with the MEL Policy and Procedures Manual, the BCAA will endeavor to approve the document within 30 days or within 7 days for a simple amendment, provided the applicant provides the list of changes and identifies the affected pages. The List of Effective Pages is duly signed and stamped.

2.9.2 MEL Distribution

An approved or revised MEL is deemed to be in force upon receipt of approval from the BCAA. However, the operator may have 10 calendar days or as specified in the operator's approved system, (if necessary) to distribute and implement the new document. In all cases, copies are required for:

(a) Each aircraft;

(b) Post holder - Maintenance;

(c) Post holder- Operations;

(d) BCAA electronic publications

(e) Flight operations / Dispatch office;

(f) any other personnel as required;

2.9.3 MEL Updates

It is the operator's responsibility to ensure that their MEL is reviewed and updated as required. The MEL should be reviewed by the operator at least annually to ensure that it incorporates any changes to the operation, aircraft or to the ANTRs. A revision to the MMEL will require that the operator review and amend their MEL, as necessary. The MEL development, processing and approval procedures should be reviewed as part of the operator's quality assurance program.

Note: Transition from JAA/EASA MMEL/OEB Reports to Operational Suitability Data (OSD.

With the entry into force of Commission Regulation (EU) No 69/2014 on 18 February 2014 the concept of Operational Suitability Data (OSD) was implemented, integrating operational evaluation elements into the certification design process as foreseen in the Basic Regulation. Commission Regulation (EU) No 69/2014 introduces Article 7a of Commission Regulation (EU) No 748/2012.

Paragraph 3 of Article 7a states: *"Operational Evaluation Board reports and master minimum equipment lists issued in accordance with JAA procedures or by the Agency before the entry into force of this Regulation [18 February 2014] shall be deemed to constitute the operational suitability data approved in accordance with point 21.A.21(e) of Annex I (Part 21) and shall be included in the relevant type-certificate. Before 18 June 2014 the relevant type-certificate holders shall propose the Agency a division of the operational suitability data in mandatory data and non-mandatory data."*

The transition of MMEL/OEB Reports will be completed with the inclusion in the applicable Type Certificate Data Sheet (TCDS), the MMEL/OEB Reports concerned will be withdrawn from the EASA website, and associated OSD documents will be held by the manufacturer (TC/STC holder). It is important to note that the TCDS will not be revised to indicate the latest revision of the MMEL/OEB Report but will indicate the first OSD revision followed by "or later approved revisions" or similar statement.

As per point 21.A.62, 21.A.108 and 21.A.120B of Annex I (Part 21) the holder of the type-certificate, restricted type-certificate supplemental type-certificate or holder of the minor change approval shall make available at least one set of complete operational suitability data and any changes to the operational suitability data to all known EU operators of the aircraft, before the operational suitability data must be used by a training organization or an EU operator as well as , on request to:

1. the competent authority responsible for verifying conformity with one or more elements of this set of operational suitability data; and

2. any person required to comply with one or more elements of this set of operational suitability data.

Operators, training organizations or competent authorities currently using the EASA MMEL/OEB Reports webpages as a reference are encouraged to liaise with the relevant (S)TC holders to ensure appropriate access to the OSD and future revisions.

More links for direct access to FAA, TC CA and ANAC MMEL sites:

- MMEL/FAA Transport
- ANAC - Embraer
- MMEL/TC CA

2.9.4 MEL Amendments

a) Amendments to MELs will be handled according to the process outlined in this document for initial approval.

The MMEL has two types of revisions:

(i) Nonmandatory revisions (Not Required) shall be designated by a lower-case letter after the revision number (eg. Rev.8a).

(ii) Mandatory revisions (Required) shall be designated by the next higher number (eg. Rev. No. 8 to Rev. No. 9) which will also include changes applicable to all operators.

b) Where a source MMEL revision is more restrictive, the operator shall submit an appropriate amendment to the MEL for approval within 90 days on receipt of the MMEL revision. Priority is to be accorded when dealing with such revisions. Following the embodiment of a modification (STC) having an impact on the MEL the operator shall amend the MEL in line with the defined procedures of the State of Design, as accepted by BCAA.

The MEL items related to modification / STCs, may not be covered under MMEL. Such items shall be in accordance with the MMEL of the respective state of design (Example: FAA Dynamic Regulatory System [DRS] and Aeronautical Evaluation Division [AED] Guidance Documents titled "STC Relief Approval Letters in the case of FAA and Operational Suitability Data [OSD] in the case of EASA), incorporating such modifications / STCs of the State of Design or as per the documented relief policy of the said State of Design.

c) Where a Dispatch Deviation Procedures Guide (DDPG) or equivalent document is available; or where a MMEL revision does not affect a procedure, the time for MEL amendment remains at 90 days (see ANTR OPS 1.030 and 3.030). Where a DDPG or equivalent document is not available; or where the MMEL revision affects a procedure, the MEL amendment time is 120 days.

2.9.5 MEL Categorization

When a source MMEL is initially categorized, the MEL shall be amended to conform to it. The category of each item in the MEL shall be inserted in **"Items"** column adjacent to **"Number Installed"** column. An operator must submit his/her MEL amendment for categorization within 120 days of the categorized MMEL approval date.

2.10 Conformity to the MMEL

2.10.1 MEL Content

a) The operator's MEL must reflect the current source MMEL limitations unless otherwise authorized.

When a revision is issued to a MMEL, the operator's MEL need not be revised if the change is less restrictive than the existing MEL.

b) Except as noted above, all items installed in an operator's aircraft which are addressed in the most recent accepted version of the source MMEL shall be included in the MEL. At the same time, an operator or pilot retains the option to refuse any alleviation and may choose not to dispatch with any particular MEL item inoperative.

c) The MEL revisions: shall be designated as per Para 2.9.4 above

2.10.2 Reserved

2.10.3 Passenger Convenience Items

Passenger convenience items are those items related to the convenience, comfort, or entertainment of an operator's passengers. They may include items such as galley equipment, movie equipment, ash trays, stereo equipment, and overhead reading lamps.

Passenger convenience items do not carry a specific repair interval, and need not be listed in an operator's MEL, if they are not addressed in the MMEL. The exceptions to this rule are:

a) Where passenger convenience items serve a second function, such as movie equipment being usedfor cabin safety briefings, operators must develop and include operational contingency procedures in case of an equipment malfunction.

b) Where passenger convenience items are part of another aircraft system, for example, the electrical system, procedures must be developed and included in the MEL for deactivating and securing in case of malfunction.

However, the operators are required to bring these types of items under NEF list and controlled through Operator's NEF programme approved by BCAA with specific intervals for operations with inoperative status.

