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**Australian Government**  
**Civil Aviation Safety Authority**

**PRINCIPLE**

# **(OPS.01) - Minimum Equipment List (MEL)**

February 2025

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### Acknowledgement of Country

The Civil Aviation Safety Authority (CASA) respectfully acknowledges the Traditional Custodians of the lands on which our offices are located and the places to which we travel for work. We also acknowledge the Traditional Custodians' continuing connection to land, water and community. We pay our respects to Elders, past and present.

Inside front cover artwork: James Baban.

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# 1. Terminology

## 1.1. Acronyms and abbreviations

Table 1. List of acronyms and abbreviations

Acronym/abbreviation	Description
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## 1.2. Definitions

Table 2. List of definitions

Term	Definition
ATA	Air Transport Association. Renamed to Airlines for America (A4A) in 2011 but the legacy name persists in general use.
Calendar Days	Includes all days, with no exclusion for weekends and public holidays.
Deactivation	To make a piece of equipment or an instrument unusable by the pilot/crew by preventing its operation.
Inoperative	A system and/or component that has malfunctioned to the extent that it does not accomplish its intended purpose and/or is not consistently functioning normally within its approved operating limits or tolerances.
Item	An item may be a piece of equipment, a function, an instrument or a system listed in the Master Minimum Equipment List (MMEL).
NAA	National Aviation Authority of a member State of the International Convention on Civil Aviation (Chicago Convention).
MMEL	Master Minimum Equipment List. The MMEL is a document created specifically to regulate the continued operation of an aircraft type with inoperative equipment. It is a list of items of equipment that may be temporarily inoperative under certain conditions and limitations, while still maintaining the level of safety intended in the aircraft design standards.

## 1.3. Reference to regulations

Unless specified otherwise, all sub regulations, regulations, Divisions, Subparts and Parts referenced in this Principle are references to the Civil Aviation Safety Regulations 1998 (CASR).

## 2. Revision history

Amendments/revisions for this principle are recorded below in order of the most recent first.

**Table 3. Revision history table**

Version No.	Date	Parts / Sections	Details
3.1	February 2025	All	General update and addition of category B and C extension within the suite of documents.
3.0	October 2023	3.4 4.2.2 4.2.6 4.3.1	Clarifying when CASA can approve under Part 91 and when engineering approval is required under 21.007. Housekeeping changes. Add statement about the role of the DDG.
2.1	November 2022	All	Admin review only
2.0	June 2022	All	Reviewed for Operational Regulations implementation 02/12/2021
1.0	June 2020	All	First issue

## 3. Assessment

### 3.1. Assessment scope

The Civil Aviation Safety Authority (CASA) is responsible for ensuring that an operator possesses a Minimum Equipment List (MEL) when mandated by regulatory requirements. The MEL may be approved by CASA, a designated delegate, or an authorised individual.

Regulation 91.925 of the Civil Aviation Safety Regulations (CASR) defines a Minimum Equipment List (MEL) applicable to an aircraft.

Regulation 91.930 of the CASR allows the Part 91 Manual of Standards (MOS) to prescribe requirements relating to the contents of MELs, the calculation and specification of rectification intervals for items in an MEL and conditions and limitations that may or must be included in an MEL.

The MEL is developed by the operator and undergoes approval in accordance with regulation 91.935 of CASR. Modifications to an MEL require approval under regulation 91.940 of CASR, while one-time extensions for MEL items categorized as B or C may be granted under regulation 91.945 of CASR.

MELs previously approved under Civil Aviation Regulations (CAR) 37 will be subject to approval under regulation 91.940(4) of CASR upon their next variation. Additionally, any pre-transition terminology should be updated to align with operational regulations effective from 2 December 2021. For example, previously used terms such as "PUs" in the context of MELs will now be referenced as a list of inoperative aircraft items permitted for flight. The CASR transitional regulations provide further guidance on terminology adjustments.

The requirement for an MEL is contingent on the nature of the flight operations conducted. The following operational categories necessitate an MEL:

Part 121: Large aeroplane operations (refer to regulation 121.060 of CASR)

Part 133: Rotorcraft operations (refer to regulation 133.035 of CASR)

Part 135: Small aeroplane operations (refer to regulation 135.045 of CASR)

Operations conducted under Part 91 or Part 138 do not mandate the use of an MEL. However, operators may elect to obtain MEL approval from the Civil Aviation Safety Authority (CASA) due to the associated safety and operational benefits.

For Prescribed Single-Engine Aeroplanes (PSEA), an MEL should be maintained, incorporating specific PSEA-related items as outlined in Appendix A of this directive.

An MEL provides the operator with a mechanism for continued operation of the aircraft whilst still providing a means of meeting the approved design requirements of the aircraft. For this to be achieved, the MEL must not conflict with other requirements such as the Aircraft Flight Manual (AFM), CASA regulations and the MMEL.

The scope of assessment of an operator's MEL (that is, the list of items in an aircraft that may be inoperative for a flight and to be approved by CASA) is according to the criteria detailed within this principle. The criteria provided in the assessor worksheet will allow the assessor to arrive at a conclusion to approve or reject the proposed or varied MEL.

