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Master Minimum Equipment List/
Minimum Equipment List
Policy and Procedures Manual
TP 9155E

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Civil Aviation Regulations Directorate

Foreword

Canada

This Manual has been prepared in accordance with *the Canadian Aviation Regulations* for the use and guidance of Headquarters, Regional and Industry personnel and contains all the relevant information with respect to the philosophy, development and approval of the Master Minimum Equipment List (MMEL) and Minimum Equipment List (MEL).

Transport Canada Inspectors/Engineers are expected to use good judgment in matters where specific guidance has not been given and be aware of the need for revision to the present information as new requirements evolve.

This Manual has been integrated into the Transport Canada website (TC website). The Internet address for the MMEL/MEL web page is http://www.tc.gc.ca/aviation/mmel/intro_e.html. Questions concerning the MMEL web page may be referred to the MMEL coordinator at (613) 952-4416. The MMEL web page provides electronic access to the MMEL/MEL Manual (TP 9155), the MMEL Guidance Book, the list of MMELs and the MMELs that are available in electronic format, the TC Supplements and other related information. Unless otherwise stated, any references in this manual to a MMEL web page are intended to mean the Transport Canada MMEL web page.

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Original signed by

M. R. Preuss
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Record of Amendments

Amendment No.	Date	Pages Affected	Date Entered	Initials
#1	February 1992			
#2	October 1995	all		
#3	October 1997	all		
#4	July 2000	3.12 to 3.13		
#5	February 2002	All		

Acronyms

AARX	Director, Commercial and Business Aviation (CBA)
AARXB	Chief, Operational Standards, CBA
AARXD	Chief, Airline Inspection
AARDC	Chief, Aircraft Certification - Flight Test
AARP	Director of Aircraft Maintenance and Manufacturing
AFM	Aircraft Flight Manual
AMO	Approved Maintenance Organization
AWM	Airworthiness Manual
CARs	Canadian Aviation Regulations
CDL	Configuration Deviation List
DDG	Dispatch Deviation Guide
DDPG	Dispatch Deviation Procedures Guide
ETOPS	Extended Range Twin Operations
FARs	Federal Aviation Regulations
GC	Global Change
GMEL	(TCCA) Generated Minimum Equipment List
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
MCM	Maintenance Control Manual
MEL	Minimum Equipment List
MMEL	Master Minimum Equipment List
OMEL	Operator's Minimum Equipment List
OPI	Office of Principal Interest
PMI	Principal Maintenance Inspector
POI	Principal Operations Inspector
RC	Regional Coordinator
RMCBA	Regional Manager, Commercial & Business Aviation
STC	Supplemental Type Certificate
TCCA	Transport Canada Civil Aviation
TCS	Transport Canada MMEL Supplement (or TC Supplement)
TCGB	Transport Canada (MMEL) Guidance Book
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions

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Chapter 1Chapter 1

Introduction

1.1 Definitions.1 Definitions

The definitions of specific words and phrases used in this manual are found at Appendix A.

1.2 The Master Minimum Equipment List.2 The Master Minimum Equipment List

A Master Minimum Equipment List (MMEL) is an approved document created 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 forms the basis for a Minimum Equipment List (MEL).

For a Canadian manufactured aircraft, it will consist of a single document. For a foreign manufactured aircraft, it will normally consist of the original MMEL, issued by the competent authority of a foreign state, with the addition of a TC Supplement. The TC Supplement is an overriding document which modifies items in the foreign MMEL to conform with Canadian requirements, interpretations and policies.

1.3 Dispatch with Inoperative Equipment.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.4 Legal Basis

CARs 605.07, 704.07, and 705.07 provide that the operation of an aircraft with equipment and/or instruments inoperative may be approved through the use of a Minimum Equipment List.

CAR 605.07 stipulates that the Minister may establish a MMEL for each type of aircraft, in accordance with the MMEL/MEL Policy and Procedures Manual. The Minister may

supplement a MMEL that has been issued by a foreign state where necessary to ensure compliance with the MMEL/MEL Policy and Procedures Manual. Where a MMEL or a supplement have been approved, the Minister shall approve a minimum equipment list in respect of each operator of that type of aircraft, provided that the requirements set out in the MMEL/MEL Policy and Procedures Manual are met.

Where a Master Minimum Equipment List has been established for a particular type of 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 dispatch. This list may include additional equipment, such as flight entertainment equipment, that 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 Canadian Aviation Regulations (and which are not listed in the MMEL,) are also required to be operative for dispatch.

Chapter 2

Master Minimum Equipment List

2.1 Applicability

For Canadian manufactured aircraft, or aircraft for which Canada holds the State of Design responsibilities, Transport Canada will approve a Master Minimum Equipment List. For foreign manufactured aircraft, Transport Canada will normally adopt the MMEL of the foreign certification authority and issue a Transport Canada MMEL Supplement (TC Supplement) to the foreign MMEL. The TC Supplement is an overriding document which modifies items in the foreign MMEL to conform with Canadian requirements, interpretations and policies. The contents of this chapter (Approval Authority, MMEL Guidance Book, MMEL Philosophy and MMEL Policy) generally apply to Canadian MMELs and TC Supplements since Transport Canada has no direct control over the content of foreign MMELs. All generic references in this chapter to the MMEL thus apply equally to the TC Supplement, where one exists.

2.2 Approval Authority.1 Approval Authority

The Chief, Aircraft Certification Flight Test has the responsibility for the overall approval of MMELs. A MMEL Review Group will be established with the responsibility for the processing of specific aircraft MMELs. Details of the MMEL Review Group, its organization and procedures are addressed in Appendix C.

2.3 MMEL Guidance Book2.4.2 MMEL Guidance Book

- a) To assist in the assessment process, Transport Canada, Aircraft Certification Flight Test has developed a MMEL Guidance Book. This book has been compiled to provide a centralized source of guidance information to facilitate the review and standardization of MMELs and TC Supplements for which Aircraft Certification Flight Test is responsible. This guidance material is made available through the TC website to encourage feedback and to provide guidance to manufacturers when seeking relief for their MMEL.
- b) While some MMEL items are generic in nature and identical wording can be used for all aircraft types, other items will differ from aircraft to aircraft. The material provided by the MMEL Guidance Book is to be used for guidance only. Users are encouraged to provide feedback for the correction and amplification of the guidance material and to propose additional items which may be included.
- c) An example of a Guidance Book item is included at Appendix D.