2.10.4 MEL Audits

a) Whenever an audit is conducted, the operator's MEL shall be reviewed. The review shall ensure that the MEL conforms to the applicable BCAA regulations, current policies and procedures.
b) Special attention should be given to operating rules that may have been amended since the MEL was last approved. It shall be confirmed that the latest revisions to the MMEL, if more restrictive, have been incorporated into the MEL.

2.11 MEL Development Procedures

2.11.1 MEL Basic Format

The MEL must include the following: a List of Effective Pages, a Table of Contents, the Minimum Equipment List Preamble, Notes and Definitions, a section for each aircraft system addressed, the letter of approval and amendment record page. Operators must specify the MMEL revisions and any other documents such as a DDPG, used in the development of their MEL.

2.11.2 MEL Page Format

a) MEL format is at the discretion of the operator, provided that it is clear and unambiguous. However, it is recommended that the MEL page format follow the MMEL page format of four columns (See Appendix 3 – SAMPLE OF MEL FORMAT).

   The page numbering and individual MEL items, however, must be in accordance with the ATA 100 code system (See Appendix 7).

b) The MEL may incorporate only one item per page or as considered appropriate by the operator when operations and/or maintenance procedures are required. If no procedures are required, or the required action is simple, multiple items may appear on a single page.

c) The standardized format of operational and maintenance procedures should be located immediately below the inoperative item of equipment to reduce error in cross-referencing.

2.11.3 List of Effective Pages

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

a) Only those pages of the LEP that list the date and revision status of each MEL page need to be stamped and initialed.

b) The BCAA stamped and initialed LEP must be retained on file. Copies of the company MELs may be issued with stamped LEPs. The copies must detail the location within the company where the approved MEL is retained.

2.11.4 Table of Contents

The Table of Contents page shall list the section for each aircraft system utilizing the ATA 100 listing as found in the MMEL. Pages will be numbered with the ATA system number followed by the item number for that system (e.g., the page following 27-2-1 would be 27-2-2).

2.11.5 MEL Preamble

The purpose of the Minimum Equipment List Preamble is to provide direction to company personnel on the philosophy and use of the MEL. The BCAA publishes a MEL preamble which should be used by an operator (See APPENDIX 4) TYPICAL FORMAT OF MINIMUM EQUIPMENT LIST (Aircraft Type).

2.11.6 Notes and Definitions

Notes and Definitions are required to allow the user to interpret the MEL properly. As a minimum, the notes and definitions contained in APPENDIX 1 DEFINITIONS will be used in the MEL. Additions and deletions to the notes and definitions may be applied to the operator's MEL as required.

2.11.7 Operating and Maintenance Procedures

a) Dispatch with inoperative items is often acceptable only with the creation of special operating or maintenance procedures.

b) Where the MMEL indicates that this is the case, the operator must establish, publish and obtain approval for appropriate procedures. Procedures recommended by the aircraft manufacturer in most cases can be adopted for this purpose, but the ultimate responsibility for providing acceptable procedures to be approved in the MEL rests with the operator. These procedures will ensure that a satisfactory level of safety will be maintained.

   The operator, when comparing the MEL against the MMEL must insure that where the (O) or (M) symbols appear, an operating or maintenance procedure has been developed that provides clear direction to the crew members and maintenance personnel of the action to be taken. This procedure must be included in the MEL right below the applicable ATA section to prevent cross-reference errors.

c) The only exception (when no Operating procedures are provided by the manufacturer), is when the procedure is contained in another document that is available:

   1) to the flight crew on the flight deck, such as an Aircraft Flight manual, Aircraft Operating Manual, or the Company Operations Manual;

   2) to the flight attendants, such as a Company Operations Manual or Flight Attendant Manual;

   3) to the maintenance crew, such as an Aircraft Maintenance Manual (e.g. the Airbus Aircraft Deactivation Procedures Manual), Maintenance Control Manual, etc.

      However, this practice should be avoided whenever practicable to avoid ambiguous, misinterpretation and misleading information.

d) In these cases, the MEL may refer to a section of the appropriate document.

e) It is not acceptable to reference the ANTR OPS or similar documents, as these are not carried on board the aircraft and could be subject to misinterpretation. The objective is to provide personnel with clear, concise direction on how they are to proceed. Where the MMEL Remarks / Exception column states "as required by Regulation", this wording shall not appear in the MEL; rather, a synopsis of the Regulation shall appear.

2.11.8 Approval of Operating and Maintenance Procedures

Manufacturers may choose to produce operating and maintenance procedures such as Dispatch Deviation Procedure Guides, for use by operators. These procedures may be inserted into the appropriate MEL pages, and submitted by the operator, to form part of the MEL. Dispatch Deviation Procedures Guides, Dispatch Deviation Guides, and other similar documents cannot be approved by the BCAA, nor can they replace the MEL. If the aircraft manufacturer has not published operating or maintenance procedures, the operator must develop appropriate procedures and submit them to the BCAA for approval.

Operator is responsible for the (M) & (O) procedures. Operator may use the manufacturer's manual, but operator holds the responsibility for the procedures. If the operator proposes its own (O) & (M) procedures, they must be approved by BCAA.

2.11.9 Operations Manual Procedures

The operator must establish procedures in the company Operations Manual for the use and guidance of crew members when using the MEL. The procedures must agree with those in the Maintenance Control Manual. The operator should consider to include all procedures/instructions in the MEL itself; in which case the Operations Manual will only be required to cross reference this document.

2.12 Repair Interval Categories

The maximum time an aircraft may be operated between the deferral of an inoperative item and its repair will be specified in the MEL and where the MMEL has been categorized. Passenger convenience items such as reading lights and entertainment units must include a category. Most of these items will be a "D" category provided any (M) procedure (in the case of electrically supplied items) is applied.

Category A

Items in this category shall be repaired within the time interval specified in the "Remarks and 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. Items in this category meet the following criteria:

i. the absence of the item does not adversely affect crew workload;
ii. the crew do not rely on the function of that item on a routine or continuous basis;

and

iii. the crew's training, subsequent habit patterns and procedures do not rely on the use of that item.

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

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.

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 2.13 below.

2.13 MEL Item Repair Interval Extension Program

2.13.1 Purpose

Under certain conditions, such as a shortage of parts from manufacturers, or other unforeseen, situations, air operators may be unable to comply with specified repair intervals. This may result in the grounding of aircraft. To preclude that from happening, a MEL Item Repair Interval Extension Program has been instituted that will allow operators, under controlled conditions, to obtain single extensions to MEL repair interval categories. The following paragraphs give instructions to Chief Aircraft Operations or Chief Airworthiness Inspection to administer an operator's MEL Item Repair Interval Extension programs provided operators have an acceptable system of control in place.

The extension will not be granted for category "A" and "D". The Category "B" or "C" extension may be allowed provided the operator has no control over unavailability or part delivery delays.

