



สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

Guidance Material

Minimum Equipment List (MEL)

Requirment

REF OF THE MANUAL (CAAT-AIR-GM02)

Issue: 00

Revision: 04

Date: 7 MAY 2019



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THE CIVIL AVIATION AUTHORITY OF THAILAND

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2. LIST OF EFFECTIVE PAGES

The effective pages of this manual are listed in the table below.

Each time a manual is revised; the List of Effective Pages is revised and sent with the new revision.

Part 0

Page	Issue	Rev	Date		Page	Issue	Rev	Date
Cover	00	04	7 MAY 2019		0-8	00	04	7 MAY 2019
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0-2	00	04	7 MAY 2019					
0-3	00	04	7 MAY 2019					
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Part 1

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1-11	00	04	7 MAY 2019		1-17	00	04	7 MAY 2019
1-12	00	04	7 MAY 2019		1-18	00	04	7 MAY 2019
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Part 2

Page	Issue	Rev	Date		Page	Issue	Rev	Date
2-21	00	04	7 MAY 2019		2-29	00	04	7 MAY 2019
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Part 3

Page	Issue	Rev	Date		Page	Issue	Rev	Date
3-33	00	04	7 MAY 2019		3-35	00	04	7 MAY 2019
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Part 4

Page	Issue	Rev	Date		Page	Issue	Rev	Date
4-37	00	04	7 MAY 2019					
4-38	00	04	7 MAY 2019					



3. RECORD OF REVISION

The valid pages of this Manual are listed in the List of Effective Pages distributed with every revision.

The table below describes the dates and reason for the different revisions of the current issue of this manual.

Issue	Rev	Date	Rev by	Summarized record of main changes
00	01	1-Sep-2016	Chatchai P.	1. Original revision
00	02	1-Nov-2016	Chatchai P.	1. Superseded AC AW-02-MEL issue 0 revision 1 date 1 Sep 2016
00	03	15-Sep-2017	Chatchai P.	1. Superseded AC AW-02-MEL issue 0 revision 2 date 1 Nov 2016
00	04	7-May-2019	Chatchai P.	1. Rename from Advisory Circular for MEL to Guidance Material for Minimum Equipment List (MEL) Requirement 2. Amended the list of effective pages 3. Add "EASA CS-MMEL Book 2 Initial Issue 31 Jan 2014" in section no. 6 Reference 4. Add the decision to dispatch with Multiple Unserviceabilities in section no.12 Multiple Unserviceabilities 5. Add section no.18 Centralised Message System (If appropriate) 6. Add section no.19 Aircraft Configuration 7. Add section no. 20 Non- Essential Equipment and Furnishing (NEF) 8. Change Appendix 2 from using CS-MMEL as reference and the respective OEM MEL (The more restrictive condition shall be used) 9. Change Appendix 3 RIE Authorization and reporting form

4. AMENDMENT TRANSMITTAL PAGE

To: All holders of Name of the Manual

Subject: Manual Transmission

The table below lists pages to insert and remove from the previous version of the manual.

When doing so, users should ensure not to throw away pages that have not been replaced.

Using the List of Effective Pages can help determine the correct content of the manual.

Pages to be inserted	Pages to be removed
-	-
-	-
-	-

Pages to be inserted	Pages to be removed
-	-
-	-
-	-

I attest that the Hard copy in my possession has been updated according to the instructions above

Name:	Hard Copy N°:	Signature:

This page shall be returned signed to Airworthiness and Aircraft Engineering Department.



Manager of AIR

5. DISTRIBUTION LIST

N°	Holder	Type
Original	AIR Department	Electronic Copy
01	Manager of QAD	Electronic Copy

Table 1 Distribution List

6. DEFINITIONS & ACRONYMS

6.1. Definitions

The following terminology is specific to this manual and to those portions of air safety, procedure control manuals that pertain to audits and inspections:

TERM	DEFINITION
As requirement by Operating requirement	Means that the listed item of equipment is subject to certain provisions (restrictive or permissive) expressed in the applicable operational requirements
Approved by the Authority	Means documented by the Civil Aviation Authority as suitable for the purpose intended.
Calendar Day	Means a 24-hour period from midnight to midnight based on either UTC or local time, as selected by the operator.
Commencement of flight	Means the point when an aircraft begins to move under its own power for the purpose of preparing for take-off.
Day of discovery	Means the calendar day that a malfunction was recorded in the aircraft maintenance record/log book.
Equipment	Means item, function, component or system.
Flight Day	Means a 24-hour period (from midnight to midnight) either UTC or local time, as established by the operator, during which at least one flight is initiated for the affected aircraft.