2.4 MMEL Philosophy

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

2.4.1 Level of Safety

It should be noted that although the airworthiness standards, e.g., AWM 525, require that aircraft be designed with certain systems and components, the MMEL will permit the operation, for short periods, of that aircraft with such items of equipment inoperative if the required level of safety can be maintained. The MMEL identifies the equipment which may be inoperative while maintaining the level of safety of the aircraft type dictated by the type of operation for which the aircraft was certified and the minimum standards specified in the type certification basis.

To establish the equipment for any given operating condition, the MMEL Review Group must consider various factors relating to safe operation when such equipment is inoperative. These include the consequence to the aircraft and its occupants of further failures, change in crew workload and/or degradation in crew efficiency and degradation in crew capability to cope with adverse environmental conditions.

2.4.2 Maintaining the Level of Safety

2.4.3 Maintaining the Level of Safety

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

2.4.3 Example of Justification of a MMEL Item

- a) To illustrate this, consider a MMEL proposal requesting that an aircraft be permitted to dispatch with the differential pressure indicator on the cockpit pressurization control panel inoperative.

- b) *AWM 525.841(b)(5)* requires that pressurized cabins must have instruments at the pilot or flight engineer station to show the pressure differential between the cabin air pressure and atmospheric pressure.
- c) In order to meet the criteria, the MMEL proposal would have to stipulate that the following conditions be met:
 - 1. the cabin altimeter must be operative; and
 - 2. a chart showing the relationship between the aircraft and cabin altitude for the normal operating pressure differential (e.g. 8 PSI) must be available to the crew in flight.
- d) Consequently, the flight crew, with reference to the aircraft's altimeter, the cabin altimeter and the specified chart, would be able to determine that the appropriate cabin pressure differential was being maintained during flight.
- e) Providing that dispatching with the cabin pressure differential indicator inoperative did not seriously impact crew workload and/or efficiency and was acceptable in terms of further failures, this MMEL item would be acceptable.
- f) This acceptability is based on the evaluation of the foregoing factors showing that the level of safety dictated by the minimum standards specified for the design and operation of the aircraft type, would be maintained.
- g) The continued reliability of an aircraft system and the probability of total system failure, following the dispatch of an aircraft with inoperative equipment, must be considered for some MMEL items.

2.4.4 Methods of Justification of MMEL Items.4.6 Methods of Justification of MMEL Items

The assessment of an acceptable level of safety for a MMEL item often involves more than one of the following methods of justification:

- a) the equipment may be considered optional;
- b) the equipment may be considered redundant;
- c) a quantitative safety analysis; and/or
- d) a qualitative analysis.

2.4.5 Optional Equipment

When aircraft are approved with optional equipment on board which is over and above the required equipment, there is no necessity for such equipment to be operative if it is in excess

of that required for safe operations for a particular flight condition or route of flight. Inclusion in the MMEL can be accepted on this basis.

2.4.6 Redundant Items

If the purpose or function of the considered component/system can be carried out by some other items of equipment, then it may be accepted on a redundancy basis with the provision that the alternative equipment can be confirmed to be operative. Redundancy cannot be claimed as justification for inclusion of an item if the two (or more) sources of the function or information are required by the aircraft type certification basis. In this case, another means of justification such as the safety analysis method must be used.

2.4.7 Quantitative Safety Analysis .4.5 Systems Safety Assessment

- a) The increasing dependency of modern aircraft on the safe operation of their complex systems has resulted in the development of structured techniques to achieve the necessary level of safety. This level of safety is based upon the principle that the hazard resulting from an event should be inversely proportional to the probability of its occurrence. Compliance is usually demonstrated by conducting a system safety assessment.
- b) The safety assessment establishes the major, hazardous or catastrophic situations or failure conditions which the system is capable of producing and the allowable probability of occurrence. For those systems whose failure is critical, i.e., results in hazardous or catastrophic situations, a numerical probability analysis is usually required to demonstrate compliance with the allowable probability of occurrence. For non-critical components/systems, the safety assessment may be greatly simplified. The risk of any specific failure condition is a function of failure rate, the number of such systems and the time of exposure to risk.
- c) When items of equipment from systems performing critical functions, are included in the MMEL, account shall be taken of their inoperability in the safety assessment. The additional risk resulting from occasional flights with such equipment inoperative should be established and should be compatible with the allowable probability of occurrence established during the certification process.
- d) If the item cannot be justified by the previous means or criteria, then a safety analysis must be carried out involving a quantitative analysis of the likely risk of the worst effects that can result from additional failures, events and/or environmental conditions occurring during a flight with the particular inoperative item in question. It must be shown that, bearing in mind the reduced exposure time when operating under a MMEL, the probability of a particular hazard has not been increased beyond the levels dictated by the minimum standards specified for the design and operation of the aircraft type.

2.4.8 Qualitative Safety Analysis

If an item is to be acceptable for inclusion in a MMEL, a qualitative analysis must be used to consider the impact that the proposed inoperative item has on all other aspects of the aircraft's operation. The qualitative analysis must consider the impact on crew workload, the impact of

multiple MMEL items, and the complexity of maintenance and/or operational procedures. It may reflect experience with previous MMEL approvals.

Note: A previous MMEL approval of the same item on another aircraft type does not in itself imply that the required level of safety has been met. Factors which must be considered are similarity of system operation and similarity of the aircraft operational role.

2.5 MMEL Policy

This section gives details of Transport Canada policy governing the development of a MMEL. The policy material provided is applicable to both domestic and foreign manufactured aircraft unless otherwise stated.

2.5.1 Development of a MMEL

Canadian aircraft manufacturers must produce a MMEL if they wish their aircraft to be operated with specified equipment inoperative. Where possible, the approval process for such a MMEL will take place concurrently with the type certification process, but the development of an approved MMEL is not a condition of aircraft type certification.

