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## ANNEX II TO ED DECISION 2022/011/R

### Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Annex II (Part-145) to Commission Regulation (EU) No 1321/2014

#### Issue 2 — Amendment 5

Annex II to Decision 2015/029/R is amended as follows:

The text of the amendment is arranged to show deleted, new or amended text as shown below:

- deleted text is ~~struck through~~;
- new or amended text is highlighted in **blue**;
- an ellipsis '[...]' indicates that the rest of the text is unchanged.

**Note to the reader**

*In amended, and in particular in existing (that is, unchanged) text, 'Agency' is used interchangeably with 'EASA'. The interchangeable use of these two terms is more apparent in the consolidated versions. Therefore, please note that both terms refer to the 'European Union Aviation Safety Agency (EASA)'.*

## GENERAL

### GM1 to Annex II (Part-145) Definitions

For the purpose of the AMC & GM to Part-145, the following definitions are used:

<b>Audit</b>	<p>refers to a systematic, independent, and documented process for obtaining evidence, and evaluating it objectively to determine the extent to which requirements are complied with.</p> <p><i>Note: Audits may include inspections.</i></p>
<b>Assessment</b>	<p>in the context of management system performance monitoring, continuous improvement and oversight, refers to a planned and documented activity performed by competent personnel to evaluate and analyse the achieved level of performance and maturity in relation to the organisation's policy and objectives.</p> <p><i>Note: An assessment focuses on desirable outcomes and the overall performance, looking at the organisation as a whole. The main objective of the assessment is to identify the strengths and weaknesses to drive continual improvement.</i></p> <p><i>Remark: For 'risk assessment', please refer to the definition below.</i></p>
<b>Base maintenance</b>	Ref. AMC1 145.A.10
<b>Base maintenance hangar</b>	refers to a closed facility that can house an aircraft and protect it from environmental conditions.
<b>Competency</b>	is a combination of individual skills, practical and theoretical knowledge, attitude, training, and experience.
<b>Correction</b>	is the action to eliminate a detected non-compliance.
<b>Corrective action</b>	is the action to eliminate or mitigate the root cause(s) and prevent the recurrence of an existing detected non-compliance, or other undesirable conditions or situations. Proper determination of the root cause(s) is crucial for defining effective corrective actions to prevent reoccurrence.
<b>Error</b>	<p>is an action or inaction by a person that may lead to deviations from accepted procedures or regulations.</p> <p><i>Note: Errors are often associated with occasions when a planned sequence of mental or physical activities either fails to achieve its intended outcome, or is not appropriate with regard to the intended outcome, and when results cannot be attributed purely to chance.</i></p>
<b>Fatigue</b>	is a physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental and/or physical activity) that can impair a person's alertness and ability to safely perform his or her tasks.

<b>Hazard</b>	is a condition or an object with the potential to cause or contribute to an aircraft incident or accident.
<b>Human factors</b>	is anything that affects human performance, which means principles that apply to aeronautical activities, and which seek safe interface between the human and other system components by proper consideration of human performance.
<b>Human performance</b>	refers to human capabilities and limitations which have an impact on the safety and efficiency of aeronautical activities.
<b>Inspection</b>	<p>in the context of compliance monitoring and oversight, refers to an independent documented conformity evaluation by observation and judgement accompanied, as appropriate, by measurement, testing or gauging, in order to verify compliance with applicable requirements.</p> <p><i>Note: Inspection may be part of an audit (e.g. product audit), but may also be conducted outside of the normal audit plan; for example, to verify closure of a particular finding.</i></p>
<b>Just culture</b>	Ref. Regulation (EU) No 376/2014, Article 2.
<b>Line maintenance</b>	Ref. AMC1 145.A.10
<b>Near miss</b>	<p>is an event in which an occurrence to be mandatorily reported according to Regulation (EU) No 376/2014 was narrowly averted or avoided.</p> <p><i>Example: A mechanic on rechecking his or her work at the end of a task realises that one work card step was not properly carried out.</i></p>
<b>Organisational factor</b>	is a condition that affects the effectiveness of safety risk controls, related to the culture, policies, processes, resources, and workplace of an organisation.
<b>Oversight planning cycle</b>	refers to the time frame within which all areas of the approval and all processes should be reviewed by the competent authority by means of audits and inspections.
<b>Oversight programme</b>	refers to the detailed oversight schedule that defines the number of audits and inspections, the scope and duration of each audit and inspection, including details of product audits and locations, as appropriate, to be performed by the competent authority, and the tentative time frame for performing each audit and inspection.
<b>Preventive action</b>	is the action to eliminate the cause of a potential non-compliance or other undesirable potential situations.
<b>Risk assessment</b>	is an evaluation based on engineering and operational judgement and/or analysis methods in order to establish whether the achieved or perceived risk is acceptable or tolerable.
<b>Safety culture</b>	is an enduring set of values, norms, attitudes, and practices within an organisation concerned with minimising the exposure of the workforce and the general public to dangerous or hazardous conditions. In a positive safety culture, a shared concern for, commitment to, and accountability for safety is promoted.

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Safety risk	refers to the predicted probability and severity of the consequences or outcomes of a hazard.
Safety training	<p>refers to dedicated training to support safety management policies and processes, including human factors training.</p> <p><i>Note: The main purpose of the safety training programme is to ensure that personnel at all levels of the organisation maintain their competency to fulfil their roles safely. Safety training should, in particular, consider the safety knowledge derived from hazard identification and risk management processes, and support the fostering of a positive safety culture.</i></p> <p><i>Note: Safety management training refers to specific training for the staff involved in safety management functions in accordance with point 145.A.30(ca) or 145.A.200(a)(3).</i></p>
Working days	refer to days between and including Monday to Friday, not including public holidays.

## SECTION A - TECHNICAL AND ORGANISATION REQUIREMENTS

### AMC1 145.A.10 Scope

#### LINE MAINTENANCE AND BASE MAINTENANCE

~~(a) 1. Line Maintenance should be understood as any maintenance that is carried out before flight to ensure that the aircraft is fit for the intended flight. 'Line maintenance' refers to limited maintenance for the aircraft suitable to be carried out whilst the aircraft remains in the air operation environment.~~

~~(a)~~ Line Maintenance may include:

- ~~T~~rouble-shooting;
- ~~D~~efect rectification;
- ~~C~~omponent replacement with use of external test equipment if required. Component replacement may include components such as engines and propellers;
- ~~Scheduled~~ maintenance ~~and/or checks including visual inspections~~ that will detect obvious unsatisfactory conditions/discrepancies/~~malfunctions~~, but does not require extensive in-depth inspection. It may also include internal structure, systems and powerplant items which are visible through quick opening access panels/doors/~~ports~~;
- ~~Minor~~ repairs, ~~and~~ modifications ~~and other maintenance tasks~~ which do not require extensive disassembly and can be accomplished by simple means.

~~(b)~~ 'Base maintenance' refers to any maintenance for the aircraft other than line maintenance.

~~(c)(b)~~ Organisations maintaining aircraft should have a procedure to determine whether the tasks or groups of tasks to be carried out fall under the line maintenance or base maintenance scope of the organisation, with due regard to the expected duration of the maintenance, number and type of tasks, shifts and disciplines involved, work environment, etc.

For temporary or occasional cases, the organisation may also have a procedure which allows, subject to a task assessment (including all relevant aspects and conditions), to conduct a base maintenance task under line maintenance environment ~~(ADs, SBs) the Quality Manager may accept base maintenance tasks to be performed by a line maintenance organisation provided all requirements are fulfilled as defined by the competent authority.~~

~~(c)~~ Maintenance tasks falling outside these criteria are considered to be Base Maintenance.

~~(d)~~ In particular, maintenance tasks of Aircraft subject to ~~maintained in accordance with~~ 'progressive' or 'equalised' ~~type~~ maintenance programmes should be individually assessed in

respect of such procedure to ensure ~~relation to this paragraph. In principle, the decision to allow some 'progressive' checks to be carried out should be determined by the assessment~~ that all the tasks within the particular check can be carried out safely and to the required standards at the designated line maintenance station.

- ~~2. Where the organisation uses facilities both inside and outside the Member State such as satellite facilities, sub-contractors, line stations etc., such facilities may be included in the approval without being identified on the approval certificate subject to the maintenance organisation exposition identifying the facilities and containing procedures to control such facilities and the competent authority being satisfied that they form an integral part of the approved maintenance organisation.~~

## GM1 145.A.10 Scope

### SMALL ORGANISATIONS

This Guidance Material (GM) provides guidance on how the following smallest organisations satisfy the intent of Part-145:

- ~~1. By inference, the smallest maintenance organisation would only be involved in a limited number of light aircraft, or aircraft components, used for commercial air transport. It is therefore a matter of scale; light aircraft do not demand the same level of resources, facilities or complex maintenance procedures as the large organisation.~~
- ~~2. It is recognised that a Part 145 approval may be required by two quite different types of small organisations, the first being the light aircraft maintenance hangar, the second being the component maintenance workshop, e.g. small piston engines, radio equipment, etc.~~
- (a) 3. Organisations that only employ one person, who carries out the certification function and other functions, and that are approved under Part-145 may use the alternatives provided below in point 3.1 limited to the following terms of approval:**
  - **Class A2** Base and line maintenance of aeroplanes of 5 700 kg maximum take-off mass (MTOM) or less and below (with piston engines only).
  - **Class A3** Base and line maintenance of single-engined helicopters of 3 175 kg MTOM or less than 3 175 kg.
  - **Class A4** Aircraft other than A1, A2 and A3 aircraft
  - **Class B2** Piston engines with maximum output of less than 450 HP.
  - **Class C** Components.
  - **Class D1** Non-destructive Testing.

~~3.1.~~ 145.A.30(b): The minimum requirement is for one full-time person who meets the Part-66 requirements for certifying staff and holds the position of 'accountable manager, **safety manager**, maintenance engineer and is also certifying staff and, if applicable, airworthiness review staff'. No other person may issue a certificate of release to service and therefore if **that person is** absent, no maintenance may be released during such absence.

~~3.1.~~ (1)- The **independent audit element of the compliance** ~~quality~~ monitoring function of point 145.A.200(a)(6) ~~145.A.65(c)~~ may be **subcontracted** to an appropriate organisation approved under Part-145 or **contracted** to a person with appropriate technical knowledge and extensive experience of **quality** audits, **working under the management system of the organisation**, ~~employed on a part time basis~~, with the agreement of the competent authority.

Note: **Full-time** for the purpose of Part-145 means not less than 35 hrs per week except during vacation periods.

~~3.1.~~ (2)- 145.A.35. In the case of an approval based on one person using an **subcontracted quality independent audit** monitoring arrangement **as referred to in point (1)**, the requirement for a record of certifying staff is satisfied by the submission to and acceptance by the competent authority of the **MOE EASA Form 4**. With only one person, the requirement for a separate record of authorisation is unnecessary because the EASA Form 3 **certificate approval schedule** defines the authorisation. An appropriate statement, to reflect this situation, should be included in the exposition.

~~3.1.~~ (3)- **145.A.200(a)(6) 145.A.65(c)**. It is the responsibility of the ~~contracted quality monitoring~~ organisation or person **referred to in point (1)** to make a minimum of ~~2~~ **two** on-site audits every year, ~~visits per 12 months~~ and it is the responsibility of this organisation or person to carry out **these activities** ~~such monitoring~~ on the basis of ~~1~~ **one** pre-announced visit and **one** ~~1 not un~~announced visit to the **maintenance** organisation.

It is the responsibility of the **Part-145** organisation to **ensure that effective implementation of all corrective actions takes place**. ~~comply with the findings of the contracted quality monitoring organisation or the person.~~

~~CAUTION: it should be understood that if the contracted organisation or the above mentioned person loses or gives up its approval, then the organisation's approval will be suspended.~~

**(b)4.** Recommended operating procedure for a Part-145 ~~approved maintenance~~ organisation based upon up to 10 persons involved in maintenance.

~~4.1.~~ (1) 145.A.30(b) **and 145.A.30(c)**: The normal minimum requirement is for the employment on a full-time basis of two persons who meet the **applicable competent authorities'** requirements for certifying staff, whereby one holds the position of 'maintenance engineer' and the other holds the position of '~~quality audit~~ **compliance monitoring** engineer'.

Either person can assume the responsibilities of the accountable manager and safety manager provided that they can comply in full with the applicable elements of points 145.A.30(a) and 145.A.30(ca), but the 'maintenance engineer' is the certifying person in order to retain the independence of the 'quality audit compliance monitoring engineer' to carry out audits. Nothing prevents either engineer from undertaking maintenance tasks provided that the 'maintenance engineer' issues the certificate of release to service. This 'maintenance engineer' may also be nominated as airworthiness review staff to carry out airworthiness reviews and to issue the corresponding airworthiness review certificate for aircraft for which Part-ML applies in accordance with ML.A.903.

The 'quality audit compliance monitoring engineer' should have similar qualifications and status to the 'maintenance engineer' for reasons of credibility, unless he/she has a proven track record in aircraft compliance monitoring quality assurance, in which case some reduction in the extent of his or her maintenance qualifications may be permitted.

In cases where the competent authority agrees that it is not practical for the organisation to nominate a person responsible post holder for the quality independent audit of the compliance monitoring function, this element function may be arranged contracted in accordance with point to paragraph (a)(1). 3-1-1.

## AMC1 145.A.15 Application for an organisation certificate

~~In a form and in a manner established by the competent authority means that the~~ An application should be made on an EASA Form 2 (refer to Appendix III to AMC1 145.A.15 ~~to Part 145~~) or an equivalent form that is acceptable to the competent authority.

EASA Form 2 is valid for the application for other types of organisations pursuant to Regulation (EU) No 1321/2014. Organisations that apply for several certificates may do so using a single EASA Form 2.

## AMC2 145.A.15 Application for an organisation certificate

### GENERAL

- (a) Draft documents should be submitted at the earliest opportunity so that the assessment of the application can begin. The initial certification or approval of changes cannot take place until the competent authority has received the completed documents.
- (b) This information, including the results of the pre-audit specified in point 145.A.15(b)(1), will enable the competent authority to conduct its assessment in order to determine the volume of certification and oversight work that is necessary, and the locations where it will be carried out.
- (c) The intent of the internal pre-audit referred to in point 145.A.15(b)(1) is to ensure that the organisation has internally verified its compliance with the Regulation. This should allow the organisation to demonstrate to the competent authority the extent to which the applicable requirements are complied with, and to provide assurance that the organisation management

system (including compliance monitoring system) is established to a level that is sufficient to perform maintenance activities.

### AMC1 145.A.20 Terms of approval and scope of work

[...]

### AMC2 145.A.20 Terms of approval and scope of work

Facilities such as stores, line stations, component or subcontractors workshops that are not located together with the main facilities of the organisation may be covered by the organisation approval without being identified on the organisation certificate, provided that the MOE identifies these facilities and contains procedures to control such facilities, and the competent authority is satisfied that they form an integral part of the approved maintenance organisation.

### AMC1 145.A.25(a) Facility requirements

1. Where the hangar is not owned by the organisation, it may be necessary to establish proof of tenancy. In addition, sufficiency of hangar space to carry out planned base maintenance should be demonstrated by the preparation of a projected aircraft hangar visit plan relative to the intended maintenance activities ~~maintenance programme~~. The aircraft hangar visit plan should be updated on a regular basis.

[...]

4. ~~Aircraft maintenance staff should be provided with an area where they may study maintenance instructions and complete maintenance records in a proper manner.~~

Subject to a risk assessment and agreement by the competent authority, the organisation may use facilities at the approved location other than a base maintenance hangar for certain aircraft base maintenance tasks, provided that those facilities offer levels of weather and environmental protection that are equivalent to those of a base maintenance hangar, as well as a suitable working environment for the particular work package. This does not exempt an organisation from the requirement to have a base maintenance hangar in order to be approved to conduct base maintenance at a given location.

### AMC1 145.A.30(a) Personnel requirements

#### ACCOUNTABLE MANAGER

~~With regard to the accountable~~ Accountable manager, ~~it~~ is normally intended to mean the chief executive officer of the approved maintenance organisation, who by virtue of his or her position has

overall (including in particular financial) responsibility for running the organisation. The accountable manager may be the accountable manager for more than one organisation and is not necessarily required to be necessarily knowledgeable on technical matters, as the MOE maintenance organisation exposition defines the maintenance standards. When the accountable manager is not the chief executive officer, the organisation should demonstrate to the competent authority that the competent authority will need to be assured that such an accountable manager has direct access to the chief executive officer and has the necessary a sufficiency of maintenance funding allocation for the intended maintenance activities.

## AMC1 145.A.30(b) Personnel requirements

### MANAGEMENT STRUCTURE FOR MAINTENANCE

The person or group of persons nominated under point 145.A.30(b), with the responsibility to ensure that the organisation works in accordance with the MOE and approved procedures (i.e. responsibility for ensuring compliance) should represent the management structure of the organisation and be responsible for the daily operation of the organisation, in respect of all maintenance-related functions.

1. Dependent upon the size of the organisation, the Part-145 maintenance functions may be subdivided under nominated persons individual managers or combined in any number of ways. However, a maintenance function cannot be combined with the compliance monitoring function.

The maintenance functions include maintenance/safety training, performance and certification of maintenance, equipment and component procurement, facility management, man-hour plan, etc., and it should be ensured that each Part-145 maintenance function is attributed to one nominated person.

2. Dependent upon the extent of approval, The the organisation structure should normally include have, dependent upon the extent of approval, a base maintenance manager, a line maintenance manager, and a workshop manager and a quality manager, all of whom should report to the accountable manager except in a small Part-145 organisation where any one manager may also be the accountable manager, as determined by the competent authority, he/she may also be the line maintenance manager or the workshop manager.
3. The base maintenance manager is responsible for ensuring that all base maintenance required to be is carried out in the base maintenance hangar (or facility as provided for in point 4 of AMC1 145.A.25(a)), plus any defect rectification carried out during base maintenance, is carried out and to the design and quality standards specified in point 145.A.65(b). The base maintenance manager is also responsible for any base maintenance-related corrective actions resulting from the quality compliance monitoring of point 145.A.200(a)(6) 145.A.65(c).
4. The line maintenance manager is responsible for ensuring that all line maintenance required to be carried out on the line including line defect rectification is carried out to the standards specified in point 145.A.65(b) and. This manager is also responsible for any line maintenance-

- ~~related~~ corrective actions resulting from the ~~quality~~ compliance monitoring of ~~point 145.A.200(a)(6)~~ ~~145.A.65(c)~~.
5. The workshop manager is responsible for ensuring that all work on aircraft components ~~in the workshop~~ is carried out to the standards specified in ~~point 145.A.65(b) and~~. This manager is also responsible for ~~any workshop-related~~ corrective actions resulting from the ~~quality~~ compliance monitoring of ~~point 145.A.200(a)(6)~~ ~~145.A.65(c)~~.
  6. ~~(reserved) The quality manager's responsibility is specified in 145.A.30(c)~~.
  7. Notwithstanding the examples of titles provided in points ~~sub-paragraphs 2 - 5~~ ~~6~~ titles, the organisation may adopt any title for the foregoing managerial positions but ~~it~~ should identify to the competent authority the titles and ~~the~~ persons chosen to carry out these functions.
  8. Where an organisation chooses to appoint managers for all or any combination of the identified ~~Part 145~~ maintenance functions because of the size of the undertaking, ~~it is necessary that~~ these managers ~~should~~ report ~~to the accountable manager~~ ~~ultimately~~ through ~~the nominated persons~~ ~~either the base maintenance manager or line maintenance manager or workshop manager or quality manager, as appropriate, to the accountable manager.~~

~~NOTE: Certifying staff may report to any of the managers specified depending upon which type of control the approved maintenance organisation uses (for example licensed engineers/independent inspection/dual function supervisors etc.) so long as the quality compliance monitoring staff specified in 145.A.65(c)(1) remain independent.~~

## GM1 145.A.30(b) Personnel requirements

### RESPONSIBILITY FOR ENSURING COMPLIANCE

The person(s) nominated in accordance with 145.A.30(b) are responsible, in the day-to-day maintenance activities, for ensuring that the organisation personnel work in accordance with the applicable procedures and regulatory requirements.

These nominated persons should demonstrate a complete understanding of the applicable regulatory requirements, and ensure that the organisation's processes and standards accurately reflect these requirements. It is their role to ensure that compliance is proactively managed, and that early warning signs of non-compliance are documented and acted upon.

### AMC 145.A.30(c) Personnel requirements

~~Monitoring the quality system includes requesting remedial action as necessary by the accountable manager and the nominated persons referred to in 145.A.30(b).~~

## AMC1 145.A.30(c);(ca) Personnel requirements

### SAFETY MANAGEMENT AND COMPLIANCE MONITORING FUNCTION

#### (a) Safety management

If more than one person is designated for the development, administration and maintenance of effective safety management processes, the accountable manager should identify the person who acts as the unique focal point, i.e. the 'safety manager'.

The functions of the safety manager should be to:

- (i) facilitate hazard identification, risk assessment and management;
- (ii) monitor the implementation of actions taken to mitigate risks, as listed in the safety action plan, unless action follow-up is addressed by the compliance monitoring function;
- (iii) provide periodic reports on safety performance to the safety review board (the functions of the safety review board are those defined in AMC1 145.A.200(a)(1));
- (iv) ensure the maintenance of safety management documentation;
- (v) ensure that there is safety training available, and that it meets acceptable standards;
- (vi) provide advice on safety matters; and
- (vii) ensure the initiation and follow-up of internal occurrence investigations.

#### (b) Compliance monitoring function

If more than one person is designated for the compliance monitoring function, the accountable manager should identify the person who acts as the unique focal point, i.e. the 'compliance monitoring manager'.

(1) The role of the compliance monitoring manager should be to ensure that:

- (i) the activities of the organisation are monitored for compliance with the applicable requirements and any additional requirements as established by the organisation, and that these activities are carried out properly under the supervision of the nominated persons referred to in points (b), (c) and (ca) of point 145.A.30;
- (ii) any maintenance contracted to another maintenance organisation is monitored for compliance with the contract or work order;
- (iii) an audit plan is properly implemented, maintained, and continually reviewed and improved; and
- (iv) corrections and corrective actions are requested as necessary.

(2) The compliance monitoring manager should:

- (i) not be one of the persons referred to in point 145.A.30(b);

- (ii) be able to demonstrate relevant knowledge, background and appropriate experience related to the activities of the organisation, including knowledge and experience in compliance monitoring; and
  - (iii) have access to all parts of the organisation, and as necessary, any subcontracted organisation.
- (c) If the functions related to compliance monitoring or safety management are combined with other duties, the organisation should ensure that this does not result in any conflicts of interest. In particular, the compliance monitoring function should be independent from the maintenance functions.
- (d) If the same person is designated to manage both the compliance monitoring function and safety management-related processes and tasks, the accountable manager, with regard to his or her direct accountability for safety, should ensure that sufficient resources are allocated to both functions, taking into account the size of the organisation, and the nature and complexity of its activities.
- (e) Subject to a risk assessment and/or mitigation actions, and agreement by the competent authority, with due regard to the size of the organisation and the nature and complexity of its activities, the compliance monitoring manager role and/or safety manager role may be exercised by the accountable manager, provided that he or she has demonstrated the related competency.

## GM1 145.A.30(ca) Personnel requirements

### SAFETY MANAGER

- (a) Depending on the size of the organisation and the nature and complexity of its activities, the safety manager may be assisted by additional safety personnel in performing all the safety management tasks defined in AMC1 145.A.200(a)(1).
- (b) Regardless of the organisational set-up, it is important that the safety manager remains the unique focal point for the development, administration, and maintenance of the organisation's safety management processes.

## GM1 145.A.30(cb) Personnel requirements

### RESPONSIBILITY OF THE NOMINATED PERSONS TO THE ACCOUNTABLE MANAGER

There are different ways to set up the organisation including the possibility to have managerial layers between the accountable manager and the nominated person. But the key principle is that, regardless of the arrangement, there is one nominated person responsible for each Part-145 function, this responsibility is recognised by that nominated person and the accountable manager, and a direct

communication channel exists between them. The nominated person's responsibility should not be diluted into the various levels of management and should be free of conflicts of interest.

## AMC1 145.A.30(cc) Personnel requirements

### KNOWLEDGE, BACKGROUND AND EXPERIENCE OF NOMINATED PERSON(S)

The person or persons to be nominated in accordance with points (b), (c) and (ca) of point 145.A.30 should have:

- (a) practical experience and expertise in the application of aviation safety standards and safe operating practices;
- (b) knowledge of:
  - (1) human factors principles;
  - (2) EU management system requirements and their application (including safety management systems and compliance monitoring);
- (c) 5 years of relevant work experience, of which at least 2 years should be from the aeronautical industry in an appropriate position;
- (d) a relevant engineering or technical degree, or an aircraft technician or maintenance engineer qualification with additional education that is acceptable to the competent authority. 'Relevant engineering or technical degree' means a degree from aeronautical, mechanical, electrical, electronic, avionics or other studies that are relevant to the maintenance and/or continuing airworthiness of aircraft/aircraft components.

The provision set out in the first paragraph of point (d) may be replaced by 2 years of experience in addition to those already recommended by paragraph (c) above. These 2 years should cover an appropriate combination of experience in tasks/activities related to maintenance and/or continuing airworthiness management and/or the surveillance of such tasks.

For the person to be nominated in accordance with point (c) or (ca) of point 145.A.30, in the case where the organisation holds one or more additional organisation certificates within the scope of Regulation (EU) 2018/1139 and that person has already an equivalent position (i.e. compliance monitoring manager, safety manager) under the additional certificate(s) held, the provisions set out in the first two paragraphs of point (d) may be replaced by the completion of a specific training programme acceptable to the competent authority to gain an adequate understanding of maintenance standards and continuing airworthiness concepts and principles;

- (e) thorough knowledge of the organisation's MOE and safety policy;
- (f) knowledge of a relevant sample of the type(s) of aircraft or components gained through a formalised training course. These courses could be provided by a Part-147 organisation, by the manufacturer, by the Part-145 organisation or by any other organisation accepted by the

competent authority. Aircraft/engine type training courses should be at least at a level equivalent to the Part-66 Appendix III Level 1 General Familiarisation.

'Relevant sample' means that these courses should cover typical aircraft or components that are within the scope of work of the organisation.

For all balloons and any other aircraft of 2 730 kg MTOM or less, the formalised training courses may be replaced by a demonstration of the required knowledge by providing documented evidence, or by an assessment acceptable to the competent authority. This assessment should be recorded;

- (g) knowledge of the relevant maintenance methods (and how they are applied in the organisation) and/or specific knowledge relevant to the area for which the person will be nominated;
- (h) knowledge of the applicable regulations;
- (i) adequate language and communication skills.

## AMC1 145.A.30(d) Personnel requirements

### SUFFICIENT NUMBER OF PERSONNEL

[...]

- 4. For ~~in the case of~~ aircraft base maintenance, the maintenance man-hour plan should relate to the aircraft hangar visit plan as specified in AMC1 145.A.25(a).
- 5. For ~~in the case of~~ aircraft component maintenance, the maintenance man-hour plan should relate to the aircraft component planned maintenance as specified in point 145.A.25(a)(2).
- 6. The ~~quality monitoring~~ man-hours allocated to the compliance ~~monitoring~~ function ~~man-hours~~ should be sufficient to meet the requirement of point 145.A.200(a)(6) ~~145.A.65(c)~~ which means taking into account the AMC to 145.A.200(a)(6) ~~AMC 145.A.65(c)(1)~~. Where ~~quality compliance~~ monitoring staff also perform other functions, the time allocated to ~~such those~~ functions needs to be taken into account in determining the number of ~~quality compliance~~ monitoring staff ~~numbers~~.

[...]

- 8. Significant deviation from the maintenance man-hour plan should be reported through the departmental manager to the ~~quality compliance monitoring~~ manager and the accountable manager for review. It may also be reported through the internal safety reporting scheme. A ~~S~~ignificant deviation means that there is more than a 25% shortfall in available man-hours during a calendar month for any one of the functions specified in point 145.A.30(d).
- 9. In addition, as part of its management system in accordance with point 145.A.200, the organisation should have a procedure to assess and mitigate the risks;

- (1) if the actual number of staff available is less than the planned staffing level for any particular work shift or period;
- (2) if there is a temporary increase in the proportion of contracted staff in order to meet specific operational needs.

## AMC1 145.A.30(e) Personnel requirements

### COMPETENCY ASSESSMENT OBJECTIVES

~~Competence should be defined as a measurable skill or standard of performance, knowledge and understanding, taking into consideration attitude and behaviour.~~

The ~~referenced~~ procedure referred to in 145.A.30(e) should require amongst others that planners, mechanics, specialised services staff, supervisors, certifying staff and support staff, whether employed or contracted, are assessed for competency before unsupervised work commences and competency is controlled on a continuous basis.

Competency should be assessed by the evaluation of:

- on-the-job performance and/or testing of knowledge by appropriately qualified personnel, and
- records for basic, organisational, or tasks training and/or product type and differences training, and
- experience records.

Validation of the above could include a confirmation check with the organisation(s) that issued such the document(s). For that purpose, experience/training may be recorded in a document such as a log book, or based on the suggested template in GM3 145.A.30(e).

As a result of this assessment, an individual's qualifications should determine:

- the scope of tasks this individual is authorised to perform and/or supervise and/or sign off (as applicable) or which level of ongoing supervision would be required ~~or whether unsupervised work could be permitted.~~
- whether there is a need for additional training.

A record of should be kept such of each individual's qualifications and competency assessment ~~should be kept~~ (refer also to point 145.A.55(d)). This should include copies of all documents that attest to their qualifications, such as the a licence and/or any authorisation held, as applicable.

For a proper competency assessment of its personnel, the organisation should consider that:

1. In accordance with the job function, adequate initial and recurrent training has been received by the staff ~~should be provided~~ and recorded to ensure continued competency so that it is maintained throughout the duration of the employment/contract.