TERM	DEFINITION
If installed	Means that the equipment is either optional or is not required to be installed on all aircraft covered by the MMEL
Inoperative	Means that the equipment does not accomplish its intended purpose or is not consistently functioning within its design operating limits or tolerances. Some equipment has been designed to be fault tolerant and are monitored by computers which transmit fault messages to a centralized computer for the purpose of maintenance. The presence of this category of message does not necessarily mean that the equipment is inoperative.
Master minimum equipment list (MMEL)	Means a list established for a particular aircraft type by the organization responsible for the type design with the approval of the State of Design containing items, one or more of which is permitted to be unserviceable at the commencement of a flight. The MMEL may be associated with special operating conditions, limitations or procedure.
Minimum equipment list (MEL)	Means a list which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, prepared by an operator in conformity with, or more restrictive than, the MMEL established for the aircraft type.
(O) & (M) procedures	Means the applicable operational and maintenance procedures obtained from the aircraft manufacturer which may be included in the MMEL document or in a separate document produced by the manufacturer.
Rectification Interval	Means a limitation on the duration of operations with inoperative equipment.
RIE	Means an abbreviation for Rectification Interval Extension

PART 1. MINIMUM EQUIPMENT LIST (MEL) REQUIREMENT

1. GENERAL

Guidance Materials (GM) are issued by the Civil Aviation Authority of Thailand and contain information about standards, practices and procedures acceptable to the Authority. The revision number of the GM is indicated in parenthesis in the suffix of the GM number

2. PURPOSE

This Guidance Material (GM) provides guidance for the MEL approval process.

3. APPLICABILITY

This GM applies to all Thailand AOC holders.

4. CANCELLATION

This document replaces GM AW- 02- MEL previously issued by CAAT on 1 November 2016.

5. EFFECTIVE DATE

This GM is effective from 7 May 2019

6. REFERENCES

- 6.1. CAAT AOOCR Chapter 2, Section 39;
- 6.2. ICAO Annex 6 Part I – Attachment E;
- 6.3. FAA MMEL and Policy letters;
- 6.4. EASA CS-MMEL Book 2 Initial Issue 31 Jan 2014

7. INTRODUCTIONS

- 7.1. AOOCR Chapter 2, (39) Operators shall not operate aircraft with unserviceable equipment, except under the approval. Such approval will be granted only after the content of the proposed Minimum Equipment List (MEL) has been vetted and found acceptable by the Airworthiness Office and Flight Operations Office

- 7.2. Requirement of an MEL are set out in AOCR. The current GM is established to delineate the specification of an MEL in detail and provide guidance on the preparation of an MEL to comply with the required approval process.

8. APPLICABILITY

This GM is applicable to all operators and/or GA (If required) of Thai registered aircraft of which the operations manuals include Minimum Equipment List approved, or to be approved by the Civil Aviation Authority of Thailand.

9. APPLICABILITY OF MEL

- 9.1. The MEL is applicable up to the commencement of flight.
- 9.2. Where there is a conflict between the MEL and an Airworthiness Directive or any other Mandatory Requirement, it is the data or information contained in the Airworthiness Directive or the Mandatory Requirement (e. g. Continued Airworthiness requirement) which shall override.
- 9.3. The MEL may contain additional advisory material or modified operational and maintenance procedures.

10. PREPARATION OF THE MEL

- 10.1. The MEL are including the Preamble and Definitions, shall be based upon, but not less restrictive than, the relevant MMEL established for that aircraft type approved by the Authority of its State of design.
- 10.2. When an MMEL revision is issued, an operator shall have 90 days from the date of revision to submit the revised MEL to the Civil Aviation Authority.
- 10.3. Reduce time scales for implementation of safety related revisions may be required.
- 10.4. Entries of the MEL shall be applicable to a particular aircraft fleet with the same equipment configuration . Optional equipment listed in the MMEL but not applicable to the operator's aircraft shall be excluded from the operator's MEL.

