Transport Canada Transports Canada

TP 9155E
(02/2021)

Master Minimum Equipment List / Minimum Equipment List
Policy and Procedures Manual

THIRD EDITION
2021

Civil Aviation Directorate

TC-1001389

Canada

Previous Edition: 2nd Edition, January 2006 Printed in Canada

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FOREWORD

This manual has been prepared in accordance with the *Canadian Aviation Regulations* (CARs) 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 and 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 web page is https://tc.canada.ca/en/aviation/general-operating-flight-rules/master-minimum-equipment-list-mmel.

Questions concerning the MMEL web page may be referred to the Civil Aviation Communications Centre. The MMEL web page provides electronic access to the MMEL/MEL Policy and Procedures Manual (TP 9155E), 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.

The Generated Minimum Equipment List (GMEL) Program has been cancelled, and no further issuance of GMELs will occur. If your company has a Transport Canada GMEL, amendments are no longer being sent to support these documents. Operators are responsible to review their GMEL(s) against changes to the MMEL and TCS, and amend them as necessary.

Permission is granted by Transport Canada, to copy this manual as required. While use of this material has been authorized, Transport Canada shall not be responsible for the manner in which the information is presented, nor for any interpretations thereof. Print versions of this manual may or may not be updated to include amendments made to original content. For up-to-date information, contact the nearest Regional Office or Transport Canada Centre.

Original signed by

Félix Meunier
Director Standards

RECORD OF AMENDMENTS

Amendment No.	Date	Pages Affected	Date Entered	Initials
New Issue	02/2021	All		
Revision 1	06/2021	3.7.1.1 3.9.4 3.17.4(b) Appendix Q (4)	30 June 2021	RF

ACRONYMS

AART	Director, Standards
AARTF	Chief, Commercial Flight Standards
AAROA	Chief, National Flight Operations
AARDC	Chief, Flight Test
AARTM	Chief, Operational Airworthiness
AFM	Aircraft Flight Manual
AMO	Approved Maintenance Organization
AWM	Airworthiness Manual
CARs	Canadian Aviation Regulations
CASI	Civil Aviation Safety Inspector
CDL	Configuration Deviation List
14 CFR	(U.S.) Code of Federal Regulations/ FARs
DDG	Dispatch Deviation Guide
DDPG	Dispatch Deviation Procedures Guide
EASA	European Union Aviation Safety Agency
ETOPS	Extended Range Twin Engine Operations
FARs	Federal Aviation Regulations
GC	Global Change
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
LSTC	Limited Supplemental Type Certificate
MCM	Maintenance Control Manual
MEL	Minimum Equipment List
MMEL	Master Minimum Equipment List
NEF	Non-Essential Equipment and Furnishings
OPI	Office of Principal Interest
PMI	Principal Maintenance Inspector
POI	Principal Operations Inspector
PRM	the “person responsible for maintenance" means the person appointed by the holder of an Approved Maintenance Organization (AMO) certificate.
TTL	Technical Team Lead, Flight Operations
TC	Transport Canada
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 1

Introduction

1.1 Definitions

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

1.2 The Master Minimum Equipment List

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 MEL.

1.3 The Transport Canada MMEL Supplement (or TC Supplement)

For aircraft whose type design is the responsibility of a foreign country or agency (i.e., EASA or FAA), the original MMEL, issued by the competent authority of a foreign state, may be supplemented with the addition of a TC Supplement. The TC Supplement is an overriding document which modifies, adds or removes items in the foreign MMEL to conform to Canadian requirements, interpretations and policies.

1.4 The Transport Canada MMEL Addendum (or TC Addendum)

For aircraft whose type design is the responsibility of Canada, the Transport Canada Civil Aviation (TCCA) approved MMEL, where required, will be expanded with the addition of a TC Addendum. The TC Addendum, is an overriding document which modifies or adds items in the domestic MMEL to address equipment/systems installed by Supplemental Type Certificate (STC) or items that may not be covered in legacy domestic MMELs, such as Non-Essential Equipment and Furnishings (NEF).

1.5 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.

1.6 Legal Basis

Sections 605.07, 704.07, and 705.07 of the Canadian Aviation Regulations (CARs) provide that the operation of an aircraft with equipment and/or instruments inoperative may be approved through the use of a MEL.

Section 605.07 of the CARs 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 MEL 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 MMEL has been established for a particular type of aircraft, a MEL shall not be approved for that type of aircraft unless it complies with the minimum standards set out in that MMEL.

1.7 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 visual meteorological conditions (VMC). Other equipment, such as entertainment systems or galley equipment, may be installed for passenger convenience.

1.8 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 (non-essential equipment and furnishings), that does not affect airworthiness.

1.9 Equipment Not Included in the MMEL

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 CARs and which are not listed in the MMEL are also required to be operative for dispatch.

Chapter 2

MMEL Policy and Procedures

2.1 Applicability

Where Canada holds the State of Design responsibilities for an aircraft type, Transport Canada will approve a MMEL. For foreign aircraft, Transport Canada will normally adopt the MMEL of the foreign certification authority and issue a Transport Canada TC Supplement to the foreign MMEL. The TC Supplement is an overriding document, which modifies items in the foreign MMEL to conform to Canadian requirements, interpretations and policies. The contents of this chapter 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

The Chief, 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 Book

a) To assist in the assessment process, Transport Canada, National 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 National 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.

c) 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.

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., Chapter 525 of the AWM) require that aircraft be designed with certain systems and components, for short periods the MMEL will permit the operation 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 internal and external environmental conditions.

2.4.2 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:

   i) the adjustment of operating limitations;

   ii) transfer of the function to an operating component;

   iii) reference to other instruments or components performing the required function or providing the required information;

   iv) change in operations procedures;

   v) change in maintenance procedures; and/or,

   vi) similarity of design, function and aircraft operational role of a system or item for which relief has already been approved.

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) Subparagraph 525.841(b) (5) of the Airworthiness Manual (AWM) 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:

i) the cabin altimeter must be operative; and

ii) 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

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

i) the equipment may be considered optional;

ii) the equipment may be considered redundant;

iii) a quantitative safety analysis; and/or

iv) a qualitative analysis.

2.4.5 Optional Equipment

When aircraft are approved with optional equipment on board that 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

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 major, 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 operations 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.

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 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 responsible for the type design (State of Design) as modified by a TC Supplement, produced and approved by Transport Canada. Transport Canada may elect to use a FAA or EASA approved MMEL, for example, even if they are not responsible for type design, 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. If the developer of an STC seeks MMEL relief for equipment affected by the STC, the developer of the STC is responsible for the drafting of a MMEL justification and the development of procedures for the equipment or systems affected by 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, Aircraft Flight Manual (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) Domestic 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 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

2.5.6 Foreign MMELs

a) Transport Canada may accept foreign MMELs approved by the regulatory authority of the country responsible for the type design (State of Design), 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 take precedence over 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 country (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 country'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.

2.5.9 MMEL 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 D. Other formats may be accepted for foreign MMELs provided they are clear and unambiguous.

c) Each MMEL will be preceded by an acceptable preamble. An example is given in Appendix E.

d) 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 aircraft system numbering specification. (See Appendix P). The number of each item of equipment installed and the number required to be operative for dispatch shall be stated in the appropriate columns.

e) Any conditions associated with inoperative equipment, required to maintain a level of safety, shall be included in the "Remarks or Exceptions" column.

f) When practicable, the switch, lever, gauge or indicator of a particular item of equipment, should be identified. 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.

2.5.10 Operational 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) for a maintenance procedure. (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, Visual Meteorological Conditions (VMC), Instrument Meteorological Conditions (IMC), Extended Range Twin-Engine Operations (ETOPS), icing, rain, and Category II/III.

(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.

2.5.11 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 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).

2.5.12 Equipment Required by Operating Regulation

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

Note: Other MMELs such as those for U.S. manufactured aircraft may contain phrases such as "As required by 14 CFR". Such phrases should be interpreted to mean "As required by Regulations".

2.5.13 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.

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 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 MMELs 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 dispatch 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

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

Category D

Items in this category shall be repaired within 120 consecutive calendar days, excluding the day of discovery. To be considered for placement in Category D, the item must be of an optional nature, or excess equipment which an operator may, at its 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; domestic aircraft, foreign aircraft, MMEL revisions and MMEL Global Changes.

2.6.2 Domestic Aircraft

a) Draft MMEL

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 operator should be made to the originator and, if supported by the manufacturer, should be included in the submission to Transport Canada.

The draft MMEL must be accompanied by appropriate engineering justification.

Applicable operational 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.

b) 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.

c) 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.

d) Approval and Publication

The originator will incorporate the required changes for approval by the Chief, 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 web page. The originator may only distribute copies of the approved MMEL.

2.6.3 Foreign 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 operational 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 (TCS) will be submitted to the Chief, Flight Test, for approval and subsequently will be published on the MMEL web page.

2.6.4 Revisions to MMELs, TC Supplements and Addendums

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 operational and maintenance procedures to permit understanding of each item shall be submitted to the Flight Test Division (AARDC) of the National Aircraft Certification Branch of Transport Canada.

b) Approval Process — Domestic 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 web page.

c) Approval Process — Foreign 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 web page or by contacting the Flight Test Division (AARDC).

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 affected MMELs, TC Supplements or MELs may be disseminated as Global Changes (GCs).

The issuance of a GC grants the operator the option, in the case of additional relief or in the case of removal of relief, the obligation to revise a MEL immediately for that specific item in lieu of waiting for a MMEL amendment. It is not anticipated that GCs 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 Terrain Awareness and Warning Systems (TAWS) and cockpit voice recorder (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 rescind, modify or offer additional MEL relief for items prior to release of the revised MMEL or TC Supplement. The GC system is not intended to replace the normal MMEL revision process and affected MMELs or TC Supplements will incorporate all GCs issued up to the date of each revision.

d) Procedure

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.

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.

GCs will be released with consecutively assigned control numbers (TCGC- 1, TCGC-2, etc.) and will reference the appropriate item in the TCGB. Both the GCs and the TCGB are available on the MMEL 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 operations 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 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 Operational (O) and Maintenance (M) procedures if the manufacturer has not provided them. Manufacturer-developed operational and maintenance procedures manuals, Dispatch Deviation Procedure Guides (DDPG), Dispatch Deviation Guides (DDG), or other equivalent documents are to be used to develop a MEL where these procedures are available. The wording in an operator's MEL including for (O) and (M) procedures may differ from the wording provided in a DDG, DDPG or other similar manufacturer-provided document for the same item, as long as the text and limitations are complete and clear to the reader and the intent is fully consistent with the manufacturer's document.

3.3 MEL Intent

Except as authorized by the Minister in accordance with Sections 605.07 through 605.10 of the CARs, operation of an aircraft with aircraft equipment inoperative or removed is prohibited unless an operator of an aircraft 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.

To permit more language flexibility for the operator, the MEL wording does not have to incorporate the precise wording contained in the MMEL or TC Supplement, as long as the intent of the relief is satisfied and clearly understandable and the MEL is not less restrictive than the MMEL or the TC Supplement. The operator must be able to demonstrate to Transport Canada that the intent of the MMEL or TC Supplement is met.

An operator's fleet MEL can be approved to reflect all of the equipment that can be applicable to aircraft of a specific type and model under the following conditions:

(i) where relief is applicable to the entire fleet of that type and model, there is no need to identify specific aircraft applicability;

(ii) where relief is applicable to part of a fleet of a particular type and model, the operator must have a process that is acceptable to TC, which identifies if the relief is applicable to a particular aircraft registration or tail number. Examples of this process include a specific "Mod Status" page, or the inclusion of a note on the page of affected items. Whatever system is chosen, the status of the applicability of any affected aircraft must be clear and transparent to the reader.

