# Comment-Response Document 2012-09

## CORRIGENDUM

# Certification Specifications Generic Master Minimum Equipment List

CRD TO NPA 2012-09 — RMT.0109 (21.039(J)) — 22/08/2013 (13/12/13 CORRIGENDUM)


**EXECUTIVE SUMMARY**

In accordance with the additional requirements for air operations for commercial purposes laid down in Annex IV to Article 8 of the Basic Regulation, an operator must establish a Minimum Equipment List (MEL) or equivalent document based on the Master Minimum Equipment List (MMEL), if available.

This requirement for commercial operations has been transposed in the Implementing Rules for Air Operations, namely in part-ORO. The possibility of establishing an MEL on a voluntary basis for non-commercial operations of other-than-complex motor-powered aeroplanes has also been foreseen in the Implementing Rules for Air Operations in Part-NCO and part-SPO.

Following these considerations, the Agency introduces the CS-GENERIC-MMEL for other-than-complex motor-powered aeroplanes with the aim of assisting the type certificate holder in developing the Master Minimum Equipment List (MMEL).

This CRD contains the comments, responses and amended rule text to the NPA introducing CS-GEN-MMEL.


| **Applicability** | | **Process map** | |
|---|---|---|---|
| Affected regulations and decisions: | New Decision 2013/XXX/R on CS-GENMMEL | Concept Paper: | No |
| | | Rulemaking group: | Yes |
| | | RIA type: | Light |
| Affected stakeholders: | Manufacturers, TC/STC holders, Air Operators | Technical consultation during NPA drafting: | No |
| | | Publication date of the NPA: | 2012/Q3 |
| Driver/origin: | Regulation (EC) 216/2008 | Duration of NPA consultation: | 2 months |
| | | Review group: | Yes |
| Reference: | NPA 2012-09, Opinion 07/2011 | Focussed consultation: | No |
| | | Publication date of the Opinion: | N/A |
| | | Publication date of the Decision: | 2014/Q1 |

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## 0. Corrigendum

**Corrigendum to CRD 2012-09 – 'Certification Specifications Generic Master Minimum Equipment List'.**

The Agency issued this corrigendum due to the fact that in the initial version of the Comment-Response Document some comments were omitted.

The comments which were originally omitted and the responses thereto are inserted in this corrigendum. They can be found under the following numbers and paragraphs:

89 NOTICE OF PROPOSED AMENDMENT (NPA) 2012-09 — General comments

90 A. Explanatory Note

91 A. Explanatory Note

92 A. Explanatory Note

93 B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — CS GEN.MMEL.100 Applicability

94 C. Regulatory Impact Assessment — light

95 C. Regulatory Impact Assessment — light

To easily identify these comments, they are written in blue and highlighted with grey shading.

## Explanatory Note

### I. General

1. The purpose of the Notice of Proposed Amendment (NPA) 2012-09, dated 16 August 2012 was to develop a Decision on the Certification Specification for a Generic Master Minimum Equipment List (GENMMEL) and related Guidance Material (GM). The scope of this rulemaking activity is outlined in the Terms of Reference (ToR) for RMT.0109 (21.039(j)) and is described in more detail below.

2. The Basic Regulation provided for the Agency's responsibility to approve relevant information necessary for the safe operation of a specific aircraft type. This information relates to type specific elements for pilots, cabin crew, maintenance and includes the Master Minimum Equipment List (MMEL) and Flight Synthetic Training Devices (FSTD). The information is to be concluded and approved under Operational Suitability Data (OSD) that will complement the TC or STC. The applicant for an aircraft type certificate or supplemental type certificate will obtain approval of operational suitability data before the aircraft is operated by a European Union operator. Once the OSD is issued, the approved elements will be used by the operators of the particular aircraft type or training organisations to establish the appropriate training programmes or MEL.

3. RMT.0109 (21.039(j)) was set up to develop the Implementing Rules, associated Certification Specifications, Acceptable Means of Compliance and Guidance Material for the existing JOEB tasks to be transferred into the new EASA regulatory framework. The working method selected by the Agency on the advice of its rulemaking advisory bodies (the Safety Standards Consultative Committee (SSCC) and the Advisory Group of National Authorities (AGNA)) was the use of a rulemaking group and further creating subgroups for the development of the individual CSs such as CS-GENERIC-MMEL.

4. A GENERIC MMEL subgroup was created by the main group to address the MMEL task and members of the main group were invited to participate or nominate participants in this subgroup activity. The subgroup members came from European and foreign OEMs and European NAAs.

5. The GENERIC MMEL subgroup was tasked with taking the current Guidance Material in the field of MMEL, NPA CS-MMEL, FAA Single Engine Airplanes MMEL and TCCA MMEL Guidance Book and use it as far as possible to create the CS-GENERIC-MMEL.

6. The subgroup went through the proposed text based on the reference material. In particular the discussions emphasised on the level of relief to be given to operators under Part-NCO (rules for non-commercial operations) and Part-SPO (rules for commercial and non-commercial specialised operations) which had to guarantee the highest safety level possible without imposing too much burden. The subgroup also acknowledged that the CS text should be the simplest possible with the most straightforward application as the vast majority of the applicants would be unfamiliar with the notion of MMEL.

7. In addition to that, consideration has been proposed to help further harmonisation, ensure a level playing field between applicants, safety considerations, new complex and highly integrated designs and airworthiness considerations. The outcome of this work has been the basis for the current proposal.

8. The Agency acknowledged that although the draft GENERIC MMEL is suitable for many aircraft in the other-than-complex category, it is not well tailored to the real leisure aircraft such as very light aeroplanes (VLA), light sport aeroplanes (LSA), very light rotorcraft (VLR), sailplanes, powered sailplanes, balloons and ELA2 airships. So for these aircraft another approach is proposed to deal with the requirement to establish an MMEL. For these aircraft the Agency considers that the list of required equipment as included in the TCDS or in the approved AFM Section 2 Limitations, in combination with equipment required for the flight by the applicable implementing rules (such as operational requirements, airspace requirements and any other applicable requirement to the intended operation), establishes the list of equipment (and quantity) that must be

operative for the intended kind of operation (VFR day, VFR night, IFR, flight into known icing conditions…). Other equipment may be inoperative and this constitutes the MMEL. Design approval applicants for these aircraft will therefore not be required to establish an MMEL. This principle will be included in Guidance Material to Part-21, in relation to the requirement to establish an MMEL.

## II. Consultation

2. The draft Executive Director Decision was published on the web site (http://www.easa.europa.eu) on 16 August 2012.

3. By the closing date of 16 November 2012, the European Aviation Safety Agency ('the Agency') had received 85 comments from 16 National Aviation Authorities, professional organisations and private companies.

## III. Publication of the CRD

3. All comments received have been acknowledged and incorporated into this Comment Response Document (CRD) with the responses of the Agency.

4. In responding to comments, a standard terminology has been applied to attest the Agency's acceptance of the comment. This terminology is as follows:

- **Accepted** – The comment is agreed by the Agency and any proposed amendment is wholly transferred to the revised text.
- **Partially Accepted** – Either the comment is only agreed in part by the Agency, or the comment is agreed by the Agency but any proposed amendment is partially transferred to the revised text.
- **Noted** – The comment is acknowledged by the Agency but no change to the existing text is considered necessary.
- **Not Accepted -** The comment or proposed amendment is not shared by the Agency

When the standard terminology was not sufficient justification has been added to the response.

When accepted comments implied changes to the CS text such changes have been reflected accordingly.

The notion of optional item has been introduced so that the TC or STC holder can select from the given item list all the items installed as standard or as options and differentiates them.

Also the ATA 73 related to FADEC messages linked to a time limited dispatch has been removed due to the complexity of integration of this type of messages on each aircraft. A generic approach was found inappropriate.

5. The Executive Director Decision on CS-GEN-MMEL will be issued at least two months after the publication of this CRD to allow for any possible reactions of stakeholders regarding possible misunderstandings of the comments received and answers provided.

6. Such reactions should be received by the Agency not later than 22 October 2013 and should be submitted using the Comment-Response Tool at http://hub.easa.europa.eu/crt.

## IV. CRD table of comments, responses and resulting text

| **(General Comments)** | - |
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| comment | *2* comment by: *Stefan Freudiger*<br><br>Preferable over the expansion of MEL's is the prevention of the equipment to fail. To prevent equipment from failing, excellent workmanship is required. To achieve excellent workmanship, motivation of young people is necessary. To motivate young people, EASA should reduce its tendency of hyper-regulation with blowing-up of costs, but should rather trust on proven experience and common sense. Not complex MEL's are keeping people in the air, but seriously built and maintained equipment!<br>Stefan Freudiger |
| response | Noted |

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| comment | *8* comment by: *Cessna Aircraft Company*<br><br>Attachment #1<br><br>Please see the attached file for Cessna Aircraft Company's comments. |
| response | Answers to the comments provided in the attached file:<br><br>Comment #1: Not accepted.<br><br>The narratives contained in the proviso addressing the required procedures will be shown in the final document.<br><br>Comment #2: Partially accepted.<br><br>Indeed it is not asked to place the required equipment in the TCDS for VLA, but on the contrary, if the TCDS gives such a list then it can be used as part of the MMEL. The term “Kind Of Equipment List” is not used as not every S/TC holder uses it, nevertheless the paragraph will be rephrased to include the approved AFM.<br><br>Comment #3: Accepted.<br><br>The Preamble will be corrected and that paragraph removed as it is the manufacturer’s responsibility to develop these procedures.<br><br>Comment #4: Accepted.<br><br>In the “Additional Considerations” section, it will be added that for unpressurised flight, when oxygen available on board is not sufficient or oxygen is not used, the flight shall be performed at or below 10 000 ft MSL.<br><br>Comment #5: Not accepted. |

As the flight is conducted unpressurised, the need for the additional systems to be operative is not seen.

Comment #6: Not accepted.

If the passenger oxygen system is deferred, the maximum altitude is then limited to 10 000 ft which should not trigger the cabin altitude warning system.

Comment #7: Not accepted.

As the flight is conducted unpressurised, the need for the additional systems to be operative is not seen.

Comment #8: Not accepted.

As the flight is conducted unpressurised, the need for the additional systems to be operative is not seen.

Comment #9: Not accepted

The manufacturer will have to decide, based on the system design, whether it needs to be deactivated or not.

Comment #10: Not accepted.

This requirements come from the Air Operations regulation, Part NCO and Part CAT.

Comment #11: Accepted.

The proviso will be rephrased: "Any in excess of one available at pilot's station may be inoperative, provided it is not associated with emergency procedures".

comment *39* comment by: *DGAC France*

EASA has two linked NPAs : NPA 2011-11 (status: CRD to comment before 10 November 2012) related to CS-MMEL and NPA 2012-09 (status NPA to comment before 16 November 2012) related to CS-GEN-MMEL.
It is necessary that EASA check that both certification specifications are consistent.

response Noted

CS-GEN-MMEL is reviewed against CS-MMEL to ensure consistency.

comment *50* comment by: *DGAC France*

<u>General comment about the proviso listed in the conditions for dispatch.</u>

DGAC France believes a GM could be established to recommend that a choice strategy is defined by the applicant to define the ranking of the proviso (after: May be inoperative provided that: …)

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| | Whatever the strategy, it is to be used all along the MMEL to facilitate the reading and application of the MEL. E.g. Preferably give first rank to the conditions linked to the design of the aircraft, then the following ranks to the proviso associated to the application of a (m), then after the proviso associated to an (o) and finally those associated to the effective operational conditions of the intended flight or those to be performed during the flight. |
| response | Not accepted<br><br>The item list given in the CS-Generic-MMEL is intended to be taken 'as is' by the applicant. The provisos are not supposed to be modified and therefore no strategy for their order needs to be defined. |

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| comment | *51* comment by: *Luftfahrt-Bundesamt*<br><br>The LBA has no comments on NPA 2012-09. |
| response | Noted |

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| comment | *62* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>While we acknowledge and appreciate the good work that has gone into the production of this NPA, we feel that the entire regulatory approach taken by the agency in relation to defects, dispatch and required equipment in non-commercial operations is inappropriate and fails to comply with the principles of the Management Board paper *European General Aviation Safety Strategy.*<br><br>The Agency must urgently review the entire concept behind defects, dispatch and required equipment in non-commercial operations.<br><br>The system as it is proposed fails to take account of human factors in operation that make the system less safe than one that gives the pilot discretion, subject only to the generic minimum requirements set out in Part-NCO.IDE. By placing a significant burden on the operator, owner and/or pilot, in cost, time and convenience associated with known defects and unserviceabilities, the regulation disincentivises candour and the free flow of information, leading to a degradation of overall system safety.<br><br>General aviation pilots should be (through training) quite capable of assessing and managing the risk associated with simple defects and unserviceabilities. These are a matter of airmanship. An MEL-style system, while facilitating a level-playing field in commerical air transport, is entirely inappropriate for non-commercial operations.<br><br>As guidance material, the proposals would incorporate a wealth of expertise and value contributed by experienced and capable participants. But it is unsuitable as mandatory requirements. |

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| response | Noted.<br><br>The MEL is not mandatory for NCO operators, and can be established on a voluntary basis. |

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| comment | *84* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>These comments are submitted on behalf of PPL/IR Europe. We also endorse the comments of Europe Air Sports. |
| response | Noted |

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| comment | *11* comment by: *Diamond Aircraft*<br><br>Diamond Aircraft Industries response to the NPA 2012-09, draft decision of the executive director of the European Aviation Safety Agency on Certification Specifications and Guidance Material related to Generic Master Minimum Equipment List for other-than-complex motor powered aeroplanes – CS Generic MMEL<br>General Comment:<br>The executive summary of the present NPA references several documents without further details. But to be able to discuss this NPA each person may have knowledge what several regulations or draft regulations contain linked to the topic of Master Minimum Equipment List.<br>A: The referenced Annex IV to Article 8 of the Basic Regulation (216/2008) requires:<br>*ANNEX IV*<br>*Essential requirements for air operations referred to in Article 8*<br>*8. Additional requirements for operation for commercial purposes and operation of complex motor-powered aircraft*<br>*8.a.3. the operator must establish a MEL or equivalent document, taking account of the following:*<br>*(i)*<br>*(ii)i*<br>*(iii) the MEL must be based on the Master Minimum Equipment List (MMEL), if available, and must not be less restrictive than the MMEL;*<br>B:<br>The basic regulation states clearly any CS is not part of any rule<br><br>*Article 19*<br>*Opinions, certification specifications and guidance material*<br>*1.* |

*2. The Agency shall, in accordance with Article 52 and the implementing rules adopted by the Commission, develop:*
*(a) certification specifications, including airworthiness codes and acceptable means of compliance; and*
*(b) guidance material;*
*to be used in the certification process.*
*These documents shall reflect the state of the art and the best practices in the fields concerned and be updated taking into account worldwide aircraft experience in service, and scientific and technical progress.*
C:
The present EU-OPS 859/2008 states:

*OPS 1.030*
*Minimum equipment lists — Operator's responsibilities*
*(a) An operator shall establish, for each aeroplane, a minimum equipment list (MEL) approved by the Authority. This shall be based upon, but no less restrictive than, the relevant master minimum equipment list (MMEL) (if this exists) accepted by the Authority.*
D:
The (draft) Commission Regulation on 'Air Operations - OPS' Annex III Part-ORO/ ORO.MLR.105 Minimum equipment list states:

*(a) A minimum equipment list (MEL) shall be established as specified under 8.a.3. of Annex IV to Regulation (EC) No 216/2008, based on the relevant master minimum equipment list (MMEL) as defined in the operational suitability data established in accordance with Commission Regulation (EC) No 1702/2003 (now 748/2012).*

E:
The present Part 21 does not require approving a MMEL.

F:
The future Part-21 according the EASA Opinion to the Commission will contain:

*2. in point 21A.15, the following point (d) is added:*
*'(d) An application for a type-certificate or restricted type-certificate for an aircraft shall include, or be supplemented after the initial application to include the application for approval of operational suitability data, consisting of, as applicable:*
*1. the minimum syllabus of pilot type rating training, including determination of type rating;*
*2. the definition of scope of the aircraft validation source data to support the objective qualification of simulator(s) associated to the pilot type rating training, or provisional data to support their interim qualification;*
*3. the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;*
*4. determination of type or variant for cabin crew and type specific data for cabin*
*crew training;*
*5. the master minimum equipment list; and*
*6. other type-related operational suitability elements.'*
Now having in mind the relevant requirements several conclusions are obvious:
1.) Any implementing rule can not overrule the basic regulation; any CS can not overrule any regulation;
2.) A MEL based on a Master MEL – if available - is only required for operation for commercial purposes and operation of complex motor-powered aircraft.

3.) A MEL may be created if a Master MEL is not available on other documents like POH or AFM or else.
4.) The Requirements for the operation for commercial purposes are presently laid down in the EU-OPS, which will be followed by the IR Regulations on Air Operations, Part Commercial Air Transport Operation – CAT.
5.) EU-OPS 1.030, has in mind, that a formal MMEL is missing "…the relevant master minimum equipment list (MMEL) (if this exists)" and any individual MEL acceptance by the authority is possible, if instead of the MMEL another document contains the relevant information.
6.) That is the spirit of Annex IV to Article 8
*" 8.a.3*
. The *(Commercial Air Transport)* operator must establish a MEL or equivalent document, taking account of the following: (iii) the MEL must be based on the Master Minimum Equipment List (MMEL), <u>if available</u>, and must not be less restrictive than the MMEL;" It is unambiguous and without any doubt that a MMEL is NOT required for each Airplane and is NOT required for any operation other than commercial air transport.

7.) Present Part 21 is compliant with the Basic Regulation
8.) Draft Commission Regulation on 'Air Operations - OPS' Annex III Part-ORO/ ORO.MLR.105 Minimum equipment list states correct the limitations for the need for a MMEL.
9.) Reading in parallel the Basic Regulation, the present EU-OPS, the future Part CAT and Annex III Part-ORO/ ORO.MLR.105 the future Part-21 has to be understood as: A MMEL as part of the certification process is required if the aircraft will be used for Commercial Air Transport or if it is classified as "complex motor-powered aircraft". If not, a MMEL is not required (*An application… shall include, …. <u>as applicable</u>: 5. the master minimum equipment list*). The applicability is not given if the aircraft will not be used for Commercial Air Transport or for a non complex motor-powered aircraft.
10.) Any TC applicant who is not obliged to certify a MMEL (non complex motor-powered aircraft) may certify a MMEL on a voluntary base.
11.) Any Commercial Air Transport Operator who operates with non complex motor-powered aircraft may decide for himself to apply for a MEL either based on a MMEL or on other equivalent documents.
12.) According the adopted Part 21 a MMEL may be applied and approved after issuing the initial aircraft TC. 21A.15 states*:'(d) … or be supplemented after the initial application to include the application for approval 5. the master minimum equipment list.*
The MMEL might be a STC, not applied by the TC owner.

Summary

The CS-Generic-MMEL for other than complex motor powered aeroplanes will support each applicant for such a MMEL. The right for application is not limited to the TC owner or TC applicant. Future Part 21 does not contain a generic requirement for all other than complex motor powered aeroplanes to demonstrate and certify a MMEL although *21A.15* needs a better wording to avoid misunderstandings. Meanwhile EASA is asked to make the necessary clarifications.

response

Noted.

The elements of the Operational Suitability Data (OSD) are required for type certification 'as applicable' as indicated in the new 21.A.15(d) which is part of Opinion 07/2011. In chapter 5 of the CRD 2009-01 it is explained how OSD applies to non-complex aircraft. It is made clear that for all categories of

aircraft an MMEL is required. However, for non-complex aircraft there will be a generic MMEL that will make it easy for the TC applicant to propose an MMEL for approval by the Agency.

The obligation to establish an MMEL is for the applicant for the TC. However, changes to such MMEL can also be proposed by third parties and approved by the Agency under the change to TC or STC approval process. These third parties can also refer to the generic MMEL, if applicable.

comment 20 comment by: *René Meier, Europe Air Sports*

Europe Air Sports thanks the Agency for the preparation of this NPA. It is very clear to our organisation, that it is a Part-21 related NPA which affects our member indirectly insofar as we operate the products of the manufacturers.

Europe Air Sports fully endorses the comments of PPL/IR.

The Aero-Club of Switzerland agrees with the comments of Europe Air Sports and of PPL/IR, particulary the request of the latter to review the poposed concept behind defects, dispatch, and required equipment in non-commercial operations.

Nevertheless we post serveral comments and ask some questions where we think clarification is needed.

response Noted.

comment 21 comment by: *René Meier, Europe Air Sports*

Executive summary
page 2/77

When we first read the Executive Summary we were shocked: The title of this NPA is "CS Generic MMEL for other than complex motor-powered aeroplanes", the first sentence we had to read: "In accordance with the additonal requirements for air operations for commercial purposes and operation of complex motor-powered aircraft laid down in Annex IV to Article 8 of the Basic Regulation, an operator must establish a Minimum Equipment List (MEL) or equivalent document based on the Master Minimum Equipment List (MMEL), if availble."