2.5.2 MMEL Source

a) Domestic Aircraft

The development and approval of a MMEL is heavily dependent on the aircraft manufacturer as the primary source of information on any new aircraft and its systems. Transport Canada will not normally undertake either the origination or production of MMELs. The drafting of a MMEL is the manufacturer's responsibility.

b) Foreign Aircraft

The usual source will be the MMEL approved by the country of manufacture as modified by a TC Supplement, produced and approved by Transport Canada. Transport Canada may elect to use a FAA or JAA MMEL, even if they are not the country of manufacture, if it is deemed to be more appropriate.

c) Supplemental Type Certificate (STC)

MMEL relief for new or modified equipment must be considered during the approval process for the STC.

2.5.3 MMEL Justification

The MMEL must be supported by appropriate engineering justification and special procedures where applicable. The engineering justification may include a quantitative and/or qualitative safety analysis, a rationale showing system redundancy, AFM limitations or any other technical justification supporting the prescribed level of safety.

2.5.4 MMEL Review Group

a) Domestic Aircraft

The Transport Canada approval process for a specific aircraft type will be coordinated by the MMEL Review Group Chairperson. The constitution of the MMEL Review Group and the functions and duties of the chairperson are described in Appendix C.

b) Foreign Aircraft

The MMEL Review Group will also include the specialists involved in the Transport Canada validation/familiarization of the type design.

2.5.5 Participation of Operators

a) Domestically Manufactured Aircraft

Operators of an aircraft type are encouraged to participate in the MMEL development and approval process. This will be accomplished through meetings convened by the MMEL Review Group Chairperson. Requests for changes to an existing MMEL will be considered through application to the MMEL Review Group. All requests must be accompanied by adequate technical justification and should include the manufacturer's support and documentation.

b) Foreign Manufactured Aircraft

To enable the publication of the TC Supplement within the time constraints imposed by the validation/familiarization process, operator input will be sought only after initial publication of the TC Supplement.

c) After initial publication of the TC Supplement, aircraft operator submissions may be made directly to the MMEL Review Group using the procedures noted in paragraph 2.6.4.a.

2.5.6 Foreign MMELs

a) Transport Canada may accept foreign MMELs approved by the regulatory authority of the country of manufacture, as published. Transport Canada will evaluate the foreign MMEL to determine the basis and justification for each MMEL item.

b) When required, Canadian interpretations, additional airworthiness requirements and operating rules will be addressed by a TC Supplement, which will be developed by the MMEL Review Group and produced by Transport Canada. The TC Supplement will

constitute a mandatory change to the foreign MMEL and will be used in conjunction with it. Where the two documents differ, the TC Supplement will supersede the accepted MMEL.

2.5.7 Notification of Approval

All MMELs and TC Supplements approved for Canadian operators are listed on the MMEL web page and in the Status of Current MMEL List. Most are available in electronic format and therefore can be viewed or downloaded from the MMEL web page (See Section 3.8.7).

2.5.8 Third Country MMELs

Transport Canada will not normally accept a MMEL produced by a third party (an example would be a U.S. MMEL for a European aircraft). However, exceptions may be made, particularly for older aircraft, if no other source is available or if the use of a third party's MMEL is more appropriate. Such MMELs should be submitted for acceptance and be supported by the aircraft manufacturer with appropriate engineering justification. Only those items which can be adequately substantiated against the levels of safety discussed in the MMEL Philosophy section of this document will be approved for Canadian use. Other items will be deleted using the TC Supplement.

Temporary or Interim MMEL Revisions

Manufacturers may issue temporary or interim revisions to their MMELs which may not be incorporated into the permanent revision for some time. Temporary or interim MMEL revisions may be incorporated into an operator's MEL, upon receipt, provided that they are not less restrictive than any existing MMEL items or TC Supplement.

2.5.9 MMEL Page Format

- a) MMELs for domestic aircraft and TC Supplements for MMELs to foreign aircraft will be published in the "four column format" where columns 1 to 4 will contain respectively the name of the item and category, number installed, number required for dispatch and remarks or exceptions.
- b) A sample page is provided in Appendix E. Other formats may be accepted for foreign MMELs provided they are clear and unambiguous. Each MMEL will be preceded by an acceptable preamble. An example is given in Appendix F.

2.5.10 MMEL Format

- a) Each MMEL should contain a cover/approval page, a Log of Revisions, a Reason for Changes page, a List of Effective Pages, a Table of Contents, an explanation of the symbols used in the MMEL and a definition of any terms having special meaning in the context of the MMEL. Each item of equipment listed in the MMEL shall be described and identified in accordance with the Air Transport Association (ATA) specification 100 code system. (See Appendix T.) The number of each item of equipment installed and the number required to be operative for dispatch shall be stated in the appropriate columns.

- b) Any conditions associated with inoperative equipment, required to maintain a level of safety, shall be included in the “Remarks or Exceptions” column.
- c) When practicable, the switch, lever, gauge or indicator of a particular item of equipment, should be identified. Foreign MMELs may indicate a requirement to placard inoperative equipment by use of an asterisk (*) in column 4 to inform crew members of its condition. For domestic MMELs, a definition has been added which states that each inoperative item must be placarded to inform and remind the crew members and maintenance personnel of the equipment condition.

2.5.11 Operating and Maintenance Procedures

Any inoperative item of equipment in the MMEL which would require an operational or maintenance procedure to ensure the required level of safety, shall be so identified by an appropriate symbol in the "Remarks or Exceptions" column of the MMEL. This will normally be "(O)" for an operational procedure and "(M)" or "(M#)" for a maintenance procedure. (O)(M) or (O)(M#) means both operational and maintenance procedures are required. Details of such procedures must be made available for review during the MMEL approval process as they form part of the justification supporting inclusion of an item in the MMEL. However, the approval of the procedures themselves will not be a part of the MMEL approval process. Where applicable, the limitations, procedures and remarks for individual MMEL items should cover at least day, night, VMC, IMC, ETOPS, icing, rain, and Category II/III.

(M) or (M#) procedures are to be accomplished once prior to the first flight with MMEL relief. If there is a requirement to perform the task on an alternate frequency, this will be clearly stated in the remarks column of the MMEL.

2.5.12 Prohibited Items

- a) The MMEL shall not include any item of equipment which, if inoperative, is likely to significantly affect the take-off, landing or climb performance of the aircraft or associated landing speeds presented in the approved Aircraft Flight Manual (AFM) unless the AFM specifies the effect and the MMEL draws attention to this fact.
- b) No item shall be included in the MMEL which conflicts with the limitations, or invalidates or reduce the ability to perform an emergency procedure in the AFM or in an airworthiness directive unless the AFM or directive provide otherwise.
- c) The MMEL shall not include any part or structural component of the aircraft which is the subject of the Configuration Deviation List (CDL).