3.5 Audit of Operator MELs

The Operator's Principal Operations Inspector (POI) and /or Principal Maintenance Inspector (PMI) must review the operator's MEL and conformance on an annual basis or as determined by the region, using the standard TC sampling methodology (See Appendix M). Significant non-conformances may result in the MEL approval being withdrawn.

3.6 Applicability

Where a MMEL has been approved, the Minister shall approve a MEL 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.

Sections 704.07 and 705.07 of the CARs 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. Private and commercial operators that are not mandated by regulation to have a MEL are strongly encouraged to apply for and develop a MEL appropriate for their type and operations.

3.7 Administrative Procedures

3.7.1 Approval Authority

In accordance with the current TCCA Consolidated Record of Authorities, the authority and responsibility for MEL approval and oversight normally resides with the regional (or national) authority for the operator. These individuals include Civil Aviation Safety Inspectors, the Technical Team Lead, Flight Operations, the Director, Standards (AART) or the Chief, National Flight Operations (AAROA) and Minister's Delegates for MEL approvals.

The Ministerial Delegation of Authority Document includes a number of other TC personnel who may approve a MEL but normally do not as part of their regular duties. Currently, these are as follows:

A-3 Director General AND Associate Director General, Civil Aviation
A-4 Regional Director General
A-5 Regional Director, Civil Aviation
N-1 Director, National Operations, Civil Aviation
N-2 Chief, National Flight Operations, National Operations
N-3 Technical Team Lead, National Flight Operations, National Operations
N-4 Civil Aviation Safety Inspector, National Flight Operations, National Operations
N-5 Technical Team Lead, National Flight Operations, Certification and Quality Assurance, National Flight Operations, National Operations
N-6 Civil Aviation Safety Inspector, National Flight Operations, Certification and Quality Assurance, National Flight Operations, National Operations
N-9 Technical Team Lead, National Simulator Program, National Flight Operations, National Operations
N-10 Civil Aviation Safety Inspector, National Simulator Program, National Flight Operations, National Operations
N-12 Chief, National Maintenance Operations, National Operations
N-13 Technical Team Lead, Airworthiness, National Maintenance Operations, National Operations
N-14 Civil Aviation Safety Inspector, Airworthiness, National Maintenance Operations, National Operations
N-21 Chief, Foreign Operations
N-22 Civil Aviation Safety Inspector, Foreign Operations
N-23 Certification Lead, Foreign Operations
N-25 Civil Aviation Safety Inspector, Airworthiness, Foreign Operations (Restricted)
R-1 Associate Director, Operations, Civil Aviation
R-2 Technical Team Lead, Flight Operations, Regional Operations
R-3 Civil Aviation Safety Inspector, Flight Operations, Regional Operations
R-4 Technical Team Lead, Airworthiness, Regional Operations (Restricted)
R-5 Civil Aviation Safety Inspector, Airworthiness, Regional Operations (Restricted)

3.7.1.1 Third Party Delegated MEL Approvals

Transport Canada (Ottawa) has authorized limited stand-alone, third party approvals of MELs for operators of qualifying aircraft. The authority permits a Minister's Delegate for MEL Approvals to develop, approve, amend and administer an operator's MEL in accordance with subsection 605.07(3) of the CARs and TP 9155, **except for TC regulatory oversight of the operator, MEL repair interval extension approvals, or any enforcement action**.

The authority is limited to approvals, amendments and administration of MELs issued for aircraft operated in accordance with CAR 604 Private Operations Registration Documents (PORDs) and is not normally applicable to MELs issued primarily for Part VII commercial operations. As well, the authorization will only be considered by TC where a clear need for additional MEL support has been identified and validated in the Private Operations (CAR 604) community.

The issuance of this authority is based on a requirement to address the recent demand for (non-mandatory) private operator MELs, rather than any intent to delegate MEL administration away from TC Regional Inspectors. Part VII MEL approvals, amendments and administration remain under the control of TC regional personnel and in accordance with the established TP9155 procedures, and as highlighted in the first paragraph above.

Some operators hold both a CAR 704 (Commuter Operations) Air Operator Certificate and a CAR 604 Private Operator Registration Document. As a MEL is mandatory for CAR 704 operations, but not for CAR 604, normally an approved MEL will be issued to the air operator during the AOC certification process. That MEL would also be applicable to the same aircraft when being operated privately. However, where an operator only holds a PORD and later branches into commercial operations, the Delegate-approved MEL is acceptable for the commercial operations, provided that all required changes are incorporated into the operator's Maintenance Manual and maintenance procedures, and any other commercial requirements are met and approved before use by the regional office responsible for the operator.

A Letter of Authorization is issued by the Director, Standards Branch, Ottawa (AART), to qualifying Delegates who have requested this authority and includes conditions and limitations with regard to the process to be used for these approvals, specific to each Delegate. These may vary in accordance to the latitude of the delegation awarded, based on the Transport Canada assessment of the candidate's credentials and experience with the MEL process. Further information about applying for this Authority may be obtained by a request addressed to the Chief, Commercial Flight Standards, Ottawa.

While a MEL that has been developed and approved solely by the Minister's Delegate is fully acceptable for use by qualifying Canadian operators without further action by TC, oversight of the operator by the regional office still requires some interaction as stated above. For these reasons, communications with the POI and PMI responsible for the operator must be established by the Delegate. One copy of the Delegate-approved MEL and the TC-issued Delegate's Letter of Authorization must be submitted to the regional office responsible for the oversight of the operator, before the MEL can be used. Once these documents have been submitted, the operator can initiate operations with the MEL immediately.

As part of their routine oversight duties on behalf of the Minister, the operator's POI and PMI are expected to provide a quality assurance function of any third party approved MELs submitted to the regional office, by means of a standard QA sampling procedure. As with any MELs used by their operators, routine document reviews should be made on submission, and at least on an annual basis, or as determined by the region. If any issues arise, the Minister's Delegate must be advised by letter without delay, and he / she must take immediate and appropriate action to resolve the issue to the satisfaction of the Region.

Information regarding a non-compliance and any resulting administrative or enforcement actions taken by the Region, up to and including suspension of the MEL, should be forwarded to the attention of the Chief, Commercial Flight Standards, (AARTF) Ottawa. This will provide a means to evaluate and monitor the Minister's Delegate for the purposes of assuring a consistent and acceptable MEL national standard. It may also serve as an identification and resolution mechanism for any perceived MEL policy or process anomalies or disputes.

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, TC Supplement and Global Changes - where applicable;

d) any other information necessary to develop their own MEL.

Where an operator contacts a Minister's Delegate for MEL Approvals with the intent of developing a MEL, the Delegate will gather this information on behalf of the operator.

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 Transport Canada-approved versions of MMELs are available for viewing or downloading from the MMEL web page.

b) **Foreign MMELs**

The most recent version of a foreign MMEL may be used to produce a MEL, prior to the review by the National Aircraft Certification Flight Test Division, provided that it is 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.

If a TC Supplement for a particular aircraft type has not been developed and approved, the MEL may be produced based on the foreign MMEL provided the following criteria are met:

- The MEL cannot be less restrictive than the applicable MMEL;
- The MEL must not contain relief that is not addressed in the MMEL;
- The MEL must not contain relief that is based solely on CARs or the MMEL Guidance Book;
- MMEL relief that is not permitted by the CARs must not be included in the MEL.
- FAA MMELS can only be used for FAA Type-certificated aircraft unless otherwise authorized by TC.

3.7.4 MMEL Acquisition

Approved MMELs and TC Supplements may be downloaded at any time from the MMEL 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 Initial MEL Development

a) Development

The operator will develop their MEL and all subsequent amendments as a joint operations and maintenance document; based on the current MMEL revision, TC Supplements – where applicable, O&M Procedure Manuals (DDPG, DPG, etc.).

In order to ensure operator management involvement, each MEL submission shall be reviewed and approved by at least one senior company official from their respective department (operations and maintenance), prior to the MEL being submitted to the Transport Canada Regional Office.

This is to be validated by the PRM and Operations Manager through the use of a sign-off page in the MEL to verify it has been fully vetted and approved by their respective departments prior to submission to TC.

b) Supporting Data

The operator must provide adequate supporting documentation for their MEL submissions to their Regional office.

Minister's Delegates for MEL approvals must gather and retain these documents as part of their MEL approval process.

These documents will provide additional information and justification if required, relating to the operator's MEL.

Any additional MEL items which do not appear in the MMEL will require justification for inclusion – reference Chapter 2, section 2.4. The Regional POI/PMI or the Minister's Delegate for MEL approvals will review the request, and if valid, will forward the submission to National Aircraft Certification Flight Test Division, (AARDC) for review and approval in the MMEL or TC Supplement

c) Copies

The operator or the Minister's Delegates for MEL Approvals shall submit copies of the MEL document (O&M procedures) to the Regional Office/TCC and the POI/PMI where assigned.

3.8 Transport Canada Inspector and Minister's Delegates for MEL Approvals - Responsibilities

3.8.1 Operations

Transport Canada Regional and National Operations flight operations inspectors and Minister's Delegates for MEL Approvals are responsible for vetting their operator's MEL, with respect to the operations functions and procedures. Where a MEL is based on the Manufacturer's Operating and Maintenance Procedures (O&M), there is no longer a requirement to review each item against the MMEL. This step shall be replaced with the random sampling method outlined in Appendix M. This procedure is applicable to initial MEL submissions and MEL amendments.

Where O&M procedures are not available with the MMEL, a full review of the MEL submission is necessary.

Note: The appropriate CASI, Cabin Safety should always be consulted to coordinate the review of cabin safety-related MEL items.

These actions will ensure that all of the operations procedures produced and published by the operator are relevant. The POI, or Regional Office / TCC is responsible for the administration of all MEL operations issues for that operator.

3.8.2 Airworthiness

Transport Canada (Regional) Airworthiness, or the PMI in the case for National Operations, and Minister's Delegates for MEL Approvals are 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 operator are relevant to the required task. Where a MEL is based on the Manufacturer's Operating and Maintenance Procedures (O&M), there is no longer a requirement to review each item against the MMEL. This step shall be replaced with the random sampling method outlined in Appendix M. This procedure is applicable to initial MEL submissions and MEL amendments.

Where O&M procedures are not available with the MMEL, a full review of the MEL submission is necessary.

A Regional PMI, or Regional Office is normally tasked as a contact for the operator as appropriate, and is responsible for the administration of all MEL maintenance issues for that operator.

Both TCCA Operations and Airworthiness personnel must concur prior to an approval being granted for an operator's MEL application.

A Minister's Delegate for MEL Approvals holds the Authority for MEL development, approvals and administration for both operational and airworthiness requirements only as stipulated in the Authorization document. It should be noted that Private Operators operating under a Private Operator Registration Document (PORD) do not have a Maintenance Control Manual (MCM). Relevant information is contained within the Operations Manual.

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 and is subject to Transport Canada resources and workload limitations. A sample format for the Transport Canada letter of approval is found in Appendix H.

3.8.4 Interim Approvals

Neither Transport Canada nor a Minister's Delegate for MEL Approvals will 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 or the Minister's Delegate for MEL Approvals. 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.

Normally, copies are required for the following entities, but distribution may be adjusted to reflect the operation:

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; and

g) the Regional Office Library.

Each operator is responsible for establishing a system of control for their MELs, to ensure the documents are up to date and that distribution to the appropriate personnel and/or aircraft is efficient, controlled and documented.

