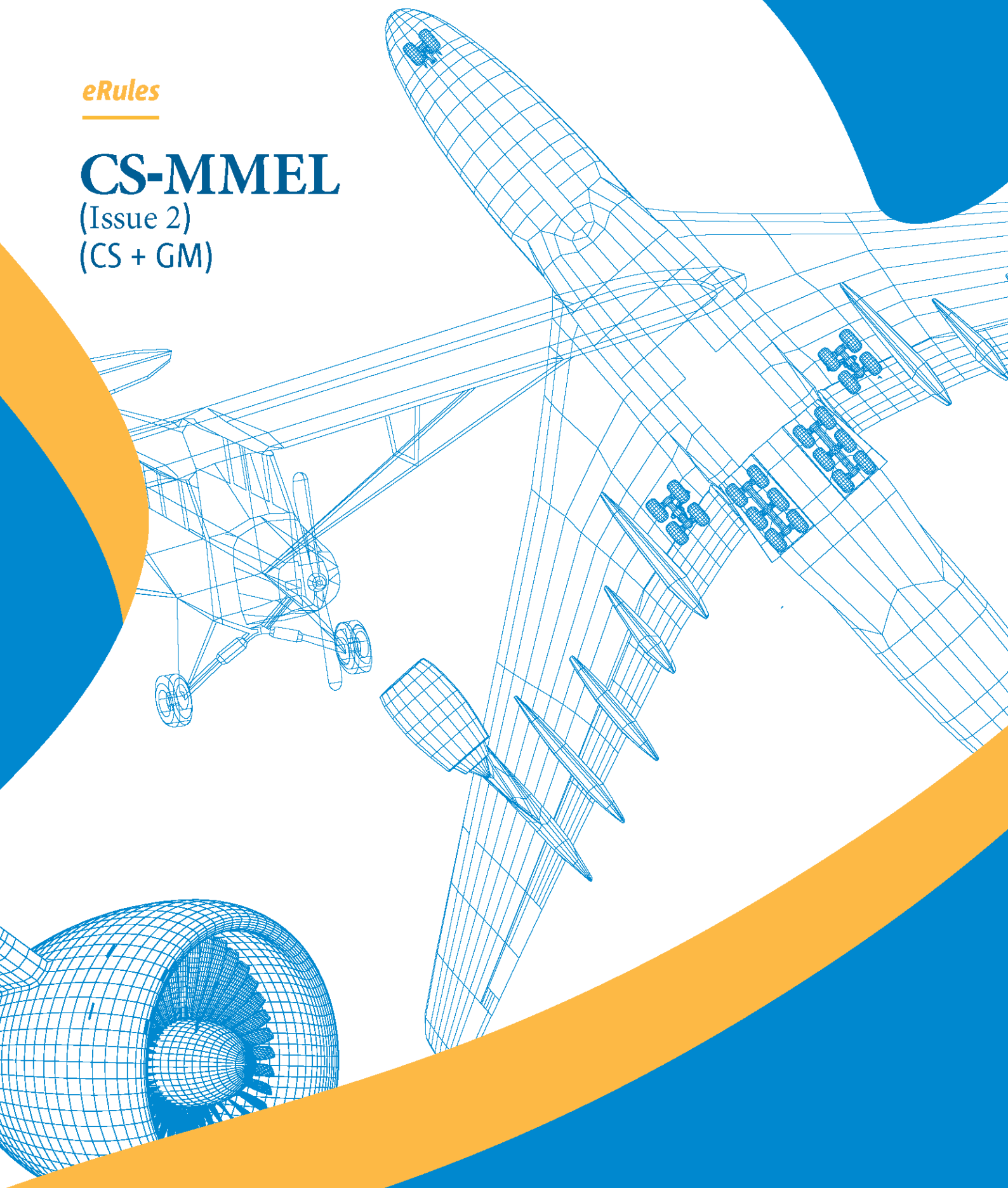
EASA
European Union Aviation Safety Agency

eRules

CS-MMEL
(Issue 2)
(CS + GM)



Easy Access Rules for Master Minimum Equipment List (CS-MMEL) (Issue 2)

EASA eRules: aviation rules for the 21st century

Rules are the core of the EU civil aviation system. The aim of the **EASA eRules** project is to make them **accessible** to stakeholders in an efficient and reliable way.

The **EASA eRules** is a comprehensive, single system for structuring, sharing, and storing of rules. It is the single, easy-access online database for all aviation safety rules applicable to European airspace users.

The **Easy Access Rules** (**EAR**) are the output of the eRules project. They are consolidated versions of those rules, combining EU regulations with EASA certification specifications (CSs), acceptable means of compliance (AMC), and guidance material (GM) in an easy-to-read format with advanced navigation features through links and bookmarks. EAR are regularly updated, following the adoption of an official publication.

The **EAR** are available:

— in PDF format;

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The **EASA eRules** system is developed and implemented in close cooperation with the Member States and aviation industry to ensure that all its capabilities are relevant and effective.

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[1] The published date represents the date when the consolidated version of the document was generated.

[2] Euro-Lex, Important Legal Notice: http://eur-lex.europa.eu/content/legal-notice/legal-notice.html.

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This document is issued by the European Union Aviation Safety Agency (referred to as both 'EASA' and 'the Agency') to provide its stakeholders with an updated, consolidated, and easy-to-read publication. It has been prepared by putting together the officially published EU regulations with the related EASA acceptable means of compliance (AMC) and guidance material (GM) (including their amendments) adopted so far. However, this document is not an official publication, and EASA accepts no liability for damage of any kind resulting from the risks inherent in its use.

NOTE FROM THE EDITOR

The content of this document is arranged as follows: the certification specifications (CS) are followed by the guidance material (GM).

All elements (i.e. CS and GM) are colour-coded and can be identified according to the illustration below. The EASA Executive Director (ED) decision through which the CS or GM was introduced or last amended is indicated below the CS or GM title *in italics*.

Certification specification

ED decision

Guidance material

ED decision

The format of this document has been adjusted to make it user-friendly and for reference purposes. Any comments should be sent to erules@easa.europa.eu.

INCORPORATED AMENDMENTS

CS/GM (ED DECISIONS)

Incorporated ED Decision	CS/AMC Issue No, Amendment No	Applicability date
ED Decision 2014/004/R	CS-MMEL/ Initial issue	31/1/2014
ED Decision 2020/012/R	CS-MMEL/ Issue 2	1 /2/2021

Note: To access the official versions, please click on the hyperlinks provided above.

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SUBPART A — GENERAL

CS MMEL.050 Scope

ED Decision 2014/004/R

These Certification Specifications establish the specifications for the applicant for a type certificate, change approval or supplemental type certificate to develop and provide the Master Minimum Equipment List (MMEL) as part of the Operational Suitability Data (OSD) defined in Part 21 .

CS MMEL.100 Applicability

ED Decision 2020/012/R

These Certification Specifications for establishing the MMEL are applicable to complex motor-powered aircraft and to non-complex helicopters that are certified for:

— operation under instrument flight rules (IFR),

— flight into icing conditions, or

— Category A operations.

Issue No: MMEL/2

CS MMEL.105 Definitions

ED Decision 2014/004/R

For the purpose of this CS, the following terms mean:

(a) '**Applicant**': an applicant for, or a holder of, a type certificate (TC), change approval or supplemental type certificate (STC), applying for the approval by the European Aviation Safety Agency (hereinafter referred to as 'the Agency') of the Operational Suitability Data (OSD) related to MMEL.

(b) '**Calendar Day**': a 24-hour period from midnight to midnight based on either UTC or local time, as selected by the operator.

(c) '**Catastrophic Failure Condition**': as defined in the applicable Type Certification Basis.

(d) '**Day of discovery**': the calendar day when a malfunction was recorded in the aircraft maintenance record/log book.

(e) '**End user**': an operator or training organisation having a Minimum Equipment List (MEL) based on the MMEL approved by the Agency.

(f) '**External Event**': an occurrence which has its origin distinct from the aircraft or the system being examined, such as atmospheric conditions (e.g. wind gusts/shear, temperature variations, icing, lightning strikes), operating environment (e.g. runway conditions, conditions of communication, navigation and surveillance services), cabin and baggage fires, and bird strike.

(g) '**Flight Day**': a 24-hour period from midnight to midnight based on either UTC or local time, as selected by the operator, during which at least one flight is initiated for the affected aircraft.

(h) '**Hazardous Failure Condition**': as defined in the applicable Type Certification Basis.

(i) '**Inoperative**': an item which does not accomplish its intended purpose or is not consistently functioning within its approved operating limits or tolerances.

(j) '**Item**': a component, instrument, equipment, system or function.

(k) '**Rectification Interval (RI)**': a limitation on the duration of operations with inoperative items.

GM1 MMEL.105(a) Definitions

ED Decision 2014/004/R

CALENDAR DAYS

All calendar days are considered to run consecutively.

GM1 MMEL.105(g) Definitions

ED Decision 2014/004/R

INOPERATIVE

Some items have been designed to be fault tolerant and are monitored by computers which transmit fault messages for the purpose of maintenance. The presence of this category of message does not necessarily mean that the item is inoperative.

GM1 MMEL.105(h) Definitions

ED Decision 2014/004/R

ITEM

(a) In the context of these Certification Specifications, a component is considered to be a piece of equipment or instrument.

(b) In the context of these Certification Specifications, a system is considered to be a collection of equipments and/or instruments that perform a function. (See AMC 25.1309)

CS MMEL.107 Status of provided data

ED Decision 2014/004/R

(a) CS-MMEL Subpart B specifies data provision which is required from the applicant and data provided at request of the applicant. Data provided by the applicant is presented as mandatory or non-mandatory (recommendations) for the end user.

(1) Data required from the applicant and mandatory for the end user:

CS MMEL.115

CS MMEL.120

CS MMEL.130

(2) Data required from the applicant and non-mandatory (recommendations) for the end user:

CS MMEL.125

(3) Data at request of the applicant and mandatory for the end user:

CS MMEL.110 (Non-safety-related items only).

(4) Data at request of the applicant and non-mandatory (recommendations) for the end user:

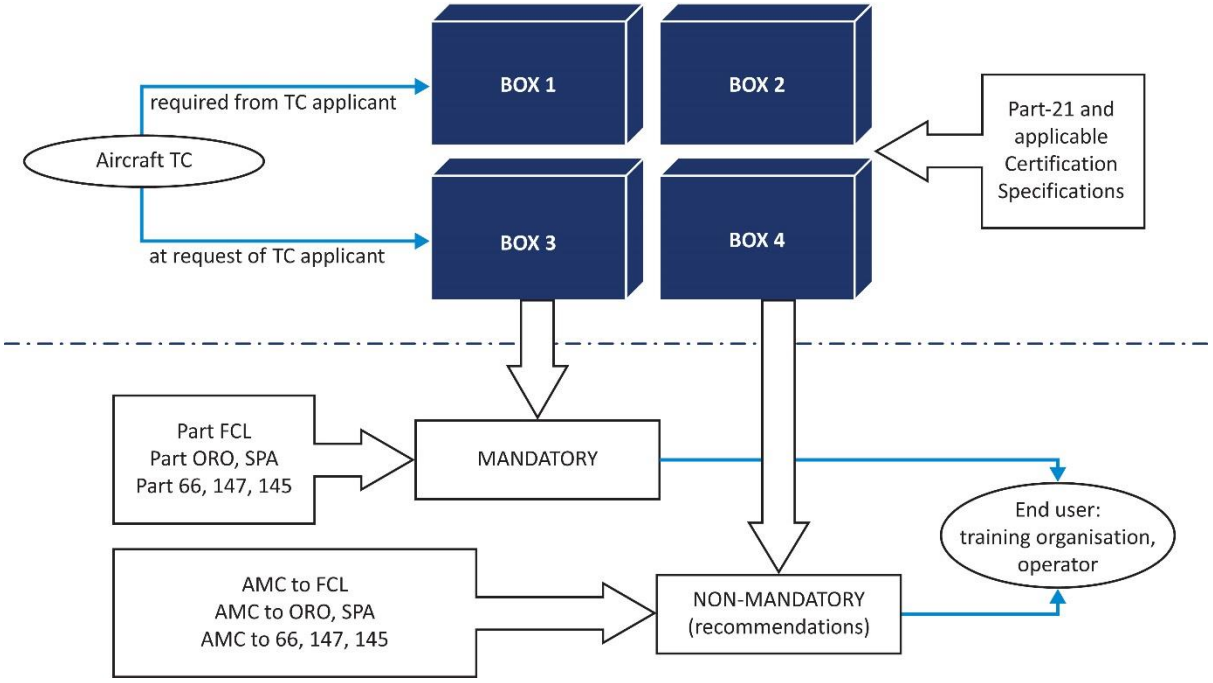
CS MMEL.135

(b) CS-MMEL Subpart C provides specifications on the development of the MMEL and associated justifications to be developed by the applicant.

GM1 CS MMEL.107(a) status of provided data: OSD box concept

ED Decision 2014/004/R

OSD BOX CONCEPT DIAGRAM



Box 1: Required from the applicant; mandatory for end users.

Box 2: Required from the applicant; non-mandatory (recommendations) for end users.

Box 3: At request of the applicant; mandatory for end users.

Box 4: At request of the applicant; non-mandatory (recommendations) for end users.

GM2 MMEL.107(a) Status of provided data: OSD box concept

ED Decision 2020/012/R

(a) Because of the alleviative nature of the MEL, the fact that the MMEL is mandatory data for the end-user means that the MEL is not less restrictive than the MMEL, but it may be more restrictive.

(b) The content of the operational and maintenance procedures provided by the applicant is recommended to the end user as defined in ORO.MLR.105(g).

Issue No: MMEL/2

SUBPART B — MASTER MINIMUM EQUIPMENT LIST

CS MMEL.110 MMEL purpose

ED Decision 2014/004/R

The MMEL is a document that lists the items which may be temporarily inoperative, associated with special operating conditions, limitations or procedures, as applicable, for a specific aircraft type or model.

GM1 MMEL.110 MMEL purpose

ED Decision 2014/004/R

AIRCRAFT TYPE

An MMEL document may cover more than one aircraft type provided that benefits on commonality can be taken and the applicability of each item is clearly indicated.

GM2 MMEL.110 MMEL purpose

ED Decision 2014/004/R

NON-SAFETY-RELATED ITEMS

(a) All items not included in the list are required to be operative unless they are considered to be non-safety-related items.

(b) Non-safety-related items include those items related to the convenience, comfort, or entertainment of the passengers and equipment that is used only on ground for maintenance purpose. Convenience, comfort, or entertainment of the passengers may include items such as galley equipment, movie equipment, stereo equipment, overhead reading lamps. Additional guidance is provided in GM1 ORO.OPS.MLR.105(a).

(c) Non-safety-related items need not be included in the MMEL, unless so desired by the applicant.

CS MMEL.115 Types of operation

ED Decision 2014/004/R

The MMEL covers all the types of operation for which the aircraft type or model is certified.

CS MMEL.120 Format and content of the MMEL

ED Decision 2014/004/R

(a) The MMEL is written in a format acceptable to the Agency.

(b) Each MMEL contains the following:

(1) Approval status, including date of approval and effective date.

(2) A preamble, containing considerations on the purpose and limitations, utilisation, multiple inoperative items, rectification interval extension, definitions and, if appropriate, clarifying notes which adequately reflect the scope, extent and purpose of the list.

(3) The list of items, including for each item:

— the rectification interval category;

— the number installed or a dash symbol, as applicable;

— the number required or a dash symbol, as applicable;

— the operational procedure symbol, as applicable;

— the maintenance procedure symbol as applicable;

— placarding indications, as applicable; and

— any associated conditions and limitations, including the intent and periodicity for the accomplishment of the operational and maintenance procedure, as applicable.

GM1 MMEL.120 Format and content of MMEL

ED Decision 2014/004/R

GENERAL

(a) The MMEL should normally be written in a 'five-column format'. Refer to examples in GM2 MMEL.120. Other paper or electronic formats are accepted provided they are clear and unambiguous.

(b) The MMEL should contain: cover page, revision history, detailed summary of changes at last revision, list of effective pages, and table of contents within the administrative control pages at the beginning of the MMEL, or equivalent information should be made available in the case of MMEL in other than paper format.

(c) A model of acceptable preamble can be found in GM5 MMEL.120.

(d) Each item listed in the MMEL should be described and identified in accordance with the Air Transport Association (ATA) specification 100 or 2200 code system. Consistency of terminology and identification means should be maintained, as far as possible, among aircraft documentation. Where appropriate, the MMEL should contain means to identify applicability of items.

(e) Where a Message Oriented approach is used, the messages displayed may be listed in place of the item title in the relevant section, as this will be considered as a representation of the item(s) affected. Number installed and number required are not applicable for such an approach.

(f) Rectification interval may be identified through a reference to another item.

(g) Number installed and number required may not be listed if not practical and not relevant for dispatch determination.

(h) Where there is a requirement for a specific maintenance procedure, then an (M) symbol should be included as part of the MMEL entry to indicate this. Where there is a requirement for a specific operational procedure, then an (O) symbol should be included as part of the MMEL entry to indicate this.

(i) When a maintenance procedure is associated to an MMEL item, a dispatch condition, identifying the intent of the procedure (e.g. deactivation of an equipment), should be included in the associated item, as far as practicable.

(j) References to where the content of the operational and maintenance procedures is available should be included in the MMEL.

(k) A decision on whether the necessary procedure can be assigned as an (O) or an (M) should be based on which is the most appropriately qualified trade to carry out the procedure and which trade would normally carry out such a task in their line of duty, based on the intended types of operation normally performed by the aircraft. On this basis deactivation and securing tasks should normally be assigned an (M) while procedures based on operation of equipment should normally be assigned an (O).

(l) The periodicity for the accomplishment of the procedures should be clarified either in a generic manner in the MMEL preamble or specifically in the associated dispatch conditions. Maintenance deactivation procedure should normally be performed once prior to the first flight under the associated item. Maintenance verification procedures periodicity may vary and should therefore be clarified in the MMEL. Operational procedures should normally be performed or acknowledged by the flight crew members before each flight, unless otherwise specified.

(m) Placarding instructions are provided as part of the dispatch conditions or in a generic manner in the preamble to inform the crew members and maintenance personnel of the item condition, to the extent practicable.

(n) Unless it is specifically allowed by the MMEL, an inoperative item should not be removed.

GM2 MMEL.120 Format and content of MMEL

ED Decision 2014/004/R

FIVE-COLUMN FORMAT EXAMPLE

MASTER MINIMUM EQUIPMENT LIST

AIRCRAFT:	**REVISION No:** **DATE:**	**PAGE:**

(1) Systems & Sequence Numbers ITEM	(2) Rectification Interval Category	(3) Number Installed	(4) Number Required for Dispatch	(5) Remarks or Exceptions

GM3 MMEL.120 Format and content of MMEL

ED Decision 2014/004/R

MESSAGE ORIENTED FORMAT EXAMPLE

Aircraft	**Revision No:** Rev 3	**Sect**	**Page**
	Date:		
1. Message	**2. Rectification Interval Category** **3. Dispatch Consideration**		

GM4 MMEL.120 Format and content of MMEL

ED Decision 2014/004/R

ELECTRONIC FORMAT EXAMPLE

MMEL item

Repair interval	Nbr Installed	Nbr required
C	1	0

Placard

O May be inoperative

GM5 MMEL.120 Format and content of MMEL

ED Decision 2020/012/R

MMEL PREAMBLE

(SPECIMEN)

EUROPEAN UNION AVIATION SAFETY AGENCY

MASTER MINIMUM EQUIPMENT LIST

(AIRCRAFT TYPE)

PREAMBLE

Introduction

The following is applicable for operators subject to Commission Regulation (EU) No 965/2012 of 5 October 2012 - Air Operations. Paragraph 1.3.2 of Annex II (essential requirements for airworthiness) of Regulation (EU) 2018/1139 (the 'Basic Regulation') requires that all equipment installed on an aircraft required for type certification or by operating rules shall be operative. However, paragraph 2(c)(iii) of Annex V (essential requirements for air operations) to the Basic Regulation also allows the use of a Minimum Equipment List (MEL) where compliance with certain equipment requirements is not necessary in the interests of safety under all operating conditions. Experience has shown that with the various levels of redundancy designed into aircraft, operation of every system or installed items may not be necessary when the remaining operative equipment can provide an acceptable level of safety.

Purpose and limitations

This Master Minimum Equipment List (MMEL) is developed by the applicant and holders of the (Supplemental) Type Certificate and approved by the European Union Aviation Safety Agency to improve aircraft use, and thereby, to provide more convenient and economic air transportation for the public. This MMEL includes those items related to airworthiness, air operations, airspace requirements and other items that EASA finds may be inoperative, while maintaining an acceptable level of safety through appropriate conditions and limitations; it does not contain obviously required items such as wings, flaps, and rudders. In order to maintain an acceptable level of safety, the MMEL establishes limitations on the duration of, and conditions for, operation with inoperative items. Unless specifically allowed by this MMEL, an inoperative item may not be removed from the aircraft.

This MMEL includes items identified by a '#'-symbol or provided in a dedicated list, which have been based only on European operational requirements, using associated guidance developed by EASA. If the applicable operational requirements differ from the European operational requirements, then for

the approval of the MEL, the items in the MMEL could be adapted to the applicable operational requirements, provided that is permitted by the State of the operator.

In such a case, the MEL content is still considered to be in conformity with the content of this MMEL.

Utilisation

The MMEL is the basis for the development of individual operator's MEL which take into consideration the operator's particular aircraft equipment configuration and operational conditions. An operator's MEL may differ in format from the MMEL, but shall not be less restrictive than the MMEL. The individual operator's MEL, when approved, allows operation of the aircraft with inoperative items of equipment for a certain period of time until rectification can be accomplished.

The MEL cannot deviate from Airworthiness Directives, or any other additional mandatory requirements. It is important to remember that all items related to the airworthiness and the operational regulations of the aircraft not listed on the MMEL shall be operative.

Suitable conditions and limitations in the form of placards, maintenance procedures, crew operating procedures and other restrictions as prescribed in this MMEL shall be specified in the MEL to ensure that an acceptable level of safety is maintained. It is important that rectifications be accomplished at the earliest opportunity.

When an item is discovered to be inoperative, it is reported by making an entry in the continuing airworthiness record system or the operator's technical log, as applicable. Following sufficient fault identification, the item is then either rectified or deferred following the MEL or other approved means of compliance acceptable to the competent authority and the Agency prior to further operation. MEL conditions and limitations do not relieve the operator from determining that the aircraft is in a condition for safe operation with items inoperative.

Prior to operation with any item inoperative acceptance by the crew is required in accordance with the continuing airworthiness management procedures.

Operators shall establish a controlled and sound rectification programme including the parts, personnel, facilities, procedures and schedules to ensure timely rectification.

Operators should include guidance in the MEL to deal with any failures which occur between the commencement of the flight and the start of the take-off.

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

Multiple inoperative items

Operators are responsible for exercising the necessary operational control to ensure that an acceptable level of safety is maintained. The exposure to additional failures during continued operation with inoperative items shall also be considered. Wherever possible, account has been taken in this MMEL of multiple inoperative items. However, it is unlikely that all possible combinations of this nature have been accounted for. Therefore, when operating with multiple inoperative items, the inter-relationships between those items and the effect on aircraft operation and crew workload shall be considered.

Rectification interval extension

[The operator may be permitted, by its competent authority, to extend the rectification intervals of the MEL.

This MMEL has been evaluated taking into account a one-time extension of the rectification intervals of category B, C and D.]

(The above statement in [] is applicable only if demonstrated during the MMEL review process)

DEFINITIONS AND EXPLANATORY NOTES

[In addition to a preamble arranged and worded along the lines of this Specimen, the MMEL should contain, as part of the preamble, sufficient definitions and explanatory notes to provide the user (this is primarily the operator when compiling the MEL) with a full and proper understanding of the intent and purpose of the items it contains.

While many of the definitions used will be common to all MMELs, others will be specific to particular or individual aircraft types. (Supplemental) TC holders should ensure, when preparing the MMEL, that all relevant definitions are included. Also explanatory notes should be provided in sufficient detail wherever the intent and purpose of a term or phrase or abbreviation etc. is necessary or advisable.]

1. **'Airplane/Rotorcraft Flight Manual'** (AFM/RFM) means the document required for type certification and approved by the Agency. The AFM/RFM for the specific aircraft is listed on the applicable Type Certificate Data Sheet.

2. **'Alternate procedures are established and used'** or similar statement, means that alternate procedures (if applicable), to the affected process, must be drawn up by the operator as part of the MEL approval process, so that they have been established before the MEL document has been approved. Such alternate procedures are normally included in the associated operations (O) procedure.