2. All staff should be able to demonstrate knowledge of, and compliance with, the maintenance organisation's procedures, as applicable to their duties.
3. All staff should be able to demonstrate an understanding of the safety management principles, including human factors and human performance issues in relation with related to their job function, and be trained as per AMC2 AMC4 145.A.30(e).
4. To assist in the assessment of competency and to establish the training needs analysis, job descriptions are recommended for each job function in the organisation. Job descriptions should contain sufficient criteria to enable the required competency assessment.
5. Criteria should allow the assessment to establish that, among other aspects (titles might be different in each organisation):
  - Managers are able to properly manage the work output, processes, resources and priorities described in their assigned duties, accountabilities and responsibilities in accordance with the safety policy and objectives and in compliance with the applicable requirements in a safe compliant manner in accordance with regulations and organisation procedures.
  - Planners are able to interpret maintenance requirements into maintenance tasks, and have an understanding that they have no authority to deviate from the maintenance data. They are able to organise maintenance activities in an effective manner and in consideration of human performance limitations.
  - Supervisors are able to ensure that all the required maintenance tasks are carried out and, where if they are not completed or where it is evident that a particular maintenance task cannot be carried out according to the maintenance data, then such that these problems will be adequately addressed to eliminate the non-compliance, and reported through the internal safety reporting scheme to prevent their reoccurrence to the 145.A.30(c) person for appropriate action. In addition, for those supervisors, who also carry out maintenance tasks, the assessment should ensure that they understand that such tasks should not be undertaken when if they are incompatible with their management responsibilities.
  - Mechanics are able to carry out maintenance tasks to any standard specified in the maintenance data, and will notify their supervisors of any defects or mistakes requiring rectification to re-establish the required maintenance standards.
  - Specialised services staff are able to carry out specialised maintenance tasks to the standard specified in the maintenance data. They should be able to communicate with their supervisors and report accurately when necessary.
  - Support staff are able to determine that the relevant tasks or inspections have been carried out to the required standard.

- Certifying staff are able to determine when the aircraft or aircraft component maintenance is ready to be released to service and when it should not be released to service.
- ~~Quality audit~~ Compliance monitoring staff are able to monitor compliance with Part 145 this Regulation and to identifying non-compliances in an effective and timely manner so that the organisation may remain in compliance with this Regulation Part 145.
- Staff who have safety management responsibilities are familiar with the relevant processes in terms of hazard identification, risk management, and the monitoring of safety performance.
- All staff are familiar with the safety policy and the procedures and tools that can be used for internal safety reporting.

The competency assessment should be based upon the procedure specified in GM2 145.A.30(e).

## AMC2 145.A.30(e) Personnel requirements

### COMPETENCY ASSESSMENT PROCEDURE

- (a) The organisation should develop a procedure that describes the process for conducting competency assessments of personnel. The procedure should specify:
- (1) the persons who are responsible for this process;
  - (2) when the assessments should take place;
  - (3) how to give credit from previous assessments;
  - (4) how to validate qualification records;
  - (5) the means and methods to be used for the initial assessment;
  - (6) the means and methods to be used for the continuous control of competency, including how to gather feedback on the performance of personnel;
  - (7) the aspects of competencies to be observed during the assessment in relation to each job function;
  - (8) the actions to be taken if the assessment is not satisfactory; and
  - (9) how to record the assessment results.
- (b) Competency may be assessed by having the person work under the supervision of another qualified person for a sufficient time to arrive at a conclusion. Sufficient time could range from several days to several weeks depending on the complexity of the task(s) and the work exposure. The person need not be assessed against the complete spectrum of their intended duties. If the person has been recruited from another approved maintenance organisation, a

written confirmation from the previous organisation could be taken into consideration to reduce the duration of the assessment.

- (c) All prospective maintenance staff should be assessed for their competency related to their intended duties.

## AMC3 145.A.30(e) Personnel requirements

### INITIAL AND RECURRENT TRAINING

- (a) Adequate initial and recurrent training should be provided in relation to the job function to ensure that staff remain competent. Completion of such training should be recorded.
- (b) Recurrent training should take into account the information reported through the internal safety reporting scheme (see point (c)(3) of AMC1 145.A.202).
- (c) Those responsible for managing the compliance monitoring function should receive training on this task. Such training should cover the requirements of compliance monitoring, manuals and procedures related to the task, audit techniques, reporting, and recording.

## AMC4 145.A.30(e) Personnel requirements

### SAFETY TRAINING (INCLUDING HUMAN FACTORS)

- (a) With respect to the understanding of the application of safety management principles (including human factors) ~~and human performance issues~~, all maintenance organisation personnel should be assessed for the need to receive initial safety training.

Personnel involved in the delivery of the basic maintenance service of the organisation should receive both ~~have received an~~ initial and recurrent ~~continuation human factors~~ safety training, appropriate for their responsibilities. This should include at least the following staff members ~~concern to a minimum~~:

- ~~Post holders~~, Nominated persons, line managers, supervisors;
- Certifying staff, support staff and mechanics;
- Technical support personnel such as planners, engineers, technical record staff;
- Persons involved in compliance monitoring and/or safety management-related processes and tasks, including the application of human factors principles, internal investigations and safety training ~~Quality control/assurance staff~~;
- Specialised services staff;
- ~~Human factors staff/human factors trainers~~;
- Stores department staff, purchasing department staff;

- Ground equipment operators.

The generic term 'line managers' refers to departmental heads or persons responsible for operational departments or functional units that are directly involved in the delivery of the basic maintenance services of the organisation.

(b)1. Initial ~~safety~~ ~~human factors~~ training should cover all the topics of the training syllabus specified in GM1 145.A.30(e) either as a dedicated course or else integrated within other training. The syllabus may be adjusted to reflect the particular nature of the organisation. The syllabus may also be adjusted to ~~meet~~ ~~suit~~ the particular nature of work for each function within the organisation. For example:

- small organisations not working in shifts may cover in less depth subjects related to teamwork and communication;
- planners may cover in more depth the scheduling and planning objectives of the syllabus, and in less depth the objective of developing skills for shift working.

All personnel identified in accordance with point (a) of this AMC, including personnel being recruited from any other organisation should receive initial ~~safety~~ ~~human factors~~ training compliant with the organisation's training standards prior to commencing the actual job function, unless their competency assessment justifies that there is no need for such training. Newly directly employed personnel working under direct supervision may receive training within 6 months after joining the maintenance organisation.

(c)2. The purpose of ~~human factors continuation~~ recurrent safety training is primarily to ensure that staff remain current in terms of SMS principles and human factors and also to collect feedback on safety and human factors issues. Consideration should be given to involving compliance monitoring staff and the key safety management personnel in this training to provide a consistent presence and facilitate feedback ~~the possibility that such training has the involvement of the quality department~~. There should be a procedure to ensure that feedback is formally reported by ~~passed from~~ the trainers through the internal safety reporting scheme ~~to the quality department~~ to initiate action where necessary.

Recurrent safety training should be delivered either as a dedicated course or integrated within other training. ~~Human factors continuation training~~ It should be of an appropriate duration in each ~~two~~ 2-year period in relation to the relevant compliance monitoring ~~quality~~ audit findings and other internal/external sources of information available to the organisation on safety and human factors maintenance issues ~~errors in maintenance available to the organisation~~.

(d)3. Safety ~~Human factors~~ training may be conducted by the maintenance organisation itself, or independent trainers, or any training organisations acceptable to the competent authority.

(e)4. The ~~safety~~ ~~human factors~~ training procedures should be specified in the MOE ~~maintenance organisation exposition~~.

## AMC5 145.A.30(e) Personnel requirements

### OTHER TRAININGS

- (a) The organisation should assess the need for particular trainings, for example with regard to the 'Electrical Wiring Interconnection System' (EWIS) or 'Critical Design Configuration Control Limitations' (CDCCL).
- (b) Guidance on EWIS training programme for maintenance organisation personnel is provided in AMC 20-22.
- (c) Guidance on fuel tank safety training is provided in 'Appendix IV to AMC5 145.A.30(e) and AMC2 145.B.200(a)(3)'.

~~Additional training in fuel tank safety as well as associated inspection standards and maintenance procedures should be required for maintenance organisations' technical personnel, especially technical personnel involved in the compliance of CDCCL tasks.~~

~~EASA guidance is provided for training to maintenance organisation personnel in Appendix IV to AMC 145.A.30(e) and 145.B.10(3).~~

## AMC4 145.A.30(e) Personnel requirements

~~Competence assessment should include the verification for the need of additional EWIS training when relevant.~~

~~EASA guidance is provided for EWIS training programme to maintenance organisation personnel in AMC 20-22.~~

## GM1 145.A.30(e) Personnel requirements

### TRAINING SYLLABUS FOR INITIAL ~~HUMAN FACTORS~~ SAFETY TRAINING (INCLUDING HUMAN FACTORS)

The training syllabus below identifies the topics and subtopics to be addressed during the ~~human factors~~ safety training.

The maintenance organisation may combine, divide, ~~or~~ change the order of any ~~of the~~ subjects ~~of~~ in the syllabus to suit its own needs, as long as all ~~the~~ subjects are covered to a level of detail appropriate to the organisation and its personnel, ~~including the varying level of seniority of that personnel.~~

Some of the topics may be covered in separate training ~~courses~~ (e.g. health and safety, management, supervisory skills, etc.) in which case duplication of training is not necessary.

Where possible, practical illustrations and examples should be used, especially accident and incident reports.

Topics should be related to existing legislation, where relevant. Topics should be related to existing guidance/advisory material, where relevant (e.g. ICAO HF Digests and Training Manual).

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Topics should be related to the maintenance activities of the organisation engineering to the greatest extent where possible; too much unrelated theory should be avoided.

1. General/Introduction to safety management and human factors
  - 1.1. Need to address safety management and human factors
  - 1.2. Statistics
  - 1.3. Incidents
- 1a. Safety risk management
  - 1a.1. Hazard identification
  - 1a.2. Safety risk assessment
  - 1a.3. Risk mitigation and management
  - 1a.4. Effectiveness of safety risk management
2. Safety Culture/Organisational factors
  - 2.1. Justness/trust
  - 2.2. Commitment to safety
  - 2.3. Adaptability
  - 2.4. Awareness
  - 2.5. Behaviour
  - 2.6. Information
3. Human Error
  - 3.1. Error models and theories
  - 3.2. Types of errors in maintenance tasks
  - 3.3. Violations
  - 3.4. Implications of errors
  - 3.5. Avoiding and managing errors
  - 3.6. Human reliability
4. Human performance & limitations
  - 4.1. Vision
  - 4.2. Hearing
  - 4.3. Information-processing
  - 4.4. Attention and perception

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- 4.5. Situational awareness
  - 4.6. Memory
  - 4.7. Claustrophobia and physical access
  - 4.8. Motivation
  - 4.9. Fitness/~~H~~health
  - 4.10. Stress
  - 4.11. Workload management
  - 4.12. Fatigue
  - 4.13. Alcohol, medication, drugs
  - 4.14. Physical work
  - 4.15. Repetitive tasks/complacency
  5. Environment
    - 5.1. Peer pressure
    - 5.2. Stressors
    - 5.3. Time pressure and deadlines
    - 5.4. Workload
    - 5.5. Shift ~~W~~work
    - 5.6. Noise and fumes
    - 5.7. Illumination
    - 5.8. Climate and temperature
    - 5.9. Motion and vibration
    - 5.10. Complex systems
    - 5.11. Other hazards in the workplace
    - 5.12. Lack of manpower
    - 5.13. Distractions and interruptions
  6. Procedures, information, tools and practices
    - 6.1. Visual ~~I~~inspection
    - 6.2. Work logging and recording
    - 6.3. Procedure - practice/mismatch/norms
    - 6.4. Technical documentation - access and quality
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- 6.5. Critical maintenance tasks and error-capturing methods (independent inspection, reinspection, etc.)
7. Communication
  - 7.1. Shift/~~T~~ask handover
  - 7.2. Dissemination of information
  - 7.3. Cultural differences
8. Teamwork
  - 8.1. Responsibility
  - 8.2. Management, supervision and leadership
  - 8.3. Decision-making
9. Professionalism and integrity
  - 9.1. Keeping up to date; currency
  - 9.2. Avoiding ~~e~~Error-provoking behaviour
  - 9.3. Assertiveness
10. Organisation's ~~HF~~ safety programme
  - 10.1. Safety policy and objectives, just culture principles
  - 10.2. ~~1-~~ Reporting errors and hazards, internal safety reporting scheme
  - ~~10.2. Disciplinary policy~~
  - 10.3. ~~Error~~ investigation process
  - 10.4. Action to address problems
  - 10.5. Feedback and safety promotion

## GM2 145.A.30(e) Personnel requirements ~~Competence assessment procedure~~

### COMPETENCY ASSESSMENT ELEMENTS

~~The organisation should develop a procedure describing the process of competence assessment of personnel. The procedure should specify:~~

- ~~— persons responsible for this process,~~
- ~~— when the assessment should take place,~~
- ~~— credits from previous assessments,~~
- ~~— validation of qualification records,~~

- ~~— means and methods for the initial assessment,~~
- ~~— means and methods for the continuous control of competence including feedback on personnel performance,~~
- ~~— competences to be observed during the assessment in relation with each job function,~~
- ~~— actions to be taken when assessment is not satisfactory,~~
- ~~— recording of assessment results.~~

An example of elements that may be considered during a competency assessment according to the job functions and the scope, size and complexity of the organisation, is given in the following table (not exhaustive):

For example, according to the job functions and the scope, size and complexity of the organisation, the assessment may consider the following (the table is not exhaustive):

	Managers	Planners	Supervisor	Certifying staff and support staff	Mechanics	Specialised Service staff	Compliance monitoring Quality-audit staff	Safety management personnel
Knowledge of applicable officially recognised standards						X	X	
Knowledge of auditing techniques: planning, conducting and reporting							X	X
Knowledge of safety management, human factors, human performance and limitations, and just culture	X	X	X	X	X	X	X	X
Knowledge of logistics processes	X	X	X					
Knowledge of organisation capabilities, privileges and limitations	X	X	X	X		X	X	X
Knowledge of Part-M, Part-ML, Part-145 and any other relevant regulations	X	X	X	X			X	X
Knowledge of relevant parts of the maintenance organisation exposition and procedures	X	X	X	X	X	X	X	X
Knowledge of occurrence reporting system (mandatory and voluntary), internal reporting scheme and understanding of the importance of reporting occurrences, incorrect maintenance data and existing or potential defects	X	X	X	X	X	X		X
Knowledge of safety risks linked to the working environment	X	X	X	X	X	X	X	X
Knowledge of CDCCL when relevant	X	X	X	X	X	X	X	X

	Managers	Planners	Supervisor	Certifying staff and support staff	Mechanics	Specialised Service staff	Compliance monitoring Quality-audit staff	Safety management personnel
Knowledge <del>on</del> of EWIS when relevant	X	X	X	X	X	X	X	X
Understanding of professional integrity, behaviour and attitude towards safety	X	X	X	X	X	X	X	X
Understanding of conditions for ensuring continuing airworthiness of aircraft and components				X			X	
Understanding of <del>his/her</del> his or her own human performance and limitations	X	X	X	X	X	X	X	X
Understanding of personnel authorisations and limitations	X	X	X	X	X	X	X	
Understanding critical maintenance tasks	X	X	X	X	X		X	X
Ability to compile and control completed work cards		X	X	X				
Ability to consider human performance and limitations.	X	X	X	X			X	X
Ability to determine <del>the</del> required qualifications for task performance		X	X	X				
Ability to identify and rectify existing and potential unsafe conditions	X		X	X	X	X	X	X
Ability to manage third parties involved in maintenance activity	X	X	X					
Ability to confirm proper accomplishment of maintenance tasks			X	X	X	X		
Ability to identify and properly plan performance of critical maintenance tasks		X	X	X				
Ability to prioritise tasks and report discrepancies		X	X	X	X			
Ability to process the work requested by the operator		X	X	X				
Ability to promote the safety <del>and quality</del> policy	X		X					X
Ability to properly process removed, uninstalled and rejected parts			X	X	X	X		
Ability to properly record and sign for work accomplished			X	X	X	X		
Ability to recognise the acceptability of parts to be installed prior to fitment			X	X	X			

	Managers	Planners	Supervisor	Certifying staff and support staff	Mechanics	Specialised Service staff	Compliance monitoring Quality-audit staff	Safety management personnel
Ability to split complex maintenance tasks into clear stages		X	X					
Ability to understand work orders, work cards and refer to and use applicable maintenance data		X	X	X	X	X	X	
Ability to use information systems	X	X	X	X	X	X	X	X
Ability to use, control and be familiar with the required tooling and/or equipment			X	X	X	X		
Adequate communication and literacy skills	X	X	X	X	X	X	X	X
Analytical and proven auditing skills (for example, objectivity, fairness, open-mindedness, determination, ...)							X	X
Maintenance error investigation skills							X	X
Resources management and production planning skills	X	X	X					
Teamwork, decision-making and leadership skills	X		X	X			X	X
Ability to encourage a positive safety culture and apply a just culture	X		X				X	X

## GM3 145.A.30(e) Personnel requirements **Template for recording experience/training**

### TEMPLATE FOR RECORDING EXPERIENCE/TRAINING

The following template may be used to record the professional experience gained in an organisation and the training received and to be considered during the competency assessment of the individual in another organisation.

<b>Aviation Maintenance personnel experience credential</b>	
Name	Given name
Address	
Telephone	E-mail
Independent worker <input type="checkbox"/>	
Trade Group: airframe <input type="checkbox"/> engine <input type="checkbox"/> electric <input type="checkbox"/> avionics <input type="checkbox"/> other (specify) <input type="checkbox"/> .....	
<b>Employer's details (when applicable)</b>	

Name		
Address		
Telephone		
<b>Maintenance organisation details</b>		
Name		
Address		
Telephone		
Approval Number		
Period of employment	From:	To:
<b>Domain of employment</b>		
<input type="checkbox"/> Planning	<input type="checkbox"/> Engineering	<input type="checkbox"/> Technical records
<input type="checkbox"/> Store department	<input type="checkbox"/> Purchasing	
<b>Mechanics/Technician</b>		
<input type="checkbox"/> Line Maintenance	<input type="checkbox"/> Base Maintenance	<input type="checkbox"/> Component Maintenance
<input type="checkbox"/> Servicing	<input type="checkbox"/> Removal/installation	<input type="checkbox"/> Testing/inspection
<input type="checkbox"/> Scheduled Maintenance	<input type="checkbox"/> Inspection	<input type="checkbox"/> Repair
<input type="checkbox"/> Trouble-shooting	<input type="checkbox"/> Trouble-shooting	<input type="checkbox"/> Overhaul
	<input type="checkbox"/> Repair	<input type="checkbox"/> Re-treatment
		<input type="checkbox"/> Reassembly
A/C type	A/C type	Component type
<b>Certifying Staff and support staff</b>		
<input type="checkbox"/> Cat. A	<input type="checkbox"/> Cat. B1	<input type="checkbox"/> Cat. B2
<input type="checkbox"/> Cat. C	<input type="checkbox"/> Component type	<input type="checkbox"/> Other (e.g. NDT)
A/C Type	A/C Type	A/C Type
A/C Type	Component Type	Specify
Certification privileges: Yes <input type="checkbox"/> / No <input type="checkbox"/>		
<input type="checkbox"/> Specialised services	Speciality ( <i>NDT, composites, welding, etc.</i> ):	
<input type="checkbox"/> Skilled personnel	Speciality ( <i>sheet metal, structures, wireman, upholstery, etc.</i> ):	
<input type="checkbox"/> Ground equipment operation		
<input type="checkbox"/> <del>Quality control</del>	<input type="checkbox"/> <del>Quality assurance</del>	<input type="checkbox"/> Training
<input checked="" type="checkbox"/> Supervision	<input checked="" type="checkbox"/> Compliance monitoring	
<input checked="" type="checkbox"/> Safety investigation	<input checked="" type="checkbox"/> Safety management	
<b>Total number of check boxes ticked:</b>		<input type="checkbox"/>

**Details of employment****Training received from the contracting organisation**

Date                      Nature of training

Certified by:

Name:

Date:

Position:

Signature:

Contact details:

*Advisory note:        A copy of the present credentials will be kept for at least 3 years from ~~its~~ their issuance by the maintenance organisation.*

**GM4 145.A.30(e) Personnel requirements****COMPETENCY OF THE SAFETY MANAGER**

The competency of a safety manager should include, but not be limited to, the following:

- (a) knowledge of ICAO standards and European requirements on safety management;
- (b) an understanding of management systems, including compliance monitoring systems;
- (c) an understanding of risk management;
- (d) an understanding of safety investigation techniques and root cause methodologies;
- (e) an understanding of human factors;
- (f) understanding and promotion of a positive safety culture;

- (g) operational experience related to the activities of the organisation;
- (h) safety management experience;
- (i) interpersonal and leadership skills, and the ability to influence staff;
- (j) oral and written communications skills;
- (k) data management, analytical and problem-solving skills.

## GM5 145.A.30(e) Personnel requirements

### SAFETY TRAINING (INCLUDING HUMAN FACTORS)

- (a) The scope of the safety training and the related training programme will vary significantly depending on the size and complexity of the organisation. Safety training should reflect the evolving management system, and the changing roles of the personnel who make it work.
- (b) In recognition of this, training should be provided to management and staff at least:
  - (1) during the initial implementation of safety management processes;
  - (2) for all new staff or personnel recently allocated to safety management-related tasks;
  - (3) on a regular basis to refresh their knowledge and to understand changes to the management system;
  - (4) when changes in personnel affect safety management roles, and related accountabilities, responsibilities, and authorities; and

NOTE: In the context of safety management, the term 'authority' is used in relation to the level of management in the organisation that is necessary to make decisions related to risk tolerability.

  - (5) when performing dedicated safety functions in domains such as safety risk management, compliance monitoring, and internal investigations.
- (c) Safety training is subject to the record-keeping requirements in point 145.A.55(d).

## AMC1 145.A.30(h) Personnel requirements

In accordance with points 145.A.30(h) and 145.A.35, the qualification requirements (basic licence, aircraft ratings, recent experience and recurrent continuation training) are identical for certifying staff and for support staff. The only difference is that support staff cannot hold certification privileges when performing this role since during base maintenance, the release to service will be issued by category C certifying staff.

Nevertheless, the organisation may use as support staff (for base maintenance) persons who already hold certification privileges for line maintenance.

## AMC1 145.A.30(j)(4) Personnel requirements

1. For the issue of a limited certification authorisation,
  - ~~(a) the pilot commander should hold either an airline transport pilots licence license (ATPL), or a commercial pilots licence license (CPL) in accordance with Regulation (EU) No 1178/2011 and, as applicable, Regulation (EU) 2020/723.~~
  - ~~(b) The flight engineer should hold either an ATPL, CPL or a national flight engineer licence acceptable to the competent authority on the aircraft type.~~
2. In addition, the limited certification authorisation is subject to the ~~MOE maintenance organisation exposition~~ containing procedures to address the personnel requirements of ~~point 145.A.30(e) and associated AMC and guidance material~~. The procedures should be accepted by the competent authority and should include as a minimum:
  - ~~(a) Completion of adequate maintenance continuing airworthiness regulation training as related to maintenance;~~
  - ~~(b) Completion of adequate task training for the specific task(s) on the aircraft. The task training should be of sufficient duration to ensure that the individual has a thorough understanding of the task(s) to be completed, and that it will involve training in the use of the associated maintenance data;~~
  - ~~(c) Completion of the procedural training as specified in Part-145.~~
- 2.(i) Typical tasks that may be certified and/or carried out by a pilot ~~the commander holding who holds~~ an ATPL or a CPL are ~~the~~ minor maintenance or simple checks included in the following list:
  - ~~(a) Replacement of internal lights, filaments and flash tubes;~~
  - ~~(b) Closing of cowlings and refitment of quick-access inspection panels;~~
  - ~~(c) Role changes, e.g. stretcher installation ~~fit~~, dual controls, FLIR, doors, photographic equipment, etc.~~
  - ~~(d) Inspection for, and removal of, de-icing/anti-icing fluid residues, including the removal/closure of panels, cowls or covers that are easily accessible, but that do not requiring require the use of special tools;~~
  - ~~(e) Any check/replacement that involves involving simple techniques that are consistent with this AMC and that have been as agreed by the competent authority.~~

~~2.(ii) Holders of flight engineer licence acceptable to the competent authority on the aircraft type, may only exercise this limited certification authorisation privilege when performing the duties of a flight engineer.~~

~~In addition to paragraph 2(i)(a) to (e) other typical minor maintenance or simple defect rectification tasks that may be carried out are included in the following list:~~

- ~~(a) Replacement of wheel assemblies.~~
- ~~(b) Replacement of simple emergency equipment that is easily accessible.~~
- ~~(c) Replacement of ovens, boilers and beverage makers.~~
- ~~(d) Replacement of external lights.~~
- ~~(e) Replacement of passenger and cabin crew seats, seat belts and harnesses.~~
- ~~(f) Simple replacement of overhead storage compartment doors and cabin furnishing items.~~
- ~~(g) Replacement of static wicks.~~
- ~~(h) Replacement of aircraft main and APU aircraft batteries.~~
- ~~(i) Replacement of in-flight entertainment system components other than public address.~~
- ~~(j) The de-activation only of sub-systems and aircraft components as permitted by the operator's minimum equipment list where such de-activation is agreed by the competent authority as a simple task.~~
- ~~(k) Re-setting of tripped circuit breakers under the guidance of maintenance control.~~
- ~~(l) Any other task agreed by the competent authority as a simple task for a particular aircraft type.~~

3. The validity of the authorisation should be limited to ~~have a finite life of~~ twelve months, and may be renewed if there has been ~~subject to~~ satisfactory ~~re-current~~ recurrent training on the task(s) for which the pilot holds an authorisation ~~applicable aircraft type~~.

### **GM-145.A.30(j)(4) Personnel requirements (Flight crew)**

~~For the holder of a flight engineer licence acceptable to the competent authority appendix 1 to JAR-FCL 4.160 Technical Training Course (TTC) details the following subjects:~~

~~Familiarisation with basic maintenance procedures, to give additional technical background knowledge, especially with respect to the implication of systems malfunctions, and to train the applicant in maintenance related to the Minimum equipment list (MEL).~~

~~The theoretical knowledge instruction consists of 100 hours and includes the following elements:~~

- ~~1. Airframe and systems~~
- ~~2. Electrics~~

~~3. Powerplant and emergency equipment~~

~~4. Flight instruments and automatic flight control systems~~

~~Practical skills training provided by an organisation approved under Part 145 is given which includes 35 hours practical experience in the following subjects:~~

~~— Fuselage and flight controls,~~

~~— Engines,~~

~~— Instruments,~~

~~— Landing gear and brakes,~~

~~— Cabin/cockpit/emergency equipment,~~

~~— De-icing/anti-icing related maintenance activities,~~

~~— Ground handling and servicing,~~

~~— Certificate of completion.~~

~~Following successful completion of the technical training, the training organisation carrying out the theoretical knowledge instruction and/or the practical skill training should provide the applicant with a certificate of satisfactory completion of the course, or part thereof.~~

## AMC1 145.A.30(j)(5) Personnel requirements

1. For the purposes of **this point 145.A.30(j)(5) sub-paragraph**, ‘unforeseen’ means that the **grounding of the aircraft** ~~grounding~~ could not reasonably have been predicted by the operator because the defect was unexpected, due to **it** being part of a hitherto reliable system.
2. **A Issuing a one-off authorisation should only be considered for issue under the responsibility of the compliance monitoring manager by the quality department** of the contracted organisation after ~~it has made~~ a reasoned judgement **has been made** that such an **authorisation requirement** is appropriate under the circumstances, **and while** at the same time **it maintains maintaining** the required airworthiness standards. The organisation’s **compliance monitoring personnel quality department will need to** **should** assess each situation individually prior to **issuing the issuance of** a one-off authorisation, **and may request contribution from technical and safety management personnel**.
3. A one-off authorisation should not be issued **where** **if** the level of certification required could exceed the knowledge and experience level of the person it is issued to. In all cases, due consideration should be given to the complexity of the work involved and the availability of **the** required tooling and/or test equipment needed to complete the work.

## AMC1 145.A.30(j)(5)(i) Personnel requirements

~~In those situations where the requirement for~~ In case it is necessary to issue a one-off certification authorisation to a certifying staff on an aircraft type for which he or she does not hold a type-rated authorisation ~~to issue a CRS for a task on an aircraft type for which certifying staff does not hold a type-rated authorisation has been identified~~, the following procedure is recommended:

1. The flight crew should communicate full details of the defect to the ~~operator's supporting~~ maintenance organisation. If necessary, the ~~supporting~~ maintenance organisation will then request the use of a one-off authorisation from the ~~compliance monitoring personnel~~ quality department.
2. When issuing a one-off authorisation, the ~~compliance monitoring personnel~~ quality department of the organisation should verify that:
  - (a) ~~F~~full technical details relating to the work required to be carried out have been established and passed on to the certifying staff;
  - (b) ~~F~~the organisation has an approved procedure in place for coordinating and controlling the total maintenance activity undertaken at the location under the authority of the one-off authorisation;
  - (c) ~~F~~the person to whom a one-off authorisation is issued has been provided with all the necessary information and guidance relating to maintenance data, and any special technical instructions associated with the specific task undertaken. A detailed step-by-step worksheet has been defined by the organisation, and has been communicated to the holder of the one-off authorisation holder;
  - (d) ~~F~~the person holds authorisations of equivalent levels and scopes on other aircraft types that have of similar technology, construction and systems.
3. The holder of the one-off authorisation holder should sign off the detailed step-by-step worksheet when completing the work steps. The completed tasks should be verified by visual examination and/or normal system operation upon return to an appropriately approved Part-145 maintenance facility.

## AMC1 145.A.30(j)(5)(ii) Personnel requirements

~~This~~ Point 145.A.30(j)(5)(ii) ~~paragraph~~ addresses the requirements for staff who are not employed by the maintenance organisation, but who meet the requirements of point 145.A.30(j)(5). In addition to the items listed in points 1, 2(a), (b) and (c) and 3 of AMC1 145.A.30(j)(5)(i), ~~paragraph 1, 2(a), (b) and (c) and 3 the quality department~~ the compliance monitoring personnel of the organisation may issue such a one-off authorisation ~~providing~~ provided that full qualification details relating to the qualifications of the proposed certifying personnel are verified by the compliance monitoring personnel quality department and made available at the location.

## AMC 145.A.35(a) Certifying staff and support staff

1. Holding a Part-66 licence with the relevant type/group rating, or a national qualification in the case of components, does not mean by itself that the holder is qualified to be authorised as certifying staff and/or support staff. The organisation is responsible ~~to~~ for assessing the competency of the holder for the scope of the maintenance to be authorised.