### 3.2. Assessment of initial proposed application

To assess an initial MEL, the assessor must familiarise themselves with the amendment status of the MMEL (which is approved by the NAA of the state of design) and other documents associated with the development of the MEL.

Should there be more than one MEL for an aircraft (multiple MELs) then the assessor should also familiarise themselves with all the relevant MELs for the aircraft to ensure there is no inconsistency.

Once the draft MEL is received, assessors will verify the MEL compliance with the MMEL and applicable regulatory requirements. To achieve this, assessors will assess the proposed MEL using the assessment worksheet.

Given an MEL includes both operational and maintenance requirements, the document may need to be reviewed by assessors who have relevant expertise in areas such as flight operations and cabin safety.

After reviewing the MEL, the assessor should document a list of any discrepancies or findings detected and forward to the applicant for correction or request additional information (note: CASA may request additional information in relation to an application under regulation 11.040 of CASR).

An approval for an initial MEL (under regulation 91.935 of CASR) and a variation to an MEL (under regulation 91.940 of CASR) or approval of a one-time extensions to an approved MEL item identified as category B and C (under regulation 91.945 of CASR) is made by the delegate using the assessment summary of Worksheet (OPS.01). The delegation is exercised on the instrument (CASA.MEL91###).

### 3.3. Assessment of a variation application

If the application is for a revision or a variation to a previously approved MEL, it is only necessary to check and verify the sections that have been amended in the revision or variation.

Removing an aircraft is considered a variation, a change of VH-registration mark in most cases is also a variation provided the aircraft had an approved MEL prior.

Consideration should be given to variations that are a result of changes in operation, such as Extended Diversion Time Operations (EDTO) or Reduced Vertical Separation Minimum (RVSM), as the MEL requirements may vary based upon aircraft performance requirements. Navigation database requirements for Performance Based Navigation (PBN) (database not current) may restrict the MEL interval to a value less than the MMEL.

If significant discrepancies are identified during the assessment of the variation, the assessor may deem it necessary to evaluate other sections of the MEL document. If further evaluation is required, such activities should be performed as a separate surveillance activity and should not preclude regulatory consideration of the variation unless there is a material safety concern raised by the discrepancy.

After reviewing the MEL, the assessor should document a list of any discrepancies or findings detected and forward to the applicant for correction or request additional information.

For MELs that were previously approved under CAR 37, the assessor should verify that the amended MEL includes current terminology such as air transport (RPT/Charter replaced by scheduled and non-scheduled) and updated references to Subpart 91.Y of CASR and the Part 91 MOS.

### 3.4. Assessment of an approved MEL category B or C repair interval extension application

One-time extensions to MEL items identified as category B and C are inherently designed into the MMEL and retain all airworthiness certification requirements. Part 91 of CASR allows for these specific extensions and should be applied in accordance with the operator's exposition. Per regulation 91.945 (2) an operator may apply either to its CAMO or to CASA for this one-time extension. Part 91 has provisions for a Part 42 continuing airworthiness management organisation to approve an MEL extension but Part 42 of CASR does not yet have the required enabling legislation to allow this method.

Approval of an extension must be in accordance with the requirements of regulation 91.945(5) and set out in writing with the matters identified in regulation 91.945(6) of CASR. Reference may be made to section 28.09 of the Part 91 MOS, extension of rectification interval.

Only CASA or a delegate of CASA may approve an MEL extension for category B and C items.

A further extension of a Category B or C MEL item, any extension of a Category A or D MEL item, and any other instances of operating an aircraft with inoperative equipment must be addressed through an engineering process under regulation 21.007 of CASR, 'Permissible Unserviceabilities'.

The procedure for the operator to seek an extension under regulation 91.945 of CASR must be in the MEL document<sup>1</sup>.

### 3.5. Assessment due to change of operator

Under Regulation 11.080 of CASR, the approval of a Minimum Equipment List (MEL) is not transferable between operators and, therefore, cannot be modified to change the operator's name under Regulation 91.940 of CASR.

However, if an application is submitted for an MEL previously approved by CASA, but with a different operator, only the differences resulting from the change of operator need to be assessed—provided the new operator is applying for approval of the same MEL. Any unique operator items and associated procedures must be assessed to assure the new operator can manage such items.

The guidance outlined in Section 3.3 of this principle applies. However, the assessor must carefully evaluate the implications of the operator<sup>2</sup> change, ensuring compliance with regulatory requirements.

Example considerations:

The new operator's name must be correctly reflected.

The preamble should reference the new operator.

The latest revision must be checked against the current Master MEL (MMEL).

The document should include:

The revision date.

The name of the person responsible for the revision (i.e., of the new MEL).

Note: The above list of examples is not exhaustive and intended to provide guidance only.