3. **'Any in excess of those required by regulations'** means that the listed item is required by applicable legislation (e.g. Part OPS, Single European Sky legislation or the applicable airspace requirements) must be operative and only excess items may be inoperative. When the item is not required, it may be inoperative for the time specified by its rectification interval category. Whenever this condition is used in the MMEL, the applicable regulations for the intended flight routes and the resulting dispatch restrictions need to be clarified at the operator's MEL level.

4. **'As required by (operational) regulations'** means that the listed item of equipment is subject to certain provisions (restrictive or permissive) expressed in the applicable legislation (e.g. regulation Air Operations, Single European Sky legislation or the applicable airspace requirements). When the equipment is not required, it may be inoperative for the time specified by its rectification interval category.

5. **'Calendar Day'** means a 24-hour period from midnight to midnight based on either UTC or local time, as selected by the operator. All calendar days are considered to run consecutively.

6. **'Combustible Material'** means the material which is capable of catching fire and burning. In particular: if a MEL item prohibits loading of combustible (or flammable or inflammable) material, no material may be loaded except the following:

    1) Cargo handling equipment (unloaded, empty or with ballast);

    2) Fly away kits (excluding e.g. cans of hydraulic fluid, cleaning solvents, batteries, capacitors, chemical generators, etc.);

    Note: If serviceable tyres are included, they should only be inflated to a minimum pressure that preserves their serviceability; and

    3) Inflight service material (return catering — only closed catering trolleys/boxes, no newspapers, no alcohol or duty free goods).

7. **'Commencement of flight'** is the point when an aircraft begins to move under its own power for the purpose of preparing for take-off.

8. **'Considered Inoperative'** as used in the dispatch conditions, means that item must be treated for dispatch, taxiing and flight purposes as though it were inoperative. The item shall not be used or operated until the original deferred item is repaired. Additional actions include: documenting the item on the dispatch release (if applicable), placarding, and complying with all remarks, exceptions, and related MMEL provisions, including any (M) and (O) procedures and observing the rectification interval.

9. **Dash '#'** in column 2 (Rectification Interval), or its equivalent in an MMEL, means that the rectification interval is not specified at the level of that item, but rather that it is specified in another MMEL item that is referred to as part of the dispatch conditions (e.g. item B is considered to be inoperative).

10. **'Day'** or **'Daylight'** means the period between the beginning of morning civil twilight and the end of evening civil twilight relevant to the local aeronautical airspace; or such other period, as may be prescribed by the appropriate authority.

11. **'Day of discovery'** means the calendar day that a malfunction was recorded in the aircraft maintenance record/log book.

12. **'Extended overwater flight'** means a flight where the aeroplane is operated over water at a distance, away from land suitable for making an emergency landing, that is greater than:

    (1) the distance covered in 120 minutes at cruising speed, or 400 NM, whichever is the lesser, in the case of aeroplanes that are capable of continuing the flight to an aerodrome with the critical engine(s) becoming inoperative at any point along the route, or with planned diversions; or

    (2) for all other aeroplanes, the distance covered in 30 minutes at cruising speed, or 100 NM, whichever is the lesser.

13. **'Flight'**, for the purposes of this MMEL, means:

    — for aeroplanes: the period of time between the moment when an aircraft begins to move under its own power, for the purpose of preparing for take-off, until the moment the aircraft comes to a complete stop on its parking area, after the first landing.

    — for helicopters: the period of time between the moment when the rotor of the helicopter starts to turn for the purpose of taking off, until the moment when the rotor is stopped after the helicopter finally comes to rest at the end of the flight.

14. **'Flight Day'**, a 24-hour period from midnight to midnight based on either UTC or local time, as selected by the operator, during which at least one flight is initiated for the affected aircraft. 'ETOPS' or 'ER operations' refers to extended range operations of a two-engine airplane as defined by Part-SPA.

15. **'Icing Conditions'** means an atmospheric environment that may cause ice to form on the aircraft or in the engine(s) as defined in the AFM/RFM.

16. **'If installed'** means that the item is either optional or is not required to be installed on all aircraft covered by the MMEL.

17. **'Inoperative'** means that the item does not accomplish its intended purpose or is not consistently functioning within its approved operating limits or tolerances.

18. **'Is not used'** in the provisions, remarks or exceptions for an MMEL item may specify that another item relieved in the MMEL 'is not used'. In such cases, crew members should not activate, actuate, or otherwise utilise that item under normal operations. It is not necessary for the operators to accomplish the (M) procedures associated with the item. However, operations-related provisions, (O) procedures must be complied with. An additional placard must be affixed, to the extent practical, adjacent to the control or indicator for the item that is not used to inform crew members that an item is not to be used under normal operations.

19. **'Intended flight route'** corresponds to any point on the route including diversions to reach alternate aerodromes required to be selected by the operational rules.

20. **'Item'** means component, instrument, equipment, system or function.

21. **'(M)'** 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 authorised to perform certain functions. 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.

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

23. **'Maximum distance from an adequate aerodrome for two-engine aeroplanes'** as defined in **SPA.ETOPS** and **CAT.OP.AH.140**.

24. **'Minimum Equipment List'** means a document established as per paragraph 5(c) of Article 30 of Regulation (EU) 2018/1139 and approved by the competent authority, in accordance with ORO.MLR.105 of Annex III (Part-ORO) to Regulation (EU) No 965/2012, that authorises an operator to dispatch an aircraft with aircraft equipment inoperative as per CAT.IDE.A/H.105 of Annex I (Part-CAT) to Regulation (EU) No 965/2012 or NCC.IDE.A/H.105 of Annex VI (Part-NCC) to Regulation (EU) No 965/2012 under the conditions specified therein.

25. '**Notes'** provide additional information for flight crew 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 dispatch conditions.

26. **'Number Installed'** 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), or not applicable, a number is not required; a '-' is then inserted.

    Note: Where the MMEL shows a variable number installed, the MEL should reflect the actual number installed, as far as practical.

27. **'Number required for dispatch'** is the minimum number (quantity) of items required for operation provided the conditions specified are met. Should the number be a variable (e.g. passenger cabin items) or not applicable, a number is not required; a '-' is then inserted.

    Note: Where the MMEL shows a variable number required for dispatch, the MEL should reflect the actual number required for dispatch, as far as practical, or an alternate means of configuration control approved by the competent authority.

28. **'-'** in the Number Installed Column (respectively Number Required for Dispatch Column) indicates a variable number (quantity) of the item installed (respectively item required) or not applicable.

    Note: Where the MMEL shows a variable number installed, the MEL should reflect the actual number installed, as far as practical.

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

    Note: The (M) and (O) symbols are required in the operator's MEL.

30. **'Operating minima'** means the set of requirements associated to operations requiring a specific approval (refer to Part-SPA).

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

32. **'Placarding'** Each inoperative item must be placarded, as applicable, to inform and remind the crew members and maintenance personnel of the item's 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.

33. **'Rectification intervals'** Inoperative items or components, deferred in accordance with the MEL, must be rectified at or prior to the rectification intervals established by the following letter designators:

    Category A

    No standard interval is specified. However, items in this category shall be rectified in accordance with the conditions stated in the MMEL.

    (i) Where a time period is specified in calendar days or flight days, the interval excludes the day of discovery.

    (ii) Where a time period is specified other than in calendar days or flight days, it shall start at the point when the defect is deferred in accordance with the operator's approved MEL.

    Category B

    Items in this category shall be rectified within three (3) calendar days, excluding the day of discovery.

Category C

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

Category D

Items in this category shall be rectified within one hundred and twenty (120) calendar days, excluding the day of discovery.

34. **'Remarks or Exceptions'** include statements either prohibiting or allowing operation with a specific number of items inoperative, provisos (conditions and limitations), notes, (M) and/or (O) symbols, as appropriate for such operation.

35. **'Required Cabin Crew Seat'** is a seat in the aircraft cabin which meets the following conditions:

1) Where the certification of the cabin requires this seat to be occupied by a qualified cabin crew member as specified in the Operations Manual;

2) This seat is a part of the station to which a qualified cabin crew member is assigned for the flight; and

3) The qualified cabin crew member assigned to the station is a member of the minimum cabin crew designated for the flight.

36. **Triple Asterisk '***'** means an item which is not required by the regulations, but which may have been installed on some models of aircraft that are covered by this MMEL. This item may be included on the aircraft operator's MEL after it has been determined that the item has been installed on one or more of the aircraft operator's aircraft. The triple asterisk symbol, however, must not be carried forward into the aircraft operator's MEL. It should be noted that the use of this symbol does not provide the authority to install or remove an item from an aircraft.

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

Issue No: MMEL/2

CS MMEL.125 Operational and Maintenance Procedures

ED Decision 2014/004/R

Accomplishment instructions for the operational and maintenance procedures identified in the MMEL by the associated symbols are developed and validated by the applicant.

GM1 MMEL.125 Operational and maintenance procedures

ED Decision 2014/004/R

VALIDATION OF OPERATIONAL AND MAINTENANCE PROCEDURES

(a) Compliance with CS MMEL.125 does not require an individual review of every and each operational or maintenance procedure.

(b) A description of the validation methods for the operational and maintenance procedures has to be made available to the Agency upon request.

CS MMEL.130 Rectification Interval

ED Decision 2014/004/R

A rectification interval is established for each MMEL item in accordance with the following categories:

(a) Category A: No standard interval is specified; however, items in this category shall be rectified in accordance with the conditions stated in the MMEL.

(1) Where a time period is specified in calendar days or flight days, the interval excludes the day of discovery.

(2) Where a time period is specified other than in calendar days or flight days, it shall start at the point when the defect is deferred in accordance with the operator's approved MEL.

(b) Category B: Items in this category shall be rectified within 3 calendar days, excluding the day of discovery.

(c) Category C: Items in this category shall be rectified within 10 calendar days, excluding the day of discovery.

(d) Category D: Items in this category shall be rectified within 120 calendar days, excluding the day of discovery. Items in this category meet the following criteria:

(1) the absence of the item does not adversely affect crew workload;

(2) the crew do not rely on the function of that item on a routine or continuous basis; and

(3) the crew's training, subsequent habit patterns and procedures do not rely on the use of that item.

GM1 MMEL.130 Rectification Interval

ED Decision 2014/004/R

USE OF CATEGORY D

The rectification interval category D is normally used for MMEL items of an optional nature such as items installed in excess of the applicable certification and operational requirements.

GM2 MMEL.130 Rectification Interval

ED Decision 2014/004/R

RECTIFICATION INTERVAL EXTENSION

(a) The MMEL should highlight in its preamble when rectification interval extensions have been considered in the development of the MMEL.

(b) Where quantitative analysis forms part of the justification, rectification interval and rectification interval extensions, if any, should be considered in this analysis (see CS MMEL.145 and GM1 MMEL.145(d)).

GM3 MMEL.130 Rectification Interval

ED Decision 2014/004/R

RECTIFICATION INTERVAL FOR 'REFERED TO' ITEM

When an MMEL item is referring to another MMEL item or another document where a rectification interval is provided, the rectification interval does not need to be specified. In such case, a dash symbol may be used.

GM4 MMEL.130 Rectification Interval

ED Decision 2020/012/R

If a time period is specified in flight hours for an item whose rectification interval category is A, the flight hours that are counted as part of that period should start at the commencement of taxiing prior to the first flight for aeroplanes and at the start of the rotation of the rotor for helicopters under the associated MEL item.

Issue No: MMEL/2

CS MMEL.135 Rectification Interval Extension

ED Decision 2014/004/R

The MMEL preamble indicates if extension of the rectification intervals of category B, C and D is applicable.

SUBPART C — LEVEL OF SAFETY AND JUSTIFICATIONS OF MMEL ITEMS

CS MMEL.140 Level of safety

ED Decision 2014/004/R

The MMEL items are prepared to ensure that an acceptable level of safety as intended by the applicable requirements is maintained taking into account the following factors:

(a) reduction of aircraft functional capabilities and/or safety margins;

(b) change in crew workload and/or degradation in crew efficiency;

(c) consequence(s) to the aircraft and its occupants of the next failure(s) having the worst safety-related impact on the aircraft's take-off, continued flight and landing when dispatching in a known degraded configuration;

(d) consequence(s) to the aircraft and its occupants of the next external event(s) for which the item was designed to protect against, if applicable.

GM1 MMEL.140 Level of safety

ED Decision 2014/004/R

AS INTENDED BY THE APPLICABLE REQUIREMENTS

(a) The applicable requirements to be considered for MMEL development include the Type Certification Basis requirements and any operational requirement (including airspace requirements) applicable to the considered item.

(b) 'As intended' means that strict compliance with the applicable requirement(s) may not be ensured provided appropriate mitigation means are proposed ensuring that an acceptable level of safety is maintained in line with the overall intent of the requirement(s).

GM2 MMEL.140 Level of safety

ED Decision 2014/004/R

MEANS TO MAINTAIN THE LEVEL OF SAFETY

(a) An acceptable level of safety can be maintained for an MMEL item through one or a combination of the following means:

(1) adjustment of operational limitations;

(2) transfer of the function/information to an operating system/component performing the required function or providing the required information, provided the change in crew workload and/or crew training remains acceptable;

(3) development of operational procedures (e.g. such as alternate procedures; additional pre-flight checks), provided the change in crew workload and/or crew training remains acceptable;

(4) development of maintenance procedures (such as deactivating and securing the system/component of concern, additional verification tasks).

CS MMEL.145 Justification of MMEL items

ED Decision 2020/012/R

(a) The justifications are provided by the applicant along with each MMEL item.

(b) The inclusion of each item in the MMEL is justified following one or more methods, also referred to as MMEL safety methodologies, as agreed with EASA.

(c) The justifications include at least a qualitative safety assessments which:

(1) evaluate the consequences of the proposed MMEL dispatch configuration on the aircraft functional capabilities, crew workload and discomfort to occupants and show compliance with CS MMEL.140;

(2) evaluate the consequences of the next worst safety-related failure and, if applicable for the item, separately evaluate the consequences of the external event for which the item was designed to protect against, and ensure the combination of the MMEL dispatch configuration with the next worst safety-related failure or event do not correspond to an hazardous or catastrophic failure condition; and

(3) notwithstanding paragraph (2) above, specific cases may be accepted when supported by quantitative safety assessment as per paragraph (d) below.

(d) The qualitative safety assessment is supplemented by a quantitative safety assessment when both of the following considerations are met:

(1) relief is proposed for items, functions and/or systems involved in catastrophic or hazardous failure conditions, and the severity of the failure condition under MMEL configuration is not mitigated by special operating conditions, limitations or procedures; and

(2) when the operation with the inoperative item leaves the aircraft one failure away from a hazardous failure condition, or one or two failures away from a catastrophic failure condition.

(e) When an operational or maintenance procedure is associated to an MMEL item, corresponding symbol is included in the MMEL, and the intent of the procedure is specified in the associated item justification.

(f) Where a detailed quantitative analysis is required, notwithstanding paragraph (d), a qualitative analysis may only be used for conventional and simple systems when the aircraft is certified against requirements other than CS 25/29.1309.

Issue No: MMEL/2

GM1 MMEL.145 Justification of MMEL items

ED Decision 2014/004/R

JUSTIFICATIONS CONTENT

(a) The justifications include information necessary to show compliance with applicable CS-MMEL paragraphs.

(b) The justifications for an MMEL item include the list of functions associated to the item, as well as the associated functional failure(s), failure effect(s) and as far as practical the failure cause(s).

(c) Where a message-oriented MMEL approach is in use, all failures combination/condition for which this message would be displayed should be considered when preparing the justifications.

(d) When non-safety related items are proposed, the associated justifications may be limited to only demonstrating the non-safety related nature of the item in order to show compliance with CS MMEL.145.

APPENDIX 1 TO GM1 MMEL.145: MMEL ITEMS GUIDANCE BOOK

ATA 22 AUTOFLIGHT

ED Decision 2014/004/R

Summary of the guidance items:

Item	ATA
Autopilot	22-10-1
Flight Director	22-10-2
Navigation Databases (MC)	22-71-1

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 22 Autoflight					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
22-10-1	**Autopilot (or Autopilot Channel)**				
22-10-1A	(Other than CAT)	C	-	0	(M) (O) May be inoperative provided: (a) Affected autopilot/channel is deactivated, and (b) Affected autopilot/channel is not part of the equipment required for intended operation. **Procedures** (M) To give guidance on a practical mean to ensure that the affected autopilot/channel will not engage during the flight, and (O) To specify any applicable restriction for operations requiring a specific approval (e.g. PBN/MNPS, RVSM, Low Visibility, ETOPS, etc.)
22-10-1B	(CAT)	C	-	1	(M) (O) Any in excess of one may be inoperative provided: (a) Affected autopilot/channel is deactivated, and (b) Affected autopilot/channel is not part of the equipment required for intended operation. **Procedures** See 22-10-1A
(continued)					

ATA Chapter: 22 Autoflight				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				
22-10-1C (CAT)	B	-	0	(M) (O) May be inoperative provided: (a) Any increase in crew workload caused by the affected autopilot/channel has been considered for intended operation, (b) Operations are conducted under VFR for single pilot operations, (c) Affected autopilot/channel is deactivated, and (d) Affected autopilot/channel is not part of the equipment required for intended operation. **Procedures** See 22-10-1A
22-10-1-1 Autopilot Functions/Modes 22-10-1-1 (CAT)	C	-	-	(M) (O) One or more functions/modes may be inoperative provided: (a) Any increase in crew workload caused by the inoperative functions/modes has been considered for intended operation, (b) Inoperative functions/modes are deactivated as applicable, (c) Autopilot heading mode and altitude hold are operative, and (d) Affected functions/modes are not part of the equipment required for intended operation. **Procedures** (M) To give guidance reference to ensure the affected function of the autopilot are properly deactivated and do not interact with functions used for the flight. (O) See 22-10-1A

Additional considerations:

If the autopilot or autopilot functions are required to meet airworthiness requirements (e.g. stabilisation function for rotorcraft, single pilot IFR, etc.), this needs to be taken into account as part of the MMEL evaluation and compliance with CS-MMEL requirements has to be demonstrated.

Some autopilot installations are not dependent on flight director being operative, and basic attitude modes may still be available.

For highly integrated systems the autopilot may not function without the flight director, and therefore autopilot inoperative relief would also apply (see guidance item 22-10-2).

If flight director modes of the autopilot are used to show compliance with requirements applicable to the means of measuring and indicating turn and slip, aircraft attitude or stabilised aircraft heading, in combination with instruments, additional restrictions related to the loss of associated indications may be applicable.

For the intended operations, any increase in crew workload caused by the inoperative functions has to be considered. This condition needs to be specified in the MMEL (e.g. number of flights, leg duration, etc.)

Any additional limitations (e.g. flight time) may result from the above review.

Applicable operating minima (e.g. CAT2/CAT3 operations) or navigation specifications (e.g. B-RNAV, RNP) requirements may be specified at the level of the MMEL or refer to appropriate section of AFM or Operations Manual. The above guidance shows these restrictions covered at operational procedures level but having them reflected at dispatch conditions level is also acceptable.

If the aircraft is certified for ETOPS operations, associated restrictions may be included, as appropriate.

The above guidance indicates the need to deactivate the affected autopilot/channel for dispatch. Some autopilot design may not offer the possibility to fully comply with this requirement. Alternate conditions can in these cases be proposed provided adequate safeguards against erratic autopilot behaviour are demonstrated.

22-10-1C:

For single pilot CAT operations, depending on the use of autopilot in routine procedures, the operations may be restricted to day VMC only.

22-10-1-1 sub-item covers failure of functions of the autopilot, which do not lead to the disconnection of the associated autopilot (autopilot channel).

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 22 Autoflight					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
22-10-2	**Flight Director Symbols (FD Bars)**				
22-10-2A		C	-	-	(O) May be inoperative provided: (a) Affected flight director is not part of the equipment required for intended operation, and (b) Associated autopilot, if affected, is considered inoperative (Refer to 22-10-1). **Procedures** (O) To specify any applicable restriction for operations requiring a specific approval (e.g. PBN/MNPS, RVSM, Low Visibility Operations (LVO), etc.)

Additional considerations:

This item covers display of symbols only (e.g. FD bars).

A shorter rectification interval or a minimum of one FD bars operative may be required based on operational considerations such as the amount of reliance that is placed on the FD and the level of training with the FD inoperative. Additional restrictions due to considerations on the autopilot items may also be applicable in case of integrated architecture.

AFM limitations that may identify any approaches that cannot be flown if the FD is inoperative as a result of certification flight tests have to be taken into account.

Aircraft applicability: Aeroplanes & Helicopters:

ATA Chapter: 22 Autoflight				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
22-71-1 Navigation Database (MC)				Note: A database which is out of date is considered to be inoperative.
22-71-1A	C	-	0	(O) One or more may be inoperative for the intended flight route where conventional (non-RNAV/RNP) navigation is sufficient, provided (a) Current aeronautical information (e.g. charts) is available for the entire route and for the aerodromes to be used, and (b) Navigation database information is disregarded, and (c) Radio navigation aids, which are required to be flown for departure, arrival and approach procedures are manually tuned and identified. **Procedures** (O) To give guidance reference to established operator's procedure to ensure the dispatch conditions requirements are met prior to release of the aircraft.
22-71-1B	C	-	1	(O) Any in excess of one may be inoperative provided: (a) The operative database must be up to date for routes, departures, arrival and approach procedures that require the use of navigation Database for RNAV/RNP, and (b) The operative database is available and used by the flight crew member(s) responsible for navigation, and (c) Radio navigation aids, which are required to be flown for departure, arrival and approach procedures are manually tuned and identified. **Procedures** (O) To give guidance reference to established operator's procedure to ensure dispatch conditions requirements are met prior to release of the aircraft.
(continued)				

ATA Chapter: 22 Autoflight				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued) 22-71-1C	A	-	0	(O) One or more may be out of date for a maximum of 10 calendar days provided: (a) Area Navigation (RNAV/RNP) departure, arrival and approach procedures are checked not to depend on the data amended in the current database cycle or Conventional (Non-RNAV/RNP) or ANSP assistance are used as an alternative to RNAV/RNP procedures which have been amended in the current database cycle, (b) Before each flight, current aeronautical information is used to verify the database Navigation Fixes, the coordinates, frequencies, status (as applicable) and suitability of Navigation Facilities required for the intended flight route, and (c) Radio navigation aids, which are required to be flown for departure, arrival and approach procedures and which have been amended in the current database cycle, are manually tuned and identified. **Procedures** (O) To give guidance reference to established operator's procedure to ensure the dispatch conditions requirements are met prior to release of the aircraft.

Additional considerations:

The item in the current guidance is separated into two set of provisos:

— 22-71-1B applicable when RNAV/RNP operations are not conducted (C rectification interval), and

— 22-71-1C applicable to operations where RNAV/RNP may be conducted (A rectification interval maximum 10 calendar days). The wording of condition (a) may be customised to the specific types of operations intended to be conducted.

This is to reduce the exposure time for aircraft navigated in RNAV/RNP airspace with downgraded capability due to outdated databases.

Condition (c) is required for system design where the radio navaids are automatically tuned by using the database data.

ATA 23 COMMUNICATIONS

ED Decision 2020/012/R

Summary of the guidance items:

Item	ATA
Headset (MC)	23-10-1
Audio Selector Panel	23-10-2
Flight Crew Compartment Speaker	23-10-3
HF Communications	23-11-1
VHF Communications	23-12-1
Audio Selector Panel Frequency Controls and Indications	23-13-1
Public Address System	23-30-1
Datalink	23-30-2
Flight Crew Interphone System (Flight Crew Compartment Intercommunication) (MC)	23-40-1
Crew Member Interphone System (MC)	23-40-2
Flight Crew Compartment Door Surveillance System (MC)	23-70-1
Cockpit Voice Recorder (MC)	23-71-1

Aircraft applicability: Aeroplanes

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-10-1 Headset (MC)				
23-10-1A	D	-	-	Any in excess of one headset (including boom microphone) for each required crew member on flight crew compartment duty may be inoperative or missing.

Additional considerations:

Additional certification requirements may impose additional restrictions (e.g. spare headset on single pilot helicopter).

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-10-2	Audio Selector Panel				
23-10-2A		D	-	-	Any in excess of one for each required crew member on flight crew compartment duty may be inoperative.
23-10-2B		D	-	-	May be inoperative provided: (a) The flight is conducted under VFR, and (b) Required communication can be ensured using alternate means.
23-10-2-1	Press To Transmit (PTT) Switch				
23-10-2-1A		B	-	-	(M) Any in excess of one for each required flight crew member may be inoperative provided the affected switch is either verified failed open (non-transmitting) or is deactivated. **Procedures** (M) Check of the failure of the switch in open (non-transmitting) position or deactivation in open position.