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 CARs. 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 or safety management system.

3.8.7 MEL Amendments/Transport Canada Notifications

a) Amendments to MELs 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 MMEL web page.

b) Where a MMEL revision or TC Supplement is more restrictive, the operator must submit an appropriate amendment to the MEL for approval within 90 days, following the posting date of the MMEL revision or TC Supplement on the MMEL 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 90 days, following the MMEL web page posting of the MMEL revision or TC Supplement. Where an 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 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 POI/PMI for assessment. The National 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.

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, National 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 for which the operator would like to have relief provisions and that are addressed in the most recent approved version of the MMEL or TC Supplement, shall be included in the MEL. Irrespective of the included MEL item relief, an operator or its pilots retain the option to refuse any alleviation, and may choose not to dispatch with any particular MEL item inoperative.

3.9.3 Administrative Control Items (ACI)

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 (ACI's) 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 or non-essential equipment and furnishings may not include items or subsystems of items which are addressed in the MMEL. Operators seeking to add ACI's to their MEL must submit their request to their PMI or POI or Minister's Delegate for MEL Approvals (as appropriate) with adequate substantiation. (Reference 3.9.4)

3.9.4 Non-Essential Equipment and Furnishings (NEF)

Non-essential equipment and furnishings (NEF) are items installed on an aircraft which are not required by the applicable certification design standards or operating rules. These items form part of the original type certification, supplemental type certificate, or other form of modification and if inoperative, damaged or missing would have no effect on the safe operation of the aircraft under all operational conditions.

NEF originated from what was formerly known as Passenger Convenience Items (PCI). PCIs related only to the passenger compartment area and did not allow the deferral of nonessential items that were inoperative, damaged or missing located elsewhere throughout the aircraft. Due to the restrictiveness of PCI's, the NEF program was introduced for the replacement of PCIs when applicable.

NEF items may be installed in all areas of the aircraft including but not limited to the passenger compartment, flight deck, service areas, cargo and avionic bays, crew rest areas, lavatories, and galley areas.

NEF items **cannot** include:

- Items already identified in the MEL or configuration deviation list (CDL) of the applicable aircraft,
- Items required to be functional to meet an operating rule or certification design standard,
- Items identified in the instructions for continued airworthiness developed by the

manufacturer, airworthiness directives or operator's approved maintenance program where instructions are provided for but not limited to:

- Operational wear or damage limits
- Fuel/hydraulic leak rates
- Oil consumption limits
- Missing paint or protective coatings, etc.

- Items that require the implementation of an operational (O) procedure that could cause an unacceptable increase in workload and possible interference with crew members,
- Administrative control items (ACI's) as these items are for tracking and informational purposes only and do not provide for a deferral authority.

The inclusion of the NEF provision in the MMEL, TC Supplement or TC Addendum forms the basis and capability of an operator to develop an NEF program.

The development of an NEF program which includes all components and its elements, as defined in Appendix Q, is the responsibility of the operator and will require the cooperation and continued oversight of the POI, the PMI, or the Minister's Delegate. Once the NEF program is accepted by the PMI and recommended to the POI or Minister's Delegate, the NEF provision can be included within the operator's approved MEL ATA Chapter 25 (see MMEL Guidance Book, item 25-20-1). With the inclusion of the NEF provision, the operator will be able to use the deferral authority granted by the MMEL, TC Supplement or TC Addendum.

Even though the NEF program is listed under the Air Transport Association (ATA) Chapter 25, it may address items that fall under other ATA chapters.

Failure to comply with the accepted NEF program may result in the removal of the authorization to participate in the NEF portion of the MEL.

3.9.5 Passenger Convenience Items (PCI)

Passenger convenience items (PCIs) 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, stereo equipment, and overhead reading lamps. PCIs 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 PCIs 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; or,

b) Where PCIs 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.

As of the release of TP9155, Third Edition, newly developed MMELs and TC Supplements will only include a NEF provision. Existing MMELs and TC Supplements will eventually be revised to replace PCI/NEF provisions with NEF only. The PCI provision will expire

four years after the release of TP 9155 Third Edition. The expiry date will be indicated in a MMEL Global Change to be issued shortly after TP9155 Third Edition is published.

3.10 MEL Development Procedures

3.10.1 MEL Auditability

The MEL should be written in a manner that makes it relatively easy to cross reference the underlying documents (source MMEL version and TC Supplement, DDG and regulations) to verify the accuracy of the MEL.

Examples of this include, but are not limited to, the following:

References to the applicable CAR when explaining an "as required by regulation" condition.

References to the aircraft model when a MMEL has been written to multiple models.

Reference to the modification status, when the relief of a deferred defect depends on the modification status of the operator's aircraft.

References to the (O) and (M) procedures, in cases where the MMEL makes specific reference to these procedures and the operator elects to use them.

Transparency in writing these documents permits speedier review and approval and less likelihood of errors.

3.10.2 MEL Basic Format

The MEL must include the following: a List of Effective Pages or equivalent (See 3.11.1), a Table of Contents, the MEL Preamble, Notes and Definitions, a section for each aircraft system addressed, an Ops Manager and PRM sign off page, the letter of approval and amendment record page. Operators must specify the MMEL and TC Supplement revisions, modification status, and any other documents such as an O&M Procedure Manuals (DDPG, DPG, etc.), used in the development of their MEL.

For operators with larger fleets, or many modifications to their aircraft, a Mod Status page/table may be developed to indicate the current status of their aircraft. Where a Mod Status page or table is incorporated into the MEL, the information must be easily understandable and readily available, as to which aircraft the mods apply.

Operators with only a few aircraft or a limited number of modifications may prefer to add an operator’s note directly to the affected MEL item page.

3.10.3 MEL Page Format

a) MEL format is at the discretion of the operator, provided that it is clear and unambiguous. However, to streamline the approval/ amendment process, particularly for smaller operators, it is strongly recommended that the standard four column format similar to the MMEL be used wherever possible.

b) It should be noted that the Dispatch Deviation Guide (DDG) and other manufacturers’ documents containing MEL O&M procedures, have typically gone to a different format

and numbering system that allows for better differentiation of sub-items.

If a DDG (or similar document) is used to produce a MEL, the DDG numbering system for each item must be incorporated into the operator's MEL. It may also be appropriate for these operators to format their MEL to reflect the MMEL and manufacturers' documents information presentation. Our common goal is to ensure clarity, ease of use and understanding in the MEL document for crews, maintainers and dispatchers.

Whether MELs are developed using manufacturer's documents or not, the page numbering must only follow the applicable Chapter; it is not necessary to use the individual item number as a page number.

The MEL may incorporate multiple items on each page, provided that the information presented for each item is clear and unambiguous.

3.11.1 List of Effective Pages / List of Effective Content

It is of critical importance that an operator's MEL be up to date and that each page in the MEL is approved by the TC or delegated authority responsible for the document. There are currently two accepted procedures for ensuring this requirement. The operator may choose to follow the alternate procedure (explained below), provided that it has the electronic means to communicate with the Authority and can satisfy all requirements in this regard.

A List of Effective Pages (LEP) is one acceptable method to 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 or a Minister's Delegate for MEL approval will stamp and initial the LEP 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 LEP.

The Transport Canada or Minister's Delegate stamped and initialed 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.

Alternatively, an electronic means for developing and maintaining a List of Effective Content (LEC) may be employed by the operator to track the status of the MEL, to include a record of the MEL revision status of each section's content (or the date of each page). The information on file must include at a minimum:

- The Operator's name;
- A listing of all of the approved sections (or pages) in the MEL including the date of approval for each section (page) and its number or revision number and the MMEL revision number on which the MEL is based.
- Alternative methods for displaying changed content can include but are not limited to a descriptive summary of changes, the use of change bars in the left or right margin of the page, the use of a different colour text, or a note to indicate where content has been deleted.

In this case, no stamps are employed on the document. Electronic signatures or text boxes incorporating the same information may be used as an alternative to ink stamps, provided that the information is complete and clearly visible on the affected MEL page(s).

3.11.2 Use of Stamps and Alternatives

Persons authorized to approve MEL documents may use appropriate stamps incorporating the following information:

- **Transport Canada OR TC Minister's Delegate for MEL Approvals**
- **Approved**

The following information comprises a mandatory part of the stamping approval process, but this data may be incorporated in the stamp(s), OR may be added manually by the authorized person. Two examples of common stamps and approvals are attached below.

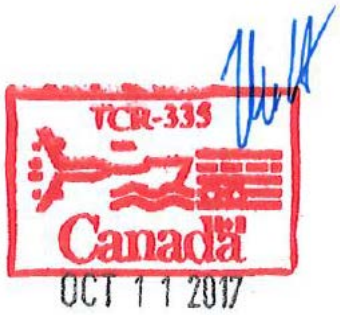
- **Date**
- **Transport Canada Inspector or Minister's Delegate for MEL Approvals initials or full name.**

Note: It is not necessary to use ink stamps for this purpose. Electronic signatures or text boxes incorporating the same information and inserted electronically onto the MEL page(s) may be used as an alternative to ink stamps, provided that the information is complete and clearly

Two stamp example

Single Stamp example

visible on the affected MEL page(s).



3.11.3 Table of Contents

The operator's MEL shall include a Table of Contents (TOC) page that allows the end user to easily identify and locate any particular MEL item. The headings of the individual MEL items throughout the MEL shall identify the item by reference to the applicable Air

Transport Association (ATA) system number. The ATA system numbers shall be visible in the TOC.

Whether the TOC is presented as an exhaustive list at the beginning of the MEL, or the MEL has a Master TOC with additional individual Chapter TOCs is left up to the discretion of the operator. Operators who distribute their MELs electronically are encouraged to incorporate bookmarks and other document navigation features as appropriate to the software being used.

3.11.4 MEL Preamble

The purpose of the MEL 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 E). An operator may choose to develop their own preamble but it must contain at least the information contained in the Transport Canada version.

3.11.5 Notes and Definitions

Notes and Definitions contained in Appendix A are required to allow the user to interpret the MEL properly. However, some of the Notes and Definitions apply to MMELs only. Additions and deletions may be applied to the operator's MEL as required. For example, the Definitions listed by the Manufacturer's MMEL/DDG must also be included where a DDG has been used to develop an operator's MEL.

3.11.6 Operational and Maintenance Procedures

a) Dispatch with inoperative items is generally acceptable only with the creation of special operational and/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 adapted 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 3.14.4)

c) The operator, when comparing the MEL against the MMEL must 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 must be included in the MEL.

d) The only exception is when the procedure is contained in another document that is available:

   i) to the flight crew on the flight deck, such as an aircraft flight manual, aircraft operating manual, or the company operations manual;

   ii) to the flight attendants, such as a company operations manual or flight attendant manual;

iii) to the maintenance crew, such as an aircraft maintenance manual (e.g. the Airbus Aircraft Deactivation Procedures Manual), maintenance control manual, etc.

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

e) The operator may include additional (O) and (M) procedures for a specific item in the MEL based on its needs. These additional (O) and (M) procedures are based on a determination made by the operator for addressing an inoperative item, and are intended to supplement those required by the MMEL.

f) This change does not alter in any way the definitions of the (O) and (M) procedures as shown in the MMEL Definitions (Appendix A). It is not acceptable to only reference the CARs, foreign regulations (14 CFR, EASA, etc.) 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.

g) Where the MMEL column 4 states "as required by Regulations", the operator shall add a note with a synopsis of the Regulation as applicable to the operator. Simple copying and pasting of a regulation should be avoided because this lacks the specific operator context."