2.5.13 Equipment Required by Operating Regulation

When an item of equipment is required to be installed and operative under particular circumstances by the Canadian Aviation Regulations such equipment may be defined in the remarks column of the MMEL by the words "As required by Regulation".

Note: Other MMELs such as those for U.S. manufactured aircraft may contain phrases such as "As required by FARs". Such phrases should be interpreted to mean "As required by Regulation".

2.5.14 Repair Interval Categories

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

Category A

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

Time Limited Dispatch - Some MMEL's for aircraft that are equipped with FADEC engines have relief that is subject to time limited dispatch expressed as a specific number of engine hours, and will start in accordance with the times established by the engine manufacturer or as indicated in the remarks column of the MMEL. Time limited relief cannot be extended.

Category B

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

Category C

Category D

Items in this category shall be repaired within 120 consecutive calendar days, excluding the day of discovery. To be considered for placement in Category D, the item must be of an optional nature, or excess equipment which an operator may, at his/her discretion, deactivate, remove from or install on an aircraft.

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

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

Category D relief will generally not be approved for equipment which is considered to increase the level of safety, even if that equipment is of an optional nature.

Category Format

The category of each item in the MMEL is to be inserted in column 1 adjacent to column 2.

2.6 MMEL Procedures

2.6.1 General

This section details the procedures to be followed in the organization, approval and publication of the MMEL. The procedures are divided into the following categories; domestically manufactured aircraft, foreign manufactured aircraft, MMEL revisions and MMEL Global Changes.

2.6.2 Domestically Manufactured Aircraft

a) Draft MMEL

1. The draft MMEL is to be originated by the manufacturer and should be submitted to Transport Canada as early as possible in the type certification process. Inputs from the aircraft operator should be made to the originator and, if supported by the manufacturer, should be included in the submission to Transport Canada.
2. The draft MMEL must be accompanied by appropriate engineering justification.
3. Applicable operating and maintenance procedures must be supplied in sufficient detail to permit an understanding of each associated MMEL item. Approval of the procedures themselves will not be a part of the MMEL approval process, but rather, the MEL approval process.
4. For large aircraft, these procedures are normally contained in a manufacturer's document such as a Dispatch Deviation Procedure Guide (DDPG), or a Dispatch Deviation Guide (DDG). For smaller aircraft, where these documents are not available from the manufacturer, the operator is responsible for developing their own procedures, or using the TC generated MELs, which contain pre-approved maintenance and operations procedures.

b) Transport Canada Review

A Transport Canada review of the draft MMEL will be coordinated by the MMEL Review Chairperson. Following review by the appropriate Transport Canada specialists and decisions on individual MMEL items rendered by the MMEL Review Group, the changes required to the draft MMEL will be passed back to the originator.

c) Approval and Publication

The originator will incorporate the required changes for approval by the Chief, Aircraft Certification Flight Test. The originator will then publish the final version of the revision or temporary revision and return a sufficient number of hard copies or an acceptable electronic copy to Transport Canada, who will ensure that copies of the approved MMEL are made available to the appropriate Transport Canada personnel as well as industry and operator personnel via the MMEL/MEL web page . The originator may only distribute copies of the approved MMEL.

2.6.3 Foreign Manufactured Aircraft

a) Source MMEL

The MMEL should be either originated by or supported by the manufacturer and approved by the appropriate foreign authority.

Where the foreign authority has not approved the MMEL, the Transport Canada approval process may be expanded accordingly.

b) Transport Canada Review

The MMEL, together with engineering justification and sufficient details of applicable operating and maintenance procedures to permit a full engineering assessment of each MMEL item, must be submitted to Transport Canada as early as possible in the type certification process, and preferably prior to the evaluation visit. A Transport Canada review of the MMEL will be carried out before, during and following the evaluation visit.

The review will be coordinated by the chairperson of the MMEL Review Group. The required changes will be incorporated in a TC Supplement to the MMEL.

c) Approval and Publication of the TC Supplement

The TC Supplement will be submitted to the Chief, Aircraft Certification Flight Test, for approval and subsequently will be published on the MMEL/MEL web page . A copy will also be sent to the appropriate foreign authority and the aircraft manufacturer.

2.6.4 Revisions to MMELs and TC Supplements

Once a MMEL approval is issued, requests for revisions may be initiated by the operator or aircraft manufacturer. In any event, the manufacturer's participation is usually required in support of this revision activity.

a) Approval of Revisions

All proposed revisions, together with engineering justification and sufficient details of applicable operating and maintenance procedures to permit understanding of each item shall be submitted to the Flight Test Division of the Aircraft Certification Branch of Transport Canada.

b) Approval Process — Domestically Manufactured Aircraft

Requests for revisions to a MMEL will be reviewed by the MMEL Review Group. Once the required changes have been approved, they will be passed back to the originator for inclusion in the MMEL and updated on the MMEL/MEL web page.

c) Approval Process — Foreign Manufactured Aircraft

Revisions to a foreign MMEL, when issued by the responsible foreign authority, may be used by an operator upon receipt to amend their MEL, provided that the revisions are not less restrictive than an existing TC Supplement. Foreign MMEL Revisions will be reviewed by Transport Canada and any changes addressed in a revision to the TC Supplement.

d) MMEL Revision Status

Regional Offices may determine the current approved revision status of any MMEL and TC Supplements by visiting the MMEL/MEL web page or by contacting the MMEL/MEL coordinator (AARDE) at (613) 952-4416.

2.6.5 MMEL Global Changes

a) General

In order to implement revisions to MELs in a timely fashion, changes resulting from major policy decisions and new regulatory requirements which are applicable to all MMELs or MELs may be disseminated as Global Changes (GCs).