### 3.6. Assessment worksheet user instructions

This principle provides guidance to the inspector when using the associated Worksheet (Worksheet (OPS.01) - Minimum Equipment List (MEL)) title. The worksheet provides inspectors with a regulation-based tool for recording the outcomes of the assessment. It is set out as follows:

The Worksheet (OPS.01) follows the same numbering structure as the principle document, ensuring alignment between corresponding sections (e.g., Section 4.2 in the principle document matches the same reference section in the worksheet). This sequential numbering system enables efficient cross-referencing between the two documents.

The principle document integrates information from multiple sources, along with technical expertise from CASA officers. This support is intended to streamline the assessment process by clarifying regulatory requirements and elaborating on essential practices. It highlights aspects that must, should, or may be positively identified to ensure compliance with current legislation.

<sup>1</sup> Refer to sections 28.03(2) & (3) and 28.09 of the Part 91 MOS

<sup>2</sup> Refer to regulation 91.940 of CASR

## 4. Minimum Equipment List

### 4.1. General Requirements

#### 4.1.1. MEL Format

The MEL format is at the discretion of the operator but should be clear and unambiguous. The MMEL typically provides an appropriate format for a specific aircraft type.

The MEL should contain control tools such as a List of Effective Pages (LEP), table of contents and version control. It should also contain a revision history, which will indicate when the MEL was initially approved.

An example of an MEL format and sample page is provided at Appendix B and C respectively of CAAP 37-1—Minimum Equipment Lists (MEL).

The page numbering and individual MEL items should be in accordance with the Air Transport Association (ATA) 2200 standard numbering system.

#### 4.1.2. MEL applicability

An MEL may be applicable to more than one aircraft of the same type. However, all differences in equipment/systems installed (if any) should be clearly stated by aircraft registration mark.

#### 4.1.3. General contents

Mandatory MEL content is listed in Chapter 28 of the Part 91 MOS.

Some definitions are listed in section 28.02 of the Part 91 MOS. CAAP 37-1 provides standard notes and definitions. Where inconsistencies exist between the CAAP notes and definitions and the MMEL, the MMEL takes precedence.

#### 4.1.4. MEL Preamble

The MEL document should contain a preamble (or equivalent) to provide direction to the organisation's personnel on the philosophy and use of the MEL.

An example of an MEL Preamble which is acceptable for use by an operator is published at Appendix C to CAAP 37-1. An operator may choose to develop their own preamble but it should contain equivalent information to that of Appendix C to CAAP 37-1.

#### 4.1.5. Use of local time zones or Coordinated Universal Time (UTC)

A statement of whether rectification intervals will be calculated according to the local time or UTC should be included to ensure that rectification intervals are maintained, regardless of the time zone of the location of the aircraft.

## 4.2. Compliance with the Master MEL (MMEL)

### 4.2.1. 4.2.1 MEL basis

The MEL for an aircraft must be based on the latest issue of the applicable MMEL on an item-by-item basis<sup>3</sup>. MMEL documents are available from the NAA of the state of design of the aircraft or from the type certificate holder.

The MMEL should be applicable to the aircraft by serial number and derived from the data provided in the Type Certificate (TC) for that aircraft.

An MMEL will not include items that an Airworthiness Directive (AD) requires to be operative unless the AD specifically allows them.

Subject to subsection 28.05(2) of the Part 91 MOS, the MEL for a flight with an inoperative item must not be less operationally restrictive than the MMEL in the same circumstances. The MOS provides relevant examples.

CASA only accepts MMELs approved by the NAA that issued the TC as listed on the type acceptance certificate for the aircraft. Items from an MMEL approved by another recognised NAA may be presented as evidence to support deviations from the applicable MMEL, provided the original certification basis is not affected and Australian regulatory standards continue to be met.

An MEL for an aircraft must not permit the operation of the aircraft for a flight with an inoperative item in contravention of any of the conditions, limitations or emergency procedures specified in the AFM<sup>4</sup>.

### 4.2.2. Items not in MMEL

If an operator chooses to add items that are not found in the MMEL (due to a particular type of operation, regulatory requirements etc.), a safety analysis/assessment must be submitted by the applicant to ensure that these items do not affect the design standards or safe operation of the aircraft and are not in conflict with the conditions, limitations or emergency procedures specified in the AFM.

The analysis/assessment is an engineering function against the certification basis and relevant design standards. It should be accomplished by an appropriately qualified person such as an instrument of appointment holder for the approval of 'technical data' under regulation 21.009(2).

Where the aircraft has been modified by the installation of a Supplementary Type Certificate (STC), the STC holder may produce a supplement to the aircraft MMEL. This supplement should be considered as part of the MMEL and incorporated into the operators MEL once the STC has been embodied.

### 4.2.3. MMEL restrictions

If the MMEL for an aircraft specifies a rectification interval for an inoperative item, an operator MEL for the aircraft must not specify a rectification interval for the item that is less restrictive than the interval specified in the MMEL.

If the MMEL for an aircraft specifies conditions or limitations that must be complied with if the aircraft is to conduct a flight with an inoperative item, the MEL for the aircraft must include conditions or limitations for the item that are at least as restrictive as the conditions or limitations in the MMEL.

However, if civil aviation legislation permits<sup>5</sup> the operation of an aircraft with an inoperative item, the MEL may permit the operation with the inoperative item in accordance with the civil aviation legislation even if the MEL is less restrictive than the MMEL.