3.11.7 Approval of Operational and Maintenance Procedures

Manufacturers may choose to produce operational and maintenance procedures such as Dispatch Deviation Procedures Guides, for use by operators in their MELs.

If used as a basis for (O) and (M) procedures, these must be verified as complete and applicable to the operator's aircraft, inserted into the appropriate MEL pages, and submitted by the operator, to form part of the MEL. (See 3.11.5(b))

Note: Dispatch Deviation Procedures Guides, Dispatch Deviation Guides, and other similar documents cannot be approved by Transport Canada or simply referenced as part of an operators MEL, nor can they replace the MEL.

Transport Canada has no control over the publishing, format or content of these manufacturer's documents. They simply provide one means of developing an operator's (O) and (M) procedures and it is the specific content in the operator's MEL that is verified and approved.

If the aircraft manufacturer has not published operational or maintenance procedures, the operator must develop appropriate procedures and submit them to Transport Canada for approval.

3.11.8 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 or equivalent document. The operator may choose to include all procedures and instructions in the MEL itself; in which case the operations manual will only be required to reference this document.

3.11.9 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. Passenger convenience items / non-essential equipment and furnishings referred to in paragraphs 3.9.4 and 3.9.5 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 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 MELs 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 "A" items are not eligible for self-extension

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.

Category "D" items are not eligible for self-extension.

3.12 MEL Item Repair Interval Extension Program

3.12.1 Purpose

Operators may be unable to comply with specified repair intervals under certain conditions, such as a shortage of parts from manufacturers or suppliers, additional trouble shooting required to identify a problem, unavailability of test equipment or other unforeseen situations beyond their control,

A MEL Item Repair Interval Extension Program has been instituted that under controlled

conditions, will allow an operator to obtain an extension from Transport Canada, or if prior authority has been established, to grant extensions to certain MEL repair interval categories. The following paragraphs give instructions to Principal Maintenance Inspectors (PMIs), and to Principal Operations Inspectors (POIs), to administer Transport Canada repair interval extension approval or an operator's MEL Item Repair Interval Extension program.

A Minister's Delegate for MEL approval may develop and approve a private operator's MEL repair item interval self-extension program, but the TC POI/PMI responsible for the operator retain the sole authority to approve an item's interval extension as provided in 3.12.2. and subsequent, based on the adequacy of the submission and appropriate justification.

3.12.2 Transport Canada Repair Interval Extension Approval

Operators may request a repair interval extension for Category B or C items from their POI/ PMI, by submitting a completed Schedule 1 form (see Appendix B) or acceptable equivalent document, signed by the person responsible for maintenance or their representative, with supporting documentation when requested.

Where a further extension for the same inoperative MEL item is requested, the procedure for the original request including documentation and notification, as well as full justification must be repeated as follows:

A copy of Schedule 1 or an acceptable equivalent document, signed by the Technical Team Lead (TTL) will constitute the Transport Canada approval of the extension and must accompany the journey log book with an entry as follows:

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

A copy of the completed documentation shall be retained on file by the operator for a period of thirty-six months, for surveillance and oversight purposes.

3.12.3 Repair Interval Self-Extension Program Approval

Operators may request authority to implement a MEL item repair interval self-extension program from their POI/PMI, the TTL or the Chief of National Operations in writing, along with the proposed Maintenance Control Manual (MCM) amendment, company operations manual amendment and MEL preamble amendment for approval. Approval of these amendments to the company operations manual by Transport Canada will constitute the approval for the program.

Minister's Delegates for MEL Approvals may approve an operator's repair interval self-extension program, where they have prepared and approved the operator's MEL. For private operators, these approvals will be contained in the MEL itself, as these operators do not have an approved operations manual. Similarly, private operators do not have an approved Maintenance Control Manual. Instead, the maintenance control items are included in the Operations Manual.

Any self- extensions undertaken by the operator must be forwarded to the regional office responsible for the operator in accordance with the procedure listed below.

Each operator seeking this alleviation shall revise their MEL to include the following statements: "(Operator)_____may self-extend the repair interval for Category B and C items contained within their 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."

The requested MEL item repair interval extension should only be for the estimated period of time needed to complete the repair as quickly as possible, with regard to the existing circumstances and shall never exceed the original deferral time (e.g. a one-time 10 day extension for a Category C item).

Furthermore, the Transport Canada PMI or 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 further extension request, the Transport Canada Inspector receiving such notification shall ensure that his/her counterpart is fully informed as soon as possible. (See Section 3.12.4).

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:

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

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.

Prior to the approval or amendment of the operator's MEL to include this policy, TCCA personnel and the Minister's Delegate for MEL approvals must ensure that the provisions of this section have been fully addressed.

Self-Extension beyond the repair intervals as outlined in Category "B," and "C" may be issued provided the documentation submitted to Transport Canada clearly indicates a valid reason for the delay and that all options have been exhausted. Operators should be aware that the self-extension for a particular MEL item is subject to cancellation should the POI/PMI not be satisfied with the justification.

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.

3.12.4 Repair Interval Self-Extension Program

Maintenance Control Manual

To ensure that CARs Sub Part VII 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.

For Sub Part VI operations, the requirement for an MCM does not apply. Appropriate wording for the specified issues must be adequately addressed in the maintenance control section of CAR 604 operator's OM.

3.12.4.1 Authority

The operator must assign authority to the appropriate level of the maintenance department for the approval of interval extensions. Internal procedures must be established and implemented to ensure that operators extend MEL repair intervals only when necessary. It is essential that the appropriate level of management be involved in the approval of interval extensions. The person responsible for the operator's maintenance program or their appropriately qualified delegate shall have the authority to approve repair interval extensions and shall indicate their approval of each extension in writing or other auditable means to their PMI. Such delegates shall be proposed by the operator and acceptable to the PMI for the purpose of assessing and approving these extensions.

3.12.4.2 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.

3.12.4.3 Parts/Equipment Control

The operator must establish internal procedures to source whatever parts and/or equipment are needed to rectify a MEL defect, to ensure they are readily available and that these established procedures are acted upon in the timeliest manner possible.

3.12.4.4 Maintenance Control

The operator must establish and implement procedures to ensure that all maintenance actions required to rectify a MEL defect are initiated as soon as possible, regardless of the repair interval category.

3.12.4.5 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.

3.12.4.6 Audits

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

3.12.5 POI/PMI Communications

Transport Canada Regional airworthiness 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 a self- 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 Transport Canada Inspector when notification is received from an operator to ensure that her/his counterpart is made aware of the extension as soon as possible.

The POI and the PMI will determine if the request for an on-going extension is justified.

3.12.6 Program Administration

Events beyond the Operator's Control

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

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:

3.12.6.1 Parts Shortage

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. Supporting documentation must be submitted with the self-extension notification.

3.12.6.2 Inability to obtain equipment

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

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 Transport Canada.

During the period of evaluation, Transport Canada pre-approval will be required for extensions to all repair interval categories, at the discretion of the operator's POI/PMI.

3.12.7 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.

Schedule 2 of Appendix B consists of guidelines to be followed in order to prevent abuse of the self-extension program. Operators must ensure that these guidelines are properly documented in their procedures.

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 section 706.08 of the CARs) or the maintenance control section of subpart 604 of the CARs operations manual (OM). The operator must ensure that the MEL references the aforementioned procedures in the MCM, or duplicates the same. (See Appendix N for sample procedures.)

3.13.1 Requirements

The procedures listed below comprise a method for:

a) Deferral 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) Training of company personnel who are responsible for MEL compliance procedures.

3.13.2 Review of Deferred Items

The operator must establish procedures whereby maintenance and operations personnel periodically review the deferred items, in order to ensure that any accumulation of deferred

items neither conflicts with each other based on the CDL and the AFM Supplement Compatibility List, nor presents 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.

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 or the maintenance control section of a CAR 604 operations manual (OM). 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 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.

3.14.4 Operational and Maintenance Items

3.14.4.1 Inoperative Equipment

Any item of equipment in the MEL, which when inoperative would require an operational 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 operational procedure, or (M) for a maintenance procedure. (O)(M) means both operational and maintenance procedures are required.

(M) item procedures that may be accomplished by trained crew members other than authorized maintenance personnel, in accordance with an elementary work approval, shall be clearly designated as (M) Elementary Work on the applicable MEL page. See Section 3.14.5

3.14.4.2 (O) Items

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

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

3.14.4.3 (M) Items

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

Authorized maintenance personnel normally accomplish maintenance procedures but other authorized personnel may carry out some (M) tasks that are designated as elementary work. (See 3.14.5)

3.14.5 Elementary Work

Some maintenance procedures designated as elementary work in the MEL may be accomplished by crew members or others who have had the required training and are approved to do so according to the regulations and standards in Maintenance Standard 625.85, 625 Appendix A, Sections 706.10 and 726.10 of the CARs.

Subject to the requirements listed in the above paragraph, and after the appropriate pages of the operator's MEL (including the preamble), the COM and the MCM have been submitted for approval, these pages will be returned to the operator as approved for inclusion in the respective manuals.

After the applicable persons have been trained, an operator may authorize such person to perform elementary work by way of a letter to the individual's training file, certifying that the individual has been trained and is competent to perform elementary work on the affected type of aeroplane.

3.15 Training

References:
722.76(16) Minimum Equipment List Training
723.98(18) Minimum Equipment List Training (MEL) – aeroplanes
723.98(15) Minimum Equipment List (MEL) Training – helicopters
724.115(19) Minimum Equipment List (MEL) Training – aeroplanes
724.115(16) Minimum Equipment List (MEL) Training – helicopters
725.124(24) Minimum Equipment List (MEL) Training – aeroplanes
604.169(1)(a) Ops Manual Contents Training
604.197.1(h) MEL Procedures in Ops Manual

3.15.1 Training Program — Ground Personnel

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

3.15.2 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 O).

Crew members include pilots, flight engineers, and flight attendants. All required personnel shall receive MEL training prior to their use of the MEL.

3.15.3 Training Program — Recurrent

Recurrent training shall be conducted within a twelve month period to refresh procedural knowledge and ensure company personnel are aware of any changes in MEL procedures.

3.16 MELs for Leased Aircraft

3.16.1 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.

3.16.2 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 the TC approved MMEL.

3.17 Transport Canada MEL Administrative Procedures

3.17.1 MEL Review Group

a) While the operator is preparing their MEL, the TTL will cause a MEL Review Group to be formed. The Chairperson would normally be the POI or PMI 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 F.

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.

Note: MELs developed and approved by a Minister's Delegate for MEL approvals are not subject to this process.

3.17.2 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. Technical Team Leads are expected to support this initiative as much as possible.

3.17.3 Regional Administrative Procedures

Note: MELs developed and approved by a Minister's Delegate for MEL approvals are not subject to this process.

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 (LEP) as appropriate.

Where a List of Effective Content (LEC) procedure is being used, approval for each page is done electronically. (See alternate procedures for LEC – Reference Section 3.11.1)

The letter of approval authorizing the operator's MEL is then signed by the TTL or their regionally approved delegate.

b) A copy of each approved page 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 H. The TC copy of the MEL shall be retained in the Regional Office or stored electronically in the operator's certification file / MEL. If changes to the MEL are required before approval, a copy of the section(s) to be amended is to be returned to the operator 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 not a Regional Office, then a copy of the affected pages must be forwarded to the Transport Canada Centre 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.

3.17.4 Regional MEL Library

a) In order to manage MEL issues effectively, 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 Coordination Sheet. These documents must be retained with each subsequent revision of the MEL.

