



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

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# FOREWORD

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

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

This Manual has been integrated into the Transport Canada website (TC website). The Internet address for the MMEL/MEL web page is [http://www.tc.gc.ca/aviation/mmel/intro\\_e.html](http://www.tc.gc.ca/aviation/mmel/intro_e.html). Questions concerning the MMEL web page may be referred to the MMEL coordinator at (613) 952-4416. The MMEL web page provides electronic access to the *MMEL/MEL Manual* (TP 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.

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Original signed by

Michel Gaudreau  
Director Commercial & Business Aviation

# RECORD OF AMENDMENTS

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Amendment No.	Date	Pages Affected	Date Entered	Initials

# ACRONYMS

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

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# Chapter 1

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## 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 a Minimum Equipment List (MEL).

### 1.3 The Transport Canada MMEL Supplement (or TC Supplement)

For a foreign manufactured aircraft, 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.

Interim relief may be available between the time an item is approved by Transport Canada with MMEL relief, and the time the relief is published in the TC Supplement.

### 1.4 The Transport Canada MMEL STC Addendum (or STC Addendum)

For Canadian manufactured aircraft, the TCCA approved MMEL, where required, will be expanded with the addition of a STC Addendum. The STC Addendum, is an overriding document with respect to the applicable STC, which modifies or adds items in the domestic MMEL to conform to Regulatory requirements.

Interim relief may be available between the time the STC is approved by Transport Canada with MMEL relief, and the time the relief is published in the STC Addendum.

## **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**

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

CAR 605.07 stipulates that the Minister may establish a MMEL for each type of aircraft, in accordance with the MMEL/MEL Policy and Procedures Manual. The Minister may supplement a MMEL that has been issued by a foreign state where necessary to ensure compliance with the MMEL/MEL Policy and Procedures Manual. Where a MMEL or a supplement have been approved, the Minister shall approve a minimum equipment list in respect of each air operator of that type of aircraft, provided that the requirements set out in the MMEL/MEL Policy and Procedures Manual are met.

Where a Master Minimum Equipment List has been established for a particular type of aircraft, a Minimum Equipment List shall not be approved for that type of aircraft unless it complies with the minimum standards set out in that MMEL.

## **1.7 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 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, that does not affect airworthiness.

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



# Chapter 2

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## MASTER MINIMUM EQUIPMENT LIST

### 2.1 Applicability

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

### 2.2 Approval Authority

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

### 2.3 MMEL Guidance Book

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

only. Users are encouraged to provide feedback for the correction and amplification of the guidance material and to propose additional items which may be included.

- c) An example of a Guidance Book item is included at Appendix D.

## **2.4 MMEL Philosophy**

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

### **2.4.1 Level of Safety**

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

To establish the equipment for any given operating condition, the MMEL Review Group must consider various factors relating to safe operation when such equipment is inoperative. These include the consequence to the aircraft and its occupants of further failures, change in crew workload and/or degradation in crew efficiency and degradation in crew capability to cope with adverse 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:
  - the adjustment of operating limitations;
  - transfer of the function to an operating component;
  - reference to other instruments or components performing the required function or providing the required information;
  - change in operating procedures;
  - change in maintenance procedures; and/or

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) AWM 525.841(b)(5) requires that pressurized cabins must have instruments at the pilot or flight engineer station to show the pressure differential between the cabin air pressure and atmospheric pressure.
- c) In order to meet the criteria, the MMEL proposal would have to stipulate that the following conditions be met:
  - the cabin altimeter must be operative; and
  - 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**

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

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

### **2.4.5 Optional Equipment**

When aircraft are approved with optional equipment on board which is over and above the required equipment, there is no necessity for such equipment to be operative if it is in excess of that required for safe operations for a particular flight condition or route of flight. Inclusion in the MMEL can be accepted on this basis.

### **2.4.6 Redundant Items**

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

### **2.4.7 Quantitative Safety Analysis**

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



hazard has not been increased beyond the levels dictated by the minimum standards specified for the design and operation of the aircraft type.

### **2.4.8 Qualitative Safety Analysis**

If an item is to be acceptable for inclusion in a MMEL, a qualitative analysis must be used to consider the impact that the proposed inoperative item has on all other aspects of the aircraft's operation. The qualitative analysis must consider the impact on crew workload, the impact of multiple MMEL items, and the complexity of maintenance and/or operational procedures. It may reflect experience with previous MMEL approvals.

Note: A previous MMEL approval of the same item on another aircraft type does not in itself imply that the required level of safety has been met.

## **2.5 MMEL Policy**

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

### **2.5.1 Development of a MMEL**

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

### **2.5.2 MMEL Source**

#### **a) Domestic Aircraft**

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

#### **b) Foreign Aircraft**

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

#### **c) Supplemental Type Certificate (STC)**

MMEL relief for new or modified equipment must be considered during the approval process for the STC. If the developer of an STC for a domestic aircraft

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, 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 Air operators**

a) Domestically Manufactured Aircraft

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

b) Foreign Manufactured Aircraft

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

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

### 2.5.6 Foreign MMELs

- a) Transport Canada may accept foreign MMELs approved by the regulatory authority of the country of manufacture, as published. Transport Canada will evaluate the foreign MMEL to determine the basis and justification for each MMEL item.
- b) When required, Canadian interpretations, additional airworthiness requirements and operating rules will be addressed by a TC Supplement, which will be developed by the MMEL Review Group and produced by Transport Canada. The TC Supplement will constitute a mandatory change to the foreign MMEL and will be used in conjunction with it. Where the two documents differ, the TC Supplement will supersede the accepted MMEL.

### 2.5.7 Notification of Approval

All MMELs and TC Supplements approved for Canadian air 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.

#### *Temporary or Interim MMEL Revisions*

Manufacturers may issue temporary or interim revisions to their MMELs which may not be incorporated into the permanent revision for some time.

### 2.5.9 MMEL Page Format

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

### **2.5.10 MMEL Format**

- a) Each MMEL should contain a cover/approval page, a Log of Revisions, a Reason for Changes page, a List of Effective Pages, a Table of Contents, an explanation of the symbols used in the MMEL and a definition of any terms having special meaning in the context of the MMEL. Each item of equipment listed in the MMEL shall be described and identified in accordance with the Air Transport Association (ATA) specification 100 code system. (See Appendix T.) The number of each item of equipment installed and the number required to be operative for dispatch shall be stated in the appropriate columns.
- b) Any conditions associated with inoperative equipment, required to maintain a level of safety, shall be included in the “Remarks or Exceptions” column.
- c) When practicable, the switch, lever, gauge or indicator of a particular item of equipment, should be identified. Foreign MMELs may indicate a requirement to placard inoperative equipment by use of an asterisk (\*) in column 4 to inform crew members of its condition. For domestic MMELs, a definition has been added which states that each inoperative item must be placarded to inform and remind the crew members and maintenance personnel of the equipment condition.

### **2.5.11 Operating and Maintenance Procedures**

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

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

### **2.5.12 Prohibited Items**

- a) The MMEL shall not include any item of equipment which, if inoperative, is likely to significantly affect the take-off, landing or climb performance of the aircraft or associated landing speeds presented in the approved Aircraft Flight Manual (AFM) unless the AFM specifies the effect and the MMEL draws attention to this fact.

- b) No item shall be included in the MMEL which conflicts with the limitations, or invalidates or reduce the ability to perform an emergency procedure in the AFM or in an airworthiness directive unless the AFM or directive provide otherwise.
- c) The MMEL shall not include any part or structural component of the aircraft which is the subject of the Configuration Deviation List (CDL).