[...]

4. The satisfactory assessment of the competency of the holder competence should be conducted in accordance with a procedure approved by the competent authority (item ~~3.4~~ 3.9 of the MOE, as described in AMC1 145.A.70(a)).
5. The organisation should hold copies of all the documents that attest to the competency and recent experience of the holder for the period described in point 145.A.55(d)(4) 145.A.35(j).

Additional information is provided in AMC 66.A.20(b)3.

## AMC1 145.A.35(d) Certifying staff and support staff

1. Recurrent ~~Continuation~~ training is a two-way process to ensure that certifying staff and support staff remain current in terms of the necessary technical knowledge, procedures, and safety management (including human factors), ~~and technical knowledge~~ and that the organisation receives feedback on the adequacy of its procedures and maintenance instructions. Due to the interactive nature of this training, consideration should be given to involving the compliance monitoring staff and the key safety management personnel in this training to provide a consistent presence and facilitate feedback ~~the possibility that such training has the involvement of the quality department to ensure that feedback is actioned. Alternatively, there~~ There should be a procedure to ensure that feedback is formally reported by ~~passed from the trainers through the internal safety reporting scheme training department to the quality department~~ to initiate action where necessary.
2. ~~Continuation~~ Recurrent training should cover changes made to the modification standard of the products being maintained, ~~in~~ to the relevant requirements such as Part-145, ~~changes in~~ to the organisation's procedures, safety policy and objectives, ~~and the modification standard of the products being maintained plus~~ as well as human factors and safety issues identified from any internal or external analysis of incidents and compliance monitoring results. It should also address instances where in which staff failed to follow the procedures, and the reasons why particular procedures were ~~are~~ not always followed. In many cases, the ~~continuation~~ recurrent training will reinforce the need to follow the procedures and will ensure that incomplete or incorrect procedures are identified to the company ~~in order so~~ that they can be corrected. ~~This does not preclude the possible need~~ It may be necessary to carry out an ~~quality~~ audit of such these procedures.

3. ~~Continuation~~ ~~Recurrent~~ training should be of sufficient duration in each 2-year period to meet the intent of ~~point~~ 145.A.35(d) and may be split into a number of separate elements. ~~Point~~ 145.A.35(d) requires such ~~a~~ training to keep certifying staff ~~and support staff~~ updated in terms of relevant technology, procedures, ~~safety management~~ and human factors issues which means it is one part of ensuring ~~compliance~~ ~~quality~~. Therefore, sufficient duration should be related to relevant ~~quality~~ audit findings and other internal / external sources of information available to the organisation on human errors ~~and safety issues~~ in maintenance. This means that in the case of an organisation that maintains aircraft with ~~few limited~~ relevant ~~quality~~ audit findings, ~~hazards and related safety risks identified~~, ~~continuation recurrent~~ training could be limited to days rather than weeks, whereas ~~in the case of~~ a similar organisation with a number of relevant ~~quality~~ audit findings, ~~hazards and related safety risks identified~~, such ~~a~~ training may take several weeks. For an organisation that maintains aircraft components, the duration of ~~continuation recurrent~~ training would follow the same philosophy but should be scaled down to reflect the more limited nature of the activity. For example, certifying staff who release hydraulic pumps may only require a few hours of ~~continuation recurrent~~ training, whereas those who release turbine engines may only require a few days of such ~~a~~ training. The content of ~~continuation recurrent~~ training should be related to relevant ~~quality~~ audit findings, ~~hazards and related safety risks identified~~. ~~It and it~~ is recommended that such training is reviewed at least once in every 24-month period.
4. The method of training is intended to be a flexible process, and ~~this training~~ could, for example, be provided by ~~include~~ a Part-147 organisation ~~continuation training course~~, an aeronautical college ~~courses~~, the Part-145 organisation, or another training or maintenance organisation ~~internal short duration courses, seminars, etc.~~ The elements, general content and length of such training should be specified in the ~~MOE maintenance organisation exposition unless such training is undertaken by an organisation approved under Part-147 when such details may be specified under the approval and cross referenced in the maintenance organisation exposition.~~

### AMC1 145.A.35(e) Certifying staff and support staff

The programme for ~~continuation recurrent~~ training should list all certifying staff and support staff and when ~~the~~ training will take place, the elements of such ~~a~~ training, and an indication that it was carried out ~~reasonably~~ on time as planned. Such information should subsequently be transferred to the certifying staff and ~~to the~~ support staff records as required by ~~point 145.A.55(d)(3) 145.A.35(j).~~

### AMC1 145.A.35(f) Certifying staff and support staff

As stated in ~~point~~ 145.A.35(f), except where any of the unforeseen cases of ~~point~~ 145.A.30(j)(5) applies, all prospective certifying staff and support staff should be assessed for ~~their~~ competencye related to their intended duties. ~~Said assessment should be conducted~~ in accordance with ~~AMCs~~ 1, 2, 3, ~~and~~ 4 and 5 to ~~point~~ 145.A.30(e), as applicable.

### **AMC 145.A.35(j) Certifying staff and support staff**

- ~~1. The following minimum information as applicable should be kept on record in respect of each certifying staff and support staff:
  - ~~(a) Name~~
  - ~~(b) Date of Birth~~
  - ~~(c) Basic Training~~
  - ~~(d) Type Training~~
  - ~~(e) Continuation Training~~
  - ~~(f) Experience~~
  - ~~(g) Qualifications relevant to the authorisation~~
  - ~~(h) Scope of the authorisation~~
  - ~~(i) Date of first issue of the authorisation~~
  - ~~(j) If appropriate expiry date of the authorisation~~
  - ~~(k) Identification Number of the authorisation~~~~
- ~~2. The record may be kept in any format but should be controlled by the organisation's quality department. This does not mean that the quality department should run the record system.~~
- ~~3. Persons authorised to access the system should be maintained at a minimum to ensure that records cannot be altered in an unauthorised manner or that such confidential records become accessible to unauthorised persons.~~
- ~~4. The competent authority is an authorised person when investigating the records system for initial and continued approval or when the competent authority has cause to doubt the competence of a particular person.~~

### **AMC 145.A.36 Records of airworthiness review staff**

~~The following minimum information, as applicable, should be kept on record in respect of each airworthiness review staff:~~

- ~~(a) name;~~
- ~~(b) date of birth;~~
- ~~(c) certifying staff authorisation;~~
- ~~(d) experience as certifying staff on aircraft covered by Part ML;~~

- ~~(e) qualifications relevant to the approval (knowledge of relevant parts of Part ML and knowledge of the relevant airworthiness review procedures);~~
- ~~(f) scope of the airworthiness review authorisation and personal authorisation reference;~~
- ~~(g) date of the first issue of the airworthiness review authorisation; and~~
- ~~(h) if appropriate, expiry date of the airworthiness review authorisation.~~

## AMC1 145.A.37 Airworthiness review staff

- (a) 'Experience in continuing airworthiness' in 145.A.37(a)(1) refers to any appropriate combination of experience in tasks related to aircraft maintenance and/or continuing airworthiness management and/or surveillance of such tasks.
- (b) 'Appropriate recent continuing airworthiness experience' in 145.A.37(c) refers to the fact that in order to keep the validity of the airworthiness review staff authorisation, the airworthiness review staff should have either:
  - (1) been involved in continuing airworthiness management activities for at least 6 months in every 2-year period; or
  - (2) conducted at least one airworthiness review in the last 12-month period.
- (c) In order to restore the validity of the authorisation, the airworthiness review staff should conduct at a satisfactory level an airworthiness review under the supervision of the competent authority or, if accepted by the competent authority, under the supervision of another currently authorised airworthiness review staff of the organisation concerned in accordance with an approved procedure.

## GM1 145.A.37(b) Airworthiness review staff

### ACCEPTANCE AND AUTHORISATION OF AIRWORTHINESS REVIEW STAFF (ARS)

The process of acceptance and authorisation of a new ARS within a Part-145 organisation includes the following steps (the order of certain steps may vary):

- The organisation verifies the compliance of the candidate ARS with point 145.A.37(a);
- The candidate ARS is assessed while performing an airworthiness review (AR) under supervision (supervision by the competent authority or supervision by an ARS already authorised by the organisation) (145.A.37(b));
- The organisation submits an application for change (requiring prior approval) to the competent authority (ref. 145.A.85) together with the proposed amendment to the MOE (candidate ARS introduced in the list of ARS — ref. 145.A.70(a)(6));

- Based on the results of the AR and its supervision, the competent authority accepts the candidate (regardless of whether the supervision was done by the competent authority or by the organisation);
- the competent authority approves the MOE;
- The organisation issues the AR authorisation to the ARS.

### AMC1 145.A.45(c) Maintenance data

1. The referenced procedure should ensure that when maintenance personnel discover inaccurate, incomplete or ambiguous information in the maintenance data, they should record the details as part of the internal safety reporting scheme specified in point 145.A.202. The procedure should then ensure that the Part-145 approved maintenance organisation notifies the problem to the author of the maintenance data in a timely manner. A record of such communications to the author of the maintenance data should be retained by the Part-145 approved organisation until such time as the author of the maintenance data ~~type certificate holder~~ has clarified the issue by e.g. amending the maintenance data.
2. The referenced procedure should be specified in the ~~MOE maintenance organisation exposition~~.

### AMC1 145.A.45(d) Maintenance data

The referenced procedure should address the need for a practical demonstration by the maintenance personnel proposing the change ~~mechanic~~ to the compliance monitoring ~~quality~~ personnel, of the ~~proposed~~ modified maintenance instruction. Depending on the nature of the maintenance instruction modification, a risk assessment may be required to demonstrate that an equivalent or improved maintenance standard is reached. When satisfied, the ~~quality~~ compliance monitoring personnel should approve the modified maintenance instruction, and ensure that the author of the maintenance instruction ~~type certificate or supplementary type certificate holder~~ is informed of the modified maintenance instruction. The procedure should include a paper/electronic traceability of the complete process from start to finish, and ensure that the relevant maintenance instruction clearly identifies the modification. Modified maintenance instructions should only be used in the following circumstances:

- (a) Where the ~~type certificate / supplementary type certificate holders~~ original intent of the maintenance instruction can be carried out in a more practical or more efficient manner.
- (b) Where the ~~type certificate / supplementary type certificate holders~~ original intent of the maintenance instruction cannot be achieved ~~by~~ when following the maintenance instructions. For example, where a component cannot be replaced following the original maintenance instructions.

(c) For the use of alternative tools / equipment.

Important Note: Critical Design Configuration Control Limitations (CDCCL) are airworthiness limitations. Any modification of the maintenance instructions linked to CDCCL constitutes an aircraft modification change to a (restricted) type certificate that should be approved in accordance with Part-21.

## AMC1 145.A.45(e) Maintenance data

~~1. The maintenance organisation should:~~

~~transcribe accurately the maintenance data onto such work cards or worksheets, or~~

~~make precise reference to the particular maintenance task(s) contained in such maintenance data, which already identifies the task as a CDCCL where applicable.~~

1.2. The relevant parts of the organisation means, as appropriate, with regard to aircraft base maintenance, aircraft line maintenance, specialised services, component workshops such as engine workshops, mechanical workshops and or avionics workshops. Therefore, engine workshops, for example, should have a common system should be used, for example, throughout such the engine workshops, that which may be different to from that in the aircraft base maintenance.

2.3. The workcards work cards should differentiate and specify, when relevant, disassembly, accomplishment of tasks, reassembly and testing as well as the error-capturing method (e.g. independent inspection). In the case of a lengthy maintenance task involving a succession of personnel to complete such a task, it may be necessary to use supplementary work cards workcards or worksheets to indicate what was actually accomplished by each individual person.

3. With reference to point 145.A.65(a), human factors should be taken into account during the development of work cards and worksheets.

4. 'Complex or long maintenance tasks' refers to tasks involving multiple disciplines or multiple shifts, or multiple zones/access opening, special tools, etc., or a combination of these.

The stages into which the work cards are to be subdivided should refer to where work can be interrupted. Subdivision should also indicate when a different discipline continues to work if no separate work cards are provided.

5. Where required by the operator/CAMO/CAO to use their work card or worksheet system, the maintenance organisation should assess the system for compliance with the maintenance organisation procedures, for example, the subdivision of complex or long maintenance tasks.

## AMC1 145.A.45(g) Maintenance data

To keep data up-to-date, a procedure should be set up to monitor the amendment status of all data and maintain a check that all amendments are being received by being a subscriber to any document amendment scheme. Special attention should be given to mandatory instructions and associated airworthiness limitations published by design approval holders. ~~TC related data such as certification life limited parts, airworthiness limitations and Airworthiness Limitation Items (ALI), etc.~~

## AMC1 145.A.47(b) Production planning

### CONSIDERATION OF FATIGUE IN THE PLANNING OF MAINTENANCE

- (a) The way and the extent to which the organisation should consider the threat of fatigue in the planning of tasks and organising of shifts will vary from one organisation to another and from one maintenance event to another, depending on what maintenance is to be carried out, how, where, when and by whom.
- (b) Fatigue is one example of human factors issues which should be taken into account by the management system, particularly for the planning activity. In this respect, where the organisation activity is prone to fatigue issues, the organisation should:
- (1) ensure that the safety policy required by point 145.A.200(a) gives due consideration to the aspects of fatigue;
  - (2) ensure that the internal safety reporting scheme required by point 145.A.202 enables the collection of fatigue issues;
  - (3) ensure that the threat of fatigue is adequately taken into account by the management system key processes (e.g. assessment, management, monitoring);
  - (4) provide safety promotion material and adapt safety training accordingly.
- (c) The organising of shifts should consider good practices in the maintenance domain and applicable rules. The resulting shift schedule should be shared with the maintenance staff sufficiently in advance so they can plan adequate rest.
- The established shift durations should not be exceeded merely for management convenience even when staff is willing to work extended hours.
- (d) The organisation should have a procedure (including mitigations) to address cases where the working hours are to be significantly increased, or when the shift pattern is to be significantly modified, such as for urgent operational reasons. In cases not covered by that procedure, the organisation should perform a specific risk assessment and define additional mitigation actions, as applicable. Basic mitigations may include:
- (1) additional supervision and independent inspection;

- (2) limitation of maintenance tasks to non-critical tasks;
- (3) use of additional rest breaks.

## GM1 145.A.47(b) Production planning

### CONSIDERATION OF FATIGUE IN THE PLANNING OF MAINTENANCE

(a) Fatigue may be induced by:

- (i) the environment and conditions (e.g. noise, humidity, temperature, closed section, working overhead) in which the work is carried out;
- (ii) excessive hours of duty and shift working, particularly with multiple shift periods or patterns, additional overtime or night work;
- (iii) travel to the maintenance location (e.g. jetlag, duration)

Fatigue is one of the factors that may contribute towards maintenance errors when it is not properly considered as part of planning activities.

(b) Taking into account the threat of fatigue in the planning of maintenance tasks and organising of shifts refers to setting up the maintenance and the shifts in a way that enables the maintenance staff to remain sufficiently free from fatigue so they can perform the planned maintenance safely, including:

- providing rest periods of sufficient time to overcome the effects of the previous shift and to be rested by the start of the following shift;
- avoiding shift patterns that cause a serious disruption of an established sleep/work pattern, such as alternating day/night duties;
- planning recurrent extended rest periods and notifying staff sufficiently in advance.

## AMC 145.A.47(b) Production planning

~~Limitations of human performance, in the context of planning safety related tasks, refers to the upper and lower limits, and variations, of certain aspects of human performance (Circadian rhythm / 24 hours body cycle) which personnel should be aware of when planning work and shifts.~~

## GM1 145.A.47(d) Production planning

'External working teams' refers to an organisation that does not belong to the Part-145 organisation in whose facility the maintenance is being carrying out, and which is, for example (this list is not exhaustive):

- contracted by the Part-145 maintenance organisation; or
- subcontracted by the Part-145 maintenance organisation; or
- contracted by the person or organisation responsible for the aircraft continuing airworthiness.

The objective of point 145.A.47(d) is to manage the risk involved in the actual execution of maintenance by the various organisations at the same location.

Example: The need for one organisation to be informed that they should not put the aircraft in a certain configuration (regarding, for instance, electrical power) if this could contribute to an error in the maintenance performed by another organisation.

Note: Refer to GM2 145.A.205 for the difference between contracting and subcontracting maintenance activities.

## AMC1 145.A.48(a) Performance of maintenance

Point (a) of 145.A.48 is intended to cover the situation where the organisation may temporarily not hold all the necessary tools, equipment, material, maintenance data, etc. for an aircraft type or variant, or component specified in the organisation's scope of work. This point means that the competent authority need not amend the approval to delete the aircraft type or variants, or component on the basis that it is a temporary situation and there is a commitment from the organisation to re-acquire tools, equipment etc. before maintenance on the related aircraft or component may recommence.

## GM1 145.A.48(c)(d) Performance of maintenance – ~~critical design configuration control limitations (CDCCL)~~

### CRITICAL DESIGN CONFIGURATION CONTROL LIMITATIONS (CDCCL)

The organisation should ensure that when performing maintenance the CDCCL are not compromised. The organisation should pay particular attention to possible adverse effects of any change to the wiring of the aircraft, even of a change not specifically associated with the fuel tank system. For example, it should be common practice to identify the segregation of fuel gauging system wiring as a CDCCL. The organisation can prevent adverse effects associated with changes to the wiring by standardising maintenance practices through training, and not through periodic inspections. Training should be provided to avoid indiscriminate routing and splicing of wires and to provide comprehensive knowledge of critical design features of fuel tank systems that would be controlled by a CDCCL. Guidance on the training of maintenance organisation personnel is provided in Appendix IV to AMC5 145.A.30(e) and AMC2 145.B.200(a)(3) ~~Appendix IV to AMC 145.A.30(e) and 145.B.10(3).~~

## AMC1 145.A.48(c)(2) ~~(b)~~ Performance of maintenance

The organisation should have a procedure ~~should to~~ identify the error-capturing methods, the critical maintenance tasks, the training and ~~the~~ qualifications of staff applying error-capturing methods, and how the organisation ensures that its staff is familiar with critical maintenance tasks and error-capturing methods.

## AMC2 145.A.48(c)(2) ~~AMC2 145.A.48(b)~~ Performance of maintenance

[...]

- (b) The procedure should describe which data sources are used to identify critical maintenance tasks. Several data sources may be used, such as:
- (1) information from the design approval holder;
  - (2) accident reports;
  - (3) investigation and follow-up of incidents;
  - (4) occurrence reporting;
  - (5) flight data analysis, where this is available from the person or organisation responsible for the aircraft continuing airworthiness;
  - (6) results of audits and independent inspections;
  - (7) monitoring schemes for normal operations ~~monitoring schemes~~, where these are available from the person or organisation responsible for the aircraft continuing airworthiness; ~~and~~
  - (8) feedback from training.

## AMC3 145.A.48(c)(2) ~~AMC3 145.A.48(b)~~ Performance of maintenance

### ERROR-CAPTURING METHODS

- (a) Error-capturing methods are those actions defined by the organisation to detect maintenance errors ~~that are~~ made ~~when~~ while performing maintenance.
- (b) The organisation should ensure that the error-capturing methods are adequate for the work and the disturbance of the system. A combination of several actions (e.g. visual inspection, operational check, functional test, rigging check) may be necessary in some cases.

## AMC4 145.A.48(c)(2) ~~AMC4 145.A.48(b)~~ Performance of maintenance

[...]

## AMC1 145.A.48(c)(3) Performance of maintenance

The procedures should be aimed at:

- (a) minimising ~~multiple~~ errors and preventing omissions. Therefore, the procedures should specify:
  - (1) that every maintenance task is signed off only after completion;
  - (2) how the grouping of tasks for the purpose of sign-off allows critical steps to be clearly identified; and
  - (3) that work performed by personnel under supervision (i.e. temporary staff, trainees) is checked and signed off by an authorised person;
- (b) minimising the possibility of an error being repeated in identical tasks and, therefore, compromising more than one system or function. Thus, the procedures should ensure that no person is required to perform a maintenance task involving removal/installation or assembly/disassembly of several components of the same type fitted to more than one system, a failure of which could have an impact on safety, on the same aircraft or component during a particular maintenance check. However, in unforeseen circumstances when only one person is available, the organisation may make use of reinspection as described in point (d) of ~~AMC4 145.A.48(b)~~ AMC4 145.A.48(c)(2).

## GM1 145.A.48(c)(3) Performance of maintenance

To minimise the risk of ~~multiple~~ errors ~~during maintenance~~ ~~or~~ and the risk of errors being repeated in ~~identical maintenance tasks~~, the organisation may implement:

- procedures to plan the performance by different persons of the same task in different systems;
- independent inspection or re-inspection procedures.

## GM1 145.A.50(a) ~~AMC 145.A.50(a)~~ Certification of maintenance

'Endangers the flight safety' means any instances where safe operation could not be assured, or which could lead to an unsafe condition. ~~These~~ ~~it~~ typically includes, but ~~is~~ ~~are~~ not limited to, significant cracking, deformation, corrosion or failure of primary structure, any evidence of burning, electrical arcing, significant hydraulic fluid or fuel leakage, and any emergency system or total system failure.

An airworthiness directive **that is** overdue for compliance is also considered **to be** a hazard to flight safety.

However, the intent is not to require the maintenance organisation to find or become responsible for hidden non-compliances which are not expected to be discovered during the ordered maintenance.

A certificate of release to service issued by a maintenance organisation certifies that the performed maintenance work, as agreed in the work order or the contract, has been completed in accordance with the applicable requirements and the maintenance organisation's approved procedures. In the case of aircraft maintenance, it does not necessarily mean that the aircraft is in airworthy condition. Ensuring that the aircraft is airworthy before each flight always remains the responsibility of the person or organisation managing the aircraft continuing airworthiness.

### AMC 145.A.50(b) Certification of maintenance

1. The certificate of release to service should contain the following statement:

'Certifies that the work specified, except as otherwise specified, was carried out in accordance with Part-145 and in respect to that work the aircraft/aircraft component is considered ready for release to service'.

Reference should also be made to the EASA Part-145 approval number **and the identity of the person who issued the release.**

[...]

### AMC1 145.A.50(d) Certification of maintenance

The purpose of the certificate is to ~~release~~ **certify maintenance work carried out on assemblies/items/components/parts (hereafter referred to as 'item(s'))**, ~~after maintenance and to release maintenance work carried out on such items under the approval of a competent authority and~~ **to** It also allows **the removal from aircraft of items in a 'serviceable' condition in accordance with AMC2 145.A.50(d) in order to fit them** ~~removed from one aircraft/aircraft component to be fitted~~ to another aircraft/aircraft component.

[...]

### AMC1 145.A.50(e) Certification of maintenance

1. Being unable to establish full compliance with **point** ~~sub-paragraph Part-145.A.50(a)~~ means that the maintenance required by the **person or organisation responsible for the aircraft continuing airworthiness** ~~aircraft operator~~ could not be completed due **to** either ~~to~~ running out of available aircraft maintenance downtime for the scheduled check, or by virtue of the condition of the aircraft requiring additional maintenance downtime, or because the maintenance data requires a flight to be performed as part of the maintenance, as described in paragraph 4.

2. **The person or organisation responsible for the aircraft continuing airworthiness** ~~The aircraft operator~~ is responsible for ensuring that all required maintenance has been carried out before flight and therefore 145.A.50(e) requires such **person or organisation** ~~operator~~ to be informed in the case where full compliance with 145.A.50(a) cannot be achieved within the ~~operator's~~ **relevant** limitations. If **that person or organisation** ~~the operator~~ agrees to the deferment of full compliance, then the certificate of release to service may be issued subject to details of the deferment, including the ~~operator's~~ **competent** authority **of the State of Registry**, being endorsed on the certificate.

Note: Whether or not the **person or organisation responsible for the aircraft continuing airworthiness** ~~aircraft operator~~ does have the authority to defer maintenance is an issue between **that person or organisation** ~~the aircraft operator~~ and the competent authority of the State of Registry ~~or State of operator, as appropriate~~. In case of doubt concerning such a decision ~~of the operator~~, the approved maintenance organisation should inform its competent authority ~~on~~ **of** such doubt, before issuing the certificate of release to service. This will allow this competent authority to investigate the matter with the competent authority of the State of Registry or the State of the operator as appropriate.

3. The procedure should draw attention to the fact that 145.A.50(a) does not normally permit the issue of a certificate of release to service in the case of non-compliance and should state what action the mechanic, supervisor and certifying staff should take to bring the matter to the attention of the relevant department or person responsible for technical co-ordination with the **person or organisation responsible for the aircraft continuing airworthiness** ~~aircraft operator~~ so that the issue may be discussed and resolved with **that person or organisation** ~~the aircraft operator~~. In addition, the appropriate person(s) as specified in **point** 145.A.30(b) should be kept informed in writing of such possible non-compliance situations and this should be included in the procedure.

[...]

## AMC1 145.A.50(f) Certification of maintenance

[...]

2. **'Compliance with all applicable maintenance and operational requirements'** ~~Compliance with all other Part 145 and operator requirements~~ means, in particular, making an appropriate entry in **the aircraft continuing airworthiness record system** or if applicable, in **the aircraft technical log system**, checking **the compatibility of the component with the aircraft approved design** ~~for compliance with type design standards~~, **including** modifications, repairs, airworthiness directives, life limitations and condition of the aircraft component plus information on where, when and why the aircraft was grounded.

## AMC1 145.A.55 Record-keeping

### GENERAL

- (a) The record-keeping system should ensure that all records are accessible within a reasonable time whenever they are needed. These records should be organised in a manner that ensures their traceability and retrievability throughout the required retention period.
- (b) Records should be kept in paper form, or in electronic format, or a combination of the two. Records that are stored on microfilm or in optical disc formats are also acceptable. The records should remain legible throughout the required retention period. The retention period starts when the record is created or was last amended.
- (c) Paper systems should use robust materials which can withstand normal handling and filing. Computer record systems should have at least one backup system, which should be updated within 24 hours of any new entry. Computer record systems should include safeguards to prevent unauthorised personnel from altering the data.
- (d) All computer hardware that is used to ensure the backup of data should be stored in a different location from the one that contains the working data, and in an environment that ensures that the data remains in a good condition. When hardware or software changes take place, special care should be taken to ensure that all the necessary data continues to be accessible through at least the full period specified in the relevant provision. In the absence of any such indications, all records should be kept for a minimum period of 3 years.

## GM1 145.A.55 Record-keeping

### RECORDS

Microfilming or optical storage of records may be carried out at any time. The records should be as legible as the original record, and remain so for the required retention period.

## GM1 145.A.55(a)(1) Record-keeping ~~Maintenance and airworthiness review records~~

### MAINTENANCE RECORDS

1. Properly executed and retained maintenance records provide:
  - (i) owners and persons or organisations responsible for aircraft continuing airworthiness ~~owners, operators and maintenance personnel~~ with information essential in establishing the airworthiness status of aircraft or component, and in particular, in controlling unscheduled and scheduled maintenance;

- (ii) maintenance personnel with information essential for troubleshooting, ~~and troubleshooting to eliminate~~ eliminating the need for re-inspection and rework ~~to establish airworthiness.~~

The prime objective is to have secure and easily retrievable records with comprehensive and legible contents. The aircraft record should contain basic details of all serialised aircraft components and all other significant aircraft components installed **during the maintenance performed**, to ensure traceability to such installed aircraft component documentation, associated maintenance data and data for modifications and repairs.

2. Some gas turbine engines are assembled from modules, and a true total time in service for a total engine is not kept. When **it is desirable** ~~owners and operators wish~~ to take advantage of the modular design, then **the** total time in service and **the** maintenance records for each module **is are** to be maintained. The maintenance records as specified are to be kept with the module and should show compliance with any mandatory requirements pertaining to that module.

- ~~3. Reconstruction of lost or destroyed records can be done by reference to other records which reflect the time in service, research of records maintained by repair facilities and reference to records maintained by individual mechanics etc. When these things have been done and the record is still incomplete, the owner/operator may make a statement in the new record describing the loss and establishing the time in service based on the research and the best estimate of time in service. The reconstructed records should be submitted to the competent authority for acceptance.~~

~~Note: Additional maintenance may be required.~~

- ~~4. The maintenance record can be either a paper or computer system or any combination of both.~~
- ~~5. Paper systems should use robust material which can withstand normal handling and filing. The record should remain legible throughout the required retention period.~~
- ~~6. Computer systems may be used to control maintenance and/or record details of maintenance work carried out. Computer systems used for maintenance should have at least one backup system which should be updated at least within 24 hours of any maintenance. Each terminal is required to contain programme safeguards against the ability of unauthorised personnel to alter the database.~~

### **AMC1 145.A.55(a)(3) ~~AMC 145.A.55(c)~~ Record-keeping Maintenance and airworthiness review records**

'Associated maintenance data' **refers to** ~~is~~ specific information such as **data pertaining to embodiment of a repair and or** modification data. This does not necessarily require the retention of all Aircraft Maintenance Manual, Component Maintenance Manual, IPC, etc, issued by the TC holder or STC holder. Maintenance records should refer to the revision status of the data used.

## AMC1 145.A.55(d) Record-keeping

### RECORDS OF CERTIFYING STAFF AND SUPPORT STAFF

1. The following minimum information, as applicable, should be kept on record in respect of certifying staff or support staff:
  - (a) Name;
  - (b) Date of birth;
  - (c) Basic training;
  - (d) Task training or product/type training;
  - (e) Recurrent training;
  - (f) Experience;
  - (g) Qualifications relevant to the authorisation;
  - (h) Scope of the authorisation (role, product, level of maintenance, etc.);
  - (i) Date of first issue of the authorisation;
  - (j) Expiry date of the authorisation (if appropriate); and
  - (k) Identification number of the authorisation.
2. The record may be kept in any format but should be controlled by the organisation's compliance monitoring function. This does not mean that the compliance monitoring manager should run the record system.
3. The number of persons authorised to access the system should be kept to a minimum to ensure that records cannot be altered in an unauthorised manner, and that such confidential records do not become accessible to any unauthorised persons.
4. The competent authority is authorised to access personal records when investigating the records system for initial certification and oversight, or when the competent authority has cause to doubt the competency of a particular person.