- 10.5. For those items of which the number installed is a variable and not specified in the MMEL, the actual number installed in the aircraft must be specified in the operator's MEL.
- 10.6. Non- safety related equipment, such as galley equipment and passenger convenience items, need not be listed in the MEL .However, 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.
- 10.7. The operator shall ensure that the conditions to dispatch the aircraft for specific operations (if applicable) such as Reduced Vertical Separation Minimum (RVSM), Performance-based Navigation (PBN), All Weather Operations (AWO), Extended Range Operations (ETOPS), etc. are taken into account for the relevant MEL items and are clearly specified in their MEL entries.
- 10.8. The MEL shall be proofread to eliminate typographical errors and be assured for compliance with the regulations before submitting to the Civil Aviation Authority for approval. The MMEL revision which the operator's MEL is based upon shall be referred in the cover letter of MEL submission.
- 10.9. Appendix 2 to this GM contains some MMEL alleviation items frequently marked "As required by Regulations" or "As required by the Authority", which can be referenced as baseline for such items in the MEL

11. FORMAT OF THE MEL

- 11.1. The MEL shall contain a relevant Preamble, Definitions and, if appropriate, clarifying Notes which shall adequately reflect the scope, extent and purpose of the List.
- 11.2. The MEL shall indicate the revision status of the MMEL upon which it is based.
- 11.3. The Preamble shall contain guidance for flight crews and maintenance personnel who will use the MEL
- 11.4. When an MEL is revised, a brief description of the changes to the paragraphs and items revised shall be listed and included as part of the amendment to the MEL

12. MULTIPLE UNSERVICEABILITIES

The operator shall ensure that the MEL, including the Preamble, reflects the guidance given in the MMEL on the effects of multiple unserviceability.

In most cases, multiple unserviceabilities of unrelated aircraft systems cannot be addressed by the MMEL nor consequently by the MEL. The decisions to whether or not to dispatch with multiple unserviceabilities, which individually would be allowed by the MEL, will ultimately rest with the aircraft commander, taking into consideration advice from the operator's specialists where available.

13. OPERATIONAL AND MAINTENANCE PROCEDURES

- 13.1. Operators shall take Operational and Maintenance procedures referenced in the MMEL into account when preparing an MEL .An operator shall be prepared to present these procedures to the Civil Aviation Authority of Thailand during the MEL approval process and notify the Civil Aviation Authority of Thailand the source of such procedures.
- 13.2. Operational Procedures shall be accomplished in planning for and/or operating with the listed item inoperative .Normally these procedures are accomplished by the flight crew .The satisfactory accomplishment of all procedures is the responsibility of the operator .Appropriate procedures are required to be published as a part of the operator's manual or MEL.
- 13.3. Maintenance Procedures shall be accomplished prior to operating with the listed item inoperative . These procedures are accomplished by maintenance personnel .The satisfactory accomplishment of all maintenance procedures is the responsibility of the operator .Appropriate procedures are required to be published as a part of the operator's manual or MEL.
- 13.4. The procedures themselves, or symbols indicating their need and reference to their location, are required in the operator's MEL.
- 13.5. The MEL shall be appropriately amended, as and when applicable operations or maintenance procedures as referenced in the MMEL are revised.

- 13.6. Unless specifically permitted, an inoperative item may not be removed from the aircraft.

14. RECTIFICATION INTERVALS

- 14.1. The operator shall take account of the Rectification Interval given in the MMEL when preparing an MEL . The Rectification Interval in the MEL shall not be less restrictive than the corresponding Rectification Interval in the MMEL.
- 14.2. The operator is responsible for the Scope of the MEL establishing an effective rectification programme that includes trackings of the inoperative items and coordinating parts, personnel, facilities, and procedures necessary to ensure timely rectification.
- 14.3. Operation of the aircraft is not allowed after expiry of the Rectification Interval specified in the MEL, unless the defect has been rectified or The Rectification Interval is extended in accordance with paragraph 16.