### **2.5.13 Equipment required by operating Regulation**

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

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

### **2.5.14 Repair Interval Categories**

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

#### *Category A*

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

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

#### *Category B*

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

#### *Category C*

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

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

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

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

### *Category Format*

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

## **2.6 MMEL Procedures**

### **2.6.1 General**

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

### **2.6.2 Domestically Manufactured Aircraft**

#### **a) Draft MMEL**

The draft MMEL is to be originated by the manufacturer and should be submitted to Transport Canada as early as possible in the type certification process. Inputs from the aircraft air 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 operating and maintenance procedures must be supplied in sufficient detail to permit an understanding of each associated MMEL item. Approval of the procedures themselves will not be a part of the MMEL approval process, but rather, the MEL approval process.

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 air operator is responsible for developing their own procedures, or using the TC generated MELs, which contain pre-approved maintenance and operations procedures.

b) **Transport Canada Review**

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

c) **Approval and Publication**

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

### **2.6.3 Foreign Manufactured Aircraft**

a) **Source MMEL**

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

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

b) **Transport Canada Review**

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

c) **Approval and Publication of the TC Supplement**

The TC Supplement will be submitted to the Chief, Aircraft Certification Flight Test, for approval and subsequently will be published on the MMEL/MEL web

page . A copy will also be sent to the appropriate foreign authority and the aircraft manufacturer.

## **2.6.4 Revisions to MMELs, TC Supplements and Addendums**

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

### **a) Approval of Revisions**

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

### **b) Approval Process — Domestically Manufactured Aircraft**

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

### **c) Approval Process — Foreign Manufactured Aircraft**

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

### **d) MMEL Revision Status**

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

## **2.6.5 MMEL Global Changes**

### **a) General**

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

The issuance of a GC grants the air 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 Global Changes will occur in any great number.

### **b) Definitions**



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

c) Purpose

The purpose of GCs is to recind, 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 air 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 Guidance Book. Both the GCs and the TCGB are available on the MMEL/MEL web page. When a MMEL is revised, the Reasons for Changes List will state which numbered GCs have been incorporated in that revision.



# Chapter 3

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## MEL POLICY AND PROCEDURES

### 3.1 MEL Purpose

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

- a) identify the minimum equipment and conditions for an aircraft to maintain conformity with the standards of airworthiness and to meet the operating rules for the type of operation;
- b) define operational procedures necessary to maintain the required level of safety and to deal with inoperative equipment; and
- c) define maintenance procedures necessary to maintain the required level of safety and procedures necessary to secure any inoperative equipment.

### 3.2 MEL Definition

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

### 3.3 MEL Intent

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

### **3.4 MEL Limitation**

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

### **3.5 Audit of Air operator MELs**

Transport Canada will audit the air operator's conformance to MEL requirements on an ongoing basis, and as part of any company audit. Significant non-conformances may result in the MEL approval being withdrawn. (See Section 3.9.5 - MEL Audits)

### **3.6 Applicability**

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

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

### **3.7 Administrative Procedures**

#### **3.7.1 Approval Authority**

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

#### **3.7.2 Initial Application Information**

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

### 3.7.3 MMEL Approval Status

a) Domestic MMELs

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

b) Foreign MMELs

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

c) Temporary or Interim MMEL Revisions

Temporary or interim MMEL revisions may be incorporated into an air operator's MEL, subject to TC approval as it is for regular amendment.

### 3.7.4 MMEL Acquisition

Approved MMELs and TC Supplements may be downloaded at any time from the MMEL/MEL web page, when available in electronic format. Alternatively, air 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 Air operator MEL Development (Non-GMEL)

a) Development

The air 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 management's involvement, each submissions of the air operator's MEL shall be reviewed and approved by at least one senior company official from each respective department (Operations and Maintenance) prior to the MEL being submitted to Transport Canada.

b) Supporting Data

The air operator must provide adequate supporting documentation for their MEL submissions to their Regional MEL POI/PMI. These documents will provide additional information, as required, relating to the air operator's MEL.

c) Additional MEL items

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

d) Copies

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

### 3.7.6 TC Generated MELs (GMELs)

- a) A GMEL is a minimum equipment list developed by Transport Canada in conjunction with selected lead air operators and the manufacturer (where available), for a specific aircraft type and is consistent with the current MMEL and TCS, as applicable. GMELs include completely developed “O” and “M” procedures and are custom produced for an Air operator based on the options, mod status and configuration of their aircraft. Such MELs produced by the GMEL program are called Air operator's MELs (OMELs). GMELs provide an option to the individual development of a MEL by an air operator and come pre-approved thus providing cost and time savings to both the air operator and Transport Canada. A cost recovery fee may be applied to GMELs.
- b) A large number of aircraft types in common usage in the commuter and airline operations have been targeted. GMELs have been developed for those aircraft types listed on the MMEL/MEL web page, in Schedule 1 of Appendix G.
- c) Air operators wishing to initiate operations with GMELs must forward a completed GMEL Information Form to their Regional Coordinator (RC). (See Appendix G, Schedule 2). The RC will forward a copy of the Information Form as soon as possible to the GMEL Program Managers (PM) to register in the program. When a GMEL for that aircraft type is completed, a GMEL Request Form will be sent to the air operator. (See Appendix G, Schedule 3). The Request Form will include an options list available for the type and model. Upon receipt of the completed Request Form, the GMEL Program Manager will produce the OMEL and forward it to the air operator's RC who will confirm that the air operator's manuals are amended for use of a MEL prior to forwarding the document to them. The Regional office will approve the air operator to use the OMEL once required training has been completed and the air operator has signed the acceptance letter.

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

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

- e) If an Operator changes the aircraft type configuration, modification status or options of an aircraft operating with an OMEL, these changes must be submitted to the RC by means of a GMEL Request Form, which will be forwarded to the PMs for action.

### **3.7.7 MEL Availability**

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

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

## **3.8 Transport Canada Inspector Responsibility**

### **3.8.1 Operations**

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

### **3.8.2 Maintenance and Manufacturing (M&M)**

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

### **3.8.3 Transport Canada MEL Approval Time**

Provided that the air operator submits a MEL or MEL amendment that complies with the *MMEL/MEL Policy and Procedures Manual* (TP 9155), Transport Canada will endeavor to approve regulatory related submissions of the document within 60 days. The 60 day

time limit does not apply to discretionary changes. A sample format for the letter of approval is found in Appendix K.

### **3.8.4 Interim Approvals**

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

### **3.8.5 MEL Distribution and Effectivity**

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

- a) each aircraft;
- b) Senior Company Official - Maintenance;
- c) Senior Company Official -Operations;
- d) Dispatch (if applicable);
- e) Maintenance Coordinator (or equivalent);
- f) any other personnel as required;
- g) the Transport Canada Centre Library or Regional Office Library.

### **3.8.6 MEL Updates**

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

### **3.8.7 GMEL/MEL Amendments/TC Notifications**

- a) Amendments to MELs and GMELs will be handled according to the process outlined in this document for initial approval. To ensure that they are updated as required, MMEL/TC Supplement revisions and the "Status of Current MMEL" list will be posted on the on the MMEL/MEL web page. (See Appendix T)
- b) Where a MMEL revision or TC Supplement is more restrictive, the air operator must submit an appropriate amendment to the MEL for approval within 60 days



following the posting date of the MMEL revision or TC Supplement on the MMEL/MEL web page.

- c) Where an O&M Procedures Manual, DDPG, DPG or equivalent document is available; or where a MMEL revision does not affect a procedure, the time for MEL amendment remains at 60 days, following the MMEL/MEL web page posting of the MMEL revision or TC Supplement. Where a O&M Procedures Manual, DDPG, DPG or equivalent document is not available; or where the MMEL revision affects a procedure, the MEL amendment time is 120 days following the posting on the MMEL/MEL web page of the MMEL revision or TC Supplement.