This introductionary sentence was not welcomed by our community: Our members think, that MMEL for e.g. CS-25 aircraft will serve as benchmark for MMEL for other than complex motor-powered aircraft. This is not acceptable to us.

The referring to "commercial purposes" puzzled us even more, thinking of the many types of other than complex motor-powered aircraft, mostly used in non-commercial operations by private individuals or in a club environment.

May we kindly ask the Agency not to start the final edition and then the opinion with the text of the present Executive Summary?

We propose as first part of the Summary:

"The possibility of establishing a Minimum Equipment List (MEL) on a voluntary basis for non-commercial operations of other than complex motor-powered aeroplanes has been forseen in the Implementing Rules for Air Operations through article NCO.GEN.155. Basis for such a MEL will be a Master Minimum Equipment List (MMEL) prepared by the TC-holder."

Then the second-last and the last part could be used as proposed by the Agency.

Rationale:
Our introduction clearly indicates that no copy-paste of e.g "CS-25 aeroplanes engaged in CAT operations" provisions is asked for, on the contrary, that MMEL adapted to e.g. ELA2 aircraft are looked for.

The text the Agency proposes confusing and we think, M.A.403 Aircraft defects is not referred to correctly, as the deferral of operational equipment defects by flight crew should be permitted in all non-commercial operations of other than complex motor-powered aircraft, as the pilot in command is at any time responsible for the safe operation of the aircraft.
ion

response

Partially accepted.

CS-Generic-MMEL has been primarily issued to cover the need of commercial operators using other than complex motor-powered aeroplanes to establish an MEL based on an MMEL. CS-Generic-MMEL is the tool for type certificate and supplemental type certificate holders to build this MMEL.

As the applicability of CS-Generic-MMEL is for other than complex motor-powered aeroplanes, therefore CS-23 has been used as benchmark and not CS-25. The reference to complex motor-powered aircraft will be deleted in the first and second paragraphs.

The reference to the Part M will be deleted.

comment

*31* comment by: *René Meier, Europe Air Sports*

A customised list of acronyms would be helpful! Some we know, some are new to us.

Rationale:
Customised lists containing all acronyms of the text proposed save time.

response

Partially accepted

The acronyms will be expanded at their first use.

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| comment | *54* comment by: *Fédération Française Aéronautique*<br><br>The NPA purpose proposes to extend to the other-than-complex motor-powerded aeroplanes processing MMEL by the Type Cetificate holder is an initiative that we appreciate.<br>Indeed, some associations number we represent have expressed need for a guidance to assess if any occurences detected during a flight have an impact on the airworthiness.<br>To meet this need, a MEL would be the most suitable support. However to make account of the diversity of our associations means we consider the drafting of a MEL must be a volontary act, not a obligation.<br>Moreover, in consideration of expressed need should not have a transitional solution for the existing fleet ?<br>In order to allow associations wishing to write a MEL would not be possible to issue a Generic MMEL (EASA, NAAs, Others ?) limited to the ELA1/ELA2 NCO ? |
| response | Not accepted<br><br>As required by Part.ORO.MLR.105 of Regulation 965/2012, and in line with the essential requirement in 8.a.3 of annex IV to the Basic Regulation 216/2008, EU operators conducting commercial operations will have to establish an MEL. For other operators it will be voluntary. There are transitional measures built in the Regulation 965/2012.<br><br>The proposed generic MMEL in CS-GEN-MMEL is applicable to all single engine aircraft other than complex motor powered, including ELA1 and ELA2. |

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| comment | *56* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*<br><br>· *The Swedish Transport Agency, Civil Aviation Department is supporting Option 1 of the NPA 2012-09:*<br><br>***Other-than-complex aeroplanes:***<br>*Create a generic MMEL for non-complex aeroplanes, derived from the CS-MMEL and harmonised with the similar guidance material from foreign authorities.*<br><br>***Very light aeroplanes (VLA), light sport aeroplanes (LSA), very light rotorcraft (VLR), sailplanes, powered sailplanes, balloons and ELA2 airships:***<br>*The current rules for establishing a list of required equipment is sufficient to deal with the question which equipment shall be operative at dispatch. For these aircraft an MMEL is not required.* |
| response | Noted. |

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| comment | 58 comment by: *Julian Scarfe, PPL/IR Europe* |
| | It is confusing to mention "and operation of complex motor-powered aircraft" in the scope of this NPA in the Excecutive Summary. The relevance is to commercial operators of other-than-complex motor-powered aeroplanes. Delete these words in both the first and second paragraphs.<br><br>"In addition, according to Subpart D of Part-M, an aircraft cannot be dispatched with<br>defects unless deferred by authorised certifying staff or when the pilot uses an approved<br>MEL." is not strictly correct.<br><br>"M.A.403 Aircraft defects" also permits dispatch when (b) 2. aircraft defects are defined as being acceptable by the competent authority. Note the good example of many authorities, such as the UK CAA, which permit operational defects to be deferred by flight crew. See UK CAA Airworthiness Communication 2010/12 *The Management and Recording of aircraft defects*. The deferral of operational equipment defects by flight crew should be permitted in all non-commercial operations of other-than-complex motor-powered aeroplanes. |
| response | Accepted.<br><br>The reference to complex motor-powered aircraft will be deleted in the first and second paragraphs.<br><br>The reference to the Part M will be deleted. |

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| comment | 89 comment by: SVFB/SAMA |
| | **2/77 Executive summary**<br>**As long as it remains voluntary** for non-commercial operations non complex motor powered aircraft, we are in support for this NPA.<br><br>We fully support the principle of the MMEL/MEL for CAT.<br>BUT: For CMPA under the considerations and restrictions given below.<br><br>The well designed principle of the MMEL and the provision of a generic MMEL in this NPA makes it easier to create a MEL could have a positive effect on pilots and maintenance alike. A kind of a training effect for the understanding of how the principle of the MEL works will eventually generated.<br>This would mainly benefit all those staff whom intend to upgrade to airlines in the course of their professional career as they get familiar with the principle.<br><br>Will it really reduce the number of fatalities ?<br>Where do we start ?<br><br>We have found from analysing all accident reports in the **" EASA Annual** |

**Safety Recommendations review 2011[1]:**

http://easa.europa.eu/safety-and-research/safety-recommendations.php
://easa.europa.eu/safety-and-research/safety-recommendations.php

Key Numbers of EASA Annual Safety Recommendations Review (ASRR) 2011

| | | Number of acc | fatalities | % |
|---|---|---|---|---|
| I Annual Safety Review 2011 (ASR ) all accidents EASA 1109 | | | 253 | |
| The Annual safety review contains all accidents, the ASSR only a selection. | | | | |
| Annual Safety Recommendations Review 2011 | | 109 | 891 | |
| 6 Total accidents of all Helicopter | | 22 | 54 | 6.06% |
| 5 Total accidents of Aircraft >80 Pax Scheduled | | 38 | 791 | 88.78% |
| 4 Total accidents >30 PAX Scheduled | | 12 | 4 | 0.45% |
| 3 Total accidents of Aircraft >5.7 and < 30 Pax CAT/BA | | | | |
| 2 Total accidents >2250 kg -5700 kg GA | 7 | 21 | 2.36% | |
| 1 Total accidents of all aircraft up to 2250 kg Leisure | | 30 | 21 | 2.36% |
| | | | | |
| Maintenance error driver | | | | |
| | | | | |
| 6 Total maintenance driven all Helicopter Helicopter | | 11 | 9 | 1.01% |
| 5 Total maintenance driven > 80 Pax Scheduled > 80 Pax | | 22 | 269 | 30.19% |
| 4 Total maintenance driven > 30 Pax Scheduled > 30 Pax | | 6 | 4 | 0.45% |
| 3 Total maintenance driven >5.7 <30 Pax 0.00% | | | | |
| 2 Total maintenance driven >2250 kg -5700 kg | | | | 0.00% |
| 1 Total maintenance driven up to 2250 Leisure | | 11 | 9 | 1.01% |

**What we get out of this report is especially,** maintenance as a driver for fatalities for aircraft between 2250 kg to 30 PAX is very low.
The above linked report describes 109 accidents in the period from 1997 up to 2011 which have lead to a **safety recommendation**. This 109 accidents have caused 891 fatalities. Aircraft >5.7 T to 30 Pax have caused 4 fatalities and maintenance was a causal factor or 0.45% of all fatalities. Leisure up to 2250 kg with maintenance as a driver for fatalities was 9 or 1.01%.

From this we conclude that any additional administrative burden caused by more regulation, surveillance or processes for the segment up to 30 PAX needs to be tested for it's efficiency before it find its way into an implementing rule. Considering today's low level of competitiveness of the European Economy it should furthermore be tested for a any negative or positive cost/earnings effect for the industry. If negative it should be deleted.

Furthermore we are of the opinion that the Basic regulation should be adapted accordingly to allow simpler regulation for all aircraft up to 30 PAX.

Even if the MMEL concept is really well designed we propose to leave it optional, that means, if the manufacturer sees a benefit in having a MMEL he shall go ahead with the concept. In this case, it's application, seen as an advantage by the manufacturer, would then be mandatory along the guidelines of this NPA 2010-10.

In summary: for NON CAT or NON CMPA our opinion is, that following several

[1] We have taken this report because only with this report it was possible to find access to each individual AAIB report, a very time consuming exercise. EASA is not providing data in the annual accident review to get access to the AAIB reports nor does it provide direct access to it, a fact which makes it impossible to learn from others quickly.

communications by EU to make regulation proportionate and simple and as well along the mandate given to the subgroup M and mainly the strategic group M, the mandatory MMEL should be restricted to CAT and/or CMPA unless the manufacturer on his own takes the OPTION to establish a MMEL for such airplanes and operations.
If the basic regulation or the definition of commercial purposes seems to dictate a MMEL then they are no proportionate and against the general directives of the EU for proportionate regulation and they are wrong an should consequently be changed.

response

Thank you for your analysis of accident data. This shows indeed that maintenance is not identified as a major causal factor for accidents in the past 1,5 decade. However one should be careful in transferring this figure to accidents related to MEL (or the lack of MEL). The MEL is a means to dispatch in a controlled manner with certain equipment inoperative. The safety benefit is that the assessment whether a flight can be conducted safely with certain equipment inoperative is made by those who are competent in the design and operation of the aircraft and outside the time pressure which usually applies at the moment of dispatch. This safety benefit is not easy to measure in hard figures and the taxonomy for classifying accidents or incidents may not always be appropriate to do statistical analyses of MEL related events.
On the other side the Agency has done its utmost to limit the burden for manufacturers of non-complex aircraft within the current legal framework as provided by the Basic Regulation. As you know, the basic regulation is established through a political process involving the European Council and Parliament. The Basic Regulation is clear in requiring an MEL for commercial operations and operations of complex motor-powered aircraft (Annex IV point 8.a.3). It also makes clear that for any operation the MEL is the only tool to allow dispatch with inoperative required equipment (Annex IV point 2.a.3(iii)). The MEL must be based on the MMEL, which is therefore required for all aircraft that may be operated commercially. The CS-GEN-MMEL is issued by the Agency to help the manufacturers of small aeroplanes establishing an MMEL in the easiest possible way. For VLA, LSA, VLR, sailplanes, powered sailplanes, balloons and ELA2 airships the burden is even zero, as no MMEL is required to be established by the manufacturer. We therefore consider that the CS-GEN-MMEL provides for the best possible implementation of the policy to have proportionate rules for general aviation.
Finally, once an MMEL is available either from the manufacturer or through CS-MMEL the burden for the owner/operator to establish an MEL can be close to zero, depending on the level of customisation.

**A. Explanatory Note** p. 4-6

comment *3* comment by: *Ian HEY*

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| | Paragraph 19 lists VLA, LSA, VLR, sailplanes, powered sailplanes, balloons and ELA2 airships as being not suitable to the application of a Generic MMEL. In addition there are many ELA and other light aircraft in the CS23 design standard category which are also not suited to the application of a Generic MMEL, and to which the application of the requirement to specify the required equipment in the TCDS would also be appropriate.<br>Therefore, it is suggested that all CS23 aircraft have the ability to use the required equipment in the TCDS dispensation, this being determined by the equipment fitted to the aircraft and the use of the aircraft.<br>For example, Appendix IV, Item list, includes various items of air conditioning equipment not fitted to the majority of light aircraft designed to CS23, although such MMEL requirement may be relevant to aircraft so equipped.<br>A significant number the Appendix IV items refer to radio equipment, which is not a required fitment to CS23 aircraft, although it may be required, eg for flight in IMC or in controlled airspace. Therefore the MMEL requirement should be tailored to aircraft use, not aircraft design. |
| response | Noted.<br><br>The CS-23 does not include the concept of 'required equipment' so the solution as indicated in the NPA for CS-22, -VLA, -LSA and –VLR cannot be extended to CS-23 certified aircraft. The Generic MMEL can be used for these aircraft even though many of the items may not be applicable. It is up to the TC applicant to propose applicability of the generic MMEL items for its design.<br><br>For equipment required by operational rules the TC applicant may choose to include them in the MMEL, but if not, they may also be included in the MEL by the operator based on the considerations of the former JAA TGL-26, which will be transposed into the CS-MMEL for complex motor powered aircraft (see NPA 2011-11 and the related CRD) |

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| comment | *9* comment by: *CAA-NL*<br><br>The Netherlands supports the proposals for a CS Generic MMEL for other than complex motor powered aeroplanes. We have one little remark related to a typo; in CS.GEN.MMEL.100 the abbreviation should be (LSA) |
| response | Accepted.<br><br>The typo in CS GEN.MMEL.100 will be corrected. |

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| comment | *22* comment by: *René Meier, Europe Air Sports*<br><br>IV Content of the draft decision<br>11<br>page 5/77<br>We agree with the Agency that MMEL established on the basis of this CS will simplify the task of the TC-holder to prepare these documents. |

16
page 5/77

Europe Air Sports is actively engaged in the process of creating a Part-SPO better fitting the needs of all operators undertaking commercial or non-commercial operations. As there still are many open questions and some urgently required precise definitions still are missing, it is today not clear what the future Part-SPO will look like. We also favour a simultaneous entry into force of Part-NCC, Part-NCO, Part-SPO.

Rationale:
A simultaneous publication of these three parts will avoid confusion.

19
page 6/77
Europe Air Sports agrees with the Agency that MMEL for LSA,VLA, VLR, sailplanes, powered sailplanes, balloons and ELA2 airships could be dealt with in a separate way. After having studied para 19, however, we think the result of such an approach will appear as a MMEL, most probably a relatively simple one, but showing all characteristics of a MMEL.

We also support opinions and comments in favour of a uniform rulemaking for all non-commercial operations of other than complex motor-powered aircraft.

response

Noted.

It is confirmed that for VLA, LSA, VLR, sailplanes, powered sailplanes, balloons and ELA2 airships, no specific MMEL document will need to be issued by the type certificate holder. The operator will be able to use directly the TCDS and the applicable implementing rules (such operational rules, airspace rules or as applicable to the intended kind of operations)to establish an MEL.

comment

*53* comment by: *Pilatus*

§A. IV 19. States
"For these aircraft the Agency considers that the list of required equipment as included in the TCDS, in combination with equipment required for the flight by the associated operational implementing rules, establishes the list of equipment that must be operative for all flights. Other equipment may be inoperative and this constitutes the MMEL. Design approval applicants for these aircraft will therefore not be required to establish an MMEL. This principle is proposed to be included in Guidance Material to Part-21, in relation to the requirement to establish an MMEL."

COMMENT: The TCDS does not necessarily list the required equipment. It may however the included in the KOEL (AFM section 2 limitations). Pilatus suggests therefore rephrasing the above as:
"For these aircraft the Agency considers that the list of required equipment as included in the TCDS or in the Kind of Equipment List (KOEL) of the approved Airplane Manual Flight Section 2 Limitations, in combination with equipment required for the flight by the associated operational implementing rules, establishes the list of equipment (and quantity) that must be operative for the

intended kind of operation (VFR Day, VFR Night, IFR, Flight into Known Icing Conditions). Other equipment may be inoperative and this constitutes the MMEL. Design approval applicants for these aircraft will therefore not be required to establish an MMEL.

response

Partially Accepted.

Paragraph 19 will be rephrased to refer to the approved AFM. The reference to the 'KOEL' is not included as this is a manufacturer specific term that may not be used in other AFM.

comment

*59* comment by: *Julian Scarfe, PPL/IR Europe*

The approach envisaged in para 19 by the Agency for VLA, LSA etc. may be well suited to **all** non-commercial operations of other-than-complex motor-powered aircraft.

response

Not accepted

The CS-23 does not include the concept of 'required equipment' so the solution as indicated in the NPA for CS-22, -VLA, -LSA and –VLR cannot be extended to CS-23 certified aircraft. The Generic MMEL can be used for these aircraft even though many of the items may not be applicable. It is up to the TC applicant to determine applicability of the generic MMEL items to its design.

comment

*90* comment by: SVFB/SAMA

**Pg 4 point 6**: ICAO is very much influenced by EASA and often the same staff is involved in the rule making process of ICAO. Understandably, ICAO is like EASA mainly driven by big aviation and have much more influence then GA and Business Aviation. Therefore the overregulation tendency on aviation below the airline level spills into the ICAO regulation and vice versa.
Of course we support harmonisation but all harmonisation should be back tested for efficiency and proportionality, or as DG General M. Ruete said : sometimes the best regulation would be no regulation at all.
We go even further and support full harmonisation, BUT:
The opportunity must be used not only to fully harmonize, but to reduce volume of regulation and drastically simplify it, knowing that simplification is the ultimate sophistication.
If this opportunity to simplify to the absolute minimum is missed, a harmonization of three different sets of rule (EASA FAA AND TCCA ) for any subject will necessarily need to a more complex harmonised rule in any case, as demonstrated by the present set of EASA rules (based an 27 different MS /31 EASA members set of rules leading in any case to the most complex rule, as the opportunity to simplify to the absolute minimum was or could not be taken up)

In order of the harmonisation to be efficient, it would be necessary to harmonize the processes leading to the MMEL, respectively to the OSD as well

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| | but simplify it in a truly proportionate manner, having in mind the low number of accidents driven by maintenance in the aviation sector up to 30 Pax (see on top) |
| response | Harmonisation of EU and EASA rules with rules of bilateral partners is one of the priorities for EASA. However, due to the difference in legal systems a full harmonisation will not always be possible. In fact, full harmonisation is not always necessary as long as there is mutual recognition of certificates and cooperation between the authorities in the certification processes.<br><br>As explained above, the Agency has done its utmost to simplify the rules and standards related to MMEL and MEL for the general aviation industry. One should also bear in mind that the concept of MMEL/MEL is introduced to bring alleviations to the system; to allow operations that would otherwise not be possible |

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| comment | *91* comment by: SVFB/SAMA<br><br>**Pg5 point 16**<br>The highest safety level possible is not the adequate definition.<br>The appropriate level of safety is that level of safety which satisfy the requested level of safety. (according ISO definition ) The requested level of safety for a nuclear power plant must be the very highest known and available due to it's enormous potential of fatalities and potential sustaining damage . The requested level of safety for an A330 must without any discussion be high but not as high and can differ from the correct level of safety for a King Air 200 which again can be different for a Piper Seneca. |
| response | The certification standards of the aircraft mentioned in the comment are different and lead already to different safety levels for these aircraft. The idea is that within these different safety levels the highest possible and appropriate should always be the aim. |

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| comment | *92* comment by: SVFB/SAMA<br><br>**Pg6 point 19**<br>… it is not well tailored to the real leisure aircraft.<br>We are supporting this statement but would go further and say: not well tailored to ELA1 and not for ELA2 either. The better approach is to not include any aircraft up to 5.7 T unless the manufacturer opts by himself to use the concept. |
| response | As explained above, the Agency has done its utmost to simplify the rules and standards related to MMEL and MEL for the general aviation industry. One should also bear in mind that the concept of MMEL/MEL is introduced to bring alleviations to the system; to allow operations that would otherwise not be possible. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — CS GEN.MMEL.100 Applicability** p. 7

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| comment | *1* comment by: *Hartmut Beil*<br><br>Wording not clear enough:<br><br>It has to be clear that VLA and SLA aircraft are excepted.<br><br>Also it has to be clear that Minimum Equipment Lists only apply to IFR aircraft.<br><br>The minimum equipment list for an aircraft flying VFR is defined in the regulations - VFR instrumentation and in the aircraft handbook.<br><br>The focus of MMELs lies in IFR operations! |
| response | Partially accepted<br><br>The list of aircraft for which this CS is not applicable will be updated.<br><br>The MEL is applicable whatever the type of operations, VFR and IFR. |

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| comment | *6* comment by: *Ian HEY*<br><br>The abreviation for light sport aeroplanes is LSA not SLA (typo)<br><br>The two categories of aircraft in this paragraph does not agree with the motor powered aeroplanes listed in paragraph 19 of the Explanatory Note.<br><br>VLA and LSA are included, however very light rotorcraft (VLR), powered sailplanes and ELA2 airships are omitted. |
| response | Partially accepted.<br><br>The typo will be corrected.<br><br>Very light rotorcraft, powered sailplanes and ELA2 airships are omitted from CS.GEN.MMEL.100 as they are not 'other-than-complex aeroplanes'. |

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| comment | *10* comment by: *Jari LYYTINEN*<br><br>Currently the MEL is published for non-complex aircraft as a part of AFM following a logic that the MEL lists the equipment required to be operational for each specific kind of operation (the minimum required equipment). Any equipment in excess of the minimum may be inoperative as long as not required for intended flight. For example, an operative landing light is required |

in night operations only and it may be inoperative in daylight operations indefinitely. I think there has not been any safety issue with this so far.