<sup>3</sup> Refer to Chapter 28.04 of the Part 91 MOS

<sup>4</sup> Refer to Chapter 28.06 of the Part 91 MOS

<sup>5</sup> Refer to Chapter 28.05 of the Part 91 MOS

If certain item(s) of the applicant's MEL are less restrictive than the applicable MMEL, the applicant must be advised that a safety analysis may be required to ascertain an equivalent and at least acceptable level of safety.

#### 4.2.4. Where the MMEL does not specify a rectification interval

If the MMEL for an aircraft type does not specify a rectification interval for an inoperative item, the rectification interval for the item in an MEL for an aircraft of the type must clearly reflect the significance of the item for the safe operation of the aircraft.

#### 4.2.5. Multiple inoperative items and/ or system components

It is important to consider the impact of multiple active MELs applied to one aircraft. An inoperative component in a particular system can affect the operation or limit the inoperability of a component in another system (e.g. inoperative components of a wheel braking system limiting the inoperability of the thrust reverser system).

In addition to understanding the interrelationships between items in an MEL, each operator must be aware of the impact that multiple item failures and deferrals can have on the safety of flight.

In accordance with regulation 91.960 of the CASR, the operation of the aircraft for flight with inoperative items is not permitted by the MEL if an aircraft begins a flight with more than one inoperative item, in accordance with an MEL for the aircraft; and the number and kinds of inoperative items for the flight, or the relationship between the items:

- reduces the level of safety of the operation of the aircraft; or
- increases the flight crew's workload; to the extent that it is unsafe for the flight to be conducted.

#### 4.2.6. Configuration Deviation List (CDL)

The MEL must not include items listed in the aircraft's Configuration Deviation List (CDL). A CDL, or equivalent (i.e. deferred defect list), is not part of the MMEL/MEL.

CDLs are used to identify external components of an aircraft type which may be missing for flight and, where necessary, provide any associated information on performance corrections for such cases (e.g. missing landing gear doors, flap actuator fairings). Where release for flight with such missing items is approved, the CDL is published as part of the AFM.

In some cases, the TC Holder may publish a Dispatch Deviation Guide (DDG) which is comprised of the MMEL and CDL. The MMEL and CDL are approved by the State of Design.

### 4.3. Categories for rectification intervals

Each item in an MEL must be rectified within the interval specified in the applicable category for the item. These intervals are set to limit the maximum time an aircraft may fly with inoperative item(s) of equipment, and are designated Category A, B, C or D.

Part 91 MOS states –

- Category A rectification interval means a rectification interval other than 3 days, 10 days or 120 days.
- Category B rectification interval means a rectification interval that is 3 consecutive days.
- Category C rectification interval means a rectification interval that is 10 consecutive days.
- Category D rectification interval means a rectification interval that is 120 consecutive days.

Whenever the specified interval is stated in cycles or flight time, the time interval begins with the next flight. Whenever the specified interval is stated in days, the time interval usually begins on the day after which the defect was discovered.

### 4.3.1. Category A Items

Items in this category are part of the aircraft type design requirements or serve critical operational functions. Category A repair items are the most restrictive and time limited. Category A items may have short timeframes and are often set by the TC holder as the criticality of the item usually requires significant and detailed data.

Category A items cannot be granted an extension of the rectification interval as per MOS 91, Section 28.09. Continued operations with the defect unrectified will require an approved Permissible Unserviceability in accordance with regulation 21.007 of the CASR ((OPS.02) - Permissible Unserviceabilities).

### 4.3.2. Category B Items

Category B repair items are part of the aircraft type design requirements or required operational functions. Items in this category are repaired within three consecutive calendar days (72 hours), excluding the day that the malfunction was recorded in the aircraft Maintenance Release (M/R) or other approved document.

An original Category B rectification interval may be extended once up to a maximum of 3 days in accordance with regulation 91.945 of the CASR and Part 91 MOS. No further extensions are permitted.

### 4.3.3. Category C Items

Category C repair items may be part of aircraft type design requirements. Items in this category are repaired within ten consecutive calendar days (240 hours), excluding the day that the malfunction was recorded in the aircraft M/R or other approved document.

An original Category B rectification interval may be extended once up to a maximum of 10 days in accordance with regulation 91.945 of the CASR and Part 91 MOS. No further extensions are permitted.

### 4.3.4. Category D Items

Category D repair items are typically considered 'excess items' installed at the discretion of the operator. Items in Category D are those items that can be left unrepaired for an extended time (up to 120 days). Optional equipment and other equipment, which is permitted to be installed on, or removed from, an aircraft in accordance with approved procedures belong to this category, provided that:

- unavailability of the item does not adversely affect crew workload
- pilots do not rely on the function of that item on a routine or continuous basis
- pilots' training, subsequent habit patterns and procedures do not rely on regular use of the item.

Items in this category are repaired within 120 consecutive calendar days (2880 hours), excluding the day that the malfunction was recorded in the aircraft M/R or other approved document.