## **3.9 Conformity to the MMEL**

### **3.9.1 Modification of MMELs and TC Supplements**

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

### **3.9.2 MEL Content**

- a) The air 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 air 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 air operator concerning MMEL relief for a certain item, the air operator's MEL may be approved without relief for the contentious item, until the dispute can be resolved. In this case, Aircraft Certification Flight Test shall be notified and a request for revision initiated in accordance with Section 2.5.4.
- b) Except as noted above, all items installed in an air operator's aircraft which are addressed in the most recent approved version of the MMEL or TC Supplement, shall be included in the MEL. At the same time, an air operator or pilot retains the option to refuse any alleviation, and may choose not to dispatch with any particular MEL item inoperative.

### 3.9.3 Administrative Control Items

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

### 3.9.4 Passenger Convenience Items

Passenger convenience items are those items related to the convenience, comfort, or entertainment of an air operator's passengers. They may include items such as galley equipment, movie equipment, ash trays, (except exterior lavatory door ashtrays), stereo equipment, and overhead reading lamps. Passenger convenience items do not carry a specific repair interval, and need not be listed in an air operator's MEL, if they are not addressed in the MMEL. The exceptions to this rule are:

- a) Where passenger convenience items serve a second function, such as movie equipment being used for cabin safety briefings, air operators must develop and include operational contingency procedures in case of an equipment malfunction; or,
- b) Where passenger convenience items are part of another aircraft system, for example, the electrical system, procedures must be developed and included in the MEL for deactivating and securing in case of malfunction.

### 3.9.5 MEL Audits

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

## **3.10 MEL Development Procedures**

### **3.10.1 MEL Basic Format**

The MEL must include the following: a List of Effective Pages, a Table of Contents, the Minimum Equipment List Preamble, Notes and Definitions, a section for each aircraft system addressed, the letter of approval and amendment record page. Air operators must specify the MMEL and TC Supplement revisions and any other documents such as an O&M Procedure Manuals (DDPG, DPG, etc), used in the development of their MEL.

### **3.10.2 MEL Page Format**

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

### **3.10.3 List of Effective Pages**

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

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

The Transport Canada stamped and initialled LEP must be retained on file. Copies of the company MELs may be issued with unstamped LEPs, but the copies must detail the location within the company where the approved LEP is retained.

### **3.10.4 Table of Contents**

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

### **3.10.5 MEL Preamble**

The purpose of the Minimum Equipment List Preamble is to provide direction to company personnel on the philosophy and use of the MEL. Transport Canada publishes a MMEL preamble which is acceptable for use by an air operator (See Appendix F.). An air operator may choose to develop their own preamble but it must contain at least the information contained in the Transport Canada version.

### **3.10.6 Notes and Definitions**

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

### **3.10.7 Operating and Maintenance Procedures**

- a) Dispatch with inoperative items is often acceptable only with the creation of special operating or maintenance procedures.
- b) Where the MMEL indicates that this is the case, the air operator must establish and publish appropriate procedures for inclusion in the MEL. Procedures recommended by the aircraft manufacturer in most cases can be adopted for this purpose, but the ultimate responsibility for providing acceptable procedures to be approved in the MEL rests with the air operator. These procedures will ensure that a satisfactory level of safety will be maintained. (See Section 3.15.1)
- c) The air operator, when comparing the MEL against the MMEL must ensure that where the (O) or (M) symbols appear, an operating or maintenance procedure has been developed that provides clear direction to the crew members and maintenance personnel of the action to be taken. This procedure must be included in the MEL.
- d) The only exception is when the procedure is contained in another document that is available:
  - to the flight crew on the flight deck, such as an Aircraft Flight Manual, Aircraft Operating Manual, or the Company Operations Manual;
  - to the flight attendants, such as a Company Operations Manual or Flight Attendant Manual;
  - to the maintenance crew, such as an Aircraft Maintenance Manual (e.g. - the Airbus Aircraft Deactivation Procedures Manual), Maintenance Control Manual, etc.
- e) In these cases, the MEL may refer to a section of the appropriate document.
- f) It is not acceptable to reference the Canadian Aviation Regulations or similar documents, as these are not carried on board the aircraft and could be subject to

misinterpretation. The objective is to provide personnel with clear, concise direction on how they are to proceed. Where the MMEL column 4 states “as required by Regulation”, this wording shall not appear in the MEL; rather, a synopsis of the Regulation shall appear.

### **3.10.8 Approval of Operating and Maintenance Procedures**

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

### **3.10.9 Operations Manual Procedures**

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

## **3.11 Repair Interval Categories**

The maximum time an aircraft may be operated between the deferral of an inoperative item and its repair will be specified in the MEL or GMEL. Passenger convenience items referred to in paragraphs 3.9.4 a) and 3.9.4 b) must include a category. Most of these items will be a “D” category provided any (M) procedure (in the case of electrically supplied items) is applied.

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

#### *Category A*

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

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

*Category B*

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

*Category C*

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

*Category D*

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

## **3.12 MEL Item Repair Interval Self Extension Program**

### **3.12.1 Purpose**

Under certain conditions, such as a shortage of parts from manufacturers, or other unforeseen situations, air operators may be unable to comply with specified repair intervals. This may result in the grounding of aircraft. To preclude that from happening, a MEL Item Repair Interval Extension Program has been instituted that will allow operators, under controlled conditions, to grant extensions to MEL repair interval categories. The following paragraphs give instructions to Principal Maintenance Inspectors (PMIs) and to Principal Operations Inspectors (POIs) to administer an operator's MEL Item Repair Interval Extension programs.

### **3.12.2 Approval**

- a) Each operator seeking this alleviation shall revise their MEL to include the following statements: “(Air Operator) \_\_\_\_\_ may self-extend the repair interval for Category A,B,C,and D items contained within the MEL, but shall notify the Transport Canada Principal Maintenance Inspector (PMI) or Principal Operations Inspector (POI) responsible for the operator within one working day when this action is taken and the reason it was required.
- b) Furthermore, the Transport Canada Principal Maintenance Inspector (PMI) or Principal Operations Inspector (POI) responsible for the air operator shall be notified within one working day, any time it becomes necessary to continue or extend the item repair interval period beyond the expiry date of the original extension. When advised of any extension, the TC Inspector receiving such notification shall ensure that his/her counterpart is fully informed as soon as possible. (See Section 3.12.4)”
- c) For all extensions, the air 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 air operator for a period of thirty-six months, for auditing purposes. The period of the self-extension shall be subject to Transport Canada review upon notification by the air operator. This review may result in changes to the period of the extension, or may be used to determine abuse of the process;

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

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

### **3.12.3 Program**

#### *Maintenance Control Manual*

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

a) Authority

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

b) Communications

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

c) Parts/Equipment Control

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

d) Maintenance Control

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

e) Records

In addition to the existing maintenance record keeping requirements, air 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 air operator must be able to provide all records necessary to clearly justify a MEL interval extension, when requested.

f) Audits

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

### **3.12.4 POI/PMI Communications**

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

### **3.12.5 Program Administration**

#### *Events beyond the air operator's Control*

The core of this program is to ensure that air 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. Air 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 air operator's control have precluded rectification.

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



These factors include:

- a) Parts shortages from manufacturers that affect all air operators equally. Parts shortages can result from material, labour, or shipping problems but must be clearly outside the air operator's control.
- b) Inability to obtain equipment necessary for proper troubleshooting and repair. Operators must, to the maximum extent possible, have the necessary equipment available to perform troubleshooting and repair of MEL items. Equipment shortages or unserviceabilities may be encountered that cannot be directly controlled by the air operator for the specified MEL item.

An unwillingness on the part of the air operator to obtain parts or equipment to rectify the defect in the most timely manner possible will be grounds for review of this authority. A recommendation to remove this authority will be forwarded to the Regional Director Airworthiness for transmission to the Regional Manager Commercial and Business Aviation, or Chief, Airline Inspection, where justified.