The MMEL follows an opposite logic, which would cause a lot of problems for light aviation. For example, if a landing light is inoperative, the aircraft would be grounded after 3 days even for daylight operations unless if the landing light is either rectified or uninstalled and the MEL updated and approved by the authority. It is hard to see any safety benefit in this added burden of uninstalling non-required equipment and updating the MEL each time. We should bear in mind, that even an electrical system is not mandatory in day-VFR.

The basic regulation 8.a.3 (iii) requires that a MEL must be based on MMEL, *if available*, and must not be less restrictive than the MMEL. Light aircraft have high variety of non-mandatory equipment installed, which is impossible to take into account in any MMEL. This is not any problem as long as a MMEL is not available. Therefore, making a generic MMEL available for light aviation would be very harmful. A MMEL should be available only for types for which it has been deemed necessary.

response

Not accepted.

The MMEL follows exactly the same logic as the Kind Of Equipment List given in the AFM. It gives in addition a rectification interval in order to avoid carrying failed items indefinitely. It can even be less restrictive, in some cases, than the minimum equipment required by the Air Operations regulation.

Regarding the rectification interval, it is important to note that for non-commercial operations it is only recommended and not mandatory (see page 15 of 77).

comment *93* comment by: SVFB/SAMA

**Pg7**
**BI CS GEN-MMEL.100**

We propose to leave out ELA 1 and ELA 2 aircraft until the MMEL/MEL process is well established in all aircraft >5700 kg and then depending on a positive rating of the stakeholders of this concept in Group eventually extend it under the restrictions that it's economically beneficial.

response

As explained above, the Agency has done its utmost to simplify the rules and standards related to MMEL and MEL for the general aviation industry. One should also bear in mind that the concept of MMEL/MEL is introduced to bring alleviations to the system; to allow operations that would otherwise not be possible.

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM** p. 7

**EQUIPMENT LIST — CS GEN.MMEL.105 Definitions**

comment *76* comment by: *General Aviation Manufacturers Association / Hennig*

GAMA notes that NPA 2012-09 does not fully consider changes and supplemental type certificates in the text of the document. As an example, CS GEN.MMEL.105 Definitions states that:

"For the purpose of this CS, the following terms mean: 'Applicant': an applicant for, or a holder of, a type certificate (TC), change approval or **supplemental type certificate (STC) [emphasis added]**, applying for the approval by the European Aviation Safety Agency (hereafter referred to as the 'Agency') of the MMEL."

However, when reviewing the Appendix II Preamble, Purpose and Limitations and GM No 1 to 21A.15(d) the reference to STC are not carried through. GAMA has identified proposed changes as shown bold and underlined below.

Appendix II — Preamble, …, Purpose and limitations
This Master Minimum Equipment List (MMEL) is developed by the Type Certificate Holder **or Supplemental Type Certificate Holder** and approved by the Agency.

And,

"GM No 1 to 21A.15(d) Clarification of the term 'as applicable'
The requirement to establish an MMEL is applicable to all aircraft that can be used for commercial operations since the relevant operators must have MELs for those aircraft. So this means that **application** for small aircraft **(CS-23 and CS-27) type-certificate or restricted type-certificate** an MMEL will be required. However, in order to minimise the burden for the TC **and STC** applicants, generic MMELs for other-than-complex aircraft by means of a dedicated CS are established by the Agency. The TC **or STC** applicant for an aircraft **or change to an aircraft** within that category can suffice with identifying the items of the generic MMEL that are appropriate for its design."

GAMA recommend that EASA make these changes in consideration of STC holders.

response Accepted

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — CS GEN.MMEL.107 Status of provided data** p. 7

comment *40* comment by: *DGAC France*

Several issues must be taken into account in this paragraph:

1. Safety related items / Non safety related items

Although the MMEL should only contain safety related items, the development of MMEL have introduced non-safety related items because people were considering that if an item was not indicated in the MEL, it could not be inoperative, even if it was not safety related. Therefore the MMEL have been completed by the TCH with non safety related items to give the end-user the maximum flexibility in operation. Any item not listed in the MMEL cannot be added in the MEL and would create burden for the end user in the case the item has obviously no safety impact.

For clarification of the status of provided data it would be necessary that the agency establishes a CS paragraph to list the CS paragraph and GM applicable to the safety related item and those recommended for the non safety related items.
The Agency shall therefore give (in a GM) a list of acceptable means to ensure the distinction between safety related and non safety related items.
The Agency shall also request that only one of these acceptable means is used for all the concerned items of a given MMEL.

2. Mandatory / non mandatory

The OSD concept introduces the boxes classification criteria which identifies the « mandatory » / « non mandatory » criteria for the end-user, and what is « required from » / « at the request of » TC applicant.

In the specific case of MMEL created by the TC applicant and the MEL developed by each end-user, the concept is not suitable and the wording "mandatory data" for the end user must be explained.

Actually, there is a permanent confusion between the data required from the applicant in order to permit the approbation of a MMEL item on the one hand, and the obligation to copy these data in the approved MEL, when the end-user elects to use these data, on the other hand.
One shall not forget that in the MMEL/MEL system the end user remains free not to use a given item in the MMEL (and therefore whenever the ITEM is inoperative, the fly is forbidden). For instance, the end-user MEL could have strictly no item.
But when the end user decides to include the item in its MEL, he must at least comply with the data given by the TCH in its MMEL.

3. Operational and maintenance procedures considered as recommendations

It is ambiguous to state that the detailed operational and maintenance procedures not necessary during the approval process for safety related item are recommended (for use) only when finalised and published by the applicant.
Therefore DGAC France proposes to modify CS GEN.MMEL.107 as follows:

**"CS GEN.MMEL.107 Status of provided data**
The MMEL and associated operational and maintenance procedures are part of the Operational Suitability Data (OSD), as defined in Part-21, and means are to be provided to clearly distinguish safety related item from the non-safety-related items that may be introduced by the applicant when desired, as well as the mandatory data from the non-mandatory data for safety related items for

the end user. Data provided by the applicant is presented as mandatory or non-mandatory (recommendations) for the end user when this end user has chosen to include the related item in its MEL. Data provided by the applicant for non-safety-related item is non-mandatory (recommended) for the end user.

The MMEL content regarding the safety-related items as defined in CS GEN.MMEL.125 is considered as data required from the applicant and mandatory for the end user when this end-user has chosen to include the related item in its MEL.

response

Partially accepted.

1. Safety related items/Non safety related items

It is clearly stated in GM2 GEN.MMEL.110 that non-safety-related items may be inoperative even if they are not listed. Also, should the applicant elect to add non-safety-related items to the MMEL, this can be done with a very simple justification as explained by CS GEN.MMEL.115.

The definition of non-safety-related items is given in GM1 ORO.MLR.105(a).

2. Mandatory/non mandatory

The GM1 GEN.MMEL.107 will be updated to clarify the notion of 'mandatory data'.

3. Operational and maintenance procedures

The operational and maintenance procedures are considered as non-mandatory. Even though the operator should develop the operational and maintenance procedures for the MEL from the ones given by the TC or STC holder in the MMEL, he can still adapt them to his own operation provided they are accepted at NAA level.

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — CS GEN.MMEL.125 Format and content of the MMEL** p. 7-8

comment *52* comment by: *René Meier, Europe Air Sports*

CS GEN.MMEL.125 Format and content of the MMEL
p 7/77

We think what the Agency proposes is a paper tiger: Thinking of the very low complexity of most aircraft used in sports and recreational aviation asking for a cover page, a control page, a general section, a list of effective pages, a revison history, a preamble, definitons, explanatory notes with scope, extent and purpose of the item list as well as an item list section is really too much.

Rationale:

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| | We operate aircraft like e.g. the Cessna 100 series, the Piper PA-28 family, Tobago's, and other similar aircraft. Of course, it is the job of the TC-holder to prepare such a MMEL, not ours, but as we see it, such a list should not be longer than one page size A4.<br><br>It is not the length of the MMEL which generates safety, this is created by the operational readiness of the minimum equipment installed. On other words: We want to have the MMEL kept as short and as simple possible. |
| response | Not accepted.<br><br>Once issued, the MMEL is a controlled document and needs to be fully tracked. Therefore, the pages required by CS GEN.MMEL.125 are necessary. Nevertheless, to ease the work for the applicant, these pages can be directly copied from the templates given in this CS.<br><br>Regarding the length of the MMEL, the shorter it is, the more the aircraft will be grounded when an item is failed as no relief is available. The longer the MMEL, the more dispatch possibilities are given to the operator while maintaining an equivalent level of safety. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — CS GEN.MMEL.140 Definitions and explanatory notes** p. 8

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| comment | *60* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>It would be more appropriate if the generic MMEL were in fact a generic MEL and were directly applicable by operators and flight crew in non-commercial operations without formality.<br><br>The cost and administrative burden associated with the approval of MELs for non-commercial operators is disproportionate to the safety benefit that this oversight brings. The Agency should be mindful of Guideline 5.2 of the paper European General Aviation Safety Strategy endorsed by the EASA Managment Board.<br><br>G 5.2: Have more confidence in participants to do the right thing, thereby reducing the multiple layering of a priori safety nets, focus more on declarative processes and individual commitment for managing safety, subject to appropriate downstream oversight by the Authority. |
| response | Not accepted.<br><br>For non-commercial operators of other than complex motor-powered aeroplanes, the MEL will only be subject to a notification to the competent authorities. This is in line with the Guideline 5.2. |

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| comment | *85* comment by: *René Meier, Europe Air Sports*<br><br>CS GEN.MMEL.140<br>page 8<br><br>Strict adherence to the this provision create a substantial burden for those having to set-up MMEL's and our organisation has doubts that any increase in safety will be seen in the end.<br><br>Rationale:<br>Safety is not generated by voluminous sets of provisions dealing with it, safety is first of all generated by well-trained, experienced crews, respecting operational limits, acting according to the rules of good airmanship. |
| response | Not accepted.<br><br>The definitions and explanatory notes can be taken directly from the Appendix III with a 'copy-paste'.<br><br>They are necessary for the end-user to correctly understand how to use the MMEL when creating the MEL. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — CS GEN.MMEL.145 Item list** p. 8

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| comment | *7* comment by: *Ian HEY*<br><br>This paragraph does not give the person (or organisation) preparing the MMEL the option to select items in accordance with the specific aeroplane and its fitted equipment and role. It limits selection to aircraft type. This is much too restrictive, and may ground some aircraft without justification. |
| response | Partially accepted.<br><br>CS GEN.MMEL.145 Item list clearly states: 'The MMEL item list is generated by the applicant directly from the generic MMEL by selecting from the list in Appendix IV the items in accordance with their applicability to the aeroplane type.'<br><br>So only the items applicable to the aircraft type need to be selected by the applicant. For an aircraft type with different configurations, the applicant can select all the items applicable to the various configurations and add under each item '(if installed)'. This will be added to the CS for clarification. |

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| comment | *23* comment by: *René Meier, Europe Air Sports* |

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| | CS GEN.MMEL-145 Item list<br>p 8/77<br>BR 216/2008 applies "Flight Manual" (FM), not "Aeroplane Flight Manual" (AFM). Thank you for using AFM.<br><br>Rationale<br>Others also prefer AFM. |
| response | Noted. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix II — Preamble** p. 14-15

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| comment | *24* comment by: *René Meier, Europe Air Sports*<br><br>Utilisation<br>3rd alinea<br>page 14/77<br>We did not find a basis for this provision to become "hard law".<br><br>Rationale<br>In NCO.IDE.A.105 we read about "equipment required for the intended flight". What Agency proposes in the text questioned is something very different.<br><br>5th alinea<br>page 14/77<br>What are "O" and what are "M" procedures? We propose to add here already "O" for "operations procedures" and "M" for "maintenance procedures" as explanatory text.<br><br>Rationale<br>This would ease the understanding of the paragraph.<br><br>In addition we wish to stress that we see no need procedures as proposed by the Agency.<br><br>Rationale<br>In the NCO-world the pilot in command is fully in charge of the safe operation of the aircraft at any time, he was trained to take required measures when necessary, so no development of procedures as the Ageny proposes is required. |
| response | Partially accepted.<br><br>Utilisation, 3rd alinea page 14/77: the sentence 'Also all items installed on the aeroplane, except for non-safety related items, which are in excess of what is required and are not listed on the MMEL, shall be operative.' will be deleted to avoid any confusion. Even though the Air Operations regulation always mention equipment 'required for the intended flight', the Part M is more restrictive and requires all equipment to be operative unless deferred by a CRS, or by the |

approved MEL, or accepted as being inoperative by the competent authority.

Utilisation, 5th alinea page 14/77: The sentence will be deleted.

Need of procedures: whatever the type of operation, CAT, SPO or NCO, the pilot in command is fully in charge of the safe operation of the aircraft at any time and is trained to fulfil this objective. Nevertheless, departing with some failed equipment may imply that the pilot in command will have to use procedures which are not part of the standard checklists/procedures he is used to. To ensure an equivalent level of safety, these alternate procedures need to be developed and written.

comment

*61* comment by: *Julian Scarfe, PPL/IR Europe*

In the 'utilisation' section

*It is important to remember that all items related to*
*airworthiness and operational regulations of the aeroplane not listed on the MMEL shall*
*be operative. Also all items installed on the aeroplane, except for non-safety related*
*items, which are in excess of what is required and are not listed on the MMEL, shall be*
*operative.*

There is no basis for this in law. The Implementing Rule states:

*NCO.IDE.A.105 Minimum equipment for flight*

*A flight shall not be commenced when any of the aeroplane instruments, items of equipment or functions* ***required for the intended flight*** *are inoperative or missing, unless:*
*(a) the aeroplane is operated in accordance with the MEL, if established; or*
*(b) the aeroplane is subject to a permit to fly issued in accordance with the applicable airworthiness requirements.*

Therefore, any instruments, items of equipment or functions not required for the intended flight may be inoperative or missing, unless their serviceability is required by other IRs.

response

Partially accepted.

The sentence 'Also all items installed on the aeroplane, except for non-safety related items, which are in excess of what is required and are not listed on the MMEL, shall be operative.' will be deleted to avoid any confusion. Even though the Air Operations regulation always mention equipment 'required for the intended flight', the Part M is more restrictive and requires all equipment to be operative unless deferred by a CRS, or by the approved MEL, or accepted as being inoperative by the competent authority.

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| comment | *78* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>*Where O and M procedures are listed in the MMEL it is the operator's responsibility to develop them with respect to the numbering system used by the aeroplane manufacturer. These procedures should be developed in accordance with the air operations regulations and continuing airworthiness regulations (Regulation (EC) No 2042/2003), using data provided by the aeroplane manufacturer's flight manual, maintenance manuals, recommendations or service information.*<br><br>This is entirely inappropriate for NCO. For NCO, the pilot-in-command should consider appropriate mitigating measures. No development or establishment of "procedures" is necessary for NCO. |
| response | Not accepted.<br><br>Whatever the type of operation, CAT, SPO or NCO, the pilot in command is fully in charge of the safe operation of the aircraft at any time and is trained to fulfil this objective. Nevertheless, departing with some failed equipment may imply that the pilot in command will have to use procedures which are not part of the standard checklists/procedures he is used to. To ensure an equivalent level of safety, these alternate procedures need to be developed and written. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix III — Definitions and explanatory notes** p. 16-19

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| comment | *5* comment by: *Ian HEY*<br><br>This NPA assumes throughout that all systems listed in Appendix IV are applicable to all aircraft, and does not explicitly state that if any system is not fitted an entry in the MMEL may be omitted. A statement to this effect must be included, or many aircraft will never be permitted to fly.<br><br>If this comment is addressed, most (but not all) of my comments about Appendix IV cease to be relevant. |
| response | Partially accepted.<br><br>CS GEN.MMEL.145 Item list clearly states: 'The MMEL item list is generated by the applicant directly from the generic MMEL by selecting from the list in Appendix IV the items in accordance with their applicability to the aeroplane |

type.'

So only the items applicable to the aircraft type need to be selected by the applicant. For an aircraft type with different configurations, the applicant can select all the items applicable to the various configurations and add under each item '(if installed)'. This will be added to the CS for clarification.

comment *25* comment by: *René Meier, Europe Air Sports*

(e) Definitions for the purpose of this MMEL

Thank your for keeping "Aeroplane Flight Manual"!

response Noted.

comment *41* comment by: *DGAC France*

Page 18 title for (e)

Title should be "Definitions for the purpose of this CS" (or for this CS-GENERIC-MMEL) instead of "Definitions for the purpose of this MMEL".

response Not accepted.

These definitions are part of the section 'Definitions and explanatory notes' to be included in the MMEL.

The definitions for the purpose of the CS are in CS GEN.MMEL.105 (the CS goes up to page 8 of 77).

comment *42* comment by: *DGAC France*

Page 18 & 19 content of (e)

a) DGAC France recommends harmonization of definitions between CS-GEN – MMEL and CS-MMEL, unless there is a justification, which shall then be explained.
See "ITEM" definition as an example.

This comment impacts also GM1 CS-MMEL 105 (h).

b) In order to have the most common part on definition, DGAC kindly asks EASA to double-check if definitions within CS-MMEL would be pertinent also in CS-GEN-MMEL and therefore add them in CS-GEN-MMEL if necessary.

response | Accepted.

The definitions will be harmonized with the ones from the CS-MMEL.

comment | *43* comment by: *DGAC France*

Page 18 & 19 content of (e)

DGAC suggests to insert a definition for the "intended flight route", taken from page 60, Item 34-51-1A, in 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."

This will allow not to repeat the same Note for each item concerned.

response | Accepted.

A definition will be added.

comment | *44* comment by: *DGAC France*

definition of "Considered inoperative"

DGAC France disagrees on several points with the interpretation and consequences of the use of "considered inoperative":

The text proposed is apparently coming from the FAA PL 25. This PL is old and does not correspond to the use of "considered inoperative" as reflected in several JOEB MMELs.

The second sentence "the item shall not be used or operated until the original deferred item is repaired" shall be deleted, since this kind of obligation is not part of a definition.

For the rest of the text it is true that you apply all the associated conditions: limitations, (o), (m) …as though the considered inoperative item were inoperative.

But you can not, without safety demonstration, decide in advance that this "considered inoperative" item shall not be used. Should it fail in flight you have already applied all the associated conditions.

It is proposed to deal with this situation in the "Multiple inoperative items" paragraph, as a specific situation.

When an inoperative item refers to another " considered inoperative item, the conditions associated to the first deferred item would specify, based on a safety assessment, if the considered inoperative item" can be used or not and need or not to be deactivated, shut down, placarded….