2.13.2 Approval

a) The chief Airworthiness Inspection (CAI) or the Chief Aircraft Operations (CAO) shall be notified within 10 (ten) calendar days, any time it becomes necessary to continue or extend the item repair interval period beyond the expiry date (Single Extension Period). When requested for any further extension, the BCAA CAI or CAO receiving such notification shall ensure that his/her counterpart is fully informed as soon as possible (See Section 2.13.5).

b) For all extensions, the operator shall complete a form (See APPENDIX 2. MEL REPAIR INTERVAL EXTENSION FORM), or provide the information to the BCAA in an equivalent and acceptable format. A copy of the completed form must accompany the journey log entry as follows:

"This aircraft is operating on a MEL item repair interval extension as specified in the attached form".

A copy of the completed form (or the equivalent document) shall be retained on file by the operator for a period of **thirty-six months**, for auditing purposes. A review may result in changes to the period of the extension, or may be used to determine abuse of the process.

Prior to the approval or amendment of the operator's MEL, BCAA personnel must ensure that the provisions of this section have been fully addressed.

2.13.3 Repair Extension Applicant Risk Analysis

Prior to applying for an extension, the applicant has to perform a brief safety analysis as justification that risk is managed to an acceptable level of safety (e.g. within the Low and Medium criteria of Likelihood and Consequence as assessed by a Safety Risk Matrix).

The following risk matrix is used in justifying the Extension

	CONSEQUENCE				
LIKELIHOOD	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Extreme (5)
Rare (1)	Low	Low	Low	Low	Low
Unlikely (2)	Low	Low	Low	Medium	Medium
Possible (3)	Low	Low	Medium	Medium	Medium
Likely (4)	Low	Medium	Medium	High	High
Almost certain (5)	Low	Medium	Medium	High	Extreme

No extension should be allowed where risk is classified as orange or above.

2.13.4 Program Procedures

MME / CAME

To ensure that operators obtain extensions on MEL repair intervals only when necessary, the following elements must be adequately addressed in the MME/CAME. Some of the elements listed below are already required as part of an operator's maintenance program. They are restated here to emphasize their importance with respect to the MEL Interval Extension Program. This list is not all inclusive and Airworthiness personnel should take any other appropriate factors into account as necessary:

a) Authority

The operator must assign authority to the appropriate level of the maintenance department for seeking approval of interval extensions. Procedures must be established and implemented to ensure that extensions are not sought without approval from the assigned operations and maintenance management level. The authorized operations and maintenance manager will indicate his/her approval for seeking the extension in writing.

b) Communications

Operator's maintenance and operations divisions must establish clear lines of communication to show that a MEL item repair extension will not be sought unless both parties agree that the extension is clearly warranted.

c) Parts/Equipment Control

The operator must establish and implement procedures that will ensure where parts and/or equipment are needed to rectify a MEL defect, and that these established procedures are acted upon in the most timely manner possible.

d) Maintenance Control

The operator must establish and implement procedures to ensure that where required, all maintenance actions required to rectify a defect are initiated in the most timely manner possible.

e) Records

In addition to the existing maintenance record keeping requirements, operators must indicate what records will be used for this program. Of primary interest will be records that convey maintenance approval for seeking a MEL item interval extension and any other records that indicate maintenance, parts, or equipment control actions. A control sheet or other similar means should be used to track all events related to the extended MEL item up to and including rectification. The operator must be able to provide all records necessary to clearly justify a MEL interval extension, when requested.

f) Audits

The operator must include the MEL Item Interval Extension Program in their system of internal audits at an initial frequency of 12 months or less.

2.13.5 Communications

For each operator requesting this extension, the BCAA must establish clear lines of communication throughout the approval and ongoing surveillance of this program. Communication should ensure that where an operator requests an extension, the BCAA is made aware of this report on an urgent basis. The operator has a requirement to report the request of a MEL item repair interval extension to the BCAA at least two days in advance.

2.13.6 Program Administration

Events beyond the Operator's Control

The core of this program is to ensure that operators do not substitute MEL item repair interval extensions as a means to reduce or eliminate the need to repair MEL defects in accordance with the established category limit. Operators are not to use the extension program as a normal means of conducting MEL item repairs. Extensions will only be considered valid and justifiable when events beyond the operator’s control have precluded rectification.

It is recognized that while MEL item repair interval categories have been established, it may not be possible in every case to repair aircraft in the time allotted for each MEL item. Several factors may influence the operator's ability to comply with the specified interval.

These factors include:

a) Parts shortages from manufacturers that affect all operators equally. Parts shortages can result from material, labour, or shipping problems but must be clearly outside the operator's control.

b) Inability to obtain equipment necessary for proper troubleshooting and repair. Operators must, to the maximum extent possible, have the necessary equipment available to perform troubleshooting and repair of MEL items. Equipment shortages or unserviceabilities may be encountered that cannot be directly controlled by the operator for the specified MEL item.

An unwillingness on the part of the operator to obtain parts or equipment to rectify the defect in the most timely manner possible will be grounds for review of extension.

Abuse, as determined by the BCAA will result in withdrawal of extension privileges.

2.13.7 Program Compliance

Attempts have been made to define abuse of this program in quantitative terms. Abuse can be determined based on the correct application of approved procedures. Airworthiness and Operational personnel must ensure that operators establish and implement a sound program and that ongoing surveillance ensures compliance with approved procedures. The number of times this privilege is given is expected to be low. The actual number of MEL interval extensions will vary from one operator to another due to individual circumstances. Emphasis should not be placed on how many MEL item repair interval extensions are given, but rather on the correct application of approved procedures for the issue of the extension.

2.14 Deferral of Items

Procedures for the deferral of MEL items will be included as part of the operator's Continuing Airworthiness Management Exposition / Maintenance Management Exposition/MME. The operator must ensure that the Operations Manual and the MEL reference the aforementioned procedures in the MME/CAME, or duplicates the same (See APPENDIX 5. DEFERRED DEFECT/OPERATIONS MANUAL AMENDMENT GUIDE for sample procedures).

Operators are required to maintain a record, month wise of all the defects carried forward under MEL and analyse the same to determine if facilities at line stations require strengthening to minimize MEL release. Results of such analysis are required to be notified to the BCAA, The records may be checked by the inspector of BCAA as and when they visit the premises of these operators.

2.14.1 Requirements

These procedures comprise a method for:

a) deferral and/or rectification of inoperative equipment;

b) placarding requirements as per the MEL;

c) dispatching of aircraft with deferred MEL item(s);

d) a remote deferral system;

e) controlling categorized times; and

f) the training of company personnel who are responsible for MEL compliance procedures

2.14.2 Review of Deferred Items

The operator must establish procedures whereby the Maintenance and Flight Departments periodically review the deferred items, in order to ensure that any accumulation of deferred items neither conflict with each other nor present an unacceptable increase in flight or cabin

crew workload. Notwithstanding the categorization of item repair intervals, it should be the aim of each MEL document holder to ensure that inoperative items are repaired as quickly as possible. It is BCAA policy that optional inoperative equipment should be repaired or removed from an aircraft.