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

### **3.12.6 Program Compliance**

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

### **3.13 Deferral of Items**

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

### **3.13.1 Requirements**

These procedures comprise a method for:

- a) deferral of inoperative equipment;
- b) placarding requirements as per the MEL;
- c) dispatching of aircraft with deferred MEL item(s);
- d) a remote deferral system;
- e) controlling categorized times; and
- f) the training of company personnel who are responsible for MEL compliance procedures.

### **3.13.2 Review of Deferred Items**

The air operator must establish procedures whereby Maintenance and Operations, periodically review the deferred items, in order to ensure that any accumulation of deferred items neither conflict with each other based on the CDL and the AFM Supplement Compatibility List, nor present an unacceptable increase in flight or cabin crew workload. Notwithstanding the categorization of item repair intervals, it should be the aim of each MEL document holder to ensure that inoperative items are repaired as quickly as possible. It is Transport Canada policy that optional inoperative equipment should be repaired or removed from an aircraft. POIs and PMIs are expected to encourage this practice with their air 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 air operator.

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

Note: The exclusion of an asterisk in a MMEL does not preclude the requirement for placarding. See CAR 605.10(2)(b))

### **3.14.1 Requirements to Placard/Placard Control**

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

### **3.14.2 Procedures**

The equipment/system shall be placarded so as to inform the crew members of the inoperative condition(s) of the item. To the extent practicable, placards must be located as indicated in the MEL, or adjacent to the control or indicator affected. When not practical, the placard may be placed in a centralized location in the flight deck. This location shall be in plain view of the flight crew. In all cases, the MEL placarding instructions shall indicate where the placard is to be placed.

### **3.14.3 Placard Criteria**

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

### **3.14.4 Multiple Placards**

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

### **3.14.5 Temporary Placards**

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

## **3.15 Dispatch**

“Dispatch” for the purpose of the MEL/MMEL refers to the moment the airplane starts its takeoff roll. In the case of a helicopter, it refers to the moment the helicopter commences air or ground taxi. The MEL is approved on the basis that equipment will be operative for takeoff unless the appropriate MEL procedures have been carried out. The air operator's MEL shall include procedures to deal with any failures which occur between the start of taxi or push back and takeoff brake release. Any failure which occurs after takeoff commences shall be dealt with as an in-flight failure, by reference to the appropriate section of the aircraft flight manual, if necessary. After takeoff commences, no MEL action is required, until the completion of the next landing.

### **3.15.1 Operational and Maintenance Items**

- a) Any item of equipment in the MEL, which when inoperative would require an operating or maintenance procedure to ensure the required level of safety, shall

be so identified in the “remarks” or “exceptions” column of the MEL. This will normally be “O” for an operating procedure, or “M” for a maintenance procedure. (O)(M) means both operating and maintenance procedures are required.

b) (O) Items

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

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

c) (M) Items

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

Maintenance procedures are normally accomplished by authorized maintenance personnel, but some elementary work may be carried out by other authorized personnel. (See Section 3.15.2)

3. *Maintenance procedures in the MEL designated with a (M#) - Maintenance Personnel Required may only be performed by authorized maintenance personnel. In this circumstance, the aircraft may not proceed until authorized maintenance personnel carry out the specified procedure.*

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

### 3.15.2 Elementary Work

Some elementary work called for in the MEL may be accomplished by crew members, or others, who have been trained and approved to do so according to the regulations and standards in Maintenance Standard 625.85, 625 Appendix A, CAR 706.10 and 726.10.

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

## **3.16 Training**

### **3.16.1 Training Program — Ground Personnel**

Air operators shall develop a MEL training program for ground personnel, to be included in the MCM and operations manual, as appropriate, which must be approved prior to an air operator receiving approval to operate with a MEL. The training should include those sections of the MCM /operations manual procedures dealing with the use of the MEL, placarding of inoperative equipment, deferral procedures, dispatching, and any other MEL related procedures. (See Appendix S). Ground personnel includes dispatchers and aircraft maintenance engineers. All required personnel shall receive MEL training prior to their use of the MEL.

### **3.16.2 Training Program — Crew Members**

Air operators shall provide crew members with MEL training and shall detail such training in their Company Operations Manual. The training will include the purpose and use of a MEL, instruction on company MEL procedures, elementary work procedures, and pilot-in-command responsibility (See Appendix S). Crew members include pilots, flight engineers, and flight attendants. All required personnel shall receive MEL training prior to their use of the MEL.

### **3.16.3 Training Program — Recurrent**

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

## **3.17 MELs for Leased Aircraft**

### **3.17.1 MELs for Leased Foreign Registered Aircraft**

- a) Canadian leasing regulations require that leased aircraft must be of a type certificated for registration in Canada. A leased aircraft must have a MMEL approved or accepted by Transport Canada in accordance with the criteria set out in Sections 2.4 to 2.4.10 of this document.
- b) The MEL for a particular leased aircraft must not be less restrictive than the Canadian approved or accepted MMEL and must be approved or accepted by Transport Canada in accordance with the criteria set out in Sections 2.4 to 2.5 of this document. The MEL must be available in French and/or English, appropriate to the region and personnel using the MEL.
- c) The foreign country of registration of the leased aircraft may require that their aircraft be operated in accordance with their approved MEL, in which case any less restrictive changes to this MEL must be approved by the foreign authority. Transport Canada may require more restrictive changes to the MEL because of

Canadian regulations and operating conditions. It is the responsibility of the Canadian lessee to determine the requirements of the foreign authority and Transport Canada for the use of a MEL on the leased aircraft.

### **3.17.2 MELs for Foreign Leased Canadian Registered Aircraft**

- a) Transport Canada reviews each lease and approves or accepts the use of a MEL on such aircraft based on whether a bilateral airworthiness agreement or a technical arrangement exists between Transport Canada and the foreign regulatory authority and it has been determined that the MMEL/MEL procedures are acceptable.
- b) If there is no agreement between Transport Canada and the foreign authority a review of the foreign air operator's MEL is conducted to determine that it is consistent with our approved MMEL.

## **3.18 Transport Canada MEL Administrative Procedures**

### **3.18.1 MEL Review Group**

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

### **3.18.2 MEL Priority**

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

### **3.18.3 Regional Administrative Procedures**

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

Note: If the air operator's principal Transport Canada office is other than a Regional Office, then a copy of the MEL must be forwarded to the Transport Canada Center by the air operator, following any approval or amendment. It is the air operator's responsibility to keep the appropriate TCC current on all amendments to their MEL.

### **3.18.4 Regional MEL Library**

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





## 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.
  - 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.

“\*\*\*” 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) 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.
  - f) **“Approved”** means approved by the Minister.