Additional considerations:

Additional requirements may be introduced if the Audio Selector Panel failure has consequences on the aural warning broadcasting.

All aural alerts, messages and other communication which are normally routed through the flight crew compartment speakers must be audible through the headsets.

There may be components of the audio control panel inoperative; however, the panel is still adequate for flight. Above items do not address sub-components (e.g. ADF identification function) and it is considered the captain's decision to dispatch with necessary equipment operative.

Operators of Helicopter Emergency Medical Service (HEMS) or helicopters employing rescue equipment (i.e. winches, etc.) or human external cargo may need to consider whether additional crew members (not situated within the flight crew compartment) are included within their MEL alleviation.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-10-3 Flight Crew Compartment Speaker 23-10-3A	C	-	0	(O) May be inoperative provided: (a) A headset is operative for each required crew member on flight crew compartment duty, and (b) A spare operative headset is readily available in the flight crew compartment for use by any of the required crew member on flight crew compartment duty. **Procedures** (O) To provide alternate procedures for the use of headsets, as appropriate.

Additional considerations:

It should be ensured that the affected speaker is not used for crew intercommunication when smoke masks are used unless single pilot operations are conducted.

If there are emergency (e.g. smoke) procedures which require the crew to establish communication then relief for both cannot be granted, but depending on flight test results, relief for one may be possible.

All aural alerts, messages and other communication which are normally routed through the flight crew compartment speakers should remain audible through the headsets and be recordable by the CVR (or the CVR should be considered inoperative). In the case aural alerts and required communications could be heard only through the headsets, these should be worn permanently by at least one crew member on flight crew compartment duty.

Considerations should be given to audio system configuration in degraded electrical configuration, in particular when credit has been taken on the availability of flight crew compartment speakers.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-11-1 HF Communications				
23-11-1A	D	-	-	Any in excess of those required for the intended flight route, may be inoperative.
23-11-1B	C	-	1	(O) Any in excess of one may be inoperative provided: (a) SATCOM air-ground communications with Air Traffic Service Providers (ATSPs) are available for the intended flight route, (b) SATCOM Voice or Data transfer functions are operative, (c) Prior to each flight, coordination with the appropriate Air Navigation Service Provider(s) is established where INMARSAT codes, or equivalent, are not available whilst using SATCOM voice function, and (d) Alternate communication procedures are established and used. Note: The intended flight route corresponds to any point on the route including diversions to reach alternate aerodromes required to be selected by the operational rules. **Procedures** (O) To provide alternate communication procedures. SATCOM is to be used only as a backup to normal HF communications unless otherwise authorised by the appropriate Air Navigation Service Provider(s)
(continued)				

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued) 23-11-1C	A	-	1	(O) Any in excess of one may be inoperative for a maximum of 3 calendar days provided alternate communication procedures are established and used. **Procedures** (O) To provide alternate communication procedures. When the route enters airspace for which an In Flight Blind Broadcast Procedure exists, select the appropriate I.F.B.B. VHF frequency and apply the procedure.

Additional considerations:

When relief if foreseen for an HF communication system powered under an emergency bus, additional considerations should account for the capability to maintain an acceptable level of safety with residual means of communication and navigation, depending on the kind of operations (e.g. ETOPS) and impose additional restrictions, as necessary.

23-11-1A:

This entry allows dispatch with HF communication in excess of the applicable requirements.

A radio communication system is required for operations in a controlled airspace, under IFR or at night.

In addition, for Commercial Air Transport operations under IFR or under VFR over routes that cannot be navigated by reference to visual landmarks, two independent means of communication are required and each system should have an independent antenna installation, except where rigidly supported non-wire antenna or other antenna installations of equivalent reliability are used.

23-11-1B & C:

These entries are applicable for flights on routes that require two long range communication systems.

Although SATCOM voice and data link may be used as long range communication systems in order to meet applicable operational requirements, not all ATC facilities are adequately equipped to handle SATCOM data or voice as the primary means of communication.

SATCOM data or voice may however be accepted as a backup to normal HF communication systems.

HF-voice is the only LRCS currently available for Air Traffic Control communications in many areas.

Therefore, in areas requiring two operational LRCSs, at least one must be HF-voice and in areas requiring one LRCS, that system must be HF-voice.

Additional restriction to ensure availability of ACAS may be considered.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-12-1	**VHF Communications**				
23-12-1A	(Other than CAT)	D	-	-	Any in excess of those required may be inoperative.
23-12-1B	(CAT)	C	-	1	(O) Any in excess of one, may be inoperative provided: (a) Operations are conducted under VFR over routes navigated by reference to visual landmarks, (b) Applicable airspace requirements for the intended flight route are complied with, and (c) Alternate procedures are established and used, if applicable. **Procedures** (O) To provide alternate procedures if the affected VHF was used to accomplish procedures for the intended flight route. To provide procedures to address next in-flight failure of the remaining system, if not otherwise available.
23-12-1C	(CAT)	C	-	2	(O) Any in excess of two, may be inoperative provided alternate procedures are established and used, if applicable. **Procedures** See 23-12-1B.

Additional considerations:

When relief if foreseen for a VHF communication system powered under an emergency bus, additional considerations should account for the capability to maintain an acceptable level of safety with residual means of communication and navigation, depending on the kind of operations and impose additional restrictions, as necessary.

Additional condition on SSR transponder availability to cover next in-flight failure may be needed.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-13-1	**Audio Selector Panel Frequency Controls and Indications**				
23-13-1-1	Frequency Transfer Light				
23-13-1-1A		C	-	0	May be inoperative.
23-13-1-2	Frequency Transfer Switch				
23-13-1-2A		C	-	0	May be inoperative.
23-13-1-3	Frequency Selector Knob				
23-13-1-3A		C	-	2	Any in excess of two may be inoperative.
23-13-1-4	Frequency Indication				
23-13-1-4A		C	-	2	Any in excess of two may be inoperative.

Additional considerations:

This guidance may be adapted to the aircraft's specific design.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications					
(1) System & Sequence Numbers Item		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-20-1	**Datalink (MC)**				
23-20-1A		C	-	0	(O) May be inoperative provided alternate procedures are established and used. **Procedures** (O) To provide alternate procedure to the crew to manage communications, as applicable in the airspaces in which aircraft is operated.
23-20-1B		D	-	0	May be inoperative provided procedures do not require its use.

Additional considerations:

Option 23-20-1B is applicable for aircraft not required to have datalink installed as per Commission Regulation (EC) No 29/2009 or whenever aircraft is operated below FL285.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-30-1 Public Address (PA) System				
23-30-1A	D	-	-	Any in excess of those required may be inoperative provided procedures do not require their use.
23-30-1B	C	-	-	(O) Any in excess of those required may be inoperative provided alternate procedures are established and used.
23-30-1C	B	-	0	(O) May be inoperative provided: (a) Alternate procedures are established and used, and b) Flight crew compartment from and to cabin interphone system (including audio and visual alerting system) is operative. **Procedures:** (O) To provide alternate normal and emergency communication procedures between flight crew compartment and cabin and/or operating restrictions as appropriate for the intended operations.
23-30-1D	D	-	0	(O) May be inoperative provided operations are conducted in cargo only configuration with all occupants in the Flight Crew Compartment. **Procedures:** (O) To provide alternate normal and emergency communication procedures and/or operating restrictions as appropriate for the intended operations.
(continued)				

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				
23-30-1E	C	-	0	(O) May be inoperative provided: (a) Operations are conducted in cargo only configuration, and (b) Flight crew compartment/cabin interphone system (including audio and visual alerting system) is operative, and (c) Alternate procedures are established and used. **Procedures:** (O) To provide alternate normal and emergency communication procedures and/or operating restrictions as appropriate for the intended operations.
23-30-1F	D	-	0	(O) May be inoperative provided: (a) Operations are conducted with no passengers, (b) All occupants are in the flight crew compartment.

Additional considerations:

The alternate procedures will have to be developed to account for any procedures based on the use of the PA, in particular in areas such as lavatories and crew rest, etc.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-40-1	**Flight Crew Interphone System (Flight Crew Compartment Intercommunication) (MC)**				
23-40-1A		D	-	-	Any system in excess of those required may be inoperative.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch / (5) Remarks or Exceptions
23-40-2	**Crew Member Interphone System (MC)**			
23-40-2A		D	-	- Any in excess of those required may be inoperative provided procedures do not require their use.
23-40-2B		C	-	- (O) Any in excess of those required may be inoperative provided alternate procedures are established and used.
23-40-2-1	Flight Crew Compartment to Cabin Cabin to Flight Crew Compartment Interphone			
23-40-2-1A		B	-	- (O) May be inoperative provided: (a) An adequate number of interphone terminals, accessible by each required cabin crew from its assigned area or from the nearest assigned area are operative, and (b) Alternate procedures are established and used, and (c) Flight crew compartment interphone aural alerting system is operative. **Procedures:** (O) To provide alternate normal and emergency communication procedures between flight crew compartment and cabin including access to the flight crew compartment from the cabin and/or operating restrictions as appropriate for the intended operations
(continued)				

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				
23-40-2-2 Flight Crew Compartment Handset (if installed)				
23-40-2-2A	C	-	0	(O) May be inoperative provided: (a) Flight crew compartment to cabin communication is operative, and (b) Alternate procedures are established and used. **Procedures:** (O) To provide alternate normal and emergency communication procedures between flight crew compartment and cabin and/or operating restrictions as appropriate for the intended operations.
23-40-2-3 Cabin to Cabin Interphone				
23-40-2-3A	C	-	0	(O) May be inoperative provided alternate procedures are established and used. **Procedures:** (O) To provide alternate normal and emergency communication procedures between affected crew members using or not the public address system and/or operating restrictions as appropriate for the intended operations.
23-40-2-4 Flight Crew Compartment and/or Cabin to Crew Rest Facility/Bunk				
23-40-2-4A	C	-	0	(O) May be inoperative provided: (a) Public address system is operative, and (b) Alternate procedures are established and used.
(continued)				

ATA Chapter: 23 Communications					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)					**Procedures:** (O) To provide alternate normal and emergency communication procedures between affected crew members and/or operating restrictions as appropriate for the intended operations.
23-40-2-4B		C	-	0	(O)(M) May be inoperative provided: (a) Affected crew rest facility/bunk is not occupied, and (b) Affected crew rest facility/bunk is placarded 'DO NOT OCCUPY'. **Procedures:** (O) To provide alternate normal and emergency communication procedures between affected crew members and/or operating restrictions as appropriate for the intended operations. (M) To give guidance reference for placarding the affected area.
23-40-2-5	Alerting System (Audio/Visual)				
23-40-2-5A		C	-	-	(O) May be inoperative provided: (a) Flight crew compartment call audio alerting system is operative, (b) Public Address system is operative, and (c) Alternate procedures are established and used. Note: If the lavatory smoke alerting system is affected, the lavatory smoke detector is considered inoperative (refer to 26-17-1) or an alternate indication must be operative (e.g. flight crew compartment alert). **Procedures:** (O) To provide alternate normal and emergency communication procedures for contacting crew members as appropriate for the intended operations.
(continued)					

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				
23-40-2-6 Cabin Handset 23-40-2-6A	C	-	-	(O) One or more may be inoperative provided: (a) At least 50 % of the cabin handset is operative, (b) One handset is operative at each pair of floor level exit door, (c) Operative handsets are located at operative cabin crew seats, and (d) Alternate procedures are established and used. **Procedures:** (O) To provide alternate normal and emergency communication procedures as appropriate for the intended operations.
23-40-2-6B	C	-	-	(O) May be inoperative at any non-required cabin crew seat.
23-40-2-7 Flight Crew to Ground/Ground to Flight Crew Interphone (MC) 23-40-2-7A	C	1	0	(O) May be inoperative provided alternate procedures are established and used. **Procedures:** (O) To provide alternate communication procedures between flight crew compartment and ground as appropriate for the intended operations.

Additional considerations:

23-40-2-1

In order to determine the minimum required interphone terminals (handsets) in the cabin, the accessibility (cabin layout, monuments impairing visibility) and the distance from any point of the area assigned to the required cabin crew to the next operative interphone terminals have to be considered.

Any crew interphone station that is operative may be used.

Aircraft applicability: Aeroplanes

ATA Chapter: 23 Communications					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-70-1	**Flight Crew Compartment Door Surveillance System (e.g. CCTV) (MC)**				
23-70-1A		D	-	0	(O) May be inoperative provided that alternate procedures are established and used.

Additional considerations:

ORO.SEC.100.A of Annex III (Part-ORO) to Regulation (EU) No 965/2012 states that for flight crew compartment security reasons, a means should be provided to monitor, from either pilot's station, the area outside the flight crew compartment to the extent necessary to identify any persons who request entry to the flight crew compartment, and to detect any suspicious behaviour or potential threat.

The installation of a CCTV system enables compliance with the above regulation so that the pilot can monitor the area while seated at his or her station.

Means such as a spyhole, in combination with procedures that are based on the minimum number of flight crew members who have to be present in the compartment, may be used as an acceptable alternate method.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 23 Communications				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
23-71-1 Cockpit Voice Recorder System (MC)				
23-71-1A	D	-	-	Any in excess of those required by regulations may be inoperative.
23-71-1B	A	-	0	May be inoperative provided that: (a) The aircraft does not exceed 8 further consecutive flights with the cockpit voice recorder inoperative, (b) Less than a maximum of 72 hours have elapsed since the cockpit voice recorder was found to be inoperative, and (c) Any Flight Data Recorder required to be carried is operative. Note 1: This alleviation is not applicable to Flight data and cockpit voice combination recorders. For those combined systems, see the entries for combination recorders in item 31-31-2. Note 2: If an Underwater Locating Device (ULD) is required by regulation to be fitted to the CVR and this ULD is inoperative, the associated CVR is considered to be inoperative. If an Emergency Locator Transmitter (ELT) is required by regulation to be fitted to the CVR and this ELT is inoperative, the associated CVR is considered to be inoperative.

Additional considerations:

N/A

Issue No: MMEL/2

ATA 25 EQUIPMENT/FURNISHINGS

ED Decision 2020/012/R

Summary of the guidance items:

ITEM	ATA
Flight Crew Seats (MC)	25-11-1
Observer Seats (MC)	25-11-2
Passenger Seats (MC)	25-21-1
Cabin Crew Seat Assembly (single or dual position)	25-21-2
Exterior Lavatory Door Ashtrays (MC)	25-40-1
Interior Lavatory Ashtrays (MC)	25-40-2
Escape Slides	25-60-1
Independent portable lights (MC)	25-60-2
Protective Breathing Equipment (PBE) (MC)	25-60-3
Megaphones (MC)	25-60-4
Life rafts (MC)	25-60-5
Survival Equipment (MC)	25-60-6
Emergency Flotation Equipment	25-60-7
Crash Axes and Crowbars (MC)	25-61-1
First-Aid Kits (MC)	25-62-1
Emergency Medical Kits (MC)	25-62-2
Emergency Locator Transmitter (MC)	25-63
Life jackets (MC)	25-64-1
Low-Frequency Underwater Locating Device (ULD)(MC)	25-65-1

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-11-1	**Flight Crew Seats (MC)**				
25-11-1-1	Power Adjustments				
25-11-1-1A		D	-	0	May be inoperative for each flight crew member.
25-11-1-2	Manual Adjustments				
25-11-1-2-1	Horizontal Adjustments				
25-11-1-2-1A		-	-	-	Must be operative for each flight crew member.
25-11-1-2-2	Vertical and Recline Adjustments				
25-11-1-2-2A		B	-	0	One or more may be inoperative provided the associated power adjustment of the affected flight crew member seat is operative.
25-11-1-2-2B		B	-	0	(M) One or more may be inoperative provided the affected seat is secured or locked in a position acceptable to the flight crew member.
25-11-1-2-3	Other Adjustments				
25-11-1-2-3A		C	-	0	(M) One or more may be inoperative provided the affected seat is secured in a position acceptable to the flight crew member. Note: If an inoperative armrest will hinder an emergency evacuation or any other flight duties it should be removed. **Procedures** (M) To give guidance reference for a practical means of securing the seat position.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-11-2 Observer Seats (MC)				
25-11-2A	D	-	0	One or more may be inoperative provided the affected seat is not occupied and is correctly stowed.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-21-1	**Passenger Seats (MC)**				
25-21-1A		D	-	-	(M) One or more may be inoperative provided: (a) Inoperative seat does not block an emergency exit, (b) Inoperative seat does not restrict any passenger from access to the main aircraft aisle, and (c) Affected seat(s) are blocked and placarded 'DO NOT OCCUPY'. Note: A seat with an inoperative or missing occupant restraint system (seat belt, safety harness, as applicable) is considered inoperative. **Procedures:** (M) To give guidance reference for identifying the affected seat(s) and a practical mean of prohibiting the use of the affected seat(s).

Additional considerations:

Any damage to passenger seats and components must not be detrimental to passenger safety.

The passenger seat item includes seat back but the recline function (if installed) is covered under a dedicated item 25-21-1-1.

This item or associated sub-items do not include tray tables that may, if inoperative in other than stowed 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 is considered as a passenger convenience item.

For single aisle configurations and for seats in the left and right (outboard) sections of two-aisle aircraft, the affected seat(s) may include the seat behind and/or the adjacent outboard seats.

For the centre section of two-aisle configurations, the affected seat may only be the seat aft of the inoperative seat.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-21-1	**Passenger Seats**				
25-21-1-1	Recline Functions (MC)				
25-21-1-1A		D	-	-	(M) One or more may be inoperative and the affected seat occupied provided the seat is secured in the take-off and landing position. **Procedures:** (M) To give guidance reference for a practical means of securing the seat in the take-off and landing position.
25-21-1-1B		C	-	-	One or more may be inoperative and the affected seat occupied provided the seat back is immovable in the take-off and landing position.

Additional considerations:

Any damage to passenger seats and components must not be detrimental to passenger safety.

The seat recline position can be failed in take-off and landing position other than the full upright position, when the seat has been certified to this alternate position(s).

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-21-1	**Passenger Seats**				
25-21-1-2	Underseat Baggage Restraining Bars (MC)				
25-21-1-2A		D	-	-	(O) May be inoperative or missing provided: (a) Baggage is not stowed under associated seat, (b) Associated seat is placarded 'DO NOT STOW BAGGAGE UNDER THIS SEAT', and (c) Procedures are established and used to alert cabin crew of inoperative restraining bars. **Procedures:** (O) To ensure the cabin crew is briefed about affected seat position.

Additional considerations:

Any damage to passenger seats and components must not be detrimental to passenger safety

The basis of certification of the seat or seat assembly will need to be verified to determine if an inoperative or missing underseat baggage restraining bar affects the integrity of the seat.

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-21-1	**Passenger Seats**				
25-21-1-3	Passenger Seat Armrests with Recline Control Mechanism (MC)				
25-21-1-3A		D	-	-	(M) May be inoperative, damaged or missing and the affected seat occupied, provided: (a) The affected armrest does not block an emergency exit, (b) The affected armrest is not in such a position that it restricts any passengers from access to the aircraft aisle, and (c) If armrest is missing, seat is secured in the full upright position. **Procedures** (M) To give guidance reference for a practical means of securing the seat in the upright position.
25-21-1-4	Passenger seat armrests without recline control mechanism (MC)				
25-21-1-4A		D	-	-	May be inoperative, damaged or missing, and the affected seat occupied provided: (a) The affected armrest does not block an emergency exit, and (b) The affected armrest is not in such a position that it restricts any passengers from access to the aircraft aisle.

Additional considerations:

Any damage to passenger seats and components must not be detrimental to passenger safety.

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-21-1	**Passenger Seats**				
25-21-1-5	Swivel/Travel Mechanisms (MC)				
25-21-1-5A		D	-	-	(M) One or more may be inoperative and the affected seat occupied provided: (a) Affected seat is secured in take-off and landing position, (b) Affected seat does not block an emergency exit, and (c) Affected seat does not restrict any passenger from access to the main aircraft aisle. **Procedures:** (M) To give guidance reference for a practical means of securing the seat in required position.
25-21-1-5B		C	-	-	One or more may be inoperative and the affected seat occupied provided the affected seat is immovable in take-off and landing position.

Additional considerations:

Any damage to passenger seats and components must not be detrimental to passenger safety.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-21-2	**Cabin Crew Seat Assembly (single or dual position)**				
25-21-2-1	Required Cabin Crew Seat				Note: See definition of 'required cabin crew seat'
25-21-2-1A		B	-	-	(M)(O) One seat or seat assembly may be inoperative provided: (a) Inoperative seat or seat assembly is not occupied, (b) Cabin crew displaced by inoperative seat occupies the adjacent cabin crew seat or the passenger seat most suitable to perform assigned duties, (c) Alternate procedures are established and used for displaced cabin crew, (d) Folding type seat is stowed or secured in the retracted position, and (e) Where a passenger seat is assigned to the displaced cabin crew it is placarded 'FOR CABIN CREW USE ONLY'. Note: A seat with an inoperative or missing seat belt or harness is considered inoperative. **Procedures:** (M) to give guidance reference for placarding and securing the folding type seat in the retracted position if failure modes preventing stowage are existing. (O) to give guidance reference for normal, abnormal and emergency procedures affected by cabin crew displacement.
(continued)					

ATA Chapter: 25 Equipment/Furnishings				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued) 25-21-2-2 Excess Cabin Crew Seat				
25-21-2-2A	C	-	0	(M)(O) Seat or seat assembly in excess of requirements and assigned to a cabin crew may be inoperative provided: (a) Inoperative seat or seat assembly is not occupied, (b) Alternate procedures are established and used for displaced cabin crew, (c) Folding type seat is stowed or secured in the retracted position, and (d) Where a passenger seat is assigned to the displaced cabin crew it is placarded 'FOR CABIN CREW USE ONLY'. Note: A seat with an inoperative or missing seat belt or harness is considered inoperative. **Procedures:** (M) To give guidance reference for placarding and securing the folding type seat in the retracted position if failure modes preventing stowage are existing. (O) To give guidance reference for normal, abnormal and emergency procedures affected by cabin crew displacement.
25-21-2-2B	C	-	0	(M) Seat or seat assembly in excess of requirements and not assigned to a cabin crew may be inoperative provided: (a) Inoperative seat or seat assembly is not occupied, and (b) Folding type seat is stowed or secured in the retracted position or removed. Note: A seat with an inoperative or missing seat belt or harness is considered inoperative. **Procedures:** (M) To give guidance reference for placarding and securing the folding type seat in the retracted position if failure modes preventing stowage are existing.

Additional considerations:

A definition for 'Required Cabin Crew Seat' is provided in GM4 MMEL.120.

The above-mentioned relief is only permissible if more than one cabin crew is assigned to duty or more than one seat or seat assembly is located in the passenger cabin. This is for safety reasons to ensure that at least one cabin crew is seated in a proper cabin crew seat in the cabin.

When only one cabin crew seat is required and the maximum operational passenger seating configuration (MOPSC) is of 20 or more, this cabin crew seat is not allowed to be included in the MMEL. This item has been split into 25-21-2-1 'seats required by regulation' and 25-21-2 'seats in excess of requirements' to facilitate separate categorisations.

Some cabin configurations may permit more than one required cabin crew seat to be inoperative based on specific justifications.

If additional cabin crew are carried and duties assigned, then the seat occupied by that cabin crew is no longer considered excess to requirements and that seat must meet the appropriate design requirements. Hence the wording 'assigned' in 25-21-2-2..

A cabin crew seat must be located in the passenger cabin; this excludes a seat located in the cargo area of a passenger/cargo combi configured aircraft. Individual operators, when operating with inoperative seats, must consider the locations and combinations of seats to ensure that the proximity to exits and distribution requirements of the applicable regulations are met.

Because of safety reasons, a note indicates that the use of cabin crew seats with no shoulder harness is not acceptable.

A good view of the area(s) of the cabin for which the displaced cabin crew is responsible has to be maintained, as far possible.

Cabin crew direct view pertains to direct visual contact between the flight attendant and the passenger cabin. It is possible that not all cabin crews will have a direct view of the cabin.

However, the important consideration is that the majority of the passenger cabin is in direct view of some cabin crews.