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| | This comment seems to be consistent with the situation of modern MMELs. |
| response | Not accepted.<br><br>The definition is harmonised with the one from the CS-MMEL. |

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| comment | *45* comment by: *DGAC France*<br><br><u>definition of "visible moisture"</u><br><br>DGAC France recommends adding "mist" in the examples given of "visible moisture". |
| response | Accepted.<br><br>'Mist' will be added to the definition. |

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| comment | *63* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>There is no rational basis for non-commercial specialised operations to be subject to different requirements from NCO as regards minimum equipment (unless the requirements concern equipment pertinent to the specialised operation itself, which for a *Generic* MMEL is never the case).<br><br>The Agency should clearly state what criteria have been used to develop the detail relevant to CAT, SPO and NCO. What is the conceptual basis for the difference? How does it relate to the different target levels of safety associated with each type of operation?<br><br>Note: where we use 'NCO" in subsequent comments, we mean *all* non-commercial operations, whether specialised or not. |
| response | Not accepted.<br><br>There are three distinctive Parts for operations of other than complex motor-powered aeroplanes: Part CAT, Part SPO and Part NCO. In order to help the end-user selecting the appropriate item corresponding to the relevant type of operation, the three types have been introduced in the item list. Nevertheless, for most of the items, NCO and SPO share the same relief. |

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| comment | *79* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>In the definitions:<br><br>*'Icing conditions' means an atmospheric environment that may cause ice to* |

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| | *form*<br>*on the aeroplane or in the engine(s) as defined in the AFM. In the absence of any*<br>*AFM limitations, icing conditions should be taken as visible moisture or precipitation,*<br>*when the OAT is less than +5°C.*<br><br>It is inappropriate to redefine here terms that are more broadly applicable in the regulations. Omit this.<br><br>From a technical standpoint, the temperature reduction associated with aerodynamic effects on lifting surfaces is approximately proportional to the wing loading, which for light aircraft is typically a factor of 10 lower than large CS-25 aircraft. The 5°C margin is therefore inappropriate. |
| response | Accepted.<br><br>The sentence 'In the absence of any AFM limitations, icing conditions should be taken as visible moisture or precipitation, when the OAT is less than +5°C.' will be deleted. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 21 — Air conditioning** p. 20-23

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| comment | *46* comment by: *DGAC France*<br><br><u>Appendix IV item list</u><br><br>This is an indicative GENERIC list for the applicant. Therefore, it might be better to add a note specifying that this list is generic and does not pretend to be exhaustive.<br><br>They are new equipments requested by space regulation or ops regulation outside of the European single sky which need to be in the operators MEL.<br><br>For that you need to have an entry in EASA approved MMEL. Is it clear that the necessary complements to this generic list will be added by the applicants using individually the CS GEN MMEL 115.<br>It might also be possible that the Agency completes this GENERIC list each time it appears necessary. |
| response | Partially accepted.<br><br>CS.GEN.MMEL.115 and CS.GE.MMEL.145 clearly explain how to select the items from the item list in Appendix IV and how to introduce new items not listed in the item list.<br><br>Reference to the Appendix IV will be added in CS.GEN.MMEL.115. |

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| comment | *47* comment by: *DGAC France*<br><br>Page 23.<br><br>In "additional considerations", DGAC proposes to add the following :<br><br>For unpressurised flight, when oxygen available on board is not sufficient or Oxygen is not used, the flight shall be performed at or below 10 000 ft MSL. |
| response | Accepted.<br><br>This will be added to the 'Additional Considerations'. |

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| comment | *64* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>21-30-1B appears to be mislabelled as 21-20-2B |
| response | Accepted.<br><br>Item 21-30-2B will be labelled 21-30-1B. |

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| comment | *77* comment by: *General Aviation Manufacturers Association / Hennig*<br><br>GAMA notes that EASA has used ATA chapters for the purpose of Appendix IV. It should be noted that there are two other formats including iSpec 2200 and GAMA Publication 2 (see, http://www.gama.aero/files/gama_specification_2_maintdata_january_1978_pdf_498caab54e.pdf).<br><br>EASA may want to consider referencing these document formats for the item list. |
| response | Not accepted.<br><br>This CS doesn't promote specifically any format for the MMEL. The ATA chapters presentation has been used as it is the most common one. Nevertheless, the applicant can propose his own format as explained in the CS GEN.MMEL.145: 'Consistency of terminology and identification means should be maintained, as far as possible, with the existing aeroplane documentation.' |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 23 —** p. 26-28

**Communications**

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| comment | *4* comment by: *Ian HEY*<br><br>All comments below refer to NCO, but may also be valid for SPO/CAT.<br><br>All of this section does not address non radio aircraft, which remain legal!, or to flights by radio equipped aircraft which do not require the use of radio for the flight to be undertaken<br><br>23-10-2 Audio selector panels<br>The NPA states that any in excess of one for each flight crew member may be inoperative or missing. This does not cater for the case where this equipment is not fitted. This case must be included, or all aircraft not so fitted will be grounded!<br><br>23-10-3 Flight crew compartment speakers<br>The NPA does not address the case where such equipment is not fitted.<br><br>23-10-4 Handheld microphones<br>The NPA does not address the case where such equipment is not fitted, and not required<br><br>23-10-5 Stick/yoke mounted PTT switches<br>This requirement ignores the fact that for many flights radio is not a requirement, and therefore mandates an equipment level not required for the flight to be undertaken. This would also preclude flight in non radio aircraft, and in aircraft where a PTT switch is fitted, but the radio is temporarily or permanently not present, and/or a hand held microphone is not available/cannot be used. |
| response | Not accepted<br><br>Either a given aircraft type is not fitted with communication means and this ATA chapter does not need to appear in the MMEL. Or a given aircraft type has different versions with different equipment fitted on-board. In that case, the applicant can indicate '(if installed)' for each item picked from the ATA 23 list. |

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| comment | *26* comment by: *René Meier, Europe Air Sports*<br><br>23-10-3 Flight crew compartment speakers<br>23-10-3A (SPO/NCO)<br>The Agency proposes "may be inoperative provided one headset is operative and used by each flight crew member."<br><br>Question:<br>Should this mean that all flight crew members use the one and only available headset? |

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| | Probably the formula "May be inoperative provided alternate means are available and used for ensuring the required communication."<br><br>Rationale<br>There are many flight executed in the NCO framework not needing headsets, nor microphones, nor loudspeakers. |
| response | Accepted.<br><br>This provision will be modified accordingly. |

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| comment | *65* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>23-10-1 It is difficult to envisage circumstances in which headsets become part of the equipment required by the TC. Headsets are usually portable equipment, and therefore required by operating rules, not airworthiness considerations. |
| response | Not accepted.<br><br>The MMEL does not deal only with equipment required by the airworthiness rules but also by the operating rules. |

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| comment | *66* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>23-10-2B For NCO, the restriction to VFR (a) is not necessary. |
| response | Not accepted<br><br>When an audio selector is installed and is failed at dispatch, only VFR flights can be authorised, whatever the type of operation. The level of safety would not be acceptable for non VFR flights. |

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| comment | *67* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>23-10-3A, 23-10-4 Many NCO require neither headset nor microphones, nor speakers. Replace with:<br>"May be inoperative provided alternate means are available and used for ensuring required communication." |
| response | Accepted.<br><br>This provision will be modified accordingly |

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| comment | *68* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>*23-10-2 Audio selection panels: There may be components of the audio control panel inoperative; however, the panel is still adequate for flight. The item does not address sub-components, and it is considered the pilot-in-command's decision to dispatch with necessary equipment operative.*<br><br>The rationale expressed in this note ably captures the rationale that should be applied to all NCO. |
| response | Noted.<br><br>This idea is already embedded in Part NCO.IDE.A.105:<br><br>A flight shall not be commenced when any of the aeroplane instruments, items of equipment or functions required for the intended flight are inoperative or missing, unless […] |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 25 — Equipment and furnishings** p. 30-38

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| comment | *27* comment by: *René Meier, Europe Air Sports*<br><br>page 36/77<br>25-63-3 Personal locator beacons<br>25-6-3A (NCO)<br><br>Thank you for including PLBs!<br><br>Question:<br>Do manufacturers have to include in a MMEL what clearly is considered to be a "personal device" not linked with an airframe? |
| response | Noted.<br><br>Part NCO.IDE.A.170 mandates an ELT to be carried on board. For aircraft with a seating configuration of six or less, this ELT can be a PLB. If a PLB is the only ELT carried on board, in order to dispatch with it failed, it must be listed on the MMEL. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 28 —** p. 42

**Fuel**

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| comment | *28* comment by: *René Meier, Europe Air Sports*<br><br>page 42/77<br>28-40-1 Fuel quantity indication<br>28-40-1A<br><br>Question:<br>Is a visual check before take-off an established procedure, when part of the check-list to be followed? |
| response | Noted.<br><br>The visual check of fuel quantity before departure should be part of the established procedure, but it should also be complemented by a quantitative verification that the fuel quantity on-board meets the regulatory requirements for flight. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 30 — Ice & rain protection** p. 43-45

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| comment | *12* comment by: *UK CAA*<br><br>**Page No:** 43<br><br>**Paragraph No:** 30-00-1, Inertial Separators<br><br>**Comment:** CS-MMEL and TGL26 contain entries for the position indicating system only. Is it the intention of this entry to provide relief for the separators or the position indicating system, or both?<br><br>**Justification:** Clarity. |
| response | Accepted.<br><br>It is indeed for the position indicating system. It will be added. |

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| comment | *13* comment by: *UK CAA*<br><br>**Page No:** 43 - 44 |

**Paragraph No:** 30-31-1, Pitot Heating System

**Comment:** There appears to be no difference in the provisos between -1A and -1B, whereas
-1A requires one system to be operative with Rectification Interval 'B' but -1B allows all to be inoperative with Rectification Interval 'B'.

**Justification:** Clarity.

response

Not accepted.

Item -1A allows IFR flights in VMC conditions, whereas item -1B only allows VFR flights.

Item -1A requires 1 pitot heating system to be operative in case a pilot conducting an IFR flight in VMC conditions would face IMC conditions that were not forecasted and could not be avoided.

comment *14* comment by: *UK CAA*

**Page No:** 44 - 45

**Paragraph No:** 30-31-3, Static Port Heating System

**Comment:** Items -3A (CAT) and -3C (NCO/SPO) are identical and could be combined, subject to consideration of the following comment. Item -3B is more restrictive than -3A because it requires one system to be operative (versus 0 in -3A) and the Rectification Interval is 'B' (versus 'C' in -3A). However, the provisos are the same. Is the intention to have a longer Rectification Interval if one system is operative?

**Justification:** Clarity.

response

Not accepted.

Item -3A only allows VFR flights whereas item -3B authorises IFR flights in VMC conditions. This is why it is more restrictive.

comment *69* comment by: *Julian Scarfe, PPL/IR Europe*

The phrase used in the ERs and IRs is "known or expected icing conditions". It should replace "known or forecasted [sic] icing conditions" throughout.

response

Not accepted.

The wording is harmonised with CS-MMEL.

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| comment | *70* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>30-31-1C: The operational requirements for pitot heat are set out in NCO.IDE.A.120.<br>Pitot heat is not required for night VMC, hence delete 'day'. |
| response | Accepted.<br><br>'Day' will be deleted. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 32 — Landing gear** p. 47

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| comment | *29* comment by: *René Meier, Europe Air Sports*<br><br>page 47/77<br>32-30-1 Parking brake<br>Additional considerations<br><br>Question:<br>Would it not be better to clearly write what a "heavier aeroplane" is, e.g. using "CS" numbers? |
| response | Accepted.<br><br>The Additional considerations will be modified. This item is only applicable to aeroplanes for which the parking brake is not required by certification. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 33 — Lights** p. 48-50

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| comment | *15* comment by: *UK CAA*<br><br>**Page No:** 49<br><br>**Paragraph No:** 33-42-1, Anti-Collision Light System<br><br>**Comment:** Item -1A (CAT), the relief appears to be too simplistic. The statement "Any in excess of one may be inoperative" seems to be related to individual fuselage (beacon/strobe) and white strobe lights but the relief, as |

written, is actually for a complete system. Is this intended?

Also, it appears that for item –1B (NCO/SPO), all lights must be operative for night operations. Is this intended?

**Justification:** Clarity.

response Noted.

Item -1A: The relief is for each system certified as an anti-collision system, not for the individual lights.

Item -1B: All lights must be operative for night operation.

comment *16* comment by: *UK CAA*

**Page No:** 49

**Paragraph No:** 33-43-1, Wing Illumination Light

**Comment:** Relief for daylight operations, as provided by CS-MMEL, has no restriction on flight in icing conditions. Why has such a restriction been added to the Generic MMEL?

**Justification:** Clarity.

response Accepted.

Restriction on flight in icing condition will be deleted.

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 34 — Navigation** p. 51-64

comment *17* comment by: *UK CAA*

**Page No:** 52

**Paragraph No:** 34-10-3, Turn & Slip Indicator

**Comment:** Sub-item -1D makes reference to 'inclinometer'. This should be 'turn indication'.

**Justification:** Correction to reference.

response Accepted.

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| | Correction will be made accordingly. |

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| comment | *18* comment by: *UK CAA*<br><br>**Page No:** 59<br><br>**Paragraph No:** 34-43-1, Class B TAWS<br><br>**Comment:** The first relief allows the complete system to be inoperative for 120 calendar days. However, individual functions may only be inoperative for much more limited periods, e.g. 3 days, 10 days. This is not understood.<br><br>**Justification:** Clarity. |
| response | Noted.<br><br>When the complete system is inoperative and not used there is no safety concern as the procedures will not rely on it. It is as if it was not installed.<br><br>When one of the individual function is inoperative, the system is still operative but in a degraded mode. The crew may, by mistake, rely on the failed mode. Hence the limited rectification interval. |

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| comment | *30* comment by: *René Meier, Europe Air Sports*<br><br>page 54/77<br>34-15-1 Altitude alerting system<br>Second paragraph: "...operations requiring a specific approval"<br><br>Question:<br>Are special approvals according Part-SPA meant?<br><br>After having read ATA 34 chapter we are of the opinion that it is not appropriate to the NCO world!<br><br>Rationale<br>In our view any instruments may be inoperative if not needed for the safe execution of the intended flight. |
| response | Not accepted.<br><br>Yes, special approval means operation under Part SPA.<br><br>According to Part-M M.A.403, only an authorised certifying staff, or a pilot using the MEL, or the competent authority can decide whether the failed instrument affects or not the safety of the intended flight. In case of dispatch through the MEL for an operator whose competent authority doesn't give any guidance, if the item is not in the MEL dispatch will not be possible. |

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| comment | *48* comment by: *DGAC France*<br><br>Page 60 in 34-51-1A<br><br>DGAC France recommends changing "intended route" into "intended flight route".<br><br>After the introduction of the definition for the "intended flight route" in the definition paragraph, as proposed in a previous DGAC comment, the Note can be deleted.<br><br>The same wording can then be used all along ATA 34 , where applicable. |
| response | Accepted.<br><br>Modification will be done accordingly. |

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| comment | *71* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>34-10-1B, 34-10-2C should be "the pilot's station" for NCO -- no NCO require two pilots. |
| response | Not accepted.<br><br>For certain SPO operations, the operator may elect to operate with two pilots. |

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| comment | *72* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>The entire approach to instruments is inappropriate, particularly to NCO. The operating rules NCO.IDE.A.120 (VFR) or NCO.IDE.A.125 (IFR) set out the requirements for instruments. Dispatch should be permitted provided that the operative instruments meet those requirements. i.e.<br><br>"Any instruments may be inoperative, provided the operational requirements of<br>NCO.IDE.A.120 (VFR) or NCO.IDE.A.125 (IFR) are met." |
| response | Not accepted.<br><br>MMEL items related to instruments are mostly in ATA 34 but may be also found in different ATA chapters, therefore, is inappropriate to have a generic statement as proposed. Moreover, the guidance propose in Book 2 for NCO operations is already based on the content of Part-NCO, giving relief for items in excess of those required and appropriate dispatch conditions for those required |

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| comment | *73* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>34-41-1 should not differentiate between pressurised and unpressurised for NCO.<br>For NCO a weather detection system is never mandated. |
| response | Accepted<br><br>The items will be tailored for CAT and NCO. |

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| comment | *74* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>34-43-1A appears to be a superset of 34-43-1-* indicating that the entire system may be inop for 120 days.<br><br>For operations where TAWS is not mandatory, it should be permitted to be inoperative indefinitely. In other words for NCO, TAWS should only be required for turbine-powered aeroplanes certified for a maximum passenger seating configuration of more than nine. |
| response | Not accepted<br><br>The idea is indeed not to carry indefinitely inoperative items, whatever the type of operation. |

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| comment | *75* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>34-51-1A/B appears to be significantly more permissive for CAT than NCO/SPO.<br><br>Replace with:<br><br>"For NCO/SPO, any navigation systems may be inoperative, provided the navigation systems required by NCO.IDE.A.195 are available." |
| response | Accepted.<br><br>Item 34-51-1B will be rephrased. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 35 — Oxygen** p. 65-66

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| comment | *32* comment by: *René Meier, Europe Air Sports*<br><br>page 66/77<br>35-20-1 Passenger oxygen system (Supplemental oxygen)<br><br>We think the first element of "(5) Remarks or exceptions" should not be mentioned.<br><br>Rationale:<br>There exist so many Suppental oxygen remarks/exceptions/observations in the various set of rules and regulations surely creating confusion.<br><br>We propose: Considering the nature of the intended flight the system delivering supplemental oxygen for passengers may be inoperative. Passengers must be appropriately briefed. |
| response | Not accepted<br><br>According to Part NCO, supplemental oxygen is required for flights above 10 000 Ft. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 38 — Water/Waste** p. 67

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| comment | *33* comment by: *René Meier, Europe Air Sports*<br><br>page 67/77<br>38-30-2 Pilot relief tube<br><br>Remark:<br>The sentence "May be missing or inoperative provided it is not used." clearly demonstates the dilemma of any MMEL: Thinking of "other than complex motor-powered aircraft" the formula "Any equipment not used during the intended flight may be missing or inoperative" is the shortest possible form of any MMEL |
| response | Noted. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — APPENDICES — Appendix IV — Item list — ATA 52 — Doors** p. 70

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| comment | *34* comment by: *René Meier, Europe Air Sports*<br><br>page 70/77<br>52-10-1 Door key locks<br><br>Remark 1:<br>Locked doors are not only a question of safety in flight, but also of safety on ground, of property protection, and of prevention of misuse of the objects.<br><br>Remark 2:<br>"door(s) closed and latched" or appropriate, appear on all checklists we know, so this (b) is "SOP" and need not be mentioned in an MMEL in our view.<br><br>Remark 2:<br>Is there a common understanding what "locked", "unlocked", "closed", "latched", "secured" means? We have some doubts. |
| response | Accepted<br><br>The item will be simplified. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — GUIDANCE MATERIAL TO CS-GENERIC-MMEL — GM1 GEN.MMEL.107 Status of provided data** p. 73

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| comment | *19* comment by: *UK CAA*<br><br>**Page No:** 73<br><br>**Paragraph No:** GM1 GEN.MMEL.107(a), Status of provided data<br><br>**Comment:** The first part of this paragraph is written as a statement of fact: "…..means that the MEL is not less restrictive than…..". This should be re-written as an instruction.<br><br>**Justification:** Clarity.<br><br>**Proposed Text:** "…..means that the MEL may not be less restrictive than…..". |
| response | Accepted.<br><br>The sentence will be re-written. |

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| comment | *49* comment by: *DGAC France*<br><br>About GM1 GEN.MMEL 107 and GM2 GEN.MMEL 110. |

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| | In GM1 GEN.MMEL.107, the statement "MMEL is mandatory data" is only true for the safety related item.<br><br>Without this precision it becomes contradictory with the GM2 GEN.MMEL 110 which admit the introduction of non safety related item in the MMEL.<br>This comment is complementary to DGAC Comments linked to CS.MMEL.107 above.<br><br>DGAC France would suggest to simplify the sentence with the use of GM1 CS-MMEL-107.<br><br>There is a need for a distinction. There is a need for a list of CS and GM mandatory for safety related items and those recommended for non safety related items.<br>There is a need for a clarification of the meaning of "mandatory in the MEL" |
| response | Not accepted.<br><br>There is no contradiction between GM1 GEN.MMEL.107 and GM2 GEN.MMEL.110. Should the applicant elect to introduce non-safety-related items in the MMEL, the operator will have to select these items 'as is' in the MEL if he wishes to get relief for them. Of course these items can be marked (if installed).<br><br>Now as it is not mandatory for the applicant to introduce any non-safety-related item at MMEL level, the GM2 GEN.MMEL.110 clarifies their status when inoperative. |

**B. Draft rules — I. Draft decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST — GUIDANCE MATERIAL TO CS-GENERIC-MMEL — GM2 GEN.MMEL.110 MMEL purpose** p. 73

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| comment | *80* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>That non-safety-related items are defined in GM1 ORO.MLR.105(a), a part not applicable to NCO suggests that this regulatory approach is suited to large organisations, not simple NCO involving owner-operators. |
| response | Not accepted.<br><br>The reference to GM1 ORO.MLR.105(a) is only to find the definition of non-safety-related items. Even though this part is not applicable to NCO, the definition is suited to any type of aircraft. |

**B. Draft rules — II. Draft decision AMC/GM to Part-21** p. 74

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| comment | *35* comment by: *René Meier, Europe Air Sports*<br><br>page 74/77<br>GM No 1 to 21.A.15(d)<br>Clarification of the term "as applicable"<br><br>Remark:<br>Not being lucky with today's definition of commercial operations we do not support the wording of the Agency: Today, all aircraft can be used for commercial operations. In our view, the operation of the aircraft has to be separated from the purpose of the undertaking operating the aircraft.<br><br>Question:<br>What is a "small aircraft"?<br><br>As we read the text, we believe to understand that for all aircraft an MMEL is required, the forms may be different. As a matter of fact today we do not find a profit in the inclusion of "MMEL"-elements in the TCDS. We propose that MMEL is keep for all aircraft and that the content is adjusted to the aircraft the MMEL is established for. |
| response | Noted.<br><br>The definition of commercial operations is not subject of this NPA.<br><br>The term 'small aircraft' is not a formal term but used in this context to distinguish from 'complex motor powered aircraft'<br><br>The idea was to keep things as simple as possible for the low range of general aviation aircraft (CS-22, CS-LSA, CS-VLA, CS-VLR, balloons). Imposing a formal MMEL in all cases may not be proportionate to the number of items in such MMEL. Therefore, the Agency considers that inclusion in the TCDS, or a reference to the AFM is the best way to address the issue for these categories of aircraft. |

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| comment | *55* comment by: *General Aviation Manufacturers Association / Hennig*<br><br>Attachment #2<br><br>The General Aviation Manufacturers Association (GAMA) appreciates the development by EASA of a generic MMEL for other-than-complex motor powered airplanes to provide a simplified approach to the development of an MMEL document or for those Type Certificate holders who elect to identify the items of the generic MMEL that are appropriate for a specific aircraft design. Two GAMA member companies were involved with the development of the draft CS. |

EASA will recall that in 2009 the agency held specific discussion about the applicability of the Operational Suitability Data (OSD) requirements to other-than-complex motor powered airplanes (see attached GAMA09-62 summary of meeting). The way forward agreed that the way forward be that "1. A generic MMEL [be] created for a class of aircraft." and that "2. [...] the manufacturer has the option to create an MMEL, but would not be required" by the agency to develop, or in the context of the generic MMEL document identify items in the generic MMEL that are appropriate to its design.