15. RECTIFICATION INTERVAL EXTENSION (RIE)

15.1. PRINCIPLES OF RIES

Subject to the approval of the Civil Aviation Authority, the operator may use a procedure for the extension of certain applicable rectification intervals B, C, and D for the same duration as specified in the MEL, provided:

15.1.1 A description of specific duties and responsibilities for controlling extensions is established by the operator and accepted by the Civil Aviation Authority of Thailand

15.1.2 The operator only grants a one- time extension of the applicable rectification interval, and

15.1.3 The Civil Aviation Authority of Thailand is notified of any extension granted within a timescale account to the Civil Aviation Authority, not to exceed ten days, and

15.1.4 Rectification is accomplished at the earliest opportunity within the period of the extension

15.2. APPLICATION FOR THE USE OF RIES

The operator shall incorporate a procedure for the use of RIEs in their General Maintenance Manual (GMM). The procedure should detail the name and position of the nominated person responsible for the control of the company RIE procedure and details of the specific duties and responsibilities established by the operator to control the use of RIEs.

15.3. RIE Procedures

15.3.1 Consultation - between the operational and technical staff of the operator as to the requirement for the RIE and the recommendation of the proposal

15.3.2 Decision - made by the Authorizing Manager to accept or reject the proposal based on consultation.

15.3.3 Authorization formal authorization to inform the aircraft commander of the use of the RIE.

15.3.4 RIE Report - made to the CAAT within 10 days of the extension being authorized according to Appendix 3.

- I. A chain or system of consultation must be listed. Authorizing Managers who must be senior with experience in technical and operations management are to be listed by appointment and name.
- II. Operators are reminded that they must ensure that rectification is accomplished at the earliest opportunity. This is applicable for both the standard rectification interval and for the RIE
- III. The RIE permit an operator to continue to dispatch an aircraft with particular equipment unserviceable after the standard rectification interval has expired if, in the opinion of the Authorizing Manager, it is not reasonably practicable for the repair to be made within that rectification interval. It is not intended that RIEs should be used purely to double the standard rectification interval

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

16. BRIDGING ASSESSMENT FOR OPERATOR WITH APPROVED MEL

Operators whose operations manuals include MELs approved prior to the effective date of this GM shall review their MELs for compliance with the aforementioned requirements. Otherwise the MELs shall be revised in accordance with the specifications stated in this GM and the MEL amendments shall be submitted to Civil Aviation Authority for approval no later than six months from the effective date of this Guidance Material.

17. CENTRALISED MESSAGE SYSTEM (IF APPROPRIATE)

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

18. AIRCRAFT CONFIGURATION

The MEL must reflect the actual configuration, SB and AD status of the aircraft. Items listed on the MMEL but not installed on the operator's aircraft must either:

- 18.1. Be omitted from the MEL altogether, renumbering individual items within an ATA category as necessary to provide proper continuity; or
- 18.2. Included but with the word 'reserved' added so as to adhere to the numbering as employed in the MMEL.

Conversely, items not mentioned in the MMEL but installed, may, but not must, be included in the MEL. All items that are installed in the aircraft but not listed in the MEL, other than passenger convenience items, must be operative for each flight. Passenger convenience items relate to the convenience, comfort and entertainment of passengers and do not affect the airworthiness or safe operation of the aircraft. These items need not carry a specific repair category. However, the operator must make repairs to convenience items within a reasonable time frame. Normally, the operator lists these items individually in ATA Chapter 25. Passenger convenience items may be included elsewhere in the MEL if clearly identified as passenger convenience items.

19. NON-ESSENTIAL EQUIPMENT AND FURNISHING (NEF)

FAA MMELs prescribe the Non-essential Equipment and Furnishing (NEF) concept. This concept need not be adopted by CAAT. However, when adopted, the operator must ensure that the NEF procedures are described in the appropriate manuals and included in training.

20. MAINTENANCE ACTION

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

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

- 20.1. The technical log book aboard the aircraft must contain a detailed description of the inoperative item(s), special advice to the flight crew, if necessary, and information about corrective action taken.
- 20.2. The When they are accessible to the crew in flight, the control(s), and/or indicator(s) related to inoperative unit(s) or component(s) must be clearly placarded.