2.15 Placarding

All inoperative items must be placarded to inform crew members of equipment condition.

While the MEL for some items may require specific wording, the majority of items leave the placard wording and location to be determined by the operator.

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

Note: The exclusion of an asterisk in a MMEL does not preclude the requirement for placarding.

2.15.1 Requirements to Placard/Placard Control

Placarding will be carried out in accordance with the placarding procedures established and set out in the operator's approved MME/CAME. The method of placarding control must ensure that all inoperative items are placarded, and placards are removed and accounted for when the defect is cleared.

2.15.2 Procedures

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

2.15.3 Placard Criteria

Placards should be self-adhesive. The placard may be in two parts. Part One should list a description of the defect and the defect control number and should be attached to the logbook for crew reference. Part Two should list the system affected and the defect control number and be fixed in the appropriate location. A MEL control sheet attached to the logbook could serve the same purpose as Part One above.

2.15.4 Multiple Placards

If more than one placard is required for a MEL item, provision must be made to ensure that all placards are removed when the defect is cleared.

2.15.5 Temporary Placards

If a defect occurs at a base where maintenance personnel are not available, the flight or cabin crew may install a temporary placard as required by the MEL. The aircraft may continue on a planned itinerary to a base where maintenance will rectify or re-defer in accordance with the approved deferral system.

2.16 Dispatch

"Dispatch" for the purpose of the MEL refers to the commencement of flight, which is defined as “the point when an aircraft begins to move under its own power for the purpose

of preparing for take-off". In the case of a helicopter, it refers to the moment the helicopter commences air or ground taxi. The MEL is approved on the basis that equipment will be operative for takeoff unless the appropriate MEL procedures have been carried out. The operator's MEL shall include procedures to deal with any failures which occur between the start of taxi or push back and takeoff brake release. Should the Pilot requires to refer to the AFM, AOM, or POH, the operators procedure shall allow such references for possible resolution of malfunctions during taxi time.

Any failure which occurs after takeoff commences shall be dealt with as an in-flight failure, by reference to the appropriate section of the aircraft flight manual, if necessary. After takeoff commences, no MEL action is required, until the completion of the next landing.

2.16.1 Operational and Maintenance Items

a) Any item of equipment in the MEL, which when inoperative would require an operating or maintenance procedure to ensure the required level of safety, shall be so identified in the "remarks" or "exceptions" column of the MEL. This will normally be "O" for an operating procedure, or "M" for a maintenance procedure. (O)(M) means both operating and maintenance procedures are required.

b) (O) Items

Aircraft with inoperative equipment requiring an operating procedure may be returned to service following completion of the required MEL procedure for deferral.

Operating procedures are normally carried out by qualified flight or cabin crew, but may be accomplished by other qualified, approved personnel.

c) (M) Items

Aircraft with inoperative equipment requiring a maintenance procedure may be returned to service following completion of the required MEL procedure for deferral.

Maintenance procedures are normally accomplished by maintenance personnel, but some elementary maintenance tasks which do not require maintenance procedures may be carried out by crew members or other qualified, approved personnel (See Section 2.15.2).

Air crews may not perform maintenance procedures if the defect involves an item designated in the MEL with a *(M#) -Maintenance Personnel Required*. In this circumstance, the aircraft may not proceed until authorized maintenance personnel carry out the specified procedure **(Not all MMELs use the annotation M#)**. This allows the pilot to depart with the inoperative item where no maintenance procedures are required.

2.16.2 Elementary Work

Some elementary work called for in the MEL may be accomplished by crew members, or others, who have been trained and approved to do so according to the Regulations and standards in Maintenance Standard.

2.17 Training

2.17.1 Training Program — Ground Personnel

Operators shall develop a MEL training program for ground personnel, to be included in the MME/MOE and operations manual, as appropriate, which must be approved prior to an operator receiving approval to operate with a MEL. The training should include those sections of the MME/CAME /operations manual procedures dealing with the use of the MEL, placarding of inoperative equipment, deferral procedures, dispatching, and any other MEL related procedures (**See** APPENDIX 6. SAMPLE OF INITIAL/ RECURRENT MEL TRAINING SYLLABUS). Ground personnel include dispatchers and maintenance engineers.

2.17.2 Training Program — Crew Members

Operators shall provide crew members with MEL training and shall detail such training in their Company Operations Manual. The training will include the purpose and use of a MEL, instruction on company MEL procedures, elementary maintenance procedures, and pilot-in-command responsibility (See APPENDIX 6. SAMPLE OF INITIAL/RECURRENT MEL TRAINING SYLLABUS). Crew members include pilots, flight engineers and flight attendants.

2.17.3 Training Program — Recurrent

Recurrent training shall be conducted, annually, to refresh procedural knowledge and ensure company personnel are aware of any changes in MEL procedures.

2.18 MELs for Leased Aircraft

This case will be mandatory when lease agreement exists and transfer of safety oversight exist as per ANTR OPS 1.165/OPS 3.165.

2.18.1 MELs for Leased Foreign Registered Aircraft

a) A leased aircraft must have a MEL approved by the state of registry and accepted by the BCAA.

b) The MEL for a particular leased foreign registered aircraft must not be less restrictive than the BCAA approved MEL for the same type of aircraft operated by a Bahraini operator and must be accepted by the BCAA. The MEL must be available in English, appropriate to the personnel using the MEL.

c) The foreign country of registration of the leased aircraft may require that their aircraft be operated in accordance with their approved MEL, in which case any less restrictive changes to this MEL must be approved by the foreign authority. The BCAA may require more restrictive changes to the MEL because of Bahrain Regulations and operating conditions. It is the responsibility of the Bahrain lessee to determine the requirements of the foreign authority and the BCAA for the use of a MEL on the leased aircraft.

2.18.2 MELs for Foreign Leased Bahrain Registered Aircraft

a) The BCAA reviews each lease and approves or accepts the use of a MEL on such aircraft based on whether a bilateral airworthiness agreement or a technical arrangement exists between the BCAA and the foreign regulatory authority and it has been determined that the MMEL/MEL procedures are acceptable.

b) If there is no agreement between the BCAA and the foreign authority, a review of the foreign operator's MEL is conducted to determine that it is consistent with the source MMEL.

2.19 BCAA MEL Administrative Procedures

2.19.1 MEL Priority

MEL approvals and amendments are to be considered a top priority for BCAA personnel charged with their review. BCAA personnel will attempt to minimize approval/turnaround times for MEL submissions, depending on existing tasking and availability.