- g) **“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.
  - h) **“Minimum Equipment List”** means a document approved by the Minister that authorizes an operator to dispatch an aircraft with aircraft equipment inoperative under the conditions specified therein.
  - i) **“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. **“Airplane/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. **“Alphabetical symbol”** in Column 4 indicates a proviso (condition or limitation) that must be complied with for operation with the listed item inoperative.
  - 5. **“As Required by Regulation”, “As required by FAR”**, 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.
  - 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 Secured”** means that the specified component must be put into an acceptable condition for safe flight. An acceptable method of deactivating and 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 discovered. This day is excluded from the calendar days or flight days specified in the MMEL for the repair of an inoperative item of equipment, and is applicable to all MMEL items in categories A,B,C, and D.
  - 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. “ETOPS” refers to extended range operations of a two-engine airplane which has a type design approval for ER operations and complies with the provisions of TP 6327(ETOPS).
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 (e.g. from midnight to midnight) - either Universal Coordinated Time (UCT) or local time, based on the recorded “out time” of the first flight of each 24 hour period following the day of discovery, 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. “M” symbol indicates a requirement for a specific maintenance procedure which must be accomplished prior to operation with the listed item inoperative. Normally these procedures are accomplished by maintenance personnel; however, other personnel may be qualified and authorized to perform certain functions. Procedures requiring specialized knowledge or skill, or requiring the use of tools or test equipment must be accomplished by maintenance personnel (see (M#) below). The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the operator. Appropriate procedures are required to be published as part of the operator's manual or MEL.
19. “M#” symbol indicates a requirement for maintenance personnel to accomplish a “(M)” procedure.
20. “Maintenance Instruction” Indicates maintenance instructions that must be accomplished prior to operation with the listed item inoperative, as per “(M)” procedure above.
21. “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. Notes are not a part of the provisos.
22. “O” symbol indicates a requirement for a specific operations procedure which must be accomplished in planning for and/or operating with the listed item inoperative. Normally

these procedures are accomplished by a crew member; however, other personnel may be qualified and authorized to perform certain functions. The satisfactory accomplishment of all procedures, regardless of who performs them, is the responsibility of the operator. Appropriate procedures are required to be published as a part of the operator's manual or MEL. Recording of the accomplishment of required specific operations procedures in the log book will be accomplished by adding the following statement to the "Instructions for Journey Log Book Use" found in the Operator's Journey Log Book to cover those items requiring Operations Procedures.

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

- 23. "Operating Instruction" Indicates operating instructions that must be accomplished prior to operation with the listed item inoperative, as per "(O)" procedure above.
- 24. Out time: Is the time at which the aeroplane first moves under its own power for the purpose of conducting a take-off.
- 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. "Visual Flight Rules" (VFR) is as defined in the CARs. This precludes a pilot from filing an Instrument Flight Rules (IFR) flight plan.
- 27. "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.

- 28. " \_ " symbol in Column 2 and/or Column 3 indicates a variable number (quantity) of the item installed.
- 29. "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.
- 30. "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.
- 31. "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.

## APPENDIX B

### MEL ITEM REPAIR INTERVAL EXTENSION AUTHORITY –

#### *Schedule 1*

DATE

1. Aircraft type/registration	
2. ATA MEL Number / Item	
3. Repair Interval (Category)	
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 (signed)	
14. Time limit valid to:	__ : __ (z) __ (d) __ (m) __ (y)
15. Transport Canada approved:	date:

Note: A fully completed copy of the extension form must accompany the journey log book entry as follows:

*“This aircraft is operating on a MEL item repair interval extension as specified in the attached Schedule.”*

This documentation must be completed prior to flight and retained in company files for a period of thirty-six months from the date of the extension. Extensions for Category A items must be pre-approved by the Transport Canada PAI and POI and authorized by the RMCBA or the Chief, Airline Inspection (AARXD), prior to dispatch of the aircraft.

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

## MMEL REVIEW GROUP

### Reporting Relationship

To the Chief, Aircraft Certification Flight Test

### Composition

**Chairperson:** Designated from 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 – Maintenance and Manufacturing  
                     Cabin Safety Standards Inspector (if applicable)  
                     Aircraft Certification Engineer as designated by Chief, Engineering  
                     – Aircraft Certification

**Advisors:**     Aircraft Certification Engineering Specialists  
  
                     Aircraft Maintenance and Manufacturing Specialists  
                     Manufacturer  
                     Operator(s)

### Functions and Duties (Chairperson)

#### A. Domestically Manufactured 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. Advise the Headquarters MEL Coordinator of the approved MMEL and any amendments.
9. Convene the MMEL Review Group after the aircraft has been in operation for further changes to the MMEL, if necessary.
10. 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 Manufactured 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.)



## MMEL GUIDANCE BOOK SAMPLE PAGE

### ATA 25 Equipment /Furnishing

ITEM:

25.9 PASSENGER SEATS

9. Passenger seats D	–	–	(M)	The seat back may be inoperative secured in the upright position.
D	–	–	(M)	OR  The seat back may be inoperative in other than the upright position provided:  a) it does not block or restrict access to an emergency exit, b) it does not restrict any passenger from access to the main aisle, and c) the affected seat is not used and is blocked and placarded “DO NOT OCCUPY”.
				<b>NOTE:</b>  1. A seat with an inoperative seat belt is considered inoperative. 2. For single aisle configurations and for seats in the left and right (outboard) sections of two aisle aircraft, the affected seat(s) include the seat behind and its adjacent outboard seats. 3. For the centre section of two aisle configurations, the “affected” seat is only the seat aft of the inoperative seat.

#### Discussion:

**References:** CAR 605.22 and .24

This item does not include tray tables which may, if inoperative in the unstowed position, render the seat or seat row behind the seat to which the tray table is attached inoperative. A tray table inoperative in the stowed position could be considered a passenger convenience item.

CAR 605.24 requires shoulder harnesses for passenger seats under specified conditions. In this case, a missing or inoperative safety belt and/or shoulder harness renders the seat inoperative.

Note: Some MMELs (e.g. FAA) include a NOTE which states that inoperative seats do not affect the required number of flight attendants. This is based on regulatory requirements (e.g. FAA FAR) that determine the number of required flight attendants based on the number of seats installed on the aircraft and does not apply to Canadian air operators.

A seat with an inoperative recline mechanism is considered to be inoperative if the seat back cannot be secured in the upright position.

**Similar to FAA** with some additions due to CARs. For clarification, TC has added NOTES 2 and 3 regarding affected seats. FAA has used similar wording in some MMELs, e.g. B400A.

# APPENDIX E

## DEPARTMENT OF TRANSPORT MASTER MINIMUM EQUIPMENT LIST

## MINISTÈRE DES TRANSPORTS LISTE PRINCIPALE D'ÉQUIPEMENT MINIMAL

<b>Aircraft – Aéronef</b>	<b>Revision No. – No de révision: 5</b>	<b>Page</b>
Canadair CL600 \ 601 \ 601-3A \ 601-3R \ 604	<b>Date:</b> January 06 / 97	

<b>System and Sequence No. Item.</b> <b>No. de système / série article</b>	<b>1.</b>	<b>2. Number installed</b> <b>Nombre d'article installés</b>	<b>3. Number required for dispatch</b> <b>Nombre d'articles à expédier</b>	<b>4. Remarks or Exceptions</b> <b>Remarques ou exceptions</b>
<b>29 – HYDRAULICS</b>				
11-1 Electric Motor C Driven Hydraulic Pumps (System 1 and 2)	2	1	(M) One may be inoperative provided: a) Affected pump is selected off and is deactivated, and b) Both Engine Driven Hydraulic Pumps are operative.	
11-2 Hydraulic Accumulator C Pressure Gauges (Systems 1, 2, and 3)	3	0	(M) All may be inoperative provided accumulator pre-charge is checked using a suitable gauge before the first flight of the day.	
11-3 Hydraulic Accumulators B (Systems 1,2, and 3)	3	1	System 1 and /or System 2 accumulator(s) may be inoperative.	
11-4 Engine Driven C Hydraulic Pumps	2	1	(M) One may be inoperative provided all other hydraulic pumps are operative.	
11-5 Hydraulic Heat Exchanger C Cooling Fan (600 \ 601 \ 601-3A \ 601-3R)	1	0	May be inoperative provided ground operation of hydraulic systems 1 and 2 is limited to 30 minutes when OAT is above 45 degrees C.	

## 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, CAR 605.07, 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 time 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 CAR sections 605.08 (2) or 605.09 (2) 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 CAR 605.08 (1)]

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 G

## *Schedule 1*

Transport Canada, Civil Aviation / Transports Canada, Aviation civile  
Generated MEL / (GMEL) / MEL générées pas TC

Issued as Appendix “G” of the *MMEL/MEL Policy & Procedures Manual* TP 9155E  
Émise comme annexe “G” du *Manuel des politiques & procédures MMEL/MEL* TP 9155F

STATUS OF CURRENT GMEL  
LISTE A JOUR DES GMEL

June 2, 2003  
le 22 juin 2003

Note: This status log will be updated as required – the proposed dates for development are subject to change.