The issuance of a GC grants the operator the option to revise a MEL immediately for that specific item in lieu of waiting for a MMEL amendment. It is not anticipated that Global Changes will occur in any great number.

b) Definitions

Items that qualify as a GC are generally those items that are required to be installed by a new regulatory requirement, or are MMEL items that are affected by TC policy decisions. Examples are GPWS and CVR which result from regulatory requirements; and Transport Canada MMEL Guidance Book (TCGB) items such as Flap Position Indicator, which reflects a policy decision.

c) Purpose

The purpose of GCs is to permit operators to obtain immediate MEL relief for installed items prior to release of the revised MMEL. The GC system is not intended to replace the normal MMEL revision process and affected MMELs will incorporate all GCs issued up to the date of each revision.

d) Procedure

1. The allowable relief stated in the associated TCGB item will be in the form of a proviso (Column 4 of the MMEL format), and where applicable, should be copied verbatim into the MEL.
2. Some wording changes may be required to cater to a particular aircraft configuration. The operator's MEL revision can be approved in the normal manner on the basis that the GC is an approved addendum to the existing MMEL.
3. GCs will be released with consecutively assigned control numbers (TCGC-1, TCGC-2, etc.) and will reference the appropriate item in the Guidance Book. Both the GCs and the TCGB are available on the MMEL/MEL web page. When a MMEL is revised, the Reasons for Changes List will state which numbered GCs have been incorporated in that revision.

Chapter 3

MEL Policy and Procedures

3.1 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 conformity with the standards of airworthiness 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.

3.2 .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, the 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 is the operator's responsibility to develop Operations "O" and Maintenance "M" procedures, or to use a manufacturer developed Operation and Maintenance procedure manual, a Dispatch Deviation Procedure Manual, (DDPG), Dispatch Deviation Guide (DDG), or other equivalent document where these procedures are available. Another option which may be available is the TCCA Generated MELs which include these procedures. (See Section 3.7.6).

3.3 MEL Intent

Except as authorized by the Minister in accordance with CAR Sections 605.07 through 605.10, operation of an aircraft with aircraft equipment inoperative or removed is prohibited unless an operator does so in compliance with an approved MEL.

3.4 MEL Limitation

With the exception of Global Changes, the content of an operator's approved MEL cannot be less restrictive than the content of the approved MMEL and/or the approved TC Supplement for that aircraft type.

3.5 Audit of Operator MELs

Transport Canada 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. (See Section 3.9.5 - MEL Audits)

3.6 Applicability

Where a MMEL has been approved, the Minister shall approve a minimum equipment list in respect of each operator of that type of aircraft, provided that the requirements set out in the MMEL/MEL Policy and Procedures Manual are met.

Canadian Aviation Regulations 704.07 and 705.07 stipulates that a MEL is mandatory for aircraft registered and used in Canada for commercial purposes in commuter and airline operations, where a MMEL has been established for those aircraft types.

3.7 Administrative Procedures

3.7.1 Approval Authority

In accordance with the current Ministerial Delegation of Authority Document, the authority and responsibility for MEL approval rests with the Regional Manager, Commercial and Business Aviation, the Director, Commercial and Business Aviation (AARX) or the Chief, Airline Inspection (AARXD).

3.7.2 Initial Application Information

When an operator expresses the intent to operate an aircraft eligible to use an MEL, the nearest Regional Office or Transport Canada Centre will provide them with the following information:

- a) the current requirements of the CARs;
- b) a copy of the MMEL/MEL Policy and Procedures Manual (TP 9155);
- c) the revision status of the MMEL and TC Supplement - where applicable;

- d) the information necessary, where applicable, to choose between developing their own MEL, or obtaining a copy of a TC Generated MEL. (See Section 3.7.6) - GMELs)

3.7.3 MMEL Approval Status

- a) Domestic MMELs

The operator must ensure that they use the latest version of the domestic MMEL to develop their MEL. The latest TC-approved versions of MMELs and TC Supplements for foreign MMELs are available for viewing or downloading from the MMEL/MEL web page.

- b) Foreign MMELs

The most recent version of foreign MMELs may be used to produce a MEL, prior to the review by the Aircraft Certification Flight Test Division, provided that they are not less restrictive than an existing TC Supplement for the type. As part of the review process, Transport Canada reserves the right to add an overriding TC Supplement at a later date. In any case, the TC Supplement shall always take precedence over any foreign MMEL, revision, or temporary revision.

3.7.4 MMEL Acquisition

Approved MMELs and TC Supplements may be downloaded at any time from the MMEL/MEL web page, when available in electronic format. Alternatively, operators may obtain MMELs directly from the manufacturer, or the foreign MMEL Authority who normally provide MMELs along with a revision service.

3.7.5 Operator MEL Development (Non-GMEL)

- 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, TC Supplements – where applicable, O&M Procedure Manuals (DDPG, DPG, etc). The operator's MEL shall be reviewed and approved by at least one senior company official from each respective department (Operations and Maintenance) prior to the MEL being submitted to Transport Canada.

- b) Supporting Data

- c) Additional MEL items

Any additional MEL items which do not appear in the MMEL will require justification, for consideration –reference Chapter 2, section 2.4. The Regional POI/PMI will review

the request, and if valid, will forward the submission to Aircraft Certification Flight Test, (AARDC), Ottawa, for review and approval in the MMEL or TC Supplement.

d) Copies

The operator shall submit a copy (more where requested) of the MEL document (c.w. O&M procedures) to the MEL Coordinator and/or POI/PMI.

3.7.6 TC Generated MELs (GMELs)

- a) A GMEL is a minimum equipment list developed by Transport Canada in conjunction with selected lead operators and the manufacturer (where available), for a specific aircraft type and is consistent with the current MMEL and TCS, as applicable. GMELs include completely developed "O" and "M" procedures and are custom produced for an Operator based on the options, mod status and configuration of their aircraft. Such MELs produced by the GMEL program are called Operator's MELs (OMELs).

GMELs provide an option to the individual development of a MEL by an operator and come pre-approved thus providing cost and time savings to both the operator and Transport Canada. A cost recovery fee may be applied to GMELs.

- b) A large number of aircraft types in common usage in the commuter and airline operations have been targeted. GMELs have been developed for those aircraft types listed on the MMEL/MEL web page, in Schedule 1 of Appendix G.
- c) Operators wishing to initiate operations with GMELs must forward a completed GMEL Information Form to their Regional Coordinator (RC). (See Appendix G, Schedule 2). The RC will forward a copy of the Information Form as soon as possible to the GMEL Program Managers (PM) to register in the program. When a GMEL for that aircraft type is completed, a GMEL Request Form will be sent to the Operator. (See Appendix G, Schedule 3). The Request Form will include an options list available for the type and model. Upon receipt of the completed Request Form, the GMEL Program Manager will produce the OMEL and forward it to the Operator's RC who will confirm that the Operator's manuals are amended for use of a MEL prior to forwarding the document to them. The Regional office will approve the Operator to use the OMEL once required training has been completed and the Operator has signed the acceptance letter.