Category D items cannot be granted an extension of the rectification interval as per MOS 91, Section 28.09. Continued operations with the defect unrectified will require an approved Permissible Unserviceability in accordance with regulation 21.007 of the CASR ((OPS.02) - Permissible Unserviceabilities).

## 4.4. Conditions and Limitations

### 4.4.1. Operations and maintenance procedures

The operator is responsible for establishing and publishing the respective (O) and (M) procedures mandated by the MMEL, in a form relevant to their operation.

The objective of Operations (O) and Maintenance (M) procedures is to provide all people using the document with clear and concise directions on appropriate conditions and limitations for the use of the MEL. Procedures must comply with all operational or airworthiness requirements and must not deviate from the aircraft flight manual limitations, emergency procedures, or with Airworthiness Directives (AD).

When guidelines for (O) and (M) procedures contained in MMELs are not adequate, operators must develop detailed instructions for pilots and maintenance personnel that are appropriate to the operator's systems and type of operation.

#### 4.4.2. Operations (O) procedures

Where the (O) symbol appears in the MMEL, an operations procedure has been developed for inclusion in the MEL to provide clear direction to the flight crew.

An exception to this is when the procedure is contained in another document that is always available on the flight deck, such as the AFM, aircraft operating manual or the company operations manual. In these cases, the procedure must be appropriate to achieve the applicable result specified in the remarks or exceptions column of the MEL. Justification for the development of procedures must be provided with the application.

When the procedures are contained in another document, the MEL must refer to that procedure.

#### 4.4.3. Maintenance (M) procedures

The MMEL may identify items that require an (M) procedure. Where required, ensure that relevant (M) procedures for the MEL have been developed and that they provide clear direction to maintenance personnel.

The (M) procedures must be appropriate to achieve the applicable result specified in the remarks or exceptions column of the MEL. If the Maintenance procedures are not in the MMEL or approved maintenance data (ICA), justification must be provided.

Some aircraft types have (M) procedures included in the Aircraft Maintenance Manual (AMM); in such cases the MEL may make reference to the relevant AMM procedure.

### 4.5. MEL Relief

MEL relief may be applied to any MEL item identified as inoperative up until the point an aircraft has taken off. Take-off is defined as the act of beginning a flight in which an aircraft is accelerated from a state of rest to that of flight. For the purposes of MEL relief, this translates to the point at which the pilot physically begins to apply power to initiate the take-off from the runway or take-off surface.

#### 4.5.1. Item failures prior to take-off

The operator's MEL management program must include procedures for the Pilot in Command (PIC) to communicate with the aircraft dispatcher (or person authorised to exercise operational control) and the maintenance organisation to review the situation and determine which of the following actions is required:

- Return for repairs: if an inoperative item is not included in the MEL, or the inoperative item could affect the safety of flight due to circumstances such as weather, hazards enroute, performance, weight and balance, or fuel limitations, the aircraft must return to the gate or ramp area for repairs.
- Return to accomplish (M) and (O) procedures: PICs, dispatchers, or persons authorised to exercise operational control may determine that an inoperative item may be deferred, and the appropriate (M) and (O) procedures are accomplished in accordance with the operator's approved MEL and MEL management program.
- Flight crew accomplishment of certain MEL procedures: some procedures may be approved that permit flight crew members to accomplish certain MEL deferrals in coordination with the operator's dispatch and maintenance organisation, without returning to the gate or ramp area. These approved procedures may be part of the operator's approved MEL.

## 4.6. Additional legislative requirements and the approved design

The MMEL is developed by the TC holder and considers the type design and airworthiness requirements established through the certification process. The NAA of the state of design (the TC issuer) then approves the MMEL when it meets the design requirements and the state's operational requirements.

The approval of an MMEL does not consider the localised regulatory requirements (e.g. Australian legislation) and any modifications made to the aircraft outside of the state of the type design (Supplemental Type Certificate (STC), Major Modifications etc).

All regulatory requirements additional to the MMEL must be considered and included in the MEL. Where there is a conflict with MMEL and local operational requirements, the local (Australian) requirements should prevail. In the case of a conflict with certification or airworthiness requirements, the most stringent should prevail.

### 4.6.1. CASA equipment requirements

Equipment regulatory requirements, including fitment and carriage of, are contained in the equipment chapters of the applicable MOS. For AOCs, refer to the Part 121, 133 or 135 MOS. For other operations, refer to the Part 91 MOS. The relevant MOS equipment chapter states that equipment must be operative (serviceable) unless the contrary exists.

### 4.6.2. Compliance with civil aviation legislation

The MEL must not permit the operation of an aircraft for a flight with an inoperative item if the flight would contravene civil aviation legislation.

Section 28.05 of the Part 91 MOS states if civil aviation legislation permits the operation of an aircraft with an inoperative item, the MEL may permit the operation even if the MEL would be less restrictive than the MMEL. Examples of this can be found in section 28.05.

### 4.6.3. Conflict with the approved design

The MEL should not contravene a requirement or lower a standard set out in documents associated with the approved design, such as the AFM, STCs, Major Modifications etc.