## AMC2 145.A.55(d) Record-keeping

### RECORDS OF AIRWORTHINESS REVIEW STAFF

The following minimum information, as applicable, should be kept on record in respect of each airworthiness review staff:

- (a) Name;
- (b) Date of birth;
- (c) Certifying staff authorisation;

- (d) Experience as certifying staff on aircraft covered by Part-ML;
- (e) Qualifications relevant to the approval (knowledge of relevant parts of Part-ML, and knowledge of the relevant airworthiness review procedures);
- (f) Scope of the airworthiness review authorisation and personal authorisation reference;
- (g) Date of the first issue of the airworthiness review authorisation; and
- (h) Expiry date of the airworthiness review authorisation (if appropriate).

### **AMC 145.A.60(a) Occurrence reporting**

~~AMC 20.8 General Acceptable Means of Compliance for Airworthiness of Products, Parts and Appliances provides further guidance on occurrence reporting.~~

### **AMC1 145.A.60 Occurrence reporting**

#### **GENERAL**

- (a) Where the organisation holds one or more additional organisation certificates within the scope of Regulation (EU) 2018/1139 and its delegated and implementing acts:
  - (1) the organisation may establish an integrated occurrence reporting system covering all certificate(s) held; and
  - (2) single reports for occurrences should only be provided if the following conditions are met:
    - (i) the report includes all relevant information from the perspective of the different organisation certificates held;
    - (ii) the report addresses all relevant specific mandatory data fields and clearly identifies all certificate holders for which the report is made; and
    - (iii) the competent authority for all certificates is the same and such single reporting was agreed with that competent authority.
- (b) The organisation should assign responsibility to one or more suitably qualified persons with clearly defined authority, for coordinating action on airworthiness occurrences and for initiating any necessary further investigation and follow-up activity.
- (c) If more than one person are assigned such responsibility, the organisation should identify a single person to act as the main focal point for ensuring that a single reporting channel is established to the accountable manager. This should in particular apply to organisations holding one or more additional organisation certificates within the scope of Regulation (EU) 2018/1139 and its delegated and implementing acts where the occurrence reporting system is fully integrated with that required under the additional certificate(s) held.

## AMC2 145.A.60 Occurrence reporting

The organisation should share relevant safety-related occurrence reports with the design approval holder of the aircraft or component in order to enable it to issue appropriate service instructions and recommendations to all relevant parties. Liaison with the design approval holder is recommended to establish whether published or proposed service information will resolve the problem or to obtain a solution to a particular problem.

## ~~GM 145.A.60(a) Occurrence reporting~~

~~The organisation responsible for the design is normally the TC holder of the aircraft, engine or propeller and/or if known the STC holder.~~

## GM1 145.A.60 Occurrence reporting

### MANDATORY REPORTING — GENERAL

- (a) For organisations having their principal place of business in a Member State, Regulation (EU) 2015/1018 lays down a list classifying occurrences in civil aviation to be mandatorily reported. This list should not be understood as being an exhaustive collection of all issues that may pose a significant risk to aviation safety and therefore reporting should not be limited to items listed in that Regulation.
- (b) AMC-20 'General Acceptable Means of Compliance for Airworthiness of Products, Parts and Appliances' provides further details on occurrence reporting (AMC 20-8A).

## ~~AMC 145.A.60(b) Occurrence reporting~~

- ~~1. The aim of occurrence reporting is to identify the factors contributing to incidents, and to make the system resistant to similar errors.~~
- ~~2. An occurrence reporting system should enable and encourage free and frank reporting of any (potentially) safety related occurrence. This will be facilitated by the establishment of a just culture. An organisation should ensure that personnel are not inappropriately punished for reporting or co-operating with occurrence investigations.~~
- ~~3. The internal reporting process should be closed loop, ensuring that actions are taken internally to address safety hazards.~~
- ~~4. Feedback to reportees, both on an individual and more general basis, is important to ensure their continued support for the scheme.~~

## GM1 145.A.60(b) Performance of maintenance

Depending on the case, the 'design approval holder' will be the holder of a type certificate, a restricted type certificate, a supplemental type certificate, a European Technical Standard Order (ETSO) authorisation, a major repair design approval, a major change design approval or any other relevant approval or authorisation for products, parts and appliances deemed to have been issued under Commission Regulation (EU) No 748/2012.

## GM 145.A.60(c) Occurrence reporting

Each report should contain at least the following information:

- (i) Organisation name and approval reference.
- (ii) Information necessary to identify the subject aircraft and / or component.
- (iii) Date and time relative to any life or overhaul limitation in terms of flying hours/cycles/landings etc. as appropriate.
- (iv) Details of the condition as required by 145.A.60(b).
- (v) Any other relevant information found during the evaluation or rectification of the condition.

## AMC 145.A.65(a) Safety and quality policy, maintenance procedures and quality system

The safety and quality policy should as a minimum include a statement committing the organisation to:

- Recognise safety as a prime consideration at all times.
- Apply Human factors principles.
- Encourage personnel to report maintenance related errors/incidents.
- Recognise that compliance with procedures, quality standards, safety standards and regulations is the duty of all personnel.
- Recognise the need for all personnel to cooperate with the quality auditors.

## AMC1 145.A.65 ~~(b) Safety and quality policy, m~~ Maintenance procedures ~~and quality system~~

### GENERAL

1. Maintenance procedures should be ~~held current~~ kept up to date such that they reflect the current best practices within the organisation, while being compliant with the Regulation. ~~It is the responsibility of a~~ All organisation's employees ~~to~~ should report any differences via their organisation's internal safety occurrence reporting scheme mechanisms.
2. All procedures, and changes to those procedures, should be verified and validated before use where practicable and applicable.
3. All ~~technical~~ procedures should be designed and presented in accordance with good human factors principles.

## GM1 145.A.65 Maintenance procedures

### HUMAN FACTORS PRINCIPLES

The following key points should be considered when designing and presenting technical procedures in accordance with good human factors principles:

- (a) The design of procedures and changes should involve maintenance personnel who have a good working knowledge of the tasks;
- (b) Ensuring that the procedures are accurate, appropriate and usable, and reflect best practices;
- (c) Taking account of the level of expertise and experience of the user;
- (d) Taking account of the environment in which the procedures are to be used;
- (e) Ensuring that all the key information is included without the procedure being unnecessarily complex;
- (f) Where appropriate, explaining the reasons for the procedure;
- (g) The order of the tasks and the steps should reflect best practices, with the procedure clearly stating where the order of steps is critical, and where changes to the order are acceptable;
- (h) Ensuring consistency in the design of procedures and the use of terminology, abbreviations, references, etc.
- (i) For documents produced in the English language, using 'simplified English'.

## **GM2 145.A.65(b)(1) ~~Safety and quality policy, m~~ Maintenance procedures ~~and quality system~~**

[...]

## **AMC1 145.A.65(b)(2) ~~Safety and quality policy, m~~ Maintenance procedures ~~and quality system~~**

Specialised services include any specialised activity, such as, but not limited to, non-destructive testing requiring particular skills and/or qualification. [Point 145.A.30\(f\)](#) covers the qualification of personnel but, in addition, there is a need to establish maintenance procedures that cover the control of any specialised process.

## **AMC 145.A.65(c)(1) ~~Safety and quality policy, maintenance procedures and quality system~~**

- ~~1. The primary objectives of the quality system are to enable the organisation to ensure that it can deliver a safe product and that organisation remains in compliance with the requirements.~~
- ~~2. An essential element of the quality system is the independent audit.~~
- ~~3. The independent audit is an objective process of routine sample checks of all aspects of the organisation's ability to carry out all maintenance to the required standards and includes some product sampling as this is the end result of the maintenance process. It represents an objective overview of the complete maintenance related activities and is intended to complement the [145.A.50\(a\)](#) requirement for certifying staff to be satisfied that all required maintenance has been properly carried out before issue of the certificate of release to service. Independent audits should include a percentage of random audits carried out on a sample basis when maintenance is being carried out. This means some audits during the night for those organisations that work at night.~~
- ~~4. Except as specified in sub paragraphs 7 and 9, the independent audit should ensure that all aspects of [Part 145](#) compliance are checked every 12 months and may be carried out as a complete single exercise or subdivided over the 12 month period in accordance with a scheduled plan. The independent audit does not require each procedure to be checked against each product line when it can be shown that the particular procedure is common to more than one product line and the procedure has been checked every 12 months without resultant findings. Where findings have been identified, the particular procedure should be rechecked against other product lines until the findings have been rectified after which the independent audit procedure may revert back to 12 monthly for the particular procedure.~~

~~5. Except as specified otherwise in subparagraphs 7, the independent audit should sample check one product on each product line every 12 months as a demonstration of the effectiveness of maintenance procedures compliance. It is recommended that procedures and product audits be combined by selecting a specific product example, such as an aircraft or engine or instrument and sample checking all the procedures and requirements associated with the specific product example to ensure that the end result should be an airworthy product.~~

~~For the purpose of the independent audit, a product line includes any product under an Appendix II approval class rating as specified in the approval schedule issued to the particular organisation.~~

~~It therefore follows for example that a maintenance organisation approved under Part 145 with a capability to maintain aircraft, repair engines, brakes and autopilots would need to carry out four complete audit sample checks each year except as specified otherwise in subparagraphs 5, 7 or 9.~~

~~6. The sample check of a product means to witness any relevant testing and visually inspect the product and associated documentation. The sample check should not involve repeat disassembly or testing unless the sample check identifies findings requiring such action.~~

~~7. Except as specified otherwise in sub-paragraph 9, where the smallest organisation, that is an organisation with a maximum of 10 personnel actively engaged in maintenance, chooses to contract the independent audit element of the quality system in accordance with 145.A.65(c)(1) it is conditional on the audit being carried out twice in every 12 month period.~~

~~8. Except as specified otherwise in sub-paragraph 9, where the organisation has line stations listed as per 145.A.75(d) the quality system should describe how these are integrated into the system and include a plan to audit each listed line station at a frequency consistent with the extent of flight activity at the particular line station. Except as specified otherwise in sub-paragraph 9 the maximum period between audits of a particular line station should not exceed 24 months.~~

~~9. Except as specified otherwise in sub-paragraph 5, the competent authority may agree to increase any of the audit time periods specified in this AMC 145.A.65(c)(1) by up to 100% provided that there are no safety related findings and subject to being satisfied that the organisation has a good record of rectifying findings in a timely manner.~~

~~10. A report should be raised each time an audit is carried out describing what was checked and the resulting findings against applicable requirements, procedures and products.~~

~~11. The independence of the audit should be established by always ensuring that audits are carried out by personnel not responsible for the function, procedure or products being checked. It therefore follows that a large maintenance organisation approved under Part 145, being an organisation with more than about 500 maintenance staff should have a dedicated quality audit group whose sole function is to conduct audits, raise finding reports and follow up to check that findings are being rectified. For the medium sized maintenance organisation approved under Part 145, being an organisation with less than about 500 maintenance staff, it is acceptable to use competent personnel from one section/department not responsible for the production~~

~~function, procedure or product to audit the section/department that is responsible subject to the overall planning and implementation being under the control of the quality manager. Organisations with a maximum of 10 maintenance staff actively engaged in carrying out maintenance may contract the independent audit element of the quality system to another organisation or a qualified and competent person approved by the competent authority.~~

## GM 145.A.65(c)(1) Safety and quality policy, maintenance procedures and quality system

- ~~1. The purpose of this GM is to give guidance on just one acceptable working audit plan to meet part of the needs of 145.A.65(c)1. There is any number of other acceptable working audit plans.~~
- ~~2. The proposed plan lists the subject matter that should be covered by the audit and attempts to indicate applicability in the various types of workshops and aircraft facilities. The list should therefore be tailored for the particular situation and more than one list may be necessary. Each list should be shown against a timetable to indicate when the particular item is scheduled for audit and when the audit was completed.~~

PARA	Comment	HANGAR	ENGINE Workshop	MECH Workshop	AVIONIC Workshop
<del>145.A.25</del>		Yes	Yes	Yes	Yes
<del>145.A.30</del>		Yes	Yes	Yes	Yes
<del>145.A.35</del>		Yes	Yes	Yes	Yes
<del>145.A.36</del>		Yes	No	No	No
<del>145.A.40</del>		Yes	Yes	Yes	Yes
<del>145.A.42</del>		Yes	Yes	Yes	Yes
<del>145.A.45</del>		Yes	Yes	Yes	Yes
<del>145.A.47</del>		Yes	Yes	Yes	Yes
<del>145.A.48</del>		Yes	Yes	if appl.	if appl.
<del>145.A.50</del>		Yes	Yes	Yes	Yes
<del>145.A.55</del>		Yes	Yes	Yes	Yes
<del>145.A.60</del>		Yes	Yes	Yes	Yes
<del>145.A.65</del>		Yes	Yes	Yes	Yes
2-1	MOE	Yes	Yes	Yes	Yes
2-2	MOE	Yes	Yes	Yes	Yes
2-3	MOE	Yes	Yes	Yes	Yes
2-4	MOE	Yes	Yes	Yes	Yes
2-5	MOE	Yes	Yes	Yes	Yes
2-6	MOE	Yes	Yes	Yes	Yes
2-7	MOE	Yes	Yes	Yes	Yes
2-8	MOE	Yes	Yes	Yes	Yes
2-9	MOE	Yes	Yes	Yes	Yes
2-10	MOE	Yes	No	No	No
2-11	MOE	Yes	Yes	Yes	Yes

PARA	Comment	HANGAR	ENGINE	MECH	AVIONIC
			Workshop	Workshop	Workshop
2-12	MOE	Yes	Yes	Yes	Yes
2-13	MOE	Yes	Yes	Yes	Yes
2-14	MOE	Yes	Yes	Yes	Yes
2-15	MOE	Yes	No	No	No
2-16	MOE	Yes	Yes	Yes	Yes
2-17	MOE	if appl.	if appl.	if appl.	if appl.
2-18	MOE	Yes	Yes	Yes	Yes
2-19	MOE	Yes	Yes	Yes	Yes
2-20	MOE	Yes	Yes	Yes	Yes
2-21	MOE	if appl.	if appl.	if appl.	if appl.
2-22	MOE	Yes	Yes	No	No
2-23	MOE	Yes	Yes	if appl.	if appl.
2-24	MOE	Yes	Yes	Yes	Yes
2-25	MOE	Yes	Yes	Yes	Yes
2-26	MOE	Yes	Yes	Yes	Yes
2-27	MOE	Yes	Yes	Yes	Yes
2-28	MOE	Yes	Yes	Yes	Yes
2-29	MOE	Yes	No	No	No
2-30	MOE	Yes	No	No	No
L2-1	MOE	if appl.	No	No	No
L2-2	MOE	if appl.	No	No	No
L2-3	MOE	if appl.	No	No	No
L2-4	MOE	if appl.	No	No	No
L2-5	MOE	if appl.	No	No	No
L2-6	MOE	if appl.	No	No	No
L2-7	MOE	if appl.	No	No	No
3-9	MOE	if appl.	if appl.	if appl.	if appl.
3-10	MOE	if appl.	if appl.	if appl.	if appl.
3-11	MOE	if appl.	if appl.	if appl.	No
3-12	MOE	Yes	Yes	No	No
3-13	MOE	Yes	Yes	Yes	Yes
3-14	MOE	Yes	Yes	Yes	Yes
<u>145.A.70</u>		Yes	Yes	Yes	Yes
<u>145.A.75</u>		Yes	Yes	Yes	Yes
<u>145.A.80</u>		Yes	Yes	Yes	Yes
<u>145.A.85</u>		Yes	Yes	Yes	Yes
<u>145.A.95</u>		if appl.	if appl.	if appl.	if appl.
<u>M.A.201(c)</u>		if appl.	if appl.	if appl.	if appl.
<u>M.A.403(b)</u>		if appl.	No	No	No
<u>ML.A.201(c)</u>		if appl.	if appl.	if appl.	if appl.
<u>ML.A.430(b)</u>		if appl.	if appl.	if appl.	if appl.

Note 1: 'if appl.' means 'if applicable or relevant'.

Note 2: In the case of line stations, all line stations should be audited at the frequency agreed with the competent authority within the limits of AMC 145.A.65(c)(1).

## ~~GM1 145.A.65(c)(1) and 145.B.30 Safety and quality policy, maintenance procedures and quality system, and Continuation of an approval~~

### ~~THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) FOR PERFORMING REMOTE AUDITS~~

This GM provides technical guidance on the use of remote information and communication technologies (ICT) to support:

- competent authorities when overseeing regulated organisations;
- regulated organisations when conducting internal audits / monitoring compliance of their organisation with the relevant requirements, and when evaluating vendors, suppliers and subcontractors.

In the context of this GM:

- 'remote audit' means an audit that is performed with the use of any real time video and audio communication tools instead of the physical presence of the auditor on-site; the specificities of each type of approval need to be considered in addition to the general overview (described below) when applying the 'remote audit' concept;
- 'auditing entity' means the competent authority or organisation that performs the remote audit;
- 'auditee' means the entity being audited/inspected (or the entity audited/inspected by the auditing entity via a remote audit);

It is the responsibility of the auditing entity to assess whether the use of remote ICT constitutes a suitable alternative to the physical presence of an auditor on-site in accordance with the applicable requirements.

#### ~~The conduct of a remote audit~~

The auditing entity that decides to conduct a remote audit should describe the remote audit process in its documented procedures and should consider at least the following elements:

- The methodology for the use of remote ICT is sufficiently flexible and non-prescriptive in nature to optimise the conventional audit process.
- Adequate controls are defined and are in place to avoid abuses that could compromise the integrity of the audit process.

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~~Measures to ensure that the security and confidentiality are maintained throughout the audit activities (data protection and intellectual property of the organisation also need to be safeguarded).~~

~~Examples of the use of remote ICT during audits may include but are not limited to:~~

- ~~meetings by means of teleconference facilities, including audio, video and data sharing;~~
- ~~assessment of documents and records by means of remote access, in real time;~~
- ~~recording, in real time during the process, of evidence to document the results of the audit, including non-conformities, by means of exchange of emails or documents, instant pictures, video or/and audio recordings;~~
- ~~visual (livestream video) and audio access to facilities, stores, equipment, tools, processes, operations, etc.~~

~~An agreement between the auditing entity and the auditee should be established when planning a remote audit, which should include the following:-~~

- ~~determining the platform for hosting the audit;~~
- ~~granting security and/or profile access to the auditor(s);~~
- ~~testing platform compatibility between the auditing entity and the auditee prior to the audit;~~
- ~~considering the use of webcams, cameras, drones, etc. when the physical evaluation of an event (product, part, process, etc.) is desired or is necessary;~~
- ~~establishing an audit plan which will identify how remote ICT will be used and the extent of their use for the audit purposes to optimise their effectiveness and efficiency while maintaining the integrity of the audit process;~~
- ~~if necessary, time zone acknowledgement and management to coordinate reasonable and mutually agreeable convening times;~~
- ~~a documented statement of the auditee that they shall ensure full cooperation and provision of the actual and valid data as requested, including ensuring any supplier or subcontractor cooperation, if needed; and~~
- ~~data protection aspects.~~

~~The following equipment and set-up elements should be considered:~~

- ~~the suitability of video resolution, fidelity, and field of view for the verification being conducted;~~
- ~~the need for multiple cameras, imaging systems, or microphones, and whether the person that performs the verification can switch between them, or direct them to be switched and has the possibility to stop the process, ask a question, move the equipment, etc.;~~
- ~~the controllability of viewing direction, zoom, and lighting;~~
- ~~the appropriateness of audio fidelity for the evaluation being conducted; and~~

~~— real time and uninterrupted communication between the person(s) participating to the remote audit from both locations (on-site and remotely).~~

~~When using remote ICT, the auditing entity and the other persons involved (e.g. drone pilots, technical experts) should have the competence and ability to understand and utilise the remote ICT tools employed to achieve the desired results of the audit(s)/assessment(s). The auditing entity should also be aware of the risks and opportunities of the remote ICT used and the impacts they may have on the validity and objectivity of the information gathered.~~

~~Audit reports and related records should indicate the extent to which remote ICT have been used in conducting remote audits and the effectiveness of remote ICT in achieving the audit objectives, including any item that has not been able to be completely reviewed.~~

### **AMC 145.A.65(c)(2) Safety and quality policy, maintenance procedures and quality system**

- ~~1. An essential element of the quality system is the quality feedback system.~~
- ~~2. The quality feedback system may not be contracted to outside persons. The principal function of the quality feedback system is to ensure that all findings resulting from the independent quality audits of the organisation are properly investigated and corrected in a timely manner and to enable the accountable manager to be kept informed of any safety issues and the extent of compliance with Part 145.~~
- ~~3. The independent quality audit reports referenced in AMC 145.A.65(c)(1) sub paragraph 10 should be sent to the relevant department(s) for rectification action giving target rectification dates. Rectification dates should be discussed with such department(s) before the quality department or nominated quality auditor confirms such dates in the report. The relevant department(s) are required by 145.A.65(c)(2) to rectify findings and inform the quality department or nominated quality auditor of such rectification.~~
- ~~4. The accountable manager should hold regular meetings with staff to check progress on rectification except that in the large organisations such meetings may be delegated on a day to day basis to the quality manager subject to the accountable manager meeting at least twice per year with the senior staff involved to review the overall performance and receiving at least a half yearly summary report on findings of non compliance.~~
- ~~5. All records pertaining to the independent quality audit and the quality feedback system should be retained for at least 2 years after the date of clearance of the finding to which they refer or for such periods as to support changes to the AMC 145.A.65(c)(1) sub paragraph 9 audit time periods, whichever is the longer.~~

## AMC1 145.A.70 Maintenance organisation exposition (MOE)

- (a) Personnel should be familiar with those parts of the MOE that are relevant to their tasks.
- (b) The organisation should designate the person responsible for monitoring and amending the MOE, including associated procedures or manuals, in accordance with point 145.A.70(c).
- (c) The organisation may use electronic data processing (EDP) for the publication of the MOE. Attention should be paid to the compatibility of the EDP systems with the necessary dissemination, both internally and externally, of the MOE.
- (d) When information is provided by reference (e.g. separate document, manual or electronic data file), the organisation should establish clear cross-reference to such documents or files in the MOE and have procedures for the management of these document or files.

### AMC1 145.A.70(a) Maintenance organisation exposition (MOE)

This AMC provides an outline of the layout of an acceptable MOE. Where an organisation uses a different format, for example, to allow the exposition to serve for more than one approval within the scope of Regulation (EU) 2018/1139, then the exposition should contain an index that shows where the subject matter can be found in the exposition.

~~The following information should be included in the maintenance organisation exposition:~~

~~The information specified in 145.A.70(a) subparagraphs (6) and (12) to (16) inclusive, whilst a part of the maintenance organisation exposition, may be kept as separate documents or on separate electronic data files subject to the management part of said exposition containing a clear cross-reference to such documents or electronic data files.~~

~~The exposition should contain the information, as applicable, specified in this AMC. The information may be presented in any subject order as long as all applicable subjects are covered. Where an organisation uses a different format, for example, to allow the exposition to serve for more than one approval, then the exposition should contain a cross reference Annex using this list as an index with an explanation as to where the subject matter can be found in the exposition.~~

~~The exposition should contain information, as applicable, on how the maintenance organisation complies with Critical Design Configuration Control Limitations' (CDCCL) instructions.~~

~~Small maintenance organisations may combine the various items to form a simple exposition more relevant to their needs.~~

~~The operator may use electronic data processing (EDP) for publication of the maintenance organisation exposition. The maintenance organisation exposition should be made available to the approving competent authority in a form acceptable to the competent authority. Attention should be paid to the compatibility of EDP publication systems with the necessary dissemination of the maintenance organisation exposition, both internally and externally.~~

~~PART 0 GENERAL ORGANISATION (Operators within the European Union)~~

~~This section is reserved for those maintenance organisations approved under Part 145 who are also operators within the European Union.~~

**PART 1 MANAGEMENT GENERAL**

- 1.1 ~~Corporate commitment~~ Statement by the accountable manager
- 1.2 Safety ~~and quality~~ policy ~~and objectives~~
- 1.3 Management personnel
- 1.4 Duties and responsibilities of the management personnel
- 1.5 Management organisation chart
- 1.6 List of certifying staff, support staff and airworthiness review staff
- 1.7 Manpower resources
- 1.8 General description of the facilities at each address intended to be approved
- 1.9 Organisation's intended scope of work
- 1.10 Procedures for changes (including MOE amendment) requiring prior approval ~~Notification procedure to the competent authority regarding changes to the organisation's activities/approval/location/personnel~~
- 1.11 Procedures for changes (including MOE amendment) not requiring prior approval ~~Exposition amendment procedures including, if applicable, delegated procedures~~
- 1.12 Procedure for alternative means of compliance (AltMoC)

**PART 2 MAINTENANCE PROCEDURES**

- 2.1 Supplier evaluation and subcontractor control procedure
- 2.2 Acceptance/inspection of aircraft components and material ~~from outside contractors, and installation~~
- 2.3 Storage, tagging and ~~delivery~~ release of ~~aircraft~~ components and material to ~~aircraft~~ maintenance
- 2.4 Acceptance of tools and equipment
- 2.5 Calibration of tools and equipment
- 2.6 Use of tooling and equipment by staff (including alternate tools)
- 2.7 Procedure for controlling working environment and facilities ~~Cleanliness standards of maintenance facilities~~

- 
- 2.8 Maintenance ~~data instructions~~ and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff
  - 2.9 ~~Acceptance, coordination and performance of repair works~~ ~~Repair procedure~~
  - 2.10 ~~Acceptance, coordination and performance of scheduled maintenance works~~ ~~Aircraft maintenance programme compliance~~
  - 2.11 ~~Acceptance, coordination and performance of~~ ~~A~~airworthiness directives ~~works~~ ~~procedure~~
  - 2.12 ~~Acceptance, coordination and performance of~~ ~~Optional~~ modification ~~works~~ ~~procedure~~
  - 2.13 Maintenance documentation ~~development, in-use and its~~ completion ~~and sign-off~~
  - 2.14 Technical record control
  - 2.15 Rectification of defects arising during ~~base~~ maintenance
  - 2.16 Release to service procedure
  - 2.17 Records for the ~~operator~~ ~~person or organisation that ordered maintenance~~
  - 2.18 ~~Occurrence reporting~~ ~~Reporting of defects to the competent authority/operator/manufacturer~~
  - 2.19 Return of defective aircraft components to store
  - 2.20 Defective components to outside contractors
  - 2.21 Control of computer maintenance record systems
  - 2.22 Control of man-hour planning versus scheduled maintenance work
  - 2.23 Critical maintenance tasks and error-capturing methods
  - 2.24 Reference to specific ~~maintenance~~ procedures such as:
    - Engine running procedures
    - Aircraft pressure run procedures
    - Aircraft towing procedures
    - Aircraft taxiing procedures
  - 2.25 Procedures to detect and rectify maintenance errors-
  - 2.26 Shift/task handover procedures
  - 2.27 Procedures for notification of maintenance data inaccuracies and ambiguities, ~~to the type certificate holder~~
  - 2.28 Production planning ~~procedures~~ ~~and organising of maintenance activities~~
  - 2.29 Airworthiness review procedures and records
  - 2.30 ~~Fabrication of parts~~ ~~{Reserved}~~
  - 2.31 ~~Procedure for component maintenance under aircraft or engine rating~~
-

2.32 Maintenance away from approved locations

2.33 Procedure for assessment of work scope as line or base maintenance

#### PART L2 ADDITIONAL LINE MAINTENANCE PROCEDURES

(Part L2 may complement where necessary, procedures established in Part 2)

- L2.1 Line maintenance control of aircraft components, tools, equipment, etc.
- L2.2 Line maintenance procedures related to servicing/fuelling/de-icing, including inspection for/removal of de-icing/anti-icing fluid residues, etc.
- L2.3 Line maintenance control of defects and repetitive defects
- L2.4 Line procedure for completion of technical logs
- L2.5 Line procedure for pooled parts and loaned parts
- L2.6 Line procedure for return of defective parts removed from aircraft
- L2.7 Line procedure for critical maintenance tasks and error-capturing methods

#### PART 3 QUALITY MANAGEMENT SYSTEM PROCEDURES

- 3.1 Hazard identification and safety risk management schemes
- 3.2 Internal safety reporting and investigations
- 3.3 Safety action planning
- 3.4 Safety performance monitoring
- 3.5 Change management
- 3.6 Safety training (including human factors) and promotion
- 3.7 Immediate safety action and coordination with the operator's emergency response plan (ERP)
- 3.8 Compliance monitoring
  - 3.8.1 ~~Quality audit~~ Audit plan and audit ~~of organisation~~ procedures
  - 3.8.2 ~~Quality~~ Product audit ~~of aircraft~~ and inspections
  - 3.8.3 ~~Quality audit remedial~~ Audit findings — corrective action procedure
- 3.9~~4~~ Certifying staff and support staff qualifications, authorisation and training procedures
- 3.10~~5~~ Certifying staff and support staff records
- 3.11 Airworthiness review staff qualification, authorisation and records
- 3.12~~6~~ ~~Quality audit~~ Compliance monitoring and safety management personnel
- 3.13~~7~~ Independent inspection staff qualification ~~Qualifying inspectors~~

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- 3.148 ~~Qualifying mechanics~~ Mechanics qualification and records
  - 3.159 ~~Process for exemption from aircraft/aircraft component maintenance tasks~~ Aircraft or aircraft component maintenance tasks exemption process control
  - 3.160 Concession control for deviations from the organisations's procedures
  - 3.171 Qualification procedure for specialised activities such as NDT, welding, etc.
  - 3.182 ~~Management of~~ Control of manufacturers' and other maintenance external working teams
  - ~~3.13 Human factors training procedure~~
  - 3.194 Competency assessment of personnel
  - 3.2015 Training procedures for on-the-job training as per Section 6 of Appendix III to Part-66 (limited to the case where the competent authority for the Part-145 approval and for the Part-66 licence is the same)-
  - 3.2116 Procedure for the issue of a recommendation to the competent authority for the issue of a Part-66 licence in accordance with point 66.B.105 (limited to the case where the competent authority for the Part-145 approval and for the Part-66 licence is the same)-
  - 3.22 Management system record-keeping

#### PART 4 RELATIONSHIP WITH CUSTOMER/OPERATORS

- 4.1 ~~Contracting operators~~ List of the commercial operators to which the organisation provides regular aircraft maintenance services
- 4.2 ~~Operator~~ Customer interface procedures and paperwork
- 4.3 ~~Operator record completion~~ [Reserved]

#### PART 5 SUPPORTING DOCUMENTS

- 5.1 Sample of documents
- 5.2 List of Subcontractors as per point 145.A.75(b)
- 5.3 List of Line maintenance locations as per point 145.A.75(d)
- 5.4 List of contracted organisations as per point 145.A.70(a)(16)
- 5.5 List of used AltMoC as per point 145.A.70(a)(17)

#### PART 6 RESERVED OPERATORS MAINTENANCE PROCEDURES

~~This section is reserved for those maintenance organisations approved under Part 145 who are also operators.~~

**PART 7 FAA SUPPLEMENTARY PROCEDURES FOR A ~~FAA~~ TITLE 14 CFR PART -145 REPAIR STATION**

This section is reserved for those **EASA Part-145 approved** maintenance organisations ~~approved under Part 145 who~~ **that** are also certificated as an FAA ~~FAA~~ Title 14 CFR Part -145 repair station.