The RC at the Regional Office or Transport Canada Centre should be the point of contact for operators for all GMEL issues.

- d) Amendments to the OMEL will be sent, pre-approved, from the Program Manager to the Regional Coordinator, and to the Operator. Upon receipt, the Operator will have 30 days to incorporate the amendment into their MELs for that type and to send the MEL acceptance covering letter to their RC.

3.7.7 GMEL Availability

GMELs are now available for several aircraft types. The status list of GMELs that have been produced, and that are scheduled for production is found on the MMEL/MEL web page.

Those operators who are affected by the current MEL/GMEL exemption will have 60 days from the date of issue of their GMEL type to implement a GMEL or to submit their own MEL for approval. (Reference Air Carrier Advisory Circular (ACAC) 0111 issued 20 January 1997).

3.8 Transport Canada Inspector Responsibility

3.8.1 Operations

Transport Canada (Regional), Commercial and Business Aviation is responsible for vetting the Regional operator's MEL with respect to the operations functions and procedures. Transport Canada, Airline Inspection Division is responsible for vetting the National Operators MEL with respect to the operations functions and procedures. These positions ensure that all of the operational procedures produced and published by the air operator are relevant to the required task. The POI or MEL Coordinator is normally tasked as a contact for the operator, and is responsible for the administration of all MEL operations issues for that operator.

3.8.2 Maintenance and Manufacturing (M&M)

- a) Transport Canada (Regional)M&M is responsible for vetting the operator's MEL with respect to the maintenance functions and procedures, and ensuring that all of the maintenance procedures produced and published by the air operator are relevant to the required task. A Regional PMI or MEL Co-ordinator is normally tasked as a contact for the operator, and is responsible for the administration of all MEL maintenance issues for that operator.
- b) Both TCCA Operations and M&M personnel must concur prior to an approval being granted for an operator's MEL application.

3.8.3 Transport Canada MEL Approval Time

Provided that the operator submits a MEL or MEL amendment that complies with the MMEL/MEL Policy and Procedures Manual (TP 9155), Transport Canada will endeavor to approve regulatory related submissions of the document within 60 days. The 60 day time limit does not apply to discretionary changes. A sample format for the letter of approval is found in Appendix K.

3.8.4 Interim Approvals

Transport Canada will not grant an operator interim approval while the MEL is undergoing the review process, nor will approval be given to use a MMEL as a MEL.

3.8.5 MEL Distribution and Effectivity

An approved or revised MEL is deemed to be in force upon receipt from Transport Canada. 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) Senior Company Official - Maintenance;
- c) Senior Company Official -Operations;
- d) Dispatch (if applicable);
- e) Maintenance Coordinator (or equivalent);
- f) any other personnel as required;
- g) the Transport Canada Centre Library or Regional Office Library.

3.8.6 MEL Updates

It is the operator's responsibility to ensure that their MEL is reviewed and updated as required. The MEL shall be reviewed by the operator at least annually to ensure that it incorporates any changes to the operation, aircraft or to the Canadian Aviation Regulations. A revision to the MMEL, or TC Supplement 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.

3.8.7 GMEL/MEL Amendments/TC Notifications

- a. Amendments to MELs and GMELs will be handled according to the process outlined in this document for initial approval. To ensure that they are updated as required, MMEL/TC Supplement revisions and the "Status of Current MMEL" list will be posted on the on the MMEL/MEL web page. (See Appendix T)
- b. Where a MMEL revision or TC Supplement is more restrictive, the operator must submit an appropriate amendment to the MEL for approval within 60 days following the posting date of the MMEL revision or TC Supplement on the MMEL/MEL web page.
- c. Where an O&M Procedures Manual, DDPG, DPG or equivalent document is available; or where a MMEL revision does not affect a procedure, the time for MEL amendment remains at 60 days, following the MMEL/MEL web page posting of the MMEL revision or TC Supplement. Where a O&M Procedures Manual, DDPG, DPG or equivalent document is not available; or where the MMEL revision affects a procedure, the MEL amendment time is 120 days following the posting on the MMEL/MEL web page of the MMEL revision or TC Supplement.

3.9 Conformity to the MMEL

3.9.1 Modification of MMELs and TC Supplements

Operators may disagree with the content of the MMEL or TC Supplement and request changes to their MEL. These suggestions for changes, accompanied by appropriate substantiation, should be forwarded through their MEL Coordinators and/or POI/PMI for

assessment. The Aircraft Certification Flight Test Division will review submissions and may modify the MMEL or TC Supplement where appropriate. Alternatively, an operator may contact the manufacturer directly with a request to review the MMEL. If the MMEL originates in the U.S., an operator may submit requested changes to a Flight Operations Evaluation Board (FOEB). These FOEBs, comprised of representatives from industry, government and the manufacturer, meet periodically to update MMELs. The schedule is available from the Air Transport Association of America (ATA) telephone (202) 626-4000, or on the <http://www.opspecs.com> website.

3.9.2 MEL Content

- a) The operator's MEL must reflect the current MMEL limitations unless otherwise authorized by a change in the MMEL, or the TC Supplement. When a revision is issued to a MMEL or TC Supplement, the operator's MEL need not be revised if the change is less restrictive than the existing MEL. Where a conflict exists between Transport Canada and the operator concerning MMEL relief for a certain item, the operator's MEL may be approved without relief for the contentious item, until the dispute can be resolved. In this case, Aircraft Certification Flight Test shall be notified and a request for revision initiated in accordance with Section 2.5.4.
- b) Except as noted above, all items installed in an operator's aircraft which are addressed in the most recent approved version of the MMEL or TC Supplement, 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.

3.9.3 Administrative Control Items

Some operators use their MEL as a comprehensive document to control items for tracking and informational purposes. In such cases, operators' MELs may include items not contained in the MMEL; however, no relief may be granted for these administrative control items unless conditions and limitations are contained in an approved document other than the MMEL (e.g., aircraft flight manual). Administrative control items and passenger convenience items may not include items or subsystems of items which are addressed in the MMEL. Operators seeking to add administrative control items to their MEL must submit their request to their PMI or POI with appropriate substantiation.