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APPENDIX 1 DEFINITIONS

Systems Definitions: Systems numbers are based on the Air Transport Association (ATA) Specification Number 100 and items are numbered sequentially.

a) **"Item"** An instrument, equipment, system, component, message, or function that is installed on or exhibited by the aircraft and listed in the item column.

b) **"Item Number"** This column lists the unique identification for each item on the MEL.

Note: The unique identification number given in MMEL against each item shall be applied in MEL against each corresponding item(s) without any alterations / changes.

c) **"Number Installed"** is the number (quantity) of items normally installed in the aircraft. This number represents the quantity of items specific to the aircraft configuration..

"***" symbol indicates an item which is not required by Regulation but which may have been installed on some models of aircraft covered by this MEL. This item may be included on the operator's MEL after the approving office has determined that the item has been installed on one or more of the operator's aircraft following the standard practices / procedures approved to do so. It should be noted that neither this policy nor the use of this symbol provide authority to install or remove an item from an aircraft. The "***" symbol may be considered equivalent to the term "if installed".

c) **"Number required for dispatch"** is the minimum number (quantity) of items required for operation provided the conditions specified in Remarks / Exception Column are met.

Note: Where the MMEL shows a variable number required for dispatch, the MEL must reflect the actual number required for dispatch or an alternate means of configuration control approved by the BCAA.

d) **"Remarks or Exceptions"** in this column includes a statement either prohibiting or permitting operation with a specific number of items inoperative, provisos (conditions and limitations) for such operation, and appropriate notes.

e) A **"vertical bar"** (change bar **"|"**) in the margin indicates a change, addition or deletion of content in the adjacent text for the current revision of that page only. The change bar is dropped at the next revision of that page.

f) **"Approved"** means approved by the Director General.

g) **"Master Minimum Equipment List"** means a document approved by the state of manufacture that establishes the aircraft equipment allowed to be inoperative under conditions specified therein for a specific type of aircraft.

h) **"Minimum Equipment List"** means a document approved by the BCAA that authorizes an operator to dispatch an aircraft with aircraft equipment inoperative under the conditions specified therein.

"Alphabetical symbol" in Column **4** indicates a proviso (condition or limitation) that must be complied with for operation with the listed item inoperative.

"As Required by Regulation", and other similar statements mean that the listed item is subject to certain provisions (restrictive or permissive) expressed in such regulations as *the* BCAA ANTR or the *Airworthiness Manual* etc. Unless the MMEL provides otherwise, the items specified by these requirements must be operative.

"Airplane Flight Manual (AFM), Rotorcraft Flight Manual (RFM) or Pilot's Operating Handbook (POH)" means the AFM/RFM (or POH) is the document approved by the state of the type design during type certification. The approved flight manual for the specific aircraft is listed on the applicable Type Certificate Data Sheet (TCDS). The approved flight manual is the governing document for operational limitations and performance parameters for an aircraft.

"Considered Inoperative" the phrase, as used in the Remarks or Exceptions column, means an item must be treated for dispatch, taxi with intent for flight, and flight purposes as though it were inoperative. The item must 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; complying with all Remarks or Exceptions, including any (M) and (O) procedures; considering applicable notes; and observing the repair category

"Contaminated Runway" means a runway of which a significant portion of its surface area (whether in isolated area or not) within the length and width being used is covered by one or more of the substances listed under the runway surface condition description under the AFM, RFM or POH

"Dash(-)" Indicates a variable number (quantity) of items may be installed or required for dispatch.

"Day of Discovery" means the calendar-day an item malfunction was recorded in the aircraft maintenance record/logbook, and is excluded from the interval established by the assigned repair category.

"Deleted or Moved" in the remarks or exception column after a sequence item indicates that the item was previously listed but is now required to be operative if installed in the aircraft. **"Moved"** in the remarks or exception column indicates the item was moved within the chapter, to a different chapter.

"Deactivated and Secured" means that the specified component must be put into an acceptable condition for safe flight. An acceptable method of deactivating and securing may either be recommended by the manufacture or will be established by the operator for inclusion in his/her MEL.

"Day of discovery" is the calendar day an equipment/instrument malfunction was discovered. This day is excluded from the calendar days or flight days specified in the MMEL for the repair of an inoperative item of equipment, and is applicable to all MMEL items in categories A, B, C, and D.

"EFAS Electronic Fault Alerting System (EFAS) [such as Central Maintenance System(CMS), Central Maintenance Computer (CMC), Engine Indicating Crew Alerting System (EICAS), Electronic Centralized Aircraft Monitoring System (ECAM) or similar systems] " that provide electronic messages refer to a system capable of providing different priority levels of systems information messages (e.g., Warning, Caution, Advisory, Status and Maintenance). An airplane discrepancy message may or may not affect dispatchability. Refer to the specific MMEL for the aircraft type. If the aircraft is equipped with an EFAS, refer to the applicable manufacturer's manual for a system description, including various message levels, formats, limitations and restrictions.

"Excess Items" means those items installed in a quantity greater than that are required by the regulation.

"EDTO" means any operation by an aeroplane with two or more turbine engines where the diversion time to an en-route alternate aerodrome is greater than the threshold time established by the State of the Operator. **EDTO** refers to extended range operations of an airplane which has a type design approval for ER operations and complies with the provisions of ANTR Regulations on EDTO.

"Federal Aviation Regulations (FARs)" means the applicable portions of the Federal Aviation Act and Federal Aviation Regulations.

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

"Icing Conditions" means an atmospheric environment that may cause ice to form on the aircraft (structural) or in the engine(s) (induction). Icing conditions may be known or forecast, and defined in the AFM, RFM or POH.

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

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

"Is Not Used" The phrase in the Remarks or Exceptions column for an MEL item may specify that another item is not used. In such cases, crewmembers must not activate, actuate, or otherwise use the referenced item under normal operations. If the item not to be used is located elsewhere in the MEL, it is not necessary for aircraft operators to accomplish any (M) procedure(s) associated with the referenced item. However, operators must comply with operational requirements, and an additional placard must be affixed as close as practical to the control or indicator for the item that is not to be used. This informs crewmembers that an item is not to be used under normal operations.

"M" symbol indicates a requirement for a specific maintenance procedure which must be accomplished prior to operation with the listed item inoperative. Normally these procedures are accomplished by maintenance personnel; however, other personnel may be qualified and authorized to perform certain functions. Procedures requiring specialized knowledge or skill, or requiring the use of tools or test equipment must be accomplished by maintenance personnel (see (M#) below). 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.

"M#" symbol indicates a requirement for maintenance personnel to accomplish a "(M)" procedure.