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-40-1 Exterior Lavatory Door Ashtrays (MC)				
25-40-1A	A	-	0	One or more may be inoperative or missing provided repairs are made within three consecutive calendar days.
25-40-1B	A	-	-	One or more may be inoperative or missing provided: (a) One operative exterior lavatory door ashtray can be readily seen and accessed from the affected lavatory door, and (b) Repairs are made within ten consecutive calendar days.
25-40-1C	D	-	0	(M)(O) One or more may be inoperative or missing provided: (a) Affected lavatory door is locked closed and placarded to prohibit passengers' entrance, and (b) Affected lavatory is used only by crew members. **Procedures** (M) to provide instructions to lock closed and placard affected lavatory door. (O) to provide procedures to brief crew members.
25-40-1D	D	-	0	One or more may be inoperative or missing provided flight is non-smoking.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-40-2	**Interior Lavatory Ashtrays (MC)**				
25-40-2A		B	-	0	One or more may be inoperative or missing provided associated lavatory fire-extinguishing system, when installed, is operative.
25-40-2B		D	-	0	(M)(O) One or more may be inoperative or missing provided: (a) The affected lavatory door is locked closed and placarded to prohibit passengers' entrance, and (b) The affected lavatory is used only by crew members. **Procedures** (M) to provide instructions to lock closed and placard affected lavatory door. (O) to provide procedures to brief crew members.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-60-1 Escape Slides				
25-60-1A	-	-	-	One may be inoperative or missing on each deck provided the associated door/exit is considered inoperative. Refer to item 52-22-xx. Note: Refer to item 25-60-5 when escape slide is used as raft.

Additional considerations:

Additional maintenance task may be required depending on the failure modes intended to be covered under this entry (e.g. slide arming circuit deactivation).

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-60-2	**Independent portable lights (MC)**				
25-60-2A		C	-	-	May be inoperative or missing provided each required crew member has an operative independent portable light readily available when seated at designated station.
25-60-2B	(Helicopters and Aeroplanes for other than commercial air transport operations)	D	-	-	May be inoperative or missing for daylight operations under VFR.

Additional considerations:

In compliance with CS 25/29.1411(a) and (b), an additional operational procedure may be required for entry 25-60-2A (e.g. holders) so as to ensure that required crew members are aware of the electric torch/flashlight change in terms of its location and/or alternate stowage provisions.

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-60-3	**Protective Breathing Equipment (PBE) (MC)**				
25-60-3A		D		-	(M) (O) Any in excess of those required may be inoperative or missing provided: (a) Required distribution is maintained, (b) Inoperative PBE and its installed location are placarded inoperative, (c) Inoperative PBE unit is secured out of sight in an approved stowage, and (d) Procedures are established and used to alert crew members of inoperative or missing equipment. Note: Inoperative PBE units may be subject to dangerous goods requirements. **Procedures:** (M) To provide instructions to placard the inoperative PBE unit and its installed location, to secure the PBE unit in an approved stowage. (O) To provide procedures to alert crew members.

Additional considerations:

According to air operations rules for Commercial Air Transport (CAT.IDE.A.245), the number of required portable PBE may vary depending on whether the aeroplane is operated with a flight crew of more than one and a cabin crew member or not.

For helicopters, if one or more cargo or baggage compartments are to be accessible in flight, protective breathing equipment must be available for an appropriate crew member without leaving their seat.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-60-4	**Megaphones (MC)**				
25-60-4A		D	-	-	(M) (O) Any in excess of those required may be inoperative or missing provided: (a) Required distribution is maintained, (b) Inoperative megaphone and its installed location are placarded inoperative, (c) Inoperative megaphone is secured out of sight, and (d) Procedures are established and used to alert crew members of inoperative or missing equipment. **Procedures:** (M) To provide instructions to placard the inoperative megaphone and its installed location, and to secure the megaphone in an out of sight location. (O) To provide procedures to alert crew members.
25-60-4B	(Other than commercial air transport operations and cargo-only operations)	D	-	0	May be inoperative.

Additional considerations:

The number of required megaphones in the passenger compartment is depending upon the seating capacity of the aircraft.

Depending upon design, for cargo-only operations, additional limitation may be required in case of crew members/cargo attendants carried (e.g. to call them back from the cargo areas during an emergency).

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-60-5 Life rafts (MC)				Note: For life raft used as slide, refer to 25-60-1.
25-60-5A	D	-	-	(O) May be inoperative or missing provided: (a) Extended overwater flights are not conducted, and (b) Procedures are established and used to alert crew members of inoperative or missing equipment. **Procedures:** (O) To provide procedures to alert crew members.
25-60-5B	C	-	-	(O) (M) Any in excess of those required for the intended flight may be inoperative or missing for extended overwater flights provided: (a) Required distribution is maintained, (b) Inoperative life raft and its installed location are placarded inoperative, (c) When practical, the inoperative life raft is secured out of sight, and (d) Procedures are established and used to alert crew members of inoperative or missing equipment. **Procedures:** (M) To provide instructions to placard the inoperative life raft and its installed location and to secure life raft in an out of sight location. (O) to provide procedures to alert crew members.

Additional considerations:

Criteria to define extended overwater operations are available in CAT.IDE.A.285 and CAT.IDE.H.300.

This guidance may be adapted when dispatch conditions are not practical because of considerations related to the type of aircraft.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-60-6	**Survival Equipment (MC)**				Note: For ELT(S), refer to item 25-63-3.
25-60-6A		D	-	-	(O)(M) Any in excess of those required may be missing or inoperative provided: (a) Inoperative equipment and its installed location are placarded inoperative, and (b) Inoperative equipment is secured out of sight, and (c) Procedures are established and used to alert crew members of inoperative or missing equipment. Procedures: (M) To provide instructions to placard the inoperative equipment and its installed location and to secure the inoperative equipment in an out of sight location. (O) To provide procedures to alert crew members.

Additional considerations:

An additional condition with associated (O) is proposed to ensure proper crew handovers and preclude any confusion in an emergency situation.

Aircraft applicability: Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-60-7	**Emergency Flotation Equipment**				
25-60-7A	(Other than commercial air transport operations)	D	-	0	Any in excess of those required may be inoperative.
25-60-7B		D	-	0	May be inoperative for flights over land (including take-off and landing).
25-60-7C	(Performance Class 1)	C	-	0	May be inoperative for flights over water at a distance from land not beyond 10 minutes flying time, at normal cruise speed.
25-60-7D	(Performance Class 2)	C	-	0	May be inoperative provided: (a) Take-off and landing are not performed over water, and (b) En route operations are not conducted over water at a distance from land not beyond 10 minutes flying time, at normal cruise speed.
25-60-7E	(Performance Class 3)	C	-	0	May be inoperative provided: (a) Take-off and landing are not performed over water, and (b) Flight is not conducted over water beyond safe forced landing distance.

Additional considerations:

The need for additional deactivation/securing conditions should be considered, based on the design of the system.

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-61-1 Crash Axes and Crowbars (MC) 25-61-1A	D	-	-	Any in excess of those required may be inoperative or missing.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-62-1	**First-Aid Kits (MC)**				
25-62-1A	(Aeroplanes)	D	-	-	Any in excess of those required may be incomplete or missing.
25-62-1B	(Aeroplanes)	A	-	-	If more than one is required, only one of the required first-aid kits may be incomplete for two calendar days.
25-62-1C	(Helicopters)	A	-	0	May be incomplete for one calendar day.
25-62-1D	(Helicopters)	D	-	1	Any in excess of one may be incomplete or missing.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-62-2 Emergency Medical Kits (MC)				
25-62-2A	D	-	-	Any in excess of those required may be incomplete or missing.
25-62-2B	A	-	-	The required emergency medical kits may be incomplete for flight to a destination where repairs or replacements can be made but not to exceed a maximum of two calendar days.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-63	**Emergency Locator Transmitter (ELT) (MC)**				
25-63-1	Automatic Emergency Locator Transmitter ELT(AF) ELT(AP)				
25-63-1A		D	-	-	Any in excess of those required may be inoperative.
25-63-1B	(Aeroplanes)	A	1	0	May be inoperative for a maximum of 6 flights or 25 flight hours, whichever occurs first.
25-63-1C	(Aeroplanes)	C	-	1	Any in excess of one may be inoperative.
25-63-1D	(Helicopters)	A	-	0	May be inoperative provided: (a) The helicopter shall not fly for more than 6 hours after the ELT was found to be inoperative, and (b) A maximum of 24 hours have elapsed since the ELT was found to be inoperative.
25-63-2	Automatically Deployable Emergency Locator Transmitter ELT(AD)				
25-63-2A		D	-	-	Any in excess of those required may be inoperative.
25-63-2B	(Aeroplanes)	A	-	0	May be inoperative for a maximum of 6 flights or 25 flight hours, whichever occurs first.
25-63-2C	(Helicopters)	C	-	0	May be inoperative for overland operations or overwater operations at a distance from land not beyond 10 minutes flying time at normal cruise speed.

(continued)

ATA Chapter: 25 Equipment/Furnishings				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued) 25-63-3 Survival Emergency Locator Transmitter ELT(S)				
25-63-3A	D	-	-	(M)(O) Any in excess of those required may be inoperative or missing provided: (a) Inoperative equipment and its installed location are placarded inoperative, and (b) Inoperative equipment is secured out of sight, and (c) Procedures are established and used to alert crew members of inoperative or missing equipment. **Procedures** (M) To provide instructions to placard the inoperative equipment and its installed location and to secure the inoperative equipment in an out of sight location. (O) To provide procedures to alert crew members.

Additional considerations:

An Emergency Locator Transmitter (ELT) is a generic term describing equipment which broadcasts distinctive signals on designated frequencies and, depending on application, may be activated by impact or be manually activated. An ELT is one of the following:

a) Automatic Fixed (ELT(AF)). An automatically activated ELT which is permanently attached to an aircraft;

b) Automatic Portable (ELT(AP)). An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft;

c) Automatic Deployable (ELT(AD)). An ELT which is rigidly attached to the aircraft and which is automatically deployed and activated by impact and, in some cases, also by hydrostatic sensors. Manual deployment is also provided;

d) Survival ELT (ELT(S)). An ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by survivors.

An ELT(S) may be activated manually or automatically (e.g. by water activation). It should be designed to be attached to a life raft or a survivor.

An automatic portable ELT (ELT(AP)) may be used to replace one ELT(S) provided that it meets the ELT(S) requirements. A water-activated ELT(S) is not an ELT(AP).

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 25 Equipment/Furnishings				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-64-1 Life jackets (MC)				
25-64-1A	D	-	-	(M) (O) Any in excess of those required may be inoperative or missing, provided: (a) Required distribution is maintained, (b) Inoperative lifejacket and its installed location are placarded inoperative, (c) Inoperative life jacket is secured out of sight, and (d) Procedures are established and used to alert crew members of inoperative or missing equipment. **Procedures:** (M) To provide instructions to placard the inoperative life jacket and its installed location and to secure the inoperative life jacket in an out of sight location and to placard affected seat, as applicable. (O) To provide procedures to alert crew members.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes

ATA Chapter: 25 Equipment/Furnishings					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
25-65-1	**Low-Frequency Underwater Locating Device (ULD) (MC)**				
25-65-1A		D	-	-	Any in excess of those required by regulations may be inoperative or missing.
25-65-1B		C	-	0	May be inoperative or missing.

Additional considerations:

When aeroplanes conduct extended overwater operations, they are required, under the conditions given by CAT.IDE.A.285 of Annex IV (Part-CAT) to Regulation (EU) No 965/2012, to be fitted with a securely attached ULD that operates at a frequency of 8.8 kHz ± 1 kHz.

Issue No: MMEL/2

ATA 26 FIRE PROTECTION

ED Decision 2014/004/R

Summary of the guidance items:

Item	ATA
Lavatory Smoke Detection System	26-17-1
Hand Fire Extinguishers (MC)	26-24-1
Lavatory Waste Receptacle Fire Extinguishing System	26-25-1

Aircraft applicability: Aeroplanes

ATA Chapter: 26 Fire Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
26-17-1	**Lavatory Smoke Detection System**				
26-17-1A		C	-	0	(M) (O) May be inoperative provided: (a) Lavatory waste receptacle is empty, (b) Associated lavatory door is locked closed and placarded to prohibit passengers from entering, (c) Affected lavatory is used only by crew members, and (d) Associated lavatory is not used for storage of any inflammable or combustible materials. **Procedures** (M) to provide instructions to lock closed and placard the inoperative lavatory. (O) to provide procedures to brief crew members.
26-17-1B		B	-	0	(M) (O) May be inoperative provided: (a) Lavatory waste receptacle fire-extinguishing system is verified operative, and (b) Procedures are established and used to check periodically absence of smoke in affected lavatory, and **Procedures** (M) To provide instructions to verify/test the agent bottle of the lavatory waste receptacle fire-extinguishing system. (O) To provide procedures to ensure affected lavatory is visited periodically by the cabin crew and not used for stowage of any inflammable or combustible materials.
26-17-1C	(Aeroplanes with passenger capacity of less than 20)	C	-	0	May be inoperative.

Additional considerations:

Use of the affected lavatory by the crew members does not authorise storage of inflammable or combustible materials, such as in-flight service waste bags.

The definition of the interval for the periodic check by the crew may appear as arbitrary and this guidance does not mandate any specific interval.

It is proposed to let the operator develop its own procedure depending on the conducted operations under the control of the authority approving the MEL.

Regarding the extinguisher verification, bearing in mind the system is usually verified only through maintenance programme with a period of time between two consecutive checks exceeding the proposed rectification interval, a one-time check before the release for a B (3 days maximum) interval is judged acceptable.

Relief provided under 26-17-1C is applicable only if the installation of lavatory smoke detection system is not required by the type certification basis.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 26 Fire Protection				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
26-24-1 Hand Fire Extinguishers (MC)				
26-24-1A	D	-	-	(M) (O) Any in excess of those required may be inoperative or missing provided: (a) The inoperative hand fire extinguisher is removed from the aircraft and its installed location is placarded inoperative; or it is removed from the installed location, secured out of sight, and the hand fire extinguisher and its installed location are placarded inoperative, (b) Required distribution of operative units is maintained throughout the aircraft, and (c) Procedures are established and used to alert crew members of inoperative or missing equipment. **Procedures** (M) To provide instructions to placard the inoperative hand fire extinguisher and its location and to secure hand fire extinguisher in an out of sight location. (O) To provide procedures to inform crew members.

Additional considerations:

When determining the location for storage of the inoperative units, compliance with the dangerous goods requirements must be considered.

Aircraft applicability: Aeroplanes

ATA Chapter: 26 Fire Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
26-25-1	**Lavatory Waste Receptacle Fire-Extinguishing System**				
26-25-1A		D	-	0	(M) May be inoperative provided: (a) Lavatory waste receptacle is empty, (b) Associated lavatory door is locked closed and placarded to prohibit passengers from entering, and (c) Affected lavatory is used only by crew members. **Procedures:** (M) To provide instructions to lock closed and placard the inoperative lavatory. (O) To provide procedures to brief crew members.
26-25-1B	(Aeroplanes with passenger capacity of less than 20)	C	-	0	May be inoperative.

Additional considerations:

The lavatory smoke detection system is not considered as an acceptable alternate means to the waste receptacle fire-extinguishing system. However, additional relief may be considered if adequate fire containment capability of the waste receptacle can be demonstrated.

Relief provided under 26-25-1B is applicable only if the installation of lavatory waste receptacle fire-extinguishing system is not required by the type certification basis.

ATA 30 ICE PROTECTION

ED Decision 2020/012/R

Summary of the guidance items:

Item	ATA
Inertial Separators - Position Indicating System	30-00-1
Airframe Aerodynamic Surface Ice Protection Monitoring System	30-10-1
Engine Inlet De-icing/Anti-icing Systems Monitoring System	30-21-1
Pitot Heating Failure Indication System	30-31-2
Alternative Windshield Rain Protection Means (e.g. Rain Repellent System, Coating, etc.) (MC)	30-40-1
Windshield Heating/De-icing Indicating System	30-41-1
Windshield Wipers (MC)	30-42-1
Propeller De-ice/Anti-ice System Monitoring System	30-61-1
Visual Ice Evidence Indication	30-80-1
Ice Detection System	30-80-2

Aircraft applicability: Aeroplanes

ATA Chapter: 30 Ice and Rain Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
30-00-1	**Inertial Separators — Position Indicating System**				
30-00-1A		B	-	0	May be inoperative provided: (a) operations are not conducted at any time in known or forecasted icing conditions, and (b) Operations are conducted in day VMC. Note 1: Inertial separators includes pneumatic de-icing systems. Note 2: In the absence of any Aircraft Flight Manual definition, icing conditions should be taken as visible moisture or precipitation, when OAT on the ground and for takeoff, or TAT in flight is 10 °C or below

Additional considerations:

Depending upon the aircraft design, failure of the position indicating system may be compensated by crew monitoring from the flight crew compartment and appropriate wing inspection lights (or alternate means) are operative for night operations.

Condition b) on day VMC may be alleviated based on demonstration of the capability of facing inadvertent encounter of icing conditions during aircraft certification. Aircraft expected types of operation have to be taken into account with regards to the risk exposure to unexpected icing conditions (e.g. FL limitation).

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 30 Ice and Rain Protection				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
30-10-1 Airframe Aerodynamic Surface Ice Protection Monitoring System				
30-10-1A	B	-	0	One or more may be inoperative provided operations are not conducted at any time in known or forecasted icing conditions.

Additional considerations:

The above guidance covers items such as wing, vertical/horizontal stabilisers and ice protection monitoring system on airplanes. Additional relief can be granted based on the condition that the airframe aerodynamic surface ice protection system is considered inoperative, provided that such a relief is available in the MMEL. Associated dispatch conditions and rectification intervals may then become applicable.

In the absence of any Aircraft Flight Manual definition, icing conditions should be taken as visible moisture or precipitation, when the OAT is less than +5°C.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 30 Ice and Rain Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
30-21-1	**Engine Inlet De-icing/Anti-icing System Monitoring System**				
30-21-1A		B	-	-	May be inoperative provided operations are not conducted at any time in known or forecasted icing conditions.

Additional considerations:

Additional relief can be granted based on the condition that the engine inlet de-icing/anti-icing system is considered inoperative, provided that such a relief is available in the MMEL. Associated dispatch conditions and rectification intervals may then become applicable.

In the absence of any Aircraft Flight Manual definition, engine icing conditions should be taken as visible moisture or precipitation, when the OAT is less than +10°C.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 30 Ice and Rain Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
30-31-2	**Pitot Heating Failure Indication System**				
30-31-2A		-	-	-	May be inoperative provided the associated pitot heating system is considered inoperative.

Additional considerations:

Additional relief may be granted based on the certification basis and the applicable operational requirements.

Particular attention shall be paid to design where the failure indication system is covering multiple heaters (e.g. pitot, static, angle-of-attack, TAT/SAT). Cumulative effects should in these cases be evaluated.

Aircraft applicability: Aeroplanes

ATA Chapter: 30 Ice and Rain Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
30-40-1	**Alternative Windshield Rain Protection Means (e.g. Rain Repellent System, Coating, etc.) (MC)**				
30-40-1A		C	-	0	May be inoperative provided: (a) No precipitation is forecasted during a period from one hour before until one hour after the estimated time of departure and arrival at the take-off and destination aerodromes, and (b) Affected system is not part of the equipment required for the intended operation. Note: Take-off and destination aerodromes include any take-off and destination alternate aerodromes required by the operational rules.
30-40-1B		D	-	0	May be inoperative provided windshield wipers are operative.

Additional considerations:

30-40-1A Condition (b) ensures that when low visibility conditions are known or forecasted, approach or take-off minima do not require their use.

This can be verified, for example, by checking the Aircraft Flight Manual for minimum required equipment for Cat II or III approaches and low visibility take-offs.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 30 Ice and Rain Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
30-41-1	Windshield Heating/De-icing Indicating System				
30-41-1A		C		1	(O) May be inoperative provided: (a) The indicating system associated with the pilot handling/flying station is operative, and (b) An alternate procedure is established and used to ensure correct operation of the affected windshield heating system. **Procedures** (O) To give guidance to perform a pre-flight check of the affected heating system.
30-41-1B		C	-	0	May be inoperative provided operations are not conducted into known or forecasted icing conditions.

Additional considerations:

The next failure of the heating system may be undetected. Consequently the dispatch is allowed provided that at least the indicating system on the flying pilot's side is operative. This will ensure safe operation into icing conditions.

30-41-1B This option is available only if the windshield heating system does not contribute to structural integrity.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 30 Ice and Rain Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
30-42-1	**Windshield Wipers (MC)**				
30-42-1A	(Aeroplanes)	C	-	0	May be inoperative provided: (a) No precipitation is forecasted at the take-off and destination aerodromes, and (b) Affected wiper is not part of the equipment required for the intended operation. Note: Take-off and destination aerodromes include any take-off and destination alternate aerodromes required by the operational rules.
30-42-1B	(Helicopters)	C	-	-	One or more may be inoperative provided the helicopter is not operated in known or forecast precipitation that requires their use.
30-42-1C		D	-	0	(O) (M) May be inoperative provided an alternative windshield rain protection mean (e.g. Rain Repellent System, Coating, etc.) is installed and verified operative. **Procedures** (O) or (M) To provide guidance to check correct operation of the system.
30-42-1-1 30-42-1-1A	High Speed Function	C	-	0	May be inoperative provided the associated low speed function is operative.
30-42-1-2 30-42-1-2A	Low Speed Function	C	-	0	May be inoperative provided the associated high speed function is operative.
30-42-1-3 30-42-1-3A	Other Control Function (e.g. Park, Intermittent, etc.)	C	-	0	One or more may be inoperative provided: (a) It does not affect operation of the wipers, and (b) It is acceptable to the affected flight crew member(s).

Additional considerations:

30-42-1A Condition (b) ensures that when low visibility conditions are known or forecasted, approach or take-off minima do not require their use.

This can be verified, for example, by checking the Aircraft Flight Manual for minimum required equipment for Cat II or III approaches and low visibility take-offs.

30-42-1B accounts for the specific helicopters mission profile (hover capability).

30-42-1C allows dispatch with windshield wipers inoperative when an equivalent system is installed (rain repellent, etc.) provided it has been demonstrated as efficient as the wipers in the certified kind of operations (low speed, light rain, etc.)

30-42-1-1:

It is assumed in this guidance that the efficiency of wipers under low speed is adequate for all kind of precipitations.

Aircraft applicability: Aeroplanes

ATA Chapter: 30 Ice and Rain Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
30-61-1	**Propeller De-ice/Anti-ice System Monitoring System**				
30-61-1A		B	-	0	One or more may be inoperative provided operations are not conducted at any time in known or forecasted icing conditions.

Additional considerations:

Additional relief can be granted based on the condition that the propeller de-ice/anti-ice system is considered inoperative, provided that such a relief is available in the MMEL. Associated dispatch conditions and rectification interval may then become applicable.

In the absence of any Aircraft Flight Manual definition, engine icing conditions should be taken as visible moisture or precipitation when the OAT is less than +10°C.

Aircraft applicability: Aeroplanes

ATA Chapter: 30 Ice and Rain Protection					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
30-80-1	**Visual Ice Evidence Indication**				
30-80-1A		B	-	0	May be inoperative provided operations are not conducted in known or forecasted icing conditions.
30-80-1B		D	-	0	May be inoperative provided procedures are not dependent upon its use.
30-80-1-1	Visual Ice Evidence Indication Lighting system				
30-80-1-1A		D	-	0	May be inoperative for daylight operations provided procedures are not dependent upon its use.
30-80-1-1B		B	-	0	(O) May be inoperative for night operations provided an alternate means is used to illuminate the affected indicator. **Procedures** (O) An alternate means can be that a portable lamp/light of adequate capacity for wing and/or control surface inspection is available for night operations in icing conditions.

Additional considerations:

30-80-1A: In the absence of any Aircraft Flight Manual definition, icing conditions should be taken as visible moisture or precipitation when the OAT is less than +5°C.

30-80-1B entry applies to systems which are not used as a mean to monitor the ice accretion.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 30 Ice and Rain Protection						
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions	
30-80-2	**Ice Detection System**					
30-80-2A	System certified as an Advisory System	D	-	0	May be inoperative provided that procedures do not require its use.	
30-80-2B	System certified as a Primary Detection System	C	-	0	(O) May be inoperative provided that alternate procedures are established and used. Procedures: (O) To provide a procedure to the crew to determine the conditions in which the ice protection system must be activated manually.	

Additional considerations:

Advisory detection system on which procedures are based may obtain relief in accordance with the guidance for primary detection system.