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

- 20.3. If inadvertent operation could produce a hazard such equipment must be rendered inoperative (physically) as given in the appropriate maintenance procedure.
- 20.4. If relevant operational and maintenance procedures are contained in) identify the particular Manual, Section, Chapter or Part etc .authorized by the appropriate Authority

PART 2. APPENDIX 1

GUIDANCE ON THE PREPARATION OF MINIMUM EQUIPMENT (MEL)

1. INTRODUCTION

1.1. DISPATCH WITH INOPERATIVE EQUIPMENT

- I. The Master Minimum Equipment List (MMEL) and associated MEL are alleviating documents. Their purpose is not, however, to encourage the operation of aircraft with inoperative equipment. It is undesirable for aircraft to be dispatched with inoperative equipment and such operations are permitted only as a result of careful analysis of each item to ensure that the acceptable level of safety is maintained. A fundamental consideration is that the continued operation of an aircraft in this condition should be minimized. The limitations governing rectification intervals are discussed in this document (paragraph 15 of this GM).
- II. An operator or pilot retains the option to refuse any alleviation, and may choose not to dispatch with any particular MEL item inoperative.

1.2. EQUIPMENT INCLUDED IN THE MEL

Most aircraft are designed and certified with a significant amount of equipment redundancy, such that the airworthiness requirements are satisfied by a substantial margin. In addition, aircraft are generally fitted with equipment that is 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. If this non-safety related equipment does not affect the airworthiness or operation of the aircraft when inoperative, it need not be listed in the MEL or be given a rectification interval. However, if the non-safety related equipment has another function

related to safety (such as use of the entertainment system for passenger briefings) then this item must be included in the MEL with an appropriate rectification interval

2. MEL POLICY AND PROCEDURES

2.1. MEL PURPOSE

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

- I. 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;
- II. Define operational procedures necessary to maintain an acceptable level of safety and to deal with inoperative equipment; and
- III. Define maintenance procedures necessary to maintain an acceptable level of safety and procedures necessary to secure any inoperative equipment

2.2. MEL INTENT

- I. 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 Operational Requirements*". It is for this reason that an MMEL is not normally accepted by the Civil Aviation Authority as a substitute for the MEL. It falls on the operator to develop operational "(O)" and maintenance "(M)" procedures, or to use documents such as Dispatch Deviations Guides, where these documents are available

- II. Except as authorized by the Civil Aviation Authority, operation of an aircraft with aircraft equipment inoperative or removed is prohibited, unless an operator does so in compliance with an approved MEL.

2.3. APPLICABILITY

Chapter 2, section 39 of the AOCR stipulates that the operator shall establish an MEL for each aircraft, approved by the Civil Aviation Authority. This MEL shall be in conformity with, or more restrictive than, the relevant MMEL established for the aircraft type.

2.4. ADMINISTRATIVE PROCEDURES

MMEL acquisition

The operator must ensure that they use the latest version of the appropriate MMEL to develop their MEL (refer to paragraph 11 of this GM).

2.5. CONFORMANCE WITH THE MMEL

2.5.1 MEL Content

- I. 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;
- II. Except as noted above, the operator's MEL shall be revised to reflect the most recent approved version of the MMEL within 90 days from the revision date, as per the requirements in paragraph 11 of this GM.

2.5.2 Non-Safety Related Equipment

Non-safety related equipment includes those items related to the convenience, comfort, or entertainment of the passengers. They may include items such as galley equipment, movie equipment, ash trays, stereo equipment, and overhead reading lamps. Non-safety related equipment must not have an effect on the airworthiness or operation of the aircraft (see paragraph 11(f) of this GM). This equipment does not require a rectification interval, and need not be listed in an operator's MEL, if it is not addressed in the MMEL. If an operator chooses

to list this equipment in the MEL, it may be given a D category rectification interval. The exceptions to this rule are:

- I. Where non-safety related equipment serves a second function, such as movie equipment being used for cabin safety briefings, operators must develop and include operational contingency procedures in the MEL in case of an equipment malfunction.
- II. Where non-safety related equipment is part of another aircraft system, for example the electrical system, procedures must be developed and included in the MEL for deactivating and securing in case of malfunction. In these cases, the item must be listed in the MEL, with compensating provisions and deactivation instructions if applicable. The rectification interval will be dependent on the secondary function of the item and the extent of its effect on other systems

2.6. MEL AMENDMENT

The operator shall revise or amend the MEL when

- I. Applicable MMEL is issued with changes applied to items that are more restrictive than in the MEL (as referred in paragraph 2(e) of this appendix); or
- II. Operational and Maintenance procedures as referred in 2(g)(vii) of this appendix are amended; or
- III. Modifications are embodied, or Airworthiness Directives or other mandatory requirements related to the continued airworthiness are issued that may affect the items in the MEL; or
- IV. New standards for airworthiness or operational equipment items are introduced; or
- V. Required by the operator or Civil Aviation Authority as a result of in-service experience.