APPENDIX A

TRANSPORT CANADA MASTER MINIMUM EQUIPMENT LIST

Definitions

1. **Systems Definitions:** Systems numbers are based on the Air Transport Association (ATA) Specification Number 100 and items are numbered sequentially. The ATA system page is divided into columns and contains: item, repair category, number installed, number required for dispatch, and remarks or exceptions.

   a) **"Item"** (Column 1) means the equipment, system, component, or function listed in the "Item" column.

   b) **"Number Installed"** (Column 2) is the number (quantity) of items normally installed in the aircraft. This number represents the aircraft configuration considered in developing this MMEL. Should the number be a variable (e.g., passenger cabin items) a number is not required and the variable symbol "-" is used.

      Triple Asterisk "***" symbol in Column 1 indicates an item which is not required by regulation but which may have been installed on some models of aircraft covered by this MMEL. This item may be included on the operator's MEL after the approving office has determined that the item has been installed on one or more of the operator's aircraft. The symbol, however, shall not be carried forward into the operator's MEL. It should be noted that neither this policy nor the use of this symbol provide authority to install or remove an item from an aircraft. The "***" symbol may be considered equivalent to the term "if installed".

   c) **"Number required for dispatch"** (Column 3) is the minimum number (quantity) of items required for operation provided the conditions specified in Column 4 are met.

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

   d) **"Remarks or Exceptions"** (Column 4) in this column includes a statement either prohibiting or permitting operation with a specific number of items inoperative, provisos (conditions and limitations) for such operation, and appropriate notes.

   e) **"Provisos"** are indicated by a number or a lower case letter in "Remarks or Exceptions". Provisos are conditions or limitations that must be complied with for operation with the listed instruments or equipment item inoperative.

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

g) **"Approved"** means approved by the Minister.

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

i) **"Minimum Equipment List"** means a document approved by the Minister or Authorized Delegate that authorizes an operator to dispatch an aircraft with aircraft equipment inoperative under the conditions specified therein.

j) **"Minister"** means the Minister of Transport.

2. **"Administrative Control Items"** means an item listed by the operator in the MEL for tracking and informational purposes. It may be added to an operator's MEL provided no relief is granted, or provided conditions and limitations are contained in an approved document such as the Structural Repair Manual. If relief other than that granted by an approved document is sought for an administrative control item, a request must be submitted to Transport Canada. If the request results in review and approval, the item becomes an MMEL item rather than an administrative control item.

3. **"Aeroplane/Rotorcraft Flight Manual"** (AFM/RFM) is the document required for type certification and approved by Transport Canada. The approved AFM/RFM for the specific aircraft is listed on the applicable Type Certification Data Sheet.

4. **"As Required by Regulations" "As required by 14 CFR"**, and other similar statements mean that the listed item is subject to certain provisions (restrictive or permissive) expressed in such regulations as the Canadian Aviation Regulations, Federal Aviation Regulations or the Airworthiness Manual etc. Unless the MMEL provides otherwise, the items specified by these requirements must be operative.

5. **Considered Inoperative.** The phrase, "Considered Inoperative", as used in the provisos, means that an instrument and equipment item must be treated for dispatch, taxi and flight purposes as though it were inoperative. The item will not be used or operated until the original deferred item is repaired. Additional actions include: documenting the item on the dispatch release (if applicable), placarding, and complying with all remarks, exceptions, and related MMEL provisions, including any (M) and (O) procedures and observing the repair category.

6. **"Deleted"** in the remarks column after a sequence item indicates that the item was previously listed but is now required to be operative if installed in the aircraft.

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

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

9. **"Engine Indicating Crew Alerting System (EICAS), Electronic Centralized Aircraft**

Monitoring System (ECAM) or similar systems" that provide electronic messages refer to a system capable of providing different priority levels of systems information messages (e.g., Warning, Caution, Advisory, Status and Maintenance). An airplane discrepancy message may or may not affect dispatchability. Refer to the specific MMEL for the aircraft type.

10. **"Excess Items"** means those items installed that are excess to the requirements.

11. **"Extended Operations (ETOPS)"** means an aeroplane flight operation, other than an all-cargo operation in an aeroplane with more than two engines, on a route containing a point that is farther from an adequate aerodrome than the distance that can be flown (at an approved one-engine-inoperative cruise speed under standard conditions in still air) in 60 minutes for a two-engine aeroplane or 180 minutes for an aeroplane with more than two engines.

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

13. **"Flight"** means a movement of the aircraft that includes one take-off and one landing.

14. **"Flight Day"** means a 24-hour period (from midnight to midnight) either universal coordinated time (UTC) or local time, as established by the aircraft operator, during which at least one flight is initiated for the affected aircraft.

15. **"Icing Conditions"** means an atmospheric environment that may cause ice to form on the aircraft or in the engine(s).

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

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

18. **"Is not used"** in the provisos, remarks or exceptions for an MMEL item may specify that another item relieved in the MMEL "is not used." In such cases, crewmembers should not activate, actuate, or otherwise utilize that component or system under normal operations. It is not necessary for the operators to accomplish the (M) procedures associated with the item. However, operational requirements must be complied with, and an additional placard must be affixed, to the extent practical, adjacent to the control or indicator for the item that is not used to inform crewmembers that a component or system is not to be used under normal operations.

19. **"(M)"** symbol indicates a requirement for a specific maintenance procedure which must be accomplished prior to operation with the listed item inoperative. Normally these procedures are accomplished by maintenance personnel; however, other personnel may be qualified and authorized to perform certain functions. Where the operator has determined that a particular (M) procedure may be performed by non-maintenance personnel, such a procedure shall be clearly identified in the operator's MEL as well as the inclusion of the following statement:

"Flight crew may perform this procedure provided they have been trained and qualified as required."

Procedures requiring specialized knowledge or skill, or requiring the use of tools or test equipment must be accomplished by maintenance personnel.

The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the operator. Appropriate procedures are required to be published as part of the operator's manual or MEL.

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

21. **"Non-Essential equipment and furnishings (NEF)"** are items installed on an aircraft which are not required by the applicable certification design standards or operating rules. These items form part of the original type certification, supplemental type certificate, or other form of modification and if inoperative, damaged or missing would have no effect on the safe operation of the aircraft under all operational conditions.

22. **"Notes"** Column 4 provides additional information for crewmember or maintenance consideration. Notes are used to identify applicable material which is intended to assist with compliance, but do not relieve the operator of the responsibility for compliance with all applicable requirements. Additional notes may be amended, deleted, or added to the MEL by the aircraft operator, as appropriate. Notes are not a part of the provisos.

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

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

24. **"Operative"** means a system and /or component will accomplish its intended purpose and is consistently functioning normally within its design operating limit(s) and tolerance(s). When a MMEL item specifies that an item of equipment must be operative, it does not mean that its operational status must be verified; it is to be considered operative unless reported or known to be malfunctioning. When a MMEL item specifies that an item of equipment must be verified operative, it means that it must be checked out and confirmed operative at the interval(s) specified for the MMEL item When a MMEL item specifies that an item of equipment must be verified but no interval is specified, verification is only required at the time of deferral.

    Other terminology sometimes used interchangeably with "operative" within the MMEL is "operates normally", "fully operative" and "considered operative". The aircraft operator's MEL may incorporate standardized terminology of the aircraft operator's choice to specify that an item of equipment must be operative, provided that the aircraft operator's MEL definitions indicate that the selected "operative" terminology means that the required item of

equipment will accomplish its intended purpose and is consistently functioning normally within its design operating limits (s) and tolerance(s).

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

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

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

27. **"Dash" "-"** symbol in Column 2 and/or Column 3 indicates a variable number (quantity) of the item installed or required for dispatch. This is common when a fleet MEL is used since aircraft of the same make and model may have differing numbers of specific instrument and/or equipment items installed.

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

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

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

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

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

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

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

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

APPENDIX B

MEL ITEM REPAIR INTERVAL EXTENSION AUTHORITY

Schedule 1

DATE

1. Aircraft type/registration	
2. ATA MEL Number / Item	
3. Repair Interval (Category B or C)	
4. Reason for Extension	
5. Date / Location item became unserviceable	
6. Original date / Location of item scheduled for repair	
7. Name of item required	
8. Part number	
9. Date part ordered / vendor	
10. 1st confirmed delivery date	
11. New date repair scheduled	
12. TC Representatives notified: (names, titles)	
13. Company Director Quality Assurance	
14. Time limit valid to:	__: (z)____(d)____(m)____(y)
15. Transport Canada approved: POI PMI	 Date:_____/_____(signed) Date:_____/_____(signed)

Note: A journey log book entry must be made and dated prior to flight, in accordance with the operator's approved deferral procedures to indicate:

> "This aircraft is operating on a MEL item repair interval extension for MEL Item _____ as specified in the applicable MEL Repair Interval Extension Schedule."

A fully completed copy of the extension form schedule must be completed prior to flight and retained in company files for a period of thirty-six months from the date of the extension.

Copies: 1. Director of Quality Assurance
2. Transport Canada PMI/POI
3. Aircraft Journey Log Book

Schedule 2

GUIDELINES FOR THE USE OF REPAIR INTERVAL SELF EXTENSION

An operator's extension process must be detailed or referenced in an approved document (COM/MCM or MEL) and must address the following:

1. Who:
   a) Within the operator's Maintenance and Flt Ops organizations is authorized to grant extensions;
   b) Within the operator's organization is advised of the extension;
   c) Retains records of extensions and for how long;
   d) Within the operator's organization audits the extension process;
   e) Operator must define which department is responsible to coordinate the extension process.
2. What:
   a) Are acceptable reasons (categories) for extensions?
   b) Should be for unforeseen reasons beyond operator's control;
   c) Categories is the operator authorized to self-extend;

Information Note:
Operators are only allowed to self-extend Category "B" and "C" items.

SELF EXTENSION OF "CATEGORY A" or "CATEGORY D" ITEMS IS NOT PERMITTED.

   d) Operator's Flight operations department must define factors to be considered when a repair interval extension is requested. Examples of these factors are, but not limited to, the following:
      (i) Geographic area of operation
      (ii) Duty times
      (iii) Pilot workload: dense traffic area, multiple deferrals
      (iv) Passenger safety and comfort
      (v) Special operating environments such as ETOPS, RVSM, All weather ops, etc.
      (vi) Crew experience levels

3. When:
   a) Is Transport Canada advised that an extension has been granted?

4. How:
   a) Is the extension documented?
   b) Is confirmation of rectification documented?
   c) Is Transport Canada advised that an extension has been granted?

Repeat extensions for the same MEL item on the same aircraft shall be properly justified and documented.

APPENDIX C

MMEL REVIEW GROUP

Reporting Relationship

To the Chief, Flight Test

Composition

Chairperson: Designated from National Aircraft Certification – Flight Test

Members: Lead Inspector on type – Operational Standards
Lead Engineering Test Pilot on type and/or Flight Test Engineer
Lead Maintenance Inspector on type – Airworthiness
Cabin Safety Standards Inspector (if applicable)
Aircraft Certification Engineer as designated by Chief, Engineering – National Aircraft Certification

Advisors: Aircraft Certification Engineering Specialists

Aircraft Airworthiness Specialists Manufacturer
Operator(s)

Functions and Duties (Chairperson)

A. Domestic Aircraft

1. Co-ordinate with the TC Type Certification Team, aircraft manufacturer, and aircraft operator(s) where appropriate, to ensure that where a MMEL is requested by a manufacturer the MMEL is developed during the type certification process for the aircraft.

2. Co-ordinate drafts of the manufacturer's proposed MMEL for Review Group comments.

3. Prepare the agenda for Review Group Meetings and provide each member and advisor with the agenda in sufficient time prior to the meeting to permit informed review.