Definitions of primary and advisory detection system are provided as follows:

Beside the pilot's appraisal of actual ice built-up (on wiper blades, window frames or propeller spinner), some aeroplanes use in-flight ice detection systems (IIDS). IIDS may either directly detect the presence of ice on the aeroplane surface or detect that the aeroplane is in icing conditions. There are basically two classes of IIDS:

1. The advisory IIDS which trigger a signal in the flight crew compartment. The flight crew is responsible for monitoring the icing conditions or the ice accretion as defined in the Aircraft Flight Manual and activation by the pilot of the ice protection systems remains a requirement.
2. The primary IIDS which is the prime means used to determine when the ice protection systems should be activated. The ice protection systems may be automatically or manually activated.

Considerations for aircraft certified for 'limited' icing conditions have to be taken into account and may result in a different level of relief.

For helicopters, with an optional ice protection/detection system installed for operations into ice conditions, a D rectification interval may be accepted provided that operations are not conducted into known or forecast icing conditions.

Issue No: MMEL/2

ATA 31 INDICATING/RECORDING SYSTEMS

ED Decision 2020/012/R

Summary of the guidance items:

Item	ATA
Clock (MC)	31-21-1
Flight Data Recorder (FDR) (MC)	31-31-1
Flight Data and Cockpit Voice Combination recorder (MC)	31-31-2
Quick Access Recorder (or any equivalent Flight Data Monitoring equipment) (MC)	31-31-3
Flight Data Recorder (FDR) Required Parameters (MC)	31-31-4

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 31 Indicating/Recording Systems				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
31-21-1 Clock (MC)				
31-21-1A	C	-	0	May be inoperative provided an accurate timepiece is operative in the flight crew compartment indicating the time in hours, minutes and seconds.

Additional considerations:

The above is applicable only to those aircraft where the clock has no implication on other equipment, e.g. FDR; otherwise the effects on such other systems must be considered.

If the above is verified and on the basis that the timepiece required does not need to be approved, an accurate pilot's wristwatch which indicates hours, minutes and seconds would be acceptable.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 31 Indicating/Recording Systems				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
31-31-1 Flight Data Recorder (FDR) (MC)				
31-31-1A	D	-	-	Any in excess of those required by regulations may be inoperative provided that the FDR parameters are not required for monitoring purpose.
31-31-1B	A	-	0	May be inoperative provided that: (a) The aircraft does not exceed 8 further consecutive flights with the FDR inoperative, and (b) Less than a maximum of 72 hours have elapsed since the FDR was found to be inoperative, and (c) Any Cockpit Voice Recorder required to be carried is operative. Note 1: This alleviation is not applicable to flight data and cockpit voice combination recorders. For those combined systems, see the entries for flight data and cockpit voice combination recorders in item 31-31-3. Note 2: The flight data recorder is considered to be inoperative when any of the following conditions exist: (i) Loss of the flight recording function is evident to the flight crew during the pre-flight check, e.g. by means of a system status monitor; or (ii) The need for maintenance has been identified by the system monitors, where available, and the failure origin has not been identified; or (iii) Analyses of recorded data or maintenance actions have shown that more than 5 % of the total number of individual parameters (variable and discrete) required to be recorded for the particular aircraft, are not being recorded properly (refer to 31-31-1C).
(continued)				

ATA Chapter: 31 Indicating/Recording Systems				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				Note 4: If an Underwater Locating Device (ULD) is required by regulation to be fitted to the FDR and this ULD is inoperative, the associated FDR is considered to be inoperative. If an Emergency Locator Transmitter (ELT) is required by regulation to be fitted to the FDR and this ELT is inoperative, the associated FDR is considered to be inoperative.
31-31-1C	A	-	0	Up to 5 % of the required parameters may be inoperative for a maximum of 90 calendar days or until the next maintenance inspection, whichever occurs first.

Additional considerations:

Cockpit voice recorders are covered under item 23-71-1.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 31 Indicating/Recording Systems				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
31-31-2 Flight Data and Cockpit Voice Combination Recorder (MC)				
31-31-2A	D	-	-	(O) (M) Any function may be inoperative provided: (a) The affected function is not required, and (b) The affected data is not required for monitoring purposes.
31-31-2B	A	1	0	The flight data recorder and/or the cockpit voice recorder function may be inoperative provided that: (a) The other function, where required, is operative, (b) The aircraft does not exceed 8 further consecutive flights with the inoperative function, and (c) Less than a maximum of 72 hours have elapsed since the function was found to be inoperative. Note 1: A flight data and cockpit voice combination recorder is a single flight recorder that combines the functions of a flight data recorder and of a cockpit voice recorder.
(continued)				

ATA Chapter: 31 Indicating/Recording Systems				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				Note 2: The flight data recorder is considered to be inoperative when any of the following conditions exist: (i) The loss of the flight recording function is evident to the flight crew during the pre-flight check, e.g. by means of a system status monitor; or (ii) The need for maintenance has been identified by the system monitors, where available, and the failure origin has not been identified; or (iii) Analyses of recorded data or maintenance actions have shown that more than 5 % of the total number of individual parameters (variable and discrete) required to be recorded for the particular aircraft are not being recorded properly. Note 3: Where improper recording affects 5 % of the required parameters or less, refer to item 31-31-4. Note 4: If an Underwater Locating Device (ULD) is required by regulation to be fitted to the flight data and cockpit voice combination recorder and this ULD is inoperative, the associated flight data and cockpit voice combination recorder is considered to be inoperative. If an Emergency Locator Transmitter (ELT) is required by regulation to be fitted to the flight data and cockpit voice combination recorder and this ELT is inoperative, the associated flight data and cockpit voice combination recorder is considered to be inoperative.
(continued)				

ATA Chapter: 31 Indicating/Recording Systems				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				
31-31-2C	A	2	1	One of the two required flight data and cockpit voice combination recorders may be inoperative for a maximum of 10 calendar days. Note: If an Underwater Locating Device (ULD) is required by regulation to be fitted to the flight data and cockpit voice combination recorder and this ULD is inoperative, the associated flight data and cockpit voice combination recorder is considered to be inoperative. If an Emergency Locator Transmitter (ELT) is required by regulation to be fitted to the flight data and cockpit voice combination recorder and this ELT is inoperative, the associated flight data and cockpit voice combination recorder is considered to be inoperative.

Additional considerations:

Cockpit voice recorders are covered under item 23-71-1.

Aircraft applicability: Aeroplanes

ATA Chapter: 31 Indicating/Recording Systems					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
31-31-3	**Quick Access Recorder (QAR) (or any equivalent Flight Data Monitoring equipment) (MC)**				
31-31-3A		C	1	0	(O)(M) May be inoperative when used for Flight Data Monitoring (FDM) purposes, provided approved alternate procedures, if appropriate to other programmes using associated data, are established and used. **Procedures** (O) or (M) To provide guidance for alternate procedures associated to data monitoring programmes, as applicable.
31-31-3B		D	1	0	May be inoperative provided procedures do not require its use.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 31 Indicating/Recording Systems					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
31-31-4	**Flight Data Recorder (FDR) Required Parameters (MC)**				
31-31-4A		A	-	-	Up to 5 % of the required parameters may be inoperative for a maximum of 90 calendar days or until the next maintenance inspection, whichever occurs first.

Additional considerations:

This item applies whenever the FDR is not considered inoperative in accordance with item 31-31-1B or 31-31-2B but some required parameters have been discovered inoperative.

Issue No: MMEL/2

ATA 33 LIGHTS

ED Decision 2020/012/R

Summary of the guidance items:

Item	ATA
Flight Crew Compartment Lighting	33-10-1
Passenger Compartment Lighting	33-20-1
Cabin Signs ('Fasten Seat Belt', 'No Smoking' Signs, Return to Cabin, NO PED)	33-20-2
Navigation/Position Lights	33-41-1
Anti-Collision Light System	33-42-1
Wing illumination lights	33-43-1
Landing Lights	33-44-1
Cabin Emergency Lighting (Aeroplanes)	33-50-1
Cabin Emergency Lighting (Helicopters)	33-50-1
Exterior Emergency Lighting Systems	33-50-2

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-10-1	**Flight Crew Compartment Lighting**				
33-10-1A		C	-	0	May be inoperative for daylight operations.
33-10-1B		C	-	-	Individual lights may be inoperative provided: (a) Sufficient lighting is operative to make each required instrument, control, and other device for which it is provided easily readable, (b) Sufficient flight crew compartment emergency lighting is operative, and (c) Lighting configuration at dispatch is acceptable to the flight crew.
33-10-1C		C	-	-	Co-pilot's station instrument lights may be inoperative for single pilot operations, provided no co-pilot's station instrument is required to be used by the pilot.
33-10-1D	(Helicopters and other than CAT Aeroplanes operations)	C	-	0	May be inoperative for daylight operations under VFR.

Additional considerations:

Based on the aircraft flight crew compartment emergency lighting configuration, condition (b) under 33-20-1B has to be clarified to indicate the lights that remain supplied under emergency power supply (e.g. DOME light, etc.).

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-20-1	**Passenger Compartment Lighting**				
33-20-1A		D	-	0	May be inoperative provided passengers are not carried.
33-20-1B	(Aeroplanes)	C	-	-	Individual lights may be inoperative provided: (a) Lighting is acceptable for the crew located in the cabin to perform their required duties, and (b) Inoperative lights are not part of the cabin emergency lighting.
33-20-1B	(Helicopters)	C	-	-	Individual lights may be inoperative provided: (a) Inoperative lights do not exceed 50 % of the total installed, (b) Lighting is acceptable for the crew located in the cabin to perform their required duties, and (c) Inoperative lights are not part of the cabin emergency lighting.
33-20-1C	(Helicopters)	D	-	0	May be inoperative for daylight operations.

Additional considerations:

If the cabin illumination is used to charge floor mounted emergency photoluminescent lighting system, additional conditions on a minimum of lighting to be provided may be required.

Some lights installed on the aircraft may be part of the cabin emergency lighting equipment. In this case, relief cannot be granted in the MMEL beyond the minimum required configuration.

For cargo and non-passenger carrying operations there must be sufficient lighting for the inspection of cargo for the verification of cargo restraint or for firefighting purposes.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-20-2	**Cabin Signs ('Fasten Seat Belt', 'No Smoking' Signs, Return to Cabin, NO PED)**				
33-20-2A		C	-	-	(M)/(O) One or more may be inoperative provided affected passenger seats, crew member seats or lavatories from which at least one cabin sign is not readily legible are blocked and placarded 'DO NOT OCCUPY'. **Procedures:** (M)/(O) to give guidance reference for a practical mean of prohibiting the use of the affected seat. (O) To alert the crew about affected seats/lavatories.
33-20-2B		C	-	-	(O) One or more may be inoperative and the affected passenger seats, crew member seats or lavatories may be occupied provided: (a) The passenger address system is operative and can be clearly heard throughout the cabin during flight, and (b) A procedure is used to notify passengers as appropriate. **Procedures:** (O) To provide the alternate procedure to crew located in the cabin to notify passengers and crew members when using crew rest facility – bunk, as applicable.
33-20-2C		C	-	-	May be inoperative provided passengers are not carried.
33-20-2-1	Aural Tone Function	C	-	0	(O) May be inoperative provided a procedure is established and used to verify that visual indications are taken into account by passengers.
33-20-2-2	Automatic Function	C	-	0	(O) May be inoperative provided: (a) Manual control function is operative, and (b) An alternate procedure is established and used.

Additional considerations:

The requirement of condition 33-20-2B (a) may not apply to aircraft which are not required to install a passenger address system.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-41-1	**Navigation/Position Lights**				
33-41-1A		C	-	0	One or more may be inoperative for daylight operations.
33-41-1B		C	-	-	Any in excess of those required may be inoperative for night operations.
33-41-1C	(Helicopters)	A	-	-	(O) One or more may be inoperative for a single night flight when departing from an offshore or remote installation provided: (a) The appropriate Air Navigation Service Provider (ANSP) has been informed before departure, (b) The anti-collision light system is operative, and (c) The landing light system is operative. **Procedures:** (O) To provide guidance to the crew for operations of anti-collision and landing lights.

Additional considerations:

For the purpose of compliance with 33-41-1B for night operations, all except the following minimum may be inoperative:

— One stationary red forward/wing tip light,

— One stationary green forward/wing tip light, and

— One stationary white light on the tail or on each wing tip.

A light composed of more than one bulb or LED, may be partially degraded, but still considered operative for the purpose of the associated requirement, provided that the degraded configuration has been demonstrated acceptable to meet the requirements.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers Item		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-42-1	**Anti-Collision Light System**				Note: This guidance may be subject to additional restrictions in accordance with the applicable Rules of the Air.
33-42-1-1	Fuselage Lights (Beacon or Strobe Type)				Note: If the fuselage anti-collision light is inoperative, alternate procedures are established and used when the aircraft is on the ground with engine(s) running.
33-42-1-1A	(Aeroplanes)	C	-	1	(O) Either the upper or the lower fuselage lights may be inoperative provided an acceptable number of white wing-tip strobe lights are operative. **Procedures:** (O) to provide guidance to the crew for operations of anti-collision and strobe lights.
33-42-1-1B	(Aeroplanes)	C	-	0	(O) May be inoperative for daylight operations provided all white wing-tip strobe lights are operative. **Procedures:** (O) To provide guidance to the crew for operations of anti-collision and strobe lights.
33-42-1-1C	(Helicopters)	C	-	1	Any in excess of one may be inoperative.
33-42-1-1D	(Helicopters)	A	-	0	(O) One or more may be inoperative for a single night flight when departing from an offshore or remote installation provided: (a) The appropriate Air Navigation Service Provider (ANSP) has been informed before departure, (b) The navigation light system is operative, and (c) The landing light system is operative. **Procedures:** (O) To provide guidance to the crew for operations of remaining lights.
33-42-1-1E	(Helicopters and other than Commercial Air Transport operations of aeroplanes)	B	-	0	May be inoperative for daylight operations.
33-42-1-2	Wing-Tip/Tail Strobe Lights (if installed)				
33-42-1-2A		C	-	0	One or more of these may be inoperative.

Additional considerations:

An anti-collision light system is required for Commercial Air Transport (Part-CAT) operations and for other than Commercial Air Transport (Part-NCC) operations under night VFR or IFR.

Additional airspace requirements may apply.

A light composed of more than one bulb or LED, may be partially degraded, but still considered operative for the purpose of the associated requirement, provided that the degraded configuration has been demonstrated acceptable to meet the requirements.

33-42-1-1A:

The acceptable number of white strobe lights has to be defined by the applicant according to the requirements applicable for anti-collision light system.

Aircraft applicability: <u>Aeroplanes</u>

ATA Chapter: 33 Lights				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-43-1 Wing Illumination Light				
33-43-1A	D	-	0	One or more may be inoperative for daylight operations.
33-43-1B	C	-	0	One or more may be inoperative provided operations are not conducted at any time into known or forecast icing conditions.
33-43-1C	B	-	0	(O) One or more may be inoperative provided a portable lamp/light of adequate capacity for wing and/or control surface inspection is available and used for night operations in icing conditions. **Procedures** (O) To provide crew procedures in accordance with the above conditions.
33-43-1D	C	-	0	One or more may be inoperative provided ground de-icing procedures do not require their use.

Additional considerations:

Further relief might be granted when the wing illumination lights are not required to ensure ice accretion monitoring (flight/ground).

33-43-1D: For passenger and cargo aeroplanes where view of the wing surfaces from the flight crew compartment is restricted (due to the sweep of the aircraft wing) or for cargo aircraft where access to

the aircraft cabin to view ice formation on the wings is not possible, the wing illumination lights may be inoperative provided ground deicing procedures do not require their use.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-44-1	**Landing Lights**				
33-44-1A	(Aeroplanes)	B	-	-	50 % of landing lights may be inoperative for night operations.
33-44-1B		C	-	0	One or more may be inoperative for daylight operations.
33-44-1C	(Helicopters)	C	-	1	(O) Any in excess of one adjustable landing light may be inoperative for night operations. **Procedures:** (O) To provide guidance to the crew for operations of remaining lights

Additional considerations:

The above guidance does not cover the landing light extension/retraction system. Alternate dispatch conditions may be proposed based on the use of Taxi lights, if adequate for the purpose.

A light composed of more than one bulb or LED, may be partially degraded, but still considered operative for the purpose of the associated requirement, provided that the degraded configuration has been demonstrated acceptable to meet the requirements.

Aircraft applicability: Aeroplanes

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-50-1	Cabin Emergency Lighting				
33-50-1-1	Overhead Emergency Lighting (each aisle)				
33-50-1-1A		B	-	-	A maximum of one in four consecutive overhead emergency lights (or light assemblies) may be inoperative. Note: For aeroplanes which have two rows of lights per aisle (i.e. mounted on the overhead bins), then the above alleviation is acceptable for each row of lights but the inoperative lights must not be directly opposite each other.
33-50-1-2	EXIT Marking Signs				
33-50-1-2A		C	-	-	Up to 50 % of the bulbs/LEDs may be inoperative in one or more signs provided the sign remains legible.
33-50-1-2B		-	-	-	One may be inoperative provided the associated door/exit is considered inoperative. Refer to item 52-22. Note: If any twin overwing exits are served by a single sign, both exits should be considered inoperative.
33-50-1-3	EXIT Locator Signs				
33-50-1-3A		C	-	-	Up to 50 % of the bulbs/LEDs may be inoperative in one or more signs provided the sign remains legible.
33-50-1-4	Exit Area Lighting				
33-50-1-4A		-	-	-	May be inoperative provided that the associated door/exit is considered to be inoperative. Refer to item 52-22.
(continued)					

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)					
33-50-1-5	Floor Proximity Lighting (Electrical or photo luminescent systems)				
33-50-1-5-1	Individual Lights/ strips				
33-50-1-5-1A		B	-	-	Lights/strips may be inoperative provided that: (a) All lights/strips marking right-angled intersections, including cross aisles and overwing exits, are operative, (b) Along each aisle axis, all lights/strips within one metre of lights/strips marking right-angled intersections are operative, and (c) A minimum of lights/strips evenly distributed along each aisle axis to provide the required escape guidance are operative.
33-50-1-5-2	EXIT Markers/Identifiers				
33-50-1-5-2A		C	-	-	Up to 50 % of the bulbs/LEDs may be inoperative in one or more signs provided that the sign remains legible.
33-50-1-5-2B		-	-	-	One item may be inoperative provided that the associated door/exit is considered to be inoperative. Refer to item 52-22.

Additional considerations:

The proposed guidance is provided as examples of relief generally accepted in MMELs and should be validated on particular cabin design configuration. Different levels of relief may be validated through test showing compliance to requirements even in a degraded configuration. Such relief could then be granted 'C' interval relief.

Item 33-50-1-2 Cabin Emergency Lighting - EXIT Marking Sign covers those lights required by CS 25.811(d)(2).

Item 33-50-1-3 Cabin Emergency Lighting - EXIT locator Sign covers those lights required by CS 25.811(d)(1) and (d)(3).

Item 33-50-1-4-1 Floor Proximity Lighting (Electrical or photoluminescent systems) - Individual Lights/ strips option 33-50-1-4-1A condition (b) & (c) are example proposals that require validation based on the specific system design and installation. The objective is to ensure the minimum certification requirements in terms of escape guidance are still complied with. If demonstrated by adequate substantiations, a rectification interval C could be granted.

Item 33-50-1-4-2 Floor Proximity Lighting (Electrical seat mounted or photo luminescent floor mounted systems) EXIT Markers/Identifiers covers those lights required by CS 25.812(e)(2) and (d)(3).

Aircraft applicability: Helicopters

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-50-1	**Cabin Emergency Lighting**				
33-50-1-1	Cabin Emergency Lighting System	-	-	-	May be inoperative provided it is in accordance with the arrangements agreed with the national authority.
33-50-1-2	EXIS Lighting				
33-50-1-2A		B	-	0	May be inoperative for flights over land or for flights over water at a distance from land not beyond 10 minutes flying time at normal cruise speed.
33-50-1-2-1	EXIS 1 Standard Length (24 LEDs)				
33-50-1-2-1A		B	-	0	A maximum of 3 LEDs may be inoperative with no more than 2 adjacent inoperative LEDs.
33-50-1-2-2	EXIS 1 Half Length (12 LEDs)				
33-50-1-2-2A		B	-	0	A maximum of 1 LED may be inoperative.
33-50-1-2-3	EXIS 1 One Third Length (8 LEDs)				
33-50-1-2-3A		B	-	0	A maximum of 1 LED may be inoperative.
33-50-1-2-4	EXIS II				
33-50-1-2-4A		B	-	0	A maximum of 2 LEDs per corner strip, one in each arm, may be inoperative.
33-50-1-2-5	EXIS III				
33-50-1-2-5A		B	-	0	A maximum of 4 LEDs per light assembly may be inoperative; no more than 1 LED is inoperative per band along any side.
33-50-1-3	Helicopter Emergency Egress Lighting System (HEELS)				
33-50-1-3A		B	-	0	May be inoperative for flights over land or for flights over water at a distance from land not beyond 10 minutes flying time at normal cruise speed.
33-50-1-3B		A	-	-	One element on each side of the passenger compartment and/or cockpit may be inoperative for 3 calendar days.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes

ATA Chapter: 33 Lights					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
33-50-2	**Exterior Emergency Lighting Systems**				
33-50-2A		B	-	0	One or more may be inoperative for daylight operations.
33-50-2-1	Escape Slide Lighting				
33-50-2-1A		B	-	0	One or more may be inoperative for daylight operations.
33-50-2-1B		-	-	-	One may be inoperative for night operations provided the associated door/exit is considered inoperative. Refer to item 52-22-1.
33-50-2-2	Overwing Escape Route Lighting				
33-50-2-2A		B	-	0	One or more may be inoperative for daylight operations.
33-50-2-2B		-	-	-	One may be inoperative for night operations provided the associated door/exit is considered inoperative. Refer to item 52-22.

Additional considerations:

N/A

Issue No: MMEL/2

ATA 34 NAVIGATION — Flight instruments

ED Decision 2020/012/R

Summary of the guidance items:

Item	ATA
Primary Airspeed Indication	34-10-1
Primary Altitude Indication	34-10-2
Turn and Slip Indicator /Turn Co-ordinators (if installed)	34-10-3
Vertical Speed Indicator	34-10-4
OAT Indicator	34-10-5
Radio Altimeter with an Audio Voice Warning (or equivalent)	34-15-2
Stabilised direction Indication	34-20-1
Magnetic/Standby Compass	34-22-1
Primary Attitude Indication	34-20-2
Standby Attitude Indication	34-20-3

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-10-1	**Primary Airspeed Indication**				Note: Standby airspeed indication is not considered as a primary airspeed indication by this guidance.
34-10-1A	(Aeroplanes)	B	-	-	(O) May be inoperative provided: (a) A primary independent airspeed indication is available at each required pilot's station, and (b) Procedures are established and used to cover the loss of primary airspeed indication in-flight. **Procedures:** (O) To provide guidance to the crew for monitoring of erroneous indication and to ensure safe flight in case of the failure in-flight of a primary indication. Note: The procedure can be based on the use of a secondary (standby) airspeed indication, if installed.
34-10-1B	(Helicopters)	D	-	-	(O) May be inoperative provided: (a) A primary independent airspeed indication is available at each required pilot's station, and (b) Procedures are established and used to cover the loss of primary airspeed indication in-flight. **Procedures:** (O) To provide guidance to the crew for monitoring of erroneous indication and to ensure safe flight in case of the failure in-flight of a primary indication. Note: The procedure can be based on the use of a secondary (standby) airspeed indication, if installed.
(continued)					

ATA Chapter: 34 Navigation				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued) 34-10-1C (Helicopters)	B	-	1	(O) Any in excess of one may be inoperative provided: (a) The primary airspeed indication is available at the handling pilot's side, (b) Flight is conducted by day under VFR, (c) Operations are not conducted over water, and (d) Procedures are established and used to cover the loss of a primary airspeed indication in-flight. **Procedures:** (O) To provide guidance to the flight crew to ensure safe flight in case of the failure in-flight of a primary indication. Note: The procedure can be based on the use of a secondary (standby) airspeed indication, if installed.

Additional considerations:

The intent of this guidance is to ensure that the remaining indication essential to the safety of flight still satisfies the applicable requirements.

Applicable requirements are defined as both the airworthiness standards under which the aircraft was certificated and the operating rules under which it is operated.

Relief can therefore be granted for an indication that is provided in excess of the applicable requirements. This may be achieved by the introduction of dispatch conditions to prevent certain kind of operations (e.g. IFR, dual pilot operations).

To comply with the applicable requirements, acceptable means other than duplication of instruments/indicators can be foreseen to ensure that sufficient information is available (e.g. switching of sources, speed tapes, etc.).