"Maintenance Instruction" Indicates maintenance instructions that must be accomplished prior to operation with the listed item inoperative, as per "(M)" procedure above.

"NEF" means:

a) Items installed on the aircraft as part of the original type certification (TC),Supplemental Type Certificate (STC), engineering order, or other form of alteration, that have no effect on the safe operation of the aircraft;

b) Items not required by the applicable certification or operational rules;

c) NEF does not include items that are functionally required to meet the certification rule or for compliance with any operational rule; and

d) Items that, if inoperative, damaged, or missing, have no effect on the aircraft's ability to be operated safely under all operational conditions.

1) Additionally, NEF items may be considered:

a) Inoperative, damaged, or missing nonessential items located throughout the aircraft including, but not limited to, the passenger compartment, flight deck area, service areas, cargo areas, crew rest areas, lavatories, and galley areas; and

b) Cosmetic items which are fully serviceable but worn.

Note: Cosmetic items may have associated fire retardant/blocking requirementsthat must be considered before approving as an NEF item.

2) NEF items are not:

a) Instruments and equipment already identified in the MEL or CDL of the applicable aircraft;

b) Instruments and equipment functionally required for meeting anycertification rule; and

c) Instruments and equipment required for compliance with any operational rule.

3) Additionally, NEF items may not be considered (not all-inclusive):

a) Items deferred contrary to an operator's Continuous AirworthinessMaintenance Program (CAMP);

b) Paint (mismatched, bad, or worn condition);

Note: Paint is addressed in other maintenance documents utilized for determining airworthiness; the NEF program is not appropriate.

c) Rodent or pest (bug) infestations of any type; and

d) Items which are only dirty or soiled (e.g., carpet, seats, interior side walls, or adirty garbage can).

4) A NEF item should not be confused with or used as an administrative control item (ACI). An ACI is something the aircraft operator lists in its MEL for tracking and informational purposes only. BCAA may not approve the use of a NEF as an ACI.

"Notes" Column provides additional information for crewmember 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 provisos.

"O" symbol indicates a requirement for a specific operations procedure which must be accomplished in planning for and/or operating with the listed item inoperative. Normally these procedures are accomplished by a crew member; however, other personnel may be qualified and authorized to perform certain functions. The satisfactory accomplishment of all procedures, regardless of who performs them, is the responsibility of the operator. Appropriate procedures are required to be published as a part of the operator's manual or MEL. Recording of the accomplishment of required specific operations procedures in the logbook will be accomplished by adding the following statement to the "Instructions for Journey Logbook Use" found in the Operator's Journey Log Book to cover those items requiring Operations Procedures.

Note: The (M) and (O) symbols are required in the operator's MEL unless otherwise authorized by the BCAA.

"_" symbol indicates a variable number (quantity) of the item installed.

Note: Where the MMEL shows a variable number installed, the MEL must reflect the actual number installed or an alternate means of configuration control approved by the BCAA.

"Operating Instruction" Indicates operating instructions that must be accomplished prior to operation with the listed item inoperative, as per "(O)" procedure above.

"Operative" means an operative item will accomplish its intended purpose and is consistently functioning normally within its design operating limit(s) and tolerance(s). When an MEL item specifies an item must be operative, it is not required to verify the item's operational status. It should be considered operative unless reported or known to be malfunctioning.

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

"**Proviso"** A proviso is used to stipulate conditions or limitations that must be complied with for operation with the listed item inoperative.

"Placarding" Each inoperative item must be placarded to inform and remind the crewmembers and maintenance personnel of the equipment condition.

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

"Take-off" Take-off is the act of beginning a flight in which an aircraft is accelerated from a state of rest to that of flight. For the purposes of MEL relief, this translates to the point at which the pilot physically begins to apply power to initiate the take-off from the runway or take-off surface.

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

"Visual Meteorological Conditions" (VMC) means the atmospheric environment is such that would allow a flight to proceed under the Visual Flight Rules applicable to the flight. This does not preclude operating under Instrument Flight Rules.

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

"Repair Intervals" All users of an MEL must effect repairs of inoperative items (systems or components), deferred in accordance with the MEL, at or prior to the repair times established by the following letter designators:

"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 time interval is listed as flight days, the time interval begins on the flight day following the day of discovery. For all other time intervals (e.g., flights, flight legs, hours, cycles), the repair interval begins at the point when the item is deferred in accordance with the aircraft operator's MEL.

"Category B". Items in this category shall be repaired within three (3) consecutive calendar days (72 Hours), excluding the day of discovery. For example, if it were discovered at 10 a.m. on January 26th, the three day interval would begin at midnight the 26th (0000 hours on the 27th) and end at midnight the 29th.

"Category C". Items in this category shall be repaired within ten (10) consecutive calendar days (240 Hours), excluding the day of discovery. For example, if it were discovered at 10 a.m. on January 26th the ten day interval would begin at midnight the 26th 0000 hours on the 27th) and end at midnight February 5th.

"Category D". Items in this category shall be repaired within one hundred and twenty (120) consecutive calendar days (2880 Hours), excluding the day of discovery.

APPENDIX 2. MEL REPAIR INTERVAL EXTENSION (RIE) FORM

This form is a sample of the RIE form. Refer to the website for the latest form.

PART 1 - MEL Defect

1. Operator	2. Date of Defect	3. Aircraft Registration ***A9C -***
4. Aircraft Type		5. RIE No:
6. Detail of Defect (ATA & Part Name)	7. Reason for not rectifying	
8. Rectification Interval Category	9. Expiry date of Rectification Interval	10. MEL Reference No:

PART 2 - RIE Application

11. Applicant's Name	12. Position
13. Why an RIE is Required?	

PART 3 - Authorization

14. Duration of RIE Authorized	15. Latest date that defect is due for rectification	
16. Comments of AWI		
17. Authorizing Inspector's Name	18. Position	19. Date

A fully completed copy of the extension form must accompany the journey log book entry as follows: "This aircraft is operating on a MEL item repair interval extension as specified in the attached Schedule."

This documentation must be completed prior to flight and retained in company files for 36 months from the date of the extension.

Provide with evidence of date or part ordered, or date of part delivered, prove of shipment tracking.