4. Conduct MMEL Review Group meetings as required to ensure approval of the MMEL co-incident with the issue of the aircraft Type Certification.

5. Recommend decisions on items of disagreement by MMEL Review Group Members.

6. Maintain records detailing the decisions taken on individual MMEL items and the reasons for them.

7. Provide the Chief, Aircraft Certification Flight Test with a MMEL for approval prior to or coincident with the issuance of the Type Certification for the aircraft.

8. Convene the MMEL Review Group after the aircraft has been in operation for further changes to the MMEL, if necessary.

9. Convene the MMEL Review Group on an as required basis to review the MMEL in response to requests from Transport Canada, the manufacturer, or the operator(s).

B. Foreign Aircraft

1. Co-ordinate a review of the MMEL of the country of manufacture involving the Foreign Authorities and the manufacturer and define any required changes based on Canadian additional airworthiness requirements, operating rules and other considerations. This is normally accomplished as part of the Canadian Type Certification process for the aircraft.

2. Prepare a draft of the Transport Canada MMEL Supplement, when required, for Review Group comments.

3. Items A3 to A10 (for the generation of the TC Supplement.)

APPENDIX D

DEPARTMENT OF TRANSPORT MASTER MINIMUM EQUIPMENT LIST

MINISTÈRE DES TRANSPORTS LISTE PRINCIPALE D'ÉQUIPEMENT MINIMAL

Aircraft – Aéronef	**Revision Nº - Nº de révision:** 10	**Page**
CL 600\601\601-3A\601-3R\604\605\650	**Date:** Nov 25/15	21-1

System & Sequence Nº Item Nº de système/série article		**1.**	**2. Number Installed Nombre d'articles installés**	**3. Number Required For Dispatch Nombre requis pour le** départ	**4. Remarks or Exceptions Remarques ou exceptions**
21 – AIR CONDITIONING					
20-1	Heat Exchanger Fan (Foot warmer-Demist) (600, 601, 601-3A)	C	1	0	
24-1	Cockpit Displays Cooling Exhaust Fan (604, 605, 650)	C	1	0	(M) May be inoperative provided both ACUs are operative. Note: During ground operations at ambient temperatures above 40ºC (104° F), operation of electrical/avionics equipment must be limited to 30 minutes unless at least one ACU is operating and cabin doors are closed.
30-1	Emergency Pressurization System (600, 601, 601-3A)	C	1	0	(O) May be inoperative provided aircraft is operated unpressurized.
30-2	Cabin Altitude Warning System (600, 601, 601-3A, 601-3R)				
	1) Visual (CABIN PRESS LOW light)	C	1	0	(O) May be inoperative provided Cabin Altitude Aural Warning System is operative.
		C	1	0	(O) May be inoperative provided airplane is operated unpressurized.

2) Aural (Horn) ***	D	1	0	(O) May be inoperative provided Cabin Altitude Visual Warning System is operative.
	C	1	0	May be inoperative provide aircraft is operated at or below 10,000 feet MSL.
	C	1	0	May be inoperative provided aircraft is operated unpressurized.

APPENDIX E

TRANSPORT CANADA - MASTER MINIMUM EQUIPMENT LIST (AIRCRAFT TYPE)

Preamble

All equipment installed on an aircraft in compliance with the Airworthiness Standards and the Operating Rules must be operative. However, section 605.07 of the *Canadian Aviation Regulations* (CARs), permits the publication of a Master Minimum Equipment List (MMEL) where compliance with certain equipment requirements is not necessary under all operating conditions. Experience has shown that with the various levels of redundancy designed into aircraft, operation of every system or installed component may not be necessary when the remaining operative equipment can provide the required level of safety.

A Master Minimum Equipment List (MMEL) is developed by Transport Canada, with participation by the aviation industry, to improve aircraft utilization and thereby provide more convenient and economic air transportation for the public. The approved MMEL includes those items of equipment related to airworthiness and operating regulations and other items of equipment Transport Canada finds may be inoperative and yet maintain the required level of safety by applying appropriate conditions and limitations; it does not contain obviously required items such as wings, flaps, and rudders. The MMEL is the basis for development of individual operator MELs which take into consideration the operator's particular aircraft equipment configuration and operational conditions. Operator MELs, for administrative control, may include items not contained in the MMEL; however, relief for administrative control items must be approved. An operator's MEL may differ in format from the MMEL, but cannot be less restrictive than the MMEL. The individual operator's MEL, when approved, permits operation of the aircraft with inoperative equipment.

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

Suitable conditions and limitations in the form of placards, maintenance procedures, crew operating procedures and other restrictions as necessary are specified in the MEL to ensure that the required level of safety is maintained.

The MEL is intended to permit operation with inoperative items of equipment for a period of t i m e until repairs can be accomplished. It is important that repairs be accomplished at the earliest opportunity. In order to maintain the required level of safety and reliability the MMEL establishes limitations on the duration of and conditions for operation with inoperative equipment. When an item of equipment is discovered to be inoperative, it is reported by making an entry in the Aircraft Maintenance Record/ Journey Logbook. The item is then either repaired or deferred as per the MEL. Alternatively, the aircraft must be in compliance with sections 605.08 (2) or 605.09 (2) of the CARs which specify the requirements for operating an aircraft subject to the conditions of a flight permit and the subordinate position of a MEL with regard to an Airworthiness Directive (AD) for the same Item. MEL conditions and limitations do not relieve the operator from determining that the aircraft is in a safe condition for operation with items of equipment inoperative. [See section 605.08 (1) of the CARs]

Operators are responsible for exercising the necessary operational control to ensure that the required level of safety is maintained. When operating with multiple inoperative items, the interrelationships between those items and the effect on aircraft operation and crew workload must be considered.

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

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

APPENDIX F

MEL REVIEW GROUP

Note: This Appendix does not apply to Minister's Delegates for MEL Approvals.

This Group will meet when a recommendation for approval of a MEL is required. It is the responsibility of the Technical Team Lead, Flight Operations (TTL). The MEL Review Group Chairperson would normally be the Principal Operations Inspector for the operator in order to ensure familiarity with the operator and his/her operating environment. The purpose in forming such a group is two-fold; to establish authority and to ensure proper co-ordination between Aircraft Certification – Maintenance and Operational Standards so formalized approvals can be achieved in a timely manner.

Revisions to the MEL may require a meeting of the Review Group. The TTL /AAROA will decide whether the scope and content of a MEL revision will require a formal review. For example, a MEL amended to reflect a recent revision to an operating rule may only require the review of the Principal Operational Standards Inspector.

Reporting Relationship

This group will report to the TTL to AAROA for national / international carriers.

Note: It is up to the individual Region to decide the composition of each MEL Review Group. The example given below is considered desirable for a complex aircraft, but a MEL Review Group may simply consist of an Operational Standards Inspector and an Aircraft Certification Engineering Inspector, reporting simply to a TTL, provided that the Inspectors are familiar with the operator, the operation, and the aircraft. HQ will endeavor to provide assistance to the regions where specialist input is required but not available locally.

Composition

Chairperson:	POI for the Operator
Members:	PMI for the Operator Aircraft Certification Engineer on type (if required) Cabin Safety Operations Inspector (if required) Regional MEL Coordinator (if required) Aircraft Certification Engineering Avionics Inspector (if required)
Advisors:	Headquarters Aircraft Certification Personnel Headquarters MEL Coordinator

Function and Duties (of Chairperson)

Provides co-ordination between Transport Canada and the operator.

If not available from the manufacturer, provides the operator with the MMEL, the Canadian Supplements where applicable, and guidance material to the operator for preparation of a MEL.

Works with the operator to answer any question on MEL preparation.

Ensures the review group reviews the MEL submitted by the operator to ensure compliance with the MMEL and Canadian Supplements that the operator's unique characteristics are addressed, and the (O) and (M) procedures have been developed and referenced.

Recommends decisions on items of disagreement by MEL Review Group Members.

Prepare record of the decisions taken and the reasons for them.

Provides the TTL/AAROA with a MEL for approval.

Meets as required to review the company MEL in response to requests from Transport Canada or the operator.

APPENDIX G

MEL CO-ORDINATION AND APPROVAL FORM

Note: This Appendix does not apply to Minister's Delegates for MEL Approvals.

MEL Approval Form		
Operator		Operator File Number
MMEL/TC Supplement Revision Date		Aircraft Certification File Number
Operations Submission	Aircraft Model	Revision No. and Date
Aircraft Certification	Aircraft Model	Revision No. and Date

I confirm that the submitted operational and maintenance procedures are acceptable, considering this operator's facilities, personnel and route structure.

_____ _____

Airworthiness Representative Operational Standards Representative

APPENDIX H

SAMPLE - MEL APPROVAL LETTER

The (Aircraft Type) minimum equipment list updated to revision ** and received by this office on March 23, 20**, has been reviewed and meets the requirements of the MMEL/MEL Policy and Procedures Manual. The (Aircraft Type) MEL is approved in accordance with CAR 605.07 (3), for use by (Operator's Name) with the understanding that Transport Canada may require further amendments to the (Aircraft Type) MEL as regulatory requirements or airworthiness standards are modified.

The List of Effective Pages (LEP) has been date stamped and approved (or as specified for the operator)

OR

The List of Effective Content (LEC) has been reviewed and approved (Reference 3.11.1)

… and this together with the letter of approval form part of your approved Minimum Equipment List.

_____

Technical Team Lead,
(or TC regional delegate)
Flight Operations
for
The Minister of Transport

APPENDIX I

TRANSPORT CANADA APPROVED MINIMUM EQUIPMENT LIST

Sample Page

Challenger 350 MEL

ATA System & Sequence Numbers	1. Repair Interval (Category)	2. Number Installed	3. Number Required for Dispatch	4. Remarks or Exception
21 Air Conditioning				
61-08 Baggage Compartment Heaters	C	2	0	(M)(O) Any or all may be inoperative provided affected heater is deactivated. **[PLACAR 21-61-08-1]** **[OPER 21-61-08-1]** **[MAINT 21-61-08-1]**

[PLACAR 21-61-08-1]

Put a BAGGAGE COMPARTMENT HEATER INOPERATIVE placard on the instrument panel.

[OPER 21-61-08-1]

Note: With the baggage compartment heater(s) inoperative, the temperature in the baggage compartment may drop below freezing point.

[MAINT 21-61-08-1]

Note: Flight crew may perform this procedure.

A.

APPENDIX J

REVISION REQUIRED TO MEL - SAMPLE LETTER

Dear Operator;

This letter is to advise you that the Canadian MMEL for the DHC-8 aircraft, from which your MEL is based, has been revised. In order to maintain your MEL approval, please submit an amendment to your MEL incorporating Revision No. XX no later than 90 days from the date of this letter.

If you are unable to obtain a copy of the MMEL revision, you may contact this office at:

Regional Office (XXX) XXX-XXXX

Or

National MMEL Office (613) 773-8314

Technical Team Lead,
(or TC regional delegate)
Flight Operations, (Region)
for
The Minister of Transport

APPENDIX K

MEL APPROVAL REGULATORY REFERENCES

Night Flying Equipment	CAR 605.16
Oxygen Equipment	CAR 605.31
Transponder and Automatic Pressure Altitude Reporting Equipment	CAR 605.29
Flight Data Recorder	CAR 605.28
Cockpit Voice Recorder	CAR 605.29
Altitude Alerting System	CAR 605.30
Emergency Locator Transmitter	CAR 605.38
Additional Gyroscopic Bank and Pitch Indicator	CAR 605.32
Day VFR Instruments	CAR 605.14
Minimum Equipment required to be operational for flight	CAR 605.07
Terrain Alert Warning System	CAR 605.72
IFR Instruments and Equipment	CAR 605.17
Floor Proximity Emergency Escape Path Lighting	CAR 705.78
Aeroplane Cabin Fire Protection Lavatory	CAR 705.76
Aeroplane Hand Held Fire Extinguishers	CAR 705.93

Note: Other references and requirements particular to the class of operation (Aerial Work, Air Taxi, Commuter and Airline) may be found in the Aircraft Equipment Requirement Sections of CARs 702, 703, 704, and 705).