GAMA requests that EASA clarify the applicability of the generic MMEL document including GM No 1 to 21A.15(d) (that is, "Clarification of the term 'as applicable'") to ensure that even identifying items in the generic MMEL document is also a voluntary step for the type certificate holder.

As EASA knows, the MMEL serves the purpose of being an alleviating document based on history of use as well as numerous regulatory references, such as:

- OPS 1.030 "...a minimum equipment list... shall be based upon, but no less restrictive than, the relevant master minimum equipment list **(MMEL) (if this exists) [emphasis added]**";
- EASA Opinion to the Commission for 21A.15 states that an "application for type-certificate... for an aircraft shall include the application for approval of operational suitability data, consisting of, as applicable **[emphasis added]: ... 5. the master minimum equipment list"**; and
- Basic Regulation 216/2008 Annex IV to Article 8 stating in 8.a.3. (iii) that "the MEL must be based on the Master Minimum Equipment List **(MMEL), if available [emphasis added]**, and must not be less restrictive than the MMEL").

GAMA views the use of the terms "if this exists", "as applicable", and "if available" as recognizing that for some aircraft the type certificate holder has elected to not provide an MMEL.

When reviewing Opinion 07/2011 there is guidance (12.c.) about the role of the MMEL for new applications including for small airplanes:

"The requirement to establish an MMEL is applicable to all aircraft that can be used for commercial operations since the relevant operators must have MELs for those aircraft. So this means that for most small aircraft an MMEL will be required. However, in order to minimise the burden for the TC applicants, the Agency will establish generic MMELs for most categories of non-complex aircraft by means of a dedicated CS. The TC applicant for an aircraft within those categories can suffice with confirming that this generic MMEL is appropriate for its design. The CS with generic MMELs is currently being developed."

EASA, however, has exempted some general aviation aircraft including Very Light Aeroplanes, Light Sport Aeroplanes, Very Light Rotorcraft, sailplanes, powered sailplanes, balloons and ELA2 airships the for which the Agency considers that the list of required equipment as included in the TCDS, in combination with equipment required for the flight by the associated operational implement rules, establishes the list of equipment that must be operative for all flights. Other equipment may be inoperative and this constitutes the MMEL. Design approval applicants for these aircraft are therefore not required to establish an MMEL.

GAMA notes that for grandfathering and transition there is a differentiation between operators and type certificate holders. As the agency states (23) for the "Grandfathering for operators...: Existing nationally approved or accepted... MEL are grandfathered." Additionally, "In case an EASA approved MMEL does not exist, the MEL (new or changed) can continue to be based on the MMEL as accepted by the competent authority of the operator." In (24) "Catch-up for TC holders: ... The catch-up process is a light touch process compared to the initial approval for OSD for new type. [And] Catch-up is voluntary for other models... and for non-required elements" but apart from that the section is silent about any requirement for MMEL catch-up.

GAMA notes that without an MMEL, which is an alleviating document, the operator is required to operate the aircraft in accordance with type design including required equipage and applicable airworthiness requirements.

GAMA proposes that the agency minimize the burden on type certificate holders of other-than-complex motor-powered aircraft by confirming that out of production and in production aircraft are exempt from the requirement to develop an MMEL. Additionally, GAMA proposes that for new applications (including amended type design) the type certificate holder be given the option of not providing an MMEL, if appropriate to that airplane model, in case of which the aircraft should be operated in accordance with type design including required equipage and applicable airworthiness requirements.

In short, the three options for the type certificate holder (or applicant) for other-than-complex motor powered aircraft would be:

1. Develop an MMEL. The aircraft could be operated with an MEL based on the MMEL as identified by the manufacturer.
2. Identify the items in the generic MMEL that are appropriate to its design. The aircraft could be operated with an MEL based on the items in the generic MMEL as identified by the manufacturer (as identified by NPA 2012-09).
3. Not develop an MMEL or identify items from the generic MMEL to their aircraft. The aircraft would have to be operated in accordance with type design including required equipage and applicable airworthiness requirements.

GAMA proposes that the Guidance Material GM No 1 to 21A.15(d) be amended to provide the TC applicant the discretion not to provide an MMEL for the aircraft. The text would state (additions shown bold and underlined):

"... However, in order to minimise the burden for hte TC applicants, generic MMELs for other-than-complex aircraft by means of a dedicated CS are established by the Agency. The TC applicant for an aircraft within the category can suffice with identifying the items of the generic MMEL that are appropriate for its design **or not develop an MMEL at which time the aircraft has to be operated in accordance with type design including required equipage and applicable airworthiness requirements.**

Additionally, GAMA recommends that EASA include clear guidance in the GM that makes it clear that there is no requirement for the type certificate holder to develop an MMEL for out of production and in production aircraft per (23) in Opinion 07/2011 Explanatory Note.

response

Not accepted.

In a meeting with GAMA as well as other general aviation associations the Agency explained that for all aircraft categories some form of MMEL is required under the OSD. This is because any aircraft can be used for commercial operations in which case the operator must establish an MEL that should be based on an approved MMEL. However the Agency also agreed that the process and subsequent burden to establish an MMEL should be proportionate to the risk for possible passengers and/or third parties. Therefore the Agency agreed that for aircraft other than complex motor powered aircraft a simple process for establishing an MMEL would be included in the rules. The CS-Generic MMEL for small aeroplanes is an example of such simplified rules. In addition, as explained in the draft GM No 1 to 21.A.15(d) the process is even more simplified for the Very Light Aeroplanes, Light Sport Aeroplanes, Very Light Rotorcraft, sailplanes, powered sailplanes, balloons and ELA2 airships.

In general, the obligation to establish an MMEL can be fulfilled at various levels; the TC applicant is not required to include as many items as possible but can limit itself to the most common items.

Regarding the catch-up requirement: that is not a subject for discussion under this NPA; it is covered by the proposed changes to Regulation (EU) No 748/2012 as addressed in Opinion 07/2011.

comment

*81* comment by: *Julian Scarfe, PPL/IR Europe*

Consider the applicability of the scheme set out in the second paragraph to other categories.

response

Not accepted.

The CS-23 does not include the concept of 'required equipment' so the solution as indicated in the NPA for CS-22, -VLA, -LSA and –VLR cannot be extended to CS-23 certified aircraft. The Generic MMEL can be used for these aircraft even though many of the items may not be applicable. It is up to the TC applicant to propose applicability of the generic MMEL items for its design.

**C. Regulatory Impact Assessment — light** p. 75-77

comment

*36* comment by: *René Meier, Europe Air Sports*

page 75/77
RIA
2 Issue analysis and risk assessment

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| | 2.3 What are the safety risks?<br>Alinea 1<br><br>We do not agree with the Agency!<br><br>Rationale<br>There is no legal basis for this requirement. |
| response | Noted.<br><br>The legal basis for requiring an MMEL at type certification is in Regulation (EC) No 216/2008, article 5.5(e)(vi). |

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| comment | *37* comment by: *René Meier, Europe Air Sports*<br><br>page 76/77<br>Table 1 Selected policy options.<br><br>Europe Air Sports favours Option 1, but is of the opinion, that some rectifications are needed to get the best possible result.<br><br>Rationale<br>We believe still to recognise quite a lot of "CS-25" thinking behind the MMEL proposed for non-commercial operations with other than complex motor-powered aircraft, especially in the field of defects, dispatch and fully functional equipment on bord broader changes could bring better, more appropriate provisions for our community. |
| response | Noted.<br><br>The Agency considers that the system as introduced by CS-Generic MMEL is proportionate to the risk of the operations with these categories of aircraft. |

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| comment | *38* comment by: *René Meier, Europe Air Sports*<br><br>page 76/77<br>5 Analysis of impacts<br>5.4 Impact on regulatory coordination and harmonisation<br><br>The Option 1 senctence should be re-worded: "...with the existing FAA generic MMEL document on single engine aeroplanes" we propose to change to "...with the existing FAA generic MMEL on other than complex motor-powerd aircraft." (as a variant: "...on non-complex motor-powered aircraft.")<br><br>Rationale:<br>In applying "other than complex motor-powered aircaft" we always use the same term. In doing so, we reduce possible misunderstandings. |
| response | Not accepted. |

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| This sentence refers to the FAA document which used different definitions and aircraft categorisation than the EASA terms. |

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| comment | *57* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*<br><br>· *We are a bit of confused concerning the scope of this NPA. The heading of the NPA states that it deals with "other-than-complex motor-powered **aeroplanes**". The table on page 76 also indicates this. However, on page 75, paragraph 2.1 (the penultimate part), the text covers "other-than-complex **aircraft**". In our understanding, this is what the NPA should deal with. If not, "other-than-complex **rotorcraft**" would be excluded from the reasoning in this NPA. In our point of view, the TC holders and operators of this category of aircraft are the ones that would have the most benifit from the content of NPA 2012-09.* |
| response | Noted.<br><br>The only term which has a formal definition is 'complex motor-powered aircraft'. This also defines 'aircraft other than complex motor-powered aircraft'. However the applicability of the Generic MMEL is limited to aeroplanes within the category of 'aircraft other than complex motor-powered aircraft'. Therefore the generic MMEL does not apply to rotorcraft. For rotorcraft in the category of 'aircraft other than complex motor-powered aircraft' the 'normal' CS-MMEL can be used to establish an MMEL.<br><br>The proposed AMC to Part-21 also addresses other categories of aircraft. |

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| comment | *82* comment by: *Julian Scarfe, PPL/IR Europe*<br><br>*To operate an aircraft with inoperative items, operators under the forthcoming Part-CAT, Part-*<br>*SPO or Part-NCO will be mandated to have an MEL or to apply for a permit to fly, the latter*<br>*generating more administrative burden.*<br><br>This assertion has no basis in law. See comment 61. |
| response | Partially accepted.<br><br>The intent for this statement was to say that operations with inoperative items, which are required for the intended flight, is possible in Part-CAT/SPO/NCO only if waived by an MEL or under a permit to fly. See also answer to comment 61. |

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| comment | *83* comment by: *Julian Scarfe, PPL/IR Europe* |

*Option 1 is the preferred option as it provides TC holders with a simple and cost-effective tool*
*to generate MMELs with proportionate requirements for different kinds of operators and aircraft*
*while keeping the same level of safety as the CS-MMEL.*

We welcome proportionate requirements for operators of other-than-complex aeroplanes.

While it was probably not within the scope of the drafting group to consider it, we strongly recommend that the Agency consider much broader changes to its approach to defects, dispatch and required equipment in non-commercial operations.

response Noted.

Indeed the scope of this task was limited to establishing a simplified means to establish an MMEL for aircraft other than complex motor-powered aircraft. Making more fundamental changes in the rules related to defects, dispatch and required equipment in non-commercial operations requires another rulemaking initiative.

comment *94* comment by: SVFB/SAMA

**Pg76**
**4 Identification of options:**
We propose to leave out ELA 1 and ELA 2 aircraft until the MMEL/MEL process is well established in all aircraft >5700 kg and then depending on a positive rating of the stakeholders of this concept in Group eventually extend it under the restrictions that it's economically beneficial.

response As explained above, the Agency has done its utmost to simplify the rules and standards related to MMEL and MEL for the general aviation industry. One should also bear in mind that the concept of MMEL/MEL is introduced to bring alleviations to the system; to allow operations that would otherwise not be possible.

comment *95* comment by: SVFB/SAMA

**Pg 76**
**5.2 Economic impact:** Option 0 is only the costliest if the MMEL concept is expanded for all aircraft. If following the accident behaviour and damage potential as outlined at the beginning, there would be no need to create the MMEL. If the manufactures conclusion is that application of the concept is beneficial for <5700 kg aircraft, he has the option to select this option and use the generic MMEL.
Again it should be checked what FAA and TCCA and ICAO is doing but with the caution that they are not unduly inspired by the hence predominant EASA opinion: one rule fits all.

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| | SAMA<br><br>Member of ECOGAS<br><br>121116v01 |
| response | MEL is a means to dispatch in a controlled manner with certain equipment inoperative. The safety benefit is that the assessment whether a flight can be conducted safely with certain equipment inoperative is made by those who are competent in the design and operation of the aircraft and outside the time pressure which usually applies at the moment of dispatch. In order to establish an MEL without any effort, there is a need for an MMEL. The CS-GEN-MMEL is issued by the Agency to help the manufacturers of small aeroplanes establishing an MMEL in the easiest possible way. For VLA, LSA, VLR, sailplanes, powered sailplanes, balloons and ELA2 airships the burden is even zero, as no MMEL is required to be established by the manufacturer. We therefore consider that the CS-GEN-MMEL provides for the best possible implementation of the policy to have proportionate rules for general aviation. |

## Appendix A - Attachments

1222 Response.pdf

Attachment #1 to comment #8

GAMA09-62 Summary Memo November 17 Other-than-Complex OSCD Meeting at EASA - Final.pdf

Attachment #2 to comment #55

## Appendix B – Draft Decision

### Draft Decision — CS GENERIC MASTER MINIMUM EQUIPMENT LIST

#### CS GEN.MMEL.100 Applicability

This CS applies to other-than-complex motor-powered aeroplanes except for very light aeroplanes (VLA), and light sport aeroplanes (LSA).

#### CS GEN.MMEL.105 Definitions

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

**'Applicant'** means 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 MMEL.

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

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

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

#### CS GEN.MMEL.107 Status of provided data

The MMEL and associated operational and maintenance procedures are part of the Operational Suitability Data (OSD) as defined in Part-21 and means are to be provided to clearly distinguish the mandatory data from the non-mandatory data for the end user. Data provided by the applicant is presented as mandatory or non-mandatory (recommendations) for the end user.

The MMEL content as defined in CS GEN.MMEL.125 is considered as data required from the applicant and mandatory for the end user.

The operational and maintenance procedures referenced in the MMEL are considered as non-mandatory (recommendations) data for the end user.

#### CS GEN.MMEL.110 MMEL purpose

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 aeroplane type or model.

#### CS GEN.MMEL.115 Addition of MMEL items

For items installed (other than non-safety related items) that are not listed in the Appendix IV, yet the applicant wishes to provide relief for the end user, may be justified for inclusion into their MMEL.

The justifications should be based on the CS-MMEL Book 1.

#### CS GEN.MMEL.120 Types of operation

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

#### CS GEN.MMEL.125 Format and content of the MMEL

The MMEL contains the following:

(a) a cover page;

(b) a control page to be signed by the Agency with the approval status, including date of approval and effective date;

(c) a 'general' section with:

(1) a table of contents,

(2) a list of effective pages,

(3) a revision history including a detailed summary of changes at last revision;

(d) a preamble;

(e) definitions and, if appropriate, explanatory notes which adequately reflect the scope, extent and purpose of the item list;

(f) an 'item list' section.

**CS GEN.MMEL.130 MMEL cover page, control page and general section**

The MMEL cover page, control page and general section are prepared in accordance with Appendix I.

**CS GEN.MMEL.135 Preamble**

The MMEL preamble is given in Appendix II.

**CS GEN.MMEL.140 Definitions and explanatory notes**

The MMEL contains 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.

Appendix III to this CS contains the definitions that are common to all MMELs. Other definitions that are specific to particular or individual aeroplane types are added as necessary. Also explanatory notes are provided in sufficient detail wherever the intent and purpose of a term or phrase or abbreviation, etc., is necessary or advisable.

**CS GEN.MMEL.145 Item list**

The generic MMEL includes all items that are permitted to be inoperative.

The MMEL item list is generated by the applicant directly from the generic MMEL by selecting from the list in Appendix IV the items in accordance with their applicability to the aeroplane type.

For an aeroplane type with different configurations, the applicant can select all the items applicable to the various configurations and add under each affected item '(if installed)'.

For the selected items, the applicant verifies they do not deviate from Aeroplane Flight Manual (AFM) Limitations and Airworthiness Directives.

The applicant also verifies that relief is not given for systems required to fulfil emergency procedures (e.g. VHF Communication Systems).

Consistency of terminology and identification means should be maintained, as far as possible, with the existing aeroplane documentation.

**CS GEN.MMEL.150 Operational and maintenance procedures**

The operational and maintenance procedures required by the items selected from the item list are developed by the applicant and made available to the end users.

**APPENDICES**

**Appendix I — MMEL cover page, control page and general section**

1. Cover page:

[Supplemental/Type Certificate Holder Name]

[Aeroplane Type]

**MASTER MINIMUM EQUIPMENT LIST**

ORIGINAL: [Effective date]

(and if applicable)
REVISION [Number]: [Effective date]

[Supplemental/Type Certificate Holder document reference]

2. Control page:

**MASTER MINIMUM EQUIPMENT LIST**

Model:

[Aeroplane model]

(and if applicable)

[Aeroplane commercial name]

Engine(s):

[Type of engine(s)]

ORIGINAL ISSUE: [Effective date]

(and if applicable)

REVISION [Number]: [Effective date]

This Master Minimum Equipment List (MMEL) is issued by [Supplemental/Type Certificate Holder name] at the above revision and is approved by the European Aviation Safety Agency (EASA) as the basis for the preparation and approval of individual operator's Minimum Equipment List (MEL) for aircraft of this model, as certified by and operated under the jurisdiction of EASA Member States' national authorities.

Issue: [Revision number]

Date: [Date of approval by the Agency]

Signed by: [Agency's signature and stamp]

3. Table of contents:

**GENERAL**

**TABLE OF CONTENTS**

[Table of contents with page numbering]

4. List of effective pages:

**LIST OF EFFECTIVE PAGES**

| Section | Page No | Revision No | Applicability |
|---|---|---|---|
| Cover page | | | |
| **GENERAL** | | | |
| | | | |
| | | | |
| **ITEM LIST** | | | |
| [ATA chapter] | | | |
| | | | |

5. List of revisions:

**LIST OF REVISIONS**

**ORIGINAL ISSUE:** [Date of issue]

(If applicable)

**REVISION [Number]:** [Date of issue]

**Purpose of revision [Number]:**

[Short description of the main purpose of the revision]

**GENERAL**

[Changes done in the GENERAL section]

**ITEM LIST**

[Changes done in the ITEM LIST section]

**Appendix II — Preamble**

**PREAMBLE**

**Introduction**

The following is applicable for operators under European air operations regulations (Part-CAT, Part-NCO, Part-SPO). Paragraph 1.c.2 of Annex I to Article 5 (Essential requirements for airworthiness) of Regulation (EC) No 216/2008 (the 'Basic Regulation') requires that all equipment installed on an aeroplane required for type certification or by operating rules shall be operative. However, paragraph 2.a.3 of Annex IV to Article 8 (Essential requirements for air operations) of the Basic Regulation also allows the use of a Minimum Equipment List (MEL) where compliance with certain equipment requirements is not necessary in the interest of safety under all operating conditions. Experience has shown that with the various levels of redundancy designed into aeroplanes, 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 Type Certificate Holder or the Supplemental Type Certificate Holder and approved by the Agency. This MMEL includes those items related to airworthiness and air operations regulations and other items the Agency finds may be inoperative and yet maintain an acceptable level of safety by 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 permitted by this MMEL, an inoperative item may not be removed from the aeroplane.

**Utilisation**

The MMEL is the basis for the development of individual operator's MEL which takes into consideration the operator's particular aeroplane 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 or declared as applicable, allows operation of the aeroplane with inoperative items 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 airworthiness and operational regulations of the aeroplane 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 may be 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 aeroplane is in a condition for safe operation with items inoperative.

Prior to operation any inoperative item should be made known to the crew in accordance with the continuing airworthiness requirements. For commercial air transport acceptance by the crew is required.

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 aeroplane operation and crew workload shall be considered.

*Rectification intervals*

For commercial operations under Part-CAT or Part-SPO, the operator may be allowed by his/her competent authority a one-time extension of the applicable rectification intervals B, C or D for the same duration as that specified in his/her MEL.