Consequently the guidance refers to primary indication rather than indicators or instruments. Additional clarification may be provided at the level of the aircraft type MMEL.

Compliance with airworthiness requirements may lead to the installation of secondary (standby) attitude indication.

The above guidance item does not cover such standby airspeed indication. If a standby airspeed indication is required to comply with airworthiness requirements for certification of the aircraft, (e.g.

CS-23 with EFIS, CS-25, etc.), no relief can be given unless an acceptable level of safety is demonstrated, on a case-by-case basis, in accordance with CS-MMEL.

34-10-1A:

For aircraft fitted with EFIS, the airspeed indicator displays (tape) are considered as the primary airspeed indication and are therefore required at each required pilot station.

For single pilot operations, if credit has been taken during the certification, on the availability of the off side primary airspeed indication in order to meet applicable requirements, this may result in additional restrictions.

34-10-1B:

Same as 34-10-1A, except for the rectification interval.

34-10-1C:

The airspeed indication is less critical for the helicopters to ensure a safe landing further to the loss of airspeed under day VFR overland operations.

Dispatch is authorised with one primary airspeed indication left.

VFR condition allows departure from field under IMC under special VFR procedures.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-10-2	**Primary Altitude Indication**				Note: A secondary/standby altitude indication is not considered as a primary altitude indication.
34-10-2A	(Aeroplanes) (Other than commercial air transport operations)	C	-	-	May be inoperative provided: (a) Flight is conducted under VFR, and (b) An altitude indication is available at each required pilot's station. Note: For single pilot operations, a secondary/standby or off-side indication may satisfy condition (b), if visibility requirements are met.
34-10-2B	(Aeroplanes)	B	-	-	May be inoperative provided: (a) Flight is conducted under VFR, (b) An independent altitude indication is available at each required pilot's station, and (c) An additional independent altitude indication is operative for single pilot operations. Note: For single pilot operations, a secondary/standby or off-side indication may satisfy condition (b) or (c), if visibility requirements are met.
34-10-2C	(Aeroplanes)	B	-	1	May be inoperative provided: (a) Flight is conducted under VMC in sight of the surface, and (b) A primary altitude indication is available on pilot flying's side.
	(continued)				

ATA Chapter: 34 Navigation				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				
34-10-2D (Helicopters)	C	-	1	May be inoperative provided: (a) A primary altitude indication is available at the handling pilot's side, and (b) Operations are conducted under day VFR over routes navigated by reference to visual landmarks.
34-10-2E (Helicopters)	C	-	1	May be inoperative provided: (a) A primary altitude indication is available at handling pilot's station, and (b) Alternate independent altitude or height indication is operative, Note: A secondary/standby altitude indication or radio altimeter indication may satisfy condition (b) if visibility requirements are met.

Additional considerations:

Primary Altitude indication should normally be a sensitive pressure altitude indication.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation						
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions	
34-10-3	**Turn and Slip Indicator/ Turn Co-ordinators** (if installed)					
34-10-3-1	Turn Indication					
34-10-3-1A	(Aeroplanes)	B	-	0	May be inoperative for single pilot operations provided operations are conducted under day VMC.	
34-10-3-1B	(Aeroplanes & Helicopters)	C	-	0	May be inoperative for single pilot operations provided standby attitude indication is operative.	
34-10-3-1C	(Aeroplanes & Helicopters)	B	-	0	May be inoperative provided three independent attitude indications are operative	
34-10-3-1D	(Aeroplanes)	C	-	1	May be inoperative provided: (a) The operative turn indication is on the pilot-in-command station, and (b) Primary attitude indications are operative at required pilot's station.	
34-10-3-1E	(Aeroplanes)	B	-	1	May be inoperative provided: (a) Operations are conducted under day VMC, and (b) Primary attitude indications are operative at required pilot's station.	
34-10-3-2	Slip/Skid Indication					
34-10-3-2A	(Aeroplanes & Helicopters)	C	-	1	Any in excess of one may be inoperative provided the operative slip/skid indication is on the pilot's-in-command station.	
34-10-3-2A	(Helicopters)	B	-	0	May be inoperative provided: (a) Operations are conducted under VFR over routes navigated by reference to visual landmarks, and (b) Operations are not conducted over water.	

Additional considerations:

Turn indication entry may apply to equivalent indication displayed as part of an integrated system.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-10-4	**Vertical Speed Indication (VSI)**				
34-10-4A	(Aeroplanes)	C	-	1	Any in excess of one may be inoperative provided the operative VSI is on the pilot's -in-command side.
34-10-4B	(Aeroplanes)	C	-	1	Any in excess of one may be inoperative for operations under day VMC provided procedures do not require = its use.
34-10-4C	(Helicopters)	C	-	1	Any in excess of one may be inoperative provided the operative VSI is on the pilot's -in-command side.
34-10-4D	(Helicopters)	B	-	0	May be inoperative for operations under day VFR over routes navigated by reference to visual landmarks.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation				
(1) System & Sequence Numbers Item	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-10-5 OAT Indicator				
34-10-5A	C	-	0	(O) May be inoperative provided another air temperature indication is operative that is convertible to OAT. **Procedures:** (O) To provide guidance to the crew to convert the alternate temperature indication in OAT, as required.

Additional considerations:

Further relief might be granted for non-commercial operations, short -range flights or when the OAT indicator is not required by the certification basis (e.g. CS-27).

Aircraft applicability: Aeroplanes

ATA Chapter: 34 Navigation					PAGE: 34-x
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-15-1	**Altitude Alerting System**				
34-15-1A		B	-	0	(O) May be inoperative provided: (a) An autopilot with an altitude hold is operative, (b) Alternate procedures are established and used, and (c) The altitude alerting system is not part of the equipment required for the intended operation. **Procedures** (O) To provide alternate operational procedures to the flight crew, if applicable. (O) To specify any applicable restriction for operations requiring a specific approval.

Additional considerations:

RVSM restrictions may apply. One altitude alerting system is required to be operative for RVSM operations.

Rectification interval C may be considered for other than turbo-jet aeroplanes. These aircraft may not have an autopilot installed in which case the autopilot would not be a condition of relief.

Aircraft applicability: Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-15-2	**Radio Altimeter with an Audio Voice Warning (or equivalent)**				
34-15-2A		A	-	0	(O) May be inoperative provided: (a) No more than 6 hours shall be flown over water since the radio altimeter was found to be inoperative, (b) A maximum of 24 hours have elapsed since the radio altimeter was found to be inoperative, (c) The helicopter shall not fly over water at an altitude of less than 500 feet except for take-off and landing, and (d) The helicopter shall not descend below 500 feet on approach to landing over water unless the landing site is clearly visible to the pilot. **Procedures** (O) To provide operational procedures to the flight crew to ensure that applicable dispatch conditions are satisfied.

Additional considerations:

In addition to the equipment required by CAT.IDE.H.145, helicopter involved in NVIS operations shall be equipped with a radio altimeter and a low height warning system giving visual and audio warnings selectable by the pilot and discernible during NVIS operation.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-20-1	**Stabilised Direction Indication**				
34-20-1A	(Aeroplanes other than commercial air transport operations & Helicopters)	C	-	1	May be inoperative provided: (a) a stabilised direction indication is operative on the pilot's-in-command side, and (b) Magnetic/standby compass is operative,
34-20-1B	(Aeroplanes)	C	-	1	May be inoperative for single pilot operations provided: (a) Operations are conducted under day VFR, and (b) A stabilised direction indication is operative on the pilot's-in-command side, (c) Magnetic/standby compass is operative.
34-20-1C	(Aeroplanes)	C	-	2	May be inoperative provided an independent stabilised direction indication is operative at each required pilot's station. Note: A standby heading indication cannot be considered to meet the above dispatch conditions.
34-20-1D	(Aeroplanes)	B	-	1	(O) May be inoperative provided: (a) Operations are conducted under day VFR, and (b) The stabilised direction indication is displayed at each required pilot's station, and (c) Magnetic/standby compass is operative. **Procedures:** (O) To provide switching procedure to the flight crew to ensure adequate configuration of the displays in accordance with the above condition (b)

(continued)

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)					
34-20-1E	(Helicopters with MCTOM < 3 175 kg)	A	-	0	May be inoperative for a maximum of 5 flights provided: (a) The operations are conducted under day VFR, and (b) The operations are not conducted over water out of sight of land or with a visibility less than 1 500 m, and (c) A non-stabilised direction indication (e.g. magnetic/standby compass) is operative.

Additional considerations:

34-20-1C

System architecture and functional integration should be considered in determining additional relief or restrictions.

If electronic flight deck displays are installed, a review of the failure conditions involving loss of heading displays and display of misleading heading information should be conducted in accordance with CS-MMEL 145 prior to considering using this guidance.

34-20-1D

Relief can be considered for night VFR and IFR operations based on a case-by-case evaluation and in accordance with CS-MMEL requirements.

Justifications may take advantage of available equipment providing stabilised direction indication or equivalent (e.g. GPS track).

Whenever independent stabilised direction indication is required for dispatch, compliance is ensured by the availability of independent sources (e.g. stabilised gyros) and so that no single failure can lead to the loss of both heading indications.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-22-1	**Magnetic/Standby compass**				
34-22-1A		B	-	0	May be inoperative for single pilot operations provided: (a) Operations are conducted under day VFR, and (b) A stabilised direction indication is operative on the pilot's-in-command side, and (c) Another source of magnetic heading is available and visible by the pilot-in-command.
34-22-1B		B	-	0	May be inoperative provided: (a) Operations are conducted under day VFR, and (b) Two independent stabilised direction indications are operative.
34-22-1C		B	-	0	May be inoperative provided: a) Two independent stabilised direction indications are operative, and b) Another source of magnetic heading is available and visible by the pilot-in-command.
34-22-1D	(Helicopters)	B	-	0	May be inoperative provided: (a) Operations are conducted under VFR, and (b) Two independent stabilised direction indications are operative.

Additional considerations:

Relief can be considered for night VFR and IFR operations based on a case-by-case evaluation and in accordance with CS-MMEL requirements.

Justifications may take advantage of available equipment providing stabilised direction indication or equivalent (e.g. GPS track).

Whenever independent stabilised direction indications are required for dispatch, compliance is ensured by the availability of independent sources (e.g. stabilised gyros) so that no single failure can lead to the loss of both heading indications.

The two independent stabilised direction indicator systems may be achieved by any combination of two gyroscopic or INS (IRU) stabilised compass systems.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-20-2	**Primary Attitude Indication**				Note: A secondary/standby attitude indication is not considered as a primary indication.
34-20-2A	(Aeroplanes for other than CAT operations)	B	-	0	May be inoperative provided: (a) Operations are conducted under VFR, and (b) Standby attitude indication is operative.
34-20-2B	(Helicopters for other than CAT operations)	D	-	0	May be inoperative provided operations are conducted under day VFR.
34-20-2C	(Aeroplanes & Helicopters)	C	-	1	Any in excess of one may be inoperative for single pilot operations provided: (a) Operations are conducted in day VMC in sight of the surface with adequate external attitude reference, and (b) The primary attitude indication is operative on the pilot's-in-command side, and (c) Standby attitude indication is operative.
34-20-2D	(Aeroplanes & Helicopters)	C	-	2	Any in excess of two may be inoperative provided: (a) Operations are conducted under VFR, and (b) An independent primary attitude indication is operative at each required pilot's station Note: A secondary/standby indication cannot satisfy the above condition (b).
34-20-2E	(Aeroplanes & Helicopters)	B	-	1	(O) Any in excess of one may be inoperative provided: (a) Operations are conducted under VFR, and (b) The primary attitude indication is displayed on both pilot's stations, and (c) Standby attitude indication is operative.

(continued)				**Procedures:** (O) To provide switching procedure to the crew to ensure adequate configuration of the displays in accordance with the above condition (b)

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)					
34-20-2F	(Aeroplanes) (Single pilot)	A	-	0	May be inoperative for single pilot operations only for a maximum of 2 calendar days provided: (a) Operations are conducted under day VMC in sight of the surface with adequate external attitude reference, and (b) A standby attitude indication is installed and operative.
34-20-2G	(Helicopters with MCTOM < 3 175 kg)	C	-	0	May be inoperative provided: (a) Operations are conducted under day VFR, and (b) Operations are not conducted over water out of sight of the land, and (c) Visibility is more than 1 500 m.
34-20-3	Standby Attitude Indication				
34-20-3A	(Other than commercial air transport operations)	D	-	0	May be inoperative provided flight is conducted under VMC with a visual horizon.
34-20-3B	(Aeroplanes & Helicopters)	B	-	0	May be inoperative provided flight is conducted under day VMC with a visual horizon.

Additional considerations:

34-20-2F:

Prior to allowing dispatch without any attitude indication, a review of the certification requirements as well as the handling qualities and training of the flight crew is required.

34-20-3A & B Standby attitude indication:

If the standby attitude indicator is needed to meet the applicable requirements (e.g. CS-23.2500 Electronic Flight Display or CS-25.1309) relief may not be granted for operations under IFR or at night. Case-by-case evaluations are, however, possible, based on the applicable CS-MMEL requirements. The VMC with a visual horizon limitation prohibits 'VFR on top' or 'VFR over-the-top' operations.

Issue No: MMEL/2

ATA 34 NAVIGATION — Navigation equipment

ED Decision 2020/012/R

Summary of the guidance items:

ITEM	ATA
Marker Beacon (MC)	34-31-1
ILS (or MLS) (MC)	34-32-1
Airborne Collision Avoidance System (ACAS) (MC)	34-40-1
Area Navigation System	34-40-2
Weather Detection System (Antenna(s), XCVR(s), Controller(s), Display(s))	34-41-1
Wind shear Detection/Warning System (if installed)	34-41-2
Navigation Systems (based on VOR, DME, ADF, GNSS, INS)	34-51-1
Terrain Awareness Warning System (TAWS)	34-43-1
SSR Transponder Mode A/C	34-54-1
SSR Transponder Mode S	34-54-2
Aircraft Tracking Equipment	34-55-1

Aircraft applicability: Aeroplanes

ATA Chapter: 34 Navigation				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-31-1 Marker Beacon (MC)				
34-31-1A	C	-	0	May be inoperative under IFR operations provided approach procedures do not require marker fixes.
34-31-1B	D	-	0	May be inoperative under VFR operations.

Additional considerations:

One marker beacon receiving system is required to be installed where a marker beacon is required for approach navigation purpose.

Aircraft applicability: Aeroplanes

ATA Chapter: 34 Navigation				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-32-1 ILS (or MLS) (MC)				
34-32-1A	B	-	0	May be inoperative under IFR operations provided that any approaches or missed approaches in which navigation is based on ILS are not included in the flight plan.
34-32-1B	D	-	0	May be inoperative under VFR operations.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-40-1	**Airborne Collision Avoidance System (ACAS) (MC)**				
34-40-1A		A	-	0	(O)(M) May be inoperative for a maximum of 10 calendar days provided: (a) ACAS is deactivated, and (b) Operating procedures do not require its use. **Procedures:** (O) To provide alternate crew procedures, as applicable. (M) To provide guidance for deactivation of the ACAS.
34-40-1B		C	-	-	(M) Any in excess of those required may be inoperative provided it is deactivated. **Procedures:** (M) To provide guidance for deactivation of the ACAS.
34-40-1-1	Combined TA and RA Dual Display				
34-40-1-1A		C	-	1	(O) May be inoperative on the pilot monitoring's side provided: (a) TA and RA elements and audio functions are operative on the pilot flying's side, and (b) TA and RA display indications are visible to the pilot monitoring. **Procedures:** (O) To provide alternate crew procedures, as applicable.
(continued)					

ATA Chapter: 34 Navigation				
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch / (5) Remarks or Exceptions
(continued)				
34-40-1-2	Resolution Advisory (RA) Display Systems			
34-40-1-2A		C	-	1	(O) One may be inoperative on the pilot monitoring side. **Procedures:** (O) To provide alternate flight crew procedures, as applicable.
34-40-1-2B		C	-	0	(O) One or more may be inoperative provided: (a) All Traffic Alert (TA) display elements and voice command audio functions are operative, and (b) TA only mode is selected by the crew, and (c) Operating procedures do not require its use. Procedures: (O) To provide alternate crew procedures, as applicable.
34-40-1-3	Traffic Alert (TA) Display System(s)			
34-40-1-3A		C	-	0	(O) One or more may be inoperative provided: (a) RA display and audio functions are operative, and (b) Operating procedures do not require its use. **Procedures:** (O) To provide alternate flight crew procedures, as applicable.

Additional considerations:

The deactivation of the ACAS can alternatively be performed through an operational procedure, if acceptable.

34-40-1B covers the failure of the ACAS when the system is not required by operating rules.

Aircraft applicability: Aeroplanes

ATA Chapter: 34 Navigation				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-40-2 Area Navigation System				
34-40-2A	C	-	-	(O) may be inoperative provided: (a) Applicable airspace requirements for the intended flight route are complied with, (b) Certified RNP/ RNAV capabilities relevant for the intended flight route are maintained, and (c) Operational procedures do not require its use. **Procedures:** (O) To provide information about which procedures require its use .To provide alternate navigation procedures, if applicable.
	A	-	0	(O) May be inoperative for one flight provided: (a) Routing is planned via ground-based navigational aids taking account of promulgated range, and (b) Permission is obtained from the Air Navigation Service Provider(s) when required for the intended flight route.

Additional considerations:

The RNAV systems are stated in the Aeronautical Information Publications (or their equivalent) as being required to satisfy operational requirements for airspace procedures.

Additionally, the certified capability may be dependent on a number of systems which may vary from one aircraft type to another. The reference to appropriate operational documentation (Aircraft Flight Manual, FCOM, etc.) may be necessary in order to allow the dispatch, depending on the intended flight route.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-41-1	**Weather Detection System (Antenna(s), XCVR(s), Controller(s), Display(s))**				
34-41-1A		D	-	-	Any in excess of those required may be inoperative provided procedures do not require their use.
34-41-1B		C	-	0	May be inoperative provided operations are conducted in daylight VMC.
34-41-1C		C	-	0	May be inoperative provided no thunderstorm or other potentially hazardous weather conditions, regarded as detectable with the airborne weather detection system, are forecasted along the route. Note: The route corresponds to any point on the route including diversions to reach alternate aerodromes required by the operational rules.
34-41-1-1	Wind shear Detection/Warning System Predictive Function				
34-41-1-1A		C	-	0	May be inoperative.

Additional considerations:

ACAS item may drive the relief as the same display may be used. Refer to item 34-40-1.

ETOPS requirements are to be considered.

34-41-1-1A:

Considerations have to be taken that the failure of the predictive wind shear function may be a consequence of the loss of inputs from other items (e.g. radio altimeter). In that case, the associated guidance also applies.

Aircraft applicability: Aeroplanes & helicopters

ATA Chapter: 34 Navigation						
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions	
34-41-2	**Wind shear Detection/Warning System (if installed)**					
34-41-2-1 34-41-2-1A	Reactive Function	C	-	0	(O) May be inoperative provided alternate procedures are established and used. **Procedures:** (O) To provide guidance procedures for wind shear avoidance and wind shear recovery procedure.	

Additional considerations:

The operational procedure shall be developed to:

— Assess and minimise the probability of encountering wind shear during take-off/departure and approach/landing.

— Minimise the effects of unexpected wind shear encounter during take-off/departure and approach/landing.

The above guidance has to be consolidated with the associated restrictions applicable to ground proximity warning system (GPWS) (ATA 34), weather radar system (ATA 34), flight guidance system (ATA 22) or flight director (Guidance Item 22-10-2) should the wind shear predictive or reactive function be performed by those systems.

Aircraft applicability: Aeroplanes

ATA Chapter: 34 Navigation						
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions	
34-43-1	**Terrain Awareness Warning System (TAWS)**					
34-43-1A		A	-	0	May be inoperative for a maximum of 6 flights or 2 calendar days, whichever occurs first.	
34-43-1B		C	-	0	Any in excess of those required may be inoperative.	
34-43-1-1	Modes 1 to 4					
34-43-1-1A		B	-	0	One or more mode may be inoperative provided FLTA and PDA functions are operative.	
34-43-1-2	Test Mode					
34-43-1-2A		A	-	0	May be inoperative for a maximum of 6 flights or 2 calendar days, whichever occurs first.	
34-43-1-3	Glideslope Deviation (Mode 5)					
34-43-1-3A		B	-	0	May be inoperative.	
34-43-1-3B		C	-	0	May be inoperative for day VMC only.	
34-43-1-4	Terrain System-Forward Looking Terrain Avoidance (FLTA) and Premature Descent Alert (PDA) functions					
34-43-1-4A		B	-	0	May be inoperative provided: (a) Mode 1-4 are operative, and (b) Approaches procedures do not require its use.	
34-43-1-5	Advisory Callouts					
34-43-1-5A		C	-	0	(O) May be inoperative provided: (a) Low visibility approaches requiring the use of affected callouts are not performed, and (b) Alternate procedures are established and used. Note: Check Flight Manual limitations for approach minima.	

Additional considerations:

The above guidance is applicable to either Class A or Class B TAWS.

The mode 1-5 referenced in the guidance correspond to:

Mode 1 — Excessive descent rate (sink rate);

Mode 2 — Excessive terrain closure rate (ground proximity);

Mode 3 — Altitude loss after take-off or go around;

Mode 4 — Unsafe terrain clearance during high speed flight or while not in the landing configuration;

Mode 5 — Below glideslope deviation alert.

FLTA & PDA functions are required for RNP-AR (Required Navigation Performance (RNP) instrument approach procedures with Special Aircraft and Aircrew Authorization Required (SAAAR) operations.

Aircraft applicability: Aeroplanes & Helicopters:

ATA Chapter: 34 Navigation						
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions	
34-51-1	**Navigation Systems (based on VOR, DME, ADF, GNSS, INS)**					
34-51-1A	(Except for commercial air transport operations)	D	-	0	May be inoperative provided: (a) Operations are conducted under VFR, and (b) Applicable airspace requirements are complied with.	
34-51-1B		C	-	-	(O) One or more may be inoperative provided: (a) The navigation systems required for each segment of the intended flight route are operative, and (b) Alternate procedures are established and used, where applicable. **Procedures:** (O) To give alternate procedures in case existing operational procedures are affected.	

Additional considerations:

This entry covers failure of navigation systems, e.g. VOR, DME, ADF, INS, and GNSS, that provide approved navigation information to the flight crew as either a stand-alone system or in combination with a navigation management system (e.g. FMS, R-NAV).

However, this entry does not cover the failure of navigation management system.

Others aircraft systems may be affected by the failed navigation system (e.g. TAWS). This has to be reflected on a case-by-case basis when this guidance is applied.

Heading, airspeed, and clock data are not considered as a navigation system by this guidance.

Additional restrictions may apply if required during certification of the navigation systems. As an example, if raw navigation data have been used to achieve an acceptable level of safety, in addition to any multi-sensor computed data, to avoid 'hazardously misleading' navigation information, further restriction on the availability of such raw data information may be required.

Operational rules for the selection of alternate aerodromes are available in operational requirements.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-54-1	**SSR Transponder Mode A/C**				
34-54-1A		A	-	0	(O) May be inoperative for a maximum of 5 flights provided: (a) Flight is conducted under VFR over routes navigated by reference to visual landmarks, and (b) Permission is obtained from the Air Navigation Service Provider(s) along the route or any planned diversion. Note: Mode C function is required to be operative for RVSM operations
34-54-1B		D	-	-	Any in excess of those required may be inoperative.
34-54-2	**SSR Transponder Mode S**				
34-54-2A		D	-	-	Any in excess of those required for the intended flight route, may be inoperative. Note: A SSR transponder with an operative Mode S function is defined as a transponder which can provide, at least, Elementary Surveillance capability.
34-54-2B		C	-	0	One or more may be inoperative provided permission is obtained from the Air Navigation Service Provider(s) when required for the intended flight route. Note 1: An SSR transponder with an operative Mode S function is defined as a transponder which can provide, at least, Elementary Surveillance capability. Note 2: Elementary Surveillance (ELS) capability (Mode S including Aircraft Identification and Pressure Altitude Reporting) is required in European Mode S designated airspace. Note 3: Altitude reporting, provided by an SSR transponder Mode S function, is required for ACAS II operation. Refer to item 34-40 for flight with ACAS II inoperative. Note 4: Altitude reporting, provided by an SSR transponder Mode S function, is required for flight into RVSM airspace.