Nota: Cette liste de GMEL est mise à jour sans préavis. Les dates anticipées pour l'élaboration des GMEL sont sujettes à modifications.

AIRCRAFT TYPE TYPE D'AÉRONEF	PROPOSED (DATE) ENVISAGÉE	COMPLETION (DATE) D'ACHEVEMENT	OFFICIAL RELEASE (DATE) D'ENTRÉE EN VIGUEUR
	Y - M / A - M	Y - M / A - M	60 day exemption starts début du 60 jours de dispense
<b>BEECH:</b> 90, A90, B90, C90, C90A, E90 99 100, A100, B100 200, F-90 300, 300LW, B300, B300C BE-400, BE-400A MU-300, MU-300-10 BE 1900, 1900C BE 1900D	2003 – 09 2004 – 04 1999 – 04 1999 – 11 2003 – 09 2005 – 04  1999 – 04 1999 – 04	  1997 – 08 1997 – 08   1997 – 10 1997 – 10	  1997-09-09 1997-09-09   1998-01-15 1998-01-15
<b>BELL HELICOPTER:</b> 206 Single Engine, 407 212, 412	2004 – 11 2000 – 04	 2000-12-15	 2000-12-15

<b>BOMBARDIER/CANADAI:</b> CL-600, CL-600 601-3A/3R, CL-604 Global Express BD-700-1A10	2002 – 03 2003-09	2002-08	2002-09-30
<b>BOMBARDIER/deHAVILLAND:</b> DHC-6-100/200/300 DHC-8-100/200/300 DHC-7 DHC-8-400	1999 – 04 1999 – 06 2004 – 05 2003 – 06	1997 – 11 2001-03-03  2003-06-02	1997-12 2001-03-15
<b>BRITISH AEROSPACE HAWKER SIDDELEY:</b> BAe Jetstream 3101, 3201 BAe HS-748 BAe Jetstream 4100 HS-125 Series 1A/RA / 3A/RA / 400/400F Series 600/600F / 700 / 800/800XP	2001-07-11 1999 – 04 2004-05 2003-10	2001-11-28 1997 – 12	2001-11-30 1998-02-12
<b>CESSNA:</b> CE 525 Citation jet CE 560 XL CE500/501/550/551/552/560/S550 CE-650, Citation III/VI/VII CE-750 Citation X	2002-11 2002-12 1999 - 04 2002-11 2002-11	2002-12-20 2002-12-20 1997 - 09 2002-12-20 2002-12-20	2002-12-11 2002-12-11 1997-09 2002-12-11 2002-12-11
<b>CONVAIR:</b> 340, 440 (Allison), CV-580/5800 Turbo Prop	1999 - 04	1997 - 11	1997-12
<b>DASSAULT AVIATION:</b> Fan Jet Falcon 20/C/D/E/F Falcon 10/100 * Falcon 50 * Falcon 200 * Falcon 900 * Falcon 900 EX * *Will be done at the same time if practical. Currently none in Canada.	1999 - 04 2003-09 2005-09 2005-09 2005-09 2005-09	2000-12-06	2000-12-10
<b>DORNIER:</b> 228-100/101 228-200/201/202/212 328-100 Currently none in Canada	2004-06  2005		

<b>DOUGLAS/MCDONNELL DOUGLAS</b> DC-3 / 3A/B/C/D/S C-47/R4D8 DC-6 / 7	2004-11 2005 If Req'd		
<b>EMBRAER:</b> EMB-110 P1/P2	2003- 05		
<b>FAIRCHILD SWEARINGEN:</b> SA226, SA227 (Except SA227PC)	1999 - 04	1997 - 11	1997-12
<b>ISRAEL AIRCRAFT:</b> IA-Jet 1121/1121A/1123, 1124/1124A	2002-12		
<b>LEARJET:</b> LR-24/25/28/29/31/35/36/55 LR-60 LR-31-31A LR-45	2003-02 2003 2003 2003	2003-06-03	
<b>MITSUBISHI:</b> MU-2B	2003 - 09		
<b>SHORT BROTHERS:</b> SD3-30, 60	2003 - 10		
<b>SIKORSKY:</b> S-61L/N S-76A/B/C	1999 – 04 1999 - 04	2002-09 2000-11	2002-10 2000-11



## Schedule 2



Transport  
Canada

Transports  
Canada

### TC GENERATED MELs (GMELs) - AIRCRAFT INFORMATION MEL générées par TC (GMEL) - INFORMATION D'AÉRONEFS

Air Operator (Legal Name on the Air Operator Certificate) Nom de l'exploitant aérien (dénomination sociale sur le certificat d'exploitation aérienne)		Telephone - Téléphone	FAX - Télécopieur
Name of Operations Manager Nom du gestionnaire des opérations	Name of Chief Pilot Nom du pilote en chef		Name of Maintenance Manager Nom du gestionnaire de la maintenance
Name of MEL Contact Nom de la personne contact MEL	E-mail address - Adresse par courrier électronique		
Are you authorized to operate under the "MEL Item Repair Interval Extension Program"? Êtes-vous autorisé à opérer sous le « Programme de prolongement des délais avant la réparation des articles de la MEL »?			<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>EXAMPLE/EXEMPLE</b>		<b>AIRCRAFT AÉRONEFS</b>	
Manufacturer Constructeur	<b>BEECH</b>	Aircraft Type Type d'aéronef	<b>KING AIR</b>
Model Modèle	<b>A-100</b>	Serial Number Numéro de série	<b>B-112</b>
Manufacturer Constructeur		Aircraft Type Type d'aéronef	
Model Modèle		Serial Number Numéro de série	
Manufacturer Constructeur		Aircraft Type Type d'aéronef	
Model Modèle		Serial Number Numéro de série	
Manufacturer Constructeur		Aircraft Type Type d'aéronef	
Model Modèle		Serial Number Numéro de série	
Manufacturer Constructeur		Aircraft Type Type d'aéronef	
Model Modèle		Serial Number Numéro de série	
Manufacturer Constructeur		Aircraft Type Type d'aéronef	
Model Modèle		Serial Number Numéro de série	
<b>Please send by mail or FAX to:</b>  Commercial & Business Aviation GMEL Program Manager (AARXC) Tower "C", 4th Floor, Place de Ville 330 Sparks Street Ottawa ON Canada K1A 0N8  Telephone: (613) 990-1091 FAX: (613) 991-5188		<b>Veillez poster ou télécopier :</b>  Aviation commerciale et d'affaires Gestionnaire de programme GMEL (AARXC) Tour "C", 4e étage, Place de ville 330, rue Sparks Ottawa ON Canada K1A 0N8  Téléphone : (613) 990-1091 Télécopieur : (613) 991-5188	

26-0636 (0105-01)