Note: Operator may apply Temporary Revisions (TR) to amend MEL for impending changes. However, method to control and incorporate TRs into

normal revision of MEL is subject to Civil Aviation Authority acceptance and the procedures shall be specified in the preamble section.

2.7. MEL DEVELOPMENT PROCEDURES

2.7.1 MEL Basic Format

The MEL should include the following: a List of Effective Pages, a Table of Contents, the Preamble, Notes and Definitions, a section for each aircraft system, and amendment record page. The Preamble and Definitions shall be based upon, but no less restrictive than, the relevant MMEL as per paragraph 11(a) of this GM. Operators must specify the revision status of the MMEL, and any other documents as specified in 2(g)(vii) of this appendix such as a Dispatch Deviations Guide or the manufacturer's O & M Procedures, used in the development of their MEL

2.7.2 MEL Page Format

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 five columns (see CS-MMEL BOOK 2 Appendix 1 to GM1 MMEL.145: MMEL ITEMS GUIDANCE BOOK for sample). The page numbering, and individual MEL items, however, should be in Accordance with the ATA 2200 code systems

2.7.3 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 date and revision status of each page of the MEL must correspond to that shown on the List of Effective Pages

2.7.4 Table of Contents

The Table of Contents page should list the section for each aircraft system using the ATA 2200 listing as found in the MMEL. Pages should be numbered with the ATA system number followed by the item number for that system (e.g., the page following 27-2-1 would be 27-2-2).

2.7.5 MEL Preamble

The purpose of the MEL Preamble is to provide direction to company personnel on the philosophy and use of the MEL. An operator may choose to develop their own preamble but it should contain at least the information contained in the MMEL preamble in accordance with the specification required by this GM.

2.7.6 Note and Definitions

Notes and Definitions are required to allow the user to interpret the MEL properly. Additions and deletions to the Notes and Definitions may be applied to the operator's MEL as required.

2.7.7 Operational and Maintenance Procedures

- I. Dispatch with inoperative items is often acceptable only with the creation of special operational or maintenance procedures.
- II. Where the MMEL indicates that this is the case, the operator must establish appropriate procedures. Procedures recommended by the manufacturer in most cases can be adopted for this purpose, but the ultimate responsibility for providing acceptable procedures with the MEL rests with the operator. These procedures will ensure that an acceptable level of safety will be maintained. The manufacturer is required to produce operational and maintenance procedures such as Dispatch Deviation 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 Guides, and other similar documents are not Authority, nor can they replace the MEL. If the manufacturer has not published operational or maintenance procedures, the operator should develop appropriate procedures and, if requested, submit them to their Authority
- III. The operator, when comparing the MEL against the MMEL, should ensure that where the (O) or (M) symbols appear, an operational 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 should be included in the MEL or associated Operator's Manual

- IV. The only exception is when the procedure is contained in another document that is available, e.g. other part of the Operations Manual (for "(O)" procedures) or the Maintenance Manual (for "(M)" procedures). In the latter cases, the MEL may refer to a section of the appropriate document; (e.g. to the cabin crew members, such as a operations manual or cabin crew manual; to the maintenance crew, such as an aircraft maintenance manual, General Maintenance Manual etc
- V. It is not acceptable to only reference the announcement or relevant GMs or similar documents, as these documents may not be carried on board the aircraft and could be subject to misinterpretation. The objective is to provide personnel with clear, concise direction on how they are to proceed. Where the MMEL column states "As required by Operating Requirements", this wording shall not appear in the MEL; rather, a synopsis of the regulation shall appear. (CS-MMEL BOOK 2 Appendix 1 to GM1 MMEL.145: MMEL ITEMS GUIDANCE BOOK contains some of these MMEL items for reference.)
- VI. Operations Manual Procedures

The operator must establish procedures in the operations manual for the use and guidance of crew members when using the MEL. The procedures must align with those in the General Maintenance Manual.