(continued)

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)					
34-54-2-1	Enhanced Surveillance Functions				
34-54-2-1A		D	-	0	One or more Downlinked Aircraft Parameters (DAPs), which provide Enhanced Surveillance, may be inoperative when not required for the intended flight route.
34-54-2-1B		C	-	0	One or more Downlinked Aircraft Parameters (DAPs), which provide Enhanced Surveillance, may be inoperative when required for the intended flight route. Note 1: Enhanced surveillance capability is required in Mode S EHS notified airspace. Note 2: For operations in the Single European Sky, enhanced surveillance capability cannot remain inoperative more than 3 consecutive days.
34-54-2-2	Extended Squitter (ADS-B OUT) Transmissions				
34-54-2-2A		D	-	0	One or more extended squitter transmissions may be inoperative when not required for the intended flight route.
34-54-2-2B		C	-	0	One or more extended squitter transmissions may be inoperative when required for the intended flight route. Note: For operations in the Single European Sky, enhanced surveillance capability cannot remain inoperative more than 3 consecutive days.

Additional considerations:

Enhanced surveillance is not applicable to helicopters. They are only required to install elementary surveillance. This does not preclude a helicopter from voluntary installation of enhanced surveillance.

24-54-2 SSR Mode S Transponder

If ELS capability of the Mode S transponder is maintained, the 34-54-2B entry is not applicable, but reference to 34-54-2-1 enhanced surveillance functions may be required.

If ELS capability is affected, prior ANSP permission is required.

As an example, this may be achieved through the utilisation of Item 10 of the FPL that can be completed using the designator letters for the surveillance/SSR equipment element as follows:

'S' — Transponder, Mode S, including both pressure altitude and aircraft identification transmission. [This equates to ELS compliant]

'P' — Transponder, Mode S, including pressure altitude transmission but no aircraft identification transmission.

'I' — Transponder, Mode S, including aircraft identification transmission but no pressure altitude transmission.

'X' — Transponder, Mode S, without both pressure altitude and aircraft identification transmission.

'C' — Transponder, Mode A (4 digits - 4096 codes) and Mode C.

'A' — Transponder, Mode A (4 digits - 4096 codes).

'N' — Nil (Hardly likely to be accepted into European airspace).

From a practical ATC perspective, most probably only 'S', 'P', and 'C' would be acceptable to Air Navigation Service Providers (ANSPs), whilst 'C' would reply to ground Mode S interrogations, this level of functionality in a Mode S environment might not be acceptable to all ANSPs in the long term.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 34 Navigation					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
34-55-1	**Aircraft Tracking Equipment**				
34-55-1A		D	-	-	Any in excess of those required by regulations may be inoperative.
34-55-1B		C	-	-	May be inoperative provided that at least one automatic emergency locator transmitter is operative.

Additional considerations:

An aircraft tracking system is required for helicopter offshore operations in a hostile environment, according to SPA.HOFO.150 of Annex V (Part-SPA) to Regulation (EU) No 965/2012, and for aeroplanes under the conditions given by CAT.GEN.MPA.205 (a) of Annex IV (Part-CAT) to Regulation (EU) No 965/2012.

Issue No: MMEL/2

ATA 35 OXYGEN

ED Decision 2014/004/R

Summary of the guidance items:

Item	ATA
Supplemental Oxygen System (Non- Pressurized Aircraft)	35-00-1
Flight Crew Fixed Oxygen System (Supplemental)	35-10-1
Passenger/Cabin Crew Oxygen System (Supplemental) (if installed)	35-20-1
First-Aid Oxygen	35-50-1

Aircraft applicability: Non-pressurised Aeroplanes and Helicopters

ATA Chapter: 35 Oxygen					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
35-00-1	**Supplemental Oxygen System (Non- Pressurized Aircraft)**				
35-00-1-1	Flight Crew Compartment				
35-00-1-1A		C	-	0	One or more may be inoperative provided the aircraft is not operated above 10 000 ft pressure altitude.
35-00-1-2	Cabin Compartment				
35-00-1-2A		C	-	-	Any in excess of those required may be inoperative.
35-00-1-2B		C	-	-	One or more may be inoperative provided the aircraft is not operated above 10 000 ft pressure altitude.

Additional considerations:

35-00-1-1A:
Additional restrictions on air conditioning system, and/or availability of portable oxygen units, may be needed to mitigate the risk against smoke in the flight crew compartment.

35-00-1-2A:

Additional restrictions on air conditioning system, and/or availability of portable oxygen units, may be needed to mitigate the risk against smoke in the cabin.

Aircraft applicability: Aeroplanes

ATA Chapter: 35 Oxygen					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
35-10-1	**Flight Crew Fixed Oxygen System (Supplemental)**				
35-10-1-1	Flight Crew Compartment Pressure Indications				
35-10-1-1A		C	-	-	(O)(M) One or more may be inoperative provided a procedure is used to ensure that oxygen supply is above the minimum for the intended flight. **Procedures:** (O)/(M) To provide an alternate means to compute the available oxygen quantity, e.g. using the pressure gauge located on the bottle.
35-10-1-2	Bottle Gauges				
35-10-1-2A		C	-	0	One or more may be inoperative provided the associated flight crew compartment pressure indication is operative.
35-10-1-3	Additional Oxygen Masks (e.g. Supernumerary)				
35-10-1-3A		C	-	0	One or more may be inoperative provided the associated seat is not occupied.
35-10-1-3B		C	-	0	One or more may be inoperative provided the maximum altitude is limited to 10 000 ft pressure altitude.

Additional considerations:

N/A

Aircraft applicability: Aeroplanes

ATA Chapter: 35 Oxygen				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
35-20-1 Passenger/Cabin Crew Oxygen System (Supplemental oxygen) (if installed)				
35-20-1A	B	-	0	(O)(M) May be inoperative provided: (a) Maximum altitude is limited to 10 000 ft pressure altitude, (b) An adequate supply of fresh air is provided to the cabin, and (c) Passengers are appropriately briefed. **Procedures:** (O) or alternatively (M) To set the aircraft in a configuration providing an adequate supply of fresh air to the cabin. (O) To provide a passenger briefing in accordance with the dispatch configuration.
35-20-1B	B	-	0	(O) May be inoperative provided: (a) Maximum altitude is limited to 25 000 ft pressure altitude, (b) Air conditioning packs are operative, (c) All components of the pressurisation system are operative, (d) Aeroplane is able to descend within 4 minutes to a cabin pressure altitude of 13 000 ft at all points along the route to be flown, (e) Portable oxygen units are available for all required cabin crew members, (f) Sufficient oxygen quantity is available for at least 10 % of the passengers for the entire flight time when the cabin pressure altitude is between 10 000 ft and 13 000 ft following a decompression event at the most critical point of the intended flight route, and (g) Passengers are appropriately briefed.
(continued)				

ATA Chapter: 35 Oxygen					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)					**Procedures:** (O) To provide passenger briefing in accordance with the dispatch configuration.
35-20-1-1	Automatic Presentation System				
35-20-1-1A		C	-	0	May be inoperative provided: (a) The manual deployment from the flight crew compartment is operative, and (b) The maximum altitude is limited to 30 000 ft pressure altitude.
35-20-1-1B		C	-	0	(O) May be inoperative provided: (a) Maximum altitude is limited to 25 000 ft pressure altitude, and (b) Aeroplane is able to descend within 4 minutes to a cabin pressure altitude of 13 000 ft at all points along the route to be flown, **Procedures:** (O) To ensure passenger oxygen availability and quantity is adequate to the intended route taking into account manual deployment may not be available (hidden failure) when needed.
35-20-1-2	Passenger Service Units (Drop-Down Oxygen)				
35-20-1-2A		B	-	-	(M)(O) One or more passenger service units may be inoperative provided: (a) Affected seats are blocked and placarded to prevent occupancy, and (b) Units are operative for all operative passenger seats, toilet compartments and cabin crew locations. **Procedures:** (M) or alternatively (O) To give guidance reference for a practical mean of prohibiting the use of the affected seat(s).

Additional considerations:

35-20-1A:

The fresh air is non-re-circulated air.

35-20-1B:

The total amount of supplemental oxygen required in Portable Passenger Oxygen units (e) is in addition to the amount required for first-aid oxygen. The oxygen quantity requirements are based on CAT rules.

The intent of the CAT rules is to ensure that 10% of passenger, wherever there are should have access to oxygen.

This requirement is mainly applicable to small aircraft not certified to fly above FL250. For those small aircraft, portable oxygen units can be embarked for 10% of the passengers and circulated in the aircraft whenever needed.

This is not relevant to big aircraft since it would not be realistic to embark additional portable oxygen bottles for 10% of the passengers and ensure those bottles would be circulated throughout the aircraft in the case of necessity.

35-20-1-1A Automatic Presentation System:

The automatic function of the passenger oxygen system can only be tested by simulation (usually by an MRB task) if no built-in monitoring is provided. The normal system is also checked by MRB task with similar intervals by actuating the flight crew compartment manual control.

The distinction between automatic and manual is made in the certification specification for design requirements as a decompression at flight altitudes of more than 30 000 ft would result in rapid loss of consciousness that justifies the automatic presentation. Failure of the automatic function is generally not detected until the maintenance task is performed and thus MMEL guidance to cover the loss of this particular function is only justified to release the aircraft after maintenance.

The proposed guidance is only applicable to design where the manual control system is monitored and is indicated to the crew in case of failure by dedicated fault message before the flight.

35-20-1-1B Automatic Presentation System: This entry is to cover cases where the manual control system is not monitored and thus no credit could be taken upon its availability. The associated limitations are based on CAT.IDE.A.235 (c) rule. It is expected that the descent performance dispatch condition (b) is explicited at aircraft type MMEL level.

35-20-1-2A

Rectification interval B is more restrictive than the rectification interval proposed for 25-21-1A (Passenger Seats) in order to cover the consequence of the inoperative unit on adjacent passengers and/or cabin crew.

Aircraft applicability: Aeroplanes

ATA Chapter: 35 Oxygen				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
35-50-1 First-Aid Oxygen				
35-50-1A	D	-	-	(M)(O) Any portable oxygen dispensing unit in excess of those required may be inoperative or missing provided: (a) Required distribution of operative units is maintained throughout the aircraft, (b) The inoperative portable oxygen dispensing unit is placarded inoperative, and (c) Procedures are established and used to alert crew members of inoperative or missing equipment. **Procedures:** (M) To provide instructions to placard the inoperative portable oxygen dispensing unit or its installed location if the unit is removed from its installed location. To secure the portable oxygen dispensing unit if if the unit is removed from its installed location and stored in another location. (O) To provide procedures to alert crew members.

Additional considerations:

First-Aid Oxygen Supply Time:

The minimum oxygen supply time should be equal to the time needed for the aircraft to land on an aerodrome. The minimum oxygen supply time depends of the amount of oxygen needed to supply 2 % of the passengers with oxygen after a decompression.

Number of portable oxygen dispensing units:

The number of mandatory portable oxygen dispensing units, defined for each aircraft type, is calculated as follows:

— One portable oxygen dispensing unit is required for each required cabin crew, and

— Portable oxygen dispensing units are required for 2 % of the passengers.

The minimum number of required portable oxygen dispensing units is determined by the highest number due to the above requirements.

The actual number of portable oxygen dispensing units is determined by the operator itself and depends on the flight duration, in particular the time needed to reach the nearest aerodrome for landing.

Relief can be considered for partially filled bottles provided that the oxygen quantity is in accordance with the applicable regulations. In this case, a procedure should be developed to ensure that the total quantity of oxygen in the operative bottles is adequate.

When determining the location for storage of the inoperative units, compliance with the dangerous goods requirements must be considered.

ATA 46 INFORMATION SYSTEMS

ED Decision 2020/012/R

Summary of the guidance items:

Item	ATA
Electronic Flight Bag (EFB) Systems	46-20-1
EFB Installed Resources	46-20-2
Power Connection for Portable EFB	46-20-3

Aircraft applicability: Aeroplanes & helicopters

ATA Chapter: 46 Information Systems					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
46-20-1	**Electronic Flight Bag (EFB) Systems**				
46-20-1A		C	-	0	(M)(O) May be inoperative provided that alternate procedures are established and used where operating procedures require the use of the affected EFB.
46-20-1B		C	-	1	(O) Any in excess of one may be inoperative provided that alternate procedures are established and are used to ensure that the required back-up means are available to the crew.
46-20-1C		D	-	0	May be inoperative provided that procedures do not require the use of the affected EFB.
46-20-2	EFB Installed resources				
46-20-2-1	Mounting Device				
46-20-2-1A		C	-	1	(M) (O) Any in excess of one may be inoperative provided the affected EFB is secured by an alternative means.
46-20-2-1B		C	-	0	(M) (O) May be inoperative provided that: (a) The associated EFB is used in accordance with the portable EFB stowage criteria, and (b) Alternate procedures are established and used where operating procedures require the use of the affected EFB.
46-20-2-1C		D	-	0	(M) May be inoperative provided that: (a) The associated EFB and hardware are properly stored or removed from the aricraft, and (b) The associated EFB is considered inoperative (Refer to 46-20-1C).
(continued)					

ATA Chapter: 46 Information Systems				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				
46-20-2-2 Data Connectivity				
46-20-2-2A	C	-	1	(M) (O) Any in excess of one may be inoperative provided that an alternative means of data connectivity is used.
46-20-2-2B	C	-	0	(M) (O) May be inoperative provided that alternate procedures are established and used where operating procedures require the use of the affected EFB.
46-20-2-2C	D	-	0	May be inoperative provided that procedures do not require the use of the affected data connectivity. **Procedures:** (M) To give guidance reference for deactivation of the affected item, as appropriate, and to establish alternate means, as applicable. (O) To provide instructions to the flight crew for alternate procedures to be used.
46-20-3 Power Connection for Portable EFB				(M) (O) May be inoperative provided alternate procedures are established and used where operating procedures require the use of the affected EFB.
46-20-3A	C	-	1	(M) (O) Any in excess of one may be inoperative provided that an alternative power source is available and can be used for the planned duration of use of the affected EFB.
46-20-3B	C	-	0	(M) (O) May be inoperative provided that alternate procedures are established and used.
46-20-3C	D	-	-	May be inoperative provided that procedures do not require the use of the affected power connection. **Procedures:** (M) To give guidance reference for deactivation of the affected item, as appropriate, and to establish alternate means, as applicable. (O) To provide instructions to the flight crew for alternate procedures to be used.

Additional considerations:

The purpose of entry 46-20-1 is not to require the inclusion of portable EFBs in an operator's MEL, but it is a means of controlling any inoperative EFB equipment. Other means may also be agreed with the competent authority.

Any EFB function which operates normally may be used.

Issue No: MMEL/2

ATA 52 DOORS

ED Decision 2020/012/R

Summary of the guidance items:

Item	ATA
Door/Exit	52-11-1
Door/Exit (All Cargo Configuration only)	52-11-2
Flight Crew Compartment Door	52-51-1

Aircraft applicability: Aeroplanes

ATA Chapter: 52 Doors				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
52-11-1 Door/Exit 52-11-1A	A	-	-	(O)(M) One, on each deck, may be inoperative for a maximum of 5 flights provided: (a) The number of passengers carried and the position of the seats which they occupy is in accordance with the the Maximum Passenger Capacity (MPC) table [see guidance provided in 'Additional Considerations'], and (b) Adequate cabin safety procedures are established and used, and (c) Affected door/exit is closed and locked, and (d) The affected door/exit is not used for passenger boarding, nor for any non-emergency purpose whilst passengers are on board, (e) Affected door/exit is marked with a placard to prohibit utilisation, as applicable, and (f) All the door/exit markings, signs and lights associated with the affected door/exit must be obscured, as applicable.

(continued)				**Procedures:** (O) To ensure that: — All crew members are briefed on the location and condition of the affected door/exit, passenger distribution and modified cabin safety procedures; — Where the affected door/exit can be opened, the briefing should address the possible use of the door for emergency evacuation in certain circumstances; — The affected emergency exit, escape paths, and blocked seating layout are checked before each take-off and landing; — The pre-take-off briefing to passengers accurately represents the current state and condition of the aircraft's escape facilities;

ATA Chapter: 52 Doors				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval			
	(3) Number installed			
		(4) Number required for dispatch		
			(5) Remarks or Exceptions	
(continued)				— A verbal briefing by cabin crew, or a briefing using automatic audio/ visual presentation, or a briefing by reference to a briefing card, is immediately complemented by a verbal/public announcement to inform passengers that a particular door/exit is inoperative and displays an appropriate placard. (M) To ensure that: — Affected door/exit is closed and locked if the closing/locking function is not affected; — If the closing/locking mechanism is affected, the door is secured closed and locked; — A conspicuous barrier, strap or rope and a placard stating 'DO NOT USE' are placed across the affected door/exit, as applicable, prior to passenger boarding; — Associated door/exit markings, signs and lights are obscured or removed.

52-11-2	Door/Exit (All Cargo Configuration only)				
52-11-2A		C	-	2	Any in excess of two door/exit not located in the flight crew compartment and intended to be used by the persons on board to evacuate the aeroplane may be inoperative.
52-11-2B		A	-	1	(O) Any in excess of one door/exit not located in the flight crew compartment and intended to be used by the persons on board to evacuate the aeroplane may be inoperative for a maximum of 5 flights. **Procedures:** (O) To ensure that: — All crew members are briefed on the location and condition of the affected emergency exit and modified cabin safety procedures; — A pre-take-off briefing to occupants accurately represents the current state and condition of the escape facilities.
(continued)					

ATA Chapter: 52 Doors				
(1) System & Sequence Numbers	(2) Rectification Interval			
ITEM		(3) Number installed		
			(4) Number required for dispatch	
				(5) Remarks or Exceptions
(continued)				
52-11-2C	A	-	1	(O) Any in excess of one door/exit not located in the flight crew compartment may be inoperative for a maximum of 10 calendar days provided:

(continued)				(a) A specific evacuation procedure is established, and (b) Only flight crew members and authority or operator inspector(s) essential for the flight are on board, and (c) The operative door external opening mechanism is operative, and (d) The operative door internal opening mechanism is operative, (e) The operative door escape slide or slide raft is operative unless an approved alternate means of escape is available, and an appropriate raft (if required) is available, (f) The operative door associated exit marking or locator sign and its associated floor proximity emergency escape path marking system and its associated exit interior emergency lighting and its exit exterior emergency lighting (for night operations) are operative, unless an operative torch is available for each flight crew member, and (g) Flight crew members are to review the evacuation procedure before each flight. **Procedures:** (O) To ensure that: — All crew members are briefed on the location and condition of the affected door/exit and modified cabin safety procedures; — An alternate evacuation procedure is established and used to cover the specific dispatch configuration.

ATA Chapter: 52 Doors				
(1) System & Sequence Numbers ITEM	(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
(continued)				
52-11-2D	A	-	0	(O) All doors/exits not located in the flight crew compartment may be inoperative for a maximum of 3 flights provided:

				(a) Specific procedures are established to enter/evacuate the aeroplane, (b) An appropriate raft (if required) is available, (c) Only flight crew members and authority or operator's inspector(s) essential for the flight are on board, and (d) Flight crew members are to review the evacuation procedure before each flight. **Procedures:** (O) refer to 52-11-1C.

Additional considerations:

52-11-1 Door/exit

52-11-1A

Condition (d):

This condition accounts for human factor considerations. However, it does not preclude the dispatch with a door/exit used for passengers boarding or other purposes when passengers are on board and found to be inoperative afterwards. In this case additional considerations regarding operational procedures have to be taken not account.

In the event that a door/exit which has been used for boarding becomes unserviceable, then, prior to take-off, all passengers must be fully briefed on the inoperative door/exit and the revised emergency procedures are to be used.

Condition (e):

This condition ensures that the door/exit is marked with a placard to prohibit utilisation if the failure mode prevents safe opening of the door/exit.

If the affected emergency exit can be opened manually (no failure in the mechanical opening system is present), it may still be used for evacuation in the case of emergency. In this case, the passenger briefing has to be adapted.

The same applies to condition (f).

Condition (f):

If cabin crew seats are located adjacent to an inoperative pair of exits, the operator should consider the best location for the affected cabin crew members, taking into account the updated emergency evacuation procedures. A re-location of cabin crew members can be envisaged, provided that sufficient cabin crew members remain at the pair of inoperative exits to orientate the passengers towards the best available exits during an evacuation

52-11-2 Door/exit (All Cargo Configuration only):

Additional conditions may be required if cabin occupants other than flight crew members are carried.

PASSENGER NUMBER REDUCTION AND DISTRIBUTION GUIDANCE

Applicability:

An exit is considered to be inoperative when, e.g. (non-exhaustive list):

(1) the external exit opening means does not function correctly;

(2) the internal exit opening means does not function correctly;

(3) the exit opening power assist mechanism does not function correctly, unless already covered by a dedicated MMEL item;

(4) the door gust lock does not function correctly unless already covered by a dedicated MMEL item;

(5) the assisting evacuation means, if required, is inoperative;

(6) the exit marking or locator sign is inoperative;

(7) the floor proximity exit marker is inoperative;

(8) the exit interior emergency lighting is inoperative; or

(9) the exit exterior emergency lighting or slide illumination, in case of night operation, is inoperative.

Passenger/Seat Occupancy Reduction Guidance:

1. GENERAL

(1) Any aeroplane configured with two pairs of Type III or larger exits only, is considered to be in an airworthy condition with one passenger emergency exit inoperative provided that the number of passengers is reduced to less than 20 and the entry door is operative.

(2) Any aeroplane configured with more than two pairs of exits is considered to be in an airworthy condition with one passenger emergency exit inoperative provided that the number and distribution of passengers is in accordance with the maximum permitted (for the complete aeroplane and in each zone) capacity tables (MPC tables) that are specified in the relevant MEL in accordance with paragraph 2 below.

MPC tables are to be established for each exit inoperative configuration in every aeroplane type and model and for each individual passenger seating configuration that shall be operable with the respective exit inoperative.

(3) **Not more than one exit may be inoperative.**

In this respect, twin overwing exits (separated by less than three rows) in a side of the aeroplane are considered as a single exit if declared inoperative because of a single common failure (e.g., but not limited to a common slide failure or a common exit locator sign failure.)

2. Calculation of MAXIMUM PASSENGER CAPACITY (MPC) TABLES

(a) General

(1) For the calculation, it is to be assumed that **both exits of the exit pair are inoperative, if one exit fails.**

An exit pair consists of two exits located essentially directly opposite each other but the combination of a single side exit and a tailcone exit is also considered to be a pair of exits.

(2) A zone is defined as any section of the passenger cabin which is longitudinally bounded by a pair of exits on both ends or, where passenger seats are installed beyond the most forward or aft pair of exits, by the start or end of the cabin and the nearest pair of exits. If a zone has only an exit pair on one end, it is called a dead end zone.

A zone may also exist between the last exit pair and the tailcone exit (opening), or between an exit pair and a single ventral exit, if there are passenger seats installed in this area.

In aeroplanes where a single side exit and a tailcone exit are considered to be an exit pair and where seats are installed behind the side exit, the last zone starts and the penultimate zone ends at a centre line midway between the side exit and the tailcone exit (opening). The last zone in this configuration is also considered to be a dead end zone.

Note: Seats installed between the side exit and the tailcone exit are considered to be in the zone forward (or aft respectively) of the centreline midway between the two single exits if their front studs are forward (or aft respectively) of the centreline.

(3) 'Aeroplane capacity' means the number of passengers calculated for the aeroplane; 'zone capacity' means the number of passengers calculated for a designated zone of the passenger cabin.

(4) The maximum number of passengers permitted for each *operative* exit pair/exit is defined as follows:

Table 1

Emergency exit	Passenger exit/ exit pair rating
Type A (exit pair)	110
Type B (exit pair)	75
Type C (exit pair)	55
Type I (exit pair)	45
Type II (exit pair)	40
Type III (exit pair)	35
Adjacent type III (less than 3 seat rows)* see Note 2	65
Type IV (exit pair)	9
Ventral exit (single exit)	12
Large tailcone exit (single exit)	25
Other tailcone exit (single exit)	15
Large tailcone exit combined with a Type I or larger exit (exit pair)	45

Note 1: Type B and C are listed above, for aircraft that were certificated using these ratings, if any. Other ratings (e.g. oversized type I, etc.), as determined during certification, may be considered.

Note 2: Dual overwing exit pairs located more than three seat rows apart from each other are considered as separate exit pairs.

Note 3: Two adjacent Type III overwing exit pairs located within three seat rows from each other are considered as one pair of exits (dual Type III exit pair) having a rating of 65. To determine the start or end of a zone bounded on one end by the two adjacent exit pairs, a new centerline midway between the two adjacent exit pairs shall be established. Seats whose front studs are forward of the new centerline are considered to be in the forward zone, seats whose front studs are aft of the new centerline are considered to be in the aft zone.