If repairs or modifications are approved for the aircraft, and the approval places a new condition or limitation on the operation of the aircraft with an inoperative item, the conditions or limitations specified in the MEL for the item must be at least as restrictive as those specified in the approval.

An operator's MEL, as derived from the MMEL, does not cover items installed or modified under other STCs, field approvals, Engineering Orders (EO) or modifications unless coverage of those items is already included in the MMEL. An STC, field approval, or modification not accounted for in the MMEL may make an MMEL item for a particular modified aircraft invalid to the extent of the inconsistency.

### 4.6.4. Conflict with Airworthiness Directives

Occasionally, an AD may apply to an item that may be authorised to be inoperative under the MEL. In those cases, the operator must fully comply with the terms of the AD or an approved alternative method of compliance (AMOC) with the AD. When provisions of an AD allow operation of the aircraft on the condition that certain installed items be used or be operable, those affected items must be operable, even if the MEL provides for deferral of repair.

## 4.7. Operational requirements

### 4.7.1. Prescribed Single-Engine Aeroplanes

Under Part 135 of CASR, the aeroplanes previously referred to as Approved Single-Engine Turbine Powered Aircraft (ASETPA) are called prescribed single-engine aeroplanes (PSEA). Regulations 135.230 and 135.235 of CASR prohibit Australian air transport operations under the IFR or VFR at night in any other single-engine aircraft.

Appendix 2 to CAO 100.5 sets out the requirements to be complied with for PSEA approval. The operator must submit an MEL with specific PSEA items for approval and MEL items must be assessed to ensure there is no conflict with the expanded operational abilities provided by PSEA. All essential equipment required for PSEA operations must be operational for flight. The MEL may provide relief for some of this equipment but will revert the aircraft operations to non PSEA.

PSEA MEL items are detailed in Appendix A of this principle document and in (OPS.03) – Prescribed Single-Engine Aeroplanes.

### 4.7.2. Other operational requirements

Any restrictions based on operation type should be clearly identified within the MEL. Examples of other operational requirements are:

- Reduced Vertical Separation (RVSM) – refer to regulation 91.655 of CASR and OPS.04
- Performance Based Navigation (PBN) – refer to section 22.01 of the Part 91 MOS and OPS.04
- Required Navigation Performance (RNP) – refer to regulation 91.660 of CASR and OPS.04
- Extended Diversion Time Operations (EDTO) – refer to OPS.06.

## 4.8. Integration of the MEL with the operations and maintenance systems

### 4.8.1. Approved Maintenance Programs and Systems of Maintenance

The MEL should integrate with the Approved Maintenance Program (AMP) or System of Maintenance (SoM) for the aircraft. Any changes to the MEL must trigger a review of the AMP/SoM and any changes to the AMP/SoM must trigger a review of the MEL. This ensures management of the inspection and that maintenance tasks are aligned and appropriate for the aircraft configuration.

Engineering Orders (EO) that not incorporated into the SoM or AMP should also be considered when establishing an MEL to ensure the EO is not affected by invoking of an MEL. If the MEL is impacted by the EO, then the MEL items may need to be excluded during such a time.

### 4.8.2. CASA approved exposition and manuals

The procedures within the MEL, or other operational documents referenced in the MEL, must not contravene or conflict with other CASA approved documents such as the CAMO exposition, operator's operations manual or operator's exposition (which includes the maintenance control manual).

### 4.8.3. Operational documents

All actions taken when invoking an MEL must ensure that the person responsible completes appropriate entries into documents such as the Maintenance Release and Flight Technical Log. The entries must clearly identify the item with the MEL reference.

### 4.8.4. Placards

Regulation 91.150 of CASR requires placarding when operating aircraft with inoperative equipment. Means and placement of placarding must be established and set out for each applicable MEL item. Compliant, durable placards that are fit for purpose should be readily available for invoking of an MEL by an appropriate person.

The item of equipment that is inoperable must be placarded whenever possible to inform everyone involved in the operation of the aircraft of the inoperative condition(s) of the item. While the MMEL may require specific wording for some items, in majority of cases the placard wording is to be determined by the operator. To the extent practicable, placards must be located as indicated in the MEL, or adjacent to the control or indicator/equipment affected.

### 4.8.5. Training

The operator should have an effective training program for staff that covers all aspects of MEL. The training program should incorporate flight crew, maintenance and operations personnel and the program should include, but should not be limited to, the following:

- the purpose and use of an MEL
- operator's procedures for the management of an MEL
- flight crew responsibility with respect to all MEL procedures.

To ensure the organisation's personnel remain current with MEL procedures, recurrent training should be conducted by the operator and the operator should have a controlled method to alert staff to any changes in MEL procedures.

## 5. Nonessential Equipment

Non-safety related equipment, passenger convenience items and Nonessential Equipment and Furnishings (NEF) describe equipment fitted to an aircraft that is not required for safe operation (that is, the item is nonessential).

Items that meet certain criteria may be identified in an operator's nonessential equipment list as non-safety related equipment, separate from the MEL. When using approved procedures, defects in such items may be deferred as non-airworthiness defects.