APPENDIX L

FLOW CHART

OPERATOR DEVELOPMENT OF MEL

1. Is there a MMEL and/or TC Supplement for this aircraft type?	--- No---	Discontinue.
---Yes---		
2. Acquire a current copy from your Regional TC office or online.		
3. Do I have a current copy of the AFM?	--- No---	Acquire AFM
---Yes---		
4. Do I have a current copy of CARs 605?		
---Yes---	---No---	Acquire CAR 605
6. Do I have a current copy of the TC MEL Policy and Procedures Manual?	---No---	Acquire Manual (TP9155)
---Yes---		
7. Have I included the MEL preamble and/or program instructions?	---No---	Include Instructions
---Yes---		
8. Do I have a list of effective pages or list of effective content?	---No---	Establish list of effective pages or list of effective content.
---Yes---		
9. Is there a table of contents included in my MEL?	--- No ---	Include table of contents
--Yes---		

10. Does my MEL include all notes and definitions for the use of the MEL? ---Yes---	--- No ---	Include notes and definitions.
11. Do I have a MEL format based on the TC MMEL/MEL Manual, TP9155? ---Yes—	--- No ---	Establish format as suggested in Manual
12. Are my (O) procedures clearly written? ---Yes---	--- No ---	Rewrite to ensure procedures are included and clearly understandable
14 Are my (M) procedures clearly written? ---Yes---	--- No ---	Rewrite to ensure procedures are included and clearly understandable
15. Are all items at least as restrictive as the MMEL? ---Yes---	--- No ---	All items must be at least as restrictive.

STOP - Go back and re-check last 3 items to ensure they are complete

16. Have I established procedures for the use of my MEL in my Ops. Manual and MCM? ---Yes---	--- No ---	Establish procedures for both Manuals.
17 Have I established a training program for use of this MEL? ---Yes---	--- No ---	Establish training program.
18. Submit MEL to Transport Canada Regional office for approval.		

APPENDIX M

TRANSPORT CANADA MEL APPROVAL FLOW CHART

1. Is there an MEL Review Group established? Yes	---No---	Establish MEL Review Group.
2. Is there a TC-approved MMEL for this aircraft? (or foreign MMEL & TC Supplement) Yes	---No---	Discontinue; advise operator.
3. Acquire a current copy of MMEL & TC Supplement, if applicable.		Acquire from Manufacturer, Foreign Aviation Authority and/or Transport Canada.
4. Do I have a current AFM? Yes	---No---	Acquire manual.
5. Do I have a copy of the TC Policy and Procedures Manual (TP9155)? Yes	---No---	Acquire manual.
6. Does the MEL contain a list of effective pages Yes	---No---	Include a list of effective pages.
7. Does the MEL contain a table of contents? Yes	---No---	Include table of contents.
8. Does the MEL include the preamble or program rules? Yes	---No---	Include preamble or program rules.
9. Does the MEL contain a section for the notes and/or definitions? Yes	---No---	Include notes and/or definitions.
10. Does the MEL format follow an acceptable format as per TP 9155? Yes	---No---	Suggest acceptable format.
11. Check each item against MMEL.		(See TP9155 Section 3.8.1 & 3.8.2)
12. Are the operator's (O) procedures clear and understandable? Yes	---No---	Rewrite - procedures must be clear.
13. Are operator's (M) procedures clear and understandable? Yes	---No---	Rewrite - procedures must be clear.
14. Are all items at least as restrictive as the MMEL? Yes	---No---	Items cannot be less restrictive

15. Does the operator's Operations Manual and MCM include instructions for the use of the MEL? Yes	---No---	Establish and publish procedures in the Ops. Manual and MCM.
16. Does the operator have a MEL training program?	---No---	Operator to establish MEL training program.

STOP - If any answer to questions 6 to l0 or l2 to l6 is no, return MEL to operator for corrective action.

APPENDIX M1

The purpose of Appendix M1 is to provide TCCA personnel with a standardized process for reviewing the air operator's MEL using a random sampling method. This method will replace Step 11 of Appendix M which states: "Check each item against MMEL"

Inspectors shall complete Steps 1-10 of Appendix M as it is currently published to ensure that the document contains applicable list of effective pages, table of contents, preamble or program rules, section for notes and/or definitions and that the MEL is in an acceptable format as per TP9155.

For Step 11:

1. Determine the lot size. The lot is the number of individual items in the MEL or amendment. (e.g. 23-1, 23-2 are recognized as two items. An item may have multiple pages.)
2. Determine the sample size. Using the "Lot and Sample Size Table" at the top of Appendix M3, establish the sample size based on the lot size (total items) determined from step 1 above.
3. Determine the random sample using a random sampling application and document the method and results. One can be found on the Industry Canada website: http://strategis.ic.gc.ca/app/mc/rndm/RndmMn?lang=eng. See Appendix M3 for an example of how to document the results.
4. Insert the random sample numbers into Appendix M2, "Random #" column to reflect results of Step 3. Add rows as necessary.
5. Record the item number being checked into Appendix M2, "Page or ATA/Item #" column.
6. Complete a review of all items in the sample set using the MMEL, TC Supplement and other applicable documents. Assess the operations and maintenance functions and procedures to ensure that the procedures produced and published by the air operator are relevant to the required task. Document the specifics of every issue found into Appendix M2, "Comments" column.

Complete the remaining steps of Appendix M to ensure all other criteria for an MEL have been met.

Acceptance: If the document review is satisfactory, the document may be approved.

Note: Minor errors such as typos and formatting should not hold up the approval, provided they do not change the intent of the procedure. However, they should be discussed with the air operator.

Rejection: The submission will be rejected if there are one (1) or more errors discovered in the review. Statistically this indicates a high level of confidence that other similar errors exist throughout the document. When rejecting the submission, respond to the operator with a letter that provides:

a) A generalized list of all the systemic error(s) taken from the "Comments" column of Appendix M2. Do not provide the specific examples or page references from Appendix M2. For example, the errors should be documented as "numerous page number errors" or "the "O" procedures are not consistent with the type of operation". An example of a rejection letter is provided in Appendix M4.

b) Instructions for the air operator to conduct a review of the entire manual based on the identified errors and ensure that all errors are corrected prior to resubmitting the manual; and

c) Instructions for the air operator to include a list of changes with their next submission that identifies where all corrections were made throughout the manual.

When the revised manual has been received, the MEL Review Group shall assess the list of changes to ensure that the operator conducted a complete review and that all specific errors identified in Appendix M2 have been corrected. Once this is verified, the MEL may be approved.

The sampling process shall only be done once. If the submission was not satisfactory (insufficient review or particular errors not identified), return the manual to the company. The inspector shall now communicate with the company and use their own judgement on how to resolve the errors identified in Appendix M2, based on the content/quality of their submission.

Regional protocol will be used for all documents. (RDIMS, CCM Mercury, NACIS, etc.)

APPENDIX M2

RECORD OF SAMPLED PAGES FOR MEL APPROVAL

Company Name	**Company File No.**	**Aircraft Type**	**Review Date**	**ATS No.**
	5258-			
MMEL Rev/Date	**TC Supplement Rev/Date**	**DDPG Rev/Date**	**Lot size**	**Sample Size**
Review Completed by: Operations:		**Airworthiness:**		
Company Consultants: Operations:		**Airworthiness:**		

Count	**Random #**	**Page or ATA/Item #**	**Accept Y / N**	**Comments**
		LEP or LEC		
		Table of Contents		
		Preamble		
		Notes & Definitions		
		Letter of Approval		
		Amendment Record		
1.				
2.				
3.				
4.				
5.				
6.				
7.				
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9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				

APPENDIX M3

LOT AND SAMPLE SIZE TABLE

Lot Size	1-13	14-150	151-280	281-500	501-1200	1201-3200
Sample Size	All	13	20	29	34	55

EXAMPLE RESULTS of RANDOM SAMPLE

Results

Operator:	ABC Company
Lot identifier:	CL30 MEL
Sampling type:	Single
Sample size:	20
Lot size:	192 (ATA ITEMS)
Date/Time:	2014-08-18 14:25:01 EDT
Sort results:	Yes

Random sample for stage: 1	
Count	**Index from lot listing**
1:	5
2:	9
3:	13
4:	36
5:	57
6:	62
7:	86
8:	100
9:	102
10:	106
11:	107
12:	111
13:	115
14:	116
15:	139
16:	140
17:	144
18:	161
19:	175
20:	190

APPENDIX M4

MEL REJECTION LETTER EXAMPLE

Dear Name:

In reference to the (aircraft type) Minimum Equipment List submission dated (date of manual), Transport Canada has determined that the MEL is not acceptable.

Transport Canada has reviewed your submission in its entirety with the exception of the MEL relief items which were randomly sampled. Our review has identified the following issues:
(Modify the list to generalize the errors found in your review/sample, such as, but not limited to :)

1. The list of effective pages/ list of effective content does not accurately reflect the current submission of your MEL;

2. The ATA numbering system is not accurate;

3. The MEL format does not follow an acceptable format as per TP9155;

4. There are several occurrences where the (M) or (M#) procedures were not clear and understandable;

5. There are several occurrences where items are not as restrictive as the MMEL.

It is expected that your company will conduct a review of the entire manual based on the identified errors and ensure that all errors are corrected prior to resubmitting the manual. A list of changes that identifies where all corrections were made throughout the manual shall be included in the next submission.

Yours Truly,

Inspector's Name

Position

APPENDIX N

OPERATIONS MANUAL AMENDMENT GUIDE

MEL Defect Deferral Suggested Procedures

Disclaimer

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

It is not intended to be used as a guide or checklist for those operators who have existing procedures that currently meet the intent of AWM 573 requirements.

The procedures developed below are specifically for a Company Operations Manual. These procedures should be identical to those found in the MCM and in the MEL.

MEL DEFECT DEFERRAL PROCEDURES

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

1.1 Defects and Their Control - General

a) All defects will be entered in the aircraft Journey Log Book. (If applicable interior cosmetic defects may be entered in a Cabin Defect Log Book.)

b) Prior to flight all defects shall be actioned and certified or deferred in accordance with the procedures set forth in the Company Operations Manual (COM), Maintenance Control Manual (MCM) and minimum equipment list (MEL).

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

1.2 Deferred Defect Restrictions

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

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

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

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

1.3 Deferring Procedures and Control - Maintenance

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

a) The defect will be entered in the Journey Log Book as "deferred in accordance with MEL ATA #..." and signed by a qualified AME.

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

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

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

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

i. Follow the procedures in the MCM for placarding control.

OR

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

OR

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

f) It is mandatory that all defects not cleared when the Journey Log Book expires be transferred to the new Journey Log Book with all details.