The contents of this Part should be based on the Maintenance Annex Guidance (MAG) issued by EASA and the FAA following the agreement between the United States of America and the European Union on cooperation in the regulation of civil aviation safety.

**PART 8 TRANSPORT CANADA CIVIL AVIATION (TCCA) SUPPLEMENTARY PROCEDURES FOR A CAR 573 MAINTENANCE ORGANISATION**

This section is reserved for those **EASA** Part-145 approved maintenance organisations holding a CAR 573 approval.

The content of this Part should be based on the Maintenance Annex Guidance (MAG) issued by EASA and the TCCA following the agreement on civil aviation safety between the European Union and Canada.

**PART 9 ANAC SUPPLEMENTARY PROCEDURES FOR AN RBAC 145 MAINTENANCE ORGANISATION**

This section is reserved for those EASA Part-145 approved maintenance organisations that hold an RBAC 145 approval.

The contents of this Part should be based on the Maintenance Annex Guidance (MAG) issued by EASA and ANAC following the agreement on civil aviation safety between the European Union and Brazil.

**GM1 145.A.70(a) Maintenance organisation exposition (MOE)**

1. The purpose of the ~~maintenance organisation exposition (MOE)~~ is to: ~~set forth the procedures, means and methods of the organisation.~~
  - **specify the scope of work and show how the organisation intends to comply with this Annex; and**
  - **provide all the necessary information and procedures for the personnel of the organisation to perform their duties.**
2. **Complying** ~~Compliance~~ with its contents will **ensure that the organisation remains in** ~~assure~~ compliance with ~~the requirements of~~ Part-145 **and, as applicable, Part-M and/or Part-ML,** ~~which is a prerequisite to obtaining and retaining a maintenance organisation approval certificate.~~
3. ~~145.A.70(a)(1) to (a)(11) constitutes the 'management' part of the MOE and therefore could be produced as one document and made available to the person(s) specified under 145.A.30(b) who should be reasonably familiar with its contents. The 145.A.70(a)(6) list of certifying staff,~~

~~B1 and B2 support staff and airworthiness review staff may be produced as a separate document.~~

- ~~4. 145.A.70(a)(12) constitutes the working procedures of the organisation and therefore as stated in the requirement may be produced as any number of separate procedures manuals. It should be remembered that these documents should be cross-referenced from the management MOE.~~
- ~~5. Personnel are expected to be familiar with those parts of the manuals that are relevant to the maintenance work they carry out.~~
- ~~6. The organisation should specify in the MOE who should amend the manual particularly in the case where there are several parts.~~
- ~~7. The quality manager should be responsible for monitoring the amendment of the MOE, unless otherwise agreed by the competent authority, including associated procedures manuals and submission of the proposed amendments to the competent authority. However the competent authority may agree via a procedure stated in the amendment section of the MOE that some defined class of amendments may be incorporated without prior approval by the competent authority.~~
- ~~8. The MOE should cover four main parts:
  - ~~(a) The management MOE covering the parts specified earlier.~~
  - ~~(b) The maintenance procedures covering all aspects of how aircraft components may be accepted from outside sources and how aircraft will be maintained to the required standard.~~
  - ~~(c) The quality system procedures including the methods of qualifying mechanics, inspection, certifying staff and quality audit personnel.~~
  - ~~(d) Contracting operator procedures and paperwork.~~~~
- ~~9. The accountable manager's exposition statement as specified under 145.A.70(a)(1) should embrace the intent of the following paragraph and in fact this statement may be used without amendment. Any modification to the statement should not alter the intent.~~

~~This exposition and any associated referenced manuals define the organisation and procedures upon which the (competent authority\*) Part 145 approval is based as required by 145.A.70. These procedures are approved by the undersigned and should be complied with, as applicable, when work orders are being progressed under the terms of the Part 145 approval.~~

~~It is accepted that these procedures do not override the necessity of complying with any new or amended regulation published by the (competent authority\*) from time to time where these new or amended regulations are in conflict with these procedures.~~

~~It is understood that the (competent authority\*) will approve this organisation whilst the (competent authority\*) is satisfied that the procedures are being followed and work standards maintained. It is further understood that the (competent authority\*) reserves the right to~~

~~suspend, limit or revoke the approval of the organisation if the (competent authority\*) has evidence that procedures are not followed or standards not upheld.~~

~~Signed .....~~

~~Dated .....~~

~~Accountable Manager and..... (quote position).....~~

~~For and on behalf of..... (quote organisation's name).....~~

~~Note: Where it states ('competent authority\*') please insert the actual name of the competent authority, for example, EASA, CAA-NL, LBA, DGAC, CAA, etc.~~

~~Whenever the accountable manager changes, it is important to ensure that the new accountable manager signs the paragraph 9 statement at the earliest opportunity.~~

~~Failure to carry out this action could invalidate the Part 145 approval.~~

~~When an organisation is approved against any other Part containing a requirement for an exposition, a supplement covering the differences will suffice to meet the requirements except that the supplement should have an index showing where those parts missing from the supplement are covered.~~

## AMC1 145.A.70(a)(1) Maintenance organisation exposition (MOE)

### ACCOUNTABLE MANAGER STATEMENT

Part 1 of the MOE should include a statement signed by the accountable manager (and countersigned by the chief executive officer, if different), confirming that the MOE and any associated manuals will be complied with at all times.

The accountable manager's exposition statement as specified under point 145.A.70(a)(1) should embrace the intent of the following paragraph, and in fact, this statement may be used without amendment. Any modification to the statement should not alter the intent.

*This exposition and any associated referenced manuals define the organisation and procedures upon which the Part-145 approval certificate is issued by (competent authority\*).*

*These procedures are endorsed by the undersigned and must be complied with, as applicable, when contracts or work orders are being progressed under the organisation approval certificate.*

*These procedures do not override the necessity of complying with any new or amended regulation published from time to time where these new or amended regulations are in conflict with these procedures.*

*It is understood that the approval of the organisation is based on the continuous compliance of the organisation with Part-145, Part-M and Part-ML, as applicable, and with the organisation's procedures described in this exposition. The competent authority\* is entitled to limit, suspend, or revoke the approval certificate if the organisation fails to fulfil the obligations imposed by*

Part-145, Part-M and Part-ML, as applicable, or any conditions according to which the approval was issued.

Signed .....

Dated .....

Accountable Manager and..... (quote position).....

Chief Executive Officer ...

For and on behalf of..... (quote organisation's name).....'

Note: Where it states ('competent authority\*'), please insert the actual name of the competent authority, for example, EASA, the LBA, the DGAC, etc.

Whenever the accountable manager changes, it is important that the new accountable manager signs the statement at the earliest opportunity.

## AMC1 145.A.75(b) Privileges of the organisation

### SUBCONTRACTING

1. Working under the **quality management** system of an organisation appropriately approved under Part-145 (sub-contracting) refers to the case of one organisation, **not itself appropriately whether or not it is approved under to** Part-145 that carries out **certain maintenance (see paragraph 3.1) under the approval certificate of a Part-145 organisation aircraft line maintenance or minor engine maintenance or maintenance of other aircraft components or a specialised service as a subcontractor for an organisation appropriately approved under Part-145. In order To be appropriately approved** to subcontract, the **Part-145** organisation should have a procedure for the control of such subcontractors as described below. Any approved maintenance organisation that carries out maintenance **under its own approval certificate** for another approved maintenance organisation **within its own approval scope** is not considered to be subcontracted**ing** for the purpose of this paragraph, **but contracted by that other organisation (see GM2 145.A.205).**

~~Note: For those organisations approved under Part 145 that are also certificated by the FAA under FAR Part 145 it should be noted that FAR Part 145 is more restrictive in respect of maintenance activities that can be contracted or sub-contracted to another maintenance organisation. It is therefore recommended that any listing of contracted or sub-contracted maintenance organisations should identify which meet the Part 145 criteria and which meet the FAR Part 145 criteria.~~

2. Maintenance of engines or engine modules other than **a** complete workshop maintenance check or overhaul **i** is intended to mean any maintenance that can be carried out without disassembly of the core engine or, in the case of modular engines, without disassembly of any core module.

### 3. FUNDAMENTALS OF SUB-CONTRACTING UNDER PART-145

3.1. The ~~fundamental~~ most common reasons for allowing an organisation approved under Part-145 to sub-contract ~~certain maintenance tasks are~~ is to permit acceptance of certain maintenance tasks carried out by subcontractors when approvals by the competent authority of those subcontractors are not justified (e.g. limited scope of work, limited volume of maintenance activities, limited number of potential customers, limited need in time) or when the subcontractors cannot demonstrate compliance with all elements of the regulation (e.g. no maintenance facilities, specialised staff not covering all maintenance scope).

This subcontracting option permits the acceptance of the following maintenance:

- (a) ~~To permit the acceptance of~~ specialised maintenance services, such as, but not limited to, ~~plating, heat~~ surface treatment (e.g. plating, plasma spraying), fabrication of specified parts for ~~minor~~ repairs/-modifications, ~~welding, etc.~~, ~~without the need for direct approval by the competent authority in such cases.~~
  - (b) ~~To permit the acceptance of~~ aircraft maintenance (e.g. line maintenance, leaks detection in fuel tanks, special repairs/modifications, complete aircraft painting) up to but not including a ~~complete~~ base maintenance check as specified in ~~point 145.A.75(b) by organisations not appropriately approved under Part 145 when it is unrealistic to expect direct approval by the competent authority. The competent authority will determine when it is unrealistic but in general it is considered unrealistic if only one or two organisations intend to use the sub contract organisation.~~
  - (c) ~~To permit the acceptance of~~ component maintenance;
  - (d) ~~To permit the acceptance of~~ engine maintenance up to but not including a ~~complete~~ workshop maintenance check or overhaul of an engine or engine module as specified in ~~point 145.A.75(b) by organisations not appropriately approved under Part 145 when it is unrealistic to expect direct approval by the competent authority. The determination of unrealistic is as per sub paragraph (b).~~
- 3.2. When maintenance is carried out under the ~~sub contract control~~ management system of a Part-145 organisation, it means that for the duration of such maintenance, the Part-145 approval has been temporarily extended to include the sub-contractor. It therefore follows that ~~those~~ all parts of the sub-contractor's (facilities, personnel, equipment and tools, components, maintenance data and procedures) involved with the maintenance organisation's products undergoing maintenance should meet Part-145 requirements and the Part-145 organisation's MOE for the duration of that maintenance, and it remains the ~~Part-145~~ organisation's responsibility to ensure such requirements are satisfied.
- 3.3. ~~For the criteria specified in sub paragraph 3.1~~ When subcontracting, the ~~Part-145~~ organisation is not required to have complete facilities for ~~the~~ maintenance that it needs to sub-contract, but it should have its own expertise to determine ~~whether that~~ the

sub-contractor meets the necessary standards. However, a Part-145 organisation cannot be approved unless it has the in-house facilities, personnel, equipment and tools, components, maintenance data, procedures and expertise to carry out the majority of the maintenance for which it wishes to receive the terms of approval ~~be approved in terms of the number of class ratings.~~

- 3.4. The organisation may find it necessary to include specialised ~~several specialist~~ sub-contractors to enable it to be approved to issue ~~completely certify~~ the certificate of release to service of a particular maintenance product. Examples are provided in point 3.1(a) ~~could be specialist welding, electro-plating, painting etc.~~ To authorise the use of such subcontractors, the competent authority will need to be satisfied that the Part-145 organisation has the necessary expertise and procedures to control such sub-contractors.
- 3.5. A maintenance organisation working outside the scope of its terms of approval schedule is deemed to be not approved for the work considered. Such an organisation may in this circumstance operate only as a subcontractor under the management system and ~~sub-contract~~ control of another organisation appropriately approved under Part-145.
- 3.6. Authorisation to sub-contract is indicated by the competent authority approving the MOE ~~accepting the maintenance organisation exposition~~ containing a specific procedure on the control of subcontractors as well as a list of sub-contractors.

#### 4. ~~PRINCIPAL~~ PART-145 PROCEDURES FOR THE CONTROL OF SUB-CONTRACTORS ~~NOT APPROVED UNDER PART 145~~

- 4.1. ~~A pre-audit procedure should be established whereby the maintenance organisations' subcontract control section, which may also be the 145.A.65(c) quality system independent audit section, should audit a prospective subcontractor to determine whether those services of the subcontractor that it wishes to use meets the intent of Part-145.~~

A pre-audit procedure should be established whereby the Part-145 organisation should audit a prospective subcontractor to determine whether those services of the subcontractor that it wishes to use meet the intent of Part-145. This audit should be performed under the responsibility of the compliance monitoring function.

- 4.2. The Part-145 organisation ~~approved under Part-145~~ needs to assess to what extent it will use the sub-contractor's resources (facilities included). ~~As a general rule~~ The contract between the Part-145 organisation and the subcontractor will determine whether the Part-145 organisation ~~should~~ requires its own paperwork, ~~approved~~ maintenance data and ~~material/spare parts~~ components to be used or, provided that they meet the requirements of Part-145, ~~but it could permit the use of~~ if the facilities, equipment and tools, ~~equipment and personnel~~ from the sub-contractor will be used ~~as long as such tools, equipment and personnel meet the requirement of Part 145.~~ In the case of sub-contractors who provide specialised services, it may for practical reasons be necessary to use their specialised services ~~personnel,~~ paperwork, maintenance ~~approved~~

- data and ~~material~~ components, subject to acceptance by the Part-145 organisation approved under Part 145.
- 4.3. Unless the sub-contracted maintenance work can be fully inspected on receipt by the Part-145 organisation, approved under Part 145 it will be necessary for the Part-145 such organisation to establish an MOE procedure to control the subcontracted maintenance work (and associated supporting documents) ~~supervise the inspection and release from the sub-contractor. Such activities should be fully described in the organisation procedure.~~ The organisation will need to consider whether to use its own personnel staff or to authorise the subcontractor personnel ~~sub-contractor's staff~~ for that control.
- 4.4. The certificate of release to service may be issued either ~~at the sub-contractor or at the organisation facility~~ by subcontractor staff holding issued a certification authorisation issued by the Part-145 organisation in accordance with points 145.A.30 and 145.A.35 as appropriate, or by the Part-145 organisation certifying staff ~~approved under Part 145. Such staff would normally come from the organisation approved under Part 145 but may otherwise be a person from the sub-contractor who meets the approved maintenance organisation certifying staff standard which itself is approved by the competent authority via the maintenance organisation exposition. The certificate of release to service and the EASA Form 1 will always be issued under the maintenance organisation approval reference.~~
- 4.5. ~~The sub-contract control procedure will need to record audits of the sub-contractor, to have a corrective action follow up plan and to know when sub-contractors are being used. The procedure should include a clear revocation process for sub-contractors who do not meet the Part 145 approved maintenance organisation's requirements.~~
- The subcontractor control procedure will need to address the relevant management system key processes such as safety risk management and compliance monitoring (see point 145.A.205). The procedure should ensure that records of all subcontractor audits and inspections, and the corresponding actions are kept, and provide information on when subcontractors are used. The procedure should include a clear revocation process for subcontractors that do not meet the Part-145 maintenance organisation's requirements.
- 4.6. The Part-145 compliance monitoring ~~quality audit~~ staff will need to audit the subcontractor ~~sub-contract~~ control function of the Part-145 organisation ~~section~~ and to ~~sample~~ audit the sub-contractors unless this task is already carried out by the subcontractor control function ~~quality audit staff as stated in sub-paragraph 4.1~~ on behalf of the compliance monitoring function.
- 4.7. The contract between the Part-145 ~~approved maintenance~~ organisation and the sub-contractor should contain a provision to ensure that access to the subcontractor is granted to any person authorised by the authorities specified in point 145.A.140 ~~for the~~

~~competent authority and EASA standardisation team staff to have right of access to the sub-contractor.~~

## **AMC 145.A.80 Limitations on the organisation**

~~This paragraph is intended to cover the situation where the larger organisation may temporarily not hold all the necessary tools, equipment etc., for an aircraft type or variant specified in the organisation's approval. This paragraph means that the competent authority need not amend the approval to delete the aircraft type or variants on the basis that it is a temporary situation and there is a commitment from the organisation to re-acquire tools, equipment etc. before maintenance on the type may recommence.~~

## **AMC1 145.A.85 Changes to the organisation**

### **APPLICATION TIME FRAMES**

- (a) The application for a change to an organisation certificate should be submitted at least 30 working days before the date of the intended changes.
- (b) In the case of a planned change of a nominated person, the organisation should inform the competent authority at least 20 working days before the date of the proposed change.
- (c) Unforeseen changes should be notified at the earliest opportunity, in order to enable the competent authority to determine whether there is continued compliance with the applicable requirements, and to amend, if necessary, the organisation certificate and the related terms of approval.

## **AMC2 145.A.85 Changes to the organisation**

### **MANAGEMENT OF CHANGES**

The organisation should manage changes to the organisation in accordance with point (e) of AMC1 145.A.200(a)(3). For changes requiring prior approval, it should conduct a risk assessment and provide it to the competent authority upon request.

## **GM1 145.A.85 Changes to the organisation**

### **CHANGES REQUIRING OR NOT REQUIRING PRIOR APPROVAL**

Point 145.A.85 is structured as follows:

- Point (a) introduces an obligation of prior approval (by the competent authority) for specific cases listed under (1) to (5);

- Point (b) address all instances (including (a)) where this Annex (Part-145) explicitly requires an approval by the competent authority (e.g. procedure for use of alternative tooling or equipment, ref. 145.A.40(a)(i)). Changes relevant to these instances should be considered as changes requiring a prior approval (see list in GM1 145.A.85(b)), unless otherwise specified by this Annex (Part-145).

Point (b) also indicates how all changes requiring prior approval should be handled;

- Point (c) introduces the possibility for the organisation to agree with the competent authority that certain changes to the organisation (other than those covered by (a) or (b)) can be implemented without prior approval depending on the compliance and safety performance of the organisation, and in particular, on its capability to apply change management principles.

## GM1 145.A.85(a)(1) Changes to the organisation

### CHANGE OF THE NAME OF THE ORGANISATION

A change of the name requires the organisation to submit an application as a matter of urgency for a re-issue of their certificate.

If this is the only change to report, the application can be accompanied by a copy of the documentation that was previously submitted to the competent authority under the previous name, as a means of demonstrating that the organisation complies with the applicable requirements.

## GM1 145.A.85(a)(2) Changes to the organisation

### CHANGE OF A NOMINATED PERSON

In accordance with point 145.A.85(a)(2), a change of a nominated person (ref. 145.A.30) requires a prior approval. In case of a unplanned/unanticipated change, a deputy (such as the deputy referred to in 145.A.30(b)) may ensure business continuity during the approval process of the new nominated person.

## GM1 145.A.85(b) Changes to the organisation

### CHANGES REQUIRING PRIOR APPROVAL (OTHER THAN THOSE COVERED BY POINT 145.A.85(A))

The following are examples of changes that require prior approval by the competent authority (other than those covered by point 145.A.85(a)), as specified in Part-145:

- (a) changes to the AltMoC [145.A.120(b)];
- (b) changes to the MOE procedure for the use of alternative tooling or equipment [145.A.40(a)(i)];
- (c) changes to the MOE procedure allowing a B-rated organisation to carry out maintenance on an installed engine during 'base' and 'line' maintenance [Appendix II, point (f)];

- (d) changes to the MOE procedure allowing a C-rated organisation to carry out maintenance on an installed component (other than a complete engine/APU) during 'base' and 'line' maintenance or at an engine/APU maintenance facility [Appendix II, point (g)];
- (e) changes to the procedures to establish and control the competency of personnel [145.A.30(e)];
- (f) changes to the system for reporting to the competent authority on the safety performance and regulatory compliance of the organisation (in the case of an extension of the oversight planning cycle beyond 36 months) [145.B.305(d)].

## AMC1 145.A.95 Findings and observations

### FINDING-RELATED CORRECTIVE ACTION PLAN AND IMPLEMENTATION

After receiving the notification of findings, the organisation should identify and define the actions for all findings to address the effects of the non-compliance and its root cause(s) and contributing factor(s).

Depending on the issues, the organisation may need to take immediate corrections.

The corrective action plan should:

- include the correction of the issue, corrective actions and preventive actions, as well as the planning to implement these actions;
- be timely submitted to the competent authority for acceptance before it is effectively implemented.

After receiving the acceptance of the corrective action plan from the competent authority, the organisation should implement the associated actions.

Within the agreed period, the organisation should inform the competent authority that the corrective action plan has been completed and should send the associated evidence, as requested by the competent authority.

## AMC2 145.A.95 Findings and observations

### DUE CONSIDERATION TO OBSERVATIONS

For each observation notified by the competent authority, the organisation should analyse the related issues and determine when actions are needed.

The handling of the observations may follow a process similar to the handling of the findings by the organisation.

The organisation should record the analysis and the outputs, such as the actions taken or the reasons for not taking actions.

## GM1 145.A.95 Findings and observations

### ROOT CAUSE ANALYSIS

- (a) It is important that the analysis does not primarily focus on establishing who or what caused the non-compliance, but on why it was caused. Establishing the root cause(s) often requires an overarching view of the events and circumstances that led to it, to identify all the possible systemic and contributing factors (regulatory, technical, human factors, organisational factors, etc.) in addition to the direct factors.
- (b) A narrow focus on single events or failures, or the use of a simple, linear model, such as a fault tree, to identify the chain of events that led to the non-compliance, may not properly reflect the complexity of the issue, and therefore there is a risk that important factors that must be addressed in order to prevent a reoccurrence will be ignored.

Such an inappropriate or partial root cause analysis often leads to defining 'quick fixes' that only address the symptoms of the non-conformity. A peer review of the results of the root cause analysis may increase its reliability and objectivity.

## GM1 145.A.120 Means of compliance

### GENERAL

- (a) Acceptable means of compliance (AMC), as referred to in Article 76(3) of Regulation (EU) 2018/1139, are a tool to standardise the demonstration of compliance and facilitate the verification activities of the competent authorities with Regulation (EU) 2018/1139 and its delegated and implementing acts. They are published by the Agency to achieve these objectives. Whereas the competent authorities and the regulated entities are not legally bound to use them, applying them is recommended.
- (b) If an organisation wishes to use means to comply with the Regulation different from the AMC established by EASA, that organisation may need to demonstrate compliance with Regulation (EU) 2018/1139 and its delegated and implementing acts by using alternative means of compliance (AltMoC):
- (1) established by its competent authority — see GM1 145.B.120; or
  - (2) established by that organisation and approved by its competent authority — see point (c) below.

An AltMoC does not allow deviation from Regulation (EU) 2018/1139 and its delegated or implementing acts.

- (c) AltMoC established by an organisation and approved by its competent authority:

An organisation wishing to use a different means of compliance than the one published by the Agency, can propose and implement an AltMoC only once the competent authority approves it.

In this case, the organisation is responsible for demonstrating how that AltMoC establishes compliance with the Regulation.

This approval will be granted by its competent authority on an individual basis and restricted to that specific applicant. Other organisations wishing to use the same means of compliance should follow the AltMoC process (demonstrating compliance with the Regulation) and obtain individual approval from their competent authority.

## GM2 145.A.120 Means of Compliance

### WHEN AN ALTERNATIVE MEANS OF COMPLIANCE IS NEEDED

When there is no EASA AMC for a certain requirement in the Regulation, the means of compliance proposed by the organisation to that point of the Regulation do not need to go through the AltMoC process. It is the responsibility of the competent authority to verify that compliance with the Regulation is met. However, in certain cases the organisation may propose, and the competent authority may agree, to have such means of compliance follow the AltMoC process.

When there is an EASA AMC, the AltMoC process is needed in the following (not exhaustive) cases:

- a means to comply with the Regulation is technically different in character to the AMC published by EASA;
- A Form is significantly different from the one proposed in the EASA AMC.

*Note: A Form required by the delegated and implementing acts cannot be changed.*

Examples of issues not considered to require an AltMoC process include, but are not limited to:

- editorial changes to an EASA AMC, as long as it does not change the intent of the AMC;
- transposing an EASA AMC into the organisational structure, organisational processes, or standard operating procedures with different wording and terminology customised to the organisation's environment, if this does not change the intent of the AMC and its associated level of safety.

## AMC1 145.A.120(b) Means of compliance

### DESCRIPTION SUPPORTING THE ALTERNATIVE MEANS OF COMPLIANCE

(a) The description of the AltMoC should include:

- a summary of the AltMoC;
- the content of the AltMoC;
- a statement that compliance with the Regulation is achieved; and

— in support of that statement, an assessment demonstrating that the AltMoC reaches an acceptable level of safety, taking into account the level of safety provided by the corresponding EASA AMC.

(b) All these elements describing the AltMoC form an integral part of the management system records to be kept in accordance with 145.A.55.

## GM1 145.A.200 Management system

### GENERAL

Safety management seeks to proactively identify hazards and to mitigate the related safety risks before they result in aviation accidents and incidents. Safety management enables an organisation to manage its activities in a more systematic and focused manner. When an organisation has a clear understanding of its role and contribution to aviation safety, it can prioritise safety risks and more effectively manage their resources and obtain optimal results.

The principles of the requirements in points 145.A.200, 145.A.202, 145.A.205 and the related AMC constitute the EU management system framework for aviation safety management. This framework addresses the core elements of the ICAO safety management system (SMS) framework defined in Appendix 2 to Annex 19, includes the elements of the compliance monitoring system, and promotes an integrated approach to the management of an organisation. It facilitates the introduction of the additional safety management components, building upon the existing management system, rather than adding them as a separate framework.

This approach is intended to encourage organisations to embed safety management and risk-based decision-making into all their activities, instead of superimposing another system onto their existing management system and governance structure. In addition, if the organisation holds multiple organisation certificates within the scope of Regulation (EU) 2018/1139, it may choose to implement a single management system to cover all of its activities. An integrated management system may not only be used to capture management system requirements resulting from Regulation (EU) 2018/1139, but also could cover other regulatory frameworks requiring compliance with Annex 19 or other business management systems such as security, occupational health and environmental management systems. Integration will remove any duplication and exploit synergies by managing safety risks across multiple activities. Organisations may determine the best means to structure their management systems to suit their business and organisational needs.

The core part of the management system framework (145.A.200) focuses on what is essential to manage safety, by mandating the organisation to:

- (a) clearly define accountabilities and responsibilities;
- (b) establish a safety policy and the related safety objectives;
- (c) implement safety reporting procedures in line with just culture principles;

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- (d) ensure the identification of aviation safety hazards entailed by its activities, ensure their evaluation, and the management of the associated risks, including:
    - (1) taking actions to mitigate the risks;
    - (2) verifying the effectiveness of the actions taken to mitigate the risks;
  - (e) monitor compliance, while considering any additional requirements that are applicable to the organisation;
  - (f) keep their personnel trained, competent, and informed about significant safety issues; and
  - (g) document all the key management system processes.

Compared with the previous Part-145 quality system 'framework' (now covered by point (b) and (e)), the new elements that are introduced by the management system are, in particular, those addressed under points (c) and (d).

Points (a), (b) and (g) address component 1 'Safety policy and objectives' of the ICAO SMS framework. Points (c) and (d)(1) address component 2 'Safety Risk Management' of the ICAO SMS framework. Point (d)(2) addresses component 3 'Safety Assurance' of the ICAO SMS framework. Finally, point (f) addresses component 4 'Safety Promotion' of the ICAO SMS framework.

Point 145.A.200 introduces the following as key safety management processes; these are further specified in the related AMC and GM:

- Hazard identification;
- Safety risk management;
- Internal investigation;
- Safety performance monitoring and measurement;
- Management of change;
- Continuous improvement;
- Immediate safety action and coordination with the aircraft operator's Emergency Response Plan (ERP).

It is important to recognise that safety management will be a continuous activity, as hazards, risks and the effectiveness of safety risk mitigations will change over time.

These key safety management processes are supported by a compliance monitoring function as an integral part of the management system. Most aviation safety regulations constitute generic safety risk controls established by the 'regulator'. Therefore, ensuring effective compliance with the regulations during daily operations and independent monitoring of compliance are fundamental to any management system for safety. The compliance monitoring function may, in addition, support the follow-up of safety risk mitigation actions. Moreover, where non-compliances are identified through internal audits, the causes will be thoroughly assessed and analysed. Such an analysis in return supports the risk management process by providing insights into causal and contributing factors,

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including human factors, organisational factors and the environment in which the organisation operates. In this way, the outputs of compliance monitoring become some of the various inputs to the safety risk management functions. Conversely, the output of the safety risk management processes may be used to determine focus areas for compliance monitoring. In this way, internal audits will inform the organisation's management of the level of compliance within the organisation, whether safety risk mitigation actions have been implemented, and where corrective or preventive action is required. The combination of safety risk management and compliance monitoring should lead to an enhanced understanding of the end-to-end process and the process interfaces, exposing opportunities for increased efficiencies, which are not limited to safety aspects.

As aviation is a complex system with many organisations and individuals interacting together, the primary focus of the key safety management processes is on the organisational processes and procedures, but it also relies on the humans in the system. The organisation and the way in which it operates can have a significant impact on human performance. Therefore, safety management necessarily addresses how humans can contribute both positively and negatively to an organisation's safety outcomes, recognising that human behaviour is influenced by the organisational environment.