This extension policy is only applicable when the applicant has taken it into account during the development of this document.

For operations under Part-NCO, the rectification intervals indicated in the item list are only recommended and should be taken as guidelines as the maximum period of time during which an item would remain inoperative. It is important that repairs are accomplished at the earliest opportunity.

**Appendix III — Definitions and explanatory notes**

(a) The systems in the MMEL are described and identified in accordance with the numbering system used in the aeroplane manufacturer's documentation.

(b) The MMEL item list provides the list of pieces of equipment/system/function which may be inoperative prior to dispatch. Items are gathered by relevant chapter and provided under a table format. The structure of the MMEL item list table is as follows:

(1) **System and sequence numbers item** — column #1 — details equipment, system, component or function listed.

The applicability for each item may vary based on the type of operation, and is given, when needed, as follows:

(CAT): for Commercial Air Transport, regulated by Part-CAT;

(SPO): for Specialised Operations, regulated by Part-SPO;

(NCO): for Non-Commercial Operations, regulated by Part-NCO;

(ALL): for all above types of operations.

(2) **Rectification interval** — column #2 — 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.

Where a time period is specified in days, the interval excludes the day of discovery.

Where a time period is specified other than in 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.

(3) **Number installed** — column #3 — is the number (quantity) of items normally installed in the aeroplane. This number represents the aeroplane configuration considered in developing this MMEL. Should the number be a variable or not applicable, a number is not required; a '–' is then inserted.

Where the MMEL shows a variable number installed, the MEL should reflect the actual number installed, if applicable.

(4) **Number required for dispatch** — column #4 — is the minimum number (quantity) of items required for operation provided the conditions specified are met.

Should the number be a variable or not applicable, a number is not required; a '–' is then inserted.

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

(5) **Remarks or exceptions** — column #5 — include statements either prohibiting or permitting operation with a specific number of items inoperative, provisos (conditions and limitations), notes, (M) and/or (O) symbols, as appropriate for such operation.

**'(O)'** indicates a requirement for a specific operations procedure which must be accomplished in planning for and/or operating with the listed item inoperative. Normally these procedures are accomplished by 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 MEL or other documentation, endorsed by the operator and made available to the person(s) authorised to perform the task(s).

**'(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 MEL or other documentation, endorsed by the operator and made available to the person(s) authorised to perform the task(s).

**'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.

**Placarding:** each inoperative item must be placarded, as applicable, to inform and remind crew members and maintenance personnel of the items' condition. 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. These placards do not relieve the operator from the obligation of writing an inoperative item entry into the appropriate document, such as a logbook.

(c) A vertical bar (change bar) in the margin indicates a modification in the adjacent text for the current revision of that section only. The change bar is dropped at the next revision of that page.

(d) Applicability: when a variant of page is required for certain aeroplanes, the special applicability is indicated at the lower part of the relevant page as well as in the list of effective pages.

(e) Definitions for the purpose of this MMEL:

**'Aeroplane Flight Manual (AFM)'** is the document required for type certification and approved by the Agency.

**'Alternate procedures are established and used'** or similar statement, shall be taken to mean 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.

**'Any in excess of those required by regulations'** means that the item required by applicable legislation (e.g. Regulation Air Operations, Single European Sky legislation or

applicable airspace requirements) must be operative and only excess equipment 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 routes and the resulting dispatching restrictions need to be clarified at operator's MEL level.

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

**'Calendar day':** 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.

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

**'Considered inoperative',** as used in the dispatch conditions, means that the item must be treated for dispatch, taxi 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.

**'Daylight'** corresponds to 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.

**'Day of discovery'** means the calendar day that a malfunction was recorded in the aeroplane maintenance record/logbook.

**'Flight'** (for the purposes of this MMEL): a flight is the period of time between the moment when an aeroplane begins to move by its own means, for the purpose of preparing for take-off, until the moment the aeroplane comes to complete stop on its parking area, after the first landing.

**'Icing conditions'** means an atmospheric environment that may cause ice to form on the aeroplane or in the engine(s) as defined in the AFM.

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

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

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

**'Is not used'** in the dispatch conditions, 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 utilize 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 and rectification interval 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.

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

**'Master Minimum Equipment List (MMEL)'** means a document approved by the Agency that establishes the aeroplane items allowed to be inoperative under conditions specified therein for a specific type of aeroplane.

**'Minimum Equipment List (MEL)'** means a document approved by or declared to the competent authority as applicable that authorises an operator to dispatch an aeroplane with aeroplane items inoperative under the conditions specified therein.

**'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.

**Appendix IV — Item list**

| **ATA CHAPTER: 21 Air conditioning** | | | | | **PAGE: 21-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **21-20-1** | **Fresh air ventilation outlets** | | | | |
| 21-20-1A | (ALL) | C | – | 1 | Any in excess of one may be inoperative. |
| **21-30-1** | **Pressurisation controller** | | | | |
| 21-30-1A | (CAT) | C | – | 0 | (O) May be inoperative provided:<br>(a) the flight is conducted unpressurised, and<br>(b) the regulations requiring oxygen use are complied with.<br>*(O) Procedures must be established to ensure the aeroplane is operated unpressurised.* |

| **ATA CHAPTER: 21 Air conditioning** | | | | | **PAGE: 21-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 21-30-1B | (NCO/SPO) | D | – | 0 | (O) May be inoperative provided:<br>(a) the flight is conducted unpressurised, and<br>(b) the regulations requiring oxygen use are complied with.<br>*(O) Procedures must be established to ensure the aeroplane is operated unpressurised.* |
| **21-30-2** | **Outflow/safety valves** | | | | |
| 21-30-2A | (CAT) | C | – | – | (M)(O) May be inoperative provided:<br>(a) affected valve(s) is(are) secured OPEN or removed,<br>(b) flight is conducted unpressurised, and<br>(c) the regulations requiring oxygen use are complied with.<br>*(M) Procedures must be established to secure the valve(s) open or remove it(them).*<br>*(O) Procedures must be established to ensure the aeroplane is operated unpressurised.* |

| **ATA CHAPTER: 21 Air conditioning** | | | | | **PAGE: 21-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 21-30-2B | (NCO/SPO) | D | – | – | (M)(O) May be inoperative provided:<br>(a) affected valve(s) is(are) secured OPEN or removed,<br>(b) flight is conducted unpressurised, and<br>(c) the regulations requiring oxygen use are complied with.<br><br>*(M) Procedures must be established to secure the valve(s) open or remove it(them).*<br><br>*(O) Procedures must be established to ensure the aeroplane is operated unpressurised.* |
| **21-30-3** | **Cabin altitude indicator** | | | | |
| 21-30-3A | (ALL) | D | 1 | 0 | (O) May be inoperative provided:<br><br>(a) the flight is conducted unpressurised, and<br><br>(b) the regulations requiring oxygen use are complied with.<br><br>*(O) Procedures must be established to ensure the aeroplane is operated unpressurised.* |
| **21-30-4** | **Cabin altitude warning system** | | | | |

| **ATA CHAPTER: 21 Air conditioning** | | | | | **PAGE: 21-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 21-30-4A | (ALL) | C | 1 | 0 | May be inoperative provided the flight is conducted at or below cabin altitude warning limit but not above 10 000 feet MSL. |
| 21-30-4B | (ALL) | D | 1 | 0 | (O) May be inoperative provided:<br>(a) the flight is conducted unpressurised, and<br>(b) the regulations requiring oxygen use are complied with.<br>*(O) Procedures must be established to ensure the aeroplane is operated unpressurised.* |
| **21-30-5** | **Cabin rate of climb indicator** | | | | |
| 21-30-5A | (ALL) | D | 1 | 0 | (O) May be inoperative provided:<br>(a) the flight is conducted unpressurised, and<br>(b) the regulations requiring oxygen use are complied with.<br>*(O) Procedures must be established to ensure the aeroplane is operated unpressurised.* |

| **ATA CHAPTER: 21 Air conditioning** | | | | | **PAGE: 21-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **21-30-6** | **Differential pressure indicator** | | | | |
| 21-30-6A | (ALL) | D | 1 | 0 | (O) May be inoperative provided:<br>(a) the flight is conducted unpressurised, and<br>(b) the regulations requiring oxygen use are complied with.<br>*(O) Procedures must be established to ensure the aeroplane is operated unpressurised.* |
| **21-40-1** | **Heating system** | | | | |
| 21-40-1A | (CAT/SPO) | C | – | 0 | May be inoperative. |
| 21-40-1B | (NCO) | D | – | 0 | May be inoperative. |
| **21-50-1** | **Air conditioning system** | | | | |
| 21-50-1A | (CAT/SPO) | C | 1 | 0 | (M) May be inoperative.<br>*(M) Procedures must be established to ensure the inoperative air conditioning system does not have any adverse effect on engine operation, pressurisation or instruments cooling.* |

| **ATA CHAPTER: 21 Air conditioning** | | | | **PAGE: 21-x** |
|---|---|---|---|---|
| (1) System & sequence numbers item | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 21-50-1B (NCO) | D | 1 | 0 | (M) May be inoperative.<br>*(M) Procedures must be established to ensure the inoperative air conditioning system does not have any adverse effect on engine operation, pressurisation or instruments cooling.* |

**Additional considerations:**

- **21-20-1A Fresh air ventilation outlets:** Cockpit and cabin compartments must be suitably ventilated through an adequate supply of fresh air.
- For unpressurised flights, extended overwater operations may be restricted depending on the location of the outflow valves.
- For unpressurised flights, the (O) procedure should indicate that when oxygen on-board is not sufficient or oxygen is not used, the flight shall be performed at or below 10 000 ft Mean Sea Level (MSL).

| **ATA CHAPTER: 22 Auto-flight** | | | | | **PAGE: 22-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **22-10-1** | **Autopilot** | | | | |
| 22-10-1A | (SPO/NCO) | D | – | 0 | (M)(O) May be inoperative provided:<br>(a) autopilot is deactivated as applicable,<br>(b) AFM limitations are observed, and<br>(c) operations do not depend upon its use.<br>*(M) Procedures must be established to ensure the autopilot will not engage during the flight.*<br>*(O) Procedures must establish any applicable restrictions (e.g. approach and landing minima, en-route operations, etc.).* |
| 22-10-1B | (CAT) | B | – | 0 | (M)(O) May be inoperative provided:<br>(a) autopilot is deactivated as applicable,<br>(b) the flight is conducted under VFR for single pilot operations,<br>(c) AFM limitations are observed, and<br>(d) operations do not depend upon its use.<br>*(M) Procedures must be established to ensure the autopilot will not engage during the flight.* |

| **ATA CHAPTER: 22 Auto-flight** | | | | | **PAGE: 22-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **22-10-2** | **Autopilot disconnect functions — Quick release controls** | | | | *(O) Procedures must establish any applicable restrictions (e.g. approach and landing minima, en-route operations, etc.).* |
| 22-10-2A | (ALL) | C | – | 1 | (O) Any in excess of one may be inoperative provided:<br>(a) the operative one is on the pilot flying side, and<br>(b) approach and landing minima do not require use of the autopilot.<br>*(O) Procedures must establish any applicable restrictions (e.g. approach and landing minima, en-route operations, etc.).* |
| 22-10-2B | (ALL) | B | – | 0 | May be inoperative provided autopilot is not used (refer to item 22-10-1). |
| **22-10-4** | **Yaw damper** | | | | |

| **ATA CHAPTER: 22 Auto-flight** | | | | **PAGE: 22-x** |
|---|---|---|---|---|
| (1) System & sequence numbers item | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 22-10-4A (ALL) | C | 1 | 0 | (M) May be inoperative provided yaw damper is independent and unrelated to autopilot operation.<br><br>*(M) Procedures must be established to ensure no electrical or mechanical fault exists that would have an adverse effect on any flight control system.* |
| 22-10-4B (ALL) | - | 1 | 0 | May be inoperative provided autopilot is not used (refer to item 22-10-1). |

**Additional considerations:**

- **22-10-1 Autopilot:** Any increase in crew workload has to be considered for the intended operations. Any additional limitations, such as flight duration, may result from this consideration.
- **22-10-1B Autopilot:** Depending upon the use of the autopilot in routine procedures, single pilot CAT operations may be restricted to day VMC only.
- **22-10-4 Yaw damper:** AFM limitations must be complied with, if any.

| **ATA CHAPTER: 23 Communications** | | | | | **PAGE: 23-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **23-10-1** | **Headsets** | | | | |
| 23-10-1A | (NCO) | D | – | 0 | May be inoperative or missing provided procedures do not depend upon its use. |
| 23-10-1B | (ALL) | D | – | – | Any in excess of one for each flight crew member may be inoperative or missing.<br><br>*Note:* A headset consists of a communication device which includes two earphones to receive and a microphone to transmit audio signals to the aeroplane's communication system. |
| **23-10-2** | **Audio selector panels** | | | | |
| 23-10-2A | (ALL) | D | – | – | Any in excess of one for each flight crew member may be inoperative or missing. |
| 23-10-2B | (ALL) | D | – | 0 | (O) May be inoperative provided:<br><br>(a) the flight is conducted under VFR, and<br>(b) alternate procedures are established and used for ensuring required communication. |

| **ATA CHAPTER: 23 Communications** | | | | | **PAGE: 23-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| | | | | | *(O) Procedures must be established to ensure required communication.* |
| **23-10-3** | **Flight crew compartment speakers** | | | | |
| 23-10-3A | (SPO/NCO) | C | – | 0 | (O) May be inoperative provided alternate means are available and used for ensuring the required communication.<br><br>*(O) Procedures must be established to ensure required communication* |
| 23-10-3B | (CAT) | C | – | 0 | May be inoperative provided:<br><br>(a) one headset is operative and used by each flight crew member, and<br>(b) a spare operative headset is readily available in the flight crew compartment. |
| **23-10-4** | **Handheld microphones** | | | | |
| 23-10-4A | (SPO/NCO) | C | – | 0 | May be inoperative provided one headset is operative and used by each flight crew member. |

| **ATA CHAPTER: 23 Communications** | | | | | **PAGE: 23-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 23-10-4B | (CAT) | C | – | 0 | May be inoperative provided:<br>(a) one headset is operative and used by each flight crew member, and<br>(b) a spare operative headset is readily available in the flight crew compartment. |
| **23-10-5** | **Stick/yoke mounted push-to-talk switches** | | | | |
| 23-10-5A | (NCO) | D | – | 0 | May be inoperative provided associated handheld microphone is operative. |
| 23-10-5B | (SPO/CAT) | D | – | 0 | May be inoperative provided:<br>(a) the flight is conducted under day VFR, and<br>(b) associated handheld micro-phone is operative. |
| **23-11-1** | **Long range communication systems** | | | | |
| 23-11-1A | (ALL) | D | – | – | Any in excess of those required may be inoperative. |
| **23-12-1** | **VHF communication systems** | | | | |
| 23-12-1A | (ALL) | D | – | – | Any in excess of those required may be inoperative. |

| **ATA CHAPTER: 23 Communications** | | | | | **PAGE: 23-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **23-20-1** | **Datalink** | | | | |
| 23-20-1A | (ALL) | D | – | 0 | May be inoperative provided that procedures do not require its use. |
| **23-30-1** | **Public address system** | | | | |
| 23-30-1A | (ALL) | D | 1 | 0 | May be inoperative provided procedures do not depend upon its use. |
| 23-30-1B | (ALL) | C | 1 | 0 | (O) May be inoperative provided alternate procedures are established and used.<br><br>*(O) Procedures must be established to provide alternate means for communication between the flight crew compartment and the cabin, in normal and emergency situations.* |
| **23-40-1** | **Flight crew interphone system** | | | | |
| 23-40-1 | (ALL) | D | - | - | Any in excess of those required may be inoperative. |

**Additional considerations:**

- **23-10-2 Audio selection panels:** There may be components of the audio control panel inoperative; however, the panel is still adequate for flight. The item does not address

sub-components, and it is considered the pilot-in-command's decision to dispatch with necessary equipment operative.

- **23-10-3 Flight crew compartment speakers:** It should be ensured that the affected flight crew compartment speaker is not used for crew intercommunication when smoke masks are used unless single pilot operations are conducted. Indeed, with smoke masks on, a typical installation has the pilot talking through the co-pilot's speaker and the co-pilot through the pilot's speaker. If there are emergency procedures (e.g. smoke) 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.

- **23-30-1 Public address system:** 23-30-1B: The alternate procedures will have to be developed to account for any procedures based on the use of the public address system, particularly in areas such as lavatories.

| **ATA CHAPTER: 24 Electrical** | | | | | **PAGE: 28-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers<br>item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **24-40-1** | **External power system** | | | | |
| 28-40-1A | (ALL) | D | 1 | 0 | May be inoperative. |

| **ATA CHAPTER: 25 Equipment and furnishings** | | | | | **PAGE: 25-x** |
|---|---|---|---|---|---|
| (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 compartment seats** | | | | |
| **25-11-1-1** | **Power adjustments** | | | | |
| 25-11-1-1A | (ALL) | D | – | 0 | May be inoperative. |
| **25-11-1-2** | **Manual adjustments** | | | | |
| 25-11-1-2-1 | Horizontal | | | | |
| 25-11-1-2-1A | (ALL) | C | – | 0 | (M) May be inoperative provided:<br>(a) the affected seat is secured and locked, and<br>(b) the seat position when the seat is used allows a full travel of the flight controls.<br>*(M) Procedures must be established to secure the seat position.* |
| 25-11-1-2-2 | Vertical | | | | |
| 25-11-1-2-2A | (ALL) | C | – | 0 | May be inoperative provided the associated power adjustment of the affected seat is operative. |

| **ATA CHAPTER: 25 Equipment and furnishings** | | | | | | **PAGE: 25-x** |
|---|---|---|---|---|---|---|
| (1) System & sequence numbers<br><br>item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions | |
| 25-11-1-2-2B | (ALL) | C | – | 0 | (M) May be inoperative provided:<br><br>(a) the affected seat is secured or locked, and<br>(b) the position is acceptable to the flight crew member.<br><br>*(M) Procedures must be established to secure the seat position.* | |
| **25-11-1-3** | **Other adjustments except horizontal and vertical adjustments** | | | | | |
| 25-11-1-3A | (ALL) | C | – | 0 | (M) May be inoperative provided:<br><br>(a) the affected seat is secured or locked, and<br>(b) the position is acceptable to the flight crew member.<br><br>*Note:* If an inoperative armrest hinders an emergency evacuation or any other flight crew compartment duties, it should be removed.<br><br>*(M) Procedures must be established to secure the seat position.* | |
| **25-11-1-4** | **Safety harnesses** | | | | | |

| **ATA CHAPTER: 25 Equipment and furnishings** | | | | | | **PAGE: 25-x** |
|---|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions | |
| 25-11-1-4A | (ALL) | C | – | 1 | Any in excess of one may be inoperative provided:<br>(a) the flight is conducted in single pilot operations, and<br>(b) the affected seat is not occupied. | |
| **25-11-1-5** | **Crew seat armrest** | | | | | |
| 25-11-1-5A | (ALL) | C | – | 0 | (M) May be inoperative provided:<br>(a) it doesn't hinder emergency egress, and<br>(b) it doesn't block access to the flight controls or restrict any other flight deck duties.<br>*(M) Procedures must be established to remove an inoperative armrest if it may harm the crew member.* | |
| **25-21-1** | **Passenger seats** | | | | | |
| 25-21-1A | (ALL) | D | – | – | (M) May be inoperative provided:<br>(a) inoperative seat does not block an emergency exit,<br>(b) inoperative seat does not restrict any passenger from access to the main aeroplane aisle, and<br>(c) affected seat(s) are blocked and placarded 'DO NOT OCCUPY'.<br>*Note:* A seat with an inoperative or missing occupant restraint system (seat belt, safety harness, as applicable) is considered inoperative. | |

| **ATA CHAPTER: 25 Equipment and furnishings** | | | | | **PAGE: 25-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| | | | | | *(M) Procedures must be established to*<br><br>*— provide guidance for identifying the affected seat(s),*<br>*— provide a practical means of prohibiting the use of the affected seat(s).* |
| 25-21-1-1 | Recline functions | | | | |
| 25-21-1-1A | (ALL) | D | – | – | (M) May be inoperative and seat occupied provided the seat is secured in the take-off and landing position.<br><br>*(M) Procedures must be established to provide a practical means of securing the seat in the take-off and landing position.* |
| 25-21-1-1B | (ALL) | C | – | – | May be inoperative provided the seat back is immovable in the take-off and landing position. |
| 25-21-1-2 | Under seat baggage restraining bars | | | | |
| 25-21-1-2A | (ALL) | D | – | – | May be inoperative or missing provided:<br><br>(a) baggage is not stowed under associated seat, and<br>(b) associated seat is placarded 'DO NOT STOW BAGGAGE UNDER THIS SEAT'. |

| **ATA CHAPTER: 25 Equipment and furnishings** | | | | | **PAGE: 25-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 25-21-1-3 | Passenger seat armrests with recline control mechanism | | | | |
| 25-21-1-3A | (ALL) | D | – | – | (M) May be inoperative, damaged or missing, provided:<br><br>(a) armrest does not block an emergency exit,<br>(b) armrest is not in such a position that it restricts any passengers from accessing the aeroplane's aisle, and<br>(c) if the armrest is missing, associated seat is secured in full upright position.<br><br>*(M) Procedures must be established to provide a practical means of securing the associated seat in the full upright position.*<br><br>*(M) Procedures must be established to remove any damaged armrest which may harm the passenger.* |
| 25-21-1-4 | Passenger seat armrests without recline control mechanism | | | | |
| 25-21-1-4A | (ALL) | D | – | – | (M) May be inoperative, damaged or missing, provided: |

| **ATA CHAPTER: 25 Equipment and furnishings** | | | | | **PAGE: 25-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 25-21-1-5 | Swivel/travel mechanisms | | | | (a) armrest does not block an emergency exit, and<br>(b) armrest is not in such a position that it restricts any passengers from accessing the aeroplane's aisle.<br><br>*(M) Procedures must be established to remove any damaged armrest which may harm the passenger.* |
| 25-21-1-5A | (ALL) | D | – | – | (M) May be inoperative provided:<br><br>(a) associated seat is secured in the take-off and landing position, and<br>(b) associated seat does not restrict emergency egress.<br><br>*(M) Procedures must be established to provide a practical means of securing the associated seat in the take-off and landing position.* |
| 25-21-1-5B | (ALL) | C | – | – | May be inoperative provided the associated seat is immovable in the take-off and landing position. |
| **25-60-1** | **Electrical torches /flashlights (incl. holders)** | | | | |
| 25-60-1A | (SPO/NCO) | D | – | 0 | May be inoperative or missing for daylight operations. |