Information on reverse side  
Information au verso

Canada

### *Schedule 3*

## GMEL PROGRAM

### Aircraft Equipment / Configuration List

**A100BE-10Beechcraft**

<input type="checkbox"/>	<input type="checkbox"/> Original Change
<b>Operator Name: <u>SAMPLE ONLY PARTIAL LIST FOR DEMONSTRATION ONLY</u></b>	
<b>Company MEL Contact Name</b> _____ <b>Phone #</b> _____ <b>EMAIL ADDRESS:</b> _____ Do you have an approved MEL now? Yes___ / No ___ Amendments to the OMEL can be sent by email. Do you wish to receive amendments via email? Yes ___ No ____ If "NO" they will be sent via "CD" NOTE:    1.    Original OMEL's will be issued on CD in PDF Format and will include the Acrobat Reader. 2.    OMEL's will be sent directly to the Operator when confirmation by the Region is received that all conditions are met... i.e. OPS Manual, Maintenance Manual and MEL Training Program are approved. 3.    If you operate more than one type that requires an OMEL all types will be on one CD. Amendments will include a complete up to date OMEL with amended pages incorporated.	
<b>Aircraft Serial Number(s):</b>	
<b>Do you wish "Pre-approved MEL Handling Procedures"?</b> Yes___ / No___ (Note: If you have answered "No" to Pre-approved MEL Handling Procedures above, you are required to develop your own procedures and receive approval from your Regional POI and PMI. When approved please submit a copy to the GMEL Program Manager for incorporation into your OMEL. The submission in electronic format such as MS Word or WordPerfect would be the preferred method, otherwise it could significantly delay the issuance of your MEL.)	
A/C is used Under CAR's    604    702    703    704    705                      (Circle all that apply) A/C is used for    Charter    Scheduled    Cargo    Pax and Cargo Combi    (Circle all that apply)	
<b>The Following MEL Equipment Items require a selection:</b> <b>Please circle the following codes to indicate your fleet configuration:</b> Applies to-    A = All aircraft    S = Some    N = None <b>Note: All questions must be answered otherwise the issuance of your OMEL could be significantly delayed. Forms will be returned if not complete.</b>	
21-08. Automatic Temperature Controller	A    S    N

21-10. Electric Heat	A S N
21-11. Ventilation Blower	A S N
21-12. Air Conditioner	A S N
22-01. Autopilot System Is the use of the Auto Pilot an SOP?	A S N YES NO
22-02. Yaw Damper	A S N
23-02. Passenger Address System	A S N
23-04. Audio Amplifiers	A S N
23-06. Cockpit Voice Recorder (CVR) System CVR Required by CAR's	A S N YES NO
23-07. Boom Microphones	A S N
23-08. Passenger Call System	A S N
25-02. Passenger Seat Do you have an Observers seat Installed	A S N YES NO
25-04. Passenger Convenience Item(s)	A S N
25-05. First Aid Kits	
25-06. Floatation Devices	
26-01. Portable Fire Extinguisher Do you carry Extinguishers in excess of regulation? How many are you REQUIRED to carry by Regulation? If more than 3 Please indicate. No. ____	A S N YES NO 1 2 3
26-02. Engine Fire Extinguisher Systems	A S N
27-03. Speed Control Indicator	A S N
30-01. Surface Deice System (Wing, Vertical, and Horizontal Stabilizer)	A S N
31-02. Flight Hour Recorder	A S N
31-03. Flight Data Recorder (FDR)	A S N
32-01. Brake Deice System (Except B100)	A S N
33-05. Passenger Notice System (Fasten Seat Belt/No Smoking)	A S N

## APPENDIX H

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Refer to Schedule 1 of Appendix G, or Transport Canada website <http://tcinfo/CivilAviation/commerce/certification/gmel/status.htm> for the status of current GMEL's.

## MEL REVIEW GROUP

This Group will meet when a recommendation for approval of a MEL is required. It is the responsibility of the Regional Manager Commercial and Business Aviation (RMCBA) or the Chief, Airline Inspection, (AARXD) as appropriate. 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 RMCBA /AARXD 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 RMCBA or for national / international carriers, to AARXD.

### Composition

**Chairperson:** POI for the Operator

**Members:** Lead Operational Standards Inspector on type  
PMI for the Operator  
Lead Aircraft Certification Engineer on type (if required)  
Cabin Safety Operations Inspector (if required)  
Regional MEL Coordinator (if required)  
Regional Aircraft Certification Engineering Avionics Inspector

**Advisors:** Headquarters Aircraft Certification Personnel  
Headquarters MEL Coordinator

**Note:** It is up to the individual Region to decide the composition of each MEL Review Group. The example given is considered desirable, but a MEL Review Group may simply consist of an Operational Standards Inspector and an Aircraft Certification Engineering Inspector, reporting simply to a RMCBA, provided that the Inspectors are familiar with the operator, the operation, and the aircraft.

### **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 RMCBA /AARXD with a MEL for approval.
- Meets as required to review the company MEL in response to requests from Transport Canada or the operator.

## APPENDIX J

### MEL Co-ORDINATION AND APPROVAL FORM

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 operating and maintenance procedures are acceptable, considering this operator's facilities, personnel and route structure.

\_\_\_\_\_  
Maintenance and Manufacturing Representative

\_\_\_\_\_  
Commercial and Business Aviation Representative

## APPENDIX K

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### ***SAMPLE - MEL APPROVAL LETTER***

The (Aircraft Type) Minimum Equipment List updated to revision \*\* and received by this office on March 23, 19\*\*, 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 has been date stamped and approved (or as specified for the operator) and this together with the letter of approval form part of your approved Minimum Equipment List.

---

Regional Manager  
Commercial and Business Aviation  
for The Minister of Transport



## APPENDIX L

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### ***SAMPLE - GMEL APPROVAL LETTER***

The (Aircraft Type) Generated Minimum Equipment List accepted on March 23, 19\*\* is approved for (Operator's Name) use.

Continued approval of this MEL is contingent on the addition of amendments as received, within the established time period.

This letter of approval forms a part of the approved document and a copy must be inserted in the front of each MEL.

---

Regional Manager  
Commercial and Business Aviation  
for the Minister of Transport

# APPENDIX M

## TRANSPORT CANADA APPROVED MINIMUM EQUIPMENT LIST

### Sample Page

AIR XXXX INC.		MINIMUM EQUIPMENT LIST		PAGE
De HAVILLAND DHC-8 Series 100/300		Amendment: 4 DATE: 01 Apr 95		24-38-1
ATA System and Sequence Number		1.	2. NUMBER INSTALLED	
ITEM			3. NUMBER REQUIRED	
24. ELECTRICAL POWER			4. REMARKS OR EXCEPTIONS	
24-38	BAT HOT Caution or Warning Lights	C	2	0 (O) May be inoperative provided the associated Battery Temperature Indicator operates normally.

### PLACARDING

Placard appropriate BAT HOT caution/warning light(s) at annunciator panel in the cockpit.

### OPERATING PROCEDURES:

1. Apply DC power to aircraft DC electrical system.
2. At BATTERY TEMPERATURE monitor panel, check that the associated battery temperature indication(s) (Main and/or Aux) reads approximately ambient (OAT) temperature.

Note: If aircraft has been recently operated and/or sitting in the hot sun, the indicated temperature may be higher. If the outside air temperature (OAT) is below 15°C, only the first green segment on indicator will be illuminated.

(Some text deleted from sample for brevity)

### MAINTENANCE PROCEDURES:

None required.

### MAINTENANCE INSTRUCTIONS:

Note: Do not open BATT TEMP CAUT LTS 28 VDC R Ess Bus Circuit Breaker at Right DC Circuit Breaker Panel.

AIR XXXX INC.		MINIMUM EQUIPMENT LIST		PAGE
De HAVILLAND DHC-8 Series 100/300		Amendment: 4 DATE: 01 Apr 95		21-3-1
ATA System and Sequence Number		1.	2. NUMBER INSTALLED	
ITEM			3. NUMBER REQUIRED	
21. Air Conditioning			4. REMARKS OR EXCEPTIONS	
21-3	Equipment Cooling Fan D (wardrobe)	1	0	(M) May be inoperative provided the equipment cooling fan is deactivated.

### PLACARDING:

Placard Equipment Cooling Fan on avionics bay door above wardrobe.

### OPERATING INSTRUCTIONS:

Conditioned air must be provided within 30 minutes for OAT above 30° C, aircraft on ground and power on.

**MAINTENANCE PROCEDURES:**

1. Open and clip the associated FAN circuit breaker at right 115 VAC BUS on avionics circuit breaker panel.
2. Conditioned air is made available within 30 minutes for OAT above 30° C, aircraft on ground and power on.