This includes items installed on the aircraft as part of the original certification, STC or Engineering Order (EO) that have no effect on the safe operation of flight and would not be required by the applicable certification rules or operational rules. They are those items that if inoperative, damaged or missing have no effect on the aircraft's ability to be operated safely under all operational conditions.

Non-safety related equipment may be installed in areas such as the passenger compartment, flight deck area, service areas, cargo areas, crew rest areas, lavatories, and galley areas. It is equipment that is not already identified in the MMEL, CDL or MEL of the applicable aircraft.

Items that are functionally required to meet the certification rule or for compliance with any operational rule are not considered non-safety related equipment.

An operator's process should not provide for deferral of items within serviceable limits identified in the manufacturer's maintenance manual or operator's approved maintenance program, such as wear limits, fuel/hydraulic leak rates, oil consumption etc. Cosmetic items that are fully serviceable but worn or soiled may be deferred under the operators approved process.

### 5.1. Non-essential equipment

Some equipment, such as entertainment systems or galley equipment, may be installed in aircraft for the sole purpose of passenger convenience. If this non-safety-related equipment does not affect the airworthiness or operation of the aircraft when inoperative, it does not require a rectification interval, and need not be listed in the operator's MEL if it is not addressed in the MMEL.

In such cases, the operator may generate a list of non-safety related items and associated management procedures for inclusion in the operators CASA approved manuals (e.g. Subpart 42.G CAMO exposition or maintenance control manual).

The operator must clearly establish, through an appropriate safety analysis, that each item in the MEL has no effect on the approved design for that aircraft or class of aircraft. For information regarding the safety analysis, refer to Protocol (OPS.02) Permissible Unserviceabilities.

The operator can add MEL items that are non-essential, however they still must detail the repair interval and associated operational and maintenance procedures.

### 5.2. MMEL Proviso

Federal Aviation Administration (FAA) certified aircraft may have a proviso within the FAA approved MMEL that refers non-safety related equipment (non-essential furnishings or NEF in FAA lexicon) to an external document such as an exposition to formalise the process.

An equivalent proviso may be included in the operator's approved MEL however it is not mandatory.

An example of an FAA MEL proviso for items considered NEF is provided at Figure 1 below.

System & Sequence Numbers 25 Equipment/ Furnishings	Repair Interval	Number Installed	Number Required For Dispatch	Remarks or Exceptions
Nonessential Equipment and Furnishings (NEF)	-	-	0	<p>May be inoperative, damaged, or missing provided that the item(s) is deferred in accordance with the NEF deferral program. The NEF program, procedures, and processes are outlined in the operator's [insert name] Manual. (M) and (O) procedures, if required, must be available to the flightcrew and included in the aircraft operator's appropriate document.</p> <p><b>NOTE:</b> Exterior lavatory door ash trays are not considered NEF items.</p>

Figure 1: Example of an FAA MEL for items considered NEF by the FAA

### 5.3. Items that MUST be included in the MEL

Where non-safety-related equipment serves a second function, such as movie equipment being used for cabin safety briefings, operators should develop and include operational contingency procedures in the MEL in case of an equipment malfunction.

In addition, where non-safety-related equipment is part of another aircraft system, for example the electrical system, procedures should be developed and included in the MEL for deactivating and securing in case of malfunction. In these cases, the item should be listed in the MEL, with compensating provisions and deactivation instructions if applicable. The rectification interval will be dependent on the secondary function of the item and the extent of its effect on other systems.

### 5.4. Procedures for establishing non-safety related equipment

For failures that are not listed in the MMEL, operators should establish an effective decision-making process to determine if they are related to airworthiness and required for safe operation.

For inoperative equipment to be considered non-safety-related, the following criteria should be considered:

- the operation of the aircraft is not adversely affected such that standard operating procedures related to ground personnel and crew members are impeded
- the condition of the aircraft is not adversely affected such that the safety of passengers and/or personnel is jeopardised
- the condition of the aircraft is configured to minimise the probability of a subsequent failure that may cause injury to passengers or personnel or cause damage to the aircraft
- the condition does not include the use of required emergency equipment and does not impact emergency procedures such that personnel could not perform them.

## 5.5. Development of a program for nonessential equipment

The operator develops, implements, maintains, and revises each program to manage non-safety related equipment. The following elements should be included in the program:

- a list or other equivalent method of tracking items in the program
- procedures and processes for identifying items that may be deferred
- procedures for tracking program deferrals
- procedures for the reporting deferrals
- documentation procedures for inoperative, damaged or missing items
- Maintenance (M) and Operational (O) procedures where applicable
- procedures for follow up maintenance, repair, and replacement
- repair intervals - operators may use the current MEL deferral categories at their discretion or an alternate method
- any portion of the program that references maintenance must comply with the maintenance data or standard practices.