APPENDIX 3. SAMPLE OF MEL FORMAT

(see also next table) as another alternative format

AIRCRAFT : Boeing **MODEL : B787-9**	**MINIMUM EQUIPMENT LIST**					***COMPANY NAME or LOGO***
1. SYSTEM & SEQUENCE NUMBER ITEM	**REPAIR INTERVAL**					
		2. NUMBER INSTALLED				
21 AIR CONDITIONING			**3. NUMBER REQUIRED FOR DISPATCH**			
				MAINTENANCE		
					OPERATIONS	
						4. REMARKS / EXCEPTIONS
21.8 Air Conditioning Pressure Regulator Valves	C	2	1	M	O	
PLACARD : As APPROPRIATE **MAINTENANCE (M)** 1. Dispatch with one Air Conditioning Pilot Pressure Regulators Valve inoperative: A. Select affected AIR CONDITIONING SUPPLY switch to OFF. B. Placard switch appropriately so as to prevent its use. **OPERATIONS (O)** 1. Dispatch with one or both Air Conditioning Pilot Pressure Regulator Valves inoperative						
21.9 Air Conditioning Pressure Regulator warning						Not Installed

Sample 2 MEL Format Alternate format

(Company's Name or Logo)		MINIMUM EQUIPMENT LIST			PAGE
Boeing B797 Series :100/300		Amendment: 4 DATE: 01 Apr 95			21-3-1
1.ATA System and Sequence Number		2. NUMBER INSTALLED 3. NUMBER REQUIRED			
21.	Air Conditioning	4. REMARKS OR EXCEPTIONS			
21-3 Equipment Cooling Fan (wardrobe)		D	1	0	(M) May be inoperative provided the equipment cooling fan is deactivated.

Alternate format may be acceptable with **separate Maintenance and operations procedures in a single document.**

Both Format shall include Maintenance and operating procedures or may refer to another operating procedure within the manual, except when the procedures is exceptionally lengthy and time consuming that require maintenance document in separate control.

APPENDIX 4. TYPICAL FORMAT OF MEL PREAMBLE (AIRCRAFT TYPE)

Preamble

All equipment installed on an aircraft in compliance with the Airworthiness Standards and the Operating Rules must be operative. However, the ANTR permits the publication of a Minimum Equipment List (MEL) where compliance with certain equipment requirements is not required by specific operational regulations, is not necessary in the interest of safety under all operating conditions. Experience has shown that with the various levels of redundancy designed into aircraft, operation of every system or installed component may not be necessary when the remaining operative equipment can provide the required level of safety.

A Minimum Equipment List (MEL) is developed by the operator and approved by BCAA to improve aircraft utilization and thereby provide more convenient and economic air transportation for the public. The approved MEL includes those items of equipment related to airworthiness, design and operating Regulations and other items of equipment the BCAA may find inoperative and yet maintain the required level of safety by applying appropriate conditions and limitations; it does not contain obviously required items such as wings, flaps, and rudders. To maintain a required level of safety and reliability, the MMEL establishes limitations on the duration of and conditions for operation with inoperative equipment. The MMEL is the basis for development of individual operator MELs which take into consideration the operator's particular aircraft equipment, configuration and operational conditions and operating regulations. Operator MELs, cannot be less restrictive than the MMEL. The individual operator's MEL, when approved, permits operation of the aircraft with inoperative equipment not required by specific operating regulations.

Equipment not required by specific operating regulations for the operation being conducted and equipment in excess of the TCDS / CS / ANTR requirements are included in the MEL with appropriate conditions and limitations. The MEL must not deviate from the Aircraft Flight Manual Limitations, Emergency Procedures or with Airworthiness Directives. It is important to remember that all equipment related to the airworthiness and the operating Regulations of the operator not listed on the MEL must be operative.

An operator’s MEL, may include certain items under NEF not contained in the MMEL. An operator’s MEL may differ in format from the MMEL, but cannot be less restrictive than the MMEL and the applicable operating regulations.

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 the required level of safety is maintained.

The MEL is intended to permit operation with inoperative items of equipment for a period of time until repairs can be accomplished. It is important that repairs be accomplished at the earliest opportunity to ensure the highest level of safety. In order to maintain the required level of safety and reliability the MEL establishes limitations on the duration of and conditions for operation with inoperative equipment. The MEL provides for the 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/ Journey Logbook/Aircraft Technical Log as prescribed by BCAA. The item is then either repaired or deferred as per the MEL. Alternatively, the aircraft must be in compliance with the ANTRs which specify the requirements for operating an aircraft subject to the conditions of a flight permit and the subordinate position of a MEL with regard to an Airworthiness Directive (AD) for the same Item. MEL conditions and limitations do not relieve the operator from determining that the aircraft is in a safe condition for operation with items of

equipment inoperative.

When these requirements are met, an airworthiness release, aircraft maintenance records / logbook entry, or other approved documentation is issued as prescribed by BCAA. 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 the required level of safety is maintained. When operating with multiple inoperative items, the interrelationships between those items and the effect on aircraft operation and crew workload must be considered.

Operators are to establish a controlled and sound repair program including the parts, personnel, facilities, procedures, and schedules to ensure timely repair.

When using the MEL, compliance with the stated intent of the preamble, definitions, and the conditions and limitations specified in the MEL is required.

APPENDIX 5. DEFERRED DEFECT/ OPERATIONS MANUAL AMENDMENT GUIDE

MEL Defect Deferral Recommended Procedures.

Disclaimer

This sample is provided to operators as a means of defect control.

It is not intended to be used as a guide or checklist for those air operators who have existing procedures that currently meet the intent of regulatory requirements.

The procedures developed below are specifically for a Company Operations Manual. These procedures should be identical to those found in the MME/MOE and may also be copied into the MEL.

MEL DEFECT DEFERRAL PROCEDURES

Note: Use of this MEL may not guarantee compliance with regulations outside of Bahrain nor other procedures such as: Company Operation Specifications, EDTOs, RVSM, CAT II/III, etc.

1.1 Defects and Their Control – General

a) All defects will be entered in the aircraft Journey Logbook/Aircraft Technical Logbook. (If applicable interior cosmetic defects may be entered in a Cabin Defect Logbook).

b) Prior to flight all defects shall be actioned and certified or deferred in accordance with the procedures set forth in the Company Operations Manual (COM), MME/MOE and Minimum Equipment List (MEL).

c) For each aircraft a defect will have a unique number assigned to it for tracking purposes.

1.2 Deferred Defect Restrictions.

a) Any defect may be deferred provided it is included in the approved MEL and the aircraft must be operated in accordance with any conditions or limitations specified therein.

b) Where the conditions or limitations specified in a MEL are in conflict with the requirements of an airworthiness directive, the airworthiness directive prevails.

c) If any doubt exists as to the deferral of an item, consultation between operations and maintenance is required.

d) Once a defect has been established as being deferrable by the restrictions set forth in section 1.2 above, the following procedures will be used.

1.3 Deferring Procedures and Control –Maintenance.

If a defect has been deferred by the flight crew (Section 1.4) re-defer in accordance with the following.

a) The defect will be entered in the Journey Logbook/Aircraft Technical Log as "deferred in accordance with MELATA #..." and signed by a qualified AME.

b) A placard will be placed in the aircraft as described by the MEL.

d) The Journey Log/ Aircraft Technical Log must be checked to ensure that when operating with multiple inoperative items, the interrelationship between those items and the effect on aircraft operation and crew workload will be considered.

e) The deferral will be tracked by Quality Assurance to ensure a timely rectification with regard to the categorization.

f) After defect rectification, remove the placard from the aircraft and

i. Follow the procedures in the MME/MOE for placarding control.