3.9.4 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, (except exterior lavatory door ashtrays), 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 used for 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.

3.9.5 MEL Audits

- a) Whenever an audit is conducted, the operator's MEL shall be reviewed. The review shall ensure that the MEL conforms to Transport Canada 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, the TC Supplement and any TC Global Changes - if more restrictive, have been incorporated into the MEL.

3.10 MEL Development Procedures

3.10.1 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 and TC Supplement revisions and any other documents such as an O&M Procedure Manuals (DDPG, DPG, etc), used in the development of their MEL.

3.10.2 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 MEL page format of four columns (See Appendix M) The page numbering, and individual MEL items, however, must be in accordance with the ATA 100 code system. (See Appendix T.)
- b) The MEL should incorporate only one item per page, when operations and/or maintenance procedures are required. However, if no procedures are required, or the required action is simple, multiple items may appear on a single page. (See Appendix M)

3.10.3 List of Effective Pages

- a) 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. Transport Canada 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.

1. Only those pages of the LEP that list the date and revision status of each MEL page need to be stamped and initialled.
2. The Transport Canada stamped and initialled LEP must be retained on file. Copies of the company MELs may be issued with unstamped LEPs, but the copies must detail the location within the company where the approved LEP is retained.

3.10.4 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).

3.10.5 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. Transport Canada publishes a MMEL preamble which is acceptable for use by an operator (See Appendix F.). An operator may choose to develop their own preamble but it must contain at least the information contained in the Transport Canada version.

3.10.6 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 A will be used in the MEL. Additions and deletions to the notes and definitions may be applied to the operator's MEL as required.

3.10.7 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 and publish appropriate procedures for inclusion in the MEL. 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. (See Section 3.15.1)
- c) 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.
- d) The only exception 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.
- e) In these cases, the MEL may refer to a section of the appropriate document.
- f) It is not acceptable to reference the *Canadian Aviation Regulations* 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 column 4 states "as required by Regulation", this wording shall not appear in the MEL; rather, a synopsis of the Regulation shall appear.

3.10.8 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 Transport Canada, 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 Transport Canada for approval.

3.10.9 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 may choose to include all procedures/instructions in the MEL itself; in which case the Operations Manual will only be required to reference this document.

3.11 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 or GMEL. Passenger convenience items referred to in paragraphs 3.9.4 a) and 3.9.4 b) 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.

Since the MEL is a dispatch document, the repair interval may expire in flight without penalty.

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.

Time Limited Dispatch - Some MEL's have relief that is subject to time limited dispatch expressed as a specific number of engine hours or cycles, and will start in accordance with the times established by the engine manufacturer or as indicated in the remarks column of the MEL. Time limited relief cannot be extended.

Category B

Items in this category shall be repaired within three 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.

3.12 MEL Item Repair Interval Self Extension Program

3.12.1 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 grant extensions to MEL repair interval categories. The following paragraphs give instructions to Principal Maintenance Inspectors (PMIs) and to Principal Operations Inspectors (POIs) to administer an operator's MEL Item Repair Interval Extension programs.

3.12.2 Approval

- a) Each air operator seeking this alleviation shall revise their MEL to include the following statements: " (Air Operator) _____ may self-extend the repair interval for Category A, B, C, and D items contained within the MEL, but shall notify the Transport Canada Principal Maintenance Inspector (PMI) or Principal Operations Inspector (POI) responsible for the operator within one working day when this action is taken and the reason it was required.
- b) Furthermore, the Transport Canada Principal Maintenance Inspector (PMI) or Principal Operations Inspector (POI) responsible for the operator shall be notified within one working day, any time it becomes necessary to continue or extend the item repair interval period beyond the expiry date of the original extension. When advised of any extension, the TC Inspector receiving such notification shall ensure that his/her counterpart is fully informed as soon as possible. (See Section 3.12.4)"
- c) For all extensions, the operator shall complete Schedule 1 (See Appendix B), or provide the information to Transport Canada in an equivalent and acceptable format. A copy of the completed schedule must accompany the journey log entry as follows:
 1. "This aircraft is operating on a MEL item repair interval extension as specified in the attached Schedule";
 2. A copy of the completed Schedule 1 (or the equivalent document) shall be retained on file by the operator for a period of thirty-six months, for auditing purposes. The period of the self-extension shall be subject to Transport Canada review upon notification by the operator. This review may result in changes to the period of the extension, or may be used to determine abuse of the process;
 3. Prior to the approval or amendment of the operator's MEL to include this policy, TC personnel must ensure that the provisions of this section have been fully addressed.

Note: Certain items qualify for time-limited dispatch as specified in the Type Certificate Data Sheets. The notation "And no extensions are authorized" will appear in the MMEL or TC Supplement for such items.

3.12.3 Program Procedures

Maintenance Control Manual

To ensure that operators extend MEL repair intervals only when necessary, the following elements must be adequately addressed in the MCM. 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 the approval of interval extensions. Procedures must be established and implemented to ensure that extensions are not granted without approval from the assigned maintenance management level. The authorized maintenance manager will indicate his/her approval of 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 granted 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 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.

3.12.4 POI/PMI Communications

Transport Canada Regional M&M and Operations Inspectors responsible for each operator requesting this authority must establish clear lines of communication throughout the approval and ongoing surveillance of this program. Communication should ensure that where an operator reports the use of an internal extension, both the PMI and the POI are made aware of this report on an urgent basis. The operator has a requirement to report the use of a MEL item repair interval extension to the PMI or POI within one working day. It is the responsibility of the TC Inspector who receives notification from an operator to ensure that her/his counterpart is made aware of the extension as soon as possible.

3.12.5 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 this authority. A recommendation to remove this authority will be forwarded to the Regional Director Airworthiness for transmission to the Regional Manager Commercial and Business Aviation, or Chief, Airline Inspection, where justified.

Abuse, as determined by the operator's PMI and POI will result in withdrawal of self-extension privileges. To ensure compliance with the spirit and intent of this authorization, operators not previously exercising this authority may be subject to an evaluation period up to 12 months, as determined by TC. During the period of evaluation, Transport Canada concurrence and pre-approval will be required for extensions to all repair item categories.