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|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 25-60-1B | (ALL) | C | – | – | Any in excess of those required for the intended flight may be inoperative or missing. |
| **25-60-2** | **Life rafts** | | | | |
| 25-60-2A | (ALL) | D | – | – | (M) Any in excess of those required for the intended flight may be inoperative or missing provided the inoperative unit is removed from the aeroplane and its installed location is placarded inoperative; or removed from the installed location, secured out of sight, and the inoperative unit and its installed location are placarded inoperative.<br><br>*(M) Procedures must be established to:*<br><br>*— provide instructions to placard the inoperative unit and its installed location,*<br>*— secure the inoperative unit in an out-of-sight location if possible.* |
| **25-60-3** | **Survival equipment** | | | | |

| **ATA CHAPTER: 25 Equipment and furnishings** | | | | | **PAGE: 25-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 25-60-A | (ALL) | D | – | – | (M) Any in excess of those required for the intended flight may be inoperative or missing provided the inoperative unit is removed from the aeroplane and its installed location is placarded inoperative; or removed from the installed location, secured out of sight, and the inoperative unit and its installed location are placarded inoperative.<br><br>*(M) Procedures must be established to:*<br><br>*— provide instructions to placard the inoperative unit and its installed location,*<br>*— secure the inoperative unit in an out-of-sight location.* |
| **25-61-1** | **Crash axes and crowbars** | | | | |
| 25-61-1A | (ALL) | D | – | – | Any in excess of those required may be inoperative or missing. |
| **25-62-1** | **First-aid kits** | | | | |
| 25-62-1A | (ALL) | D | – | 1 | Any in excess of one may be incomplete or missing. |
| **25-63** | **Emergency locator transmitters** | | | | |

| **ATA CHAPTER: 25 Equipment and furnishings** | | | | | **PAGE: 25-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **25-63-1** | **Automatic emergency locator transmitters ELT(AF)/ELT(AP) /ELT(AD)** | | | | |
| 25-63-1A | (ALL) | D | – | – | Any in excess of those required may be inoperative. |
| 25-63-1B | (ALL) | A | – | 0 | May be inoperative for a maximum of 6 flights or 25 flight hours, whichever occurs first. |
| **25-63-2** | **Survival emergency locator transmitters ELT(S)** | | | | |
| 25-63-2A | (NCO) | D | – | 0 | Any in excess of those required may be inoperative or missing. |
| 25-63-2B | (CAT/SPO) | D | – | – | (M) Any in excess of those required for the intended flight may be inoperative or missing provided the inoperative unit is removed from the aeroplane and its installed location is placarded inoperative; or removed from the installed location, secured out of sight, and the inoperative unit and its installed location are placarded inoperative. |

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| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 25-63-2C | (NCO) | A | – | 0 | May be inoperative for a maximum of 6 flights or 25 flight hours, whichever occurs first. |
| **25-63-3** | **Personal locator beacons (PLB)** | | | | |
| 25-63-3A | (NCO) | D | – | – | Any in excess of those required may be inoperative or missing. |
| 25-63-3A | (NCO) | A | – | 0 | May be inoperative for a maximum of 6 flights or 25 flight hours, whichever occurs first. |
| **25-64-1** | **Life jackets (or equivalent individual floatation devices)** | | | | |
| 25-64-1A | (ALL) | D | – | – | (M) Any in excess of those required for the intended flight may be inoperative or missing provided:<br>(a) required distribution of operative units is maintained throughout the aeroplane, and |

*(M) Procedures must be established to:*

*— provide instructions to placard the inoperative unit and its installed location,*
*— secure the inoperative unit in an out-of-sight location.*

| **ATA CHAPTER: 25 Equipment and furnishings** | | | | **PAGE: 25-x** |
|---|---|---|---|---|
| (1) System & sequence numbers<br><br>item | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| | | | | (b) the inoperative unit is removed from the aeroplane and its installed location is placarded inoperative; or removed from the installed location, secured out of sight, and the inoperative unit and its installed location are placarded inoperative.<br><br>*(M) Procedures must be established to:*<br><br>*— provide instructions to placard the inoperative unit and its installed location,*<br>*— secure the inoperative unit in an out-of-sight location.* |

**Additional considerations:**

- **25-11-1-4 Flight crew compartment seats — Safety harnesses:** Padding may be part of the ETSO/TSO and therefore required.
- **25-21-1 Passenger seats:**

  ⇒ 25-21-1A:

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

  This item and associated sub-items do not include tray tables that may, if inoperative in the non-stowed position, render the seat by itself or the 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, the affected seat(s) may include the seat behind and/or the adjacent outboard seats.

  ⇒ 25-21-1-1:

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

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

⇒ 25-21-1-2:

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

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

⇒ 25-21-1-3/4/5: Any damage to passenger seats and components must not be detrimental to passenger safety.

- **25-63-1 Automatic emergency locator transmitters ELT(AF)/ELT(AP)/ ELT(AD) and**
  **25-63-2 Survival Emergency Locator Transmitters ELT(S):**

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

Automatic fixed (ELT(AF)): an automatically activated ELT which is permanently attached to an aeroplane;

Automatic portable (ELT(AP)): an automatically activated ELT which is rigidly attached to an aeroplane but readily removable from the aeroplane;

Automatic deployable (ELT(AD)): an ELT which is rigidly attached to the aeroplane and which is automatically deployed and activated by impact and, in some cases, also by hydrostatic sensors. Manual deployment is also provided;

Survival ELT (ELT(S)): an ELT which is removable from an aeroplane, 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 tethered to a life raft or a survivor.

| **ATA CHAPTER: 26 Fire protection** | | | | | **PAGE: 26-x** |
|---|---|---|---|---|---|
| (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** | | | | |
| 26-24-1A | (ALL) | D | – | – | Any in excess of those required by the operating rules may be inoperative or missing. |
| **25-60-1** | **Protective breathing equipment (PBE)** | | | | |
| 25-60-1A | (ALL) | D | – | – | Any in excess of those required may be inoperative or missing provided that the inoperative PBE is placarded inoperative and removed.<br><br>*Note:* Inoperative PBE units may be subject to dangerous goods requirements. |

| **ATA CHAPTER: 27 Flight controls** | | | | | **PAGE: 27-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **27-10-1** | **Aileron trim tab position indication** | | | | |
| 27-10-1A | (ALL) | C | 1 | 0 | (O) May be inoperative provided:<br>(a) tab is visually checked for full range of operation,<br>(b) tab operation is not restricted, and<br>(c) tab is positioned to NEUTRAL (or recommended AFM setting) and appropriate setting is verified by visual inspection prior to each departure. |
| **27-20-1** | **Rudder trim tab position indication** | | | | |
| 27-20-1A | (ALL) | C | 1 | 0 | (O) May be inoperative provided:<br>(a) tab is visually checked for full range of operation,<br>(b) tab operation is not restricted, and<br>(c) tab is positioned to NEUTRAL (or recommended AFM setting) and appropriate setting is verified by visual inspection prior to each departure. |
| **27-30-1** | **Elevator trim tab position indication** | | | | |

| **ATA CHAPTER: 27 Flight controls** | | | | | | **PAGE: 27-x** |
|---|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions | |
| 27-30-1A | (ALL) | C | 1 | 0 | (O) May be inoperative provided:<br>(a) tab is visually checked for full range of operation,<br>(b) tab operation is not restricted, and<br>(c) tab is positioned to NEUTRAL (or recommended AFM setting) and appropriate setting is verified by visual inspection prior to each departure. | |
| **27-31-1** | **Electric elevator trim system** | | | | | |
| 27-31-1A | (ALL) | C | 1 | 0 | (M) May be inoperative provided:<br>(a) manual trim is checked operative, and<br>(b) electric trim is deactivated.<br>*(M) Procedures must be established to:*<br>*— deactivate the electric trim system, and*<br>*— ensure manual trim is not affected.* | |
| **27-50-1** | **Flaps position indication** | | | | | |

| **ATA CHAPTER: 27 Flight controls** | | | | | **PAGE: 27-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers<br><br>item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 27-50-1A | (ALL) | C | 1 | 0 | (O) May be inoperative provided:<br><br>(a) prior to each flight, flaps are visually checked for full travel,<br>(b) flaps operation is not restricted, and<br>(c) flaps are visually checked for proper setting prior to each departure. |
| **27-70-1** | **Gust lock** | | | | |
| 27-70-1A | (ALL) | C | 1 | 0 | (M) May be inoperative provided gust lock is secured unlocked.<br><br>*(M) Procedures must be established to secure the gust lock unlocked*. |

**Additional considerations:**

- **27-31-1 Electric elevator trim system:** Autopilot, if installed, may have to be disconnected.
- **27-50-1 Flaps position indication:** Crew should be able to visually check the flaps position without having to leave the flight deck.
- **27-70-1 Gust lock:** AFM limitations, if any, must be respected with inoperative gust lock. Any other system impacted by the gust lock failed in the locked position need to be considered.

| **ATA CHAPTER: 28 Fuel** | | | | | **PAGE: 28-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers<br>item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **28-40-1** | **Fuel quantity indication** | | | | |
| 28-40-1A | (ALL) | C | – | 1 | (O) Any in excess of one may be inoperative provided a reliable means is established to determine that fuel quantity on-board meets the regulatory requirements for flight.<br><br>*(O) Procedures must be established to determine that fuel quantity on-board meets the regulatory requirements for flight.* |

**Additional considerations:**

- **28-40-1 Fuel quantity indication:** This proposal is made for tanks with interconnected outlets functioning as a single tank, such that individual tanks cannot be isolated. Fuel migration from one wing to the other needs also to be considered.

| **ATA CHAPTER: 30 Ice & rain protection** | | | | | **PAGE: 30-x** |
|---|---|---|---|---|---|
| (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 | (CAT/SPO) | B | – | 0 | May be inoperative provided operations are not conducted in known or forecasted icing conditions. |
| 30-00-1A | (NCO) | C | – | 0 | May be inoperative provided operations are not conducted in known or forecasted icing conditions. |
| **30-10-1** | **Airframe aerodynamic surface ice protection** | | | | |
| 30-10-1A | (CAT/SPO) | B | – | 0 | One or more may be inoperative provided operations are not conducted in known or forecasted icing conditions. |
| 30-10-1B | (NCO) | C | – | 0 | One or more may be inoperative provided operations are not conducted in known or forecasted icing conditions. |
| **30-31-1** | **Pitot heating system** | | | | |

| **ATA CHAPTER: 30 Ice & rain protection** | | | | | | **PAGE: 30-x** |
|---|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions | |
| 30-31-1A | (CAT) | B | – | 1 | (O) Any in excess of one may be inoperative provided:<br>(a) operations are conducted under day VMC.<br>(b) operations are not conducted in visible moisture or into known or forecasted icing conditions, and<br>(c) the operative pitot heater is verified operative prior to each flight.<br>*(O) Procedures must be established for required pre-flight check.* | |
| 30-31-1B | (CAT) | B | – | 0 | One or more may be inoperative provided:<br>(a) operations are conducted under day VFR, and<br>(b) operations are not conducted in visible moisture or into known or forecasted icing conditions. | |
| 30-31-1C | (NCO/SPO) | B | – | 0 | May be inoperative provided:<br>(a) operations are conducted under VFR, and<br>(b) operations are not conducted in visible moisture or into known or forecasted icing conditions. | |
| **30-31-3** | **Static port heating system** | | | | | |

| **ATA CHAPTER: 30 Ice & rain protection** | | | | | | **PAGE: 30-x** |
|---|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions | |
| 30-31-3A | (CAT) | C | – | 0 | May be inoperative provided:<br><br>(a) operations are conducted under day VFR, and<br>(b) operations are not conducted in known or forecasted icing conditions. | |
| 30-31-3B | (CAT) | B | – | 1 | (O) Any in excess of one may be inoperative provided:<br><br>(a) operations are conducted under day VMC,<br>(b) operations are not conducted in visible moisture or into known or forecasted icing conditions, and<br>(c) the operative static port heater is verified operative prior to each flight.<br><br>*(O) Procedures must be established for required pre-flight check.* | |
| 30-31-3C | (NCO/SPO) | C | – | 0 | One or more may be inoperative provided:<br><br>(a) operations are conducted under day VFR, and<br>(b) operations are not conducted in known or forecasted icing conditions. | |
| **30-32-1** | **Stall warning mounting plate heater** | | | | | |

| **ATA CHAPTER: 30 Ice & rain protection** | | | | | **PAGE: 30-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 30-32-1A | (ALL) | B | – | 0 | One or more may be inoperative provided:<br>(a) operations are conducted under day VMC, and<br>(b) operations are not conducted in known or forecasted icing conditions. |
| **30-41-1** | **Windshield heating/De-icing system** | | | | |
| 30-41-1A | (ALL) | C | – | 0 | May be inoperative provided operations are not conducted in known or forecasted icing conditions. |
| **30-61-1** | **Propeller de-ice/Anti-ice system** | | | | |
| 30-61-1A | (CAT/SPO) | B | – | 0 | One or more may be inoperative provided operations are not conducted in known or forecasted icing conditions. |
| 30-61-1B | (NCO) | C | – | 0 | One or more may be inoperative provided operations are not conducted in known or forecasted icing conditions. |

**Additional considerations:**

- Relief for the above-mentioned items should be further restricted or removed when the loss of the heating/anti-icing system would impact other systems which are integrated with the considered item.

| **ATA CHAPTER: 31 Indicating/Recording systems** | | | | | **PAGE: 31-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **31-21-1** | **Clock** | | | | |
| 31-21-1A | (ALL) | C | – | 0 | May be inoperative provided an accurate timepiece is operative on the flight crew compartment indicating the time in hours, minutes and seconds.<br>*Note:* On the basis that the timepiece required does not need to be approved, an accurate pilot's wristwatch which indicates hours, minutes and seconds is acceptable. |
| **31-22-1** | **Hour meter** | | | | |
| 31-22-1A | (ALL) | D | 1 | 0 | (O) May be inoperative provided a procedure is established to record flight time.<br>*(O) Procedures must be established to record flight time.* |

| **ATA CHAPTER: 32 Landing gear** | | | | | **PAGE: 32-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **32-40-1** | **Parking brake** | | | | |
| 32-40-1A | (ALL) | C | 1 | 0 | (O) May be inoperative provided a procedure is established to prevent movement of the aeroplane when stopped or parked.<br>*(O) Procedures must be established to prevent movement of the aeroplane when stopped or parked.* |

**Additional considerations:**

- **32-40-1 Parking brake:** This item is only applicable to aeroplanes for which the parking brake is not required by certification.

| **ATA CHAPTER: 33 Lights** | | | | | **PAGE: 33-x** |
|---|---|---|---|---|---|
| (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** (Excluding internally lighted buttons/switches, emergency lights and annunciations) | | | | |
| 33-10-1A | (ALL) | C | – | 0 | May be inoperative for daylight operations. |
| 33-10-1B | (ALL) | C | – | – | Individual lights may be inoperative provided:<br>(a) sufficient lighting is operative to make each required instrument control and other device for which it is provided easily readable, and<br>(b) lighting configuration at dispatch is acceptable to the flight crew. |
| **33-20-1** | **Passenger compartment lighting** | | | | |
| 33-20-1A | (ALL) | D | – | 0 | May be inoperative provided passengers are not carried when operating at night. |
| 33-20-1B | (ALL) | C | – | – | Individual lights may be inoperative provided lighting configuration at dispatch is acceptable to the flight crew. |

| **ATA CHAPTER: 33 Lights** | | | | | **PAGE: 33-x** |
|---|---|---|---|---|---|
| (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)** | | | | |
| 33-20-2A | (ALL) | C | - | 0 | (O) May be inoperative provided alternate procedures are established and used for briefing passengers. |
| 33-20-2B | (ALL) | D | – | 0 | May be inoperative provided no passenger is carried. |
| **33-41-1** | **Navigation/ Position lights** | | | | |
| 33-41-1A | (ALL) | C | – | 0 | One or more may be inoperative for daylight operations. |
| 33-41-1B | (ALL) | C | – | – | Any in excess of those required may be inoperative for night operations. |
| **33-42-1** | **Anti-collision light system** | | | | |
| 33-42-1A | (CAT) | C | – | 1 | Any in excess of one may be inoperative. |
| 33-42-1B | (NCO/SPO) | C | – | 0 | One or more may be inoperative for daylight operations. |
| **33-43-1** | **Wing illumination light** | | | | |

| **ATA CHAPTER: 33 Lights** | | | | | | **PAGE: 33-x** |
|---|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions | |
| 33-43-1A | (ALL) | D | 1 | 0 | May be inoperative for daylight operations. | |
| 33-43-1B | (ALL) | C | 1 | 0 | May be inoperative provided operations are not conducted at night into known or forecast icing conditions. | |
| **33-44-1** | **Landing lights** | | | | | |
| 33-44-1A | (CAT) | B | – | – | 50 % of landing lights may be inoperative for night operations. | |
| 33-44-1B | (NCO/SPO) | C | – | 1 | Any in excess of one may be inoperative for night operation. | |
| 33-44-1C | (ALL) | C | – | 0 | One or more may be inoperative for daylight operations. | |

**Additional considerations:**

- **33-10-1B Flight deck lighting:** Emergency lighting might need to be taken into consideration.
- **33-20-1C Passenger compartment lighting:** No reference available for the level of required illumination in the cabin.
- **33-20-2 Cabin signs:** A passenger address system might have to be considered.
- **33-42-1 Anti-collision light system:** Strobe lights can be considered as anti-collision lights only if granted by certification.
- **33-44-1 Landing lights:** Alternate dispatch conditions may be proposed based on the use of taxi lights, if adequate for the intent of purpose.
- **Additional optional lights:** Additional dispatch relief could be given for optional lights (external courtesy/utility lights, tail logo light, recognition lights).