The effectiveness of safety management largely depends on the degree of commitment of the senior management to create a working environment that optimises human performance and encourages personnel to actively engage in and contribute to the organisation's management processes. Similarly, a positive safety culture relies on a high degree of trust and respect between the personnel and the management, and it must therefore be created and supported at the senior management level. If the management does not treat individuals who identify hazards and report adverse events in a consistently fair and just way, those individuals are unlikely to be willing to communicate safety issues or to work with the management to effectively address the safety risks. As with trust, a positive safety culture takes time and effort to establish, and it can be easily lost.

It is further recognised that the introduction of processes for hazard identification and risk assessment, mitigation and verification of the effectiveness of such mitigation actions will create immediate and direct costs, while related benefits are sometimes intangible, and may take time to materialise. Over time, an effective management system will not only address the risks of major occurrences, but also identify and address production inefficiencies, improve communication, foster a better organisational culture, and lead to a more effective control of contractors and suppliers. In addition, through an improved relationship with the authority, an effective management system may result in a reduced oversight burden.

Thus, by viewing safety management and the related organisational policies and key processes as items that are implemented not only to prevent incidents and accidents, but also to meet the organisation's strategic objectives, any investment in safety should be seen as an investment in productivity and organisational success.

## AMC1 145.A.200(a)(1) Management system

### ORGANISATION AND ACCOUNTABILITIES

- (a) The management system should encompass safety by including a safety manager and a safety review board in the organisational structure. The functions of the safety manager are those defined in AMC1 145.A.30(c);(ca).
- (b) Safety review board
- (1) The safety review board should be a high-level committee that considers matters of strategic safety in support of the accountable manager's safety accountability.
  - (2) The board should be chaired by the accountable manager and composed of the person or group of persons nominated under points 145.A.30.
  - (3) The safety review board should monitor:
    - (i) the safety performance against the safety policy and objectives;
    - (ii) that any safety action is taken in a timely manner; and
    - (iii) the effectiveness of the organisation's management system processes.
  - (4) The safety review board may also be tasked with:
    - (i) reviewing the results of compliance monitoring;
    - (ii) monitoring the implementation of related corrective and preventive actions.
- (c) The safety review board should ensure that appropriate resources are allocated to achieve the established safety objectives.
- (d) Notwithstanding point (a), where justified by the size of the organisation and the nature and complexity of its activities and subject to a risk assessment and agreement by the competent authority, the organisation may not need to establish a formal safety review board. In this case, the tasks normally allocated to the safety review board should be allocated to the safety manager.

## GM1 145.A.200(a)(1) Management system

### SAFETY ACTION GROUP

- (a) Depending on the size of the organisation and the nature and complexity of its activities, a safety action group may be established as a standing group or as an ad hoc group to assist, or act on behalf of the safety manager or the safety review board.
- (b) More than one safety action group may be established, depending on the scope of the task and the specific expertise required.

- (c) The safety action group usually reports to, and takes strategic direction from, the safety review board, and may be composed of managers, supervisors and personnel from operational areas.
- (d) The safety action group may be tasked or assist with:
  - (1) monitoring safety performance;
  - (2) defining actions to control risks to an acceptable level;
  - (3) assessing the impact of organisational changes on safety;
  - (4) ensuring that safety actions are implemented within the agreed timescales;
  - (5) reviewing the effectiveness of previous safety actions and safety promotion.

## GM2 145.A.200(a)(1) Management system

### MEANING OF THE TERMS 'ACCOUNTABILITY' AND 'RESPONSIBILITY'

In the English language, the notion of accountability is different from the notion of responsibility. Whereas 'accountability' refers to an obligation which cannot be delegated, 'responsibility' refers to an obligation that can be delegated.

## AMC1 145.A.200(a)(2) Management system

### SAFETY POLICY AND OBJECTIVES

- (a) The safety policy should:
  - (1) reflect organisational commitments regarding safety, and its proactive and systematic management, including the promotion of a positive safety culture;
  - (2) include internal reporting principles, and encourage personnel to report maintenance-related errors, incidents and hazards;
  - (3) recognise the need for all personnel to cooperate with the compliance monitoring and internal investigations referred to under point (c) of AMC1 145.A.200(a)(3);
  - (4) be endorsed by the accountable manager;
  - (5) be communicated, with visible endorsement, throughout the organisation; and
  - (6) be periodically reviewed to ensure it remains relevant and appropriate for the organisation.
- (b) The safety policy should include a commitment to:
  - (1) comply with all the applicable legislation, to meet all the applicable requirements, and adopt practices to improve safety standards;
  - (2) provide the necessary resources for the implementation of the safety policy;

- (3) apply human factors principles, including giving due consideration to the aspect of fatigue;
  - (4) enforce safety as a primary responsibility of all managers; and
  - (5) apply 'just culture' principles to internal safety reporting and the investigation of occurrences and, in particular, not to make available or use the information on occurrences:
    - (i) to attribute blame or liability to front-line personnel or other persons for actions, omissions or decisions taken by them that are commensurate with their experience and training; or
    - (ii) for any purpose other than maintaining or improving aviation safety.
- (c) Senior management should continually promote the safety policy to all personnel, demonstrate its commitment to it, and provide necessary human and financial resources for its implementation.
- (d) Taking due account of its safety policy, the organisation should define safety objectives. The safety objectives should:
- (1) form the basis for safety performance monitoring and measurement;
  - (2) reflect the organisation's commitment to maintain or continuously improve the overall effectiveness of the management system;
  - (3) be communicated throughout the organisation; and
  - (4) be periodically reviewed to ensure they remain relevant and appropriate for the organisation.

## GM1 145.A.200(a)(2) Management system

### SAFETY POLICY

- (a) The safety policy is the means whereby the organisation states its intention to maintain and, where practicable, improve safety levels in all its activities and to minimise its contribution to the risk of an aircraft accident or serious incident as far as is reasonably practicable. It reflects the management's commitment to safety, and should reflect the organisation's philosophy of safety management, as well as being the foundation on which the organisation's management system is built. It serves as a reminder of 'how we do business here'. The creation of a positive safety culture begins with the issuance of a clear, unequivocal policy.
- (b) The commitment to apply 'just culture' principles forms the basis for the organisation's internal rules describing how 'just culture' principles are guaranteed and implemented.

- (c) For organisations that have their principal place of business in a Member State, Regulation (EU) No 376/2014 defines the 'just culture' principles to be applied (refer in particular to Article 16(11) of that Regulation).

## AMC1 145.A.200(a)(3) Management system

### SAFETY MANAGEMENT KEY PROCESSES

#### (a) Hazard identification processes

- (1) A reporting scheme should be the formal means of collecting, recording, analysing, acting on, and generating feedback about hazards, events and the associated risks that may affect safety.
- (2) The hazards identification should include in particular:
  - (i) hazards that may be linked to human factors issues that affect human performance; and
  - (ii) hazards that may stem from the organisational set-up or the existence of complex operational and maintenance arrangements (such as when multiple organisations are contracted, or when multiple levels of contracting/subcontracting are included).

#### (b) Risk management processes

- (1) A formal safety risk management process should be developed and maintained that ensures reactive, proactive and predictive approach composed by:
  - (i) analysis (e.g. in terms of the probability and severity of the consequences of hazards and occurrences);
  - (ii) assessment (in terms of tolerability);
  - (iii) control (in terms of mitigation) of risks to an acceptable level.

Note: The severity of the consequence should be evaluated to the best knowledge and engineering judgement of the organisation, and this evaluation may require collecting information from the competent authority, incident/accident investigation reports, the design approval holder, etc.

- (2) The levels of management who have the authority to make decisions regarding the tolerability of safety risks, in accordance with (b)(1)(ii), should be specified.

#### (c) Internal investigation

- (1) In line with its just culture policy, the organisation should define how to investigate incidents such as errors or near misses, in order to understand not only what happened, but also how it happened, to prevent or reduce the probability and/or consequence of

future recurrences (refer to AMC1 145.A.202). This approach should avoid concentrating the analysis on who was (were) directly or indirectly concerned by the events.

- (2) The scope of internal investigations should extend beyond the scope of the occurrences required to be reported to the competent authority in accordance with point 145.A.60, to include the reports referred to in 145.A.202(b).

(d) Safety performance monitoring and measurement

- (1) Safety performance monitoring and measurement should be the processes by which the safety performance of the organisation is verified in comparison with the safety policy and the safety objectives.

- (2) These processes may include, as appropriate to the size, nature and complexity of the organisation:

- (i) safety reporting, which may also address the status of compliance with the applicable requirements;

- (ii) safety reviews, including trend reviews, which would be conducted during the introduction of new products and their components, new equipment/technologies, the implementation of new or changed procedures, or in situations of organisational changes that may have an impact on safety;

- (iii) safety audits that focus on the integrity of the organisation's management system, and on periodically assessing the status of safety risk controls;

- (iv) safety surveys, examining particular elements or procedures in a specific area, such as identified problem areas, or bottlenecks in daily maintenance activities, perceptions and opinions of maintenance management personnel, and areas of dissent or confusion; and

- (v) other indicators relevant to safety performance, which may be generated by automated means.

(e) Management of change

Changes may introduce new hazards or threaten existing safety risk controls. The management of change should be a documented process established by the organisation to identify external and internal changes that may have an adverse effect on the safety of its maintenance activities. It should make use of the organisation's existing hazard identification, risk assessment and mitigation processes.

(f) Continuous improvement

The organisation should continuously seek to improve its safety performance and the effectiveness of its management system. Continuous improvement may be achieved through:

- (1) audits carried out by external organisations;

- (2) assessments, including assessments of the effectiveness of the safety culture and management system, in particular to assess the effectiveness of the safety risk management processes;
  - (3) staff surveys, including cultural surveys, that can provide useful feedback on how engaged personnel are with the management system;
  - (4) monitoring the recurrence of incidents and occurrences;
  - (5) evaluation of safety performance indicators and reviews of all the available safety performance information; and
  - (6) the identification of lessons learned.
- (g) Immediate safety action and coordination with the operator's Emergency Response Plan (ERP)
- (1) Procedures should be implemented that enable the organisation to act promptly when it identifies safety concerns with the potential to have an immediate effect on flight safety, including clear instructions on who to contact at the owner/operator/CAMO, and how to contact them, including outside of normal business hours. These provisions are without prejudice to the occurrence reporting required by point 145.A.60.
  - (2) If applicable, procedures should be implemented to enable the organisation to react promptly if the ERP is triggered by the operator and it requires the support of the Part-145 organisation.

## GM1 145.A.200(a)(3) Management system

### SAFETY RISK MANAGEMENT — INTERFACES BETWEEN ORGANISATIONS

- (a) Safety risk management processes should specifically address the planned implementation of, or participation of the organisation in, complex operational and maintenance arrangements (such as when multiple organisations are contracted, or when multiple levels of contracting/subcontracting are included).
- (b) Hazard identification and risk assessment start with the identification of all the parties involved in the arrangement, including independent experts and non-approved organisations. This identification process extends to cover the overall control structure, and assesses in particular the following elements across all subcontract levels and all parties within such arrangements:
- (1) coordination and interfaces between the different parties;
  - (2) applicable procedures;
  - (3) communication between all the parties involved, including reporting and feedback channels;
  - (4) task allocation, responsibilities and authorities; and
  - (5) the qualifications and competency of key personnel with reference to point 145.A.30.

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- (c) Safety risk management should focus on ensuring the following aspects:
- (1) clear assignment of accountability and allocation of responsibilities;
  - (2) that only one party is responsible for a specific aspect of the arrangement, with no overlapping or conflicting responsibilities, in order to eliminate coordination errors;
  - (3) the existence of clear reporting lines, both for occurrence reporting and progress reporting;
  - (4) the possibility for staff to directly notify the organisation of any hazard that suggests an obviously unacceptable safety risk as a result of the potential consequences of this hazard.
- (d) The safety risk management processes should ensure that there is regular communication between all the parties involved to discuss work progress, risk mitigation actions, and changes to the arrangements, as well as any other significant issues.

## GM2 145.A.200(a)(3) Management system

### MANAGEMENT OF CHANGE

- (a) Unless they are properly managed, changes in organisational structure, facilities, the scope of work, personnel, documentation, policies and procedures, etc. can result in the inadvertent introduction of new hazards, and expose the organisation to new or increased risks. Effective organisations seek to improve their processes, with conscious recognition that changes can expose the organisation to potentially latent hazards and risks if they are not properly and effectively managed.
- (b) Regardless of the magnitude of a change, large or small, its safety implications should always be proactively considered. This is primarily the responsibility of the team that proposes and/or implements the change. However, a change can only be successfully implemented if all the personnel affected by the change are engaged, are involved and participate in the process. The magnitude of a change, its safety criticality, and its potential impact on human performance should be assessed in any change management process.
- (c) The process for the management of change typically provides principles and a structured framework for managing all aspects of the change. Disciplined application of the management of change can maximise the effectiveness of the change, engage the staff, and minimise the risks that are inherent in a change.
- (d) The introduction of a change is the trigger for the organisation to perform their hazard identification and risk management processes.
- Some examples of change include, but are not limited to:
- (1) changes to the organisational structure;
  - (2) the inclusion of a new aircraft type in the terms of approval;

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- (3) the addition of aircraft of the same or a similar type;
  - (4) significant changes in personnel (affecting key personnel and/or large numbers of personnel, high turnover);
  - (5) new or amended regulations;
  - (6) changes to the security arrangements;
  - (7) changes in the economic situation of an organisation (e.g. commercial or financial pressure);
  - (8) new schedule(s), location(s), equipment, and/or operational procedures; and
  - (9) the addition of new subcontractors.
- (e) A change may have the potential to introduce new, or to exacerbate pre-existing, human factors issues. For example, changes in computer systems, equipment, technology, personnel changes, including changes in management personnel, procedures, work organisation, or work processes are likely to affect performance.
- (f) The purpose of integrating human factors (HF) into the management of change is to minimise potential risks by specifically considering the impact of the change on the people within a system.
- (g) Special consideration, including any HF issues, should be given to the ‘transition period’. In addition, the activities utilised to manage these issues should be integrated into the change management plan.
- (h) Effective management of change should be supported by the following:
- (1) implementation of a process for formal hazard identification/risk assessment for major operational changes, major organisational changes, changes in key personnel, and changes that may affect the way maintenance is carried out;
  - (2) identification of changes that are likely to occur in business which would have a noticeable impact on:
    - (i) resources — material and human;
    - (ii) management direction — policies, processes, procedures, training; and
    - (iii) management control;
  - (3) safety cases/risk assessments that are focused on aviation safety;
  - (4) the involvement of key stakeholders in the change management process, as appropriate.
- (i) During the management of change process, previous risk assessments and existing hazards are reviewed for possible effect.
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## AMC1 145.A.200(a)(4) Management system

### COMMUNICATION ON SAFETY

- (a) The organisation should establish communication regarding safety matters that:
- (1) ensures that all personnel are aware of the safety management activities, as appropriate for their safety responsibilities;
  - (2) conveys safety-critical information, especially related to assessed risks and analysed hazards;
  - (3) explains why particular actions are taken; and
  - (4) explains why safety procedures are introduced or changed.
- (b) Regular meetings with personnel, at which information, actions, and procedures are discussed, may be used to communicate safety matters.

## GM1 145.A.200(a)(4) Management system

### SAFETY PROMOTION

- (a) Safety training, combined with safety communication and information sharing, forms part of safety promotion.
- (b) Safety promotion activities should support:
- (1) the organisation's policies, encouraging a positive safety culture, creating an environment that is favourable to the achievement of the organisation's safety objectives;
  - (2) organisational learning; and
  - (3) the implementation of an effective safety reporting scheme and the development of a just culture.
- (c) Depending on the particular safety issue, safety promotion may also constitute or complement risk mitigation actions.
- (d) Qualifications and training aspects are further specified in the AMC and the GM to point 145.A.30.

## GM1 145.A.200(a)(5) Management system

### MANAGEMENT SYSTEM DOCUMENTATION

- (a) The organisation may document its safety policy, safety objectives and all its key management system processes in a separate manual (e.g. a Safety Management Manual or Management System Manual), or in its MOE (see AMC1 145.A.70(a), Part 3 'Management system

procedures'). Organisations that hold multiple organisation certificates within the scope of Regulation (EU) 2018/1139 may prefer to use a separate manual in order to avoid duplication. That manual or the MOE, depending on the case, should be the key instrument for communicating the approach to the management system for the whole of the organisation.

- (b) The organisation may also choose to document some of the information that is required to be documented in separate documents (e.g. policy documents, procedures). In that case, it should ensure that the manual or the MOE contains adequate references to any document that is kept separately. Any such documents are to be considered to be integral parts of the organisation's management system documentation.

## AMC1 145.A.200(a)(6) Management system

### COMPLIANCE MONITORING — GENERAL

- (a) The primary objectives of compliance monitoring are to provide an independent monitoring function on how the organisation ensures compliance with the applicable requirements, policies and procedures, and to request action where non-compliances are identified.
- (b) The independence of the compliance monitoring should be established by always ensuring that audits and inspections are carried out by personnel who are not responsible for the functions, procedures or products that are audited or inspected.

## AMC2 145.A.200(a)(6) Management system

### COMPLIANCE MONITORING — INDEPENDENT AUDIT

- (a) An essential element of the compliance monitoring function is the independent audit.
- (b) The independent audit should be an objective process of routine sample checks of all aspects of the organisation's ability to carry out all maintenance to the standards required by this Regulation. It should include checking compliance of the organisation procedures with the Regulation, adherence of the organisation to these procedures, and product or maintenance sampling (i.e. product audit), as this is the end result of the maintenance process.
- (c) The independent audit should provide an objective overview of the complete set of maintenance-related activities. It should include a percentage of unannounced audits carried out on a sample basis while maintenance is being carried out. This means that some audits should be carried out during the night for those organisations that work at night.
- (d) The organisation should establish an audit plan to show when and how often the activities as required by this Regulation will be audited.
- (e) Except as specified in points (h) and (j), the audit plan should ensure that all aspects of Part-145 compliance are verified every year, including all the subcontracted activities. The auditing may be carried out as a complete single exercise or subdivided over the annual period. The

independent audit should not require each procedure to be verified against each product line when it can be shown that the particular procedure is common to more than one product line and the procedure has been verified every year without resultant findings. Where findings have been identified, compliance with the particular procedure should be verified against other product lines until the findings have been closed, after which the independent audit procedure may revert back to a yearly interval for the particular procedure.

- (f) Except as specified otherwise in point (h), the independent audit should sample check one product (such as one aircraft or engine or component) while undergoing maintenance on each product line every year as a demonstration of compliance with the maintenance procedures and requirements associated with that specific product. This should include in particular the verification of:
- the maintenance data and compliance with the organisation procedures, including consideration of human factors issues;
  - the facility and maintenance environment;
  - the standard of inspection and precautions;
  - the completion of work cards/worksheet;
  - the tools and material;
  - the authorisation of the person carrying out maintenance.

For the purpose of this AMC, a product line includes any product under an Appendix II approval class rating as specified in the terms of approval issued to the particular organisation.

It therefore follows, for example, that a Part-145 maintenance organisation approved to maintain aircraft, engines, brakes and autopilots would need to carry out at least four complete product audits each year, except as specified otherwise in points (f), (h) or (j).

- (g) The product audit includes witnessing any relevant testing and visually inspecting the product and the associated documentation. The product audit should not involve repeated disassembly or testing unless the product audit identifies findings that require such an action.
- (h) Except as specified otherwise in point (j), where the organisation contracts the independent audit element of the compliance monitoring function in accordance with point (l), the audit should be carried out twice every year.
- (i) Except as specified otherwise in point (j), where the organisation has line stations listed as per point 145.A.75(d), the compliance monitoring documentation should include a description of how these line stations are integrated into the monitoring and include a plan to audit each listed line station at a frequency consistent with the extent of flight activity at the particular line station and the related safety hazards identified. Except as specified otherwise in point (j), the maximum period between audits of a particular line station should not exceed 2 years.

- (j) Except as specified otherwise in point (f), provided that there are no safety-related findings, the audit planning cycle specified in this AMC may be increased by up to 100 %, subject to a risk assessment and/or mitigation actions, and agreement by the competent authority.
- (k) A report should be issued each time an audit is carried out describing what was checked and the resulting non-compliance findings against applicable requirement and procedures.
- (l) Organisations with a maximum of 10 maintenance staff actively engaged in carrying out maintenance may subcontract the whole independent audit element of the compliance monitoring function to another organisation or contract a qualified and competent person to become responsible for this element, with the agreement of the competent authority.

This does not prevent a larger organisation from occasionally using external support for conducting particular audits.

### AMC3 145.A.200(a)(6) Management system

#### COMPLIANCE MONITORING — CONTRACTING OF THE INDEPENDENT AUDIT

- (a) If external personnel are used to perform independent audits:
  - (1) any such audits should be performed under the responsibility of the compliance monitoring manager; and
  - (2) the organisation remains responsible for ensuring that the external personnel have the relevant knowledge, background, and experience that are appropriate to the activities being audited, including knowledge and experience in compliance monitoring.
- (b) The organisation retains the ultimate responsibility for the effectiveness of the compliance monitoring function, in particular for the effective implementation and follow-up of all corrective actions.

### AMC4 145.A.200(a)(6) Management system

#### COMPLIANCE MONITORING — FEEDBACK SYSTEM

- (a) Another essential element of the compliance monitoring function is the feedback system.
- (b) The feedback system should not be contracted to external persons or organisations.
- (c) When a non-compliance is found, the compliance monitoring function should ensure that the root cause(s) and contributing factor(s) are identified (see GM1 145.A.95), and that corrective actions are defined. The feedback part of the compliance monitoring function should define who is required to address any non-compliance in each particular case, and the procedure to be followed if the corrective action is not completed within the defined time frame. The principal functions of the feedback system are to ensure that all findings resulting from the independent audits of the organisation are properly investigated and corrected in a timely

manner, and to enable the accountable manager to be kept informed of safety issues and the extent of compliance with Part-145.

- (d) The independent audit reports referred to in AMC2 145.A.200(a)(6) should be sent to the relevant department(s) for corrective action, giving target closure dates. These target dates should be discussed with the relevant department(s) before the compliance monitoring function confirms the dates in the report. The relevant department(s) is (are) required to implement the corrective action and inform the compliance monitoring function of the status of the implementation of the action.
- (e) Unless the review of the results from compliance monitoring is given to the safety review board (ref. AMC1 145.A.200(a)(1) point (b)(4)), the accountable manager should hold regular meetings with staff to check the progress of corrective actions. These meetings may be delegated to the compliance monitoring manager on a day-to-day basis, provided that the accountable manager:
- (1) meets the senior staff involved at least twice per year to review the overall performance of the compliance monitoring function; and
  - (2) receives at least a half-yearly summary report on non-compliance findings.
- (f) All records pertaining to the independent audit and the feedback system should be retained for the period specified in point 145.A.55(c) or for such periods as to support changes to the audit planning cycle in accordance with AMC2 145.A.200(a)(6), whichever is the longer.

## GM1 145.A.200(a)(6) Management system

### COMPLIANCE MONITORING FUNCTION

The compliance monitoring function is one of the elements that is required to be in compliance with the applicable requirements. This means that the compliance monitoring function itself should be subject to independent monitoring of compliance in accordance with 145.A.200(a)(6).

## GM2 145.A.200(a)(6) Management system

### COMPLIANCE MONITORING — AUDIT PLAN

- (a) The purpose of this GM is to provide guidance on one acceptable working audit plan to meet part of the needs of point 145.A.200(a)(6). There is any number of other acceptable working audit plans.
- (b) The audits described in the audit plan are intended to monitor compliance with the applicable requirements, and at the same time to review all areas of the organisation to which those requirements are applicable.
- (c) In order to achieve this objective, as a first element, the organisation needs to identify all the regulatory requirements that are applicable to the activity and the scope of work under consideration, to allow the audit plan to focus on the relevant topics. Each topic (e.g. facilities,

personnel, etc.) should be cross-referred with the relevant requirement and the related procedure of the organisation in the exposition that describes the particular topic. If the organisation follows a specific means of compliance to demonstrate compliance with the rule, that information may also be stated.

(d) As a second element, all the functional areas of the organisation in which Part-145 functions are intended to be carried out (i.e. the types of maintenance-related activities), including subcontracting, need to be listed in order to identify the applicability of any topic to each functional area.

(e) A matrix can be used, as shown in the example below, to capture the two elements mentioned above. This matrix is intended to be a living document to be customised by each particular organisation depending on its scope of work and its structure. This matrix should represent the overall compliance of the audit system, and needs to be amended, as necessary, based upon any change to the applicable regulations, the procedures of the organisation or the functional areas of the organisation (e.g. a change in the scope of work to include line maintenance, etc.)

Example (to be further completed) of an audit matrix for an organisation involved in aircraft base maintenance that does not hold airworthiness review privilege:

Topic	Requirement	Exposition	Functional areas				...
			Base maintenance	Compliance monitoring	Subcontracting	Component workshop	
Facilities	145.A.25(a)(1)	1.8	X	N/A	X	X	...
	AMC 145.A.25(a)	2.22	X	N/A	N/A	X	...
	...	...	...	...	...	...	...
Personnel	...	...	...	...	...	...	...
	145.A.30(c)	1.4	N/A	X	N/A	N/A	...
	145.A.30(d)	1.7, 2.22	X	X	X	X	...
	...	...	...	...	...	...	...
...	145.A.37	N/A	N/A	N/A	N/A	N/A	...
...	...	...	...	...	...	...	...
Record-keeping	145.A.55	...	...	...	...	...	...
	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...

(f) The audit plan can be presented as a simplified schedule (see below), showing the operational areas of the organisation (i.e. where the maintenance-related activities are effectively carried out) against a timetable to indicate when each particular area was scheduled for audit and when the audit was completed. The audit plan should include a number of product audits (depending on the number of product lines), some of which should be unannounced (see AMC2 145.A.200(a)(6)).

Example (to be further completed) of an audit plan for an organisation, mentioned in point (e), that has two base maintenance hangars, and hydraulic and electrical workshops:

Operational area	Functional area	Planned	Completed	Remarks
Base maintenance hangar 1	Base maintenance	mmm yyyy	dd mmm yyyy	
Base maintenance hangar 2	Base maintenance	mmm yyyy	dd mmm yyyy	
Hydraulic workshop	Component workshop	mmm yyyy	dd mmm yyyy	
Electrical workshop	Component workshop	mmm yyyy	dd mmm yyyy	
Subcontractor 1	Subcontracting	mmm yyyy	dd mmm yyyy	
Product audit 1	Base maintenance	mmm yyyy	dd mmm yyyy	During night
Product audit 2	Component workshop	unannounced	dd mmm yyyy	
...	...	...	...	

- (g) The audit of each operational area will review all the topics that are applicable to the relevant functional area. For each topic, the audit should check that the particular Part-145 requirement is documented in the corresponding procedure in the exposition, and that the procedure is effectively implemented in the operational area that is being audited. In addition, the audit should also identify any practice/process implemented in the operational area which has not been documented in any procedure in the exposition.

## GM1 145.A.200(a)(6) and 145.B.300 Management system and Oversight principles

### THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) FOR PERFORMING REMOTE AUDITS

This GM provides technical guidance on the use of remote information and communication technologies (ICT) to support:

- competent authorities when overseeing regulated organisations;
- regulated organisations when conducting internal audits/monitoring compliance of their organisation with the relevant requirements, and when evaluating vendors, suppliers and subcontractors.

In the context of this GM:

- ‘remote audit’ means an audit that is performed with the use of any real-time video and audio communication tools instead of the physical presence of the auditor on-site; the specificities of each type of approval need to be considered in addition to the general overview (described below) when applying the ‘remote audit’ concept;
- ‘auditing entity’ means the competent authority or organisation that performs the remote audit;

- 
- ‘auditee’ means the entity being audited/inspected (or the entity audited/inspected by the auditing entity via a remote audit);

It is the responsibility of the auditing entity to assess whether the use of remote ICT constitutes a suitable alternative to the physical presence of an auditor on-site in accordance with the applicable requirements.

#### **THE CONDUCT OF A REMOTE AUDIT**

The auditing entity that decides to conduct a remote audit should describe the remote audit process in its documented procedures and should consider at least the following elements:

- The methodology for the use of remote ICT is sufficiently flexible and non-prescriptive in nature to optimise the conventional audit process.
- Adequate controls are defined and are in place to avoid abuses that could compromise the integrity of the audit process.
- Measures to ensure that the security and confidentiality are maintained throughout the audit activities (data protection and intellectual property of the organisation also need to be safeguarded).

Examples of the use of remote ICT during audits may include but are not limited to:

- meetings by means of teleconference facilities, including audio, video and data sharing;
- assessment of documents and records by means of remote access, in real time;
- recording, in real time during the process, of evidence to document the results of the audit, including non-conformities, by means of exchange of emails or documents, instant pictures, video or/and audio recordings;
- visual (livestream video) and audio access to facilities, stores, equipment, tools, processes, operations, etc.

An agreement between the auditing entity and the auditee should be established when planning a remote audit, which should include the following:

- determining the platform for hosting the audit;
- granting security and/or profile access to the auditor(s);
- testing platform compatibility between the auditing entity and the auditee prior to the audit;
- considering the use of webcams, cameras, drones, etc. when the physical evaluation of an event (product, part, process, etc.) is desired or is necessary;
- establishing an audit plan which will identify how remote ICT will be used and the extent of their use for the audit purposes to optimise their effectiveness and efficiency while maintaining the integrity of the audit process;
- if necessary, time zone acknowledgement and management to coordinate reasonable and mutually agreeable convening times;

- a documented statement of the auditee that they shall ensure full cooperation and provision of the actual and valid data as requested, including ensuring any supplier or subcontractor cooperation, if needed; and
- data protection aspects.

The following equipment and set-up elements should be considered:

- the suitability of video resolution, fidelity, and field of view for the verification being conducted;
- the need for multiple cameras, imaging systems, or microphones, and whether the person that performs the verification can switch between them, or direct them to be switched and has the possibility to stop the process, ask a question, move the equipment, etc.;
- the controllability of viewing direction, zoom, and lighting;
- the appropriateness of audio fidelity for the evaluation being conducted; and
- real-time and uninterrupted communication between the person(s) participating to the remote audit from both locations (on-site and remotely).