2.7.8 Rectification Interval Categories

- I. The maximum time an aircraft may be operated between the deferral of an inoperative item and its rectification will be specified in the MEL. Non-safety related equipment such as reading lights and entertainment units need not be listed. However, if they are listed, they must include

a rectification interval category. These items may be given a “D” category rectification interval provided any applicable (M) procedure (in the case of electrically supplied items) is applied – refer to paragraph 2(e)(ii) of this appendix.

II. The Rectification Interval Categories are defined in the MMEL as follows:

Category A

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

Category B

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

Category C

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

Category D

Items in this category shall be rectified within 120 consecutive calendar days, excluding the day of discovery

2.7.9 Deferral of Items

- I. Procedures for the deferral of MEL items should be included as part of the operator's General Maintenance Manual (GMM). The operator should ensure that the aforementioned procedures in the GMM are referenced or copied in the MEL and/or the Operations Manual.

II. Requirments

These procedures comprise a method for:

1. deferral and/or rectification of inoperative equipment;
2. placarding requirements as per the MEL;

3. dispatching of aircraft with deferred MEL item(s);
4. using a remote deferral system;
5. controlling categorized times; and
6. Training of company personnel who are responsible for MEL compliance procedures

III. Review of Deferred Items

The operator should 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 rectification intervals, it should be the aim of each MEL document holder to ensure that inoperative items are repaired as quickly as possible

2.7.10 Placarding

Inoperative items should be placarded to inform crew members of equipment condition as appropriate. When they are accessible to the crew in flight, the control(s), and/or indicator(s) related to inoperative unit(s) or component(s) should be clearly placarded. 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: Most MMELs indicate the need for a placard through the use of an asterisk. However, the exclusion of an asterisk in an MMEL does not preclude the requirement for placarding.

I. Requirements to Placard/Placard Control

Placarding should be carried out in accordance with the placarding procedures established and set out in the operator's approved maintenance documents. The method of placarding control should ensure that all inoperative items are placarded and placards are removed and Accounted

for when the defect is cleared. 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.

II. 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 log book for crew reference. Part Two should list the system affected and the defect control number and be fixed in the appropriate location. An MEL control sheet attached to the log book could serve the same purpose as Part One above.

III. Multiple Placards

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

IV. 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.

2.7.11 Dispatch

"Dispatch" for the purpose of this GM 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 flight unless the appropriate MEL procedures have been carried out. The operator's MEL should include procedures to deal with any failures which occur between the start of taxi or push back and take-off brake release. Any failure which occurs after take-off commences should be dealt with as an in-flight failure, by reference to the appropriate section of the Aircraft Flight Manual, if necessary

I. Operational and Maintenance Items

1. Any item of equipment in the MEL which, when inoperative would require an operational or maintenance procedure to ensure an acceptable level of safety, should be so identified in the "remarks" or "exceptions" column of the MEL. This will normally be "(O)" for an operational procedure, or "(M)" for a maintenance procedure. (O)(M) means both operational and maintenance procedures are required (see paragraph 14(d) of this GM).

2. (O) Items

- a. Aircraft with inoperative equipment requiring an operational procedure may be returned to service following completion of the required MEL procedure for deferral.
- b. Operational procedures are carried out by qualified crew members (see paragraph 14(b) of this GM).

3. (M) Items

- c. Aircraft with inoperative equipment requiring a maintenance procedure may be returned to service following completion of the required MEL procedure for deferral.
- d. Maintenance procedures are accomplished by maintenance personnel (see paragraph 14(c) of this GM).

2.7.11 Training

I. Training Programme – Ground Personnel

Operators should develop an MEL training programme for ground personnel, to be included in the General Maintenance Manual (GMM) and Operations Manual, as appropriate, which must be approved prior to an operator receiving approval to operate with an MEL. The training should include those sections of the MME/Operations Manual procedures dealing with the use of the MEL, placarding of inoperative equipment, deferral procedures, dispatching, and any other MEL related procedures. Ground personnel include dispatchers and maintenance engineers.