## APPENDIX N

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### 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 60 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

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Regional Manager  
Commercial and Business Aviation  
for the Minister of Transport

## APPENDIX O

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### FLOW CHART - TRANSPORT CANADA MEL APPROVAL

1. Is there an MEL Review Group established?	--- No ---	Establish MEL Review Group.
Yes		
2. Is there a TC-approved MMEL for this aircraft? (or foreign MMEL & TC Supplement)	--- No ---	Discontinue; advise operator.
Yes		
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?	--- No ---	Acquire manual.
Yes		
5. Do I have a copy of the TC Policy and Procedures Manual (TP9155)?	--- No ---	Acquire manual.
Yes		
6. Does the MEL contain a list of effective pages	--- No ---	Include a list of effective pages.
Yes		
7. Does the MEL contain a table of contents?	--- No ---	Include table of contents.
Yes		
8. Does the MEL include the preamble or program rules?	--- No ---	Include preamble or program rules.
Yes		

- |  |            |  |
|--|------------|--|
| 9. Does the MEL contain a section for the notes and/or definitions?                            | --- No --- | Include notes and/or definitions.                            |
| Yes  |            |  |
| 10. Does the MEL format follow an acceptable format as per TP 9155?                            | --- No --- | Suggest acceptable format.                                   |
| Yes  |            |  |
| 11. Check each item against MMEL.  |            |  |
| 12. Are the operator's (O) procedures clear and understandable?                                | --- No --- | Rewrite - procedures must be clear.                          |
| Yes  |            |  |
| 13. Are operator's (M) and (M#) procedures clear and understandable?                           | --- No --- | Rewrite - procedures must be clear.                          |
| Yes  |            |  |
| 14. Are all items at least as restrictive as the MMEL?   | --- No --- | Items cannot be less restrictive                             |
| Yes  |            |  |
| 15. Does the operator's Operations Manual and MCM include instructions for the use of the MEL? | --- No --- | Establish and publish procedures in the Ops. Manual and MCM. |
| Yes  |            |  |
| 16. Does the operator have a MEL training program?   | --- No --- | Operator to establish MEL training program.                  |

**STOP** - If any answer to questions 6 to 10 or 12 to 16 is no, return MEL to operator for corrective action.

# APPENDIX P

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## MEL APPROVAL REGULATORY REFERENCES

Night Flying Equipment	CAR 605.16
Oxygen Equipment	CAR605.31
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 Operative Prior to Flight	CAR 605.07
Ground Proximity Warning System	CAR 605.72
IFR Flight Instruments and Equipment	CAR 605.17
Floor Proximity Emergency Escape Path Markings	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 Q

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## FLOW CHART

### OPERATOR DEVELOPMENT OF MINIMUM EQUIPMENT LIST

- |   |            |                                    |
|---|------------|------------------------------------|
| 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.                 |            |                                    |
| 3. Do I have a current copy of the AFM?                                 | --- No---  | Acquire AFM                        |
| ---Yes---   |            |                                    |
| 4. Do I have a current copy of CARs 605?                                | ---No---   | Acquire CAR 605                    |
| ---Yes---   |            |                                    |
| 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?                                 | ---No---   | Establish list of effective pages. |
| ---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?          | --- No --- | Include notes and definitions.                                       |
| ---Yes---  |            |  |
| 11. Do I have a MEL format based on the TC MMEL/MEL Manual, TP9155?                | --- No --- | Establish format as suggested in Manual                              |
| ---Yes---  |            |  |
| 12. Develop MEL  | --- No --- |  |
| ---Yes---  |            |  |
| 13. Are my (O) procedures clearly written?   | --- No --- | Rewrite to ensure procedures are included and clearly understandable |
| ---Yes---  |            |  |
| 14 Are my (M) procedures clearly written?  | --- No --- | Rewrite to ensure procedures are included and clearly understandable |
| ---Yes---  |            |  |
| 15. Are all items at least as restrictive as the MMEL?                             | --- No --- | All items must be at least as restrictive.                           |
| ---Yes---  |            |  |
| <b>STOP</b> - 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? | --- No --- | Establish procedures for both Manuals.                               |
| ---Yes---  |            |  |
| 17 Have I established a training program for use of this MEL?                      | --- No --- | Establish training program.  |
| ---Yes---  |            |  |
| 18. Submit MEL to Transport Canada Regional office for approval.                   |            |  |

## 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 air 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) (M) Maintenance Procedures may be actioned and deferred by Flight Crews who have been trained to do so under the authority of “Elementary Work”.
- e) Flight Crews may not perform Maintenance procedures if the defect involves an item designated in the MEL as **(M#)** - which denotes MAINTENANCE PERSONNEL REQUIRED. The aircraft may not proceed until maintenance carries out the procedures found in Section 1.3.
- f) The Journey 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.
- g) Appropriate placard(s) will be installed by the flight crew in accordance with the instructions in the MEL.
- h) 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 licence number.
- i) If any doubt exists, this does not preclude the pilot from consulting maintenance to confirm that the ATA item and procedure has been deferred correctly prior to subsequent dispatch.
- j) The aircraft may proceed on a planned itinerary to a base where maintenance will rectify or re-defer the defect in accordance with the procedures in the 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.

## 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), (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 T

## AIR TRANSPORT ASSOCIATION (ATA) 100 AIRCRAFT SYSTEM SPECIFICATIONS

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

Group : Airframe					Group : Power Plant		Group : Structure	
1. General	23V	Digital Voice	34C	TCAS	70	Standard Practices Engine	16	Sound
2 Power Off	24	Electrics	34D	Doppler, TANS	71	Powerplant	45	Active Schematics
3 Minimum Equipment Requirement	25	Equipment & Furnishings	34E	EFIS, EIS Ctrl/Sel, IDS	72T	Engine Turbine	51	Structures
4 Flight	26	Fire	34F	FMC, PMS	72R	Engine Reciprocating	52	Doors
5 Operational Spec./ Time	27	Flight Controls	34G	Ground Proximity Warning System	73	Engine Fuel & Control	53	Motion Hardware
6 Dimensions	27E	EFCS (Fly by Wire)	34H	Windshear	74	Engine Ignition	53A	Motion Performance
7 Lifting and Shoring	27F	Flaps/Slats	34I	IRS, INS, AHRS	75	Engine Bleed Air	54	Nacelles/ Pylons
8 Levelling and Shoring	28	Fuel	34N	GPS, Long Range Nav Systems	76	Engine Controls	55	Stabilizrs

9	Towing and taxiing	29	Hydraulics	34T	TMS	77	Engine Indicating	56	Wiindows
10	Parking and Mooring	30	Ice and Rain	34W	Weather Radar	78	Engine Exhaust	57	Wings
11	Placards	31	EIS Warning, ECAM, EICAS	35	Oxygen	79	Engine Oil	60	Standard Practices Propellers
12	Servicing	31A	DEFDAU (MD90) ADAS (MD11)	36	Pneumatics	80	Engine Starting	62	Rotors
16	Sound	31R	AIDS	37	Oxygen	81	Turbines	63	Rotor drive
20	Standard Practices Airframe	31W	CAWS, MAWEA, WES	38	Warter / Waste	82	Engine Water Injection	64	Tail Rotor
21	Air Conditioning and Pressurization	32	Landing Gear & Brakes	39	Electrical Panels & Parts	83	Accessory Gearboxes	65	Tail Rotor Drive
22	Autoflight	33	Lighting	45	BITE, CMC	85	Visual	66	Floding Blades/ Pylons
23	Communi-cations	34	Navigation	49	APU	91	Charts	67	Rotors, Flight Drive
23A	ACARS	34A	Flight Instruments			97	facilities	85	Visual
						99	IOS	97	Hardware
								99	Instructor Facilities