When using remote ICT, the auditing entity and the other persons involved (e.g. drone pilots, technical experts) should have the competence and ability to understand and utilise the remote ICT tools employed to achieve the desired results of the audit(s)/assessment(s). The auditing entity should also be aware of the risks and opportunities of the remote ICT used and the impacts they may have on the validity and objectivity of the information gathered.

Audit reports and related records should indicate the extent to which remote ICT have been used in conducting remote audits and the effectiveness of remote ICT in achieving the audit objectives, including any item that has not been able to be completely reviewed.

## AMC1 145.A.202 Internal safety reporting scheme

- (a) Each internal safety reporting scheme should ensure confidentiality and enable and encourage free and frank reporting of any potentially safety-related occurrence, including incidents such as errors or near misses, safety issues and identified hazards. This will be facilitated by the establishment of a just culture.
- (b) The internal safety reporting scheme should contain the following elements:
  - (1) clearly identified aims and objectives with demonstrable corporate commitment;
  - (2) a just culture policy as part of the safety policy, and related just culture implementation procedures;
  - (3) a process to:
    - (i) identify those reports which require investigation; and

- (ii) when so identified, investigate all the causal and contributing factors, including technical, organisational, managerial, or human factors issues, and any other contributing factors related to the occurrence, incident, error or near miss that was identified;
  - (iii) if adapted to the size and complexity of the organisation, analyse the collective data showing the trends and frequencies of the contributing factors;
  - (4) appropriate corrective actions based on the findings of investigations;
  - (5) initial and recurrent training for staff involved in internal investigations;
  - (6) where relevant, the organisation should cooperate with the owner, operator or CAMO on occurrence investigations by exchanging relevant information to improve aviation safety.
- (c) The internal safety reporting scheme should:
- (1) ensure the confidentiality of the reporter;
  - (2) be closed loop, to ensure that actions are taken internally to address safety issues and hazards; and
  - (3) feed into the recurrent training as defined in AMC3 145.A.30(e) whilst maintaining the appropriate confidentiality.
- (d) Feedback should be given to staff both on an individual and a more general basis to ensure their continued support of the safety reporting scheme.

## GM1 145.A.202 Internal safety reporting scheme

### GENERAL

- (a) The overall purpose of the internal safety reporting scheme is to collect information reported by the organisation personnel and use this reported information to improve the level of compliance and safety performance of the organisation. The purpose is not to attribute blame.
- (b) The objectives of the scheme are to:
- (1) enable an assessment to be made of the safety implications of each relevant incident (errors, near miss), safety issue and hazard reported, including previous similar issues, so that any necessary action can be initiated; and
  - (2) ensure that knowledge of relevant incidents, safety issues and hazards is shared so that other persons and organisations may learn from them.
- (c) The scheme is an essential part of the overall monitoring function and should be complementary to the normal day-to-day procedures and 'control' systems; it is not intended to duplicate or supersede any of them. The scheme is a tool to identify those instances in which routine procedures have failed or may fail.

- (d) All reports should be retained, as the significance of such reports may only become obvious at a later date.
- (e) The collection and analysis of timely, appropriate and accurate data will allow the organisation to react to the information that it receives, and to take the necessary action.

## GM1 145.A.205 Contracting and subcontracting

### RESPONSIBILITY WHEN CONTRACTING OR SUBCONTRACTING MAINTENANCE

- (a) Regardless of the approval status of the subcontracted organisations, a Part-145 organisation is responsible for ensuring that all subcontracted activities are subject to hazard identification and risk management, as required by point 145.A.200(a)(3), and to compliance monitoring, as required by point 145.A.200(a)(6).
- (b) A Part-145 organisation is responsible for identifying hazards that may stem from the existence of complex maintenance arrangements (such as when multiple organisations are contracted, or when multiple levels of contracting/subcontracting are included) with due regard to the organisations' interfaces (see GM1 145.A.200(a)(3)). In addition, the compliance monitoring function should at least check that the approval of the contracted maintenance organisation(s) effectively covers the contracted activities, and that it is still valid.
- (c) A Part-145 organisation is responsible for ensuring that interfaces and communication channels are established with the contracted maintenance organisation(s) for occurrence reporting. This does not replace the obligation of the contracted organisation(s) to report to the competent authority in accordance with Regulation (EU) No 1321/2014.

For subcontracted activities, interfaces and communication channels are also needed for the purpose of the internal safety reporting scheme (145.A.202).

## GM2 145.A.205 Contracting and subcontracting

### DIFFERENCE BETWEEN 'CONTRACTING MAINTENANCE' AND 'SUBCONTRACTING MAINTENANCE'

- (a) 'Subcontracting maintenance' means subcontracting to a third party under the maintenance organisation management system.  
  
This is the case when a third party carries out certain maintenance tasks on behalf of the Part-145 organisation, and the responsibility remains with the Part-145 organisation (this Part-145 organisation must have the tasks within its scope of approval). Whether the third party is approved or not is not relevant for the designation of subcontracting, since the third party will be working under the management system of the Part-145 organisation, and the maintenance will be released under the approval of this organisation.
- (b) 'Contracting maintenance' means contracting to another maintenance organisation which will release the maintenance under its own approval.

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This is the case when a Part-145 organisation, contracted to carry out maintenance by an owner/operator/CAMO, further contracts certain maintenance tasks to another approved Part-145 organisation, and transfers the responsibility for the release of such tasks to the second Part-145 organisation.

Contracting should only be envisaged when it is allowed by the person or organisation that requests the maintenance.

- (c) In case (a), the subcontracted organisation works under the approval of the contracting organisation, whereas in case (b), the contracted organisation works under its own approval.

The current AMC & GM to Section B are replaced by the following:

## SECTION B – AUTHORITY REQUIREMENTS

### GM1 145.B.120 Means of compliance

#### ALTERNATIVE MEANS OF COMPLIANCE – GENERAL

(a) A competent authority may establish means to comply with the Regulation different from the AMC established by EASA.

In that case, the competent authority is responsible for demonstrating how these alternative means of compliance (AltMoC) establish compliance with the Regulation.

(b) AltMoC used by a competent authority, or by an organisation under its oversight, may be used by other competent authorities, or another organisation, only if processed again in accordance with respectively point 145.B.120 and point 145.A.120.

(c) AltMoC issued by the competent authority may cover the following cases:

- AltMoC to be used by organisations under the oversight of the competent authority and made available to these organisations;
- AltMoC to be used by the authority itself to discharge its responsibilities.

### AMC1 145.B.120(b);(c) Means of compliance

#### PROCESSING THE ALTERNATIVE MEANS OF COMPLIANCE

To meet the objective of points (b) and (c) of point 145.B.120:

(a) the competent authority should establish the means to consistently evaluate over time that all the AltMoC used by itself or by organisations under its oversight allow for the establishment of compliance with the Regulation.

(b) If the competent authority issues AltMoC for itself or for the organisations under its oversight, it should:

- make them available to all relevant organisations;
- notify the Agency as soon as the AltMoC is issued, including the information described in point (d) below.

(c) The competent authority should evaluate the AltMoC proposed by an organisation by analysing the documentation provided and, if considered necessary, inspecting the organisation.

When the competent authority finds that the AltMoC is in accordance with the Regulation, it should:

- notify the applicant that the AltMoC is approved;
- indicate that this AltMoC may be implemented, and agree when the MOE is to be amended; and
- notify the Agency as soon as the AltMoC is approved, including the information described in point (d) below.

(d) The competent authority should provide the Agency with the following information:

- a summary of the AltMoC;
- the content of the AltMoC;
- a statement that compliance with the Regulation is achieved; and
- in support of that statement, an assessment demonstrating that the AltMoC reaches an acceptable level of safety, taking into account the level of safety provided by the corresponding EASA AMC.

All these elements describing the AltMoC form an integral part of the records to be kept in accordance with 145.B.220.

## **GM1 145.B.120(b);(c) Means of Compliance**

### **CASE WHERE THE REGULATION HAS NO CORRESPONDING EASA AMC**

When there is no EASA AMC for a certain requirement in the Regulation, the competent authority may choose to develop national guides or other types of documents to help the organisations under its oversight in compliance demonstration. The competent authority may inform the Agency, so that such guides or other documents may later be considered for transposition into an AMC published by the Agency through the Agency rulemaking process.

## **AMC1 145.B.125(b) Information to the Agency**

### **EXCHANGE OF SAFETY-SIGNIFICANT INFORMATION WITH THE AGENCY**

Each competent authority should appoint a coordinator to act as the contact point for the exchange of safety-significant information between the competent authority and the Agency.

## **GM1 145.B.125(b) Information to the Agency**

### **MEANING OF SAFETY-SIGNIFICANT INFORMATION STEMMING FROM THE OCCURRENCE REPORTS**

‘Safety-significant information stemming from the occurrence reports’ means:

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- (a) a conclusive safety analysis which summarises individual occurrence data and provides an in-depth analysis of a safety issue, and which may be relevant for the Agency's safety action planning; and
  - (b) individual occurrence data for the cases where the Agency is the competent authority, and which fulfils the reporting criteria of GM3 145.B.125(b).

## GM2 145.B.125(b) Information to the Agency

### RECOMMENDED CONTENT FOR CONCLUSIVE SAFETY ANALYSES

A conclusive safety analysis should contain the following:

- (a) a detailed description of the safety issue, including the scenario in which the safety issue takes place; and
- (b) an indication of the stakeholders affected by the safety issue, including types of operations and organisations;

and, as appropriate:

- (c) a risk assessment establishing the severity and probability of all the possible consequences of the safety issue;
- (d) information about the existing safety barriers that the aviation system has in place to prevent the likely safety issue consequences from occurring;
- (e) any mitigating actions already in place or developed to deal with the safety issue;
- (f) recommendations for future actions to control the risk; and
- (g) any other element the competent authority considers essential for the Agency to properly assess the safety issue.

## GM3 145.B.125(b) Information to the Agency

### OCCURRENCES WHERE THE AGENCY IS THE COMPETENT AUTHORITY

Occurrences related to organisations or products, certified by the Agency, should be notified to the Agency if:

- (a) the occurrence is defined as a reportable occurrence in accordance with the applicable regulation;
- (b) the organisation responsible for addressing the occurrence is certified by the Agency; and
- (c) the Member State competent authority has come to the conclusion that:

- (1) the organisation certified by the Agency to which the occurrence relates has not been informed of the occurrence; or
- (2) the occurrence has not been properly addressed or has been left unattended by the organisation certified by the Agency.

Such occurrence data should be reported in a format compatible with the European Coordination Centre for Accident and Incident Reporting Systems (ECCAIRS) and should provide all relevant information for its assessment and analysis, including necessary additional files in the form of attachments.

## AMC1 145.B.200 Management system

### ORGANISATIONAL STRUCTURE

- (a) In deciding upon the required organisational structure, the competent authority should review:
  - (1) the number of certificates to be issued, and the number and size of the potential Part-145 approved maintenance organisations within that Member State;
  - (2) the possible use of qualified entities and of the resources of the competent authorities of other Member States to fulfil the continuing oversight obligations;
  - (3) the level of civil aviation activity, the number and complexity of the aircraft, and the size of the Member State's aviation industry; and
  - (4) the potential growth of activities in the field of civil aviation.
- (b) The competent authority should retain effective control of the important surveillance functions and should not delegate them in such a way that Part-145 organisations, in effect, regulate themselves in airworthiness matters.
- (c) The set-up of the organisational structure should ensure that the various tasks and obligations of the competent authority do not solely rely on individuals. The continuous and undisturbed fulfilment of these tasks and obligations of the competent authority should also be guaranteed in case of illness, accidents or leave of individual employees.

## AMC2 145.B.200 Management system

### GENERAL

- (a) The competent authority designated by each Member State should be organised in such a way that:
  - (1) there is specific and effective management authority in the conduct of all the relevant activities;

- (2) the functions and processes described in the applicable requirements of Regulation (EU) 2018/1139 and its delegated and implementing acts, AMC, Certification Specifications (CSs), and Guidance Material (GM) are properly implemented;
  - (3) the competent authority's policy, organisation and operating procedures for the implementation of the applicable requirements of Regulation (EU) 2018/1139 and its delegated and implementing acts are properly documented and applied;
  - (4) all the competent authority's personnel who are involved in the related activities are provided with training where necessary;
  - (5) specific and effective provision is made for communicating and interfacing as necessary with EASA and the competent authorities of other Member States; and
  - (6) all the functions related to implementing the applicable requirements are adequately described.
- (b) A general policy in respect of the activities related to the applicable requirements of Regulation (EU) 2018/1139 and its delegated and implementing acts should be developed, promoted, and implemented by the manager at the highest appropriate level; for example, the manager at the top of the functional area of the competent authority that is responsible for such activities.
- (c) Appropriate steps should be taken to ensure that the policy is known and understood by all the personnel involved, and all the necessary steps should be taken to implement and maintain the policy.
- (d) The general policy, whilst also satisfying the additional national regulatory responsibilities, should, in particular, take into account:
- (1) the provisions of Regulation (EU) 2018/1139;
  - (2) the provisions of the applicable implementing rules and their AMC, CSs, and GM;
  - (3) the needs of industry; and
  - (4) the needs of EASA and of the competent authority.
- (e) The policy should define specific objectives for the key elements of the competent authority organisation and processes for implementing the related activities, including the corresponding control procedures and the measurement of the achieved standard.

## AMC1 145.B.200(a)(1) Management system

### DOCUMENTED POLICIES AND PROCEDURES

- (a) The various elements of the organisation involved with the activities related to Regulation (EU) 2018/1139 and its delegated and implementing acts should be documented in order to establish a reference source for the establishment and maintenance of this organisation.

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- (b) The documented procedures should be established in a way that facilitates their use. They should be clearly identified, kept up to date, and made readily available to all the personnel who are involved in the related activities.
- (c) The documented procedures should cover, as a minimum, all of the following aspects:
- (1) policies and objectives;
  - (2) the organisational structure;
  - (3) responsibilities and the associated authority;
  - (4) procedures and processes;
  - (5) internal and external interfaces;
  - (6) internal control procedures;
  - (7) the training of personnel;
  - (8) cross-references to associated documents;
  - (9) assistance from other competent authorities or EASA (where required).
- (d) It is likely that the information may be held in more than one document or series of documents, and suitable cross-referencing should be provided. For example, the organisational structure and job descriptions are not usually in the same documentation as the detailed working procedures. In such cases, it is recommended that the documented procedures should include an index of cross references to all such other related information, and the related documentation should be readily available when required.

## **GM1 145.B.200(a)(2) Management system**

### **SUFFICIENT PERSONNEL**

- (a) This GM on the determination of the required personnel is limited to the performance of certification and oversight tasks, excluding any personnel who are required to perform tasks that are subject to any national regulatory requirements.
- (b) The elements to be considered when determining who are the required personnel and planning their availability may be divided into quantitative and qualitative elements:
- (1) Quantitative elements
    - (i) the estimated number of initial certificates to be issued;
    - (ii) the number of organisations to be certified by the competent authority;
    - (iii) the estimated number of subcontracted organisations used by certified organisations.
  - (2) Qualitative elements

- 
- (i) the size, nature, and complexity of the activities of certified organisations, taking into account:
    - (A) the privileges of each organisation;
    - (B) the types of approval and the scopes of approval;
    - (C) possible certification to industry standards;
    - (D) the number of personnel; and
    - (E) the organisational structure and the existence of subsidiaries;
  - (ii) the safety priorities identified;
  - (iii) the results of past oversight activities, including audits, inspections and reviews, in terms of risks and regulatory compliance, taking into account:
    - (A) the number and the levels of findings;
    - (B) the time frame for implementation of corrective actions; and
    - (C) the maturity of the management systems implemented by organisations, and their ability to effectively manage safety risks; and
  - (iv) the size and complexity of the Member State's aviation industry, and the potential growth of activities in the field of civil aviation, which may be an indication of the number of new applications and changes to existing certificates to be expected.
- (c) Based on the existing data from previous oversight planning cycles, and taking into account the situation within the Member State's aviation industry, the competent authority may estimate:
- (1) the standard working time required for processing applications for new certificates;
  - (2) the number of new certificates to be issued for each planning period; and
  - (3) the number of changes to existing certificates to be processed for each planning period.
- (d) In line with the competent authority's oversight policy, the following planning data should be determined:
- (1) the standard number of audits to be performed per oversight planning cycle;
  - (2) the standard duration of each audit;
  - (3) the standard working time for audit preparation, on-site audit, reporting, and follow-up per inspector;
  - (4) the standard number of unannounced inspections to be performed;
  - (5) the standard duration of inspections, including preparation, reporting, and follow-up per inspector; and
  - (6) the minimum number and the required qualifications of the inspectors for each audit/inspection.
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- (e) The standard working time could be expressed either in working hours per inspector, or in working days per inspector. All planning calculations should then be based on the same unit (hours or working days).
- (f) It is recommended to use a spreadsheet application to process the data defined under (c) and (d), to assist in determining the total number of working hours/days per oversight planning cycle required for certification, oversight and enforcement activities. This application could also serve as a basis for implementing a system for planning the availability of personnel.
- (g) The number of working hours/days per planning period for each qualified inspector that may be allocated for certification, oversight and enforcement activities should be determined, taking into account:
- (1) purely administrative tasks that are not directly related to certification and oversight;
  - (2) training;
  - (3) participation in other projects;
  - (4) planned absence; and
  - (5) the need to include a reserve for unplanned tasks or unforeseeable events.
- (h) The determination of the working time available for certification, oversight and enforcement activities should also consider, as applicable:
- (1) the use of qualified entities;
  - (2) cooperation with other competent authorities for approvals that involve more than one Member State;
  - (3) oversight activities under a bilateral aviation safety agreement.
- (i) Based on the elements listed above, the competent authority should be able to:
- (1) monitor the dates when audits and inspections are due, and when they were carried out;
  - (2) implement a system to plan the availability of personnel; and
  - (3) identify possible gaps between the number and the qualifications of personnel and the required volume of certification and oversight.
- Care should be taken to keep planning data up to date in line with changes in the underlying planning assumptions, with particular focus on risk-based oversight principles.

## AMC1 145.B.200(a)(3) Management system

### QUALIFICATION AND TRAINING — GENERAL

- (a) It is essential for the competent authority to have the full capability to adequately assess the compliance and performance of an organisation by ensuring that the whole range of activities is assessed by appropriately qualified personnel.

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- (b) For each inspector, the competent authority should:
- (1) define the competencies required to perform the allocated certification and oversight tasks;
  - (2) define the associated minimum qualifications that are required;
  - (3) establish initial and recurrent training programmes in order to maintain and to enhance the competency of inspectors at the level that is necessary to perform the allocated tasks; and
  - (4) ensure that the training provided meets the established standards, and is regularly reviewed and updated whenever necessary.
- (c) The competent authority should ensure that training is provided by qualified trainers with appropriate training skills.

## AMC2 145.B.200(a)(3) Management system

### QUALIFICATION AND TRAINING — INSPECTORS

- (a) Competent authority inspectors should have:
- (1) practical experience and expertise in the application of aviation safety standards and safe operating practices;
  - (2) comprehensive knowledge of:
    - (i) the relevant parts of the implementing rules, certification specifications and guidance material;
    - (ii) the competent authority's procedures;
    - (iii) the rights and obligations of an inspector;
    - (iv) safety management systems based on the EU management system requirements and ICAO Annex 19, and compliance monitoring;
    - (v) continuing airworthiness management and maintenance;
    - (vi) operational procedures that affect the continuing airworthiness management of the aircraft or its maintenance;
    - (vii) maintenance-related human factors and human performance principles;
  - (3) training on auditing techniques and assessing and evaluating management systems and safety risk management processes;
  - (4) 5 years of relevant work experience for them to be allowed to work independently as inspectors. This may include experience gained during training to obtain the qualifications mentioned below in point (a)(5);

- (5) a relevant engineering degree or an aircraft maintenance technician qualification with additional education. 'Relevant engineering degree' refers to an engineering degree from aeronautical, mechanical, electrical, electronic, avionics or other studies that are relevant to the maintenance and continuing airworthiness of aircraft/aircraft components;
  - (6) knowledge of a relevant sample of the type(s) of aircraft or components, gained through a formalised training course. Aircraft/engine type training courses should be at least at a level equivalent to a Part-66 Appendix III Level 1 General Familiarisation.  
'Relevant sample' refers to courses that cover the typical aircraft or components that are within the scope of work;
  - (7) knowledge of maintenance standards, including fuel tank safety (FTS) training as described in Appendix IV to AMC5 145.A.30(e) and AMC2 145.B.200(a)(3).
- (b) In addition to technical competency, inspectors should have a high degree of integrity, be impartial in carrying out their tasks, be tactful, and have a good understanding of human nature.
- (c) A programme for recurrent training should be developed that ensures that the inspectors remain competent to perform their allocated tasks. As a general policy, it is not desirable for the inspectors to obtain technical qualifications from those entities that are under their direct regulatory oversight.

## AMC3 145.B.200(a)(3) Management system

### INITIAL AND RECURRENT TRAINING — INSPECTORS

#### (a) Initial training programme

The initial training programme for inspectors should include, to an extent appropriate to their role, current knowledge, experience and skills, at least all of the following:

- (1) aviation legislation, organisation, and structure;
- (2) the Chicago Convention, the relevant ICAO Annexes and Documents;
- (3) Regulation (EU) No 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation;
- (4) overview of Regulation (EU) 2018/1139 and its delegated and implementing acts and the related AMC, CS, and GM;
- (5) Regulation (EU) No 1321/2014 as well as any other applicable requirements;
- (6) management systems, including the assessment of the effectiveness of a management system, in particular hazard identification and risk assessment, and non-punitive reporting techniques in the context of the implementation of a 'just culture';
- (7) auditing techniques;
- (8) procedures of the competent authority that are relevant to the inspectors' tasks;

- (9) human factors principles;
- (10) the rights and obligations of inspecting personnel of the competent authority;
- (11) on-the-job training that is relevant to the inspector's tasks;
- (12) technical training that is appropriate to the role and tasks of the inspector, in particular for those areas that require approvals.

NOTE: The duration of the on-the-job training should take into account the scope and complexity of the inspector's tasks. The competent authority should assess whether the required competency has been achieved before an inspector is authorised to perform a task without supervision.

**(b) Recurrent training programme**

Once qualified, the inspector should undergo training periodically, as well as whenever deemed necessary by the competent authority, in order to remain competent to perform the allocated tasks. The recurrent training programme for inspectors should include, as appropriate to their role, at least the following topics:

- (1) changes in aviation legislation, the operational environment and technologies;
- (2) procedures of the competent authority that are relevant to the inspector's tasks;
- (3) technical training that is appropriate to the role and tasks of the inspector; and
- (4) results from past oversight.

**(c) Assessments of an inspector's competency should take place at regular intervals that do not exceed 3 years. The results of these assessments, as well as any actions taken following the assessments, should be recorded.**

## AMC1 145.B.200(a)(5) Management system

### SAFETY RISK MANAGEMENT PROCESS

- (a) The safety risk management process required by point (a)(5) of point 145.B.200 should be documented. The following should be defined in the related documentation:
  - (1) means for hazard identification, and the related data sources, taking into account data that comes from other competent authorities with which the competent authority interfaces in the State, or from the competent authorities of other Member States;
  - (2) risk management steps including:
    - (i) analysis (in terms of the probability and the severity of the consequences of hazards and occurrences);
    - (ii) assessment (in terms of tolerability); and
    - (iii) control (in terms of mitigation) of risks to an acceptable level;

- (3) who holds the responsibilities for hazard identification and risk management;
  - (4) who holds the responsibility for the follow-up of risk mitigation actions;
  - (5) the levels of management who have the authority to make decisions regarding the tolerability of risks;
  - (6) means to assess the effectiveness of risk mitigation actions; and
  - (7) the link with the compliance monitoring function.
- (b) To demonstrate that the safety risk management process is operational, competent authorities should be able to provide evidence that:
- (1) the persons involved in internal safety risk management activities are properly trained;
  - (2) hazards that could impact the authority's capabilities to perform its tasks and discharge its responsibilities have been identified and the related risk assessment is documented;
  - (3) regular meetings take place at appropriate levels of management of the competent authority to discuss the risks identified, and to decide on the tolerability of risks and possible risk mitigations;
  - (4) in addition to the initial hazard identification exercise, the risk management process is triggered as a minimum whenever changes occur that may affect the competent authority's capability to perform any of the tasks required by Part-145;
  - (5) a record of the actions taken to mitigate risks is maintained, showing the status of each action and the owner of the action;
  - (6) there is a follow-up on the implementation of all risk mitigation actions;
  - (7) risk mitigation actions are assessed for their effectiveness;
  - (8) the results of risk assessments are periodically reviewed to check whether they remain relevant. (Are the assumptions still valid? Is there any new information?).

## GM1 145.B.200(a)(5) Management system

### SAFETY RISK MANAGEMENT PROCESS

The purpose of safety risk management as part of the management system framework for competent authorities is to ensure the effectiveness of the management system. As for any organisation, hazard identification and risk management are expected to contribute to effective decision-making, to guide the allocation of resources and contribute to organisational success.

The safety risk management process required by point 145.B.200 is intended to address the safety risks that are directly related to the competent authority's organisation and processes, and which may affect its capability to perform its tasks and discharge its responsibilities. This process is not intended to be a substitute for the State safety risk management SARPs defined in ICAO Annex 19, Chapter 3, component 3.3. This does not mean, however, that the competent authority may not use information

and data that is obtained through its State Safety Programme (SSP), including oversight data and information, for the purposes of safety risk management as part of its management system.

The safety risk management process is also to be applied to the management of changes (145.B.210), which is intended to ensure that the management system remains effective whenever changes occur.

## AMC1 145.B.200(d) Management system

### PROCEDURES AVAILABLE TO EASA

- (a) Copies of the procedures related to the competent authority's management system, and their amendments, that should be made available to EASA for the purpose of standardisation, should provide at least the following information:
- (1) the competent authority's organisational structure for the continuing oversight functions that it undertakes, with a description of the main processes. This information should demonstrate the allocation of responsibilities within the competent authority, and that the competent authority is capable of carrying out the full range of tasks for the size and complexity of the Member State's aviation industry. It should also consider the overall proficiency and the scope of authorisation of the competent authority's personnel;
  - (2) for personnel who are involved in oversight activities, the minimum required professional qualifications and amount of experience, and the principles that are used to guide their appointment (e.g. assessment);
  - (3) how the following are carried out: assessments of applications and evaluations of compliance, the issuing of certificates, continuing oversight activities, the follow-up of findings, enforcement measures and the resolution of safety concerns;
  - (4) the principles used for the management of exemptions and derogations;
  - (5) the processes that are in place to distribute the applicable safety information to enable a timely reaction to a safety problem;
  - (6) the criteria for planning continuing oversight activities (i.e. an oversight programme), including the management of interfaces when conducting continuing oversight activities (of air operations and of continuing airworthiness management, for example);
  - (7) an outline of the initial training of newly recruited oversight personnel (taking future activities into account), and the basic framework for the recurrent training of oversight personnel.
- (b) As part of the continuous monitoring of a competent authority, EASA may request details of the working methods used, in addition to a copy of the procedures of the competent authority's management system (and any amendments). These additional details are the procedures and the related guidance material that describes the working methods for the personnel of the competent authority who conduct oversight activities.

- (c) Information related to the competent authority's management system may be submitted in an electronic format.

## GM1 145.B.205 Allocation of tasks to qualified entities

### CERTIFICATION TASKS

The tasks that may be performed by a qualified entity on behalf of the competent authority include those that are related to the initial certification and to the continuing oversight of organisations as defined in Regulation (EU) No 1321/2014.

## AMC1 145.B.220(a) Record-keeping

### GENERAL

- (a) The record-keeping system should ensure that all records are accessible within a reasonable time whenever they are needed. These records should be organised in a manner that ensures their traceability and retrievability throughout the required retention period.
- (b) All records that contain sensitive data regarding applicants or organisations should be stored in a secure manner with controlled access to ensure their confidentiality.
- (c) Records should be kept in paper form, or in an electronic format, or a combination of the two. Records that are stored on microfilm or optical discs are also acceptable. The records should remain legible and accessible throughout the required retention period. The retention period starts when the record is created.
- (d) Paper systems should use robust material which can withstand normal handling and filing. Computer record systems should have at least one backup system, which should be updated within 24 hours of any new entry. Computer record systems should include safeguards to prevent any unauthorised personnel from altering the data.
- (c) All computer hardware that is used to ensure the backup of data should be stored in a different location from the one that contains the working data, and in an environment that ensures that the data remains in a good condition. When hardware or software changes take place, special care should be taken to ensure that all the necessary data continues to be accessible throughout at least the full period specified in point 145.B.220(c).

## AMC1 145.B.220(a)(1) Record-keeping

### COMPETENT AUTHORITY MANAGEMENT SYSTEM

Records that are related to the competent authority's management system should include, as a minimum, and as applicable:

- (a) the documented policies and procedures;

- (b) the personnel files of the competent authority's personnel, with the supporting documents related to their training and qualifications;
- (c) the results of the competent authority's internal audits and safety risk management processes, including audit findings, and corrective, preventive and risk mitigation actions; and
- (d) the contract(s) established with any qualified entities that perform certification or oversight tasks on behalf of the competent authority.

## AMC1 145.B.300(a);(b);(c) Oversight principles

### MANAGEMENT SYSTEM ASSESSMENT

As part of the initial certification of an organisation, the competent authority should assess the organisation's management system and processes to make sure that all the required enablers of a functioning management system are present and suitable.

As part of its continuing oversight activities, the competent authority should verify that the required enablers remain present and operational, and assess the effectiveness of the organisation's management system and processes.

When significant changes take place in the organisation, the competent authority should determine whether there is a need to review the existing assessment to ensure that it is still valid.

## AMC1 145.B.300(f) Oversight principles

### INFORMATION DEEMED NECESSARY FOR OVERSIGHT

This information should include, as a minimum:

- (a) any occurrence reports received by the competent authority;
- (b) the reports received following the issuing of any one-off certification authorisations as defined in point 145.A.30(j)(5);
- (c) the results of the following types of inspections and surveys if they indicate an issue that originates from a Part-145 organisation:
  - (i) ramp inspections performed in accordance with Subpart RAMP of Annex II (Part-ARO) to Commission Regulation (EU) No 965/2012 on air operations;
  - (ii) product surveys of aircraft, pursuant to point M.B.303 or point ML.B.303;
  - (iii) product audits conducted pursuant to point CAMO.B.305(b)(1) or point 145.B.305(b)(1);  
and
  - (iv) physical surveys or partial airworthiness reviews performed by the competent authority in line with AMC M.B.901.