## 5.6. Assessment of a nonessential equipment program

Operators must ensure they address specific elements when submitting items for review prior to inclusion into a process or program. The following questions must be applied when reviewing items and potential items for inclusion in an operator's program:

- is the item required for the operational rules in which the aircraft is operated?
- does the item create the potential for fire/smoke or other hazardous condition?
- could the item have an adverse effect on other required systems or components?
- is the item contrary to the operator's maintenance program?
- does the item's condition potentially affect the safety of passengers, crew or service personnel?
- could the item have a negative impact on emergency or abnormal procedures?
- does the item create an additional workload for the crew at critical times of flight or flight preparation?
- do crew members need to evaluate the deferred item on a flight-by-flight basis?

## 6. One-time MEL extension – Category B or C items

### 6.1. Extension requirements

An extension of the original rectification interval for an item listed in the MEL of an aircraft must not be approved under subregulation unless the following conditions are met:

- The item is inoperative. Usually, evidence for this is in the form of a copy of the defect log or similar.
- The original rectification interval is of a type prescribed by the Part 91 Manual of Standards for this purpose.
- The operator is unable to rectify the item within the original rectification interval due to circumstances beyond their control.
- The original rectification interval has not been previously extended under the regulation for the same continuous period of inoperability.
- The Master Minimum Equipment List (MMEL) for the aircraft type does not prohibit an extension of the rectification interval for the item.

### 6.2. Compliance with the civil aviation legislation

An MEL must not permit the operation of an aircraft for a flight with an inoperative item if the flight would be in contravention of the civil aviation legislation. If the civil aviation legislation permits the operation of an aircraft with an inoperative item, the MEL may permit the operation with the inoperative item in accordance with the civil aviation legislation even if the MEL is less restrictive than the MMEL.

If another CASR, CAR, AD, MOS etc contains an a provision that permits the aircraft to operate with the item inoperative for a maximum period--the extended rectification interval for the item will not exceed that period; and the extended rectification interval will not exceed the period prescribed by the Part 91 Manual of Standards.

## 7. References

- EASA Guidance Material (GM) to Annex III – Part-ORO - GM1 ORO.MLR.105(a).
- EASA CS-GEN-MMEL and CS-GEN-MMEL.
- FAA Master Minimum Equipment List Policy Letters
- FAA FSIMS 8900.1 Vol 4. Chapter 4 Section 4 - Nonessential Equipment and Furnishings (NEF) Program.

## Appendix A - PSEA MEL Items

ATA	PSEA required system or equipment	MEL allowance
31	Engine electronic trend monitoring system (Cat C item)	(O) Aeroplane may continue in service for a period not to exceed 10 days, subject to manual collection of data detailed in the PWC ECTM Analytical Guide (EAG) Manual. Data collected is required to be analysed.
24	Alternate electrical power source (Cat B item)	(M) (O) May be inoperative provided: <ul style="list-style-type: none"> <li>a. Operations are conducted under VFR only.</li> <li>b. Passenger carrying Air Transport operations are not conducted under IFR or VFR at night.</li> <li>c. The aeroplane is not operated in known or forecast icing conditions.</li> </ul> Power source is disconnected in accordance with manufacturer's instructions.
34	Global navigation satellite system (Cat C item)	(O) May be inoperative provided: <p>One may be inoperative provided en-route and approach procedures do not require two GNSS receivers.</p> <p>Both may be inoperable for day VFR operations.</p>
22	Auto pilot Single-pilot operations Two-pilot operations (Cat C item)	(M) (O) May be inoperative subject to: <p>Operations are conducted under VFR only</p> <p>The aeroplane is not used in passenger carrying Air Transport operations at night.</p> <p>The auto pilot is placard inoperative.</p> <p>Disconnected in accordance with the manufacturer's instructions.</p> <p>May be inoperative subject to:</p> <p>Operations with two pilots, and en-route and approach procedures do not require the use of the autopilot.</p> <p>The autopilot is placard inoperative.</p>
34	Radar / radio altimeter (Cat C item)	(O) (M) May be inoperative provided: <p>The aeroplane is not used in passenger carrying Air Transport operations at night or under IFR</p> <ul style="list-style-type: none"> <li>d. Approach minimums or operating procedures do not require its use.</li> <li>e. The system is deactivated and secured.</li> </ul> <p>The cockpit indicator is placard inoperative.</p>
35	Supplemental oxygen passenger system only (Cat C item)	(O) Aeroplane may continue in service subject to an altitude limitation of 10,000 ft AMSL.
34	Weather radar (Cat C item)	(O) May be inoperative for a period not exceeding 10 days, subject to: <p>No thunderstorms or cumulonimbus cloud formations associated with severe turbulence anywhere along the route to be flown, including the route to a planned alternate.</p> <p>The cockpit indicator is placard inoperative.</p>

ATA	PSEA required system or equipment	MEL allowance
34	Secondary EADI / EHSI display unit (Cat B item)	(O) May be inoperative provided: The aeroplane is not used in passenger carrying Air Transport operations at night or under IFR. f. The display is placard inoperative. The standby A/I is operative.
26	Engine fire warning horn	(O) (M) May be inoperative provided: Passenger carrying Air Transport operations are not conducted under IFR or VFR at night. The fire warning light is operative.

**Figure 2: PSEA MEL Items**