3.12.6 Program Compliance

Attempts have been made to define abuse of this program in quantitative terms. As with other delegated authorities, 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 to address this authority and that ongoing surveillance ensures compliance with approved procedures. The number of times this privilege is used 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 used, but rather on the correct application of approved procedures for the issue of the extension.

3.13 Deferral of Items

Procedures for the deferral of MEL items will be included as part of the operator's Maintenance Control Manual (MCM) (See CAR 706.08). The operator must ensure that the Operations Manual and the MEL reference the aforementioned procedures in the MCM, or duplicates the same. (See Appendix R for sample procedures.)

3.13.1 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.

3.13.2 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 Transport Canada policy that optional inoperative equipment should be repaired or removed from an aircraft. POIs and PMIs are expected to encourage this practice with their operators.

3.14 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. See CAR 605.10(2)(b))

3.14.1 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 MCM. 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.

3.14.2 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. When not practical, the placard may be placed in a centralized location in the flight deck. This location shall be in plain view of the flight crew. In all cases, the MEL placarding instructions shall indicate where the placard is to be placed.

3.14.3 Placard Criteria

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

3.14.4 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.

3.14.5 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.

3.15 Dispatch

"Dispatch" for the purpose of the MEL/MMEL refers to the moment the airplane starts its takeoff roll. 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. 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.

3.15.1 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
 1. Aircraft with inoperative equipment requiring an operating procedure may be returned to service following completion of the required MEL procedure for deferral.
 2. Operating procedures are normally carried out by qualified flight or cabin crew, but may be accomplished by other qualified, approved personnel.
- c) (M) Items
 1. Aircraft with inoperative equipment requiring a maintenance procedure may be returned to service following completion of the required MEL procedure for deferral.

In the case where an operator who already has a system in place which uses other symbols that meet the requirements stated above, the operator may continue to use the same system provided it is defined in the preamble section of the operator's MEL.

3.15.2 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 625 Appendix A, and CAR 706.10 and 726.10.

3.16 Training

3.16.1 Training Program — Ground Personnel

Operators shall develop a MEL training program for ground personnel, to be included in the MCM 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 MCM /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 S). Ground personnel includes dispatchers and aircraft maintenance engineers. All required personnel shall receive MEL training prior to their use of the MEL.

3.16.2 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 work procedures, and pilot-in-command responsibility (See Appendix S). Crew members include pilots, flight engineers, and flight attendants. All required personnel shall receive MEL training prior to their use of the MEL.

3.16.3 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.

3.17 MELs for Leased Aircraft

3.17.1 MELs for Leased Foreign Registered Aircraft

- a) Canadian leasing regulations require that leased aircraft must be of a type certificated for registration in Canada. A leased aircraft must have a MMEL approved or accepted by Transport Canada in accordance with the criteria set out in Sections 2.4 to 2.4.10 of this document.
- b) The MEL for a particular leased aircraft must not be less restrictive than the Canadian approved or accepted MMEL and must be approved or accepted by Transport Canada in accordance with the criteria set out in Sections 2.4 to 2.5 of this document. The MEL must be available in French and/or English, appropriate to the region and 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. Transport Canada may require more restrictive changes to the MEL because of Canadian regulations and operating conditions. It is the responsibility of the Canadian lessee to determine the requirements of the foreign authority and Transport Canada for the use of a MEL on the leased aircraft.

3.17.2 MELs for Foreign Leased Canadian Registered Aircraft

- a) Transport Canada 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 Transport Canada and the foreign regulatory authority and it has been determined that the MMEL/MEL procedures are acceptable.

- b) If there is no agreement between Transport Canada and the foreign authority a review of the foreign operator's MEL is conducted to determine that it is consistent with our approved MMEL.

3.18 Transport Canada MEL Administrative Procedures

3.18.1 MEL Review Group

- a) While the operator is preparing his/her MEL the RMCBA will cause a MEL Review Group to be formed. The Chairperson would normally be the POI or MEL Coordinator for that operator.
- b) Formation of a MEL Review Group ensures that proper co-ordination between Airworthiness and Operations is formalized to ensure approvals can be achieved in a timely manner. The composition of the MEL Review Group and the functions and duties are outlined in Appendix I.
- c) Each MEL will be reviewed by a TC MEL Review Group. Once all of the requirements for approval have been met, each member of the MEL Review Group will initial the MEL Co-ordination Sheet. Both Maintenance and Operations concurrence is required prior to the MEL being approved.

3.18.2 MEL Priority

MEL approvals and amendments are to be considered a top priority for Transport Canada personnel charged with their review. Transport Canada personnel will attempt to minimize approval/turnaround times for MEL submissions, depending on existing tasking and availability. Regional Managers are expected to support this initiative as much as possible.

3.18.3 Regional Administrative Procedures

- a) If all requirements have been met following the MEL review process, then the POI and PMI will initial the MEL Approval Form and stamp and initial the List of Effective Pages. The letter of approval authorizing the operator's MEL is then signed by the RMCBA/AARXD.
- b) One copy of the MEL will be returned to the operator along with the Transport Canada approval letter. The standard format for a MEL approval letter can be found in Appendix K. The other copy of the MEL shall be retained in the Regional Office. If changes to the MEL are required before approval, a copy is returned to the operator along with the requested changes.
- c) A copy of the approval letter will form part of the MEL, in accordance with the operator's approved system.

Note: If the operator's principal Transport Canada office is other than a Regional Office, then a copy of the MEL must be forwarded to the Transport Canada Center by the

operator, following any approval or amendment. It is the operator's responsibility to keep the appropriate TCC current on all amendments to their MEL.

3.18.4 Regional MEL Library

- a) In order to manage MEL issues effectively, and in a timely fashion, each Region shall establish and maintain up-to-date files of all their regional operators' MELs including the initial approval documentation together with the MEL Co-ordination Sheet. These documents must be retained with each subsequent revision of the MEL.
- b) The regional MEL libraries must also contain adequate reference documents such as Dispatch Deviation Guides, and so on, for the types of aircraft operated in the Region. Transport Canada Personnel responsible for the administration of the MELs are expected to submit requests for appropriate manuals and documentation to allow for efficient handling of operator's MEL issues.