## AMC1 145.B.305(a);(b) Oversight programme

### ANNUAL REVIEW

- (a) The oversight planning cycle and the related oversight programme for each organisation should be reviewed annually to ensure that they remain adequate regarding any changes in the nature of the organisation, the complexity of its activities or the safety performance of the organisation.
- (b) When reviewing the oversight planning cycle and the related oversight programme, the competent authority should also consider any relevant information collected in accordance with points 145.A.60 and 145.B.300(f).

## AMC1 145.B.305(b) Oversight programme

### SPECIFIC NATURE OF THE ORGANISATION AND COMPLEXITY OF ITS ACTIVITIES — RESULTS OF PAST CERTIFICATION OR OVERSIGHT ACTIVITIES

When determining the oversight programme, including the product audits, the competent authority should consider in particular the following elements, as applicable:

- (1) the effectiveness of the organisation's management system in identifying and addressing non-compliances and safety hazards;
- (2) the implementation by the organisation of any industry standards that are directly relevant to the organisation's activities subject to this Regulation;
- (3) the procedure applied for and the scope of changes not requiring prior approval;
- (4) any specific procedures implemented by the organisation that are related to any alternative means of compliance used;
- (5) the number of approved locations and the activities performed at each location;
- (6) the number and type of any subcontractors that perform maintenance tasks; and
- (7) the volume of activity for each A, B, C and D class rating, as applicable.

## AMC2 145.B.305(b) Oversight programme

### SUBCONTRACTED ACTIVITIES

If a Part-145 organisation subcontracts maintenance tasks, the competent authority should determine whether the subcontracted organisation needs to be audited and included in the oversight programme, taking into account the specific nature and complexity of the subcontracted activities, the results of previous oversight activities of the approved organisation, and the assessment of the associated risks.

For such audits, competent authority inspectors should ensure that they are accompanied throughout the audit by a senior technical member of the Part-145 organisation.

NOTE: If a Part-145 organisation subcontracts maintenance tasks, the competent authority should ensure that the Part-145 organisation manages the risks related to, and that it has sufficient control over, the subcontracted activities (see AMC1 145.A.75(b)).

### AMC1 145.B.305(b)(1) Oversight programme

#### AUDIT

- (a) The oversight programme should indicate which aspects of the approval will be covered by each audit.
- (b) Part of each audit should concentrate on the audit reports produced by the organisation's compliance monitoring function, to determine whether the organisation has been identifying and correcting its problems.
- (c) At the conclusion of the audit, the auditing inspector should complete an audit report that identifies the areas and processes that were audited, and includes all the findings that were raised.
- (d) At the completion of each oversight planning cycle, a new EASA Form 6 should be issued.

### AMC1 145.B.305(c) Oversight programme

#### OVERSIGHT PLANNING CYCLE — AUDIT AND INSPECTION

- (a) When determining the oversight planning cycle and defining the oversight programme, the competent authority should assess the risks related to the activity and set-up of each organisation, and adapt the oversight to the level of risk identified and to the effectiveness of the organisation's management system, in particular its ability to effectively manage safety risks.
- (b) The competent authority should establish a schedule of audits and inspections that is appropriate to each organisation. The planning of audits and inspections should take into account the results of the hazard identification and the risk assessment conducted and maintained by the organisation as part of the organisation's management system. Inspectors should work in accordance with the schedule provided to them.
- (c) When the competent authority, having regard to the level of risk identified and the effectiveness of the organisation's management system, varies the frequency of an audit or inspection, it should ensure that all aspects of the organisation's activity are audited and inspected within the applicable oversight planning cycle.

## AMC2 145.B.305(c) Oversight programme

### OVERSIGHT PLANNING CYCLE — AUDIT

- (a) For each organisation certified by the competent authority, all applicable requirements including relevant processes should be audited at periods that do not exceed the applicable oversight planning cycle. The beginning of the first oversight planning cycle is normally determined by the date of issue of the first certificate. If the competent authority wishes to align the oversight planning cycle with the calendar year, it should shorten the first oversight planning cycle accordingly.
- (b) Audits should include at least one on-site audit within each oversight planning cycle. For organisations that carry out their regular activities at more than one site, the determination of the sites and the requirements at these sites to be audited should consider the results of past oversight activities and the volume of activities at each site, as well as the main risk areas identified.
- (c) For organisations that hold more than one certificate under Regulation (EU) 2018/1139, the competent authority may define an integrated oversight schedule that includes all the applicable audit items. In order to avoid any duplication of audits, credit may be granted for specific audit items that have already been completed during the current oversight planning cycle, provided that:
- (1) the specific audit item is the same for all the certificates under consideration;
  - (2) there is satisfactory evidence on record that those specific audit items were carried out, and that all the related corrective actions have been implemented to the satisfaction of the competent authority;
  - (3) the competent authority is satisfied that there is no evidence that standards have deteriorated regarding those specific audit items for which credit is granted.

## GM1 145.B.305(c) Oversight programme

The expression 'shall not exceed 24 months' does not imply that 24 months is a minimum duration for the oversight cycle. Based on the elements specified in 145.B.300(c) and 145.B.305(b) (e.g. safety priorities, assessment of the risks, complexity of activities), the competent authority may decide to apply a cycle of less than 24 months (e.g. 12 months).

## AMC1 145.B.305(d) Oversight programme

### EXTENSION OF THE OVERSIGHT PLANNING CYCLE BEYOND 24 MONTHS

- (a) If the competent authority applies an oversight planning cycle that exceeds 24 months, it should, at a minimum, perform one focused inspection of the organisation (inspection of a

specific area, element or aspect of the organisation) within each 12-month segment of the applicable oversight planning cycle to support the extended oversight programme.

- (b) If the results of this inspection indicate a decrease in the safety performance or regulatory compliance of the organisation, the competent authority should revert back to a 24-month (or less) oversight planning cycle and review the oversight programme accordingly.
- (c) In order to be able to apply an oversight planning cycle beyond 36 months, the competent authority should agree on the format and contents of the continuous reporting to be made by the organisation on its safety performance and regulatory compliance.

## GM1 145.B.305(d)(2) Oversight programme

### ORGANISATION'S CONTROL OVER THE CHANGES

For the purpose of extending the oversight planning beyond 24 months, the continuous compliance of the organisation with 145.A.85 and the full control over all changes referred to in point 145.B.305(d)(2) includes in particular the ability of the organisation to manage adequately the changes not requiring prior approval foreseen in 145.A.85(c).

## AMC1 145.B.310 Initial certification procedure

### VERIFICATION OF COMPLIANCE

- (a) In order to verify the organisation's compliance with the applicable requirements, the competent authority should conduct an audit of the organisation, including interviews of the personnel, and inspections carried out at the organisation's facilities.
- (b) The competent authority should only conduct such an audit if it is satisfied that the application and the supporting documentation, including the results of the pre-audit performed by the organisation, are in compliance with the applicable requirements.
- (c) The audit should focus on the following areas:
  - (1) the detailed management structure, including the names and qualifications of personnel as required by points (a), (b), (c) and (ca) of point 145.A.30, and the adequacy of the organisation and its management structure;
  - (2) the personnel:
    - (i) the adequacy of the number of staff, and of their qualifications and experience with regard to the intended terms of approval and the associated privileges;
    - (ii) the validity of any licences and/or authorisations, as applicable;
  - (3) the processes used for safety risk management and compliance monitoring;
  - (4) the facilities and their adequacy regarding the organisation's scope of work;

- (5) the documentation based on which the certificate should be granted (i.e. the documentation required by Part-145):
- (i) verification that the procedures specified in the MOE comply with the applicable requirements; and
  - (ii) verification that the accountable manager has signed the exposition statement.
- (d) If an application for an organisation certificate is refused, the applicant should be informed of the right of appeal that exists under national law.

### AMC1 145.B.310(a) Initial certification procedure

#### AUDIT

- (a) The competent authority should determine how and by whom the audit shall be conducted. For example, it will be necessary to determine whether one large team audit, a short series of small team audits, or a long series of single inspector audits is most appropriate for the particular situation.
- (b) The audit may be structured so as to verify the organisation's processes related to a product line. For example, in the case of an organisation with Airbus A310 and A320 ratings, the audit should concentrate on the maintenance processes of one aircraft type only for a full compliance check, and depending upon the result, the second aircraft type may only require a sample check against those aspects that were seen to be weak regarding compliance for the first type.
- (c) In determining the scope of the audit and which activities of the organisation will be assessed during the audit, the privileges of the approved organisation should be taken into account, e.g. their approval to carry out airworthiness reviews.
- (d) Competent authority auditing inspectors should always ensure that they are accompanied throughout the audit by a senior member of the organisation, who is normally the compliance monitoring manager. The reason for being accompanied is to ensure that the organisation is fully aware of any findings raised during the audit.
- (e) At the end of the audit, the auditing inspector should inform the senior member of the organisation of all the findings that were raised during the audit.

### AMC1 145.B.310(c) Initial certification procedure

There may be occasions when the competent authority inspector is unsure about the compliance of some aspects of the organisation applying for the initial issue of a certificate. If this occurs, the inspector should inform the organisation about the possible non-compliance at the time, and about the fact that the situation will be reviewed within the competent authority before a decision is made. If the review concludes that there is no finding, then a verbal confirmation to the organisation should suffice.

### AMC2 145.B.310(c) Initial certification procedure

- (a) The audit should be recorded using the audit report EASA Form 6 (Appendix II to AMC2 145.B.310(c)).
- (b) A review of the EASA Form 6 audit report form should be carried out by a competent independent person nominated by the competent authority. A satisfactory review of the audit report should be indicated by a signature on the EASA Form 6.
- (c) The audit reports should include the date when each finding was closed, together with a reference to the closure actions.

### AMC1 145.B.310(d) Initial certification procedure

All findings should be confirmed in writing to the applicant organisation within 2 weeks of the on-site audit.

### AMC1 145.B.330 Changes — organisations

- (a) The competent authority should have adequate control over any changes to the personnel specified in points (a), (b), (c), (ca) and (k) of point 145.A.30. Such changes in personnel will require an amendment to the exposition.
- (b) When an organisation submits the name of a new nominee for any of the personnel specified in points (a), (b), (c), (ca) and (k) of point 145.A.30, the competent authority may require the organisation to produce a written résumé of the proposed person's qualifications. The competent authority should reserve the right to interview the nominee or to call for additional evidence of their suitability before deciding upon them being acceptable.
- (c) For changes requiring prior approval, in order to verify the organisation's compliance with the applicable requirements, the competent authority should conduct an audit of the organisation, limited to the extent of the changes. The competent authority may also request the organisation to provide the risk assessment referred to in AMC2 145.A.85 for review.
- (d) If required, the audit may include interviews and inspections carried out at the organisation's facilities.
- (e) The applicable part(s) of EASA Form 6 should be used to document the assessment of any changes to the Part-145 approval.

## GM1 145.B.330 Changes — organisations

### CHANGE OF THE NAME OF THE ORGANISATION

- (a) On receipt of the application and the amendment to the relevant parts of the MOE, the competent authority should reissue the certificate.
- (b) A change of only the name does not require the competent authority to audit the organisation unless there is evidence that other aspects of the organisation have changed.

## AMC1 145.B.330(e) Changes — organisations

### REVIEW OF CHANGES NOT REQUIRING PRIOR APPROVAL

The authority should implement a process to review the changes not requiring prior approval. This should include at least, as part of the continuing oversight activities during the oversight cycle:

- auditing the organisation process for changes not requiring prior approval;
- selecting a sample of these changes and verifying their compliance with the applicable requirements.

## GM1 145.B.350(f) Findings and corrective actions; observations

### DIFFERENCE BETWEEN 'LEVEL 2 FINDING' AND 'OBSERVATION'

- (a) 'Findings' are issued for non-compliance with the Regulation, whereas 'observations' may be issued to an organisation remaining compliant with the Regulation while additional inputs for the organisation could be considered for continuous improvement.

However, the competent authority may decide to issue a 'level 2' finding when the 'observations' process is not managed correctly or overlooked.

- (b) Examples to help differentiate between a 'level 2 finding' and an 'observation' are provided below, based on the provisions for the control and calibration of tools in accordance with point 145.A.40(b).

#### Example of a 'level 2 finding'

- The organisation could not demonstrate compliance with some elements of 145.A.40(b) regarding the control register of the tools, equipment and particularly test equipment process as evidenced by:
  - (1) the fact that some sampled tools physically available in the tools store were missing in the tools control register managed by the organisation;
  - (2) the fact that one tool has not been correctly identified (e.g. incorrect P/N, S/N) in the tools control register.

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#### Examples of 'observations'

- Accumulation of tools in the store not sent yet for calibration. This situation could generate some consequences on the availability of tools and operational capabilities during a peak of activities (ineffectiveness of the process).
- The process to manage the tools control register through the dedicated software is not detailed enough (potential to cause a level 2 finding).
- The colour of the 'unserviceable' tag of the tools could generate some confusion. The organisation should consider changing the colour of this unserviceable tag to better alert the staff on the particular status of the unserviceable tools (potential improvement).

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## AMC TO APPENDICES TO PART-145

### AMC1 to Appendix III — Maintenance Organisation Approval referred to in Annex II (Part-145)

The following fields on page 2 'Maintenance Organisation **Terms of** Approval **Schedule**' of the maintenance organisation approval certificate should be completed as follows:

[...]

### GM1 Appendix III — Maintenance Organisation Certificate — EASA Form 3-145

The expression 'or not' at the end of the footnote '(\*\*\*)' on page 2 of 2 of the certificate does not constitute an obligation to introduce a negative statement in the terms of approval concerning the privilege to issue an airworthiness review certificate.

If the organisation holds the privilege to issue an airworthiness review certificate for an aircraft series, type and group, the competent authority will state it on the relevant line. If the organisation does not have that privilege, the competent authority may state it, but does not have to.

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## APPENDICES TO AMCs TO PART-145

### **Appendix I to AMC 145.B.20(1) — EASA Form 4**

The provisions of Appendix X to AMC M.B.602(a) and AMC M.B.702(a) EASA Form 4 apply.

**Appendix II to AMC2 145.B.310(c) ~~AMC 145.B.20(5)~~ — EASA Form 6**

Part-145 APPROVAL RECOMMENDATION REPORT	EASA FORM 6
<b>Part 1: General</b>	
Name of organisation:	
Approval reference:	
Requested approval rating:	
EASA Form 3 dated*:	
FAA FAR Title 14 CFR Part 145 Certificate No (if applicable):	
TCCA CAR 573 Certificate No (if applicable):	
ANAC RBAC 145 Certificate No (if applicable):	
Address of facility audited:	
Audit period: From _____ to _____	
Date(s) of audit:	
Audit reference(s):	
Persons interviewed:	
Competent authority <del>inspector(s)</del> <del>surveyor(s)</del> :	Signature(s):
Competent authority office:	Date of EASA Form 6 Part 1 completion:
*delete as appropriate	

Part-145 APPROVAL RECOMMENDATION REPORT		EASA FORM 6				
Part 2: Part-145 Compliance Audit Review						
The five columns may be labelled and used as necessary to record the approval class and/or product line reviewed. Against each column used of the following Part-145 points, please either tick (✓) the box if satisfied with compliance or cross (X) the box if not satisfied with compliance and specify the reference of the Part 4 finding next to the box, or enter 'N/A' where an item is not applicable, or 'N/R' when applicable but not reviewed.						
ParaPoint	Subject					
145.A.25	Facility requirements	<input type="checkbox"/>				
145.A.30	Personnel requirements	<input type="checkbox"/>				
145.A.35	Certifying Staff and support staff	<input type="checkbox"/>				
145.A.37	Records of Airworthiness review staff	<input type="checkbox"/>				
145.A.40	Equipment, Tools and material	<input type="checkbox"/>				
145.A.42	Acceptance of Components	<input type="checkbox"/>				
145.A.45	Maintenance Data	<input type="checkbox"/>				
145.A.47	Production Planning	<input type="checkbox"/>				
145.A.48	Performance of maintenance	<input type="checkbox"/>				
145.A.50	Certification of Maintenance	<input type="checkbox"/>				
145.A.55	Record-keeping Maintenance Records	<input type="checkbox"/>				
145.A.60	Occurrence Reporting	<input type="checkbox"/>				
145.A.65	Safety and Quality Policy, Maintenance procedures and Quality System	<input type="checkbox"/>				
145.A.70	Maintenance Organisation Exposition (MOE) (see Part 3)	<input type="checkbox"/>				
145.A.75	Privileges of the organisation	<input type="checkbox"/>				
145.A.80	Limitations on the organisation	<input type="checkbox"/>				

145.A.85	Changes to the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
145.A.95	Findings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M.A.201(c)	Responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
M.A.403(b)	Aircraft Defects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ML.A.201(c)	Responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ML.A.403(b)	Aircraft Defects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
145.A.120	Means of compliance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
145.A.140	Access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
145.A.155	Immediate reaction to a safety problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
145.A.200	Management system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
145.A.202	Internal safety reporting scheme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
145.A.205	Contracting and subcontracting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competent <b>inspector(s)</b> <del>surveyor(s)</del> :		Signature(s):				
Competent authority office:		Date of EASA Form 6 Part 2 completion:				

Part-145 APPROVAL RECOMMENDATION REPORT		EASA FORM 6
<b>Part 3: Compliance with 145.A.70 Maintenance organisation exposition (MOE)</b> Please either tick (✓) the box if satisfied with compliance, or cross (X) if not satisfied with compliance and specify the reference of the Part 4 finding, or enter 'N/A' where an item is not applicable, or 'N/R' when applicable but not reviewed.		
<b>PART 1    <span style="color: red;">General Management</span></b>		
1.1	<input type="checkbox"/>	<del>Corporate commitment</del> <span style="background-color: cyan;">Statement</span> by the accountable manager
1.2	<input type="checkbox"/>	Safety <del>and Quality</del> policy <span style="background-color: cyan;">and objectives</span>
1.3	<input type="checkbox"/>	Management personnel
1.4	<input type="checkbox"/>	Duties and responsibilities of the management personnel
1.5	<input type="checkbox"/>	Management <del>Organisation</del> <span style="background-color: cyan;">Chart</span>
1.6	<input type="checkbox"/>	List of <del>C</del> certifying staff, support staff and airworthiness review staff (Note: a separate document may be referenced)
1.7	<input type="checkbox"/>	Manpower resources
1.8	<input type="checkbox"/>	General description of the facilities at each address intended to be approved
1.9	<input type="checkbox"/>	Organisation's intended scope of work
1.10	<input type="checkbox"/>	<span style="background-color: cyan;">Procedures for changes (including MOE amendment) requiring prior approval</span> <del>Notification procedure to the competent authority regarding changes to the organisation's activities/approval/location/personnel</del>
1.11	<input type="checkbox"/>	<span style="background-color: cyan;">Procedures for changes (including MOE amendment) not requiring prior approval</span> <del>Exposition amendment procedures</del>
1.12	<input type="checkbox"/>	<span style="background-color: cyan;">Procedure for alternative means of compliance (AltMoC)</span>
<b>PART 2    <span style="color: red;">Maintenance Procedures</span></b>		
2.1	<input type="checkbox"/>	Supplier evaluation and subcontractor <span style="background-color: cyan;">control</span> procedure
2.2	<input type="checkbox"/>	Acceptance/inspection of aircraft components and material <del>from outside contractors,</del> <span style="background-color: cyan;">and installation</span>
2.3	<input type="checkbox"/>	Storage, tagging, and <span style="background-color: cyan;">delivery</span> <del>release</del> of <del>aircraft</del> components and material to <del>aircraft</del> maintenance
2.4	<input type="checkbox"/>	Acceptance of tools and equipment
2.5	<input type="checkbox"/>	Calibration of tools and equipment
2.6	<input type="checkbox"/>	Use of tooling and equipment by staff (including alternate tools)
2.7	<input type="checkbox"/>	<span style="background-color: cyan;">Procedure for controlling working environment and facilities</span> <del>Cleanliness standards of maintenance facilities</del>
2.8	<input type="checkbox"/>	Maintenance <span style="background-color: cyan;">data</span> <del>instructions</del> and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff
2.9	<input type="checkbox"/>	<span style="background-color: cyan;">Acceptance, coordination and performance of repair works</span> <del>Repair procedure</del>
2.10	<input type="checkbox"/>	<span style="background-color: cyan;">Acceptance, coordination and performance of scheduled maintenance works</span> <del>Aircraft maintenance programme compliance</del>
2.11	<input type="checkbox"/>	<span style="background-color: cyan;">Acceptance, coordination and performance of</span> <del>A</del> airworthiness <del>D</del> irectives <span style="background-color: cyan;">works</span> <del>procedure</del>

2.12		Acceptance, coordination and performance of <del>Optional</del> modification works procedure
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Part-145 APPROVAL RECOMMENDATION REPORT		EASA FORM 6
<b>Part 3: Compliance with 145.A.70 Maintenance organisation exposition</b>		
2.13		Maintenance documentation development, <del>in use and its</del> completion and sign-off
2.14		Technical records control
2.15		Rectification of defects arising during <del>base</del> maintenance
2.16		Release to service procedure
2.17		Records for the <del>operator</del> person or organisation that ordered maintenance
2.18		Occurrence reporting <del>Reporting of defects to the competent authority/Operator/Manufacturer</del>
2.19		Return of defective aircraft components to store
2.20		Defective components to outside contractors
2.21		Control of computer maintenance record systems
2.22		Control of man-hour planning versus scheduled maintenance work
2.23		Critical maintenance tasks and error-capturing methods
2.24		Reference to specific <del>maintenance</del> procedures
2.25		Procedures to detect and rectify maintenance errors
2.26		Shift/task handover procedures
2.27		Procedures for notification of maintenance data inaccuracies and ambiguities <del>to the type certificate holder</del>
2.28		Production planning <del>procedures</del> and organising of maintenance activities
2.29		Airworthiness review procedures and records
2.30		Fabrication of parts <del>[Reserved]</del>
2.31		Procedure for component maintenance under aircraft or engine rating
2.32		Maintenance away from approved locations
2.33		Procedure for assessment of work scope as line or base maintenance
PART L2 Additional <del>L</del> ine <del>M</del> aintenance <del>P</del> rocedures		
L2.1		Line maintenance control of aircraft components, tools, equipment, etc.
L2.2		Line maintenance procedures related to servicing/fuelling/de-icing, etc.
L2.3		Line maintenance control of defects and repetitive defects
L2.4		Line procedure for completion of technical logs
L2.5		Line procedure for pooled parts and loaned parts
L2.6		Line procedure for return of defective parts removed from aircraft
L2.7		Line procedure for critical maintenance tasks and error-capturing methods

PART 3		Quality Management System Procedures
3.1		Hazard identification and safety risk management schemes
3.2		Internal safety reporting and investigations
3.3		Safety action planning
3.4		Safety performance monitoring
3.5		Change management
3.6		Safety training (including human factors) and promotion
3.7		Immediate safety action and coordination with the operator's ERP
3.8		Compliance monitoring
3.8.1		<del>Quality audit</del> Audit plan and audit <del>of organisation</del> procedures
3.8.2		<del>Quality</del> Product audit <del>of aircraft</del> and inspections
3.8.3		Audit findings — corrective <del>Quality audit remedial</del> action procedure
3.94		Certifying staff and support staff qualifications, <del>authorisation</del> and training procedures

Part-145 APPROVAL RECOMMENDATION REPORT		EASA FORM 6
<b>Part 3: Compliance with 145.A.70 Maintenance organisation exposition</b>		
3.105		Certifying staff and support staff records
3.11		Airworthiness review staff qualification, authorisation and records
3.126		Quality audit Compliance monitoring and safety management personnel
3.137		Qualifying inspectors Independent inspection staff qualification
3.148		Qualifying mechanics Mechanics qualification and records
3.159		Aircraft/aircraft component maintenance tasks exemption process control Process for exemption from aircraft/aircraft component maintenance tasks
3.1610		Concession control for deviations from the organisation's procedures
3.1711		Qualification procedure for specialised activities such as NDT, welding, etc.
3.1812		Management of Control of manufacturers' and other maintenance external working teams
3.13		Human Factors training procedure
3.1914		Competency assessment of personnel
3.2015		Training procedures for on-the-job training as per Section 6 of Appendix III to Part-66 (limited to the case where the competent authority for the Part-145 approval and for the Part-66 licence is the same)-
3.2116		Procedure for the issue of a recommendation to the competent authority for the issue of a Part-66 licence in accordance with 66.B.105 (limited to the case where the competent authority for the Part-145 approval and for the Part-66 licence is the same)-
3.22		Management system record-keeping
PART 4		Relationship with customer/operators
4.1		Contracting operators List of the commercial operators to which the organisation provides regular aircraft maintenance services
4.2		Operator Customer interface procedures/paperwork
4.3		[Reserved] Operator record completion
PART 5		Appendices Supporting documents
5.1		Sample Documents
5.2		List of subcontractors
5.3		List of Line maintenance locations
5.4		List of contracted Part-145 organisations
5.5		List of used AltMoC
PART 6		RESERVED Operators' Maintenance Procedures (reserved for those maintenance organisations that are approved under Part-145 which are also operators)
6.1		[Reserved]

MOE Reference:

MOE Amendment:

Competent authority audit staff:

Signature(s):

Competent authority office:

Date of EASA Form 6 Part 3 completion:

Part-145 APPROVAL RECOMMENDATION REPORT		EASA FORM 6			
<b>Part 4: Findings — Part-145 Compliance status</b> Each <del>level 1 and 2</del> finding should be recorded, whether it has been rectified or not, and should be identified by a simple cross-reference to the Part 2 requirement. All non-rectified findings should be copied in writing to the organisation for them <b>to take the</b> necessary corrective action.					
Part 2 or 3 reference	Audit reference(s):  Findings	L E V E L	Corrective action		
			Date Due	Date Closed	Reference

Part-145 APPROVAL RECOMMENDATION REPORT	EASA FORM 6
<b>Part 5: Part-145 Approval or continued approval or change recommendation*</b>	
Name of organisation:	
Approval reference:	
Audit reference(s):	
The following Part-145 <del>scope</del> terms of approval <del>are</del> is recommended for this organisation:	
Or, it is recommended that the Part-145 <del>scope</del> terms of approval specified in EASA Form 3 referenced ..... <del>should</del> be continued.	
Name of recommending competent authority <del>inspector</del> surveyor:	
Signature of recommending competent authority <del>inspector</del> surveyor:	
Competent authority office:	
Date of recommendation:	
EASA Form 6 review <del>(quality check)</del> :	Date:
*delete as appropriate	

## Appendix III to AMC1 145.A.15 — EASA Form 2

[...]

## Appendix IV to AMC5 145.A.30(e) and AMC2 145.B.200(a)(3) ~~145.B.10(3)~~ — Fuel tank safety training

[...]

**B. Affected organisations:**

- Part-145 approved maintenance organisations involved in the maintenance of aeroplanes specified in paragraph A) and fuel system components installed on such aeroplanes when the maintenance data are affected by CDCCL.
- Competent authorities **that are** responsible ~~as per 145.B.30~~ for the oversight of the Part-145 approved organisations specified in this paragraph B).

### C. Persons from affected organisations who should receive training:

#### Phase 1 only:

- The group of persons representing the maintenance management structure of the organisation, the **quality compliance monitoring** manager, **the safety manager** and the staff **who are directly involved in** ~~required-to-quality~~ monitoring **the compliance of** the organisation.
- Personnel of the competent authorities **who are** responsible ~~as per 145.B.30~~ for the oversight of Part-145 approved maintenance organisations specified in paragraph B).

#### Phase 1 + Phase 2 + ~~Continuation recurrent~~ training:

- Personnel of the Part-145 approved maintenance organisation **who are** required to plan, perform, supervise, inspect and certify the maintenance of **the** aircraft and fuel system components specified in paragraph A).

### D. General requirements of the training courses

#### Phase 1 – Awareness:

The training should be carried out before the person starts to work without supervision but not later than 6 months after joining the organisation. The persons who have already attended the Level 1 Familiarisation course in compliance with ED Decision 2007/002/R Appendix IV ~~is~~ **are** already in compliance with Phase 1.

Type: It ~~should provide~~ **be an** awareness ~~course with~~ **of** the principal elements of the subject. It may take the form of a training bulletin, or **any** other self-study or informative session. ~~The~~ **S**ignature of the **trainer** ~~reader~~ is required to ensure that the person has passed the training.

Level: It should be a course at the level of familiarisation with the principal elements of the subject.

Objectives: The trainee should, after the completion of the training:

1. ~~Be~~ **be** familiar with the basic elements of the fuel tank safety issues~~;~~
2. ~~Be~~ **be** able to give a simple description of the historical background and the elements requiring a safety consideration, using common words and showing examples of non-conformities~~;~~
3. ~~Be~~ **be** able to use typical terms.

Content: The course should include:

- a short background showing examples of FTS accidents or incidents,
- the description of concept of fuel tank safety and CDCCL,
- some examples of manufacturers documents showing CDCCL items,
- typical examples of FTS defects,
- some examples of TC holders repair data,
- some examples of maintenance instructions for inspection.

#### Phase 2 – Detailed training

A flexible period may be allowed by the competent authorities to allow organisations to set up the necessary courses and impart provide the training to the personnel, taking into account the organisation's training schemes/means/practices. This flexible period should not extend beyond 31 December 2010.

The persons who have already attended the Level 2 Detailed training course in compliance with ED Decision 2007/002/R Appendix IV either from a Part-145 maintenance organisation or from a Part-147 training organisation are already in compliance with Phase 2 with the exception of continuation recurrent training.

Staff should have received Phase 2 training by 31 December 2010 or within 12 months of joining the organisation, whichever comes later.

Type: It should be a more in-depth internal or external course. It should not take the form of a training bulletin, or any other self-study. At the end of the course, the trainees should be required to take an examination should be required at the end, which should be in the form of a multiple-choice questions, and the pass mark of the examination should be 75%.

[...]

#### Recurrent Continuation training:

The organisation should ensure that the recurrent continuation training is required in each two 2-years period. The syllabus of the training programme referred to in Chapter 3.9 3.4 of the Maintenance Organisation Exposition (MOE) should include the additional syllabus for this recurrent continuation training.

[...]