In case of a single common failure of the adjacent exit pairs, all four exits are assumed to be inoperative. In case of a non-common single failure related to one exit out of the four exits only, one operative Type III exit pair with a rating of 35 remains.

Note 4: Exits of an exit pair that are not of the same size, e.g. a Type III exit on one side of the fuselage and a Type II exit opposite, have the (exit pair) rating of the smaller exit type.

Note 5: A large tailcone exit is an exit incorporating a floor level opening of not less than 20 inches wide by 60 inches high, with corner radii not greater than 7 inches, in the pressure shell and incorporating an approved assist means.

Note 6: Any other tailcone exit is an exit incorporating an opening in the pressure shell which is at least equivalent to a type III exit and has the top of the opening not less than 56 inches from the passenger compartment floor.

Note 7: The rating of each emergency exit in the passenger compartment installed in excess of the minimum number of required passenger emergency exits is zero for the calculation of the Maximum Passenger Capacity.

(b) Calculation method

Based on the passenger seat layout approved for the individual aeroplane, a drawing of the passenger compartment must first be established clearly showing:

— the position of exits,

— the type of exits,

— the exits above the waterline ('ditching exits')

— the passenger zones,

— the number and position of all passenger seats in each zone,

— the overload capacities of the rafts available at each exit.

Using the above drawing, initial aeroplane capacities for the different inoperative exit cases are to be calculated according to (b) (1) below to ensure that an acceptable level of safety is maintained.

Then initial zone capacities are to be calculated for each case according to (b) (2) below for all zones to avoid overloading of individual zones and to ensure that passenger seating arrangement is optimized.

Finally, the *maximum permitted zone capacities* (MPZC) are to be calculated according to (b) (3) below.

(1) Initial aeroplane capacity:

If only one of the operative exit pairs of the aeroplane is a Type A, Type B, or Type C, this exit pair has to be downrated to Type I before starting the following calculation.

The initial aeroplane capacity with one exit inoperative is the most limiting figure of the following:

(i) the sum of the passenger exit ratings for all operative exit pairs/exits as specified in table 1 of section 2(a) above;

(ii) the maximum number of passengers approved for the emergency evacuation as specified on Type Certificate Data Sheet (TCDS) of the aeroplane type or model reduced by the passenger exit rating of the inoperative exit pair or, in case of a single exit, of the inoperative exit;

(iii) **9**, if only one operative exit pair including doors smaller than Type III is available,

19, if only one operative exit pair of Type III or larger is available,

40, if at least two operative exits pairs are available, of which one pair is Type II or larger,

110, if at least two operative exits pairs are available, of which one pair is Type I or larger,

If at least two operative exit pairs of type I or larger are available, this paragraph (iii) is not applicable.

Note: A dual Type III exit pair (exit rating: 65) is also considered to be 'larger' than a Type I exit pair in this context.

(iv) whether ditching certification is requested or not, the number of operative exits in both sides of the aeroplane, which meet at least the dimensions of a Type III exit and are above the waterline, has to be multiplied by 35.

If a higher passenger seat/exit ratio has been granted for type certification for any exit above the waterline, this ratio may be used instead of 35.

If there is only one top hatch or one operative side exit above the waterline in each side of the aeroplane that has at least the dimensions of a Type III exit, the initial aeroplane capacity is limited to 35.

If there is only one operative exit above the waterline in each side of the aeroplane that has at least the dimensions of a Type IV exit, the initial aeroplane capacity of the aeroplane must be limited to 9.

(v) If life rafts are required to be carried:

a. the sum of the rated capacities of all slide rafts of operative exit pairs including the rated capacity of any life raft, or

b. the sum of the overload capacities of all slide rafts of operative exit pairs including the overload capacity of any life raft taking into account the loss of one slide/life raft of the **largest rated** capacity

whichever is the most limiting.

(2) Initial zone capacities:

To get the initial zone capacities, the following criteria must be applied one after the other using the most limiting zone capacity achieved so far for the next calculation step.

(i) Individual zone capacity limitation:

The capacity of each individual zone shall not exceed the sum of the exit ratings of the operative exit pairs bordering the zone.

In addition, passengers shall not be seated on seat rows adjacent to the affected exit(s), unless for particular layout it has been shown that the remaining evacuation capability remains acceptable without this restriction.

In case a dead end zone is made up of two adjacent zones one forward and one rearward of the inoperative exit (e.g. first pair of exits is considered inoperative and passengers are seated forward of the pair of exits), the sum of the capacities of the adjacent zones shall not exceed 75 % of the rating of the operative exit pair bordering the dead end zone.

In order to account for potential increased distance between occupied seats and the nearest operative exit, each zone adjacent to an inoperative exit has to be treated as a dead end zone and the associated passenger capacity of the affected zones is downgraded to 75 % of the rating of the single pair of exits bordering the zone (rounded down).

Sequential zone capacity limitation:

While traversing the cabin from nose to tail and from tail to nose, the passenger capacity of combined consecutive zones shall not exceed the sum of the ratings of the operative exit pairs bordering and included in the consecutive zones being analysed. The combination of all zones is excluded from the analysis (e.g. for a 4 zones (A/B/C/D) cabin: A+B, A+B+C and D+C,D+C+B combinations have to be analysed). If necessary, the passenger capacity of the affected zone(s) in this combination (i.e. bordered by an inoperative exit pair) shall be reduced accordingly. These reduced capacities, if any, have to be taken into account for the next sequences of the calculation when traversing the cabin in one direction.

(3) Maximum permitted zone capacities (MPZC):

The initial zone capacities must be reduced to maximum permitted zone capacities, the sum of which is limited by the initial aeroplane capacity.

The reduction may be applied equally to all zones or mainly to the zone(s) adjacent to the inoperative exit, as appropriate.

Aircraft applicability: Aeroplanes & Helicopters

ATA Chapter: 52 Doors					
(1) System & Sequence Numbers ITEM		(2) Rectification Interval	(3) Number installed	(4) Number required for dispatch	(5) Remarks or Exceptions
52-51-1	**Flight Crew Compartment Door**				
52-51-1-1	Locking System				
52-51-1-1A		B	-	0	(M) (O) May be inoperative provided: (a) It is deactivated, and (b) A safe position of the door is ensured for take-off and landing, and (c) Alternate crew procedures are established and used for controlling access to the flight crew compartment, in accordance with the applicable national civil aviation security programme. **Procedures:** (M) To provide guidance for deactivation of the locking system and, if necessary, the means to ensure proper position of the door in accordance with condition (b). (O) To provide alternate crew procedures for controlling access to the flight crew compartment.
52-51-1-2	Flight Crew Compartment Access/ Control Functions				
52-51-1-2A		B	-	0	(O) May be inoperative provided: (a) Emergency means are operative to enable a crew member to enter the pilot compartment in the event that the flight crew becomes incapacitated, and (b) Alternate crew procedures are established and used. **Procedures:** (O) To provide alternate procedures for the crew to manage access control to the flight crew compartment.

Additional considerations:

The proposed guidance refers to alternate procedures to be established and used when the locking system of the door is inoperative for controlling access to the flight crew compartment.

These procedures may rely on available locking features installed on the aircraft to meet applicable security requirements.

These procedures will have to consider appropriate actions when a decompression function is dependent on the affected locking system in order to ensure that an acceptable level of safety is maintained.

A restriction of the rectification interval may be considered when evaluating the consequences on airworthiness and security of the proposed dispatch configuration.

The utilisation of part of these procedures for some designs features that may incorporate additional locking features or locking features that were originally designed for use in other than in-flight operations, and which may be accompanied by placards labelled 'For Ground Use Only', etc., is not considered to be part of this guidance.

Issue No: MMEL/2

GM2 MMEL.145 Justification of MMEL items

ED Decision 2014/004/R

USE OF MMEL GUIDANCE BOOK

(a) This guidance material is not exhaustive and relief may be proposed by the applicant for items not listed.

(b) The justification of an MMEL item may be based on the guidance material provided in Appendix 1 to GM1 MMEL.145.

(c) The guidance material provided in Appendix 1 to GM1 MMEL.145 is as an acceptable basis for the development of associated MMEL items justifications. The main purpose of this guidance material is to standardise the level of relief granted in MMELs, in particular when dealing with items that are subject to operational requirements.

(d) This guidance material is not intended to cancel the need to comply with CS MMEL.140 and CS MMEL.145 but is intended to alleviate this task by allowing the applicant to refer to this material as part of the MMEL justifications. The availability of a guidance material for an item does not prevent the applicant to prepare alternate MMEL content.

(e) The guidance material for MMEL items is organised by ATA chapters order and proposes MMEL contents in a five-column format.

(f) Additional interpretative material is proposed under the field 'Additional considerations' which is considered as an integral part of the guidance.

(g) References to applicable requirements, when available, are also provided for information purposes only.

(h) Items included in the Appendix 1 to GM1 MMEL.145 marked with the symbol (MC) below the corresponding title are considered to be eligible for MMEL minor change classification in accordance with Part-21.

GM3 MMEL.145 Justification of MMEL items

ED Decision 2020/012/R

ELECTRONIC ENGINE CONTROL SYSTEM (EECS) FAILURES — ENGINE TIME-LIMITED DISPATCH (TLD)

1. Dispatch with engine faults covered by a TLD report

(a) If a dispatch is sought with faults (or a combination of faults) that are present in an electronic engine control system (EECS), a time-limited dispatch (TLD) approval is required, as per Ref. [1] CS-E 1030, for faults such as EECS degraded protection or a loss of redundancy against a loss of thrust control (LOTC)/loss of power control (LOPC).

(b) A TLD approval is granted once the engine manufacturer has demonstrated compliance with the applicable engine certification requirements, including the verification that the LOTC/LOPC rates and hazardous engine effect rates remain acceptable with the proposed rectification time limits.

(c) Engine system faults that do not have an impact on the LOTC rate, or on the compliance with the applicable engine certification requirements, may nevertheless be included as part of the TLD report. These faults are normally indicated as not being derived from the LOTC analysis in the TLD report. In line with FAA Policy No. ANE-1993-33.28TLD-R1, a complete loss of a critical resource or a critical function should be a 'No Dispatch' configuration in the TLD report. A resource or a function should be considered critical if it is necessary to comply with CS-E 1030(b) and/or (c).

(d) When taking credit for the TLD analysis to demonstrate compliance with CS-MMEL, the aircraft manufacturer should ensure that the MMEL content remains consistent with the TLD restrictions, time limitations, and other related installation requirements set by the engine manufacturer.

2. Evaluation of aircraft-level consequences for MMEL evaluation

(a) When engine-related MMEL items are involved in aircraft level failure conditions that are classified as hazardous or catastrophic, compliance with the applicable requirements for qualitative and quantitative analysis should be demonstrated, as for any candidate MMEL item. Contributions from the engine control system to the aircraft functional hazard assessment (FHA)/system safety assessment (SSA) may be affected, and may need to be re-evaluated. In such cases, coordination between the aircraft and the engine manufacturers is necessary to complete the demonstration of compliance of the MMEL.

(b) It is recommended that the aircraft manufacturer's MMEL safety analysis should be made prior to the definition of the generic cockpit messages related to the TLD categories (short-term and long-term) in order to avoid re-design issues.

3. Dispatch with EECS faults with performance effects

(a) Particular attention should be paid to range-sensitive operations, including LROPS and ETOPS, when engine system faults, including some that are included in the TLD analysis, could have an effect on the fuel consumption, and hence on the range, of the aircraft.

(b) Normally, degraded performance is not analysed by the engine manufacturer for LOTC, but it should be assessed by the aircraft manufacturer.

(c) Flight duration and thrust variation in the event of an in-flight shut down (IFSD) should be considered in the performance /range assessment. If necessary, operational limitations should be specified in the MMEL for authorised combinations of MMEL items.

4. Allocation of MMEL rectification intervals

(a) When a TLD approval is granted at the engine level, the repair limitations for short-term or long-term faults may be used by the aircraft manufacturer to support the allocation of the appropriate MMEL rectification interval.

(b) If the repair intervals are taken from the TLD analysis, the corresponding MMEL items should be allocated an 'A' category rectification interval (with no extension possible).

Issue No: MMEL/2

GM1 MMEL.145(c) Justification of MMEL items

ED Decision 2014/004/R

QUALITATIVE SAFETY ASSESSMENT – LATENT FAILURES

Regarding MMEL dispatch configuration leaving the aircraft two failures away from a catastrophic failure condition, particular attention should be paid to combinations involving one failure which is latent for more than one flight. Whenever practical, such combinations should be avoided per MMEL dispatch condition (e.g. verification task clearing the latent failure prior to each flight). Where these latent failures are not avoided, these combinations of failures should be reported and reviewed with the Agency.

GM2 MMEL.145(c) Justification of MMEL items

ED Decision 2014/004/R

QUALITATIVE SAFETY ASSESSMENT – PREVIOUS APPROVALS

The assessment may reflect experience with previous MMEL approvals. However, a previous MMEL approval of the same item on another aircraft type does not in itself imply that the level of safety is acceptable. Therefore, additional factors which could be considered include similarity of system operation and type of operations.

GM3 MMEL.145(c) Justification of MMEL items

ED Decision 2014/004/R

QUALITATIVE SAFETY ASSESSMENT – FLIGHT TEST/SIMULATOR

A flight test or a simulator/Flight Simulation Training Device (FSTD) evaluation, on an aircraft or FSTD representative of the type design, may be used to help evaluate an MMEL item, in particular the consequences of the failed item on crew workload and human factors.

GM4 MMEL.145(c) Justification of MMEL items

ED Decision 2020/012/R

QUALITATIVE SAFETY ASSESSMENT – ITEMS INVOLVED IN NON-NORMAL AND EMERGENCY PROCEDURES

(a) When the item is necessary for the crew to perform an existing non-normal or emergency procedure, the consequences of its unavailability should be evaluated, taking into account the potentially worsening of the severity of the in-flight failure condition.

(b) Items which are powered by an emergency bus or equivalent and required to accomplish an emergency procedure are normally not allowed.

(c) Relief may be granted for items that are powered by an emergency bus, provided that the applicant demonstrates by flight test, analysis, or a combination of both, that the MMEL relief neither affects the successful intended completion and the outcome of the procedure, nor increases the complexity of the procedure for the crew.

(d) Emergency procedures are aircraft-specific, for example, some procedures may direct the pilot to physically turn the emergency power switch to the ON position when a complete electrical failure occurs in flight. One consequence of the selection of the emergency power switch to ON can be that the only communications system available is the number one system, and the only navigational system available is the number one system. That configuration must not allow operations with the number one radio system on the MEL. However, other aircraft may be designed with an electrical system that will automatically select any available electrical power supply during an electrical abnormality. For such a design, it would not be appropriate to limit the radio relief to just the number two radio system, since both radios are able to be powered under any circumstances.

Issue No: MMEL/2

GM5 MMEL.145(c) Justification of MMEL items

ED Decision 2020/012/R

QUALITATIVE SAFETY ASSESSMENT — CONSEQUENCES OF THE PROPOSED MMEL DISPATCH CONFIGURATION

(a) Operational consequences of the proposed dispatch configuration (including any limitations and/or procedures) evaluated according to the criteria of CS MMEL.140 (a) and (b), classified as no safety effect or minor as per the associated type-certification basis of the aircraft definitions, are considered to be acceptable.

(b) The classification of failure conditions established in the safety assessment process through the aircraft and system FHAs should be used carefully, as the mitigation means associated with the proposed MMEL item may lead to a reduction in the severity that was identified for type certification purposes.

For example, the failure of one item during a particular flight phase may be considered to be major due to a temporary loss of function until the flight crew performs a manual reconfiguration during the flight. But when this item is known to have failed on the ground, prior to the departure, the consequence may be less critical for the crew, and the application of the associated dispatch conditions can allow the classification to be reduced to an acceptable level.

(c) Conversely, some severities that were set up for the purpose of type certification may need to be complemented or increased. In particular, the effects on the crew workload and potential fatigue need to be carefully assessed. Indeed, the severity of a failure that may have been assessed as having minor effects as an in-flight failure during the type certification may be considered to have more than minor repercussions due to operating for several flights in some operational conditions. Some aggravating factors (e.g. the number of flights of the exposure, the flight duration, flight rules, special operations) will sometimes need to be mitigated by limitations that would normally not apply for a full-up aircraft configuration (e.g. day VFR only, instead of Day & Night VFR, types of operations).

Issue No: MMEL/2

GM1 MMEL.145(d) Justification of MMEL items

ED Decision 2014/004/R

QUANTITATIVE SAFETY ASSESSMENT

(a) Items for which a quantitative safety assessment is carried out to supplement the qualitative MMEL development process in accordance with CS MMEL.145(d) should be reported.

(b) Items for which the probabilities per flight hour of 1.10^{-8} for Catastrophic failure conditions and 1.10^{-6} for Hazardous failure conditions are not met in that dispatch configuration should be reviewed with the Agency. The following guidance applies to these proposed dispatches. This guidance includes equations to control how long these configurations are allowed to exist, such that the fleet average objectives will be achieved.

(1) For catastrophic failure conditions:

(i) A probability per flight hour under dispatch condition of ≤ 1.10^{-8} is the objective when dispatching with the inoperative item. When this objective is met, no calculation for a maximum allowable dispatch time is considered necessary.

(ii) A limited number of items may be considered when 1.10^{-8}/FH objective is not met. In these cases, the maximum allowable probability per flight hour when dispatching with the inoperative item should not exceed 1.10^{-7}/FH, and the maximum dispatch time should be less than that calculated using the following Equation (1).

(iii) The 1.10^{-8}/FH objective and 1.10^{-7}/FH upper limit apply to each catastrophic failure condition involving the inoperative-at-dispatch MMEL item. If more than one top level event is involved, the maximum allowable dispatch time should be the smallest of those calculated for the affected failure conditions.

Equation (1):

$$\text{Max\_Disp\_Time}_{\text{CAT}}[\text{FH}] = \frac{1.10^{-9}\ [\text{probability\_per\_FH}]}{\text{PF} \cdot \text{FR}}$$

Where

$\text{Max\_Disp\_Time}_{\text{CAT}}$[FH] = Max Dispatch Time [flight hours]

PF [1/FH] = Probability of failure condition [per flight hour] under dispatch condition

FR [1/FH] = Failure Rate of proposed MMEL item [per flight hour]

(2) For hazardous failure conditions:

(i) A probability per flight hour of ≤ 1.10^{-6} is the objective when dispatching with the inoperative item. When this objective is met, no calculation for a maximum allowable dispatch time is considered necessary.

(ii) A limited number of items may be considered when 1.10^{-6}/FH objective is not met. In these cases, the maximum allowable probability per flight hour when dispatching with the inoperative item should not exceed 1.10^{-5}/FH, and the maximum dispatch time should be less than that calculated using the following Equation (2).

(iii) The 1.10^{-6}/FH objective and 1.10^{-5}/FH upper limit apply to each hazardous failure condition involving the inoperative-at-dispatch MMEL item. If more than one top

level event is involved, the maximum allowable dispatch time should be the smallest of those calculated for the affected failure conditions.

Equation (2):

$$\text{Max\_Disp\_Time}_{\text{HAZ}}[\text{FH}] = \frac{1.10^{-7}\ [\text{probability\_per\_FH}]}{\text{PF} \cdot \text{FR}}$$

Where

$\text{Max\_Disp\_Time}_{\text{HAZ}}$[FH] = Max Dispatch Time [flight hours]

PF [1/FH] = Probability of failure condition [per flight hour] under dispatch condition

FR [1/FH] = Failure Probability of proposed MMEL item [per flight hour]

Note 1 The two equations given above for maximum dispatch times for MMEL items or functions involved in catastrophic or hazardous failure conditions provide dispatch times that are compatible with the fleet average top level reliability requirements of CS 25.1309(b).

Note 2 Equation (1) would yield a maximum operating time in the particular configuration to be ≤ 1 % of the fleet operating time when the MMEL dispatch configuration has a probability of 1.10-7/FH.

Note 3 Maximum dispatch times, as calculated using the above equations or other appropriate methods, should be maintained by the applicant's operations/MMEL group. That group will work with the Operations Evaluation Boards (OEBs) to decide on an acceptable MMEL entry.

Note 4 Probabilities used in above paragraph are average probabilities per flight hours as defined in AMC 25.1309.

(3) Dispatch times should primarily be based on operational considerations. Whenever possible, the MMEL entry should use the standard Rectification Interval Categories by rounding the calculated maximum dispatch time (in flight hours) to a conservative Category (based on maximum aircraft utilisation per day), not exceeding the C category.

GM1 MMEL.145(d)(2) Justification of MMEL items

ED Decision 2020/012/R

METHOD TO DETERMINE MMEL ITEM INVOLVEMENT IN HAZ AND CAT FAILURE CONDITION

A fault tree analysis should be used to identify the MMEL items involved in HAZ or CAT failure conditions.

Issue No: MMEL/2

GM1 MMEL.145(e) Justification of MMEL items

ED Decision 2014/004/R

OPERATIONAL AND MAINTENANCE PROCEDURES

(a) The content of the operational and maintenance procedures is normally not required to be finalised and included as part of the justifications, but only the intent is provided as part of the justifications

(b) The content of a specific procedure may be requested by the Agency if necessary to complement the justification of an item.

(c) The applicant should evaluate the complexity of maintenance and/or operational procedures prior to including them in the MMEL.

GM1 MMEL.145(f) Justification of MMEL items

ED Decision 2020/012/R

QUANTITATIVE ASSESSMENT CRITERIA FOR AIRCRAFT CERTIFIED AGAINST REQUIREMENTS OTHER THAN CS 25/29.1309

For simple and conventional installations (that is, those with low complexity and with similarity in the relevant attributes), it may be possible during the type design certification to assess the probability of a hazardous or catastrophic failure condition as being extremely remote (refer to the TC basis) or extremely improbable (refer to the TC basis), respectively, on the basis of experienced engineering judgement, using only qualitative analysis. The basis for such an assessment will be the degree of redundancy, the established independence and isolation of the channels, and the reliability record of the technology involved. Satisfactory service experience on similar systems commonly used in many aircraft may be sufficient when a close similarity is established regarding both the system design and the operating conditions.

A similar approach may be used for the justification of MMEL items. In particular:

(a) For MMEL items involved in catastrophic failure conditions:

(1) It should be demonstrated that the degree of redundancy under the MMEL dispatch configuration remains adequate to ensure that the involved catastrophic failure condition is still extremely improbable (refer to the applicable type-certification basis definition). This demonstration may be, in some cases, limited to the demonstration that a combination of a minimum of two independent failure(s) or external event(s) is necessary to lead to the catastrophic failure condition. It will take into account that the reliability of the involved systems, based on experienced engineering judgement and service history, would allow the occurrence of the failure condition to continue to meet the qualitative objective used for the type design certification.

(2) No catastrophic failure condition should result from the failure of a single component, part, or element of a system under any MMEL dispatch configuration. The logic and rationale used in the assessment should be straightforward, and should obviously substantiate that the failure mode simply would not occur unless it is associated with an unrelated failure condition that would, in itself, be catastrophic.

(3) The MMEL entry should use standard rectification interval B, or a more restrictive interval, for items that leave the aircraft two independent failure(s) or external event(s) away from a catastrophic failure condition. If there is no reduction in safety margins compared with the full-up configuration, category C may be acceptable.

(b) For MMEL items involved in hazardous failure conditions:

(1) It should be demonstrated that a degree of redundancy under the MMEL dispatch configuration remains available so that a combination of a minimum of two independent failure(s) or external event(s) is necessary to lead to the hazardous failure condition. In such a case, there is no need to demonstrate (even qualitatively) that the failure condition remains extremely remote (refer to the applicable type-certification basis definition) under the MMEL dispatch configuration, as the fact that no single failure or external event exists is sufficient to grant an adequate probability of occurrence under the MMEL dispatch configuration, or

(2) It should be demonstrated, using experienced engineering judgement and service history, that the single failure or external event has a probability of occurrence that is compatible with the safety objectives used for the type design certification, taking into account the proposed rectification interval.

(3) The MMEL entry should use standard rectification interval B, or a more restrictive interval, for items that leave the aircraft one failure(s) or external event(s) away from a hazardous failure condition. If there is no reduction in safety margins compared with the full-up configuration, category C may be acceptable.

Issue No: MMEL/2

CS MMEL.150 Multiple inoperative items

ED Decision 2014/004/R

(a) The simultaneous application of two MMEL items is prohibited when one is used as a mitigation means to justify the other.

(b) The cumulative effects of multiple inoperative items application are taken into account to ensure compliance with CS MMEL.140, as far as practicable.