1.4 Use of MEL - Flight Crew

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

a) The Pilot-in-Command will enter the defect in the Journey Log Book.

b) The Pilot-in-Command will advise the Maintenance department as soon as practicable.

c) Where required the flight crew will adhere to all column 4 restrictions and perform (O) procedures as applicable.

d) Some (M) Procedures may be actioned and deferred by Flight Crews who have been trained and are current to do so under the authority of an operator's "Elementary Work" approval.

e) Flight Crews may not perform (M) procedures if the defect does not involve approved Elementary Work on items so designated in the operator's MEL.

f) Except for Elementary Work provisions**, (M)** denotes MAINTENANCE PERSONNEL REQUIRED. The aircraft may not proceed until maintenance carries out the procedures stipulated in Section 1.3.

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

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

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

j) If any doubt exists, the pilot must consult maintenance to confirm that the ATA item and procedure has been deferred correctly prior to subsequent dispatch.

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

1.5 Journey Log Book Procedures

(O) and (M) Procedures

PRIOR TO EACH DEPARTURE:

Where an (O) and/or (M) Procedure is required PRIOR TO EACH DEPARTURE, the Pilot-in- Command will ensure all required actions are completed in accordance with the MEL.

PRIOR TO EACH FLIGHT DAY:

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

APPENDIX O

INITIAL AND RECURRENT MEL TRAINING - SAMPLE SYLLABUS

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

1.1 MEL Origin and Philosophy

a) MMEL and TC Supplement background and development.

b) MEL background and development.

1.2 General MEL Content

a) Approval Letter

b) List of effective pages

c) Table of contents

d) Preamble

e) Definitions

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

1.3 Specific Use of the MEL

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

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

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

1.4 Examination

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

1.5 Company Forms

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

APPENDIX P

AIRCRAFT SYSTEM NUMBERING SPECIFICATION

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

Chapter	Title
21	Air Conditioning
22	Auto Flight
23	Communications
24	Electrical Power
25	Equipment/Furnishings
26	Fire Protection
27	Flight Controls
28	Fuel
29	Hydraulic Power
30	Ice and Rain Protection
31	Indicating/Recording Systems
32	Landing Gear
33	Lights
34	Navigation
35	Oxygen
36	Pneumatic
37	Vacuum
38	Water/Waste
44	Cabin Systems
45	Central Maintenance System (CMS)
46	Information Systems
47	Inert Gas System
49	Airborne Auxiliary Power

Chapter	Title
50	Cargo and Accessory Compartments
52	Doors
53	Fuselage
54	Nacelles/Pylons
55	Stabilizers
56	Windows
57	Wings
61	Propellers/Propulsion
62	Rotor(s)
63	Rotor Drive(s)
64	Tail Rotor
65	Tail Rotor Drive
67	Rotors Flight Control
71	Power Plant
72	Engine Turbine/Turbo Prop
73	Engine Fuel and Control
74	Ignition
75	Air
76	Engine Controls
77	Engine Indicating
78	Exhaust
79	Oil
80	Starting

APPENDIX Q

NON-ESSENTIAL EQUIPMENT AND FURNISHINGS

1 The Requirements for an operator's NEF Program

The NEF program is part of the defect control procedures which must be described in the operator's Maintenance Control Manual (MCM) or Maintenance Control System, as applicable. Operators who choose to use the deferral capabilities granted in the MMEL must submit their NEF Program to their assigned TCCA Principal Maintenance Inspector (PMI) for acceptance.

The operator is responsible for the establishment of the NEF program components and for its designing, implementing, maintaining, and revising as needed.

The required components of an NEF Program are:

a) Procedures and processes for the method of selecting applicable NEF candidate items that must include and address the elements stated in section 2 (The Selection of NEF Candidate Items). This includes;
- Applying the appropriate maintenance (M) and operational (O) procedures necessary for the continued operation of the aircraft that may involve follow-up maintenance and/or repair,
- Assigning an appropriate repair interval. Repair intervals may reflect current MEL deferral categories or an alternative as accepted by the TCCA inspector,
- Submitting for TCCA review in a mutually accepted time frame newly discovered items to be added to an existing TCCA accepted NEF list. Refer to section 3 (NEF List and Reporting).

b) Procedures and processes for the method of tracking NEF items within a prepared and pre-determined itemized list or equivalent;
- The NEF process and applicable lists or portions of must be available to the flight and cabin crews, maintenance, and flight operations personnel, as appropriate, when items are being deferred in accordance with the operators NEF program,
- The NEF list and the associated processes may reside in a manner and location selected by the operator and accepted by the TCCA inspector.

c) Procedures and processes for the method of applying and removing of NEF item deferrals and the associated documentation.

d) Procedures and processes for the method of complying with the requirements of section 571.02 of the CARs for any portions of the NEF program that references or requires the performance of maintenance when addressing an NEF item deferral or its

removal.

The NEF program procedures and processes may be modified to facilitate inclusion into an existing operator's MEL deferral program provided that all components are addressed.

2 The Selection of NEF Candidate Items

The procedures and processes for identifying and selecting NEF candidate items is essential under the operator's NEF program. This includes specific elements of review to ensure all safety and operational requirements are considered and met before being implemented within the operator's NEF program.

Figure 1 (NEF Item Selection Criteria Flowchart) is provided as an aid for the minimum elements of review that must be addressed in the determination of NEF candidate items by the operator.

This level of review will be needed during the development of an initial NEF item list prior to NEF program acceptance or for newly discovered items being added to an existing TCCA accepted NEF list.

The following elements are in numerical sequence to the numbered boxes of Figure 1;

1) **Documentation;**

For an inoperative, damaged, or missing item to be considered as an NEF candidate, the discrepancy must be documented in the aircraft technical record (or other approved location) as per the operator's defect control procedures. This action is completed by the flight crew, company maintenance personnel, or personnel authorized and approved to perform such functions as outlined in the operator's applicable manuals.

Note: This step may be considered as not applicable when developing an initial NEF item list prior to NEF program acceptance. Proceed to step 2.

2) **Existing NEF Item?**

If the inoperative, damaged, or missing item is already on an existing TCCA accepted NEF list, the established procedures for the NEF program deferral of the item are to be followed.

3) **MMEL, CDL, or MEL Items?**

If the inoperative, damaged, or missing item is not an existing NEF item but exist within an MMEL, CDL, or MEL, the item shall not be deferred in accordance with the operator's NEF program or be considered as an NEF candidate. Deferral procedures for inoperative, damaged, or missing items listed in the MMEL, CDL, or operator's MEL must be followed. This includes items that are subcomponents of a system identified in the MMEL, MEL or CDL where no previous relief was available.

4) **Required for Certification or Operational Rules?**

If the inoperative, damaged, or missing item does not exist within an MMEL, CDL, or MEL but is required by an applicable certification design standard or operational rule, the item shall not be deferred in accordance with the operator's NEF program or be

considered as an NEF candidate. This includes items that are functionally required to meet a certification design standard or for compliance with any operational rule. For example, certification design standard requirements for transport category aircraft state that "No Smoking" placards and ashtrays must be located in all lavatories.

Other scenarios that would exclude an item as an NEF candidate may include:

- Could the item's deferral have a negative impact on emergency or abnormal procedures?
- Could the item's deferral conflict and be contrary to the operator's TCCA approved maintenance schedule?
- Do crew members need to evaluate the deferred item through an (O) procedure that would be counterproductive and interfere with their normal operations procedures?

5) **Effect to safety-of-flight?**

If the inoperative, damaged, or missing item is not required by an applicable certification design standard or operational rule but there is a safety-of-flight issue with the item or it is obvious from a maintenance or operational perspective that failure or malfunction of the item could have an adverse effect on the safe conduct of flight, that item shall not be deferred in accordance with the operator's NEF program or be considered as an NEF candidate. Considerations may include;

- Could the inoperative, damaged, or missing item create the potential for or impede with the detection of fire/smoke or other hazardous conditions?
- Could the inoperative, damaged, or missing item have an adverse effect on the safe operation of other required systems or components?
- Could the inoperative, damaged, or missing item's condition potentially affect the safety of passengers, crew, or service personnel?
- Could the inoperative, damaged, or missing item create an additional workload for the crew at critical times of flight or flight preparation?

6) **Can the source be identified?**

If the inoperative, damaged, or missing item has no effect to safety-of-flight or is uncertain, can the source or cause of the failure or malfunction be identified and further evaluated? If the source (underlying cause or reason the item failed or malfunctioned) cannot be identified, that item shall not be deferred in accordance with the operator's NEF program or be considered as an NEF candidate.

7) **Does the source affect safety?**

If the source (underlying cause) of the failure or malfunction of the inoperative, damaged, or missing item can be identified, and;

- Has no effect on the safety-of-flight, the item may be deferred in accordance with the operator's NEF program or be considered as an NEF candidate. Proceed to step 10.

- Affects the safety-of-flight, the item shall not be deferred in accordance with the operator's NEF program or be considered as an NEF candidate.
- If the determination of the effect to safety-of-flight is uncertain or unclear, further evaluation will be needed. Proceed to step 8.

8) **Further evaluation to determine effect to safety;**

If it cannot be determined or remains uncertain that the source of the failure or malfunction of the inoperative, damaged, or missing item affects the safety-of-flight, determine if any applicable maintenance procedures can isolate the source (underlying cause) of the item's discrepancy from the system. If the source of the discrepancy:

- Cannot be safely isolated using applicable maintenance procedures, the item has failed its evaluation and shall not be deferred in accordance with the operator's NEF program or be considered as an NEF candidate.
- Can be isolated using applicable maintenance procedures, it must pass a re-evaluation of review. Proceed back to step 5.
- Has no effect on safety-of-flight, the item has passed its evaluation and may be deferred in accordance with the operator's NEF program or be considered as an NEF candidate. Proceed to step 9.

9) **Defer in Accordance with NEF Program or determined as an NEF Candidate Item;**

After completing and meeting the previous eight element requirements, the item can be deferred in accordance with the TCCA accepted NEF program or be considered as an NEF candidate.

10) **Update the NEF List and report to TCCA;**

When developing an initial NEF list or updating an existing TCCA accepted NEF list, the initial list or revision to the existing list is to be reported to TCCA in accordance with section 3 (NEF List and Reporting).

The NEF list should be comprehensive but may be listed in general terms. For example, cosmetic trim strips may be listed rather than identifying each strip individually on the NEF list.

3 NEF List and Reporting

Upon initial application for the development of an NEF program, the operator will need to provide to the PMI all NEF items chosen, and be presented in an itemized list format or equivalent. This includes all details for the determination of identifying and selecting a defect as an NEF candidate item in accordance with section 2 (The Selection of NEF Candidate Items).

When a new NEF item is added to an existing NEF list under a TCCA accepted NEF program, the operator will need to report to the PMI the NEF item(s) chosen. This will include all details for the determination as an NEF candidate item as defined and in

accordance with the operator's accepted NEF program. A mutually acceptable timeframe will need to be determined between the operator and PMI and defined within the operator's NEF program for the reporting, review and acceptance of newly identified and deferred NEF items.

Once TCCA accepted, the operator's NEF list will be a document incorporated by reference within the operator's NEF program.

4 Program Acceptance

An NEF Program that complies with all applicable NEF guidelines listed in the MMEL/MEL Policy and Procedures Manual (TP 9155) may be accepted by the PMI.

Once the NEF program has been accepted, the PMI will recommend to the Principal Operations Inspector (POI) or Minister's Delegate responsible for the approval of the operators MEL that the MMEL NEF provision be included in the operator's MEL, ATA Chapter 25 (refer to MMEL Guidance Book, item 25-20-1).

Any policy and procedural changes or revisions to an operator's TCCA accepted NEF program including a change to the NEF list will require PMI review for its continued acceptance.

The inclusion of the NEF provision within the operator's approved MEL will grant the operator the authority for its use in accordance with their accepted NEF program.

5 Figure 1: NEF Item Selection Criteria flowchart