- **Lighted switches/buttons:** Additional relief could be given on a case-by-case basis in a dedicated item.

| **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 |
| **34-10-1** | **Primary airspeed indication** | | | | *Note:* Standby airspeed indication is not considered as a primary airspeed indication by this guidance. |
| 34-10-1A | (CAT) | C | – | – | May be inoperative provided:<br>(a) a primary independent airspeed indication is available at each required pilot's station.<br>(b) a standby airspeed indication is available. |
| 34-10-1B | (NCO/SPO) | C | – | 1 | Any in excess of one available at pilot's station may be inoperative, provided it is not associated with emergency procedures. |
| **34-10-2** | **Primary altitude indication** | | | | *Note:* A secondary/standby altitude indication is not considered as a primary altitude indication. |
| 34-10-2A | (CAT) | B | – | – | May be inoperative provided:<br>(a) flight is conducted under VFR,<br>(b) an independent altitude indication is available at each required pilot's station, and<br>(c) an additional independent altitude indication is operative for single pilot operations.<br><br>*Note:* For single pilot operations a secondary/standby or off-side indication may satisfy condition (b) or (c), if visibility requirements are met. |

| **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 | |
| 34-10-2B | (CAT) | B | – | – | May be inoperative provided:<br>(a) flight is conducted under VFR in sight of the surface, and<br>(b) a primary altitude indication is available at each required pilot's station. | |
| 34-10-2C | (NCO/SPO) | C | – | – | May be inoperative provided:<br>(a) flight is conducted under VFR, and<br>(b) an altitude indication is available at each required pilot's station.<br>*Note:* For single pilot operations a secondary/standby or off-side indication may satisfy condition (b), if visibility requirements are met. | |
| **34-10-3** | **Turn and slip indicator** | | | | | |
| 34-10-3-1 | **Turn indication** | | | | | |
| 34-10-3-1A | (CAT) | B | – | 0 | May be inoperative for single pilot operations provided operations are conducted under day VFR. | |
| 34-10-3-1B | (ALL) | C | – | 0 | May be inoperative for single pilot operations provided standby attitude indication is operative. | |
| 34-10-3-1C | (NCO/SPO) | C | – | 0 | May be inoperative for single pilot operations provided operations are conducted under day VFR. | |

| **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 | |
| 34-10-3-1D | (ALL) | C | – | 1 | Any in excess of one may be inoperative provided:<br>(a) the operative turn indication is on the pilot flying side, and<br>(b) primary attitude indications are operative at each required pilot's station. | |
| 34-10-3-1E | (ALL) | B | – | 1 | Any in excess of one may be inoperative provided:<br>(a) operations are conducted under day VMC, and<br>(b) primary attitude indications are operative at each required pilot's station. | |
| 34-10-3-2 | **Slip indicator** | | | | | |
| 34-10-3-2A | (ALL) | C | – | 1 | Any in excess of one may be inoperative provided the operative slip indicator is on the pilot flying side. | |
| 34-10-3-2B | (NCO/SPO) | D | – | 0 | May be inoperative provided operations are conducted under day VFR. | |
| **34-10-4** | **Vertical speed indicator** | | | | | |
| 34-10-4A | (CAT) | C | – | 1 | Any in excess of one may be inoperative provided the operative VSI is on the pilot flying side. | |
| 34-10-4B | (NCO/SPO) | C | – | 0 | May be inoperative for day VFR operation. | |

| **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 |
| **34-10-5** | **Outside Air Temperature (OAT) indicator** | | | | |
| 34-10-5A | (ALL) | C | – | 0 | (O) May be inoperative provided another air temperature indication is operative that is convertible to OAT.<br>*(O) Procedures must be established to provide guidance to the crew to convert the alternate temperature indication in OAT.* |
| 34-10-5B | (ALL) | C | – | 0 | May be inoperative provided:<br>(a) operations are conducted under VFR,<br>(b) operations are not conducted in known or forecasted icing conditions, and<br>(c) weather reports indicate that at any point of the route intended to be flown, the OAT is within the aeroplane's operating temperature limitations. |
| **34-15-1** | **Altitude alerting system** | | | | |
| 34-15-1A | (ALL) | C | – | 0 | (O) May be inoperative provided the altitude alerting system is not part of the equipment required for intended operation.<br>*(O) Procedures must be established to specify any applicable restriction for operations requiring a specific approval.* |

| **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 |
| **34-15-2** | **Radio altimeter** | | | | |
| 34-15-2A | (ALL) | C | – | 0 | May be inoperative provided approach minima or operating procedures are not dependent upon its use. |
| **34-20-1** | **Stabilised direction indication** | | | | |
| 34-20-1A | (CAT) | C | – | 1 | Any in excess of one may be inoperative for single pilot operations provided:<br>(a) a stabilised direction indication is operative on the pilot flying side, and<br>(b) magnetic/standby compass is operative. |
| 34-20-1B | (CAT) | B | – | 1 | (O) Any in excess of one may be inoperative provided:<br>(a) operations are conducted under day VFR,<br>(b) the stabilised direction indication is displayed at each required pilot's station, and<br>(c) magnetic/standby compass is operative.<br>*(O) Procedures must be established to ensure adequate configuration of the displays in accordance with the above condition (b).* |

| **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 | |
| 34-20-1C | (NCO/SPO) | C | – | 1 | Any in excess of one may be inoperative provided a stabilised direction indication is operative on the pilot flying side. | |
| 34-20-1D | (NCO/SPO) | C | – | 0 | May be inoperative on the pilot flying side for day VFR operations, in sight of the surface with adequate external attitude reference. | |
| **34-20-2** | **Primary attitude indication** | | | | *Note:* A secondary/standby attitude indication is not considered as a primary indication. | |
| 34-20-2A | (CAT) | C | – | 1 | Any in excess of one may be inoperative for single pilot operations provided the primary attitude indication is operative on the pilot flying side. | |

| **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 | |
| 34-20-2B | (CAT) | B | – | 1 | (O) Any in excess of one may be inoperative provided:<br>(a) operations are conducted under VFR,<br>(b) the primary attitude indication is displayed on both pilots' station, and<br>(c) standby attitude indication is working.<br>*(O) Procedures must be established to ensure adequate configuration of the displays in accordance with the above condition (b).* | |
| 34-20-2C | (NCO/SPO) | C | – | 1 | Any in excess of one may be inoperative for single pilot operations provided the primary attitude indication is operative on the pilot flying side. | |
| 34-20-2D | (NCO/SPO) | B | – | 0 | May be inoperative provided:<br>(a) operations are conducted under VFR, and<br>(b) standby attitude indication is operative. | |
| 34-20-2E | (CAT) | B | – | 0 | May be inoperative for single pilot operations provided:<br>(a) operations are conducted under day VFR in sight of surface with adequate external attitude reference, and<br>(b) a standby attitude indication is operative. | |

| **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 | |
| 34-20-2F | (NCO/SPO) | C | – | 0 | May be inoperative for single pilot operations provided operations are conducted under day VFR and in sight of the surface with adequate external attitude reference. | |
| **34-20-3** | **Standby attitude indication** | | | | | |
| 34-20-3A | (ALL) | C | – | 0 | May be inoperative provided the primary attitude indication is not provided through an electronic display indicator. | |
| **34-22-1** | **Magnetic/Standby compass** | | | | | |
| 34-22-1A | (ALL) | B | – | 0 | May be inoperative for single pilot operations provided:<br>(a) a stabilised direction indication is operative on the pilot flying side, and<br>(b) another source of magnetic heading is available and visible by the pilot flying. | |
| 34-22-1B | (ALL) | B | – | 0 | May be inoperative provided:<br>(a) operations are conducted under day VFR, and<br>(b) two independent stabilised direction indications are operative. | |

| **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 | |
| 34-22-1C | (ALL) | B | – | 0 | May be inoperative provided:<br>(a) two independent stabilised direction indications are operative, and<br>(b) another source of magnetic heading is available and visible by the pilot flying. | |
| **34-31-1** | **Marker beacon** | | | | | |
| 34-31-1A | (ALL) | C | – | 0 | May be inoperative under IFR operations provided approach procedures do not require marker fixes. | |
| 34-31-1B | (ALL) | D | – | 0 | May be inoperative under VFR operations. | |
| **34-32-1** | **Approach aids**<br>**(e.g. ILS, Satellite-Based Augmentation System (SBAS))** | | | | | |
| 34-32-1A | (ALL) | B | – | 0 | May be inoperative under IFR operations provided approaches and missed approaches where navigation is based on the affected item are not included in the flight plan. | |
| 34-32-1B | (ALL) | D | – | 0 | May be inoperative under VFR operations. | |

| **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 | |
| **34-40-1** | **Airborne collision avoidance system (ACAS)** | | | | | |
| 34-40-1A | (CAT) | C | – | 0 | (O)(M) May be inoperative provided:<br><br>(a) ACAS is deactivated, and<br>(b) operating procedures do not require its use.<br><br>*(O) Procedures must be established to provide alternate crew procedures, as applicable.*<br>*(M) Procedures must be established to deactivate ACAS.* | |
| 34-40-1B | (NCO/SPO) | D | – | 0 | (O)(M) May be inoperative provided:<br><br>(a) ACAS is deactivated, and<br>(b) operations are not conducted in an airspace where ACAS is required.<br><br>*(M) Procedures must be established to deactivate ACAS.* | |
| **34-41-1** | **Weather detection system**<br><br>(Antenna, transceiver, controllers, displays) | | | | | |
| 34-41-1A | (CAT unpressurised aeroplanes / SPO unpressurised aeroplanes / NCO) | D | – | 0 | May be inoperative. | |

| **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 |
| 34-41-1B | (CAT pressurised aeroplanes / SPO pressurised aeroplanes) | C | – | 0 | May be inoperative provided operations are conducted in day VMC. |
| 34-41-1C | (CAT pressurised aeroplanes / SPO pressurised aeroplanes) | 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 intended flight route. |
| 34-41-1-1 | Wind shear detection/ Warning system predictive function | | | | |
| 34-41-1-1A | (ALL) | C | – | 0 | May be inoperative. |
| **34-43-1** | **Terrain awareness warning system (Class B TAWS)** | | | | |
| 34-43-1A | (ALL) | D | – | 0 | May be inoperative. |
| 34-43-1-1 | Modes 1 and 3 | | | | |

| **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 | |
| 34-43-1-1A | (ALL) | C | – | 0 | One or more modes may be inoperative provided forward looking terrain avoidance (FLTA) and premature descent alert (PDA) functions are operative. | |
| 34-43-1-2 | Glideslope deviation (Mode 5) | | | | | |
| 34-43-1-2A | (ALL) | B | – | 0 | May be inoperative. | |
| 34-43-1-2B | (ALL) | C | – | 0 | May be inoperative for day VMC only. | |
| 34-43-1-3 | FLTA and PDA functions | | | | | |
| 34-43-1-3A | (ALL) | B | – | 0 | May be inoperative provided:<br>(a) modes 1 and 3 are operative, and<br>(b) approaches procedures do not require its use. | |
| 34-43-1-4 | Advisory callouts | | | | | |
| 34-43-1-4A | (ALL) | C | – | 0 | (O) May be inoperative provided:<br>(a) low visibility approaches requiring the use of affected callouts are not performed, and<br>(b) alternate procedures are established and used.<br>*Note:* Check flight manual limitations for approach minima.<br>*(O) Procedures must be established to provide alternate crew procedures, as applicable.* | |

| **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 |
| **34-51-1** | **Navigation systems (based on VOR, DME, ADF, Global Navigation Satellite System, Inertial Navigation System)** | | | | |
| 34-51-1A | (CAT) | C | – | – | (O) One or more may be inoperative provided:<br>(a) the navigation systems required for each segment of the intended flight route are operative, and<br>(b) alternate procedures are established and used, where applicable.<br><br>*(O) Procedures must be established to give alternate procedures in case existing operational procedures are affected.* |
| 34-51-1B | (NCO/SPO) | D | – | – | (O) One or more may be inoperative provided:<br>(a) the navigation systems required for each segment of the intended flight route are operative, and<br>(b) alternate procedures are established and used, where applicable.<br><br>(O) Procedures must be established to give alternate procedures in case existing operational procedures are affected. |

| **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 |
| **34-54-1** | **Secondary Surveillance Radar (SSR) transponder mode A/C** | | | | |
| 34-54-1A | (ALL) | D | – | – | Any in excess of those required by the airspace may be inoperative. |
| **34-54-2** | **SSR transponder mode S** | | | | |
| 34-54-2A | (ALL) | D | – | – | Any in excess of those required for the intended flight route may be inoperative.<br><br>*Note 1:* An SSR transponder with an operative mode S function is defined as a transponder which can provide, at least, elementary surveillance capability. |
| 34-54-2B | (ALL) | 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. |

| **ATA CHAPTER: 34 Navigation** | | PAGE: 34-x |
|---|---|---|
| (1) System & sequence numbers<br><br>item | (2) Rectification interval<br>(3) Number installed<br>(4) Number required for dispatch | (5) Remarks or exceptions |
| 34-54-2-1 **Enhanced surveillance functions** | | *Note 1:* An SSR transponder with an operative mode S function is defined as a transponder which can provide, at least, elementary surveillance capability.<br><br>*Note 2:* Elementary surveillance (ELS) capability (mode S including aeroplane identification and pressure altitude reporting) is required in European mode S designated airspace.<br><br>*Note 3:* Altitude reporting, provided by an SSR transponder mode S function, is required for ACAS II operation. Refer to item 34-40-1 for flight with ACAS II inoperative.<br><br>*Note 4:* Altitude reporting, provided by an SSR transponder mode S function, is required for flight into RVSM airspace. |

| **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 | |
| 34-54-2-1A | (ALL) | 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 | (ALL) | C | – | 0 | One or more downlinked aircraft parameters (DAPs) which provide enhanced surveillance may be inoperative when required for the intended flight route.<br><br>*Note 1:* Enhanced surveillance capability is required in mode S enhanced notified airspace. | |
| 34-54-2-2 | **Extended squitter (ADS-B out) transmissions** | | | | | |
| 34-54-2-2A | (ALL) | D | – | 0 | One or more extended squitter transmissions may be inoperative when not required for the intended flight route. | |

| **ATA CHAPTER: 34 Navigation** | | | | PAGE: 34-x |
|---|---|---|---|---|
| (1) System & sequence numbers<br><br>item | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 34-54-2-2B (ALL) | C | – | 0 | One or more extended squitter transmissions may be inoperative when required for the intended flight route. |

**Additional considerations:**

- **34-10-5 OAT indicator:** This item applies to reciprocating engine-powered aeroplanes of more than 2 722 kg (6 000 lbs) maximum weight and turbine engine-powered aeroplanes.
- **34-20-2A Primary attitude indication:** For electronic cockpits the standby horizon must be operative.
- **34-51-1 Navigation systems:** The listed items are applicable to simple avionics architecture. In case of more complex or more integrated architecture, the dispatch conditions need to be adapted accordingly.

| **ATA CHAPTER: 35 Oxygen** | | | | | **PAGE: 35-x** |
|---|---|---|---|---|---|
| (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**<br><br>**Non-pressurised aeroplanes** | | | | |
| 35-00-1A | (ALL) | D | – | – | Any in excess of those required may be inoperative. |
| **35-10-1** | **Flight crew fixed oxygen system**<br><br>(Supplemental) | | | | |
| 35-10-1-1 | Flight deck pressure indications | | | | |
| 35-10-1-1A | (ALL) | C | – | – | (O)(M) One or more may be inoperative provided a procedure is used to ensure the oxygen supply is above the minimum for the intended flight.<br><br>*(O)/(M) Procedures must be established 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 | (ALL) | C | – | 0 | One or more may be inoperative provided the associated flight deck pressure indication is operative. |

| **ATA CHAPTER: 35 Oxygen** | | | | | **PAGE: 35-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| 35-10-1-3 | Additional oxygen masks (e.g. supernumerary) | | | | |
| 35-10-1-3A | (ALL) | D | – | – | Any in excess of those required may be inoperative. |
| **35-20-1** | **Passenger oxygen system**<br>**(Supplemental oxygen)** | | | | |
| 35-20-1A | (ALL) | C | – | 0 | (O)(M) May be inoperative provided:<br>(a) maximum altitude is limited to 10 000 ft pressure altitude.<br>(b) an adequate supply of fresh air is provided to the cabin, and<br>(c) passengers are appropriately briefed.<br>*(O)/(M) Procedures must be established to set the aeroplane in a configuration providing an adequate supply of fresh air to the cabin.*<br>*(O) Procedures must be established to provide a passenger briefing in accordance with the dispatch configuration.* |
| 35-20-1B | (ALL) | D | – | 0 | May be inoperative provided no cabin occupant is carried. |

**Additional considerations:**

- **35-20-1 Passenger oxygen system:** The fresh air is non-recirculated air.

| **ATA CHAPTER: 38 Water/Waste** | | | | | **PAGE: 38-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **38-30-1** | **Lavatory waste system** | | | | |
| 38-30-1A | (ALL) | D | 1 | 0 | (M) May be inoperative provided:<br>(a) waste is drained and system is inspected for leakage,<br>(b) system components are deactivated, and<br>(c) lavatory access is closed and placarded 'INOPERATIVE — DO NOT USE'.<br><br>*(M) Procedures must be established to drain, inspect and deactivate the system.* |
| 38-30-2 | **Pilot relief tube** | | | | |
| 38-30-2A | (ALL) | D | - | 0 | May be missing or inoperative provided it is not used. |

| **ATA CHAPTER: 46 Information systems** | | | | | **PAGE: 46-x** |
|---|---|---|---|---|---|
| (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 | (ALL) | C | – | 0 | (M)(O) May be inoperative provided alternate procedures are established and used where operating procedures are dependent upon the use of the affected EFB. |
| **46-20-2** | **Class 2 EFB** | | | | |
| 46-20-2-1 | Mounting device | | | | |
| 46-20-2-1A | (ALL) | 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 | (ALL) | C | – | 0 | (M)(O) May be inoperative provided:<br>(a) the associated EFB is used in accordance with class 1 EFB storage criteria, and<br>(b) alternate procedures are established and used where operating procedures are dependent upon the use of the affected EFB. |
| 46-20-2-2 | Data connectivity | | | | |
| 46-20-2-2A | (ALL) | C | – | 1 | (M)(O) Any in excess of one may be inoperative provided an alternate means of data connectivity is used. |
| 46-20-2-2B | (ALL) | C | – | 0 | (M)(O) May be inoperative provided alternate procedures are established and used where operating procedures are dependent upon the use of the affected EFB. |

| **ATA CHAPTER: 46 Information systems** | | | | | **PAGE: 46-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **46-20-3** | **Power connection for class 1 and class 2 EFB** | | | | |
| 46-20-3A | (ALL) | C | – | 1 | (M)(O) Any in excess of one may be inoperative provided an alternative power source is available and can be used for the planned duration of use of the affected EFB. |
| 46-20-3B | (ALL) | C | – | 0 | (M)(O) May be inoperative provided alternate procedures are established and used.<br><br>*For all entries in ATA 46:*<br>*(M) Procedures must be established to give guidance reference for deactivation of affected item, as appropriate, and provide alternate means, as applicable.*<br>*(O) Procedures must be established to provide instructions to the crew for alternate procedures to be used.* |

**Additional considerations:**

- The purpose of entry 46-20-1 is not to require inclusion of class 1 & 2 EFBs in an operator's MEL, but it is a means of controlling inoperative EFB equipment. Other means may also be agreed with the National Aviation Authority (NAA).

  Any EFB function which operates normally may be used.

| **ATA CHAPTER: 52 Doors** | | | | | **PAGE: 52-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **52-10-1** | **Door key locks** | | | | |
| 52-10-1 | (ALL) | D | – | – | (M) May be inoperative provided the lock is secured in the UNLOCKED position.<br><br>*(M) Procedures must be established to secure the lock in the unlocked position.* |
| **52-70-1** | **Cabin door warning light** | | | | |
| 52-70-1A | (ALL) | C | 1 | 0 | (O) May be inoperative provided:<br>(a) a flight crew member confirms by visual inspection that all doors are properly closed and locked prior to each departure,<br>(b) the doors are not reopened again prior to departure,<br>(c) 'Fasten Seat Belt' sign remains ON, and<br>(d) the passengers are briefed prior to each departure to have their seat belts fastened during the entire flight.<br><br>*(O) Procedures must be established to brief the passengers prior to each departure.* |

| **ATA CHAPTER: 61 Propellers** | | | | | **PAGE: 61-x** |
|---|---|---|---|---|---|
| (1) System & sequence numbers item | | (2) Rectification interval | (3) Number installed | (4) Number required for dispatch | (5) Remarks or exceptions |
| **61-20-1** | **Propeller synchrophasing system** | | | | |
| 61-20-1A | (ALL) | C | 1 | 0 | May be inoperative. |

## GUIDANCE MATERIAL TO CS-GENERIC-MMEL

### GM1 GEN.MMEL.105 Definitions

INOPERATIVE

(a) 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.

(b) It should be highlighted that unless it is specifically allowed by the MMEL, the item should not be removed.

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 equipment and/or instruments that perform a function.

### GM1 GEN.MMEL.107 Status of provided data

(a) Because of the alleviative nature of the MEL, the fact that the MMEL is mandatory data means that the MEL may not be less restrictive than the MMEL as specified under 8.a.3. of Annex IV to Regulation (EC) No 216/2008 but may be more restrictive. The MEL may contain less items than the MMEL.

(b) The content of the operational and maintenance procedures provided by the applicant is recommended to the end user.

### GM1 GEN.MMEL.110 MMEL purpose

AEROPLANE TYPE

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

### GM2 GEN.MMEL.110 MMEL purpose

NON-SAFETY-RELATED ITEMS

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

Non-safety-related items are defined in GM1 ORO.MLR.105(a).

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.

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

### GM1 GEN.MMEL.130 MMEL cover page, control page and 'General' section

The applicant can also propose its own format provided the contents and structure are respected.

**GM1 GEN.MMEL.150 Operational and maintenance procedures**

The periodicity of the performance of the procedures should be clarified either in a generic manner in the MMEL preamble or specifically in the associated dispatch conditions. Maintenance deactivation procedures 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.

Operational and maintenance procedures should be consistent with the existing operational and maintenance instructions (aeroplane flight manual, aeroplane maintenance manual, weight and balance manual, etc.).