II. Training Programme – Crew Members

Operators should provide crew members with MEL training and should detail such training in their Operations Manual. The training should include the purpose and use of an MEL, instruction on company MEL procedures, elementary maintenance procedures, and Pilot-In-Command (PIC) responsibility. Crew members include pilots, flight engineers, and cabin.

PART 3. APPENDIX 2

MINIMUM EQUIPMENT LIST (MEL) ALLEVIATION ITEMS

1. INTRODUCTION

- 1.1. AOCR Chapter 2 Section 39 prescribes that an aircraft registered in Thailand shall not commence a flight if any of the equipment required by or under the said Order to be carried in the circumstances of the intended flight is not carried or is not in a fit condition for use unless the aircraft does so under and in accordance with the terms of a permission granted under this Article.
- 1.2. The permission granted by the Director-General to operator states that the only items of required equipment which are not carried or are not in a fit condition for use shall be listed in the respective aircraft type Minimum Equipment List (MEL) duly approved by the Director-General and it is provided in the said MEL that such items need not be carried or be in a fit condition for use in the circumstances of the intended flight.
- 1.3. The purpose of this GM is to give operators the guidance necessary to develop the MEL provisions for instrument and equipment and conditions for their unserviceability, in order that MMEL/MEL and other relevant operational requirements are properly complied with. Application of this Policy Document should ensure a harmonization of MEL among all local operators and assist the Director-General in the MEL evaluation and approval.

2. MMEL ITEMS AS REQUIRED BY REGULATION/THE AUTHORITY

- 2.1. Certain items at the MMEL, especially for those navigation systems, the Remarks or Exceptions column may show "As required by (Regulations/Operating Requirements/Air Navigation Legislation/FARs/etc)". Operators when compiling their MEL should specify clearly any limitations as required by the relevant Thailand Aviation Requirements on those items such that dispatch of the aircraft could be allowed.
- 2.2. EASA has published the Certification Specifications and Guidance Material for Master Minimum Equipment List, CS-MMEL. The Director-General has reviewed the document and adopts the guidance materials provided at CS-MMEL BOOK 2 Appendix 1 to GM1 MMEL. 145: MMEL ITEMS GUIDANCE BOOK.

Operators when compiling their MEL should consider and use rectification interval together with any applicable limitation/conditions specified at the Remark of Exception areas for those items listed in the said Appendix 1 to GM MMEL.145.

- 2.3. If there are differences in rectification intervals and/ or applicable limitations/conditions for dispatch between those as listed in the Appendix 1 to GM1 MMEL.145 and those specified in the respective OEM MMEL or STC MMEL Supplements, the more restrictive conditions shall be used.

I. ELT;

II. FDR;

III. CVR;

IV. Door/Slide relief.

For these items, the relief guidance in the EASA MMEL or in CS-MMEL book 2 may be followed.

- 2.4. The listed rectification intervals should be used when compiling the MEL. Rectification intervals as stipulated by the relevant Thai Aviation Requirements, including Thailand Airworthiness Notices (AN), the Order and etc., shall be classified as Category A with applicable time limitations specified at the Remarks or Exceptions areas. No deviation from those intervals is allowed without prior approval from the Director-General.
- 2.5. Limitations/specified conditions for dispatch as required by the relevant Thai Aviation Requirements are listed at Remarks or Exceptions areas together with their sources properly cross-referred.

PART 4. APPENDIX 3

RIE AUTHORIZATION AND REPORTING FORM

Rectification Interval Extension (RIE) Authorization and Reporting Form			
Name of Operator:		Aircraft Registration:	RIE No:
Aircraft Type:		Engine Type:	MEL Ref:
Defect No:	Date of Defect:	RI Category:	RI Expiry Date:
Details of Defect/MEL Item:			
Reason for not Rectifying:			
Justification for Extension: (To include history of previous RIE use for this item where appropriate)			
Extension Expiry Date:		Name & Title of RIE Applicant:	Date:
Approved by Authorized Person: (Name & Title)		Signature:	Date:
<u>Note:</u> Notify CAAT within 10 days the extension is granted			
Terminating Action (Details):			
Defect Cleared Date:		Tech. Log Reference:	
Confirmed By: (Name & Title)		Signature:	Date:
Distribution: CAAT etc.			