OR

ii. For multiple copy Journey Logbook/Aircraft Technical Log, affix the placard to the maintenance copy of the defect rectification.

OR

iii. For single copy bound type Journey Logbook/Aircraft Technical Log, affix the placard adjacent the maintenance rectification.

g) It is mandatory that all defects not cleared when the Journey Logbook/Aircraft Technical Log expires be transferred to the new Journey Logbook with all details.

1.4 Use of MEL - Flight Crew

Once a defect has been established as being deferrable by the restrictions set forth in Section 1.2, the commander may defer the defect in accordance with the MEL providing the following procedures are adhered to:

a) The commander will enter the defect in the Journey Logbook/Aircraft Technical Log.

b) The commander will advise the maintenance department as soon as practicable.

c) Where required, the flight crew will adhere to all restrictions as indicated under the Remarks / Exception column and perform (O) procedures as applicable.

d) (M) Maintenance Procedures may be actioned and deferred by flight crews who have been trained to do so under the authority of "Elementary Work".

e) Flight Crews may not perform maintenance procedures if the defect involves an item designated in the MEL as (M#) -which denotes MAINTENANCE PERSONNEL REQUIRED. The aircraft may not proceed until maintenance carries out the procedures found in Section 1.3.

f) The Journey Logbook/Aircraft Technical Log must be checked by the commander for multiple inoperative items. The interrelationship between those items and the resultant effect on aircraft operation and crew workload will be considered by the PIC before making a go / no-go decision.

g) Appropriate placard(s) will be installed by the flight crew in accordance with the instructions in the MEL.

h) The commander will enter in the Journey Logbook/Aircraft Technical Log, adjacent to the defect, under what authority the defect has been deferred i.e. "*deferred in accordance with MEL ATA Number...*", the time of day, his/her signature and pilot's license number.

i) If any doubt exists, this does not preclude the pilot from consulting maintenance to confirm that the ATA item and procedure have been deferred correctly prior to subsequent dispatch.

j) The aircraft may proceed on a planned itinerary to a base where maintenance will rectify or re-defer the defect in accordance with the procedures in the MME/MOE.

1.5 Journey Logbook/Aircraft Technical Log Procedures "O" and "M" Procedures

PRIOR TO EACH DEPARTURE:

Where an "O" and/or "M" Procedure is required PRIOR TO EACH DEPARTURE, the commander will ensure all required actions are completed in accordance with the MEL.

PRIOR TO EACH FLIGHT DAY:

Where an "O" and/or "M" Procedure is required PRIOR TO EACH FLIGHT DAY, the commander will ensure all required actions are completed in accordance with the MEL.

APPENDIX 6. SAMPLE OF INITIAL / RECURRENT MEL TRAINING SYLLABUS

Note: If elementary work is to be carried out by crew members, this practice needs to be addressed in the MEL training syllabus in the Operations Manual and the MME/MOE, including the particular items approved.

1.1 MEL Origin and Philosophy

a) MMEL background and development. b) MEL background and development.

1.2 General MEL Content

a) Approval Letter

b) List of effective pages

c) Table of contents

d) Preamble

e) Definitions

f) ATA Chapters, Page format, Page numbering, System and item titles, categorization, columns, remarks and exceptions, placarding, (O) and (M) procedures.

1.3 Specific Use of the MEL

a) A review of items from a variety of systems including those with no procedures, (O), (M), (M#), (O) and (M), as applicable.

b) Practical demonstration of MEL use versus hypothetical situations at and away from a maintenance base.

c) Supervised 'hands on' use of a MEL, until familiar with the location, contents and procedures, including those at or away from a maintenance base.

d) Specific procedures for pilot to dispatch under MEL without engineer release.

e) Repair Interval Extension.

1.4 Examination

a) A written or practical test to ensure that the training has been adequate.

1.5 Company Forms

Adequate company records must be developed to document MEL training (initial and recurrent) to be added to the employee's training records. If the aircrew is to exercise elementary maintenance privileges, training forms must include an area describing what is being certified, and a place for sign off by an AME.

APPENDIX 7. ATA 100 SYSTEM SPECIFICATIONS

Note: This list is not comprehensive and does not include subsystems. It is intended only to give a general overview of the ATA 100 groupings.

Group : Airframe		Group : Power Plant	Group : Structure
1. General	30 Ice & Rain	70 Std Practice Engine	16 Sound
2 Power Off	31 EIS Warning ECAM, EICAS	71 Powerplant	45 Active Schematics
3 Minimum	31A DFDAU ADAS	72T Engine Turbine	51 Structures
4 Flight	31R AIDS	72R Engine Reciprocating	52 Doors
5 Operational Spec.	31W CAWS, MAWEA,WES	73 Engine Fuel & Control	53 Motion Hardware
6 Dimensions	32 Landing Gear & Brakes	74 Engine Ignition	53A Motion Performance
7 Lifting & Shoring	33 Lighting	75 Engine Bleed Air	54 Nacelles/Pylons
8 Levelling & Shoring	34 Navigation	76 Engine Controls	55 Stabilizrs
9 Towing & taxiing	34A Flight Instruments	77 Engine Indicating	56 Windows
10 Parking & Mooring	34C TCAS	78 Engine Exhaust	57 Wings
11 Placards	34D Doppler, TANS	79 Engine Oil	60 Std Practices Propellers
12 Servicing	34E EFIS, EIS Ctrl/Sel	80 Engine Starting	62 Rotors
16 Sound	34F FMC, PMS	81 Turbines	63 Rotor drive
20 Std Practices Airframe	34G GPWS	82 Engine Wate Injection	64 Tail Rotor
21 Air Cond& Pressurization	34H Windshear	83 Accessory Gearboxes	65 Tail Rotor Drive
22 Autoflight	34I IRS, INS, AHRS	85 Visual	66 Floding Blades Pylons
23 Communications	34N GPS, Long Range Nav	91 Charts	67 Rotors, Flight Drive
23A ACARS	34T TMS	97 facilities	85 Visual
23V Digital Voice	34W Weather Radar	99 IOS	97 Hardware
24 Electrics	35 Oxygen		99 Instructor Facilities
25 Equipment & Furnishings	36 Pneumatics		
26 Fire	37 Oxygen		
27 Flight Controls	38 Warter / Waste		
27E EFCS (Fly by Wire)	39 Electrical Panels & Parts		
27F Flaps/Slats	45 BITE, CMC		
28 Fuel	49 APU		
29 Hydraulics			

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